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JOINT COMMITTEE PRINT

THE RELATIONSHIP OF PRICES TO  
ECONOMIC STABILITY AND GROWTH

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COMPENDIUM

OF

PAPERS SUBMITTED BY PANELISTS APPEARING

BEFORE THE

JOINT ECONOMIC COMMITTEE



MARCH 31, 1958

Printed for the use of the Joint Economic Committee

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## LETTERS OF TRANSMITTAL

MARCH 31, 1958.

*To Members of the Joint Economic Committee:*

The papers transmitted with this letter were submitted by 47 leading economists invited to appear before the committee in panel discussions as part of the study: "The Relationship of Prices to Economic Stability and Growth."

These papers are presented in advance of the committee's hearings, to be held May 12-22, to provide members of the committee, the contributors, and the public an opportunity to examine the facts, analyses, major issues, and conclusions in the various papers before they are developed in oral statements and discussions at the hearings.

WRIGHT PATMAN,  
*Chairman, Joint Economic Committee.*

III



MARCH 31, 1958.

HON. WRIGHT PATMAN,  
*Chairman, Joint Economic Committee,  
House of Representatives, Washington, D. C.*

DEAR MR. PATMAN: The papers transmitted with this letter were submitted by 47 leading economists invited to appear before the Joint Economic Committee in panel discussions May 12-22 as part of the committee's study: "The Relationship of Prices to Economic Stability and Growth." This is in accord with instructions to the staff approved by the committee, October 7, 1957.

The papers are presented as submitted by the contributors, without additions or deletions. They are arranged by panel topics in the order in which they are scheduled for discussion at the hearings.

In connection with these papers and the subsequent hearings, reference may be made to data included in the staff materials, "Productivity, Prices, and Incomes," published by the committee last July. If the most recent data or revisions in data are not available readily in current publications, supplementary tables are included in the appendix to this volume.

JOHN W. LEHMAN,  
*Acting Executive Director.*

v



# CONTENTS

---

	Page
Introduction by Wright Patman, chairman, Joint Economic Committee..	xi
Contributed papers:	
I. Employment Act Objectives and the Stabilization of Prices.....	xiii
The Employment Act of 1946: The Dynamics of Public Economic Policy, Grover W. Ensley, National Association of Mutual Savings Banks.....	1
Employment Act Objectives and the Stabilization of Prices, Edwin G. Nourse, Economic Consultant.....	13
Price-Level Stability and Employment Act Objectives, Joseph Aschheim, The Johns Hopkins University.....	23
How Important Is Price Stability in Stable Economic Growth? G. L. Bach, Carnegie Institute of Technology.....	33
Price Behavior, Stability and Growth, William J. Baumol, Princeton University.....	49
Economic Stability, Economic Growth and Price Stability, Betty G. Fishman and Leo Fishman, West Virginia University..	61
II. The Measurement of Price Changes and Price Relationships.....	75
The Measurement of Price Changes, Kenneth J. Arrow, Stanford University.....	77
Administered Prices in the American Economy, Martin J. Bailey, University of Chicago.....	89
The Price Indexes of the Bureau of Labor Statistics, H. E. Riley, Bureau of Labor Statistics, United States Department of Labor.....	107
Price and Income Measures for American Agriculture, Oris V. Wells, Agricultural Marketing Service, United States Department of Agriculture.....	117
III. Past Price Behavior Viewed in the Context of Cyclical and Secular Economic Changes.....	131
The Behavior of Prices, 1890-1940, Clarence H. Danhof, Tulane University.....	133
An Interpretation of Price Movements Since the End of World War II, Bert G. Hickman, The Brookings Institution.....	143
Cyclical Changes in Labor Cost, Thor Hultgren, National Bureau of Economic Research, Inc.....	211
Trends in Product Prices, Factor Prices, and Productivity, John W. Kendrick, The George Washington University.....	225
IV. Interrelationships Among Prices, Demands, and Costs.....	237
The Supply of Money and Changes in Prices and Output, Milton Friedman, University of Chicago.....	241
Inflationary Depression and the Regulation of Administered Prices, Abba P. Lerner, Roosevelt University and The Johns Hopkins University.....	257
The Destabilizing Influence of Raw Materials Prices, Ruth P. Mack, National Bureau of Economic Research, Inc.....	269
Relationships Between Foreign and American Prices, Gardner Patterson, Princeton University.....	285
Prices, Costs, Demand, and Output in the United States, 1947-57, Richard Ruggles, Yale University, and Nancy D. Ruggles, United Nations.....	297
Models of the Pricing Process, J. Fred Weston, University of California, Los Angeles.....	309

	Page
V. Interrelationships Among Prices, Employment, Output, Incomes, and Resources.....	319
The Composition of the Price Structure, Resource Allocation, and Employment Levels, Clark C. Bloom, State University of Iowa.....	323
Investment and the Price System, G. D. Bodenhorn, University of Chicago.....	335
Resource Allocation, Economic Stabilization, and Public Policy Toward Prices, Carl F. Christ, the University of Chicago.....	345
Inflation, the Wage-Price Spiral and Economic Growth, Otto Eckstein, Harvard University.....	361
Pricing for Stability and Growth, John P. Lewis, Indiana University.....	375
VI. Private Pricing Policies: Their Formulation and Effects.....	397
Business Price Policies and Economic Stability, Wroe Alderson, Alderson & Sessions, Inc.....	399
Prices and Business Cycles, Lawrence E. Fouraker, Pennsylvania State University.....	417
Retail Price Policies, Stanley C. Hollander, Michigan State University.....	425
Some Characteristics and Economic Effects of Pricing Objectives in Large Corporations, Robert K. Lanzillotti, State College of Washington.....	441
Cyclical Implications of Private Pricing Policies, Alfred R. Oxenfeldt, Columbia University.....	461
VII. Relationships Between Public Policies, Private Pricing Policies, Price Changes, and Price Relationships.....	477
Price Effects of Tax Changes, George E. Lent, The Amos Tuck School of Business Administration, Dartmouth College.....	479
Monetary Policy and the Structure of Markets, Warren L. Smith, University of Michigan.....	493
Government Policy Toward Competition and Private Pricing, Myron W. Watkins and Joel B. Dirlam, Boni, Watkins, Jason & Co., Inc.....	513
The Effect of Government Spending Programs on Private Price Formation, Murray L. Weidenbaum, Convair Division of General Dynamics Corporation.....	529
The Influence of the Antitrust Laws and Related Governmental Policies on Prices, Simon N. Whitney, Federal Trade Commission.....	555
VIII. Formulating Public Policies for Economic Stability and Growth...	573
An Economic Policy for Economic Growth and Stability, Oswald H. Brownlee, University of Minnesota.....	575
The Coordination of Price, Wage, Fiscal, and Monetary Policies in Norway, Sweden, and the United States, Allan Gruchy, University of Maryland.....	583
The Optimal Mix of Stabilization Policies, Richard A. Musgrave, University of Michigan.....	597
Price Policy and Economic Growth and Stability, Arthur Smithies, Harvard University.....	611
General summary.....	617
A Third Approach to the Analysis and Control of Inflation, Gardner Ackley, University of Michigan.....	619
Maintaining Prosperity Without Inflation: Objectives, Problems, and Policies, Neil H. Jacoby, University of California, Los Angeles.....	637
Price Level Stability and Economic Policy, Albert E. Rees, University of Chicago.....	651
A General View of the Inflation Problem, Herbert Stein, Committee for Economic Development.....	665
Relationship of Prices to Economic Stability and Growth: A Statement of the Problem, Robert C. Turner, Indiana University.....	671
Appendix.....	685

## CONTRIBUTORS

	Page
Ackley, Gardner, Chairman and Professor, Department of Economics, University of Michigan, "A Third Approach to the Analysis and Control of Inflation"-----	619
Alderson, Wroe, Alderson & Sessions Inc., Philadelphia, "Business Price Policies and Economic Stability"-----	399
Arrow, Kenneth J., Professor of Economics and Statistics, Stanford University, "The Measurement of Price Changes"-----	77
Aschheim, Joseph, Assistant Professor of Political Economy, The Johns Hopkins University, "Price-Level Stability and Employment Act Objectives"-----	23
Bach, George L., Dean, Graduate School of Industrial Administration, Carnegie Institute of Technology, "How Important is Price Stability in Stable Economic Growth?"-----	33
Bailey, Martin J., Professor of Economics, University of Chicago, "Administered Prices in the American Economy"-----	89
Baumol, William J., Professor of Economics and Sociology, Princeton University, "Price Behavior, Stability and Growth"-----	49
Bloom, Clark C., Professor of Economics and Assistant Director, Bureau of Business and Economic Research, State University of Iowa, "The Composition of the Price Structure, Resource Allocation, and Employment Levels"-----	323
Bodenhorn, G. Diran, Professor of Economics, University of Chicago, "Investment and the Price System"-----	335
Brownlee, Oswald H., Professor of Economics, University of Minnesota, "An Economic Policy for Economic Growth and Stability"-----	575
Christ, Carl F., Professor of Economics, University of Chicago, "Resource Allocation, Economic Stabilization, and Public Policy Toward Prices"-----	345
Danhof, Clarence H., Professor of Economics, Tulane University, "The Behavior of Prices, 1890-1940"-----	133
Dirlam, Joel B., Senior Consultant, with Myron W. Watkins, Vice President, Boni, Watkins, Jason & Co., Inc., Government Policy Toward Competition and Private Pricing"-----	513
Eckstein, Otto, Professor of Economics, Harvard University, "Inflation, the Wage-Price Spiral and Economic Growth"-----	361
Ensley, Grover W., Executive Vice President, National Association of Mutual Savings Banks, "The Employment Act of 1946: The Dynamics of Public Economic Policy"-----	1
Fishman, Leo, Professor of Economics and Finance, and Betty G. Fishman, Lecturer in Economics, West Virginia University, "Economic Stability, Economic Growth and Price Stability"-----	61
Fouraker, Lawrence E., Professor of Economics, Pennsylvania State University, "Prices and Business Cycles"-----	417
Friedman, Milton, Professor of Economics, University of Chicago, National Bureau of Economic Research, and Center for Advanced Study in the Behavioral Sciences, "The Supply of Money and Changes in Prices and Output"-----	241
Gruchy, Allan, Professor of Economics, University of Maryland, "The Coordination of Price, Wage, Fiscal, and Monetary Policies in Norway, Sweden, and the United States"-----	583
Hickman, Bert G., The Brookings Institution, "An Interpretation of Price Movements Since the End of World War II"-----	143
Hollander, Stanley C., Associate Professor of Business Administration, Michigan State University, "Retail Price Policies"-----	425
Hultgren, Thor, Research Staff, National Bureau of Economic Research, "Cyclical Changes in Labor Cost"-----	211
Jacoby, Neil H., Dean, Graduate School of Business Administration, University of California, Los Angeles, "Maintaining Prosperity Without Inflation: Objectives, Problems, and Policies"-----	637
Kendrick, John W., Associate Professor of Economics, The George Washington University, and Research Staff, National Bureau of Economic Research, "Trends in Product Prices, Factor Prices, and Productivity"-----	225
Lanzillotti, Robert K., Associate Professor of Economics, State College of Washington, "Some Characteristics and Economic Effects of Pricing Objectives in Large Corporations"-----	441
Lent, George E., Visiting Professor of Business Economics and Director of Research, The Amos Tuck School of Business Administration, Dartmouth College, "Price Effects of Tax Changes"-----	479

	<b>Page</b>
Lerner, Abba P., Professor of Economics, Roosevelt University, and Visiting Professor of Political Economy, The Johns Hopkins University, "Inflationary Depression and the Regulation of Administered Prices"-----	257
Lewis, John P., Professor of Business Economics and Public Policy, Indiana University, "Pricing for Stability and Growth"-----	375
Mack, Ruth P., Research Staff, National Bureau of Economic Research, "The Destabilizing Influence of Raw Materials Prices"-----	269
Musgrave, Richard A., Professor of Economics, University of Michigan, "The Optimal Mix of Stabilization Policies"-----	597
Nourse, Edwin G., Economic Consultant, Washington, D. C., "Employment Objectives and the Stabilization of Prices"-----	13
Oxenfeldt, Alfred R., Professor of Marketing, Graduate School of Business, Columbia University, "Cyclical Implications of Private Pricing Policies"-----	461
Patterson, Gardner, Professor of Economics, Princeton University, "Relationships Between Foreign and American Prices"-----	285
Rees, Albert E., Associate Professor of Economics, University of Chicago, "Price Level Stability and Economic Policy"-----	651
Riley, H. E., Chief, Division of Prices and Cost of Living, Bureau of Labor Statistics, United States Department of Labor, "The Price Indexes of the Bureau of Labor Statistics"-----	107
Ruggles, Richard, Professor of Economics, Yale University, and Nancy D. Ruggles, Bureau of Economic Affairs, United Nations, "Prices, Costs, Demand, and Output in the United States, 1947-57"-----	297
Smith, Warren L., Associate Professor of Economics, University of Michigan, "Monetary Policy and the Structure of Markets"-----	493
Smithies, Arthur, Professor of Economics, Harvard University, "Price Policy and Economic Growth and Stability"-----	611
Stein, Herbert, Director of Research, Committee for Economic Development, "A General View of the Inflation Problem"-----	665
Turner, Robert C., Professor of Economics, Indiana University, "Relationship of Prices to Economic Stability and Growth: A Statement of the Problem"-----	671
Watkins, Myron W., Vice President, with Joel B. Dirlam, Senior Consultant, Boni, Watkins, Jason & Co., Inc., "Government Policy Toward Competition and Private Pricing"-----	513
Weidenbaum, Murray L., Senior Operations Analyst, Convair Division, General Dynamics Corp., "The Effect of Government Spending Programs on Private Price Formation"-----	529
Wells, Oris V., Administrator, Agricultural Marketing Service, United States Department of Agriculture, "Price and Income Measures for American Agriculture"-----	117
Weston, J. Fred, Professor of Finance, Graduate School of Business Administration, University of California, Los Angeles, "Models of the Pricing Process"-----	309
Whitney, Simon N., Director, Bureau of Economics, Federal Trade Commission, "The Influence of the Antitrust Laws and Related Governmental Policies on Prices"-----	555

## INTRODUCTION BY WRIGHT PATMAN, CHAIRMAN, JOINT ECONOMIC COMMITTEE

The Employment Act of 1946 grew out of legislative debate of public and private policies which would promote "full" or "maximum" employment of the Nation's productive resources—human and material. Economic stability and growth were mainly thought of in terms of minimizing fluctuations in employment and of maximizing the growth of real output of goods and services. From its initial organization, the Joint Economic Committee, however, has been concerned also with problems of promoting stability of the general price level and the need for avoiding inflation.

At a meeting of the Joint Economic Committee on July 24, 1957, there was general agreement that the committee should explore the possibilities and problems of conducting a full-scale investigation of prices and price-making processes in relation to economic stability and growth. In accordance with my suggestion, the staff was directed to prepare a specific program for consideration by the full committee at a meeting on last October 7.

At the October 7 meeting, the committee reviewed the program proposed by the staff, made several modifications and additions, and then decided to proceed with the study.

### PURPOSE OF PRESENT STUDY

In the present project, the committee's major goal is an objective and authoritative exploration of general economic processes which involve prices, price relationships, costs, and price policies, in the expectation that this will reveal ways in which public and private policies can contribute to attainment of the Employment Act objectives:

SEC. 2. The Congress declares that it is the continuing policy and responsibility of the Federal Government to use all practicable means consistent with its needs and obligations and other essential considerations of national policy, with the assistance and cooperation of industry, agriculture, labor, and State and local governments, to coordinate and utilize all its plans, functions, and resources for the purpose of creating and maintaining, in a manner calculated to foster and promote free competitive enterprise and the general welfare, conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power. (15 U. S. C. 1021.)

### PREVIOUS AND CURRENT STUDIES

The Joint Economic Committee itself has, of course, already made a number of studies in the field of prices. The first hearings ever held by the committee were on current price developments and the problem of economic stabilization, in June and July 1947. In the fall of 1947, working through regional subcommittees, members visited many parts of the country, holding hearings, gathering data, and report-

ing on consumer prices. An exhaustive study of profits in 1949, and several earlier and later hearings on prices in the steel industry are also cases in point. Prices, inflation, and controls have, moreover, been recurrent topics for panel and committee discussions in connection with the committee's study of successive annual reports of the President. More recently, acting upon instructions of the committee, the staff compiled a factbook on Productivity, Prices, and Incomes, leaving interpretations and conclusions to the user of the materials.

Other committees of the Congress are currently undertaking studies of prices in varying contexts. The Senate Finance Committee, during the session last year, conducted extended hearings on price inflation, and on attempts to control it through monetary and fiscal policy. The Senate Judiciary Committee's Subcommittee on Antitrust and Monopoly has been investigating prices and pricing behavior, especially in the so-called "administered-price" area. A subcommittee of the House Agricultural Committee has been studying the closely related subject of marketing margins for farm products.

#### PLANS FOR THIS STUDY

The committee study of prices is being carried forward in four stages. This compendium or collection of research papers, designed to bring together analyses and findings of leading impartial experts and the most authoritative information available, is the first part of the program.

The second part will be a series of hearings in the form of panel discussions scheduled for May 12-22. The panelists will be the contributors of the papers in this compendium in which the papers are arranged by panel topics in the order in which they are scheduled for discussion at the hearings.

As the third stage of the study, the committee is inviting economists from labor and industrial organization to submit papers for a volume of comments to be published after the May hearings. These papers will concentrate on the analyses and issues raised by the experts contributing to the present compendium and participating in the May panels.

The fourth stage in the program will be hearings in the form of panel discussions to be held later in the year. The panelists at that time will be the economists from labor and industry together with some of the contributors to the present compendium.

When the experts were invited to contribute to the present compendium they were supplied with a preliminary outline of topics and questions of interest to the committee. The outline was intended only to give the contributors some guide to the scope of the investigation into which their individual papers would fit. The relevant part of that outline is reproduced in each section of this volume directly preceding the papers for that panel.

On behalf of the committee, I wish to commend the contributors for the valuable materials they have presented in these papers. Their generous gift of time and resources to the project is an outstanding public service. I am confident their contributions will be reflected in public deliberations on policies for economic stability and growth for many years to come.

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I  
EMPLOYMENT ACT OBJECTIVES AND THE  
STABILIZATION OF PRICES

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XIII

*I. Employment Act objectives and the stabilization of prices*

- A. What price behavior would be consistent with the attainment of the other policy objectives of the Employment Act “of creating and maintaining, in a manner calculated to foster and promote free competitive enterprise and the general welfare, conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power” in both the short run and the long run?

Under what conditions would stabilization of prices be inconsistent with attainment of Employment Act objectives?

- B. What does “economic stability and growth” mean when used in reference to a dynamic private enterprise economy?
- C. What changes in the distribution of income and wealth usually accompany changes in the general price level, and what weight should these be given in assigning priorities among the various objectives of the Employment Act?
1. What are the effects of price level changes upon the different income groups, especially upon the so-called “fixed-income” groups?
  2. How are holders of various types of assets affected by price level changes?
  3. How do various types of debtors—financial and non-financial, corporate, individual, farmers, and small-business men—fair under conditions of changing price levels?
  4. What is the effect of changing price levels on the relative position of Federal, State, and local governments, considering their traditional revenue sources, their expenditure programs, and debtor positions?

## THE EMPLOYMENT ACT OF 1946: THE DYNAMICS OF PUBLIC ECONOMIC POLICY

Grover W. Ensley, Executive Vice President, National Association of Mutual Savings Banks<sup>1</sup>

### INTRODUCTION

Twelve years ago, the enactment of the Employment Act introduced into public policy the first specific statement of objectives for the national economy. The language expressing those objectives is broad:

\* \* \* creating and maintaining, in a manner calculated to foster and promote free competitive enterprise and the general welfare, conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power.

This broadness of language reflects the necessity for compromise among divergent viewpoints, which is the essence of our democratic political institutions. The machinery set up by the act for implementing its objectives is simple. Both the generalized statement of objectives and the simple machinery of the act have proved to be truly elegant.

In the 12 years since adoption of the Employment Act, the Nation's economy has been subject to many and varying stresses and strains. On the whole, it has performed very well, indeed, in providing an increasingly prosperous life for a rapidly growing population. Making due allowance for the recessions of 1949 and 1954, the stated objectives of the act have to a very substantial extent been continuously achieved. One cannot, of course, assert that this success is the unique result of the Employment Act and its machinery, but there is little question that they have contributed very materially.

One aspect of our postwar economic history, however, has caused mounting concern. This is the virtually continuous upward pressure on prices, reflected in a 59 percent increase in consumer prices, a 73 percent increase in wholesale prices, and a 60 percent increase in the implicit gross national product price deflators since 1945. Inflation, even the so-called creeping variety, is hardly a new phenomenon. The problems of maintaining a strong, stable economy associated therewith, however, appear to become increasingly trying as our Nation becomes increasingly industrialized. Stabilization of some widely accepted concept of a general price level has more and more commanded attention of those responsible for carrying out the mandates of the Employment Act.

At the same time, the persistent rise in consumer prices during the past two and a half years, despite the increasing vigor with which antiinflationary public policies were pursued and the seeming abrupt-

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<sup>1</sup>The views expressed are the author's and do not necessarily represent those of the National Association of Mutual Savings Banks or the association's individual members.

ness with which the economy in the latter part of 1957 slid into sharp recession, has raised widespread questions concerning price-level stabilization. Is price-level stabilization an appropriate objective of the Employment Act? Can general monetary and fiscal policies achieve such stabilization without simultaneously precluding realization of other objectives of the act?

These questions, I believe, may be answered affirmatively if there is continuation of the alertness and flexibility in public economic policies which has been demonstrated repeatedly since the Employment Act became law. In this connection the very broadness of the act's statement of objectives has been one of its major strengths. Greater specification of objectives would, in all likelihood, have unduly circumscribed economic policy, and diminished its effectiveness in contributing to achieving any of the more broadly stated objectives of the act.

#### CHANGING PRIORITIES IN ECONOMIC POLICY OBJECTIVES

In the rapidly changing condition of the postwar world, questions concerning the standards the Nation's economy should meet and the costs which may be incurred if these standards are to be met have commanded ever increasing attention. Several criteria have assumed primary importance. The objectives of the Employment Act have, as a result, come more and more to be stated in terms of achieving growth and stability of a dynamic, free, competitive, private-enterprise economy.

The apparent paradox in the semantics of public economic policies warrants a brief definition of terms before coming to grips with our principal question: the interrelationship of objectives.

Economic growth should be defined as an increase in the Nation's capacity to produce goods and services. A more conventional concept of economic growth is expansion of real per capita gross national product. While increases in capacity and in product are surely closely related over time, in the short run the economy may grow without an increase in total output or, conversely, total output may increase without expansion of productive capacity. I shall leave detailed discussion of these matters in the capable hands of the other contributors.

Economic stability means that there is a limited range of fluctuation in the rate at which the Nation's economic capacity, human and material, is used. While stability in a growing economy, therefore, implies a constantly rising level of employment and of total production of goods and services, it does not imply any specific rate of resource utilization. All other things being equal, of course, stability at a high rate is always to be preferred over a low rate of resource use. In the present American economy, as a matter of fact, it is unlikely that the incentives for growth and dynamics would be long maintained without stabilizing resource use around a relatively high rate.

"Dynamic" describes perhaps the most outstanding characteristic of our economic life: the frequency and magnitude of the changes in our tastes and preferences, in our effectively expressed demands for goods and services, and in the ways in which resources can most efficiently be combined and used to produce these goods and services. Although we need not be detained by elaboration of the sense of the phrase, "free, competitive, private enterprise," I would emphasize the importance of the word "free." Too often, restraints on freedom of enter-

prise are thought of primarily as those imposed by government, through the exercise of its regulatory, fiscal, and monetary powers. Such restraints are not to be taken lightly, but they must not be permitted to obscure the frequently more significant limitations imposed from within the private sector of the economy.

While a dynamic economy need not be a growing economy nor a stable one, these three characteristics are not mutually inconsistent. Their simultaneous realization, in fact, has become the overall objective of public economic policy.

This was not always the case. The Employment Act was legislated in 1945 and early 1946 in an atmosphere of uncertainty and apprehension. Economists—with few exceptions—were persuaded that the postwar era probably would be marked by reemergence of persistent unemployment and economic stagnation. These fears had their origins in the great depression of the 1930's and the failure of public and private programs to restore real prosperity. At the outbreak of World War II, there were still nearly 10 million unemployed persons in the United States. Substantial idle industrial capacity still haunted management after 10 years of virtually no expansion of plant and equipment. Here was economic stability of a universally unacceptable variety.

In view of this pessimism at the close of World War II, it is hardly surprising that the Employment Act emphasized the promotion of maximum employment, production, and purchasing power, and the creating and maintaining of conditions affording useful employment opportunities for those able, willing, and seeking to work.

There is no occasion for deprecating this early postwar emphasis in economic policy objectives. As of the end of the war, there was little empirical evidence to suggest the strength of accumulated consumer desires nor the facility with which they could be translated into effective demand for goods and services by virtue of the vast wartime accumulations of liquid savings. By the same token, it is difficult to see how economic analysts in 1945-46 could have determined the impact of the rapid wartime exploitation of technological advances on postwar business capital expenditure plans, or have estimated the consequences of high business liquidity for financing the realization of these plans. In short, nothing is harder for the economist to predict than the dynamics of the economy. Prewar experience hardly afforded a basis for such predictions. Emphasis in public policy on maximizing employment and production, without explicit regard for growth or dynamics in the early postwar days, therefore, is quite understandable.

The great and generally unexpected burst of business and consumer demand in the early postwar years almost immediately shifted the focus of concern by those entrusted with public responsibility for achieving the objectives of the Employment Act. Widespread upward price pressures originating in excessive total demand made it clear that the stabilization problem was not the "deflationary gap" anticipated by many at the end of the war, but rather a renewal of the "inflationary gap." The first major inquiry of the Joint Economic Committee in June and July of 1947, therefore, was devoted to price developments.

The recession of 1948-49 and the outbreak of hostilities in Korea in mid-1950 provided a further test of the flexibility of the Employment Act. Within this 3-year period:

Gross national product (in current prices) rose \$13 billion—6½ percent in a year's time, fell \$8.5 billion—3.2 percent in another year, and then rose nearly \$50 billion—19.4 percent in the third year. Unemployment increased by nearly 90 percent between the second quarter of 1948 and the fourth quarter of 1949 and fell by 44 percent by the fourth quarter of 1950.

Public policy was called upon twice in 3 years to reverse its field—and drastically so. There is widespread agreement that Federal fiscal policy, which at that time carried the major burden of economic stabilization, was on the whole well suited to meet these rapidly changing challenges.

A concurrent development in determining the focus of economic policy was the emerging emphasis on economic growth, proceeding largely from increasing awareness of the responsibilities imposed upon the United States as the leader of the free world in the cold war, and of the economy's demonstrated growth tendencies. This emphasis has come to the fore in the post-Korean period and with shocking abruptness since the fall of 1957. The work of the Joint Economic Committee and its subcommittees in this area is a testimonial to their alertness to the importance of economic growth and the diligence of their efforts to bring these considerations to the attention of the Congress, the Executive, and the Nation as a whole.

#### A NEW FRONTIER: STABILIZING THE PRICE LEVEL

Without belaboring the details or effectiveness of policy changes in the postwar period, I think it is clear that experience under the Employment Act has demonstrated amply the dynamic quality of public economic policy. The recent past and our present situation suggest quite clearly the basic outlines of a major test to be faced: achieving reasonable stability in the general level of prices without sacrificing growth, stability, and the dynamic characteristics of the economy nor the institutional freedom we prize.

#### *Compatibility of public policy objectives*

Are these objectives inconsistent? The answer is "Yes" only if we choose to regard each objective in some absolute sense. Instead, it must be recognized that the realization of additional gains with respect to any one objective involves costs in the sense of some limitation on the extent to which gains with respect to any other can be achieved. We must, therefore, continually effect compromises among conflicting claims. This is the essence of the basic economic process in any environment in which ends exceed means.

We look forward to a higher living standard tomorrow than we enjoy today and recognize that to make this gain possible some sacrifice of today's consumption of goods and services or of leisure is required. We are continually required to choose between the satisfactions derived from variety in consumption and in the ways in which we produce our incomes, on the one hand, and the losses in terms of temporary unemployment, obsolescence, and the disruption of familiar routines involved in shifting to new products and new methods of

production. We are continuously faced with the need for readjusting these priorities if our first approximations involve too great changes in the rate of use of our resources. The fact that we are, all of us, continually making these compromises demonstrates the compatibility of these objectives rather than their inconsistency.

We make these decisions as individuals in the setting of what we hope is a substantially free market place. The aggregate of these decisions reflects the order of priorities accorded by the economy as a whole to various economic objectives. It is to be expected that changing circumstances will lead to changing priorities.

Government, through the exercise of its monetary, fiscal, and regulatory powers, provides major conditioning factors which in turn influence our individual decisions. It is in fact virtually impossible to conceive a complex of Government economic policies which would be neutral in its impact on this system of choices. Public-policy makers, therefore, are invested with tremendous responsibility to provide policies which will facilitate, rather than frustrate, the implementation of the choices registered in the market, without giving way to pressures from speculative excesses nor to irrational responses to minor changes in economic conditions. It also imposes a substantial burden on public instrumentalities to keep the market as free as possible from restraints on the allocation of resources.

If these public responsibilities are appropriately discharged, the Nation can be confident of realizing a high rate of economic growth without unduly sacrificing stability or the dynamic characteristics of our economic life. We must avoid, however, underestimating the cost involved, lest we become too rigid in our thinking and our policy attitudes.

For example, the more dynamic the economy, the greater will be the problems of maintaining stability in the rate of resource use while continuing to provide the real resources required for economic growth. The more frequent and the greater the changes in technology and in resulting market demand and supply conditions, the more frequent and the greater will be the pressure for changes in the use of resources. Such changes cannot be achieved instantaneously, but in fact may require a considerable lapse of time. The rate of frictional unemployment of both human and material resources, therefore, will tend to be higher in a relatively dynamic economy than in a static economy. An excessively rigid stabilization policy may impair economic dynamics by increasing the real costs of effecting necessary shifts in resources.

Achieving a high rate of growth in a dynamic setting, therefore, requires a flexible approach to economic stabilization. Such an approach has been aptly visualized as a band representing a range of fluctuation in unemployment through time, as contrasted with a line. How wide or narrow this band should be cannot be precisely determined, since our attitudes assuredly will change through time. It should be emphasized, however, that accepting some fluctuation in unemployment rates is perfectly consistent with the stabilization objectives implied in the Employment Act. Moreover, this acceptance does not imply a relaxation of vigilance by those responsible for economic policy. Rapid changes in the employment situation, even though they do not at the moment exceed accepted tolerances, never-

theless demand alertness to the possibility that they shortly will, and preparedness to deal promptly with an excessive fluctuation should it in fact materialize.

*The importance of relative price flexibility*

How is stability of prices related to whatever composite objective of growth, stability, and dynamics may be desired? At the outset, the distinction between stabilizing the prices of particular goods and services and stabilizing the level of prices must be emphasized. Stabilizing specific prices can hardly be justified as a public policy objective for a free-market economy except under the most extraordinary circumstances. Flexibility of prices of individual goods and services is, of course, the specific mechanism a free, private-enterprise economy uses to induce shifts in resources and in economic activity. In the absence of relative price movements, the mechanism for such shifts must be public or private rationing. Either will result in a loss in economic welfare in a private-enterprise setting.

Moreover, the more dynamic we wish our economy to be, the more important is mobility of resources, and, consequently, the greater the emphasis we must place on the flexibility of individual prices. If, for whatever reason, the change in the price of a good or service for which supply or demand conditions have changed is restrained relative to the prices of other things, the extent of the shift in resources which otherwise would have occurred will also be limited.

Maintaining flexibility in prices of individual goods and services, therefore, is an important collateral objective of public policy, the responsibility for which rests primarily in the antitrust field. Since such price flexibility is, in part, a concomitant of the uncertainty inherent in a dynamic economy, the inclination of those controlling the use of resources to insulate themselves from price flexibility is readily understood. It must not be overlooked, however, that to the extent this insulation is achieved, the economy will suffer, as a necessary corollary, a loss in dynamics. Antitrust policy which fully recognizes this basic drive toward relative price rigidity and its adverse implications for the character of the Nation's economic life, therefore, is a necessary adjunct of public economic policy seeking the objectives of the Employment Act.

Encouraging flexibility in individual prices is in no wise inconsistent with stability in some overall average of prices, at least conceptually. All that is required by the former is change relative to other prices. Theoretically, relative price changes can take the form of increases offset by decreases, leaving the average unchanged; by smaller increases more than offset by larger decreases, with a corresponding declining average level; by larger increases only partially, if at all, offset by smaller decreases, resulting in a rising average level. In practice, only the latter alternative appears to have been feasible during the postwar period.

*Distinguishing between relative price flexibility and general price instability*

It is generally agreed that while relative price flexibility is necessary and desirable for our economy, price-level instability must be minimized. Although conceptually the distinction here is fairly clear, in practice it is considerably more difficult to determine. Other papers

in this volume will deal with the problems, often extremely technical, of applying the concepts of price-level stability to public policy purposes. It will suffice at this point to suggest only one of the many difficulties policymakers must face.

Suppose the price of some basic industrial raw material rises. The factors underlying this type of price change are more often than not extremely difficult to assess with any precision with information of the accuracy and extent now available. Yet, if price level stability is to be maintained, public policy must be based on judgments whether these factors are fairly widespread and, therefore, whether the particular price rise is to be regarded as a harbinger of general upward price pressures. Moreover, public policy must appraise the degree of substitutability for the raw material in question to determine the extent to which its price rise is likely to be reflected in other prices. The greater the substitutability and the more promptly substitution can be achieved, the less need be the concern over extension of the price movement. Public policy, therefore, must depend also on evaluation of market structure, pricing practices, resource mobility, etc., in the affected industries, since without this analysis, it cannot appraise the likely aggregate demand and supply responses with which it must deal. In practice, therefore distinguishing between desirable relative price flexibility and undesirable general price instability is now—and always has been—difficult. Granting this sort of practical difficulty does not, however, derogate price-level stability as a public policy objective.

#### *Creeping inflation and economic instability*

There is no occasion in this discussion for dwelling on the manifest evils of hyperinflation or hyperdeflation. The price-level movements with which public policy in the United States must be concerned are of the “inching” or “creeping” variety. This term, as generally used, may include price movements which are so pronounced as to average several percent a year. Such changes are modest, as compared with the hyperinflation of post-World War II Hungary and China, for example. It is precisely because of the relative slowness of “creeping” inflation that it is so insidious and difficult to cope with.

Over a considerable part of our postwar experience with “creeping” inflation, this type of price movement has been widely interpreted as a reflection of excessive total demand. So long as this assumption appeared to accord closely with the facts revealed by other statistical series, economic stabilization, in the sense of stabilizing the rate of total resource use, and price-level stabilization could be and were embraced as a single objective. In 1946–48 and 1950–51, for example, the need for stabilization efforts was signaled by general price movements, and public policies aimed at restricting total spending were synonymous with restriction of the rate of price-level increases. In other words, so far as anyone could see, the upward pressure on prices originated in excessive demand which also was reflected in strong tendencies toward “overemployment.”

Since mid-1955, however, it has become increasingly apparent that price-level stabilization and stabilization of the rate of resource use are not necessarily synonymous. Experience during the latter part of 1957 and the early part of 1958 in particular has demonstrated graphically the possibility of divergence of price-level changes from

changes in the rate of resource use. Timelags undoubtedly account for some part of this divergence. Recently there has been considerable discussion, which will be extended and refined in other papers in this compendium, of other factors which may contribute to it. My purpose in alluding to this divergence is merely to show that economic stability or instability is not necessarily the same as price-level stability or instability as was widely assumed in the past. Price-level stabilization, as an objective of public economic policy, therefore, should be examined, at least in part, on its own merits.

#### *Equity aspects of inflation*

The considerations which strongly support price-level stability as an objective of economic policy can be placed in the rough, but by no means mutually exclusive categories of equity and economics. The familiar equity argument is that instability in the general price level—more specifically, in terms of postwar experience, inflation—diminishes the purchasing power of individuals and business entities with fixed or “sticky” incomes and assets relative to the purchasing power of those whose incomes and assets are responsive to general price movements. Insofar as those with fixed incomes and assets are concentrated at the lower end of the income and wealth distribution or are the small or new business entities, inflation represents a regressive tax. As such, it effects changes in income and wealth distribution which are antithetical to those sought by the explicit provisions of the Nation’s tax structure.

My fellow panelist, Dean Bach, has directed intensive studies concerning the impact of inflation on income and wealth distribution. I shall not, therefore, attempt to cover this ground with any detailed discussion.

Some economists have suggested that these equity consequences of inflation can be and have been substantially ameliorated by appropriate private and public policies. It is argued, for example, that persons retired under public retirement systems have suffered only temporarily from persistent general price increases, since these retirement systems are liberalized periodically to take account of inflation. Industrial retirement systems, it is argued, can turn more extensively to variable annuity devices to hedge the retiree against price-level fluctuations. Individuals and businesses, it is maintained, can change the disposition of their personal savings toward more price-level-sensitive assets, particularly common stocks.

The answer to the first argument, of course, is that the losses suffered by the public system retiree are never made good and are, therefore, permanent. Adjusting public retirement system benefits frequently enough to reduce these losses to insignificant proportions would hardly be feasible. The answer to the other contentions is that real costs are incurred by giving up liquidity and safety in seeking inflation hedges. In the absence of such costs, the great savings institutions of this country would never have reached their present stage of development, nor should we now see the great diversity in the character and operations of financial intermediaries. It seems to me to be extremely difficult to justify asking the economically weak to incur these costs to protect themselves from inflation which is in any case regarded as inequitable.

Moreover, it is at least questionable whether the personal thrift patterns which would emerge from these suggestions would contribute so well to providing for the economic growth which is one of the primary objectives of public policy. Personal savings habits dominated by inflation hedging might well result in a perverse reinforcing of cyclical movements and of inflation. Those who save to provide some relatively fixed amount for retirement, for example, might well be inclined to reduce their current savings under boom conditions if their inflation hedging were, in fact, successful, and to increase their savings during an economic decline if inflation-responsive assets were also recession responsive. I do not know what proportion of total personal savings are, in fact, motivated by some fixed total objective, but whether the proportion is large or small, it is difficult to see why we should encourage distortion of these savings patterns as a means of justifying inflation.

#### *Inflation and growth*

According to a widely held view, the rate of economic growth can be expected to respond favorably to mild inflation. The argument rests primarily on the assumption that costs will lag behind prices, so that profit margins rise. Rising profit margins imply a positive shift in the schedule of the marginal productivity of capital which, in turn, serves to increase investment demands. An expansion of capital outlays will be reflected in a multiple increase in total demand which adds to upward price pressures, presumably still in advance of factor costs. Thus, it is maintained, even mild inflation tends to be cumulative, largely through its effects on stimulating growth-generating expenditures. The process presumably comes to a halt when the increase in productive capacity exceeds the increase in effective demand or when factor costs close the gap with product prices and pinch off profit margins.

Dean Bach's studies, upon which he reported in this committee's Tax Policy Subcommittee study of Federal tax policy for economic growth and stability, cast some serious doubts about this delineation of the relationship between inflation and growth. It seems to me that an alternative thesis suggests that inflation may impede economic growth more than stimulate it.

If product and resource markets were substantially free of restraints or monopolistic elements, a system of monetary and fiscal policies which limited increases in total demand in line with increases in capacity would also provide stability in the general price level. Failure of such a system to prevent general price movements, therefore, indicates imperfections in market structures. If these imperfections are accepted or tolerated by the Nation, the relative price changes necessary to effectuate dynamic impulses in the economy must be reflected either in general price level changes, in instability in the rate of resource use, or in an otherwise undesired shift in the division of resources between growth and current consumption. Suppose that the Nation's composite choices place, as a first approximation, a higher priority on stability in the rate of resource use and on the desired rates of growth and of current consumption than on price-level stability. On what grounds may one conclude that the resulting general movement of prices is undesirable?

In the first place, inflation cannot finance the attainment of real product objectives for which real resources are inadequate. It can serve only to change the total product "mix" by shifting effective demand in favor of successfully hedged claimants and to the disadvantage of the relatively unsuccessful. Some sacrifice of the desired rate of growth or of consumption, therefore, will necessarily result. Moreover, such shifts are likely to be difficult to anticipate or to estimate in advance of their actual occurrence. Inflation, therefore, is likely to produce what appear to be haphazard and capricious changes in income positions and in asset and liability values. These effects must serve to increase uncertainty. As a consequence they also must add to the costs of growth by requiring more extensive use of resources for hedging against the increased risks accompanying capital accumulations.

Second, inflation shifts resources along the lines of least resistance, so to speak. The sacrifices of claims to resources, therefore, will fall more heavily on economic units lacking the strength of the monopoly elements which give rise to market imperfections. In other words, the weakest economic units—the new or the small business, to take familiar examples—will be required to bear a disproportionate share of the burden of financing in real terms the shift in the use of currently available resources. Failure to control a little bit of inflation, therefore, is quite likely to lead to increasing difficulty in curbing subsequent inflationary pressures. It seems clear that a relaxed policy toward inflation more greatly jeopardizes the economic position of the State or local government or school district, of the new or small business, of the prospective home buyer relying on a thin equity, to use the favorite examples of critics of general monetary controls, than does a tight-money policy. This, I believe, is the principal basis for asserting that moderate, "inching," or "creeping" inflation always holds the promise of ever stronger inflationary movements. If, finally, after long neglect, opposition to the adverse equity, competitive, and resource-allocating consequences of inflation becomes strong enough, efforts to curb its further extension then are likely to involve more painful consequences in terms of arresting growth and sacrifices of current production and employment than would have been required if the initial modest inflation had been halted.

General price level stability, therefore, must be regarded as a necessary collateral objective of public policies aimed at promoting growth and stability in a dynamic, free, private-enterprise economy.

#### FEASIBILITY OF PRICE-LEVEL STABILIZATION AS AN EMPLOYMENT ACT OBJECTIVE

Can general monetary and fiscal policies achieve price-level stability without undue sacrifice of growth and stability in the rate of resource use? Much of the criticism of using general monetary and fiscal restraints to curb inflation depends on the assertion that some business and labor organizations can insulate their price and wage decisions from changes in total demand conditions. General restraints on demand, if therefore is maintained, will impinge only on economic entities lacking this power. Restraints sufficiently vigorous to break through the insulation of big business and big labor, the argu-

ment runs, necessarily must hold total demand to less than full-employment levels.

I must agree, as indicated above, that if, indeed, such power rests in big business and labor (it should be noted that the validity of this contention has not yet been demonstrated), the consequent limitations on relative price flexibility and resource movement will impede the successful use of general constraints against inflation. I cannot agree, however, that the existence of such power calls for abandoning the use of fiscal and monetary policy for price-level stabilization purposes, or for foregoing price-level stability as an objective of public policy, or for relying on the good faith and intelligence of private power groups to behave in a manner consistent with stability of prices generally. The proposition that the value of the Nation's money depends on the good intentions and behavior of a relatively small private group in the population must surely be abhorrent to any free society. If, in fact, the proposition is correct, it calls for constructive measures to reduce this power. Such measures also would contribute to a more dynamic economy with greater private freedom to be enterprising.

Price-level stabilization, therefore, can be a practicable objective of public policy. Indeed, taking the steps required to make it so will also strengthen policies directed toward achieving a high rate of growth and stability in the rate of resource use.

As in the case of these latter objectives, precise specification of the objective of price-level stability is not possible. Moreover, I doubt that it would be desirable. After all, our economic stabilization objective does not rule out some fluctuation in the rate of resource use. By the same token, as a practical matter we cannot pursue absolute rigidity in the price level. What we seek is the best possible "mix" of all of our major economic policy objectives. Our best hope for its attainment, I believe, rests in the alertness and adaptability of those charged with responsibility for public economic policy.

Our public-policy instrumentalities have shown flexibility and alertness to desirable shifts in emphasis. They have not always, of course, been completely successful. We have had recessions and interruptions of growth. We well may have experienced, without recognizing it, some inhibition of the economy's dynamism. There are many expert observers of the American economy who assert that we have suffered increasing private monopolistic restraints on the freedom of resources and markets. And we assuredly have had inflation. But while we recognize these shortcomings, we should not lose sight of our accomplishments. We have not had a serious depression and we have achieved remarkable progress in raising our living standards since the war's end.

I think we can be confident, therefore, that the present language of the Employment Act can continue to provide the framework for the dynamic policies the Nation's economic development demands. This study by the Joint Economic Committee, which carries forward the high standards of those of the past, will, I am sure, contribute to an extended appreciation of the significance of price-level stabilization policy in the context of the Employment Act's broad statement of objectives.



## EMPLOYMENT ACT OBJECTIVES AND THE STABILIZATION OF PRICES

Edwin G. Nourse, Economic Consultant

I believe this committee is marking a new milestone in the interpretation and application of the Employment Act by conducting this series of hearings on "The Relationship of Prices To Economic Stability and Growth." Such an inquiry is of utmost timeliness just now, as the policy set forth in the Employment Act is facing its first severe test. And great promise for the outcome of the investigation may be found in the terms in which Chairman Patman's announcement of the hearing stated its purpose—it was to be—

an exploration of general economic processes which involve prices, price relationships, costs, and price policies \* \* \* public and private [that] can contribute to \* \* \* maximum employment, production, and purchasing power.

The depth and breadth of this definition are in refreshing contrast to some of the oversimplified and overmechanistic concepts of the employment problem that are still current.

### THE ACT'S STATED OBJECTIVES

This opening panel raises the question whether or how the stabilization of prices was included in, or related to, the objectives stated in the Employment Act. Superficial evidence of such a relationship or inclusion is lacking. Nowhere in the act can the expression "price stabilization" or "price level" or even the word "price" be found. This is probably to be explained by the fact that Public Law 304 of the 79th Congress was simply a revised version of the Murray full-employment bill of 1945. Its specific objective was still stated in terms of jobs—"useful employment opportunities for those able, willing, and seeking to work." There were, however, three other parts of the declaration of policy (sec. 2) that demand attention.

(a) The original full-employment objective was expanded to set "maximum purchasing power" alongside "maximum employment and production." Obviously, purchasing power is a price-oriented concept. (b) The declaration of policy also stated that the employment and purchasing-power objective was to be pursued "in a manner calculated to foster and promote free competitive enterprise." Free-enterprise competition takes place in the market, and its outcome is price. Here, again, price objectives are clearly embraced in the mandate of the act even though the words "price" or "price level" are not used. (c) Section 2 of the act further declares that the Federal Government's objective of "maximum employment, production, and purchasing power" is to be pursued "with the assistance and cooperation of industry, agriculture, labor, and State and local governments." I would suggest that this stipulation of assistance from and cooperation with industrial management, labor leadership, and agricultural organi-

zations has little meaning if it does not relate in the most positive and comprehensive manner to prices, wages, and the market process generally.

A trend toward greater emphasis on stability as an objective of the Employment Act, due to fear of inflationary boom leading to deflationary recession, led to an attempt near the close of the last session of the Congress to write a specific price-stabilization objective into the act. The Bush amendment declared that the previously stated objectives of maximum employment, production, and purchasing power "must be attained, if they are to be meaningful, in an economy in which the cost of living is relatively stable. To this end, the agencies and instrumentalities of the Federal Government must utilize all practicable and available means to combat inflationary pressures as they develop within the economy." In the following section, the President was instructed to include in his Economic Report "current and foreseeable trends in the price level prevailing in the economy and the steps, if any, which have been taken to stabilize the cost of living and to combat inflationary pressures existing within the economy." Finally, the amendment expanded the description of qualifications for membership on the Council of Economic Advisers. They were to be persons competent "to formulate and recommend national economic policy to promote employment, production, and purchasing power under free competitive enterprise and [the new language] in an economy of relatively stable prices."

This proposed amendment died in committee, so the question still stands how the objectives as stated in the original act are being or should be interpreted.

#### INTERPRETATION OF THE STATED OBJECTIVES

To understand the part that prices play in the interpretation and application of the Employment Act, it is necessary to note a broad analytical difference among those who try to interpret usefully the objectives of the Employment Act or, more basically, the economic philosophies and experimentation of which it is a particular legislative expression. This divergence is one between rival but not mutually exclusive values held by economists and laymen. One group vigorously proclaims itself the exponent of "high-pressure economics" and ever-full (or over-full) employment (more jobs than applicants), with "pressure" to keep it so exerted through positive governmental policy and action, fiscal and monetary. Over against this interpretation of the objectives of the Employment Act are the sober but by no means complacent economists, like myself, who would not care to have the disparaging label "low-pressure economists" pinned on them but might call themselves exponents of safe-pressure stabilization with vigorous growth. We place primary emphasis on such fullness of employment as can stand on its own bottom and, thus, reflect internal stability in the market (where government has now become a major supply-and-demand factor), and believe there is such a thing as inflationary overemployment, a condition in which production is at a destabilizing maximum of inventory surplus, excess plant building, and wage-price "leapfrogging."

To take this position is not to espouse the heresy of "general overproduction" but to stress the fact that misallocation of resources de-

rives from faulty price, wage, and profit adjustments. As such, it is to be attacked through specific market institutions, practices, and policies, not through the blanket devices of interest rates and tax levels, and only in emergencies through the processes of Federal spending. The "high-pressure" group stresses growth—though they are not unmindful that market instability might retard growth. Safe-pressure economists stress the functional balance of prices and incomes as the surest means to sustained growth in jobs, in production, and in real consumer purchasing power. Advance would be at as fast a rate as can be sustained within a competently administered market and fiscal process.

Now this divergence in interpretation of the policy and responsibility of the Federal Government very evidently hinges on price issues. I have suggested above that a mandate for the price-income-adjustment line of attack on the employment problem is clearly evident at three points in the Employment Acts' declaration of policy. Nor have these phases of the objectives statement been ignored in the 13 Economic Reports of the President which have thus far been submitted, nor in the studies of this committee. In President Truman's first report (January 1947), we read:

The Congress, by setting maximum purchasing power as an objective of national policy in the Employment Act, pointed to the importance of purchasing power in keeping our economy fully employed and fully productive. \* \* \* The rise in prices that occurred in the latter half of 1946 greatly reduced the purchasing power of the current incomes received by the large majority of people. \* \* \* How to effect a *mutual adjustment of income and prices which will provide purchasing power adequate to sustain maximum production* in the years ahead thus becomes a central problem for private enterprise and Government (pp. 1, 2). [Italics added.]

In this report I do not anywhere find the word inflation, though the first of several propositions in the closing summary began:

Chief among the unfavorable factors is the marked decline in real purchasing power of consumers, resulting from the large price increases in the second half of last year (p. 19).

Six months later, the midyear report stated:

Price and income adjustments stand foremost in need of attention. \* \* \* There is need to hold the price line in the face of recent developments which revive some fear of another upswing of inflation (p. 2).

In January 1948 we read:

A year ago I warned against the danger of advancing prices, which would undermine our structure of national prosperity. I strongly urged businessmen to bring prices into line with the requirements of a stabilized economy. I called upon workers to limit their demands for wage increases to those situations where wages were substandard or where wage increases would not necessitate higher prices. \* \* \* The first objective for 1948 must be to halt the inflationary trend (pp. 3, 5).

The midyear Economic Report (July 1948) clearly linked price objectives to the mandate of the Employment Act, saying:

The policy proclaimed in the Employment Act requires us to devise and adopt positive measures to stop this inflation and secure relative stabilization. \* \* \* I realize that the anti-inflation program I have offered will impede some business plans, will curb some profit opportunities, and may limit some wage advances. It is of the very essence of a plan to counteract inflation that this be done. All groups will ultimately benefit when it is done (p. 2).

In January 1949 it was noted that the general rise in prices had reached a crest in August 1948, but the Economic Report stressed the point that a—

rising spiral [had] created more and more maladjustments among prices, wages, and other incomes \* \* \* brought higher but uneasy profits to business firms, squeezed the family budget of workers, who in turn sought to press wages upward as the cost of living advanced (pp. i, ii, 4).

With a slight recession in 1949, the Economic Report of 1950 key-noted disinflationary price adjustments in recent months, and, with premature complacency, suggested that this created “the relative stability on which firm business and consumer plans can be based.”

\* \* \* The relatively safe passage from inflation to greater stability was no accident. Businessmen, workers, and farmers demonstrated much greater judgment and restraint than in earlier similar periods. \* \* \* The effective teamwork between free enterprise and Government confounded the enemies of freedom who waited eagerly, during 1949, for the collapse of the American economy. \* \* \* If we are to continue our economic growth, the major economic groups must all pull together—businessmen, wage earners, and farmers must work toward the same ends. Government, in turn, must carry out the aspirations of the whole people. \* \* \* To promote an environment in which businessmen, labor, and farmers can act most effectively to achieve steady economic growth is a major task of the Government. \* \* \* It must keep open the channels of competition, promote free collective bargaining, and encourage expanded opportunities for private initiative. The Council at midyear 1949 did not recommend increases in public spending for the purpose of stimulating the economy, and our confidence in its internal recuperative forces has thus far proved justified (pp. 1, 6, 7, 103).

As the Korean war renewed inflationary pressure, the President stressed the need for “increased production of the right kind of goods” and “some sacrifice of domestic consumption.” His midyear (1950) Economic Report urged prompt imposition of war taxes, but stressed large dependence—

upon business policies \* \* \* fostering production along those lines which are most needed under changing circumstances. It depends upon price and income practices which maintain a balance between full output and buying power, so as to avoid either inflation or deflation. \* \* \* Labor should continue and enlarge its contribution toward increasing productivity. Wage demands of a character which might lead to another inflationary spiral should be avoided (pp. 12-13).

Stress on price and income aspects of the employment and production problem and of the importance of private business policies and market processes continued throughout the Truman administration. In the midyear 1952 Economic Report the President observed:

Although the longtime rise in prices since before the start of World War II has not prevented the great economic progress which has been made since then, we would now be even better off if the price level had been even better held. \* \* \* A further inflation of the price level or diminution in the value of the dollar can and should be avoided (p. 11).

He cited the recent steel strike to highlight the heavy impact of wage-price relations in a basic industry on national stability and growth. He urged that the Congress enact—

new legislation which would permit the Government to maintain essential production, to be fair to both sides in the dispute, and to retain the maximum degree of free collective bargaining (p. 14).

This, however, was to be emergency, not permanent, legislation. As to the controls of materials, prices, wages, and credits invoked to meet the Korean war pressure, the administration tended to rely on the

continuance of such procedures rather than to explore institutional changes that might curtail rather than contribute to the built-in inflationary bias of a full employment economy and would permit early removal of controls.

The final Economic Report of the Truman administration (January 14, 1953) has deservedly been much praised for its stimulating analysis of the economics of full employment. In this analysis it gave extended attention to prices processes and price policies. In an outstanding paragraph it said:

Private enterprise, under our free system, bears the major responsibility for full employment. This report has already set forth the basic features of that responsibility, and how its exercise is contributing to the well-being of the American people. The role of responsible Government, while vital, is in a sense supplemental (p. 18).

In amplification of this theme, the report reasoned:

Expansion cannot continue smoothly unless it is based on a sound and fair distribution of the increasing product. Our economy is built upon mass markets. Unless each important sector receives a workable share of the expanding output, the expansion will come to an end because the market demand will be lacking. Growing capacity to produce requires growing ability to buy. \* \* \* If business and labor plan their price and wage policies to encourage the balanced expansion of production and consumption, of jobs and markets, then our economic growth can be steady. \* \* \* We must learn more about the value of individual and group self-restraints, about the general economy and its interrelationships, and about the private price and wage policies which may contribute most to a stable and growing economy (pp. 16, 17, 20).

Turning now to the present administration, the five Economic Reports which it has submitted have consistently sounded the theme of "reasonably full employment with a reasonably stable price level."

Our economic goal—

said President Eisenhower in his letter of transmittal of his first Economic Report—

is an increasing national income, shared equitably among those who contribute to its growth, and achieved in dollars of stable buying power. \* \* \* Government must use its vast power to help maintain employment and purchasing power, as well as to maintain reasonably stable prices (pp. iii, iv).

More specific attention was paid to the objective of free competitive enterprise.

The role of competitive markets is as basic to the proper functioning of our economic order as the secret ballot is to our political democracy. Government has vital responsibility in this area, immensely complicated by large aggregations of capital under single management and large organizations of labor. Government must, nevertheless, remain alert to the danger of monopoly, and it must continue to challenge through the antitrust laws any outcropping of monopoly power. It must practice vigilance constantly to preserve and strengthen competition (p. 5).

Competition, however, was stressed primarily as a means of promoting enterprise, improving the allocation of resources, and accelerating growth, rather than as a means of regulating prices or preventing inflation.

The 1955 Economic Report repeated the belief that "Government should persist in its efforts to maintain easy entry into trade and industry, to check monopoly, and to preserve a competitive environment" (p. v.), but there was no spotting of places where monopolistic tendencies were apparent in the economy. There was a recommenda-

tion to "strengthen the deterrent to violation of the Sherman Antitrust Act by raising substantially the maximum fine that may be imposed under the act" (p. 50).

The 1956 Economic Report again paid its respects to the general principle of competitive enterprise, which the Government should strengthen "through monetary, fiscal, and housekeeping policies to promote high and rising levels of economic activity; by helping small- and medium-sized businesses overcome impediments to their expansion; and by vigorous measures for preventing monopolistic practices and combination" (p. v.). In elaborating this last point, the report pointed to the work of the National Committee To Study the Antitrust Laws and the "vigorous enforcing of those laws" by the Department of Justice and the Federal Trade Commission. The President made six recommendations for strengthening the antitrust laws governing industrial, commercial, and banking corporations, but made no reference to price policies within the law or to the possible impairment of free competitive enterprise through present institutions or practices of wage making.

The 1957 Economic Report was about equally reticent. Its review of economic developments during the preceding year referred briefly to "the advance in industrial prices \* \* \* especially after steel prices were raised following the strike settlement \* \* \* the combination of heavy demands from the investment-goods sector of the economy, rising labor costs, and renewed advances in prices of many raw materials resulted in price increases for a broad range of semimanufactured materials, components, and supplies. And these price increases became cost increases to producers of finished goods, many of whom were also experiencing rising labor costs. \* \* \* Wage and salary rates advanced during the year \* \* \* average hourly earnings of production workers in manufacturing and building construction rose 6 percent and in retail trade 4 percent. While the increases in wage and salary rates were only slightly greater than those in 1955, the improvement in productivity appears to have been substantially less. \* \* \* Total corporate profits before taxes fell from an annual rate of \$45 billion the second half of 1955 to \* \* \* \$4.1 billion in the third quarter of 1956 (partly because of the steel strike)" (pp. 32-34).

In his letter of transmittal, the President said:

Government must strive to strengthen competitive markets and to facilitate the adjustments necessary in a dynamic economy. Even more exacting are the responsibilities of individuals and economic groups. Business managements should formulate and carry out their plans so as to contribute to steady economic growth. They must also recognize the broad public interest in the prices set on their products and services. Both management and labor should remove restrictions on the operation of competitive markets \* \* \* and reach agreements on wages and other labor benefits that are consistent with labor-productivity prospects and with the maintenance of a stable dollar" (pp. iii-iv).

There was a repetition of recommendations for further legislation to strengthen the antitrust laws but no specific comment on wage-making institutions or practices.

Finally, the Economic Report submitted just a few weeks ago "acknowledges that there is an unfavorable feature in recent economic developments. \* \* \* Four-fifths of the increase in gross national product in 1957 was accounted for by rising prices. There are criti-

cal questions here for business and labor, as well as Government. Business managements must recognize that price increases that are unwarranted by costs, or that attempt to recapture investment outlays too quickly, not only lower the buying power of the dollar, but also may be self-defeating by causing a restriction of markets, lower output, and a narrowing of the return on capital investment. The leadership of labor must recognize that wage increases that go beyond overall productivity gains are inconsistent with stable prices, and that the resumption of economic growth can be slowed by wage increases that involve either higher prices or a further narrowing of the margin between prices and costs. Government, for its part, must use its powers to keep our economy stable and to encourage sound economic growth with reasonably stable prices" (p. v).

There is in this report the familiar pledge of allegiance to the dual objectives of the Employment Act: Economic policy must "strive to limit fluctuations in the rate of overall economic growth to a relatively narrow range around a rising trend" (p. 3). This is followed by an impeccable section on "Free Competitive Enterprise." Here is the emphasis made familiar in previous Economic Reports on the efficacy of free enterprise in guiding the allocation of productive resources, but nothing about competitive adjustment of price and income structures in a day of giant corporations and unions. The report rightly says that "the authors of the Employment Act made it explicit that Government \* \* \* should foster and promote free competitive enterprise." But does this not mean that the Congress should shape business institutions so as positively to induce price competition or minimize monopolistic price controls? History suggests that more is needed than the mere official pronouncement that "policies and practices of individuals and private groups must [sic] contribute to, not hinder, the achievement of economic growth with reasonably stable prices."

#### EFFECTUATING THE OBJECTIVE OF FREE COMPETITIVE ENTERPRISE

From examination of the language of the Employment Act (in the perspective of its legislative history) and review of its administration (in the context of contemporary economic thinking), I am led to five conclusions:

1. Both the framers of the act and those who have sought to forward its broad purpose of sustained high-level use of the Nation's productive resources have been quite aware that they must deal with a complex, interrelated process of prices and incomes.

2. There has been general recognition that there are three avenues of constructive approach to the maximum production problem: Fiscal policy, monetary policy, and market (or private price income) policy. Because of preoccupation with the current economic fad of aggregate demand as the antecedent rather than the concomitant of maximum production, there has been undue faith placed in monetary and fiscal policy as the means of attaining the ends of national growth and stability.

3. There is progressive disenchantment with monetary policy as a major means of achieving the objective of the Employment Act, both because of inherent limitations and political back-seat driving. Fis-

cal policy is still recognized as a powerful agency of growth and stability, but one subject to similar political hazards in application. It is a basic limitation of both these types of control that they are aimed at aggregates, or the statistical artifact of a price level, rather than specific functional price and income relationships. They may aggravate rather than correct the specific and local situations where increased costs, disbursed incomes, and price realizations attain or fail to attain so good a balance as to clear the market at full capacity operation. To the extent that such balance is not attained (or approximated), the compensatory or offsetting task thrown on public action (fiscal and monetary) is increased—with resultant failure or desperate resort to authoritarian controls.

4. In lieu of such a drift toward Government control (“creeping socialism” or whatever) we have the alternative deeply rooted in our traditions—“free competitive enterprises.” This has two aspects. One is the “economic statesmanship” of corporation pricemaking executives, and a like concern for the welfare of the economy on the part of wage-negotiating officials of large and strategically placed labor unions. Appeals to this important source of business efficiency and economic stability are consistently emphasized through the Economic Reports of the President from 1947 to 1958. I believe that such appeals are not fatuous. With growing economic sophistication and clearer sense of their responsibility on the part of executives of large industrial, commercial, and labor aggregations, we may hope to move closer toward the self-sustained balance which both President Truman and President Eisenhower have repeatedly stated should be the contribution of private business. They have, I believe, been soundly advised in taking this position.

5. The greatest service this committee and the Congress can render at this juncture is to clarify the meaning of free competitive enterprise in this day of corporation and labor union giants. With the degree of concentration of economic power that has grown up at these centers and the institutional structures they now have it is quite possible for the free competitive enterprise of their leaders to work against rather than for the stabilizing of the economy in a strong growth trend. We need to reestablish conditions of price competition instead of power competition. A full employment economy needs flexibility of its price and income structure to displace the built-in rigidities and ever-widening institution of “escalation,” whether of farm-price supports, union contracts, cost-plus procurement, variable annuity insurance, Government pay scales, and even proposed fixed-income bonds.

Ten years ago the Economic Report of the President said:

The policy proclaimed in the Employment Act requires us to devise and adopt positive measures to stop this inflation and secure relative stabilization.

That responsibility has not been diligently carried out in the intervening years. Instead, we have followed the easier but dangerous course of accepting what in 1951 I called “inflation as a way of life.” The present administration, as noted above, has instituted two inquiries into the field of monopoly, and at least three committees of the Congress have been conducting hearings on various phases of the matter. But there has been no comprehensive attempt to relate these specific inquiries to the central purpose of the Employment Act. They

have been lacking in comprehensiveness also in that none has faced forthrightly the inseparability of price, wage, and profit structures in a free-market economy. In my opening testimony before the Kefauver Subcommittee on Antitrust and Monopoly, I was moved to suggest that "the processes of pricemaking and of wage making are so intertwined in the modern industrial world that neither can be effectively analyzed in isolation from the other. I believe also that the phenomenon known as monopolistic competition or as administered pricing manifests itself in essentially similar ways and with essentially similar consequences in the two cases."

There are places in the program of the present hearings at which it would seem that the pricing of labor and its relation to full employment would naturally enter the discussion, but the word "wages" is nowhere used. I anticipate that this gap will in some measure be filled by several of the contributors to the compendium and that the panel discussions as they unfold will not only broaden and deepen our understanding of the nature of free competitive enterprise as an objective of the Employment Act in an age of large-scale technology but will also point to specific measures for buttressing the old faith and giving it modern implementation.



# PRICE-LEVEL STABILITY AND EMPLOYMENT ACT OBJECTIVES

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## INTRODUCTION

The postwar period has been marked by a curious asymmetry between widespread economic opinion on the one hand, and official economic policy objectives on the other. Few issues have attracted wider or more recurrent attention over the last dozen years than the problem of full employment versus price-level stability. Yet our basic guide to national economic policy, i. e., the United States Employment Act of 1946, has remained devoid of any reference to price-level stability or to some other desired price-level behavior.

One does not have to look far afield for reasons underlying this chasm between public discussion and congressional legislation. The Employment Act came into existence at a time when recollections of the severest depression in the history of the American economy were all too vivid. No less important, the Employment Act was born under the bad omen of the famous, by now infamous, forecasts of substantial unemployment to follow the war. Thus the act bears the unmistakable imprint of the predominant economic views in the context of which it was formulated. The Joint Economic Committee's repeated concern with the relationship of prices to economic stability and growth is but another illustration of the extent to which actual developments over the last 12 years have belied the gloomy expectations reflected in the Employment Act.

Under certain conditions, the continued exclusion of a price-stability objective from the Employment Act could be quite appropriate. These conditions include (a) the presence of empirical evidence pointing to a serious conflict between price-level stability and present Employment Act objectives, and (b) the existence of a cogent basis for the claim that it would be more desirable to forego price-level stability than drastically to compromise present Employment Act objectives. Accordingly, we shall first consider the extent of likely conflict between price-level stability and the goals of "maximum employment, production, and purchasing power." In the light of this discussion, we shall subsequently appraise the desirability of adding to the Employment Act the objective of price-level stability.

### ARE FULL EMPLOYMENT AND PRICE-LEVEL STABILITY COMPATIBLE?

There are two facets to the question of the extent of conflict between price-level stability and maximum or full employment in the contemporary American economy: (1) The volume of unemployment which would be required for price-level stability; and (2) the degree of inflationary pressure which a state of maximum or full employment will produce. Let us take up these two subjects in turn.

### A. Volume of unemployment

The postwar notion of a Hobson's choice between price-level stability and full employment is no more an accident than the fact that the Employment Act itself reflects no trace of this notion. With the money wage level rising faster than output per man-hour, with the rapidity of adaptation of product prices to higher costs, with the growing importance of wage leadership in the industrial sector of the economy, and with the trade-union movement comprising approximately one-fourth of the civilian labor force, it is hardly surprising to encounter the view that the market structure of the American economy may involve substantial unemployment as a prerequisite for price-level stability. Thus, only a few years separate the pessimistic forecasts of mass unemployment in the immediate postwar period from the almost equally disturbing predictions that future price-level stability would require from 10 to 15 percent of the civilian labor force<sup>1</sup> to be unemployed. Have the latter estimates proven to be more accurate than the former? Does postwar experience to date bear out the expectation that price-level stability will necessitate heavy unemployment?

While the postwar economy has thus far been spared the test of 10 to 15 percent unemployed, we do not entirely lack other relevant evidence as to whether such mass unemployment is prerequisite for price-level stability. The experience of the first two postwar recessions, as indicated by the data in table I, is quite suggestive.

During 1949 unemployment averaged 5.5 percent of the civilian labor force. Between December 1948 and December 1949, average hourly earnings of production workers in manufacturing industries rose by 0.6 percent when taken inclusive of overtime or by 0.7 percent when taken exclusive of overtime. Between the same 2 dates, the Consumer Price Index declined by 1.9 percent<sup>2</sup> and the wholesale price index fell by 5.0 percent. Manifestly, however one may characterize the behavior of money wage rates during that period, they did not prevent the price level from falling.

TABLE I.—Price and wage levels for selected months and years

December of year—	Consumer price index (1947-49=100)	Wholesale price index (1947-49=100)	Average hourly earnings of production workers in manufacturing industries	
			Gross	Excluding overtime
1948.....	103.0	104.4	\$1.400	\$1.358
1949.....	101.0	99.2	1.408	1.368
1953.....	114.9	110.1	1.80	1.74
1954.....	114.3	109.5	1.83	1.77

Source: for consumer price index: Survey of Current Business, April 1953, p. 23, and Economic Indicators, March 1955, p. 3; for wholesale price index: Survey of Current Business, March 1952, p. 22, and Economic Indicators, March 1955, p. 4; for hourly earnings: Monthly Labor Review, February 1950, p. 234, loc. cit., February 1951, p. 241, Employment and Earnings, May 1954, p. 38, and loc. cit., May 1955, p. 38.

Turning to the second postwar recession, during 1954 unemployment averaged 5.0 percent of the civilian labor force. Between

<sup>1</sup> Cf. A. P. Lerner, *Economics of Employment* (New York: McGraw-Hill, 1951), pp. 193-194; and A. G. Hart, *Money, Debt, and Economic Activity*, 2d edition (New York: Prentice-Hall, 1953), pp. 247-248.

<sup>2</sup> It is noteworthy that not only the food component of the Consumer Price Index declined but also the apparel and the house furnishings components.

December 1953 and December 1954, average hourly earnings of production workers in manufacturing industries, whether taken inclusive or exclusive of overtime, rose by 1.7 percent. Between the same two dates both the consumer price index and the wholesale price index declined by 0.5 percent.<sup>3</sup> Here, too, however one may depict it, the behavior of money wage rates did not prevent a decline in the price level.

It seems reasonable to conclude that the minimal volume of unemployment necessary for price level stability is much closer to 5 percent of the civilian labor force than to 10 percent, let alone anything higher. In any event, there exists no empirical basis to date for the contention that unemployment of massive proportions is a prerequisite for price level stability in the postwar market structure of the American economy. This contention is an outcome of the failure to distinguish between a state of high-level employment amid an excess of aggregate monetary demand, such as characterized the years 1945-48, and a state of high-level employment in the absence of an excess of demand. Since the demand for productive factors derives from the demand for output, an excess of aggregate monetary demand is likely to imply an excess of demand for labor. And, indeed, an excess of demand for labor was imminent in the general inflationary conditions of 1945-48. To infer from the behavior of prices and money wages in that context of inflationary demand to a future state of high-level employment in the absence of an excess of aggregate monetary demand was a procedure bound to lead to serious exaggerations. For under general inflationary-demand conditions, there would be grounds for expecting the money wage level to rise in excess of the average increase in output even in largely unorganized labor markets; the substantial increase in money wage rates immediately following World War I is a case in point. Thus to expect labor organizations to restrict their demands for higher money wage rates to the average increase in output per manhour when the pursuit of such a course would imply constant or even reduced real wage rates is to engage in economic fantasies. Amid inflationary demand conditions, the bargaining power of wage earners is at its maximum. In such a context, employers have both the incentive and the ability to translate higher labor costs into higher product prices. In consequence, no exhortations to either labor or management or both to moderate their wage-price policies will stem the tide of inflation in the face of a general excess of aggregate monetary demand. At best, such exhortations are tantamount to locking the barn door after the horse has been stolen; at worst, they deflect from the obligation of government to avert or counteract inflationary demand conditions by means of monetary-fiscal policy.

### *B. Extent of inflation*

We may now turn to the second facet of the problem of price-level stability versus full employment, viz, the degree of inflationary pressure likely to occur under full employment conditions. Obviously, the prediction that the inflationary outcome implicit in a full employment economy may go so far as to disrupt capitalism<sup>4</sup> must involve a

<sup>3</sup> Again, there was a decline not only in the food component of the consumer price index but also in the apparel, the transportation, the reading and recreation, and the other goods and services components.

<sup>4</sup> Cf. C. E. Lindblom, *Union and Capitalism* (New Haven: Yale University Press, 1949), p. 139.

high estimate of the inflationary bias envisioned. Is such an ominous estimate corroborated by the postwar record?

The answer to this question depends not only upon a scrutiny of empirical data but also upon the meaning attributed to the concept of full employment. We shall briefly consider only three out of a spate of possible interpretations of "full employment."

First, let us take up the well-known definition provided by Lord Beveridge that full employment is "having always more vacant jobs than unemployed men." Clearly, this definition connotes an excess of demand for labor. And since the demand for labor is derived from the demand for output, the Beveridge definition implies an excess of aggregate monetary demand. Now, as previously noted, we have no reason to doubt that inflationary demand conditions will involve a rise of the money-wage level in excess of the average increase in productivity. Thus, if full employment is taken to mean an excess of demand for labor, full employment and price-level stability are by definition incompatible. And the degree of upward bias in the price level that is implied by such a definition of full employment will vary with the magnitude of the inflationary pressures extant. For example, under the immediate postwar conditions of pent-up demand and excess liquidity, the 1947 monthly average of the Consumers Price Index rose by 14.5 percent above the monthly average for the previous year. In contrast, amid the much milder inflationary demand conditions of more recent years, the 1956 monthly average of the Consumer Price Index was 1.5 percent above the preceding year's level.

Strict adherence to the Beveridge definition of full employment is coterminous with the doctrine of "full employment at any price" or more accurately, with "full employment at any price level." The proponents of direct controls will be quick to suggest that this is not necessarily so; with wage and price controls, they will aver, full employment and price-level stability could be rendered compatible. We cannot digress here to discuss the dubious character of this assertion. Suffice it to note that the Beveridge definition of full employment implies a chronic state of open or repressed inflation.

Next we may turn to the definition according to which full employment is the maximum level of employment consistent with price-level stability. In this instance, the constraint of a stable price level is built into the definition of full employment; full employment and price-level stability are by definition mutually consistent.

The finding that the volume of unemployment necessary for price-level stability is of the order of 5 percent of the civilian labor force may suggest to some that the foregoing definition of full employment is socially acceptable. On the other hand, it should not be overlooked that 1949 and 1954 were years of recession, as reflected by the data in table II. Measured in current dollars, 1949 gross national product remained at the level of 1948, and 1954 gross national product was 0.7 percent below the level of 1953; measured in constant dollars the decline for 1949 was 1.0 percent, and for 1954, 1.5 percent. We shall presently revert to the significance of these declines.

TABLE II.—*Gross national product and private domestic investment for selected years*

Year	Gross national product (millions of dollars)	Gross national product (billions of 1947 dollars)	Gross private domestic investment (millions of dollars)	Capital consumption allowances (millions of dollars)	Net private domestic investment (millions of dollars)
1948.....	257,325	243.9	41,176	16,494	24,682
1949.....	257,301	241.5	32,549	18,431	14,118
1953.....	373,218	305.3	50,325	26,486	23,839
1954.....	360,654	300.8	48,032	28,760	19,272

Source: Survey of Current Business, July 1956, pp. 10-13. 24-25.

Finally, full employment may be defined as the highest possible level of employment without an excess of aggregate monetary demand. In principle, adherence to this definition would be consistent with averting or counteracting inflationary pressures from the demand side whilst acquiescing in inflationary pressures from the cost side. In practice, this definition would be favored by those who would tolerate a gradually rising price level on the assumption that the upward movement can be kept gradual indefinitely.

Thus our brief survey of some possible interpretations of full employment indicates that even a rough estimate of the extent of inflationary bias inherent in a condition of full employment will partly depend on what this condition is taken to mean. At the same time it must be noted that the difference in the employment levels implied by the various definitions is, in reality, likely to be relatively small. We must, in any case, expect seasonal unemployment plus "turnover" unemployment (persons moving, for whatever reason, from one job to another) to amount to at least 2.5 percent in the peacetime American economy. Consequently, even the Beveridge definition of full employment encompasses a 2.5-percent unemployment margin. At the other end, the definition of full employment which incorporates the price-stability constraint does not appear likely to entail considerably more than a 5-percent unemployment margin. Even the latter figure could hardly be viewed as awesome by past historical standards. Yet, it does imply some sacrifice of gross national product, and, more important, a relatively larger sacrifice of private investment. The slight decline in gross national product during the 1949 and 1954 recessions has already been mentioned. Much more pronounced was the drop in net private domestic investment (as shown in table II): in 1949 it was a decline of 42.8 percent from the 1948 level, and in 1954 it was a decrease of 19.2 percent from the 1953 level.

Private investment is crucial to the expansion of the American economy's productive capacity. In an international context in which we should hardly want to compromise our economy's growth potential, acceptance of a 5-percent unemployment margin for the sake of price-level stability is, to say the least, a questionable approach. This is not to suggest that it would be desirable to insert a maximum-tolerable-unemployment figure into the Employment Act. The Employment Act sets forth general targets rather than detailed commitments; it conveys broad directions rather than specific limits. In implementation, at any rate, "maximum employment, production, and purchasing power" have been interpreted as referring to a zone rather than to a

level. And this is as it should be in an economy in which forecasting tools are still imperfect and in which some flexibility in the use of economic-policy instruments may be desired at all times. I am suggesting, however, that it would be an error to follow a path to price-level stability that would also lead to chronic underutilization of the economy's potential for expansion and growth.

#### CAN WE AFFORD GOVERNMENT ACQUIESCENCE IN MILD INFLATION?

Where, then, are we left in the matter of price-level stability as a possible additional objective to be specified in the Employment Act? Are we to conclude that a gradually rising price level must be accepted as a deleterious but inevitable byproduct of a state of high-level employment and uninterrupted economic growth? Is there no practicable alternative to creeping or galloping inflation in the Age of Outer Space?

##### *A. Some common observations*

While high levels of production and employment have obtained since the end of World War II, the purchasing power of the consumer's dollar has undergone a substantial decline. These concurrent developments have given rise to the view that the Federal Government is more reluctant to check inflation than to counteract the recession.

Admittedly, the possible imminence of a recession evokes calls for governmental action from all sides. By contrast, the prospect of a rise in prices is a much less potent factor of organized demands for governmental intervention. Application of restrictive monetary and fiscal measures is likely to elicit vigorous opposition from various groups, whereas the pursuit of expansionary policies is agreeable to most. In general, precipitating a recession appears a more hazardous course than erring on the side of inflation. Furthermore, the existence of a large and widely distributed national debt and the necessity of recurrent refunding operations induce the Treasury to favor low interest rates. And the Federal Reserve, even with the "accord," can hardly be oblivious to the implications of a significantly restrictive monetary policy for Government and private security markets. The upshot is that the Federal Government is commonly regarded as inclined to acquiesce in an inflationary trend over the foreseeable future just as it apparently has over the recent past.

##### *B. Adequacy of Government services*

I submit that the conclusion that a gradually rising price level is the Government's "easy way out" is basically defective. I do so not only on the grounds that it may eventually prove impossible to prevent a gradual rise in the price level from becoming rapid or that a persistent erosion of the purchasing power of the consumer's dollar has inequitable redistributive effects. Rather, I suggest that from the viewpoint of government—National, State, and local—the most adverse effect of a gradually rising price level is the concomitant deterioration in the quality of Government services.

In times of high-level employment—when the Government labors under severe budgetary constraints, under powerful pressures against raising already high tax levels, and under pronounced unwillingness among policymakers to add further to existing inflationary pressures—a gradually rising price level ceases to be "the easy way out"

and becomes "the dangerous way out." Being unable to raise salaries in competition with the private sector without substantial timelags, Government agencies are, in effect, compelled to lower their standards in hiring additional and replacement personnel. In like manner, being unable to obtain increased appropriations for expansion of essential physical facilities in the face of rising costs, Government must oftentimes resort to elimination or curtailment of such expansion programs, in this instance, too, at the expense of the quality of the services being rendered. Thus, the stickiness of salary levels of teachers, scientists, military personnel, Foreign Service personnel, statisticians, accountants, and other Government employees, as well as the sluggishness in the upward adjustment of expenditures for school construction, new hospitals, improved civil-defense facilities, additional public libraries, more adequate statistical information, and a variety of other projects result in reduced quality and curtailed efficiency of vitally important services which are wholly or partly the responsibility of Government. In a period of acute international challenge, no person or institution could have a greater stake in preserving price-level stability than Government itself.

The time has come to remove the existing asymmetry between the Employment Act and the increasing awareness of the hazards of inflation by incorporating into the act the additional objective of price-level stability. This change will constitute explicit affirmation of the Federal Government's heightened concern for the maintenance of relatively stable price level amid the mounting needs for expansion of Government activities in several directions.

### *C. Some possible objections*

Various objections may be raised against the inclusion of a price-stability goal in the Employment Act. First, it has been argued that the objective of price-level stability is, in any case, implicit in the present formulation of the act, which includes mention of "essential considerations of national policy" and "general welfare." But this argument is rather specious; consistent adherence to it would obviate the need for mention of the already stated objectives of "maximum employment, production, and purchasing power," since these may be considered as no less implicit in "general welfare" than price-level stability. Furthermore, to state an important implication explicitly would contribute to the clarity of the act by removing reasons for doubting whether the particular implication was intended or not.

Second, and with more justification, it may be contended that the concept of price-level stability is too vague and, therefore, open to interpretations too different to constitute a meaningful objective for national economic policy. It is undeniable that different types of price indexes exist and that their behavior is far from uniform. Thus, the wholesale price index is more sensitive to changes in business conditions than the consumer price index, whilst the latter is closer to an average measure of the economy's final products. Moreover, there are times of divergent movements of the two indexes. In addition, the description "relative" or "reasonable" price-level stability would not indicate the precise extent of upward or downward deviation of the price level that is to be deemed tolerable. In response to the foregoing points, it should be noted that a concept such as "maximum employment" is also subject to different interpretations and yet has not proven to be a source of much confusion in policy formulation or execution.

Indeed, explicit reference to a relatively stable price level would elucidate the meaning of the act by specifying that the stated objectives of "maximum employment, production and purchasing power" are not to be interpreted as condoning a chronic inflation.

Third, it may be held that the Federal Government should not assume responsibility for reasonable price-level stability when its ability to achieve this objective may depend on the activities of private groups beyond its direct control in a free-enterprise system. This view is based on the assumption that while Government can control a demand-induced inflation, it lacks the capacity for coping with a cost-induced inflation. However, this assumption is erroneous. An important prerequisite for cost-induced inflation is a monetary policy which validates upward price-level pressure from the cost side by permitting an expansion of the reserve base of the economy's money supply. The fulfillment of this prerequisite is not an act of God, but the expression of discretionary decision making by the monetary authorities. It follows that the occurrence of a cost-induced inflation cannot properly be viewed as a development with respect to which Government is without influence in a free-enterprise economy.

Finally, it may be objected that inserting a price-stability goal into the Employment Act would create a dilemma as to which of the goals—maximum employment or price stability—is to be given preference in case it should be impossible to achieve both at the same time. However, as we have pointed out, there is no basis in postwar experience to date for assuming the existence of a serious conflict between full employment and price-level stability, unless full employment is defined as coterminous with an excess of aggregate monetary demand. Furthermore, to set aside a desirable policy objective only because its attainment currently appears as a difficult challenge is a counsel of despair. The present absence of a price-stability goal from the Employment Act is a gap attributable to the historical accident of erroneous forecasting toward the end of World War II. Whether this gap would be worth perpetuating under normal peacetime conditions is a question which need not be settled here and now. Confronting us are not normal peacetime conditions, but the exigencies of intense international competition in the scientific, technological, military, and economic fields. Meeting this competition is likely to require considerable increase in the extent and quality of Government services in the years ahead. Under such circumstances, the addition of a price-stability objective to the Employment Act is both timely and imperative.

#### CONCLUDING REMARKS

(1) We have examined the extent of conflict between price-level stability and present Employment Act objectives in the light of postwar evidence. We have found that price-level stability appears unlikely to require unemployment in excess of 5 percent of the civilian labor force. While much more moderate than some other estimates, a 5-percent unemployment margin is apt to entail a significant sacrifice in terms of net private domestic investment.

(2) We have suggested that perhaps the most serious drawback of chronic gradual inflation is a concomitant deterioration in the quality of Government services. Amid the need for improvement and expan-

sion of various governmental activities, future Government acquiescence in a slowly rising price level is undesirable.

(3) In view of the foregoing, we have recommended that the objective of a relatively stable price level be incorporated into the Employment Act. Failure to make this change in the act would be tantamount to implicit admission that the Federal Government is prepared to permit continual, if creeping, inflation.



## HOW IMPORTANT IS PRICE STABILITY IN STABLE ECONOMIC GROWTH?

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My task is to examine the impact of inflation on the functioning of a private enterprise economy, and to consider the significance of these findings for governmental policy aimed at promoting stable economic growth. In particular, should the objective of maintaining a roughly stable price level be specifically included in the Employment Act of 1946?

In the first major section below, I shall analyze the impact of moderate (or "creeping") inflation on an economy like ours, drawing both on recent experience and on economic theory. Then I shall consider specifically the question of how important the goal of price level stabilization should be, on the basis of these findings, within the broad framework of our attempt to maintain a pattern of stable economic growth.

Briefly, my conclusions are these. The effects of moderate inflation on a private enterprise economy, while much less disruptive and alarming than often claimed, are appreciable and inequitable. Moreover, such inflation provides few, if any, of the stimulative benefits often claimed for it. Persistent inflation in the United States (outside of war periods) will probably occur only as the result of combined income pressures of major economic groups and resulting expansive monetary-fiscal policy by the Government. The resulting inflation would probably have appreciable disadvantages with few advantages. It is, therefore, important for the Government to emphasize specifically that price level stability is one important goal among the several specified by the Employment Act for economic policy directed toward maintaining stable economic growth in a free society—and to recognize the correlative role of monetary stability in its policy behavior.

### I

This section analyzes the effects of moderate inflation on a modern private enterprise economy, like the United States. By inflation I shall mean simply a rise in the commodity price level, or (what is the same thing) a fall in the purchasing power of the monetary unit over commodities.<sup>1</sup> This simple definition considers any rise in the price index used as inflation; a little price rise is a little inflation, and a big price rise is big inflation. It includes price rises when less than full employment exists, because this may be part of the situation we wish to consider. It does not look behind the inflation to see its

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<sup>1</sup> The Bureau of Labor Statistics indexes of consumer prices or wholesale prices can be used to measure changes in the price level, though in principle a broader based commodity price index would be better.

cause, though I shall argue later that some causes are much more likely than others.

My analysis covers only relatively moderate ("creeping") inflation, comparable to that experienced in the United States over the last two decades. It specifically does not include massive runaway inflations like those suffered in central Europe and Asia after World Wars I and II.

The economic effects of inflation may be conveniently analyzed here by asking what the effects of inflation are on (a) society's total real output (real gross national product); (b) the distribution of that real output among economic groups; and (c) the distribution of ownership of society's wealth. My analysis, considering only moderate inflation, suggests tentatively that:

1. There is little evidence that relatively mild inflation reduces the current real output of society, though relatively sharp speculative inflation probably does help induce an ensuing price collapse and recession.

2. Neither is there much evidence that relatively mild inflation significantly stimulates current real output, although strong total demand (of which rising prices may be one side effect) helps to stimulate output, especially in periods of substantial underemployment.

3. There is no clear evidence that moderate inflation either increases or decreases the rate of economic growth, although again strong total demand may speed economic growth in an economy that would otherwise be underemployed.

4. The impact of relatively mild inflation in redistributing current income among major economic groups is apparently less than is often claimed. To a considerable extent, major economic groups seem to have adjusted their effective income claims upward at roughly comparable rates in the last two decades of inflation, although the share of wages and salaries in the national income has increased substantially. The income shares of "passive" economic groups who do not sell directly in the market (retired people, employees of government and eleemosynary institutions, and so on) apparently lost most. Within the major economic groups, individuals and subgroups were affected very diversely.

5. Inflation's effect in redistributing control over wealth is substantial over the past two decades. More than half a trillion dollars of purchasing power of creditors was wiped out by inflation.

6. In transferring purchasing power from net creditors to net debtors, inflation in the modern American economy transfers purchasing power mainly from the "household" sector (which is a heavy net creditor in spite of its substantial debts) to governments (which are heavy net debtors). But governments are only intermediate organizations. When they gain as debtors, part of this gain accrues to taxpayers, but much of it (so far as the Federal Government is concerned) is in effect dispersed throughout the economy to all spenders, who gain at the expense of savers in government securities and currency.

7. Nearly all major groups of households are net creditors, and they therefore suffer on this account from inflation. Only very poor families and young people just establishing households (25-34 age group) are net debtors on balance. Conversely, older families and

high income, wealthy families are heavy net creditors, especially susceptible to loss from inflation.

8. Businesses (corporate plus unincorporated) have seen their relative share of the national income decline slightly under moderate inflation, on the basis of reported profits. In spite of corporations' position as moderate net debtors on balance, rapidly rising wage and other costs have offset, or more than offset, this factor. Moreover, real equity of stockholders in corporations has grown less than reported figures indicate; since depreciation and cost of goods sold are generally underreported in inflation periods, reported profits are larger than they would be if calculated on a replacement cost basis.

The evidence for these tentative conclusions is drawn primarily from the experience of the American economy of the past two decades, supplemented by experience abroad and in earlier periods. These historical observations have been supplemented by economic theory, since information on the past never provides a really satisfactory basis for prediction of the future. We can never be sure in the complex interplay of forces just what observed effects in the past were actually caused by inflation; even though some changes occurred with or just following inflation, we cannot know that other third forces were not the causes. Moreover, even if we could identify cause and effect precisely in the past, we can never be sure that the future will be like the past. The following paragraphs indicate generally the kinds of evidence on which the various conclusions rest.<sup>2</sup>

### *1. Does inflation reduce current real output?*

During the past two decades of inflation in America, total real output has risen persistently. This has also been generally true in earlier periods here, and abroad. And there is little a priori reason to suppose that moderate inflation reduces the size of current national output.

The common belief that inflation disrupts the economy so as to reduce total output traces back in America largely to the massive hyperinflations of central Europe following World War I, when currency became worthless and the diversion of energy from normal productive work to speculation and rapid expending of funds became a vast drag on the production of real goods and services. Even in milder inflations, it is often argued that erratically rising prices seriously disrupt economic planning and managerial decisionmaking in particular. There is no convincing evidence on the importance of this effect in the American economy. Since the economy has grown rapidly and relatively stably over the past two decades of intermittent inflation, the disruptive effect on managerial decisionmaking can hardly have been overwhelming.

The fact that total real output has increased about fourfold in the past 20 years while prices doubled does not, of course, prove that inflation has not exerted a downward pressure on total output that was persistently overcome by other expansive forces. But the facts of history do indicate that if this was the case, the output-depressive effect of inflation was a relatively weak one.

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<sup>2</sup> A more complete analysis, underlying this summary, is presented in G. L. Bach, *Inflation: A Study in Economics, Ethics, and Politics* (Brown University Press, 1958), especially ch. I. Some earlier data and conclusions, on which the present findings partially rest, were presented to this committee, *The Impact of Moderate Inflation on Incomes and Assets of Economic Groups, in Federal Tax Policy for Economic Growth and Stability* (Joint Economic Committee, 84th Cong., 1st sess.).

But a short-run depressive effect may result when sharp speculation-based inflation contributes to an ensuing price collapse and recession in employment and output. This can happen. The post-World War I price inflation and collapse of 1920 is a clear case in point. But even quite rapid persistent inflations have continued over long periods without ensuing collapse and depression. This has, of course, been true in the United States for the past two decades. It has been true in Brazil, for example, which has had substantially continuous inflation averaging over 10 percent per annum for the past two decades while total real output has grown persistently. In the United Kingdom and most of western Europe, more or less continuous inflation over the same period has been paralleled by a generally persistent growth in real national output. It is clear that inflation does not necessarily presage collapse and unemployment just around the corner—certainly not around a very nearby corner—unless the inflation reaches a rapid rate.

*2. Does inflation increase current real output?*

Moderately rising prices have generally been accompanied by rising total output. On the other hand, total output has also risen in periods of stable prices—for example, the period of the 1920's in the United States. Historical evidence alone, therefore, does not indicate satisfactorily whether inflation increases current real output.

There is little doubt, on theoretical and empirical grounds, that rising total demand (spending) exerts an expansive force on total output, especially in periods of widespread unemployment of resources. Rising prices may be a side effect of this situation. Thus it is difficult to dissociate what is due to increased total demand and what to rising prices per se. The main arguments that inflation increases current output have been: (a) that inflation induces lagging income groups to work harder and longer; (b) that by pushing up prices faster than costs (especially wages), it increases profits and thereby stimulates investment and output; (c) by stimulating buying and output now, expectation of continued inflation puts a premium on early purchases; and (d) by easing the transfer of resources from declining to expanding industries, inflation helps increase total output. It is agreed that inflation can increase current output greatly only when substantial unemployment exists; only (a) is apt to be important in periods of substantially full employment.

(a) Casual observation turns up numerous cases where inflation has driven lagging income groups to work more and harder in order to protect their real incomes—retired men driven back to part-time work, wives of college professors working to supplement their husbands' lagging salaries, schoolteachers driving taxis or working in industry during summer vacations—but it is doubtful that this effect is a major one in creeping inflation. Two factors are critical: How far behind prices do incomes lag, and how important are the lagging income groups in the economy? Recent evidence suggests that in America the major income groups have generally adjusted their income claims upward roughly in proportion to rising prices so money incomes have not lagged far behind prices for most groups. Moreover, those with the most significantly lagging incomes—retired persons and employees of governments and eleemosynary institutions—are neither large in the total potential productive power of the economy

nor in a position readily to increase greatly the total amount of work in the national output. The labor force has shown no significant tendency to grow during inflation as a percentage of the total population of labor force age, except during the war period when factors other than inflation primarily explain this change. And while the proportion of women holding jobs has risen steadily over the past quarter century, outside the war period there is no significant relationship between the rate of increase and the rate of inflation. On the other hand, the recent increase in "moonlighting"—holding a second job—may be partially a result of inflation.

(b) The main argument that inflation stimulates current output has been that it increases profits as wages (and other costs) lag behind rising prices, and this in turn induces more investment and output. This wage lag has indeed apparently played a major role in many past inflations. But, as the evidence presented below clearly indicates, wages have not lagged behind prices in the American inflation of the past two decades. During the demand-pull inflation spurts of 1946-48 and 1950-51, profits temporarily rose faster than wages, but this situation was reversed immediately thereafter. And in the 1955-58 surge of prices, the wage share grew markedly relative to profits. Thus overall wage costs have risen somewhat more rapidly than selling prices with the result that profits have been squeezed. Indeed, wages throughout the western industrialized world seem to be increasingly mobile upward, in many instances linked to rising prices through built-in escalator clauses. Perhaps this situation will change—and clearly a wage lag would be more likely in an underemployed economy—but potent economic and political pressures suggest that the wage lag is likely to be gone for a long time to come.

Some other costs may lag in inflation, even though wages do not. Interest charges, rents, many salaries, and other costs are temporarily fixed in dollar terms as selling prices of products rise. But these lags can easily be overcome by only a modest wage lead. A special argument is advanced on the lag of interest costs, that this stimulates borrowing for real investment because the borrowed funds can be paid back in cheaper dollars. This sounds reasonable, but few corporate officials report this as a major consideration in capital-goods planning.

Inflation does lead to substantial overstatement of profits under prevailing accounting practices, because depreciation and inventory replacement costs are understated, and this overstatement of profits may induce businesses to invest and produce more than they otherwise would. Partial estimates suggest that this understatement of replacement costs may have approached one-third of corporate reported profits during the decade of the 1940's.<sup>3</sup> While most businessmen surely recognize the phantom nature of part of their profits in inflation, it may be that large accounting profits stimulate them to increase output and investment spending beyond that which would be induced by the "real" profit figures. If this force is important, it is surely more so for investment than for total current output, however.

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<sup>3</sup> See Ralph C. Jones, *Price Level Changes and Financial Statements: Case Studies of Four Companies, and Effects of Price Level Changes on Business Income, Capital, and Taxes* (American Accounting Association, 1955 and 1956, respectively); and George Terborgh, *Corporate Profits in the Decade 1947-56* (Washington, Machinery and Allied Products Institute, 1957).

(c) Expectation of continuing inflation may lead to increased current real output, especially in an underemployment situation, by stimulating buying ahead for inventories and for speculative resale. But people cannot pile up inventories indefinitely on speculation that prices tomorrow will be higher than today. Except as a "shot in the arm," this can hardly be a major effect.

(d) Rising prices may make it easier for resources to be shifted away from declining into growing industries, thereby helping to expand output. Without inflation, prices in declining industries may need to fall to force resources out, whereas with inflation resources can be bid into growing industries by higher wages and prices. Inflation may thus deserve some credit as a social lubricant. But the historical evidence suggests mainly that resources shift easily when times are prosperous and badly when depression prevails, regardless of whether prices are rising or not. Agriculture is the major historical case in point.

Overall, there is little real evidence that moderate inflation increases current real output, though it is hard to dissociate the stimulative effect of strong total demand from the effect of rising prices per se. Certainly rising total demand may stimulate output and employment in periods of underemployment, even though rising prices have little contribution to make. In periods of substantially full employment, neither seems likely to increase current total output much, and the argument that inflation is a necessary evil to increase output is weakened accordingly.

### 3. *Does inflation stimulate economic growth?*

Historians have argued that over the centuries inflation has generally shifted income from the poor to the rich and from workers to businessmen. This, they argue, has increased the volume of saving and investment and speeded the rate of economic growth.<sup>4</sup> While much evidence seems to support this view, the case is by no means clear. Whatever the lesson of history, more recent experience throws grave doubt on this hypothesis for, as will be shown below, at least in the recent American inflation the share of profits has not increased relative to wages, nor has the share of the rich increased. The contrary has been true. Thus, the argument that inflation induces more saving and investment via this channel cannot be accepted if recent experience predicts the future.

More recently, many economists have argued precisely the contrary—that inflation discourages savings and thereby retards capital accumulation, because inflation erodes the value of accumulated savings and encourages spending on current consumption. There is little doubt that this effect prevails in very rapid, runaway inflation. But for more moderate inflation, the case is not convincing. In almost all the post-World War II inflations of the Western World, capital accumulation has proceeded rapidly. Inflation obviously militates against saving in most forms, but the motives for saving are many and mixed, and modern society provides some effective saving-investment channels to escape the erosion of inflation, at least for sophisticated savers.

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<sup>4</sup> See Earl Hamilton, "Prices as a Factor in Business Growth," *Journal of Economic History*, Fall 1952. A counter argument is presented by David Felix, "Profit Inflation and Industrial Growth," *Quarterly Journal of Economics*, August 1956.

Conclusion: A Scotch verdict. It is not clear that inflation of modest proportions either increases or decreases substantially the rate of capital accumulation.

A concluding note on the relationship between inflation, production, and employment is provided by table 1, which summarizes the changes on these 3 scores between 1952 and 1955 in the United States and 7 major European countries. This table shows no consistent relationship between inflation and changes in production. The largest increase in output and employment occurred in West Germany, which had no inflation at all; the smallest in Sweden which had an intermediate amount of inflation. The next largest increases in production were in Italy and the Netherlands with intermediate inflation; the next smallest in the United States with very little inflation. Nor can the apparent failure of inflation to explain differing rates of growth and output be explained by introducing such other obvious intercountry differences as differential increases in the supply of money, differing money wage ratio average to prices, or differing positions on international trade account.<sup>5</sup>

TABLE 1.—*Inflation, production, and employment, 1952-55*<sup>1</sup>

[1952=100]

	United States	Belgium	France	Germany	Italy	Netherlands	Sweden	United Kingdom
<b>Cost of living:</b>								
1953.....	101	100	99	98	102	100	101	103
1954.....	101	102	99	98	105	104	102	105
1955.....	101	101	100	100	108	106	105	110
<b>Industrial production:</b>								
1953.....	108	100	97	109	110	110	100	106
1954.....	100	106	106	122	120	120	104	114
1955.....	112	114	117	141	130	128	110	119
<b>Employment:</b>								
1953.....	103	99	98	104	100	103	97	101
1954.....	100	99	99	109	101	107	98	104
1955.....	102	101	100	118	103	109	100	107

<sup>1</sup> Data from J. Herbert Furth, *Indicators of Inflation in Western Europe, 1952-55*, Review of Economics and Statistics, August 1956, pp. 336-337. See that article for an analysis of the various countries' experiences.

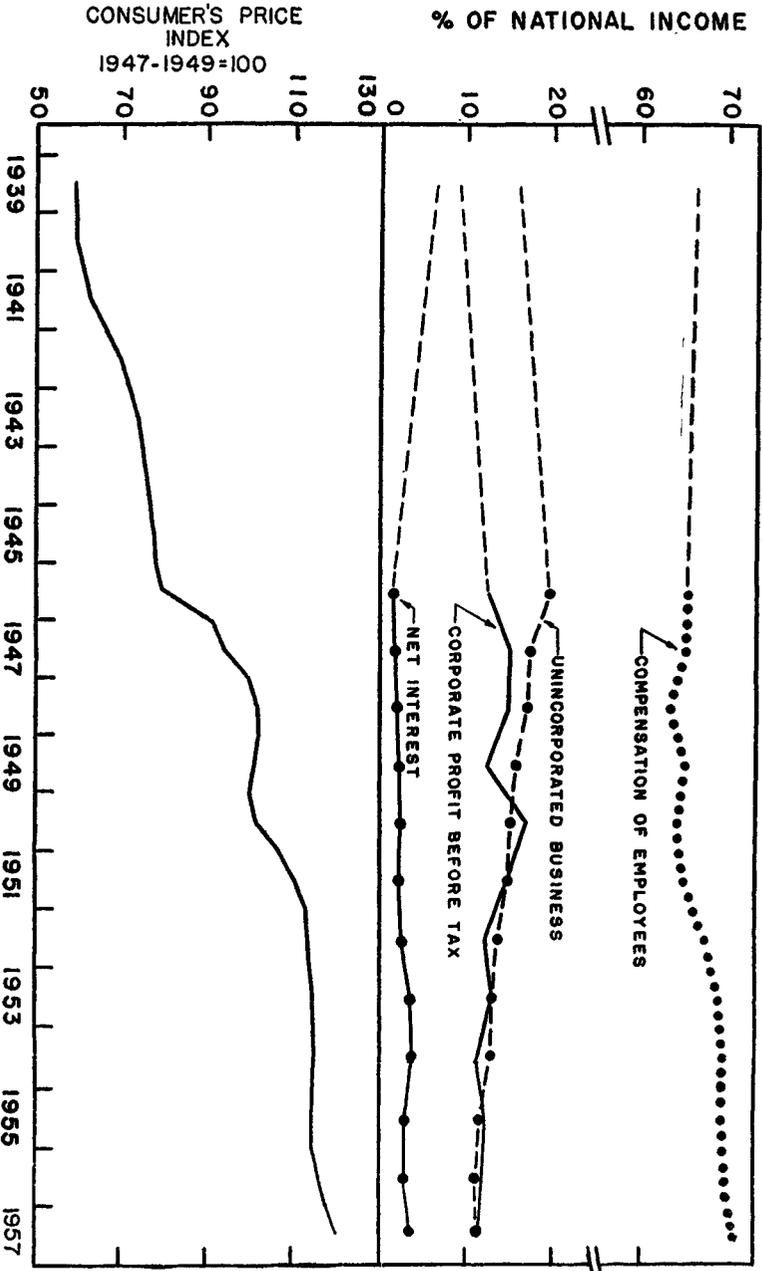
#### 4. *Does inflation redistribute income?*

Mild inflation apparently redistributes current income among major economic groups less than is often claimed, though the income redistribution may be appreciable. The redistribution that does take place does not correspond very well to some of the common preconceptions about inflation, at least in the recent American economy.

Over the past two decades, every broad functional economic group in the United States has gained substantially in real income. Within the rapidly growing total the wage share grew appreciably over the period; wages and salaries, often considered laggards, considerably outdistanced profits as a share of the national income. Farmers, who are commonly supposed to gain most from inflation, saw their share of the national income decline persistently—perhaps in spite of inflation, but decline nevertheless. Corporation profits declined slightly. Unincorporated businesses, usually thought to be gainers from infla-

<sup>5</sup> In the interest of brevity and simplicity, the international effects of inflation are completely omitted. For the United States as a whole, this probably does not distort greatly the conclusions stated. For some sectors of the economy, however, the foreign trade repercussions may be dominant. And for most other countries, more heavily dependent on foreign trade, such omissions would not be tolerable.

tion, took a substantial cut in their share of the total. The interest share fell drastically during World War II, as interest rates were held down by Government policy, but it has grown moderately back toward its earlier level since then. The rent share has changed little. Nor is there evidence that inflation has shifted income from the poor to the rich. If there was any effect, it apparently was the other way. Figure 1 pictures these changes.



SHARES OF NATIONAL INCOME IN INFLATION, 1939-1957

FIGURE 1

Since inflation penalizes primarily those whose incomes rise more slowly than the incomes of their fellows, it was those on relatively fixed incomes who lost relatively, whether they were rich or poor, young or old, farmer or city dweller. Above all, it appears to have been the older people whose piece of the national income pie suffered most. Their share of the national income dropped substantially as inflation ate away at their largely fixed incomes. Moreover, here it appears that inflation did discriminate against the middle incomes and the poor. Well-to-do retired individuals could afford to diversify the investments underlying their retirement incomes and to include substantial amounts of such variable income assets as common stocks and real estate whose dollar yields increased with inflation. To the lower income families and widows this alternative was hardly open. Social-security payments have been raised greatly, and many older people have jobs. But this does not eliminate the basic fact that inflation is a major blow to this group, living considerably on past savings.

The other most important lagging income group appears to have been employees of governments and eleemosynary institutions generally, especially teachers. In some cases, teachers' salaries have lagged so greatly that their real incomes have actually declined during the greatest boom in our history.

More generally, it was the "passive" economic groups—those who sold no products on which they could raise the price or who worked under arrangements where their output could not readily be raised in price—who suffered at the expense of the "active" groups in society.

A broad generalization is suggested. We may live in a society where the major economic groups are increasingly effective in protecting their own income shares during slow inflation; and where private wage and salary earners are especially successful, at the expense of more passive, quasi-fixed income groups throughout the economy who have neither prices to raise nor sufficient political power to push up their incomes apace with rising prices.

*5, 6, and 7. Does inflation redistribute control over wealth? <sup>6</sup>*

Inflation transfers control over wealth (as contrasted to current income) from creditors to debtors. This is so because the debtor who borrows \$100 and repays the same \$100 later when prices are twice as high repays only half as much in real purchasing power. As best I can estimate, the American inflation over the past two decades has wiped out in this way well over half a trillion dollars of creditors' claims on debtors (in 1957 prices). All fixed-dollar-value intangible assets (such as bank deposits, currency, mortgages, Government and corporation bonds, life-insurance reserves, and pension and retirement funds) are debts owed to creditors that are susceptible to this erosion by inflation. In 1938 all such assets totaled just over \$300 billion. If we calculate the loss of purchasing power on these debts up to the present, and make a similar calculation for the additional net debts of each following year, we obtain the very rough estimate of over \$500 million inflationary erosion of real purchasing power of creditors over the period.

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<sup>6</sup>The impact of inflation on the distribution of wealth was analyzed in my earlier testimony before this committee, *The Impact of Moderate Inflation on Incomes and Assets of Economic Groups*, in *Federal Tax Policy for Economic Growth and Stability* (1955), and in G. L. Bach and A. Ando, *The Redistributive Effects of Inflation*, *Review of Economics and Statistics*, February 1957. Only a brief summary, therefore, is included here.

Who gained this huge sum of purchasing power which creditors lost? On balance, households have consistently been heavy net creditors, and governments (especially the Federal Government) consistently heavy net debtors, with the two offsetting each other roughly at something over a quarter of a trillion dollars each. Unincorporated businesses and nonfinancial corporations roughly offset each other as net creditors and net debtors, respectively, but the figures involved are small compared to households and governments.

In summary, inflation has caused a huge transfer of purchasing power from households primarily to the Federal Government. But this is clearly not the end of the matter, since the Government is not some separate entity but, rather, an agency for all of us. We must look through the Government to see who are the actual beneficiaries of this inflation-induced levy on creditors.

At first blush, it would appear that taxpayers (that is, all of us in our capacities as taxpayers) are the gainers. We now need to give up less purchasing power in taxes to meet payments on interest and principal on the Government debt. But it is highly unlikely that the Government debt will be paid off through taxation in the foreseeable future. Who, then, is the gainer of the purchasing power confiscated from Government creditors by inflation? The answer is, the buying public as a whole, in proportion to its expenditures. Bondholders' real purchasing power is reduced, thereby increasing the share of the total current output that can be commanded by the rest of the buying public as their incomes rise with inflation. Put in commonsense language, Government bondholders and money holders are partially expropriated by inflation, and the benefit is distributed over the whole population, with the biggest benefits to those who buy the most.

What types of households lose most as creditors? All households combined hold about 30 percent of their total wealth in the form of fixed dollar value assets. By contrast, they are in debt up to only a little over 10 percent of their total wealth. The difference is a measure of their net creditor position. Every major group of households is a substantial net creditor by this measure, except for very poor families and young families in the 25 to 34 age range which are heavily in debt as they are setting up families and housekeeping.

But the extent to which different groups are net creditors varies a good deal. The heaviest net creditors, relative to their incomes, are older people, especially those who are retired. They hold a larger proportion of their wealth in fixed dollar value assets than do any other major group, largely because of the importance to them of insurance, and pensions and other retirement funds. Moreover, they are least in debt, to reap offsetting benefits on that score.

At the other extreme, the very penurious or injudicious who are so heavily in debt as to have a negative net worth and the younger families mentioned above are least susceptible to "creditor loss" from inflation.

Very well-to-do families appear to be in a mixed position. They are slightly higher net creditors than the average (relative to their total wealth), and their debts are small. Thus they appear vulnerable to inflation. But they hold an exceptionally large proportion of their total assets in "variable price" form (common stock, real

estate, and so on), which serves as a partial offset to their exposure as net creditors.<sup>7</sup>

8. *How does inflation affect businesses?*

Nonfinancial corporations are net debtors on balance, but only to a modest extent. Moreover, on the average about one-third of all individual corporations have been net creditors at any given time over the past two inflationary decades. Thus, nonfinancial corporations stand to gain somewhat on asset account from inflation, but only to a moderate extent.

For most companies, other factors apparently play dominant roles in determining the economic well-being of the corporation during periods of inflation. Sales volume and increases in current costs relative to selling prices appear to explain changes in the economic position of corporations to a larger extent than do inflation-induced transfers on asset account. As was indicated above, reported corporate profits in the aggregate have maintained a roughly stable proportion of total national income since the beginning of the two-decade inflation period, though they have declined gradually since World War II. "Real" corporation profits declined appreciably as a share of the national income, since reported profits over an inflationary period are larger than they should be if depreciation charges were sufficient to actually replace wearing out equipment. Moreover, inventory costs are generally undercharged in inflation. Recent research suggests that such underreporting of costs and resultant overreporting of profits in inflation was enough to eat up over one-third of reported profits in a small sample of diverse companies studied. Thus, on balance nonmanufacturing corporations as well as unincorporated businesses received a declining relative share of the real national income through the recent inflation, even though they gained moderately as net debtors.

## II

The economic impact on America of moderate, creeping inflation has been substantial, but hardly disastrous. This case against creeping inflation is clear, if modest. But the stronger case against permitting creeping inflation is that this governmental acquiescence greatly increases the likelihood of more rapid inflation, whose results will be more disruptive and inequitable. And acceptance of inflation as a "price" for maintaining high-level employment will generally be a mistaken choice, since it is unlikely that inflation will in fact produce the desired full employment.

The history of America appears to provide little basis for expecting major inflation outside the impact of war.<sup>8</sup> If the peacetime inflation danger is now great, there must be a change to account for it. I believe there has been such a change.

Bursts of inflation may come from many causes. But the danger of serious continuing peacetime inflation arises fundamentally from

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<sup>7</sup> For statistical data on the position of different household groups, see *Federal Tax Policy for Economic Growth*, pp. 78-80.

<sup>8</sup> Major war would bring inflationary dangers of the first magnitude. But in that event we can anticipate such widespread changes in the entire financial structure and economic arrangements that discussion at the present level may have little relevance.

two major interacting factors: powerful "excess income claims," and governmental support of high-level employment through expansionary monetary fiscal policy. The danger is that this combination will gradually turn the creeping inflation to a walk and perhaps even to a run. Major economic groups—in labor, business, and agriculture—have come increasingly to demand, through the market place and through the governmental process, larger total income shares than are consistent with maintenance of a stable price level. There is nothing new about the desire for larger income shares. But to this desire has been added both the increased degree of organization of major groups in the market places and, most important, the acceptance of responsibility by the Federal Government for maintaining high-level employment and production.

Government acceptance of this responsibility, which has been properly and widely acclaimed, means that if major wages and commodity prices are pushed up faster than is consistent with high-level employment and production, the resulting unemployment and falling sales will be bailed out by expansionary governmental monetary-fiscal policy, either directly or indirectly. A complete Government guaranty of "full employment" would substantially remove the pressure on any particular income group (seller) to moderate its own income claims, by removing the fear of unemployment or lost sales. So long as any group's demands did not get seriously ahead of other expanding claims in the economy, it could count on continued employment and sales at new higher cost and price levels. While inflation would result for the economy as a whole, each income claimant would see a chance of getting ahead of the parade. Moreover, with some relatively fixed income groups in society, there would always be a "rational" basis for excess income claims, since the active claimants would always gain at the expense of passive participants in the economic process.

The apparent demonstration of the World War II period that massive Government spending can create substantially full employment—that the war and the huge deficit spending connected with it did solve the vast unemployment problem of the 1930's—has consciously and subconsciously deeply affected the thinking of the present generation. Since Government monetary and fiscal policy (it appears) can cure unemployment and depression, there is little need to have unemployment and depression. Thus the normal restraint against excess income claims, the fear of pricing oneself out of the market, has been substantially weakened.

The danger of persistent inflation is further increased by the pervasive belief that the Government has a considerable responsibility to take care of groups in trouble and that a rather high degree of social security is a desirable public-policy goal. Even more important, the high cost of defense, probably over many years ahead, increases the tendency toward inflation. Taxes are always harder to raise than expenditures, and higher Government expenditures even with a balanced budget probably exert some inflationary pressures.

Logically, this analysis leads to a prediction of cumulatively rising inflation as income claimants try to outgrab each other. But in spite of this reasoning, I foresee little danger of truly galloping inflation of the postwar central European variety in the United States short of all-out war. This could only occur through a complete collapse of

responsible governmental monetary-fiscal policy. While there is little doubt that the public fears unemployment more than it fears inflation, should inflation reach anything approaching runaway levels in an economy like ours, it seems to me overwhelmingly likely that the public would demand and actively support governmental restraint on the inflation both through more restrictive monetary-fiscal policy and through imposition of widespread direct controls, unpalatable as these may be in less drastic situations. But the likelihood that inflation may go beyond a creep to several percent a year seems by no means remote, if governmental assurance of substantially full employment and maximum production becomes widely counted on as the dominant goal of national economic policy. Under that circumstance, it is easy to see how income claimants, both large and small, can persistently raise their asking prices faster than is consistent with the full-employment output at stable prices, and that these asking prices may be raised cumulatively as time goes on.

Indeed, one of the greatest dangers of "moderate" inflation is that it will grow fast enough to generate strong pressure for imposition of widespread direct Government controls over individual wages and prices, under the mistaken belief that this is the only or most effective way to check rising prices. "Creeping" inflation has not recently generated such strong pressure to interfere with private markets. But I suspect that only a small further increase in the rate of inflation would indeed bring a major danger to the preservation of substantially free markets. Imposing a new regulation always offers the illusion of avoiding the painful restrictive impact of limiting total spending power.

Many suggestions have been made to blunt the growth of excess income claims. But to date none of these seems very promising. Exhortation to moderation sounds good, but is a doubtful weapon against self-interest. At least until a better suggestion comes along, the main protection against an increasing "excess income claims inflation" must be a recognition by economic groups (sellers generally) that they do run a risk of pricing themselves temporarily at least out of the market; in other words, that the Government is not committed solely to maintaining full employment and high-level output.

The biggest objection raised against this analysis is the widely cited "unemployment versus inflation" dilemma. What if sellers' wages and prices are persistently pushed up and the Government refuses to augment the money supply, directly or indirectly? Unemployment will result, the argument runs. Only by providing increased purchasing power can the Government prevent unemployment and falling sales. Inflation will result, but this inflation is the necessary price for avoiding unemployment.

Such Government-supported inflation may temporarily ease the excess-income-claims inflation. But if my analysis above is correct, only very temporarily. For as assurance grows that Government action will bail out excess-income-claims-induced unemployment and falling sales, the restraining forces against inflationary wage-price demands weaken proportionally. Wage and price demands will be bigger next time around and the Government-supported inflation required to avoid unemployment will be larger. What will stop the inflationary demands and responses from cumulating upward?

Creeping Government-supported inflation does not solve the unemployment versus inflation dilemma which arises from excess-income claims. At best it only postpones the dilemma, and even temporary success becomes increasingly unlikely, even though the rate of inflation is repeatedly stepped upward. The problem of excess-income-claims-induced unemployment must ultimately be faced directly. We cannot have full employment without inflation if excess-income claims prevail. Indeed, it may become increasingly difficult to have full employment with inflation, if inflation becomes increasingly accepted and expected. If we must choose between high-level employment and inflation, most people will choose high-level employment. If we could assure full employment by having a little inflation, few would hesitate to incur the inflation. But this is not the meaningful way to state the choice. To avoid inflation without full employment, we must generate and preserve an economic climate where sellers expect Government policy to emphasize both high-level employment and relatively stable prices. The solution to the unemployment or inflation dilemma is, as with many other dilemmas, not to choose one or the other painful alternative; rather, it is to take steps to avoid having the dilemma arise.

In the long run, we will avoid an excess-income claims inflation only if the public really wants to avoid it—only if economic groups are willing, on the whole, to keep their income claims roughly within the bounds of full employment output and stable prices. Ultimately the public must understand the danger of serious inflation and must consider this an important public policy objective if the long-run inflation danger is to be contained. “The Government” or some part of it, such as the Federal Reserve Board, can provide leadership against inflation, and can even restrain inflation counter to widespread public pressures for some period of time. But in the last analysis, no Government agency can enforce a counter-inflation policy on a public which does not want it.

### III

What are the implications of this argument for the Employment Act of 1946? The case for inclusion of substantial stability of the consumer price level as one objective of governmental policy in the act seems to me a convincing one. The language of the act is general and aimed at the promotion of multiple goals. Maximum employment, production, and purchasing power are central objectives. Addition of substantial stability of the price level would in no sense weaken the importance of the goals already stated, but would recognize specifically another important goal of public policy.

It is the responsibility of the Congress and administrative officers of the Government to provide leadership on economic policy, as in other areas. This is critically true in the case of counterinflation policy, since only expansionary Government monetary-fiscal policy can support a continuing excess income claims inflation. Specific inclusion of the price level stability objective would be such an act of leadership. Constant visibility to Members of Congress, to the administrative branch of the Government, and to the public of the price level stability goal along with the presently stated goals of the Employment Act would help to provide a more restraining framework for all in making their public and private economic policies.

It has been argued that the price level stability goal is already implicit in the act. This may be so, and undoubtedly many Government servants so interpret the present language. But one of the main factors in the inflation since World War II, and one of the main factors in any future inflation, will be the fact that consumers, union leaders, and businessmen expect prices to rise. Their resulting behavior has contributed substantially to price rises in the past. They may well do so again. A clear warning against such expectations can help at least some; it can hardly do any harm.

The major argument against inclusion of price stability in the act is that this would lessen the promptness or vigor with which the Government may act against future depressions. I cannot believe that this is true. The pressures for strong, quick governmental action against unemployment are powerful and pervasive. But by contrast I do believe that specific stable money language might help to strengthen the hand of those in the Government who have the painful and often superficially unpopular task of fighting inflations as they develop. Temporarily our attention has been diverted from the problem of creeping inflation to a serious recession. But if inflation does again grow to more major proportions it will be basically because the Government provides the fuel for the inflationary fire through monetary and fiscal policy, and because the public comes to anticipate the provision of this fuel. Inclusion of an announced goal of substantial price stability is the minimal responsible level of protective action.

Treading the precarious path toward stable economic growth is at best difficult, especially with the multiple objectives implied in that general goal. Building a self-reinforcing set of stable money plus high output expectations is at best a slow, hard process in our democratic society. We cannot expect success overnight. But current policy needs to be directed toward this goal at the same time it is necessarily focused also on the instabilities of each present situation.



# PRICE BEHAVIOR, STABILITY, AND GROWTH<sup>1</sup>

William J. Baumol, Princeton University

When Johnson first arrived in London \* \* \* "Thirty pounds a year was enough to enable a man to live there without being contemptible \* \* \* It may be estimated that double the money might now with difficulty be sufficient."—Boswell

## I. AN OVERALL VIEW

### *A. The historical persistence of inflationary pressures*

Among the few things which economists predict with any degree of confidence is that, with some possible exceptional periods, prices will, on the average, be higher in future decades than they are today. This belief is based in part on a remarkably consistent historical record. Scrappy evidence going back to the 13th century apparently indicates that prices in England and the United States were never stable for any protracted period, and that, considering periods of the order of magnitude of 50 years, the price level has risen almost constantly.

However, its persistence is not the only reason we have for expecting at least a mild but chronic inflation to continue in the future. The fact is that there are many forces which make for inflation. For example, it is always easier, politically, for a government to increase its expenditures than to increase its taxes and a counterinflationary budget surplus is certainly likely to be unpopular.

### *B. The role of the American firm in economic growth*

Perhaps more relevant for the present discussion are the relationships between economic growth and the behavior of the price level. First I should like to say something about the nature of the forces which make for growth in our economy. The centers of expansion decisions in a free enterprise economy are its business firms. This is not as obvious as it may seem—conservative business practice could well call for firms to hold the line until rising population and consumption demand created the market for an expanded output. But business enterprises simply do not operate in this way. Schumpeter argued long ago that in order to increase their net worth firms must keep innovating—introducing new products, new sources of supply, new production methods, etc.

There are other related reasons for management's preoccupation with growth. Growth can make a firm more attractive to the money market and its products more attractive to customers. The morale of its personnel is likely to be much higher than is the case in a declining enterprise. Only by growth can a small firm hope to enter those lines of enterprise where a large amount of capital is required. Other advantages of growth to the firm can easily be cited.

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<sup>1</sup> I am extremely grateful to Lester V. Chandler, Kenneth Galbraith, and Gardner Patter-son for their very helpful comments and suggestions.

There is yet another reason why American business enterprise has worked for expansion of our economy—a reason which will play an important role in the discussion later in this paper. So far I have argued that businessmen want their firms to expand because growth helps them to achieve their other objectives—it opens new profit opportunities, it helps with personnel management, etc. But growth is important to the businessman not only as a means to an end. In large segments of American business practice it has become a goal in and of itself.

I have had occasion to consult with a number of firms in various industries and of various sizes, and in almost every one this appeared to be the case. In the so-called oligopolistic sectors of our economy, the industries containing a relatively small number of large firms which account for so large a proportion of our Nation's output, among top management's prime yardsticks of success are sales revenue and market share. When a businessman in such a firm is asked how things are going one can be quite sure that he will reply cheerfully that sales (meaning dollar volume) have gone up  $x$  percent (or sadly that they have gone down  $y$  percent) and that only subsequently, if at all, will he say anything about his profits.

This is not meant to deny that those businessmen are in business at least partly to earn money. But so long as profits are at a level which it considers reasonable—enough to keep stockholders satisfied and to contribute to the financing of growth—management will bend its efforts to the expansion of sales revenues rather than to further increases in profits.

To summarize, we have in the nature of American business enterprise powerful dynamic forces which can be depended upon to produce a remarkable rate of long-run expansion of our economy. Of course there have been a number of severe and important short-run breakdowns in this mechanism but a glance at the broad outlines of our economic history suggests that expansion and not depression is its preponderant characteristic.

### *C. The effect of growth on price levels*

Let us return now to the central subject—the relationship between growth and the price level. This is a two-way relationship—economic growth influences price behavior and price behavior influences growth.

Economic expansion clearly puts upward pressures on prices. When employment is high and businessmen are bidding against one another for resources which are in short supply it may naturally be expected that the sellers of these resources will raise their prices. Unions will demand higher wages. The owners of natural resources will raise their prices, etc. Furthermore, businessmen will be inclined not to resist these demands too strongly because their experience is that during a period of expansion they can raise their prices accordingly without any serious effects on sales.

This is made possible, at least partly, by the fact that the price raising occurs simultaneously with the rise in costs. For increasing costs take the form of higher incomes and higher purchasing power in the hands of the sellers of productive resources who can now afford the higher prices asked by the businessman. Of course any individual businessman might nevertheless do better for himself were he able to resist wage and other cost raising demands so long as no one else

did so. For then he could benefit from the increased demand for his products which results from the increased incomes of other firms' employees without himself paying any higher costs. But observation suggests that the corporate form, in which management is in a position of stewardship over the property of others, has made the executive highly reluctant to risk good will and public approbation in major battles with the unions. So long as rising costs can easily be passed on management will therefore put up no more than token resistance to wage and other factor price demands.

Thus it is clear that either because he cannot help it or because he does not wish to resist too hard, economic growth usually raises the businessman's costs and hence tends to induce him to raise his prices. Occasional exceptions are produced by cost-saving inventions which help to expand sales through reduced prices or by economies of large scale production made possible by growth of the firm. But, by and large, expansion can be expected to create bottlenecks and competition for factors of production whose effect is inflationary.

This is particularly so because growth is contagious. It is not likely to occur in one or a few industries at a time. Growth in one sector of the economy creates the income and hence the demand for the products of other sectors. Moreover in any one industry management's concern with market share means that the expansion of any one firm is likely to be followed by emulatory effort on the part of other companies.

Hence we may expect that everyone will be wanting labor, raw materials, and equipment at the same time and that the effect on prices will therefore be as described.

#### *D. The effect of price levels on growth*

Up to a point slowly rising price levels probably act as a stimulant to growth. On the one hand they produce an optimistic atmosphere in which the businessman has confidence in the chances for success of his expansion programs. Moreover, as we have seen, increasing costs do not seem to serve as much of a deterrent to output during such a period.

However when the price rises go on for too long or are too sharp they can be expected to act as a drag on real output in a number of ways:

1. Unless the public becomes accustomed to uninterrupted inflation as a way of life people are likely to begin eventually to think that it must some day come to an end. This expectation effect can lead businessmen to liquidate inventories and consumers to postpone purchases, particularly purchases of durable goods. A softening of the market for any increased output (growth) is particularly likely to result if consumers think prices are too high and decide therefore to postpone any purchases which represent increases in their living standards.

2. Rising prices can also deter growth because they eat into the value of an important class of savings. Holders of money and Government securities will find that the value of their accumulations has evaporated and if there is any reason to make up the loss (e. g., saving for retirement) they may be forced to reduce their demands accordingly. This is the familiar effect which has gone under various names such as the Pigou (and Keynes) effect, the real balance effect, the wealth saving relationship, etc.

3. So far I have discussed the adverse effects of slow chronic inflation on economic growth when it acts as a deterrent to demand. Less

frequently we hear nowadays of the effects on supply but in the long run I think these effects are of at least equal importance.

The first of these is related to one that has already been discussed, the effects of expectations on demand. I have already shown that if people are led to expect an end to the inflationary process, demand may be decreased and the steam may be taken out of the growth process. However the alternative can be equally unattractive. If the public gets to feel that the future holds only still higher prices many people may cease saving altogether and so an important source of business financing may disappear. The effect may be a squeeze on the construction of plant and equipment which, in the long run, can seriously reduce national output. However here there may be an important offset in that increased consumer demand may greatly facilitate corporate saving.

4. A more universal effect of inflationary pressure on supply is an extremely serious reduction in quality standards. This applies equally to the quality of labor, of raw materials and of product. The absence of real economic pressures—the universal seller's market which accompanies inflation—means that there is little motivation to preserve standards of workmanship. Why produce a better product if the old commodity can be sold anyhow? Why work hard if employers are short of men and one can always get another job?

This danger is increased by the fact that reduced quality is a convenient way of disguising price rises. If a product has a traditional price it is so much easier to put a little less into the packages, to use shoddier materials, to reduce expenditure on quality control so that the customer instead of paying much more for the same products pays the same or only a little more for a formerly cheaper product.

Signs of this are all about us. The candy bar is smaller than it used to be, food products which require it are not aged as long as they used to be and so on. When this process is allowed to go on long enough the economy is transformed into a world of Potemkin villages. Two houses are produced where there was one before—but these two houses are basically well disguised shacks. In other words chronically creeping inflation is likely to turn economic growth into a sham and to produce a blight on the economy and the landscape from which it can take a long time to recover.

### *E. Policy implications*

I believe strongly that there are right conclusions and wrong conclusions to be drawn from the foregoing analysis. One wrong conclusion is that price rises are going to occur anyhow and there is therefore very little that can be done about it.

Equally unacceptable to me is the view that the Government must reconcile itself to some rise in prices partly because they act as a stimulant to growth, but that the role of monetary and fiscal policy in this connection should be to keep the rate of increase small—say to some figure no higher than 4 or perhaps 2 percent per year.

I object to this view on two grounds. One is a matter of tactics while the other follows directly from the foregoing analysis. The tactical consideration is that whatever our objective there is some danger that we will fall somewhat short of it. Experience suggests that if we are prepared to do no more than to seek to keep the rate of inflation down to 4 percent per year it is highly likely that prices will

rise faster than that. Only from a determination to take all measures necessary to put a stop to inflation altogether can we with any confidence expect that there will be much of a contribution to its deceleration. In part, but only in part, this is a consequence of the structure of our political arrangements. It is an inherent and in fact a desirable feature of a political system built about a multitude of checks and balances that governmental plans are likely to come out much less sharp and extreme than they were when first conceived.

But aside from this problem of tactics the adoption of a constant slow rate of inflation as a goal can be objected to on the grounds that the adverse effects of inflation on growth which were discussed above can be produced by slow chronic price rises perhaps at least as effectively as they can by occasional sharp increases in the price level. The attrition of savings can occur in either case and the destruction of quality standards may be more complete for having occurred in slow imperceptible steps.

To put the matter affirmatively, the promotion of economic stability and growth requires monetary and fiscal policies which can and do prevent uninterrupted inflation. This conclusion is not based on considerations of equity which clearly may by themselves also make it imperative that inflation be brought to a halt. For the question to which I have addressed myself is increased growth of total national output rather than its distribution. Perhaps on either ground it may be argued that we cannot tolerate a policy which passively accepts uninterrupted inflation as an immutable feature of the national fate.

## II. THE ROLE OF THE MARKET STRUCTURE

In an important recent contribution Professor Galbraith has called our attention to the fact that the process by which price changes occur is dependent on the nature of the market structure.<sup>2</sup> Prices are set in a different way in those sectors of the economy which are composed of many small firms than they are in industries where there are 5, 10, or 20 major producers (the oligopolistic sectors).

Galbraith has argued that oligopolistic firms are particularly effective conductors of inflationary pressure (pp. 127-130) and that they are relatively immune to the counterinflationary influences of monetary and fiscal policy (pp. 130-132). From these results of his analysis he concludes that the efficacy of monetary and fiscal policies must depend largely upon their impact on the competitive sectors of the economy which must bear the brunt of the burden of readjustment (p. 132) and points out that this raises serious questions about the effectiveness, the equity, and the wisdom of such policies. In particular this view suggests that much more extreme monetary and fiscal measures may be required to achieve a given disinflationary effect than we would otherwise have thought to be necessary.

I must differ with Professor Galbraith on a number of these points. I think it can be shown that the difference in role of the competitive and that of the oligopolistic firm in the inflationary process is not nearly as great as he would have us believe. To indicate my reasons

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<sup>2</sup> J. K. Galbraith, *Market Structure and Stabilization Policy*, Review of Economics and Statistics, May 1957.

for this view I must first digress into a discussion of the nature of oligopolistic pricing.

#### *A. Galbraith on the oligopolistic firm*

To Professor Galbraith, as to many investigators, a prime characteristic of the oligopolistic firm is that it does not normally set a price which maximizes profits. So far I am in agreement. But in his analysis there seems to be no alternative explanation of the price-setting process. Somehow, perhaps by historical accident, the price of each item seems to have been set up, and then for fear of setting off a price war through retaliatory efforts of competitors the oligopolist apparently never changes such a price unless universal cost changes permit him to do so without being misunderstood by business rivals. The executive is apparently taken to be less concerned with the level at which his prices are set than he is in keeping his prices at that level. We are given little indication how those prices happened to be set at those levels in the first place.

It would be a very odd coincidence indeed if those prices were to happen to lie at their precise profit maximizing levels. In fact we are told that they will generally lie below those which will maximize profits apparently because inflation calls for rapid upward price shifts as demand increases in monetary terms—price rises greater than those which the oligopolist is willing to permit. Furthermore, according to Professor Galbraith, "A commonplace feature of a firm under inflationary demand is a backlog" (p. 128). This backlog can, of course, be eliminated by a price sufficiently high to cut the quantity demanded down to the quantity supplied, but such a price rise the oligopolist presumably refuses to permit.

As a result of all of this, he argues, monetary and fiscal measures may be rendered largely ineffective in the oligopolistic sector. Any rise in costs incurred as a result of interest rate increases need not reduce the oligopolist's profits. For, since he is not maximizing his profits to begin with, he can raise his price and increase his profits sufficiently to make up for the higher interest cost. Any reduction in demand produced by such policies may serve only to reduce the backlog of demand and may actually result in no decrease in sales.

The oligopolist will then, according to Galbraith, be able to go on as before, with no loss in profits and perhaps no less in sales. He will have no reason to cut down his investment expenditure. His contribution to inflationary pressure will therefore not be diminished unless monetary or fiscal actions are particularly severe.

Not such will be the fate of the competitive small-business man where prices are fixed on the market and where rises in costs and cuts in demand really hurt and hurt at once. Thus, according to Galbraith, besides being less effective than might have been expected, counterinflationary monetary and fiscal policies can serve to increase industrial concentration and help to contribute to the danger of decline of the small-business man.

#### *B. Sales maximization, price setting, and the backlog*

The short run purposes of the large firm can, I believe, be explained somewhat further. There is some logic to the process whereby prices are set, but it is not the logic of profit maximization. As I have already stated, I believe most oligopolistic firms aim to maximize not profits, but sales volume (measured in money terms; sales are what the

economist is his jargon calls "total revenue"). So long as profits remain at a satisfactory rate, management will devote further effort to increasing its sales rather than its profits.

It follows that Professor Galbraith is indeed right in asserting that the oligopolist's profits will not normally be maximized. But the reason is not because he is dominated by fear of making price adjustments, although such fears may also play their role. He will fail to maximize profits also because he has another partially overriding purpose to which he is willing to sacrifice some profits.

If this is correct, it follows that we must expect only under extraordinary circumstances to encounter the backlog of orders which Galbraith considers to be a normal feature of oligopolistic operation during an inflationary period. A firm which tries to maximize sales will not hold back on production unless either the expansion of its capacity has been unable to keep up with demand or unless management is so fearful of the future that it hesitates to undertake the required investment commitments.

Consider now the effects on such a firm of a rise in costs which might occur, for example, as the result of an increase in wages or in interest rates. As in Professor Galbraith's analysis, this may lead to an increase in the company's selling prices sufficient to prevent any reduction in profits. For otherwise the rise in costs can reduce the oligopolist's profits below that level which he considers to be the minimum under which he can operate. But several other consequences follow from this step:

In the probably more usual case where there is no backlog of orders, this price rise must mean some cut in the number of items sold, or at least unit sales will not increase as quickly as they otherwise would have. Moreover, if the initial price had been chosen to maximize sales revenues, it is clear that the rise in price must result in a reduction in (or a reduction in the rate of increase of) dollar sales. It follows that—

1. An interest rate or wage increase will also hit the oligopolist where it hurts him—not in his profits but in his sales volume.
2. An interest rate rise need produce no increase in industrial concentration—the oligopolist's sales will decline right along with those of the competitive firm.
3. By reducing the demands for his products or increasing his costs, monetary or fiscal policy can effectively reduce the oligopolist's contribution to inflationary pressure. If his sales fall it will pay him to reduce his demand for factors of production either for immediate use in his manufacturing process or for investment purposes. But this is precisely what a disinflationary monetary and fiscal policy seeks to get him to do.<sup>3</sup>

Thus in each of these respects I am forced to disagree with Professor Galbraith's policy conclusions—considering the oligopolistic sector alone, fiscal and monetary policy need not on the face of it be inequitable, it need not promote monopolization, nor is it to be expected to be ineffective.

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<sup>3</sup> Incidentally, I must take exception to Galbraith's assertion that " \* \* \* firms in the oligopolistic sector have the opportunity of offsetting any credit restrictions to which they are subject by increasing their prices and their earned resources and devoting them to investment" (p. 131). It can take several years of increased accumulation out of profits to offset a large reduction in credit. Hence this means may well be insufficient to prevent forced postponement of oligopolistic investment which is all the deflationary effect that is usually sought.

Even in the case, which I have not yet discussed, in which there is a large backlog of unfilled orders the Galbraith conclusions can be disputed. If the backlog occurs by design because the oligopolist is afraid of the future and he wishes to retain a cushion of demand against contingencies, the rise in price or the reduction in demand which results from anti-inflation policy will cut down on that cushion. The oligopolist may then be expected to hold back even more in his investment plans, thereby contributing once again to a reduction in inflationary pressure. Similarly, if his backlog of demand piled up because he has, so to speak, been unable to get sufficiently quick delivery on expanded plant and equipment a reduction in the backlog can mean partial cancellation of investment orders.

### *C. The competitive sector*

Yet there is an important observation which I think lies behind Professor Galbraith's discussion. In times of inflation it is true that the firm can frequently raise prices in response to cost changes and get away with little or no observable ill effect. I have already had occasion to refer to that process earlier in this paper. What occurs here is that the cost rise, because it is universal, provides the purchasing power which permits consumers to buy as much as they did before the price rise. This is the mechanism of the familiar wage-price spiral.

But here the competitive firm is in no worse a strategic position than is the oligopolist. The demand for the small-business man's products will be raised by increases in wages, both his own and the oligopolist's. Thus the competitive firm is able to participate wholeheartedly in the inflationary process just as is the oligopolist. Indeed, it may almost be suspected that the small firm will in this respect occupy the slightly better position. For in competitive markets the translation of increased costs into higher prices is rapid, impersonal, and automatic. To the extent that the large firm hesitates to change prices even in the upward direction, it may therefore be placed at a relative disadvantage.

Of course rises in interest rates differ from wage rises in that they do not all go into increases in money income in the hands of the public. A large proportion of higher interest payments may represent a transfer to banks and insurance companies where they will not immediately be used to swell the monetary demand for commodities. That is essentially why interest rate increases can act as an offset to inflationary pressures while wage rises do not ordinarily do so. But if interest rate rises do prevent increases in demand they will do so equally for the oligopolist and for the small firm.

I am not to be interpreted to hold the position that different monetary and fiscal policies all and always fall with exactly equal weight on the competitive and oligopolistic sectors of the economy. Clearly this need not be so. It depends on costs structures, the relative elasticities of demands for the products of the two sectors and many other considerations. My position is just that the relative effects can only be determined after far more careful and detailed investigation of their product lines and related matters, and that I will be very surprised should such an investigation show that all the tools of monetary and fiscal policy consistently favor the one group against the other.

## III. PRICE POLICY FOR GROWTH

The preceding section was primarily negative in purpose, seeking largely to deny that there were grounds for expecting a certain type of relationship. Nothing was said affirmatively about the types of policy which can promote price stability and economic growth. In this section I hope to supply this deficiency.

*A. Growth as a goal*

As already stated, complete price stability and economic growth are not totally compatible objectives. Growth tends to cause prices to rise. It also has other costs. The most important of these is that rapid growth requires a very high level of physical investment—of construction of plant and equipment, etc. In a period when there is little unemployment and unused capacity an increase in the production of investment goods must involve some reduction in the output of consumers' goods. As is well known this is precisely the sort of decision to which the ruling clique in the Soviet Union has stuck these many years. And, at least in part, this decision has been responsible for their very noteworthy success in expanding Russian military and industrial capacity at so phenomenal a rate.

Before effective policies for the promotion of economic growth can be decided upon in this country we must therefore decide first how much we are willing to give up for it. This is no idle question. Our overall economic growth has been proceeding by itself at a remarkably high rate and there is reason to believe that, except for occasional interruptions, it is going to continue to do so. It is possible to give up too much for the future like the miser who is starving because he is putting aside every penny he earns.

Even the Russian threat must not force us to jump to hasty conclusions on this question. There is much to be said for the view that to meet the competition of the iron curtain countries we need to speed up not our overall rate of economic expansion but the growth of some key outputs—scientific, military etc. Certainly this has been the Soviet strategy.

*B. Policy for overall growth*

Suppose it is decided that somewhat more of our national effort should be devoted to speeding up our economic expansion and less to the production of current consumption goods. What can the Government do to promote these goals?

I have already argued, for one thing, that strong measures must be taken to prevent uninterrupted inflation. When price rises threaten to get out of hand or to last too long the usual array of weapons—budget surpluses, tight money, et cetera, must be employed to the extent necessary to put an end to the inflationary pressures.

But I do not believe this is by any means the most important measure to be taken to promote growth. In a free enterprise system where the Government seeks to avoid the regulation of production by fiat except in time of national emergency, businessmen must be induced to take the appropriate measures voluntarily. Nor is this a matter for exhortation and propaganda whose effects are doubtful and whose use is usually inappropriate except in times calling for public heroism. Management's responsibilities are too great to run the business

enterprises with whose operations it is entrusted in accord with the utterances of remote public figures.

There is only one dependable way to achieve the desired results—that is to make them pay. And there is one instrument ideally suited to achieve the Government's purposes in this respect—the tax laws. Already the capital gains provisions served to make the retention of corporate earnings attractive to large stockholders. This is an incentive for growth because retained earnings are readily employed to finance plant expansion and other types of investment.

In the same way, if Congress wishes to promote economic growth (and, I repeat, there is something to be said on either side on such a decision) it must consider undertaking a revision of the tax laws in a way which favors investment as against current production of consumers' goods. Businessmen, who are already anxious to promote economic growth, will be quick enough to take advantage of any opportunity to reduce their tax burden through increased investment or any other expansionary activities which may be favored.

In the case of underdeveloped areas I have elsewhere gone so far as to suggest that firms be offered a tax exemption which is larger the greater is the percentage rate of increase in their production. I do not believe so radical a proposal is appropriate for the United States but it does serve to underline the nature of the policy approach which I am urging.

I shall make no attempt to indicate the details of the tax-law revisions which would be in line with this view. That must be left to persons more expert in the tax structure and its legal and economic complications. I hope however that I have suggested one promising avenue for exploration.

### *C. The long-run position of the United States*

Let us return now to the question of the Soviet challenge although this represents somewhat of a departure from the subject of the rest of this paper. I think it is quite clear that the American industrial capacity is still considerably greater than that of the Russians. This means that were it deemed crucial, there is little doubt that a crash program could permit us to catch up on the production of missiles, rockets, jet planes, or any other particular weapons on which we are behind. But catching up on special items is not the problem. We cannot plan on just barely keeping up by means of an interminable series of emergency programs conceived in the haste which is engendered by panic.

Indeed, it is to be expected that in the normal course of events the Russians will from time to time come up with developments before we do. The Soviet successes are frightening rather because they suggest we are falling behind in a more fundamental sense—in our supply of ideas and our ability to carry them out. Should we ever lose our lead in the fundamental knowledge which we possess and the skills to produce and use ever more knowledge we will really find ourselves ready prey to the totalitarian world.

The difficulty appears to lie partly in our national propensity to favor practicality. American industry, for example, is more than willing to sponsor researchers and their research, provided that their projects are of a variety which give promise of practical application. From the point of view of the firm this may make good sense although,

increasingly, management, too, is showing signs of questioning this position. But from the point of view of the Nation's future this represents the most catastrophic sort of shortsightedness. Time and time again it has been shown that some of the most fundamental and revolutionary scientific and industrial developments would not have been possible without the work of the basic researcher, the man who does not know and, at least within limits, could not care less how his results will be applied. Innovations from electricity to the hydrogen bomb bear their debt to the completely impractical investigator.

The Soviets have certainly recognized this and their efforts to sponsor both research and researcher are apparently ahead of ours in a number of respects. Their educational system is geared to supply new scientific talent at a very high rate and it is already showing its effects.

Though it is perhaps beyond the province of the Employment Act this problem is clearly fundamental for economic growth. Here again congressional action is probably called for. The design of a comprehensive policy is beyond my intentions and my abilities. I should, however, like to call attention to two suggestions which, I hope, merit further exploration.

I believe the Government should consider setting up a system of national scholarships on the order of those which were provided by the G. I. bill. These scholarships should be available only for college and university training. They should again permit the recipient to attend and approved school of his own choosing subject to his acceptance for admission by that institution. However, such scholarships should be awarded on the basis of examinations which require of the applicant evidence of training at least equivalent to that offered in a Soviet gymnasium. This proposal is designed to achieve two purposes: to increase the number of able college students and to force a drastic upgrading of standards of our high schools which are notoriously so far behind the equivalent Russian institutions.

However, this does not cope with another fundamental problem—the relatively small proportion of able American students who go into research rather than into industrial, legal, and other more lucrative occupations. It is absolutely imperative for this country's future that the research activities be made more attractive. One proposal that has recently been made calls for the setting up in each field of research about 50 well publicized chairs bearing a minimum stipend of \$30,000 per annum plus adequate research funds. This would be awarded to the most outstanding members of the research professions and would not be attached to any particular academic institution.

Whatever the merits of this particular proposal it points up the need for a dramatic move to increase the attractiveness of a career in fundamental research. Such a conclusion is inescapable if we are prepared to accept two premises: (1) that America's long-run future is at stake and depends on its ability to maintain and increase its supply of knowledge and ideas, and (2) that in a free-enterprise economy coercion is an inappropriate instrument and exhortation an undependable means to promote the goals of our society. Only by an appeal to the profit motive which is so fundamental among the Nation's institutions can we feel confident that our goals will be achieved.



## ECONOMIC STABILITY, ECONOMIC GROWTH, AND PRICE STABILITY

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### I

The terms "stability" and "growth" have been used so frequently during the past few years in discussions of the Employment Act of 1946, that a goodly number of intelligent citizens may very well believe that these words were used in the act, to set forth its purpose. Actually, of course, this is not the case.

According to section 2 of the act—

it is the continuing policy and responsibility of the Federal Government to use all practicable means \* \* \* for the purpose of creating and maintaining, in a manner calculated to foster and promote free competitive enterprise and the general welfare, conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power.

Subsection (c) 4 of section 4 states that one of the duties and functions of the Council of Economic Advisers shall be—

to develop and recommend to the President national economic policies to foster and promote free competitive enterprise, to avoid economic fluctuations or to diminish the effects thereof, and to maintain employment, production, and purchasing power.

But the words "stability" and "growth" do not appear in the Employment Act either separately or together.

The number of years which has elapsed since the passage of the Employment Act, together with the nature and diversity of the economic developments which have occurred during that time are sufficient to justify the conclusion that the language of the Employment Act is remarkably well suited to the general purpose of the act. That language is general enough to provide for flexibility in interpretation and also for the flexibility in action necessary if the act is to furnish a useful guide to economic policy in particular circumstances, the exact nature of which could not be foreseen at the time the act was passed. For example, there is no doubt among either economists or policymaking officials that the Employment Act provides the basis for Government action designed to restrain inflation when such action appears necessary, as well as the basis for Government action designed to mitigate or halt a recession when such action appears necessary.

Employment, production, and purchasing power are each highly significant concepts in assessing the adequacy with which the economy is functioning, and in determining what steps, if any, need be taken to improve its functioning. They are also concepts which are generally understood and defined in a similar fashion by economists and policymakers alike. In the case of employment and production, more-

over, policymakers need not confine their attention to the abstract conceptions or to indirect methods of approximating the actual level of these indicators of economic activity. Fortunately, there are available statistical series which provide reliable data on both employment and production with very little time lag. In the case of purchasing power, there is no equally satisfactory statistical series on which those concerned with economic policy may rely. Even here, however, there are data available which, when used with proper discrimination and judgment, can be very helpful.

It may be pointed out that implicit in the language of the act is the belief that maximum employment, maximum production, and maximum purchasing power either are or can be made to be consistent with one another, and also with the objective of avoiding economic fluctuations or mitigating their effects. Whether or not this is actually so under all circumstances may, of course, be questioned. But it is evident that principal emphasis in the act is placed on employment, and this emphasis could furnish a clue to policymakers in what otherwise might prove to be a perplexing situation.

## II

Although the terms "stability" and "growth" have been used for some years now in discussions of the Employment Act both in and out of Government circles, those terms have not always been construed or applied in the same way, nor have they always been assigned the same degree of importance or priority.

Thus there have been times when stability has been emphasized and growth has received little if any attention. At other times growth has been emphasized and stability, at least overtly, has been substantially neglected. More recently it has been fairly common to link the two together and to talk of "economic stability and growth" together.

In general in the years subsequent to 1946, concern about stability and use of the term increased together with signs of actual or impending recession or actual or impending inflation. Under such circumstances, stability was generally not defined clearly by those who used the term. It was, perhaps, sufficiently obvious that they applied it in a negative rather than a positive fashion. In one set of circumstances it meant avoiding recession or at least avoiding a deepening of recession. In another set of circumstances it meant avoiding inflation or at least avoiding a heightening of inflation. During some periods when neither recession nor inflation were present or imminent, attention shifted from stability, and the term "growth" was used more frequently. This term, too, was rarely defined, but it was generally clear that it was held to be integrally related to increasing employment opportunities, and sometimes to increasing productivity, and/or a rising level of production as well.

Until quite recently, when both economic stability and growth were discussed in the same paper or in the same public statement, "stability" was frequently referred to as a suitable goal for short-run policy, and "growth" as a suitable goal for long-run policy. In such discussions, also, while the term "stability" was never clearly defined, it was generally applied in the negative sense described above.

More recently, however, there has been increasing recognition of the fact that it is impossible to keep short-run and long-run consider-

ations neatly enclosed in separate compartments in the formulation of public policy. For one thing it has become increasingly apparent that policies which are adopted to cope with so-called short-run problems have a bearing on long-run developments as well, while policies adopted to cope with long-run problems also have a bearing on short-run developments. Even more fundamental, however, is the fact that in an economy as highly developed and large and rapidly changing as ours, it becomes increasingly difficult to draw and maintain a satisfactory distinction between long-run and short-run considerations.

In the not too far distant past many economists might agree that the short run meant any period of time shorter than one complete business cycle. They might agree also that in dealing with the short run, the matter of economic growth could be ignored with impunity, since the amount of growth in the short run was generally negligible.

Today, however, a large and increasing number of economists in the United States realize that when an economy as large as ours is growing at an average annual rate of  $3\frac{1}{2}$  percent, the average growth of a single year accounts for a real increase of approximately \$14 billion in net national product and a correspondingly substantial increase in employment. They realize too that with our population and labor force increasing at their current rate, growth must be maintained at all times, if "useful employment opportunities" are to be created and maintained for all "those able, willing, and seeking to work." And they are aware of the corollary of these facts; namely, that even a comparatively short cessation or interruption of economic growth will result in a large increase in unemployment.

In other words, we must run just to keep up with ourselves. But, as Roy F. Harrod and Evsey D. Domar have both demonstrated, the rate of speed at which we run is also important. If we proceed too slowly, we will still be faced with increasing unemployment. On the other hand, a sharp increase to a rate above that which can be maintained for a long period of time will result in an unhealthy inflationary situation which paves the way for future contraction or recession.

Thus within the past few years it has become increasingly common for public officials to link the words "stability" and "growth" together and to use them as one term in discussing the objectives of the Employment Act and the implementation of the act. The two are conceived of as being closely interrelated, indeed, interdependent. For economic stability is thought of not in the dictionary sense of permanence or absence of change, but rather in the sense of minimum fluctuations around the growth trend. Growth itself is generally equated with the real increase in net national product.

It is fairly easy to understand why the 2 words are so often linked together and used as 1 term. Each of them expresses one aspect of the type of economic process which is consistent with the stated objectives of the Employment Act and indeed necessary for achieving those objectives. Yet neither of them by itself is sufficient. The word "stability" by itself is not satisfactory for this purpose. We must know something of the level at which stability is to be maintained. But the level which is satisfactory now will be unsatisfactory a year from now and still less satisfactory a year after that.

On the other hand, the word "growth" by itself is not completely satisfactory. Growth must proceed at a rate such that it can be maintained in the long run. Some fluctuations in the rate of growth, it is

generally realized, must occur and must be tolerated in a free society, but those fluctuations should be relatively minor. In other words, economic growth should proceed at a relatively stable rate.

Such usage of the words "stability" and "growth" by public officials is probably in accord with prevailing opinion among reputable economists today. But is this usage really desirable?

Attention has already been called to the fact that the meaning generally ascribed to the word "stability" in current discussions of the Employment Act is very different from the dictionary meaning. It is different, too, from the meaning generally ascribed to the word only a few decades ago by both economists and policymakers. And it is certainly different from the meaning currently ascribed to "stability" by economists and policymakers when they discuss price stability.

In view of these facts, the current usage of the word "stability" in discussions of the general objectives of the Employment Act is bound to be confusing, at least occasionally. In addition, if the type of growth which is desirable and consistent with the objectives of the act is a stable rate of growth, the use of the word "stability" in the term "stability and growth" is somewhat redundant. If the word "growth" by itself is considered inadequate to convey so complex a meaning, or if we wish to be more explicit on this score, might it not be preferable simply to make use of the expression "a steady rate of economic growth" or "a stable rate of economic growth" in our thinking and talking and writing, rather than "economic stability and growth"?

It would be desirable also for those who use the word "growth" either in theoretical analysis or in discussions of economic policy, to give more frequent explicit recognition to the fact that economic growth is not uniquely determined by technological change and/or changes in the size of the labor force. The rate of economic growth is more properly thought of as resulting from the interaction of a number of factors. Both technological change and an increase in the size of the labor force, whether occasioned by population growth or by change in social conventions and attitudes, are of course important in this connection. But their importance should not cause us to overlook the role played by such factors as newly developed forms of business organization and new business methods, increased accumulation and application of capital even in the absence of technological change, increased utilization of existing capital, an increase in hours worked, or an increase in the availability of natural resources.

### III

Both Domar and Harrod have demonstrated that while growth does not insure stability unless the proper rate of growth is achieved and maintained, it is possible to determine theoretically a stable rate of growth for a free economy under certain specified conditions. But is a stable rate of growth for the economy of the United States actually a realizable ideal?

Practically all economists today recognize that there is some relationship between economic fluctuations and economic growth. It is rather generally realized that economic growth does not proceed smoothly or evenly. During some periods growth is retarded. At times it may even stop or be reversed. During other periods growth is accelerated, sometimes slightly, and sometimes considerably more than slightly.

Not all economists agree on the precise nature of this relationship, however. There are probably a large number who, even if they have not followed or do not accept all the details of Harrod's and Domar's demonstrations, nevertheless do accept their general conclusion that a tendency to instability is inherent in the growth process; i. e., that departures from a stable rate of growth will not automatically be corrected, but will instead lead to further departures. But while some economists believe that the fluctuations accompanying growth are necessarily cyclical in character, others believe that this need not be so.

The distinguished British economist, Harrod, although he does not believe the existence of cyclical fluctuations in the real world is caused solely by growth, has nevertheless demonstrated that an understanding of the growth process leads to the expectation that economic fluctuations of a cyclical nature will occur. His analysis leads to the conclusion that such fluctuations are not likely to be eliminated completely in a free society, where the actual rate of growth at any time is the result of the combined effect of so many different individual decisions. But Harrod does suggest the possibility of reducing the magnitude of the fluctuations by appropriate policies.

The late Joseph A. Schumpeter believed that there is an inherent causal relationship between economic growth and cyclical fluctuations, and that cyclical fluctuations are the mechanism through which growth occurs. Devoted followers of Schumpeter may, therefore, question whether it is possible to maintain growth without cyclical fluctuations, and whether any attempts to eliminate or even sharply reduce cyclical fluctuations may not result in economic stagnation, or at least in a long-run rate of growth much lower than that which might otherwise prevail.

Most economists in the United States today, however, do not subscribe to this point of view. A substantial number would probably agree that complete elimination of fluctuations—both cyclical and noncyclical—from the optimum rate of growth is impossible of achievement, at least in a free society, and that maintenance of a perfectly stable rate of economic growth in the United States for an extended period of time is, therefore, equally impossible—especially since the theoretical optimum itself may change from time to time.

They would probably also agree, however, that the concept of a stable rate of economic growth is a useful one, not only as a theoretical tool of analysis, but as a guide for policymakers both in and out of the Government. It keeps us moving in the right direction, and while we may never quite reach it, we can certainly reduce the magnitude of fluctuations in economic activity and move closer to the ideal of a stable rate of growth than we have yet come.

#### IV

Economists are generally agreed that prices are closely and significantly related to the economic process and the general level of economic activity. They are agreed, too, that the role of prices is complex, since they are a cause with respect to some economic phenomena, an effect with respect to others, and in many situations may be regarded as either cause or effect depending on the point of view or

point of departure of the analyst. Moreover, they are agreed that price developments may, and frequently do, have an important influence on the level of economic activity. With respect to the precise nature of that influence, however, opinion is divided.

Within the past 2 years increasing attention has been given to the concept of price stability in discussions pertaining to the Employment Act of 1946. A number of economists and public officials have voiced the belief that stable prices are essential to the promotion and maintenance of maximum employment, production, and purchasing power. Some have even proposed that stable prices should formally be made a goal of public policy and that an explicit declaration to that effect should be incorporated in the Employment Act. Among those who have urged that the act be amended in this fashion are Arthur F. Burns and William McChesney Martin.

These economists, of course, and others who have voiced similar opinions are concerned not with individual prices or price relationships, or even with prices and price relationships of groups of closely related commodities, but rather with the general price level. Often, however, for reasons which are wholly or largely practical, rather than conceptual in nature, "the level of consumer prices" is accepted either explicitly or implicitly as a substitute for "the general price level."

Some economists who are in favor of amending the Employment Act believe that the goal of policy should be "reasonable price stability"; while others apparently lean toward a more rigid or less flexible application of the concept of price stability by policymakers. In all cases, however, those who propose that the declaration of policy in the Employment Act be expanded to include price stability, use the word "stability" not in the sense in which it is often used in current discussions of the general level of economic activity (i. e., minimum fluctuations around the growth trend), but rather in the dictionary sense (i. e., steadiness, absence of change, permanence).

In view of the eminence and prestige of some of the economists and public officials who have suggested that a stable price level be made an explicit goal of public policy by amending the Employment Act, it may seem bold to question the desirability of such action. Nevertheless, the present writers feel that it is important to raise this question.

It may be well at this point to call attention to the fact that within the past few years there has been an increasing tendency to use the word "inflation" without defining it, and to apply the term to any rise in the price level. Such loose usage can only result in a certain degree of confusion and inconclusiveness in discussions pertaining to inflation and the price level, since not all participants are talking about the same thing. In the following pages the term "inflation" is used by the present writers only to describe a rise in the price level which is not accompanied or immediately followed by an increase in total production of at least equivalent significance. In accordance with this usage price rises which are accompanied or immediately followed by an equally significant (or a more than equally significant) increase in total production are not considered or labeled inflationary.

The proposal that the declaration of policy in section 2 of the Employment Act be amended to include price stability, is generally based on two assumptions: (1) That in the absence of effective preventive measures, a rising price level will be a basic characteristic of the

American economy for many years to come; and (2) that effective implementation of the goal of price stability is and always will be consistent with the promotion and maintenance of maximum employment, production and purchasing power. A third assumption, although frequently omitted, or at least not clearly stated, should really also be included here: namely, that from a technical and administrative point of view stability of the price level constitutes a desirable goal of public policy.

The assumption that a rising price level is virtually certain to be a feature of the American economy for an indefinitely long time to come is in turn generally based on one or more of the following assumptions: (1) That the expansionary forces which have played so important a role in shaping economic conditions in the United States since the end of World War II will continue to play an equally important role in the future; (2) that in the future, economic recessions will be relatively infrequent, and also relatively short, and mild: No more protracted or serious than the two relatively minor recessions of 1949 and 1954, for example; and (3) that the Federal Government will deal with future economic recessions swiftly and effectively. The course of action pursued during the 1949 recession and that pursued during the 1954 recession, are frequently cited in support of this point.

The future is, as ever, uncertain and in the end it may turn out that these assumptions were justified. Nevertheless, there are at present sound reasons to question the validity of each of these assumptions.

## v

If we analyze the forces making for economic expansion during the postwar period, it is apparent that we cannot expect them to operate in the same fashion throughout a future of indefinite duration. At the end of World War II there was a huge backlog of pent-up demand for many types of consumer goods and capital goods, accompanied by a record volume of liquid savings held by both individuals and business firms. In addition, throughout the postwar period the United States has had a rapid rate of population growth, a rapid rate of technological advance, and a high level of public expenditures. The increase in Federal expenditures is by now a familiar story. It is perhaps less generally realized that from 1946 to 1957 total expenditures by State and local governments increased more than 250 percent. A considerable part of this increase can be ascribed to the backlog of unsatisfied needs which accumulated during World War II, and to the rapid rate of population growth.

The backlog of pent-up demand in the private sector of the economy which existed at the end of World War II persisted in making its effects felt for longer than was originally anticipated. It seems probable that the outbreak and the duration of hostilities in Korea were at least partly responsible for this prolongation. By now, however, the backlog of pent-up demand is, of course, a thing of the past. The rate of population growth continues high. But one of the lessons of the past 15 to 20 years has been that the rate of population growth is less stable than we formerly supposed. For many years the rate of population growth was considered to be subject to such slow, gradual change that the level of population could be predicted with con-

siderable accuracy for some time ahead. More recent developments have routed this belief. As recently as 1940, many economists and public officials were concerned about the economic effects of the declining rate of population growth. There was no hint then of the change which was to occur within a few years. And when the change did become evident, it was for some years considered to be a purely temporary phenomenon. Knowing these things, it would be imprudent for us to base our current actions and plans on the expectation that the current rate of population increase will be maintained or will rise still further.

Technological advance, although certainly an important factor, is notoriously unstable. Continuation and even expansion of the huge research and development programs which have provided the basis for most of the technological advance since World War II will not insure the continuation of an equally rapid rate of technological advance in the years ahead.

Research and development programs may produce inventions. But inventions are not synonymous with technological advance. New inventions result in technological advance only when economic conditions favor their economic exploitation. Schumpeter's theory that the rate of technological advance fluctuates in a cyclical pattern, although inventions may appear in a steady stream, is widely subscribed to by economists.

Moreover, technological change does not necessarily result in a net addition to employment opportunities or to income. In many cases, the immediate effect of a labor-saving machine is to displace labor. Only if the surrounding economic conditions are favorable do the displaced workers find other employment opportunities. Similarly, a new product may simply displace an older product without increasing the total level of production.

Government expenditures cannot be expected to rise as rapidly in the future as they have in the past 12 years, and it is not even certain that they will continue at their present level. National security expenditures, which accounted for 87.8 percent of total Federal purchases of goods and services from 1946 to 1957, are very largely responsible for the increase in Federal expenditures and for their current high level. Successful disarmament negotiations and/or a lessening of international tension, however, would undoubtedly result in a reduction in national security expenditures. Such developments do not appear probable in the immediate future. It is to be devoutly hoped that these developments will occur before very many years have passed, however. And in a world that is so full of surprises, they may occur much sooner than any of us dare hope at the moment.

Even in the absence of successful disarmament negotiations and a lessening of international tension, there is a possibility that national security expenditures may decline in the years ahead. Modern implements of warfare may prove to be less expensive, in the aggregate, than the older implements they are displacing, and they may not become obsolete so quickly.

State and local government expenditures will probably level off in the near future, and may even decline. Some States are already actively seeking methods of paring their budgets, and with a decline in the general level of economic activity other State and local governments may be expected to follow suit.

The same arguments just marshaled to support the view that we cannot expect the forces making for economic expansion during the postwar period to continue operating in the same fashion indefinitely, may also be cited in questioning the validity of the assumption that future economic recessions will be relatively infrequent, and also relatively short and mild.

Our experience since the end of World War II gives us some basis for hope on this score, but it does not provide a satisfactory basis for firm belief. The mildness of the recessions of 1949 and 1954 may very well be related to the strength of the forces we have just been discussing. If that is so, as these forces lose their strength we may once again experience more serious and protracted declines in economic activity.

Recent experience and our hopes for the future should not blind us to the fact that our basic economic institutions are still substantially the same as in the 1920's and the 1930's. The role of the capital goods sector of our economy is as important as ever, and no foolproof method of eliminating the inherent instability of this sector of our economy, or neutralizing the effects of this instability has yet been devised and tested.

The Federal Government acted wisely and well to help counter the recessions of 1949 and 1954. Those recessions, however, were essentially inventory recessions which are relatively simple to deal with and which in any case tend to be relatively mild and brief. A sharp decline in public expenditures or in investment outlays, might produce an economic decline of a more serious character. We do not yet know whether the Federal Government can act with the requisite speed and effectiveness in the face of such a situation.

Moreover, in any actual situation it is no longer a question of what the political authorities can do but what they will do. Consider the sharp differences of opinion being expressed about the nature and scope of the measures which should be adopted to deal with the present economic recession. When conflicting advice is offered a choice must be made, and the choice may prove to be faulty. If this occurs, even a decline which theoretically could be arrested will not be arrested. It may instead deteriorate into a genuine depression.

## VI

The second assumption of those who propose amending the Employment Act to include price stability as a goal of public policy, is that effective implementation of the goal of price stability is and always will be consistent with the promotion and maintenance of maximum employment, production, and purchasing power. If this assumption is evaluated on the basis of either history or theory, however, it appears to be of questionable validity. It is generally accepted that economic growth is necessary for the promotion and maintenance of maximum employment, production and purchasing power. And the historical record reveals a remarkably close relation between economic growth and a rising price level.

In the past, economic growth has occurred largely during the expanding phase of the business cycle. The tendency of prices to rise

during a cyclical expansion has been recognized by virtually all economists. Arthur F. Burns himself writes:

One of the plainest teachings of history is that rising prices are a recurring feature of the expanding phase of the business cycle.<sup>1</sup>

Moreover, the work of Simon Kuznets indicates that this relation between rising prices and economic growth is not purely a short-run phenomenon: it holds good in the long run as well.<sup>2</sup>

Theoretical analysis suggests that the association of rising prices with economic expansion or growth in the past has not been fortuitous, and that a similar association may be expected in the future. Economic expansion or growth occurs when aggregate demand is strong in relation to current output, and gives evidence of increasing further. These are the same conditions which provide the basis for rising prices. When aggregate demand is not strong in relation to current output, and when there is no evidence that demand is increasing, there is no sound basis for rising prices, and at the same time no reason for economic production and capacity to increase.

Moreover, a slowly or moderately rising price level tends to encourage economic expansion and growth. Since interest rates and wage rates tend to lag behind other price changes, a slowly or moderately rising price level is generally associated with rising profits. In addition, both consumers and business firms tend to satisfy their needs more promptly and even to anticipate them to some extent when the price level is rising, so that the increase in prices tends to enhance demand. Businessmen thus have a double incentive to expand their output and capacity.

Nothing herein should be construed to mean that a rising price level is desirable under all circumstances, or that a continuously rising price level is a necessary requisite for continuous economic growth. The conclusion suggested is much more modest—namely, it does not appear likely that price stability will, under all circumstances which may arise in the future, be consistent with promotion and maintenance of maximum employment, production, and purchasing power.

## VII

The assumption that price stability constitutes a desirable goal of public policy from a technical and administrative point of view is seldom, if ever, explicitly stated by those who propose that the declaration of policy of the Employment Act be amended to include maintenance of a stable price level as one of the objectives of public policy. But this assumption must be accepted by anyone who seriously considers the proposed amendment necessary. Here again, however, past experience and theoretical considerations both give rise to several questions.

Since it does not appear likely that price stability will, under all circumstances which may arise in the future, be consistent with promotion and maintenance of maximum employment, production, and purchasing power, if price stability is added to the Employment Act, policymaking officials will sometimes be faced with the necessity of choosing between price stability and the other objectives of the act.

<sup>1</sup> Arthur F. Burns, *Prosperity Without Inflation* (Fordham University Press, 1957), p. 12.

<sup>2</sup> Simon S. Kuznets, *Secular Movements in Production and Prices* (Houghton Mifflin Co., 1930), pp. 200-2.

This will tend to cause confusion and dissension, and may result in other undesirable consequences as well.

If price stability is always granted priority, this will greatly limit the flexibility of action which it is desirable and presently possible for policymaking officials to exercise. It may seriously reduce our chances of realizing or approximating the optimum growth rate.

If price stability is not always to be granted priority, it does not really constitute a very satisfactory guide to policymakers without some indication of the circumstances under which it is to receive priority or the level at which they should attempt to maintain stability. Would all price rises be regarded as inflationary? Or would some attempt be made to distinguish between a price rise accompanying an expansion in economic activity following an economic recession, and a truly inflationary situation? If so, how would the distinction be made? In particular cases, it might well prove necessary to decide when healthy economic expansion ends and when inflation begins. And similarly, would all downward movements in the price level be regarded as unhealthy? If not, how would the distinction be made between those which should be tolerated and permitted to run their course and those which should be halted or reversed?

If the goal of price stability is not to be granted priority except at the discretion of policymaking officials, or if price movements are merely to be one of a number of factors considered by policymaking officials in reaching decisions on public policy, why is it necessary to amend the Employment Act? Surely price movements are already seriously studied and taken into account by those responsible for giving effect to the provisions of the Employment Act.

In this connection it is perhaps worth quoting from a paper submitted to the Joint Committee on the Economic Report in 1955 by Alvin H. Hansen:

A high degree of stability in the value of money must be an important consideration of public policy. Yet we are \* \* \* in considerable danger of making a fetish of rigid price stability. This fetish could easily become a serious obstacle to optimum expansion and growth.<sup>3</sup>

It seems pertinent also to raise the question of whether price stability constitutes a feasible goal of public policy. Quite aside from any of the finer technical points involved here, is our current knowledge of economic theory, techniques of public policy and the manner in which our economy functions and responds to policy decisions, sufficiently far advanced so that we can realize the goal of price stability? If the answer be made that although we cannot achieve complete stability, we may nevertheless achieve reasonable stability, it merely raises another question. What is reasonable for this purpose? If the act does not specify, it must be left to the discretion of policymaking officials. But is that not where the matter stands right now without any amendment?

Actually, current developments as well as those of the recent and more distant past indicate that change or lack of change in the price level does not always constitute a very useful guide to policymakers who must decide what course of action to recommend or pursue.

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<sup>3</sup>Federal Tax Policy for Economic Growth and Stability (U. S. Government Printing Office, 1955), p. 17.

Prices tend to lag behind changes in underlying economic conditions. Price movements are, therefore, frequently a tardy indicator of the need for action. They may give warning after the event has already occurred, or after the time for successful application of restraining or corrective measures has already passed. Considered by themselves they may even suggest the need for action of a type which is clearly inappropriate in the light of other economic indicators. The continuing rise in the Bureau of Labor Statistics cost-of-living index during the current economic recession is a case in point. The decline in the BLS Consumer Price Index from 1926 to 1929 to another.

Similarly, stability of a price index is not always an indication that all is well, nor does it always augur well for the future. Consider, for example, the remarkable stability of the BLS Wholesale Price Index from the beginning of 1927 to the autumn of 1929. A price index may remain stable even if significant fluctuations occur among various components of the index. The relative stability of the BLS Consumer Price Index from 1952 to 1955 was actually the result of a decrease in prices of many commodities and a simultaneous increase in prices of services. The relative stability of the Wholesale Price Index over the same period was actually the result of a decrease in wholesale prices of farm products and processed foods and a simultaneous increase in prices of other commodities. At times, changes in the components of a price index are more significant and more useful as guides to policy makers than relative stability of the total index.

Consider also the possibility of a general price decline which might occur as the result of increasing productivity. This is no longer considered a very likely development by most economists. But if it did occur, should the price decline be accepted as an indication that corrective or restraining measures are desirable?

Actually, of course, in a technical or statistical sense, there is no such thing as "the general price level." It is well known that although we do have several good indexes which are useful for measuring price movements affecting specific aspects of our economy, we do not have a satisfactory index of general price movements, nor are we likely to have one in the foreseeable future. What, then, should be used as an indicator of general price movements?

Since the different indexes useful for specific purposes sometimes move in diverse fashion, they cannot all be given equal considerations in deciding matters of general policy. It is necessary to choose among them. At present there is considerable support for using the BLS Consumer Price Index as an indicator of price movements for general policy purposes. Undoubtedly, this proposal has much to commend it from a political point of view. In the past, however, most economists and statisticians have leaned toward the view that the Consumer Price Index is less useful than the Wholesale Price Index for this purpose. This attitude was based on their recognition that consumer prices tend to lag behind wholesale prices, and that wholesale prices are most basically and intimately related to the economic process than consumer prices. This point of view is quite as valid now as it ever was.

These technical and administrative considerations point to the same conclusion indicated by the arguments presented in the preceding two

sections of this paper; namely, that it would be unwise to amend the Employment Act by adding price stability to the objectives presently included in the declaration of policy.

## VIII

It is perhaps worth noting that several times in the past when congressional action has been proposed to make price stability the sole or chief goal of the policies and actions of the Federal Reserve Board, Federal Reserve officials have presented eloquent testimony in opposition to these proposals, and have made use of some—although not all—of the same arguments cited above.

Even now, despite Chairman William McChesney Martin's public statements in favor of the proposal that the goal of price stability be incorporated in the Employment Act, the members of the Board of Governors apparently are not unanimously agreed on the desirability of this proposal. Not very long ago, Charles N. Shepardson, a member of the Board of Governors, observed:

As is evident, we have not been completely successful in our efforts to contain inflationary pressures. But perhaps we should not be too severe on this lack of perfection. I doubt that perfect price stability can ever be achieved in a free-enterprise system, or any other system for that matter. Furthermore, I am not at all sure that it would be wholly desirable. Some upward drift in prices during periods when demands are pressing against our resources and some decline following these unusual periods of hyperactivity are not only unavoidable but perform a useful function in helping to bring about adjustment of spending and saving decisions in the economy.<sup>4</sup>

One of the arguments most frequently cited by those who favor amending the Employment Act by adding price stability to the declaration of policy, is that even a slowly or moderately rising price level has uneven economic effects and that it has particularly undesirable effects on retired persons living on past savings, on recipients of pensions or annuities, and other individuals with fixed incomes.

In arguing against the proposed amendment to the Employment Act, the writers do not wish to appear unmindful of the validity of this argument. But the validity of this argument does not weaken our position. The point of view expressed in this paper is, first of all, based on the belief that policymaking officials already have ample basis for adopting measures to restrain undesirable price rises. More rigid adherence to the goal of price stability might have undesirable effects on the general level of economic activity and the general level of economic well-being which would far outweigh the possible beneficial effect on the groups referred to in the preceding paragraph. It might even have undesirable effects on some of the individuals in these groups. In a severe economic contraction, individuals sometimes lose all or a substantial part of their savings very quickly. Business firms necessarily reduce or suspend dividend payments and sometimes default on contractual interest payments as well. Many incomes which are customarily regarded as fixed nevertheless do decline during a protracted depression.

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<sup>4</sup> See his talk before the National Agricultural Credit Conference in November 21, 1957, entitled, "Monetary Policy in Our Economic Climate," p. 11.

Rigid adherence to the goal of price stability might thus do more harm than good even to the group it was intended to help. It would seem preferable, therefore, not to rely on price stability for this purpose, but rather to devise new techniques more specifically directed toward the special problems of this group, which would not involve the possibility of such widespread undesirable side effects.

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II  
THE MEASUREMENT OF PRICE CHANGES AND  
PRICE RELATIONSHIPS

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## *II. The measurement of price changes and price relationships*

- A. How do changing technology, changing physical characteristics, changing uses of products and services, affect the significance and usefulness of price comparisons between different time periods?
- B. What is the distinction between relative price movements and changes in "the price level"?
- C. Given today's markets and institutions, what are the identifying characteristics of "administered" compared with "competitive" prices?
- D. What would be the characteristics of a general price index adequate for economic policy purposes? Would more than one index be needed? If so, why?
- E. When "the price level" enters into decisions about policies to promote economic stability and growth, which of the available indexes would, in theory, be best as a measure of general price movements; e. g., the Consumer Price Index, the Wholesale Price Index, the gross national product deflators, or other? How could existing indexes be improved to come closer to the ideal?

## THE MEASUREMENT OF PRICE CHANGES

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In this paper I will be concerned almost exclusively with measurement of the cost of living, or the Consumer Price Index, as it is now called. It is this field of price indexes to which economic theory has made the most important contributions directly. However, I am quite convinced that there are no great differences in principle as far as other price indexes, such as the Wholesale Price Index, are concerned. All commodities in a sense are intended ultimately for consumption and therefore all prices reflect indirectly the valuations placed on them by ultimate consumers (including, in many cases, investors).

Stress will be laid on the theoretical contributions. Recommendations as to sources of data and representativeness of sampling can hardly be done effectively by one outside the Government agencies responsible.

### I. BASIC CONSIDERATIONS

A consumers' price index is a measure for one period of time, say 1, with respect to another period, say 0. It is generally defined as the ratio of the expenditures needed in time 1 to maintain a given standard of living, to the expenditures needed in time 0 for the same purpose. The standard of living for this purpose clearly cannot be identified with a fixed basket of commodities. Suppose, for example, that in the base period 0, the price of beef is high, while that of lamb is low, while the reverse is true in period 1 due to, say, a change in supply conditions. We would expect the consumer will purchase a great deal of lamb and relatively little beef in period 0, and the reverse in period 1. If we use as a fixed basket of goods that consumed in the base period, then we will find a rise in the cost of living because the lamb, which has appeared so strongly in period 0, has undergone a price rise. On the other hand, the reverse would be true if we started with period 1 as the base period.

There seems no recourse but to recognize frankly that a standard of living is not any fixed basket of goods, but a subjective level of satisfaction. In the example just given, it may well be that the consumer feels about as well off in one period as another since he has had a chance to compensate for the price changes by changes in the proportions in which different commodities are consumed. The Government statistician, for obvious reasons, shies away from the notion of tying the objective-seeming price index to subjective concepts of utility or satisfaction, but in fact there is no escape in this proposition. Any attempt to explain the meaning of the cost-of-living index must eventually come to the notions just described unless we are to stop at banal

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tautologies analogous to "national income is that which is measured by national income statisticians."

It is, of course, perfectly true that we are not in the position now, and we may never be, to measure the subjective satisfactions of consumers directly. However, as the previous example already hints, economic theory argues that something, at least, can be learned by studying the overt behavior of the individual on the market. The reason is that the individual is motivated to secure for himself the highest utility consistent with his monetary resources. His utilities or satisfactions then are already reflected in market behavior and it is not implausible, therefore, that we may use this behavior to cast some light upon his satisfactions and in particular upon the cost-of-living index as defined previously. Unfortunately, as is well known, the inference from quantities and prices observed to the true cost-of-living index is by no means a simple one.

Let us consider the simplest inference, a very well-known one. Suppose we wish to know the cost-of-living index defined as the minimum expenditure in period 1 needed to obtain the level of satisfaction of period 0 as a ratio to the expenditure in period 0. One way to make sure to achieve the same level of satisfaction in period 1 as in period 0 is to purchase the same goods. This will, in general, not be the cheapest way of achieving that level of satisfaction. Let  $p_0$  and  $p_1$  denote prices in periods 0 and 1, respectively, and let  $q_0$  represent quantities in period 0. Then the above reasoning shows that—

$$\frac{\sum p_1 q_0}{\sum p_0 q_0}$$

will be at least as great and probably greater than the true cost-of-living index.

We thus see that price-quantity figures permit some inference as to the true cost-of-living index. In this case, they set an upper bound, but we also see that a simple set of figures does not give a complete determination. In particular, the formula used is a base-year weighted price index (frequently referred to as Laspeyres' formula); that is, it is precisely the formula which is used in most ordinary statistical work. We see, then, that this formula tends to overstate the rise in the cost of living from any fixed base. It is indirectly the realization of this fact which causes the base to be revised as frequently as it is.

In the following sections we will suggest the use of additional information other than that used in the formula just given to narrow down the limits which we can place on the true cost-of-living index by inference from price-quantity observations.

## II. THE USE OF ENGEL CURVES FOR PRICE INDEXES

The definition of the cost-of-living index number suggests immediately that it really should not be regarded as a single number. The cost-of-living index number corresponding to one level of satisfaction in a base period may be very different from that in another. This shows up conspicuously when the differences are large, as between poor and rich. The consumption pattern of the rich is quite different from that of the poor and a shift in prices which increases the cost of living to one may decrease it to another. Thus, if servants' wages rise while

the prices of manufactured goods fall, it may well be that the expenditure needed by a wealthy person to maintain his standard of living; i. e., his level of satisfaction, will be going up, while that of the poor person is going down. This fact is implicitly recognized in index numbers which restrict their announced coverage to "middle-income families," but it argues that quite a bit more can be done along these lines. There should be a separate cost-of-living index number for each income level.

Empirical data on which any such index numbers are stressed are found in budget studies. For those, we have 2 years, 0 and 1, in which the budgets of individuals over a wide range of incomes have been made available. For each commodity, we can find the average consumption in each income class. The relation between consumption of a particular commodity and income is known as an Engel curve, after the German statistician of the last century, who pioneered in this area. We assume, then, that we have an Engel curve for each commodity in each of the 2 years under consideration. We now construct two new curves which represent, at each income level, the purchases of commodities in 1 year evaluated at the prices of the other. Thus, if  $E_1$  represents an expenditure level in year 1, take the average amounts consumed of each commodity by those with expenditure level  $E_1$ , and calculate what that bundle would have cost in the prices of year 0. In symbols, if  $q_1(E_1)$  represents quantities purchased in year 1, when total expenditures are  $E_1$ , then in the notation previously used, we calculate

$$\sum p_0 q_1(E)$$

which will be designated as  $E_{10}(E_1)$ . A similar calculation can be made interchanging the roles of the years 0 and 1. Thus, we have a second curve  $E_{01}(E_0)$ . For any expenditure level  $E_0$  in year 0, let  $q_0(E_0)$  be the commodities purchased by individuals whose total expenditure was  $E_0$ . Then

$$E_{01}(E_0) = \sum p_1 q_0(E_0).$$

We will plot the two curves on the following diagram, figure 1 (p. 87). The horizontal axis represents expenditures in year 0, the vertical axis those in year 1. The curve  $E_{01}(E_0)$  will be plotted against the horizontal axis. The curve  $E_{10}(E_1)$  will be plotted against the vertical axis.

The problem of finding the true cost of living is that of matching up expenditures  $E_0$  and  $E_1$  so that for each value  $E_0$  we find the corresponding minimum expenditure  $E_1$  which will yield the same level of satisfaction. We want then a curve relating the two variables. To read a cost of living index number for any given level of satisfaction on this curve, we may take a particular value of  $E_0$  and find the corresponding value of  $E_1$ ; the ratio of these two values is the cost of living index corresponding to an expenditure level of  $E_0$  in the base period. The fact that the curve will not usually be a straight line to the origin shows that the cost of living index number will in general vary by income levels.

The question is the determination, or at least the approximation, of this expenditure-equivalence curve. The reasoning of the preceding section shows that for any  $E_0$ ,  $E_{01}(E_0)$  is an overstatement of the

equivalent expenditure in year 1. Reversal of the argument shows that for any expenditure  $E_1$  in year 1, the number  $E_{10}(\bar{E}_1)$  is an overstatement of the equivalent expenditure in year 0. Therefore we can say without any further discussion that the expenditure-equivalence curve must lie between the two curves  $E_{01}(E_0)$  and  $E_{10}(E_1)$ . For a verbal reference, we will refer to the first of these as the current-year weighted base-year expenditure curve and the base-year weighted current-year expenditure curve.

It is already clear from this discussion how much more information is contained about the cost of living index by the knowledge of the two sets of Engel curves than from simply knowing some kind of national average. The latter at best amounts to knowing one point on each of the two expenditure curves. While there is some information contained in this statement since the expenditure-equivalence curve would have to lie between the two points, it is clear that the restrictions on the location of the curve are not very severe.<sup>2</sup>

In many cases the two expenditure curves will be very close together so that the expenditure-equivalence curve will be determined quite accurately. An approximation formula has been developed for the interpolation of expenditure-equivalence curve by the late Abraham Wald.<sup>3</sup> If we refer to figure 1, we can take any base year expenditure  $E_0$  and find from the curve  $E_{10}(E_1)$  that expenditure in year 1 for which the base-year weighted expenditures are equal to  $E_0$ . In the diagram this value is represented by  $E_{10}^*(E_0)$ . It is clear from the diagram that this value is an underestimate of the equivalent expenditure in year 1. We have already noted that  $E_{01}(E_0)$  is an overestimate of the equivalent expenditures. It is natural then to seek for a method of averaging the two. The particular average suggested by Wald is the following: Let  $a_{01}$  be the slope of the upper curve at point B, and let  $a^*_{(01)}$  be the slope of the lower curve at A. In both cases the slope is found with respect to the  $E_0$ -axis, that is, the way the curves are drawn now. Then Wald's formula is

$$\frac{\sqrt{a_{10}^*} E_{01}(E_0) + \sqrt{a_{01}} E_{10}^*(E_1)}{\sqrt{a_{10}^*} + \sqrt{a_{01}}}$$

In the present state of theory this seems about as satisfactory a formula as can be found.

It will, of course, be objected that obtaining Engel curves from annual budget studies is an expensive operation. Here, as elsewhere, the rule that you don't get something for nothing is applicable. It seems clear that higher accuracy in the index numbers require greater expenditure by the Government. The value received in terms of ability to make better economic plans will unquestionably repay additional expenditures many fold over.

This is especially true in the present context because annual budget studies have many other uses than the improvement of index numbers. Changing consumption patterns will be detected at a much earlier

<sup>2</sup> The importance of Engel curves for a more accurate determination of price index numbers was first pointed out by Ragnar Frisch. For a very clear exposition at greater length than the above, see his paper, *Some Basic Principles of Price of Living Measurements*, *Econometrica*, vol. 22, No. 4, October 1954, pp. 407-421.

<sup>3</sup> Wald's results were first published in *A New Formula for the Index of Cost of Living*, *Econometrica*, vol. 7, No. 4, October 1939, pp. 319-331. For a simpler exposition, see K. S. Banerjee, *Simplification of the Derivation of Wald's Formula for the Cost of Living Index*, *Econometrica*, vol. 24, No. 4, July 1956, pp. 296-298.

stage and will find a great deal of use both in private industry and in many Government policies, such as the prediction of revenues from excise taxes; the consumption weights used in national income calculations can be greatly improved.

I would further urge that if budget studies were put on an annual basis provisions be made that a major proportion of the families be reinterviewed annually. The value of panel studies—that is, repeated studies on the same individuals has been amply demonstrated in recent work on consumption patterns as well as on sociological phenomena. The effect of income changes and changing age and family composition on consumption can be studied in this way as in no other. The variability of income and expenditures over time will form an important tool in the study of income distributions. There are thus many side benefits to annual budget studies and their analysis in terms of Engel curves, so that one can easily justify the additional expenditure.

### III. MULTIPLE TIME COMPARISONS

The preceding section has dealt with comparisons between 2 points of time, say 2 successive years. However, one of the main functions of an index number is to provide a time series for the cost of living. We would like to be able, in fact, to make all sorts of comparisons including, ideally, comparisons of the cost of living in periods quite remote in time. To begin with, we will consider only the single comparisons based on national averages which are currently used, and abandon the Engel-curve approach of the last section.

It has been seen to begin with that the use of quantity weights as of a fixed time period tends to overstate the increase in the cost of living in a subsequent time period. Thus, if 1947 rates are used, the price index of 1955 will be higher with respect to 1947 than it should be. The same will be true of the price index of 1956. The indexes are also used to compare 1955 with 1956. Here it is not clear what the bias will be but it is clear that the 1947 quantity rates may or may not be very useful ones for the 1955–56 comparison.

There is a considerable divergence of viewpoint here between the practice of statisticians of almost all governments and the views of index number theorists. In comparisons involving distant points of time, index number theorists generally take 1 of 2 positions: Either they argue the comparison between any 2 years should be based solely on the data for those 2 years and not on any others, or they advocate a chain index. In a chain index comparisons are made only for adjacent years directly. The resulting index numbers for pairs of years are then multiplied together in an obvious way to get index number comparisons between years which are not consecutive. Thus, an index number for 1949 with respect to 1947 would be obtained by multiplying the index for 1948 with respect to 1947 by the index for 1949 with respect to 1948.

It is not possible to give a definitive argument on the relative merits of chain index numbers and the more conventional fixed weight index numbers, primarily because neither is a thoroughly accurate solution. Nevertheless, there are some considerations that suggest that as between the two, the chain index number is preferable.

First, it is clear from the preceding discussion that the difficulty with index number comparisons arises because of the inadequate knowledge of the want structure of the individual. An increase in the number of observations made on market behavior would be expected to increase the possible accuracy of index numbers.<sup>4</sup> The upward bias in base-year-weighted index numbers illustrates the inevitable errors due to the use of a limited number of observations—in this case, a pair. A chain index number between 2 points of time separated, say, by 5 or 6 years, makes use of all the intermediate observations.

Second, the difficulties and possible errors of index number comparisons are increased when the consumption patterns in the two periods being compared are farther apart. Economic magnitudes tend to change continuously. Comparisons of adjacent years, then, are comparisons between more nearly homogeneous universes. It is more legitimate to use various approximations such as averaging of quantity weights. Indeed, the weights based on quantities in 2 adjacent years will differ less than they will in years taken further apart, as a rule. Therefore, each link in the chain index number will be more accurate than direct comparisons at some distance apart.

That these considerations play some role in practice is shown by the relatively frequently changes in base years employed in practice. If the base of an index number is changed relatively frequently, there is in effect a chain index number, calculated perhaps on a quinquennial rather than annual basis. Once the need for changing bases is recognized, it becomes merely a question of discussing the optimal frequency. An attempt at a logical foundation for chain indexes has been given by François Divisia.<sup>5</sup> If we write down the statement that total expenditures equals the sum of expenditures on individual items, where expenditures on any one item is equal to the product in price and quantity,  $E = \sum pq$ , then during a small period of time the change in the rate of expenditures can be expressed approximately in the following way:  $\Delta E = \sum p\Delta q + \sum q\Delta p$ . Here the symbol  $\Delta$  means "change in." This formula assumes that in a small period of time prices and quantities can only change by small amounts. The first term represents that part of the change in expenditures attributable to a change in quantities evaluated at the original prices and can therefore be thought of as the change in a certain quantity index. Similarly, the second term can be thought of as attributable to the change in prices using quantities as weights. If we imagine that we have both a price index and a quantity index, it is natural to demand that their product be equal to total expenditures  $E = PQ$  and therefore a small change in expenditures will be approximately expressed by  $\Delta E = P\Delta Q + Q\Delta P$ . Comparison of the two formulas for  $\Delta E$  suggests that the right-hand sides can be identified term for term. Carrying out in detail the reasoning suggested here shows that the price index is a chain index with quantity weights. In each length of the chain, if the links are sufficiently short,

<sup>4</sup> For a more extended discussion of the possibilities and limits of improving index number comparisons by increased observations, see Paul A. Samuelson, *Foundations of Economic Analysis*, Cambridge, Mass.: Harvard University Press, 1947, pp. 146-163.

<sup>5</sup> For a description of Divisia's viewpoint, see Erland v. Hofsten, *Price Indexes and Quality Changes*, Stockholm: Bokförlaget Forum, and London: George Allen and Unwin, 1952, pp. 21-23.

the base-year and current-year quantities will be very similar so that it makes little difference which is used. Ideally, actually, the links should be very short in time indeed but there are some difficulties with seasonal fluctuations which suggest that it is unwise to use periods shorter than 1 year.

Divisia's reasoning is plausible but is not closely tied to the definition of a cost-of-living index in terms of expenditures needed to maintain a given level of satisfaction. The connection between the two concepts has been investigated to a certain extent by Jean Ville.<sup>6</sup> In general he shows that the chain index does not give exactly the true cost of living index except in the special case where at any fixed set of prices an individual will divide his income among different commodities in the same proportions, regardless of the level of his income. That is, the Engel curves are straight lines through the origin. This case is, of course, unrealistic although it may be approximately valid for relatively small changes in real income.

The reasons why the chain index falls short of perfection can be put in different ways. One thing to note is if additional observations are designed to get a better knowledge of the want structure of the individual, then there is no reason to confine oneself to observations in temporal order. All information within a time period in which wants can be regarded as homogeneous should be equally relevant to a comparison between any two time periods. Another point is that if the level of satisfaction of the population is rising as is usual, then the comparison between successive years referred to different levels of satisfactions. After a period of time, then, the chaining involves price changes which are irrelevant to different standards of living. The special case, which Ville discussed, is one in which the consumption pattern is the same at all levels of satisfaction and so no ambiguity arises. One form in which these imperfections may show up is the following paradox: It can happen that prices vary over time in such a way that after a few years, let us say, they return to their initial values. Obviously in that case, any properly defined price index should be equal to 100 as between the beginning and end years. Yet it is possible for a chain index number to differ from 100, either above or below. If, for example, as is usual in seasonal fluctuations, prices tend to be high when quantities are low, and vice versa, then in general the chain index will tend to give too high a value.<sup>7</sup>

Too much should not be made, however, of paradoxes like this. Virtually any index number known can lead to similar difficulties in suitably unfavorable circumstances.

On balance, the case for chain index numbers as opposed to fixed weight aggregates seems strong in spite of the drawbacks just noted.<sup>8</sup> However, the case is considerably strengthened if we combine the chain index of this section with the Engel curve methods of the last. Since each pairwise Engel curve comparison gives us a complete set of equivalences between expenditures in one year and expenditures in

<sup>6</sup> See his paper, "Sur les conditions d'existence d'une opbellmite totale et d'un indice du niveau des prix, *Annales de l'Université de Lyon*, sec. A (3), vol. 9 (1946), pp. 32-39, particularly pp. 36-38; translated into English as *The Existence-Conditions of a Total Utility Function*, *Review of Economic Studies*, vol. XIX (1951-52), pp. 123-128, particularly pp. 125-127.

<sup>7</sup> This was pointed out by Ladislaus von Bortkiewicz; see v. Hofsten, *op. cit.*, pp. 14-15, 27.

<sup>8</sup> This position is also taken by Frisch, *op. cit.*, p. 417, and Bruce D. Mudgett, *Index Numbers*, New York: John Wiley & Sons, and London: Chapman and Hall, 1951, pp. 70-79.

the next, the chaining is quite straightforward. Given any expenditure level in, say, 1947, we can find expenditure in 1948 which gives approximately the same level of satisfaction. Starting with expenditure levels for 1948, we can find the corresponding expenditure levels for 1949. By linking the two pieces of information we can find an equivalence between expenditure levels in 1947 and 1949. This is still a chain comparison subject to the disabilities noted above. It finds its primary justification in the assumption that neighboring comparisons are apt to be more accurate than those at a distance. In terms of figure 1 the two bounding curves are apt to be much closer together than they are for comparisons of several years apart.

A more experimental approach to index numbers based on multiple comparisons of time has been originated in a paper by Lawrence R. Klein and Herman Rubin.<sup>9</sup> If we have observations for a number of years, we have some possibility of estimating the effect of price changes on the consumption of different commodities. One can hope, at least, to obtain demand functions which express the consumption of any commodity in terms of the prices of that commodity and competitive ones, and the income of the country or of the individual if we have observations on separate individuals. If the demand functions are accurately obtained, it is possible to infer the underlying want structure and therewith to make all desired cost of living comparisons. The problem resides in the difficulty in accurately determining statistical demand functions; nevertheless a great deal of progress has been made on this in recent years. It would seem worth while to experiment with this approach in different ways and see how it compares with other, more traditional methods. In principle, it is certainly the most satisfactory since, for example, all observations are treated equally thereby using more information.<sup>10</sup>

#### IV. THE PROBLEM OF QUALITY CHANGES

One of the greatest problems in any index number comparisons over time is that of changes in the quality of existing commodities or the introduction of new ones. A thorough theoretical analysis of the subject is found in the book of Erland von Hofsten who has been in charge of the Swedish cost of living index.<sup>11</sup> We will discuss the problem here mainly from the Engel curve viewpoint of section II.

It should be made clear that we are discussing this problem at a theoretical level where it is assumed that we have a price for every conceivable commodity, including every variety. We ignore here the

<sup>9</sup> A Constant-Utility Index of the Cost of Living, *Review of Economic Studies*, vol. 15, 1948, pp. 84-87.

<sup>10</sup> Klein and Rubin analyzed the particular case where the demand functions are such that the expenditure for any commodity is a linear function of prices and income. They obtain, therefore, a specific formula for the cost of living index number. Paul Samuelson has objected that the linear demand functions are not likely to be found in practice; see *Some Implications of Linearity*, *Review of Economic Studies*, vol. 15, 1948, pp. 88-90.

However, linear functions have been fitted to British data by J. R. N. Stone; see *Linear Expenditure Systems and Demand Analysis: An Application to the Pattern of British Demand*, *Economic Journal*, vol. LXIV, No. 255, September 1954, pp. 511-527. For an excellent exposition, see Ragnar Frisch, *Linear Expenditure Functions*, *Econometrica*, vol. 22, No. 4, October 1954, pp. 505-510.

Klein and Rubin assumed that the demand functions needed for their index would be obtained statistically by fitting to aggregate data. If Engel curves were available for each year, the chances of reliable fits would be much improved. In any case, it should be made clear that any statistically derived demand functions which satisfy certain consistency conditions can be used to derive index numbers; they need not be of the linear form assumed by Klein and Rubin.

<sup>11</sup> For reference, see footnote 5.

question of sampling in groups of related goods at a representative price. The splicing method frequently used in discussing quality changes depends in part on a sampling concept as well as a purely theoretical one. The difficulties attached to the sampling process have been ably pointed out by von Hofsten.<sup>12</sup> At this level of abstraction there is no logical difference between a different variety of the same commodity and a different commodity. We will assume our classification as fine as called for by the circumstances so that, for example, two different models of Cadillacs are to be regarded as separate commodities.

Suppose then we observe, in comparing year 0 with year 1, that a commodity appears in year 1 which was not consumed at all in year 0. Actually, from the Engel curve point of view, the problem might arise at each expenditure level. We may find a commodity purchased only by upper income people in year 0 which is now purchased in year 1 by lower income individuals. We will postulate that the want structure of individuals is the same in the two situations in spite of the introduction of a new commodity. The absence of a commodity in the former period will be explained by the hypothesis that the price at which it could have been produced was so high that the demand for it would be 0. The problem comes in evaluating the lower boundary curve of figure 1,  $E_{10}(E_1)$ . Some of the current year expenditures will be of the new commodity. When reevaluated at base-year prices, what price shall be assigned to it? The theoretically correct answer will be the lowest price which will keep every individual from purchasing the commodity. Unfortunately, this price, unlike the others that have been used to this point, is a hypothetical one, not an actual one, and its use introduces a hypothetical element into the calculations. However, I believe that any rule which will accomplish the end of accounting for quality changes in a price index must involve judgment somewhere and it is deceptive to state an objective-sounding rule which is not based on a logical theoretical foundation.

It will be useful to distinguish between several situations. One is that in which a new commodity rather different from any now existing is being introduced—e. g., automobiles around the turn of the century, or television sets more recently. Here there is apt to be a continuous rise in consumption. The first year in which the commodity is introduced the consumption is probably rather small. Therefore any error committed in attributing to the previous year a hypothetical price will not have a great effect on the base year weighted current year expenditure curve. Here again we have an example of the value of a chain index. There is no point at which the introduction of a new commodity will produce great problems providing the introduction is gradual. Once it has appeared as an item of expenditure, the successive future steps of its growth are accounted for in the price index, just as any other commodity.

An even more favorable situation is that in which the newly introduced commodity is a close substitute for one previously existing, say an improved model. If both are available in the second period, then it is reasonable to postulate that the consumer would reject completely 1 or the other of the 2 goods if the price ratios differed very much from that which actually prevailed in year 1. Therefore, a hypo-

<sup>12</sup> Op. cit., pp. 53-58, 71-72.

thetical price for a newly introduced variety in year 0 is so chosen that the ratio of its price to the price of variety in existence in both periods is slightly higher in year 0 than in year 1. This approach to the pricing of new varieties is very similar to the splicing method. However, it meets von Hofsten's strictures so long as all the varieties are counted each time. The difficulty encountered in the splicing method arises because the particular varieties selected may be unrepresentative.

A more difficult case is that in which one variety disappears and is in effect replaced by another. The most common instance of this is the change of models in many consumers' durable goods, notably automobiles. The principle is not altered. However, it is now necessary to have a hypothetical price in both situations. If model A was produced in year 0 and replaced by a more or less equivalent model B in year 1, the index maker must hypothesize a price for model B in year 0 just high enough so that none of it would have been consumed even if it were available. Similarly, he must hypothesize a price for model A in year 1 just high enough, again, to insure that there would have been no consumption even if available. At this point, the index maker will probably start to resort to objective measures of quality of some kind, such as performance or durability characteristics of the object. He will, in effect, be postulating that the consumer would choose between two varieties if both were available, according as the price ratio exceeds the quality ratio or not. Of course, the only true measure of quality is the satisfaction yielded to the consumer, and the quality ratio used by the index maker must be related to his guess as to the consumer's tastes.

The entire argument to this point has been based on the assumption of an unchanged want structure between one period and the next. We have gone so far as to impute tastes for commodities not available in one time period or the other in order to preserve this theoretical foundation. However, as von Hofsten stresses, this point of view cannot be maintained for goods subject to style changes. As we are currently observing with regard to women's dresses, it is possible for styles to change from year to year and return to their starting point. If all prices had remained unchanged during this period, then the change in varieties can only be explained by the assumption of a change in tastes. There seems no simple way out of this problem except a judgment by the statistician that the new style performs an equivalent function in terms of satisfaction to the old one.

#### V. CONCLUDING REMARKS

Index numbers are, of course, desired for other purposes than to measure the cost of living. One obvious possibility is to consider some subset of cost-of-living items, such as food. The logic of the preceding argument goes through precisely provided that we assume that the distribution of food expenditures in any period among different foods depends only on the total volume of food expenditures and is independent of the prices of other goods, for any given total volume of food expenditures. This does not deny substitution between foods and other commodities, but we assume that the total effect of this substitution is already reflected in the choice of a volume of food expenditures. In a broad way, similar considerations apply to the

pricing of producers' goods which should be interpreted as reflecting indirectly consumers' preferences. However, there is undoubtedly a lot more in the detailed working out of the theory that has never been developed.

This leads to the final suggestion that considerable effort be put into pure research on the theoretical problems of index number construction. This has to be done, of course, in close context with practical problems and, therefore, through the existing statistical agencies. Either there should be provision for a research unit within existing statistical agencies, or arrangements should be made for contract research by universities under the supervision of the Bureau of Labor Statistics and similar agencies. For real progress, a good deal of freedom must be granted. The possibility of experimental construction of index numbers must be allowed a wide scope. In this research, issues of comparability with the past should not be allowed to dominate too strongly. The most important thing is the collection of the data necessary for price measurements. Even though such data were not available in the past, we should at least now plan for the future an adequate amount of information.

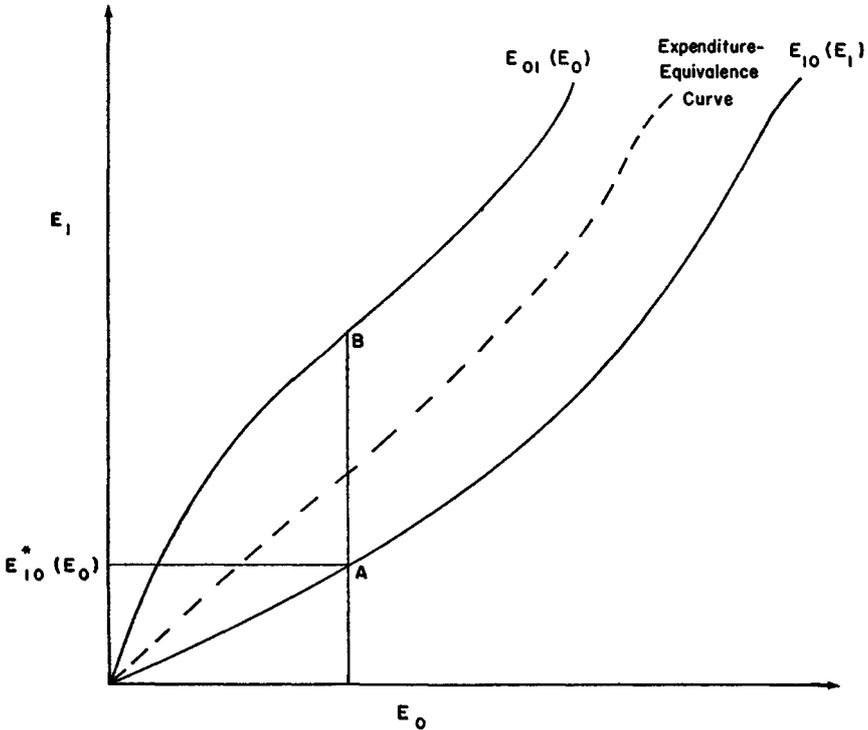


Figure 1



## ADMINISTERED PRICES IN THE AMERICAN ECONOMY

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The principal aim of this paper is to examine afresh the issues, both theoretical and practical, involved in the concept of administered prices. Because of the limitation of time and resources, I have had to stick to two limited objectives in preparing the paper: To survey and summarize the conclusions that can be drawn from other people's work in this field, and to make a very modest additional contribution to the facts and theory that have been brought to bear on it.

Some of the relevant contributions in this field, including all the most important ones, are listed in the bibliography at the end of this paper.

The factual research carried out by the authors listed provides us with a very considerable amount of information about price behavior and the factors affecting it; and the theoretical analysis given by them says about everything that can be said in this area.

The factual evidence which has accumulated has not been sufficient, however, to produce general agreement about what the facts are about administered prices, nor has this combined with the analysis presented been able to produce agreement about their practical importance. In general, opinion is divided sharply into two groups: Those who think administered prices or monopoly prices are widespread and extremely important, and those who think such prices are nonexistent or of no great importance, except in public utilities and other enterprises regulated by government. My survey of the opinions and evidence has led me to find myself more and more firmly set in the second group. It is my opinion that the subject of administered prices in the free or unregulated part of the economy is not of itself a proper concern of public policy nor a subject worthy of the attention of the Congress. That monopoly as such is a proper concern of public policy, and that the impact of existing public policies on monopoly and on related matters is of great importance to everyone, I am firmly convinced; I do not want anything I say in this paper to convey any impression to the contrary. However, the proper focus of attention in these matters should be on measures to insure and promote competitive marketing of goods and services and the efficient use of resources. Some existing public policies which do not promote these ends are in need of reappraisal and reform.

One point on which nearly all observers agree is that there are wide areas in the economy in which prices are administered, but where this is no cause for concern. For example, virtually all retail trade is of this character. It is agreed that retailers' margins are essentially competitive and flexible, although from day to day the retailer has a wide range of discretion within which he could set his prices without immediate drastic shifts in sales. As many consumers are very price conscious, however, very large shifts in a retailer's sales

would definitely take place after a moderate delay if his prices were substantially out of line either way. From a long-run standpoint, therefore, he has practically no discretion about the prices he can charge. Hence, it is generally agreed, this area of administered prices should not be a source of public concern.

Another important aspect of administered prices is that a misleading or superficial appraisal is painfully easy to give, even by the most careful and well-intentioned observer, because of the shortage of reliable and unambiguous information. Most of the work that has been done in this field has had to use 1 of 2 sources of price and related data: the wholesale price quotations published by the Bureau of Labor Statistics, and the unit value or realized price data obtained from the census of manufactures. Results from both these sources have quite justly been criticized as inconclusive (and the critics have therefore felt free to write their own tickets). The BLS quotations usually relate to narrowly defined specific commodities, which is as it should be; but they refer to quoted prices, without cognizance of discounts, freight absorption, alteration of quality, and other devices for changing the price actually charged for a standard (unchanging) commodity. The census of manufactures data, which avoid this defect by giving information about net unit values received by sellers, unfortunately have such broad commodity and industry categories that changes in the product mix of a serious magnitude may occur unnoticed within these categories and entrap the investigator in false inferences.

Although these defects in the available data on past years are difficult to correct, the situation for the future is more favorable. Problems of this nature in the construction of the Consumer Price Index have already to some extent been dealt with effectively. For example, in the pricing of new cars, where trade-in allowances make a mockery of the list-price schedule, the BLS has worked out a successful surveying technique for dealing with the problem. A modest appropriation by the Congress could make possible the extension of this good work, including the development of a corresponding set of techniques for getting realistic wholesale price data. At the same time, research by university people, and others outside the Government, into enterprise sales data and other sources can bring great improvements in our information about the past. Some examples in respect to this latter possibility will be presented later in this paper.

Keeping firmly in mind the weaknesses of the available factual data, which carry with them subtle problems of interpretation and analysis, we may proceed to a summary of what is known and certain about administered prices in relation to competition, monopoly, and the concentration of industry. At certain points we shall have to conclude that the only thing that is known and certain is that no conclusion can properly be reached, but even that is better than nothing, especially in an area where unsupported assertions are frequently encountered. Insofar as possible, I shall try to make it clear in every case why a definite conclusion may or may not be drawn from the information available.

1. If a seller actually sells at an administered price: i. e., a price which he may keep unchanged for weeks or even months at a time in the face of changing market conditions, he possesses a degree of mo-

nopoly power. What economists mean by a degree of monopoly power is that a seller possessing it may raise his price noticeably above the prices at which he does a satisfactory volume of business without a complete or disastrous loss of sales, and may lower it noticeably without thereby making possible an unlimited or enormous increase in sales. If changing market conditions do not force a seller to change his price to avoid intolerable fluctuations in the volume of his sales, this by itself means that he possesses a degree of monopoly power.

Gardiner Means, the best known writer on this subject, likes to stress that administered prices may occur in markets that are essentially competitive, that is in which the degree of monopoly possessed by the sellers is not sufficient to imply excessive profits or an injury to the public due to continuous overpricing. In this he helps to emphasize the fact that what economists generally refer to as a degree of monopoly power does not correspond to the notion of monopoly that implies gouging of the public. Nevertheless, as Means also emphasizes, even a very limited and apparently harmless degree of monopoly power, if widespread throughout some sector or sectors of the economy, could conceivably involve a disastrous contraction of output at unchanging prices, rather than the maintenance of output at sharply falling prices, in the face of a contraction in aggregate demand. This might seem to imply that public policy could and should be directed at making even essentially competitive prices less administered and more competitive; Means leans somewhat to this view himself, but qualifies it by saying that administered prices are an inevitable part of the modern industrial economy. Others, such as Galbraith, say instead that because of this prices should be made more administered, by subjecting price changes by big business to prior review by congressional hearings.

Two points remain extremely unclear from what has been said so far. In the first place, no one has demonstrated that "administered prices" are in fact widespread or sticky enough to be a matter for public concern. In the second place, it is not clear or generally agreed whether administered prices in fact involve overpricing of an economically significant quantity of goods, to the detriment of the public, in a way that cannot be corrected by vigorous application of the antitrust laws and related measures. Further, in connection with the first of these points, it remains to be answered whether a tendency for outputs instead of prices to fall in the face of falling demand has any special implication for a general national policy directed at maintaining output and employment.

2. Before these major points are considered, one thing must be emphasized: Quoted prices, or list prices, are frequently not the prices actually charged. As was already mentioned, the price that matters to both the buyer and the seller is the net price after discounts, allowances, and so on. These discounts and so on may fluctuate from day to day, or even from hour to hour, although the list quotation remains unchanged for weeks or months; and as they change, so changes the net realized price.

Suppose it were true that every observable case of an "administered," or sticky price, was of this kind, where sharp price competition between firms caused net realized prices to fluctuate from day to day without the outside observer's being able to see it because of the

unchanging list price. Then we would in fact have all the beneficial and desirable characteristics of competition, and any reasoning based on the apparently harmful sticky prices would be wrong and misleading. In particular, the whole structure of Means' treatment of this subject, which has as its foundation the relative infrequency with which many of the prices quoted by the BLS change, would fall to the ground if it could be shown that the actual prices charged, masked by these quotations, change from day to day and from week to week according to the state of the market.

As a matter of fact, it cannot be shown conclusively that all or most of these quotations are nominal or that they generally fail to reflect the true frequency of price change. At this point I can only say that a very large question mark has to be placed alongside all the work on so-called administered prices that explicitly or implicitly uses the frequency of changes in quoted prices as a criterion of the sensitivity of these prices to market forces. This question mark will get larger and larger as I go on to consider some important examples of such prices on which definite and conclusive information is available.

3. The theory of oligopoly, industrial concentration, and related ideas are seriously defective, and provide us with no basis for judging whether prices are as sensitive as they should be. Oligopoly theory, and related ideas about enterprises occupying a large share of the market for some product, have gained a wide degree of popular acceptance because their logic looks good and their conclusions accord with our natural and to some extent justifiable suspicions of big business. This, however, does not tell us anything about the facts of the case, nor does it by itself even assure us that the logic of the theory itself is adequate or air tight. It is not.

The prevailing theory of oligopoly states that a large seller will hesitate to cut his price when he knows that if he does other sellers will follow suit, because he is so large that his action cannot go unnoticed. If all the output of the product they sell is produced by a few large firms, this would seem to imply that no one will cut the price unless demand has fallen to such disastrously low levels that price cutting is obviously preferable even when everyone does it together. The gap in this reasoning is that the circle is not complete unless it can be asserted that every firm in the industry is very confident that if it lets customers get out the door because it refused a price concession, not a single other firm will make the concession and make off with the trade. If a firm has serious doubts on this score, as well it might, and if the current sales and price situation is such that the firm is very anxious to secure the additional trade, it will be sorely tempted to offer the concession. The effect of "oligopoly" will then be that the firm will request that the customer not shout from the housetops about the concession given.

The temptation to cut prices covertly in this way will occur any time that the extra costs incurred to produce additional output are substantially less than the going price. Even if the difference between the two does not yield as much as the producer would like toward the overhead, it will come closer to doing so if he can expand volume at the expense of his competitors by a small price concession; and the operating profit will most certainly fall much further short of covering overhead if his competitors expand their volume at his expense. In a situation of this kind, it is obvious to everyone con-

cerned that a price well above marginal cost is unnatural and difficult to maintain.<sup>1</sup> All firms are not of equal size, and smaller ones are less likely to try to keep the price up than are the big ones when this situation affords them the opportunity to make what for them is a big increase in sales. Hidden price cutting is likely to break out any time the natural level is below the going level, and is unlikely to stop until equality between the two is reached. Any attempt by the bigger firms to hold the line, as they are the ones more likely to try it, simply results in all the business going to the smaller firms in the industry. The big firms get no opportunity to recover this lost business in times of booming demand, and so run the risk of gradually being replaced as the largest firms of the industry if they do not yield and follow the market closely.

This sort of pattern of behavior is clearly visible in the nonferrous metals industry: In a weak market the smaller firms press sales while the larger firms follow along dragging their heels and complaining all the while. The big firms have not been getting smaller, but only because they meet market prices, however grudgingly. Here as elsewhere the structure of quoted prices, though volatile, understates somewhat the fluctuation of actual prices; discounting is common in a normal market, rife in a weak one, and negative when supplies are tight. In a nutshell, in this market generally recognized to be competitive, we can see a certain amount of oligopolistic protestation alongside truly competitive pricing.

That such concessions, discounts, and so on are given in a great many industries in which quoted prices change infrequently is a matter of common knowledge, admitted by everyone except the large firms in those industries themselves. A casual reading of trade publications and business periodicals will convince one that this sort of behavior is extremely widespread, although data on the subject are extremely hard to come by. The problem is simply that the one element of unquestionable truth in the theory of oligopoly is that large firms do not like to talk about sales at prices below the quoted price. If one were to read only the statements of big steel executives, one would be led to believe that no one in the steel industry would ever dream of cut-price sales, as such sales would obviously be detrimental to the profits of steel firms as a group. Certainly they leave no doubt that they wish no such sales were made.

This leads to the ironic situation that big firms in truly competitive industries bring floods of criticism and epithets of "monopoly" upon their own heads by their stiff-necked secrecy about their pricing policies. They are so convinced that oligopoly theory ought to be true and applicable to their own situations, and they so wish they could price like oligopolists, that they talk like oligopolists while they price like competitors. This is regrettable as much for the public as for big business, because it distracts public attention from true monopolies, price-fixing arrangements, and misuse of resources. It also makes it difficult for the trained investigator, even if he knows just what he

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<sup>1</sup> This, of course, does not mean that it is "unnatural" for a firm to make an operating profit sufficient to cover overhead in times of average or high demand. When operating rates are high the extra costs incurred to produce additional output are higher than at low operating rates (because of greater pressure on maintenance staffs, and other factors). A price that covers these extra costs at high outputs will more than cover variable costs for the entire output, therefore, and generally will yield a net profit.

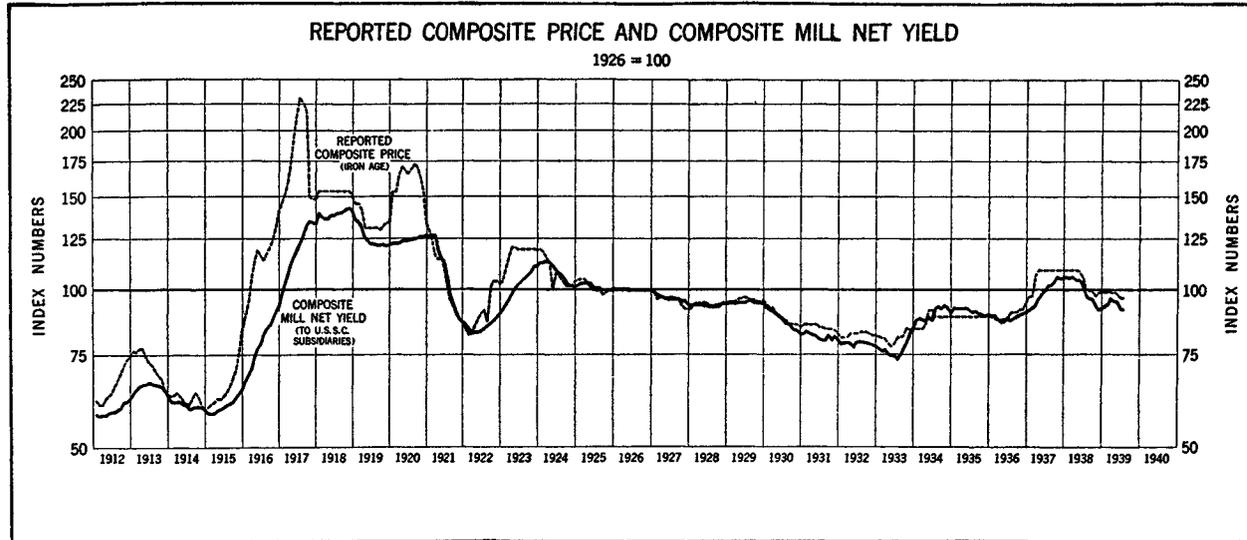
is looking for, to find where the monopolies and other abuses really are.

For the time being we must conclude from this that oligopoly pricing, or any other type of essentially monopolistic pricing by big business, is less common than it would appear by considering quoted price behavior and the public statements of businessmen themselves. Further discussion of this point, from a long-run standpoint, is given in section 6, below.

4. The evidence is conclusive that the prices of steel and petroleum are sensitive to month-to-month changes in market conditions. Steel and petroleum are the two major industries widely believed to be of the "administered price" variety on which I have been able to find some hard factual evidence on prices actually charged. Unfortunately, the evidence on steel dates from 1940 and before, but there is no reason to suppose that the situation has changed in any essential respect. Studies by the TNEC on the sales data of the major steel producers and by the BLS on the purchase data of a large sample of steel users, covering various years up through 1939, show that price concessions on the major steel products averaged some 6 percent off the base price in 1939 and some 50-60 percent off the standard extras, which meant that the base price plus extras was reduced by some 17 percent by these concessions. That most of the concessions were in the extras rather than the base price may be due to the greater ease of concealment in the category of extras. That these concessions fluctuated from month to month was also made clear in these studies.

Chart I shows the average monthly mill net in relation to the quoted base price of the United States Steel Co. for the years 1912-39, representing a composite of all their products sold. In most years the net price received was actually less than the base price, which meant that concessions were greater than the extras. (These figures are only broadly representative of what was happening, since small month-to-month fluctuations may be partly due to changes in the product mix. Individual product studies give the same picture, however, so that there is no reason to suppose that this chart is misleading.) Note that generally on a rising market the quoted or "hoped for" base price shot up far above and ahead of the prices actually received.

CHART I



Source: (33), p. 95.

Ordinarily the general level of the reported steel prices, as indicated by the Iron Age composite price of steel, reflects the relative level of the mill net yields, i. e., the amounts received per ton by the U. S. Steel Corporation subsidiaries on the various products after deduction of cost of delivery. However, at times the level of the mill net yields has been slightly above or slightly below the relative level of the reported prices, except that during the periods of intense demand during the World War and in 1920 when the prices charged by the Corporation's subsidiaries were beneath the level of the going prices.

Factors tending to lower mill net yields with respect to reported base prices are principally (a) reductions from base price, (b) excess of actual cost of delivery over freight added to base price in computing the delivered price, (c) quantity discounts and (d) deductions for quality, size, etc. Factors tending to raise mill net yields with respect to reported base prices are principally (a) extras for special finish, quality, size, heat treatment, etc., and (b) extras for small quantity.

I strongly suspect, therefore, that the "price rise" of July 1957 was largely fictitious; although a recovery in economic activity will very likely save the steelmakers from the indignity of openly rescinding the price increase.

The data on the petroleum industry are current, fortunately, and with a little work can be made available for a considerable past period. This industry is frequently alleged to have administered prices for crude oil and for refined products at the refinery and in wholesale markets. It is a straightforward matter to check up on the latter prices by observing daily quotations in newspapers (such as the New York Journal of Commerce) and the monthly figures in the Oil and Gas Journal. The daily quotations posted by regular suppliers in wholesale markets, less reported discounts, change on the average every 3 or 4 weeks; but a more accurate picture is obtained by reading the journalistic reports in the newspaper columns alongside these postings. They report actual market prices, which change every few days, according to the state of the market. When the postings change they appear to change largely to get in line with prices actually charged.

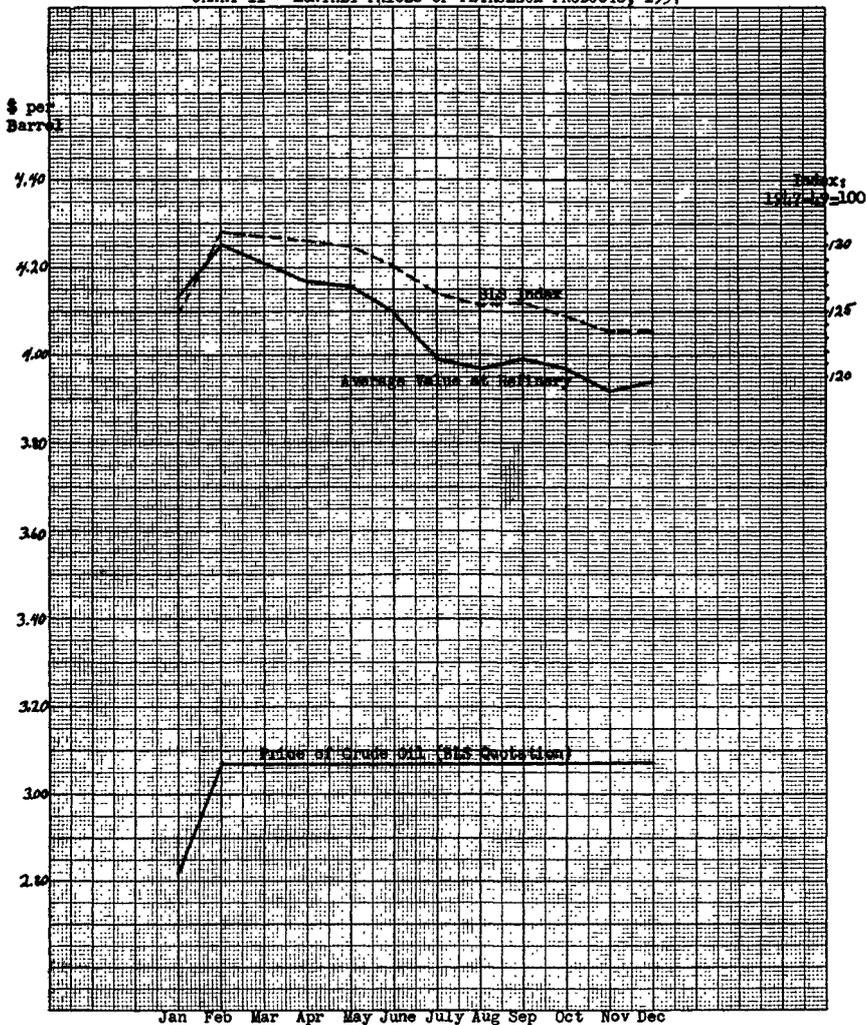
Price figures at the refinery level are obtainable from the Oil and Gas Journal and the Independent Petroleum Association. Chart II and the accompanying table give an average of these figures by months for 1957, along with the BLS series on petroleum products at wholesale for comparison. Both these series understate somewhat the downtrend in these prices from March 1957 onwards, because of the slight lag of movements in posted prices behind prices actually charged; both series are based on postings less published discounts only.

TABLE 1.—*Monthly prices of petroleum products, 1957*

	BLS index (1947-49=100)	Average value refined products <sup>1</sup> (dollars per barrel)	BLS quota- tion for crude oil (dollars per barrel)
January.....	124.9	4.13	2.82
February.....	131.0	4.25	3.07
March.....	130.7	4.21	3.07
April.....	130.4	4.17	3.07
May.....	129.8	4.16	3.07
June.....	128.4	4.10	3.07
July.....	126.4	3.99	3.07
August.....	125.5	3.97	3.07
September.....	125.6	3.99	3.07
October.....	124.6	3.97	3.07
November.....	123.5	3.92	3.07
December.....	123.5	3.94	3.07

<sup>1</sup> Average of figures given by the Oil and Gas Journal and by the Independent Petroleum Association of America (for east of California prices).

CHART II - MONTHLY PRICES OF PETROLEUM PRODUCTS, 1957



The price of crude oil presents a more delicate problem, because no regularly published data can be found on the prices actually being charged. It is clear that the realized value of crude oil for the big integrated producers went down, because of the fall in the prices of final products; and since the 22 largest oil firms are net purchasers of crude from smaller producers to the tune of 25 percent of United States crude oil output, it does not seem at all probable that they actually paid the high posted price for crude when the crude wasn't worth it and when a multitude of suppliers were piling up inventories. Late last year an oil company executive was reported in the Oil and Gas Journal as having remarked in a speech that large quantities of crude were moving at cutrate prices. Private inquiry of an oil economist on my part uncovered the information that for some months a major importer of crude has been selling it at prices as

much as 30 percent below the posted prices, and that price-cutting is quite normal in the trade by various covert devices, such as shipping a higher quality of crude than that for which the purchaser is invoiced. Within the last few months posted prices of crude have at last been falling more into line with actuality, but they are still misleading.

5. Differing degrees of price flexibility in the different sectors of the economy are apparently almost entirely explainable in terms of differences in the behavior of costs, without regard to concentration or monopoly. The work of other researchers, combined with the direct evidence on steel and petroleum which I have presented and with the impressions one gains by reading trade journals and the like for many industries, definitely point in this direction. Means found that a small selected sample of quoted prices did show a weak but definite relation between degree of concentration and list price rigidity, although Tucker and others have questioned whether this can be generalized for the whole economy. I would not be surprised if it can, since maintaining a fiction of a quoted price different from actual prices is behavior, pointless though it may appear, more to be expected in a concentrated industry than in an atomistic one.

However, when one turns to realized prices, the prices actually charged, various researchers, especially Neal, Thorp & Crowder, and Tucker, found no relation at all between concentration and price rigidity or at most a negligible relation. These results tended to show instead that prices vary closely with costs, which explain (even when only crudely measured) some 80 percent to 90 percent of the variation in prices between 1929 and the bottom of the depression.<sup>2</sup> However, these studies have to be supplemented with the additional material and impressions which I have put forward, because the product classifications used are so unavoidably crude. Even all this together is not absolutely conclusive, however, and many economists who are familiar with all or most of this material find it possible to continue to give full play to their suspicions about the harmful pricing practices of big business. I believe that a continuing accumulation of evidence may one day convince them that they are overdoing a good thing.

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<sup>2</sup> Neal (Item 21 in the bibliography) found that, between 1929 and both 1933 and 1935, the coefficient of determination ( $r^2$ ) between costs and realized prices was consistently of the order of 0.80 to 0.90, depending on the sample used. The partial coefficient of determination, after allowing for the effect of costs, between prices and the concentration ratio was consistently around 0.09: that is, of the total variation of prices, only from 1 to 2 percent was attributable to variation in concentration ratios.

Thorp and Crowder (29) found that in their data there was no relation at all between changes in realized prices and concentration, nor between changes in realized prices and changes in concentration. Correlation methods were not applied, but it was evident that, if they had been, a zero result would have been obtained.

Tucker (30) concentrated his attention on Means' data, and pointed out that if a larger sample had been used the relation Means found between list-price rigidity and concentration would 'barely disappear': it would disappear entirely, he said, if allowance were made for the misleading character of list pricing and its correlation with the degree of concentration. The other two studies tend to bear him out in this contention.

One other question mark that has to be put alongside these studies, besides that arising from possible changes in the product mix, is that national concentration ratios do not equally reflect degrees of concentration in local markets for all products. It is not possible to say how systematic consideration of this factor would affect the result, if at all, but such attention as has been paid to it has led to the conclusion that the effect would not, in any case, be large.

All this does not deny that a monopolist may have sensitive prices like everyone else, and that he may, nevertheless, suffer a smaller drop in profits during bad times than do other sellers. This aspect of the matter is best viewed as a part of the problem of long-run overpricing, discussed in the next section.

One other serious qualification must be entered at this point, however, and that concerns the rigidity of the wage structure. There is little doubt that here is a price that is not very sensitive to changing economic conditions. Nourse, among others, has repeatedly cited this factor as a source of excessive price rigidity in the nonagricultural sectors of the economy, and in particular he has tended to indict the labor unions for the existence of this factor. Now, it is true that since the New Deal era wages have shown no tendency to drop in recessions, which they had generally done previously. However, careful studies of wage movements have not tended to find much relation between these movements and the degree of unionization, but rather seem to show differing degrees of reluctance on the part of employers to cut wages. Other aspects of present-day policy than the labor laws, such as unemployment insurance, may have reduced the downward flexibility of wages; but unions do not seem to have made much difference.

6. Long-run overpricing of commodities is not a widespread problem in our economy. In this connection, the histories of the steel and petroleum industries are very suggestive. Both had monopolistic pricing and profits in the first decade of this century, and neither made any secret of the fact that this was the way they wanted it to be. Both monopoly situations fell apart, but for rather different reasons. The United States Steel Co., which on its formation in 1901 controlled the production of some two-thirds of the steel ingots produced in the United States, priced monopolistically for 10 years or so, providing an attraction and an umbrella for the expansion of its competitors. The United States Steel Co., now controls only one-third of the steel ingots produced in the United States. Its control of steel pricing broke down by the advent of the First World War, and never returned, although this has never been admitted. During the depression, the company joined the international steel cartel, accepting a quota for exports by the entire industry with penalties for exceeding the quota; as a result, the company regularly paid penalties as its competitors regularly exported in excess of the quota, and the scheme had no real effect as far as this country was concerned. This incident occurred during a period of especially intense price competition among steelmakers within this country. The only time that United States Steel has had its way on prices since the First World War was during the unfortunate interlude of the NRA, which, mercifully, died quickly except for its labor provisions. Yet to this day the company's executives talk like oligopolists, apparently looking wistfully back over the decades to the time when this kind of talk meant what it said.

The Standard Oil cartel was a more tough and durable phenomenon, having lasted from around 1880 to 1911, and it required the strong arm of the Government to break it up. Throughout the period of its success, the cartel controlled 80-85 percent of refinery capacity in the United States, and by one dubious means or another kept the remainder in line on prices and output quotas. After the cartel was dissolved by court order and it became obvious that the successor companies could no longer maintain discipline as before, competition expanded rapidly. At the present time the successor companies control only 25-30 percent of the industry's output, and in many markets are in competition with one another.

These two histories point up the fact that the public has two major forms of protection from long-run overpricing of products: competi-

tion, potential and actual, on the one hand, and the antitrust laws on the other. By and large, these two forms of long-run protection are adequate over that area of the economy where they are applicable. The paths of history are strewn with the bones of cartel and monopoly schemes designed to gouge the public, and nowhere have they failed more regularly than in the United States. The chances for success in such enterprises have always been slim, even without the antitrust laws, and the failures have been spectacular and costly to their promoters.

The main reason that cartel and monopoly schemes tend to fail is indicated by the analysis presented in section 3. An overpriced commodity, one whose price is substantially above the cost of production, presents an overwhelming temptation to existing and potential producers to add to existing output. Hence, a monopoly or cartel which raises the price above its natural level will, in so doing, invite its own destruction unless it can effectively prevent such additions to output.

Effective prevention of additions to the monopoly's chosen output requires strict policing of outputs and prices, something which can be done usually only with the assistance of Government (or with the tacit sufferance of Government if it uses strong-arm methods, taking the law into its own hands). Rockefeller failed twice before finally succeeding in attempts to form his oil-refining cartel, because of this difficulty.

The notorious methods used by the diamond monopoly in the South African mining areas, employing armored cars, halftracks, and the like, and an extensive secret service, have been sufficient to maintain its control of the diamond market for generations. However, this control is now breaking down because new producing areas nominally cooperating with the monopoly do not police so well. Schemes to raise prices of tin, copper, rubber, and coffee have repeatedly broken down and brought considerable losses on their promoters because of insufficient control over total production. Examples of this kind are legion.

It is also true that the price-raising power of any monopoly, even if successful, is likely to be limited by competition from other products satisfying the same basic need or use. For instance, a monopolist in one type of fuel would to some extent have to hold his hand for fear of causing people to change over to other types of fuel. This consideration may explain the recent trend toward moderation in the demands of the coal miners' union, who seem to have seen the handwriting on the wall.

Nevertheless, even in the United States, where collusive agreements and the like are especially difficult to police and maintain, there have been some successes, costly to the public. The occasional successes point up the need for the existence and enforcement of the antitrust laws. A similar conclusion is reached if one examines the consequences of widespread monopoly in other countries, where, generally speaking, no such laws exist.

By and large, available evidence on corporate assets and profits tends to suggest that the extent of monopoly in the United States

economy is much smaller than one would expect if he accepted concentration ratios as a measure of monopoly.<sup>3</sup>

The main areas in which the public is not fully protected from monopoly in this country are ones in which the Government, usually actively but sometimes passively, has prevented or allowed the prevention of competition and has caused or permitted wrong and inefficient pricing to prevail. Licensing restrictions, franchises, patents, rate regulation, and so on have effectively curtailed competition in many areas of the economy and have permitted gouging of consumers and misuse of resources. The most important by far of these areas is transportation and public utilities, which are subject to rate regulation. Although these rates are usually kept down to a level which only allows a "reasonable return" to capital, the structures of rates set could scarcely be more viciously inefficient and harmful to the public interest if that were their explicit object. Further, the "reasonable return" criterion is not always followed, as in many cases the sole object of regulation is to set minimum rates so as to prevent effective price competition between alternative forms of supply of a basic service. Basic reforms in all the areas where the Government actively or tacitly restricts competition are badly needed. In this particular respect, one may quite properly say that maladministered prices are a real and serious phenomenon, both from a short-run and a long-run point of view.

7. History has shown repeatedly that the only cure for a drastic fall in aggregate demand is for aggregate demand to rise again; the appropriate public policy for stability and full employment, therefore, consists of countercyclical monetary and fiscal policies, combined with a structure of policy that encourages the private economy to maximum growth and stability. Price flexibility has never been sufficient to avoid sharp and undesirable drops in aggregate output and unemployment, and there is no reason to suppose that such flexibility ever will be sufficient to do so. An adequate countercyclical monetary and fiscal policy has never been put to the test, although the performance of such policy in the recessions of 1937, 1949, and 1954 was not bad. Most economists are agreed that well-formulated monetary and fiscal policy can be sufficient to maintain output and employment.

These remarks are equally applicable whether "administered prices" are a widespread phenomenon in the private, unregulated economy or not. Even if Means' ideas could be accepted at face value, these would still point in the direction of maintaining adequate monetary and fiscal policies as the main defense against undesirable fluctuations in output, employment, and the price level. It would be very convenient if nearly all prices, including wages, were sufficiently flexible that no Government action would be necessary to maintain output and employ-

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<sup>3</sup> Harberger's study of this question (10) based on 1925-29 data indicates that monopoly profits before income taxes are at most of the order of 1½ percent of the national income. This would imply, on my own calculation from his data, that from 6 to 8 percent of the national product is under unregulated monopoly control. This estimate is made by assuming that all differences in profits are due to differing degrees of monopoly power, i. e., that none are due to the rise and decline of industries with growth and change in the economy. Many of these profit differences must really be due to the latter factor, so that this estimate undoubtedly overstates the amount of monopoly.

This estimate roughly agrees with the more conservative of Nutter's estimates (25) based on concentration ratios and on Wilcox study (35). As not all concentrated industries are high-profit industries, nor vice versa, however, these estimates do not agree on which industries are monopolistic. Further, even where they do agree, some of the high profits will be due to the dynamic factors just mentioned.

ment regardless of fluctuations in aggregate demand. They are not that flexible, they never have been so far as we know, and it is not likely that they ever will be. Government therefore has a useful function to perform in this matter, by meeting such fluctuations with carefully weighed counteraction.

The encouragement of the private sector to maximum growth and stability in such a manner that will require the minimum use of countercyclical devices does involve questions of prices and price policies, although these are of a second order of importance in this context. Where Government is involved in the regulation and restriction of private enterprise, this involvement should be such as to promote the highest possible real income through the best possible use of resources. Preliminary study indicates that the reforms I have previously mentioned with respect to such involvements could produce an increase in the real national income of at least 5 percent and perhaps as much as 10 percent.<sup>4</sup>

Concerning the unregulated private sector of the economy, the role of public policy is more limited but is also important. In my view the Government, apart from preventing monopolization, price-fixing agreements, and blatant price discrimination, should adopt a position of benign neutrality toward the private economy. Where monopoly and artificial restraint of trade are not present, it may virtually be taken for granted that particular products for which the demand falls will suffer an appropriate fall in price. It may almost be taken for granted that products for which the demand rises will enjoy an appropriate rise in price; this may not quite be taken for granted in every case, however, because firms may fear an inappropriate adverse public reaction or even prosecution under the antitrust laws. This is inappropriate because if the scarcity of the commodity relative to demand is real and not artificial, a high price is the only efficient way to ration the scarce supply among its most important and valuable uses. In peacetime the efficiency of the price mechanism is not questioned if the commodity in question is wheat, copper, or textiles; and it is equally efficient if the commodity in question is steel or any other commodity that happens to be produced by big business. As long as the industry is competitive, so that the scarcity is not artificial, the bigness of the firms which will make windfall gains in times of scarcity of their product (and windfall losses in times of plenty) is not relevant to how the price should behave. It would be most helpful to this end if the Congress made it clear to businessmen exactly where they stand—what the limits are to the application of the antitrust laws, and how much freedom they have to price according to the State of the market. Corporate enterprises, both big and little, are an integral part of the highly productive American economic system, and will remain so for a long time to come. Pointless harassment of these enterprises cannot possibly serve any useful purpose, and could be very prejudicial to the objectives of maximum growth and stability of the economy.

I also believe it to be true that the measures I endorse, namely appropriate monetary and fiscal policies, reform in the areas of the economy where Government has a direct restrictive or regulatory influence, and benign neutrality in the rest of the economy, are sufficient for

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<sup>4</sup> These are rough estimates based on calculations by Harberger and myself.

maintaining long-run stability of the price level in the face of upward as well as downward pressures. The correctness or not of this belief is of course of considerable importance to long run growth and stability, since many students of the subject have come to the conclusion that stability of the price level and full employment are inconsistent because of the pressure of wage demands (or of the upward movement of "administered prices"). Certainly one cannot deny that this could conceivably be the case; but in those instances I know of where it demonstrably has happened (i. e., where unions have demanded and gotten wages that were inconsistent with full employment at existing prices) wages have been escalated so effectively that full employment was not possible even with mild or unlimited inflation.<sup>5</sup>

It is easy to jump to the conclusion, whenever the consumer price index goes up a few points, that someone has been "pushing" it up; and of course big labor and big business are natural targets in this respect. Showing that it has been happening in the American economy is another matter, and I do not believe that it can be shown. The significant inflationary episodes of the past have almost certainly been monetary phenomena, at least in the sense that sufficient monetary restraint would have stopped them effectively without serious unemployment. There is little reason to suppose that the episode of 1955-57 was any different.

As Ruggles pointed out last year to the Senate Judiciary Committee, the consumer price rises in 1955-57 occurred almost entirely in services and utilities. Prices in the industrial sector could not by any stretch of the imagination be credited with responsibility for the upward movement of the Consumer Price Index. But this is where the rise would have had to have occurred to be consistent with giving big labor or big business the blame. On the other hand, I do not find it difficult to interpret the events of 1955-57 in terms of growing aggregate demand insufficiently restrained by monetary and fiscal policy. These years saw an unprecedented boom in domestic investment, a boom which ought to be expected to place pressure on resources in a fully employed economy. At the same time, expanding consumer incomes were increasingly directed to services, in keeping with a long-run trend. Services, in order to keep employees and attract them away from the booming investment sector, where jobs were plentiful, had to continue even more sharply their long-run tendency to bring their wages (and therefore costs and prices) up toward a level consistent with this. Similarly, so far as one can tell, the rises in prices in the utilities and other regulated areas made sense in terms of rising costs and ample demand.

The price movements of the 1955-57 episode are highlighted in table 2, which shows the changes in the general price level (gross national product deflator) and its components. Consumer goods rose the least (3.8 percent) of any of these components, while the biggest rises were in compensation of general government employees (17.9 percent) and in producers' durable equipment (15.0 percent) which had dropped slightly from 1953 to 1954. These movements make a pattern very much in keeping with the interpretation of the episode as a demand inflation generated from the active investment and government sectors.

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<sup>5</sup> I have in mind the cases of Germany's inflation of the 1920's and Italy's inflation after World War II. In both these cases there was severe unemployment during inflation.

A more restrictive monetary and fiscal policy would have dampened down somewhat the demands of the investment sector, which in turn would have implied less pressure elsewhere in the economy. I have seen no evidence to suggest that this would have necessitated serious unemployment had the additional restraint occurred while the pressure in domestic investment was still high. After all, we had 5 years of virtual price stability since the end of 1950, and without serious unemployment. I think this can continue.

TABLE 2.—Components of the general price level

[1947=100]

	1954	1957	Percent increase 1954-57
Gross national product deflator.....	119.9	129.6	8.1
Consumer prices.....	116.8	124.0	6.0
Goods.....	112.6	116.9	3.8
Services.....	128.1	137.5	7.3
Construction.....	129.7	142.9	10.2
Producers' durable equipment.....	128.1	147.3	15.0
Government purchases of goods and services.....	125.2	142.4	13.7
Compensation of general government employees.....	134.1	158.1	17.9

<sup>1</sup> This item represents the wage and salary level in general government, and is not strictly comparable with the other indexes because of the possibility that there has been technological advance in government as elsewhere.

Source: Survey of Current Business, February 1958.

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## THE PRICE INDEXES OF THE BUREAU OF LABOR STATISTICS

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In this paper I shall be concerned with some of the practical problems affecting the development and use of two widely known indexes of price movement: The Consumer Price Index and the Wholesale Price Index of the Bureau of Labor Statistics. Both of these price measures serve two broad areas of need: For general economic analysis and to guide policy decisions by government, business, and the public. Neither index can be completely satisfactory for both theoretical analyses and practical day-to-day decision making. In fact, price measures of any kind have certain inherent limitations which must be recognized in any application.

Index numbers provide a convenient way of studying price behavior quantitatively. Simply defined, an index number is an average of price changes between two points of time. This implies that there is a universe of items for which we wish to measure the average price change. Since an average is involved, it applies in addition that we know how important each item is in the universe so that we can weight together the measures for individual items. If we know all about the universe of items at both points of time for which we are computing the index of price change, there is no problem—one could define and compute literally an infinity of measures of price change. But no one of these indexes would be right for all purposes. A more important point is that complete quantity and price information is not available at any given moment for any index of significant scope. The census of manufactures, for example, identifies something like 8,000 individual materials and product items, not counting all variations in size, quality, or marketed form.

These commodities are changing hands continuously, passing from producer to wholesale distributor to retailer to the ultimate consumer. Each transaction involves a price determination. Any workable plan for a price index, designed to reflect the movement of prices at any level in this complex, must rest on a sampling structure. It requires a sample of commodities, of sellers, and a sample of price quotations or transactions. Thus, in the Consumer Price Index we have a sample of about 300 commodities and services. We have a sample of retail stores and service establishments clustered in 46 cities. From each store we obtain a sample of prices—the price in effect at a point in time for each sample commodity offered for sale. Accuracy in each of the samples is essential for a valid index number.

Price can be defined as the amount of money "paid" for a unit of commodity or service, but this formal definition provides no more than a starting point. There are various kinds of transactions and the price, or money payment, may enter into the transaction at dif-

ferent stages. In some cases different transactors pay different prices for equivalent volumes of goods and services. Therefore, for a price to be useful in statistical measurement, its exact meaning must be understood.

For the BLS indexes, the commodities to be priced are defined in terms of more or less exact physical specifications, depending on the item involved. When necessary—i. e., where the price might be affected by these factors—the classes of customer and/or seller involved in the transaction are likewise specified. There is a wide variety of prices that can serve as the basis for statistical measurement; not all are equally good or appropriate. There is what can be called a list, or posted, price. In most stores of this country that is the price at which transactions are made. For some items, including some sold at retail, the list or posted price is very different from the actual transaction price. Witness the haggling which commonly accompanies the sale of a new car. In this case the determination of price is usually further complicated by the fact that the transaction involves cash plus a “trade-in.” It is obvious that a realistic measure of price change should be based on actual prices paid rather than list prices, if the two differ.

The distinction between list price and transaction price is extremely significant in the case of nonretail prices. The practice in many industries is to maintain a list price for a long time and change the price as market conditions require by offering or withdrawing discounts or “extra” charges. Variations from the list price are made not only over time but also at any given time for different classes of customers.

Obviously, in comparing prices for supposedly the same item over time, one of the essentials is to insure that the prices cover equivalent terms. Exactly the same item, for example, may be quoted on an f. o. b. basis or on a delivered basis, or inclusive of installation costs in some cases. Changes in the terms of sale may be used as a device for adjusting real prices without changing published list prices.

Generally, the commercial transaction unit is the one used for purposes of price measurement. Thus, the cost for a monthly telephone service with unlimited calls is an appropriate measurement consistent with this concept. A different price, if it could be computed, would be secured if the price per actual phone call made or received was to be considered. Similarly, the price per thousand cubic feet of natural gas is an appropriate price measure, or the price of a ton of coal. Either one of these prices could be converted into price per equivalent quantity of heat, measured by the British thermal unit, which might be a useful concept for some purposes. For some of our series we do, in fact, refer to the B. t. u. content in the specifications of these two items. In most instances, however, it would be impossible to define units of performance in this manner.

A basic problem in the measurement of price behavior is that few products remain constant in their physical characteristics over any length of time. In some cases it is possible to adjust the prices available for the two periods being compared to take account of technical differences in individual products, which, it is assumed, are reflected in market valuations. In other cases the products have changed so much that comparisons over time cannot be made except with explicit statement of the basic assumptions involved. Thus, we hear, for example, how the car of today differs from the car of 10 years ago.

Some of the differences can be accounted for and prices adjusted; for example, automatic shift and power steering. Other differences, however, cannot be evaluated in dollar terms. Some manufacturing changes may have reduced costs and at the same time increased the utility of the product. In very few cases are the ideal conditions for computing the true market evaluation of the differences between an old product and its current modification satisfied. To do this would require that both products be available on the market in significant quantities for an overlap period of suitable length.

Of course, new products are continually coming on the market, and others drop out. This constant change in the commodities flowing through the market presents especially difficult problems in measuring average price changes over a long span of time.

Computation of an index to represent the average price change between two periods of time requires both price data for individual items and quantity data for the weights by which the prices are combined. Determination of the quantities presents many technical and theoretical problems. In the early days of index number research a great deal of effort went into finding some intrinsically "true" method of weighting which would be best in a general sort of way. We now recognize that the choice of weights depends (1) upon the objective which the index number is designed to serve and (2) the availability of data from which the weights can be derived. Regardless of the objective, however, the availability of data often becomes the dominant criterion in the selection of weights.

The interpretation of a particular index number depends not only on the way in which the price data are combined but on the logic of the weighting structure for the particular purpose to be served by the index number, and the firmness of the statistical foundation of the weights. In some widely used index numbers, the weights are hypothetical or arbitrary, or are based on very limited data. The weights of our daily spot market index are arbitrary. By averaging the prices without varying the weights we give each quotation equal weight in the computation. This may not impair the usefulness of the index numbers provided users are aware of what the weights mean. For other index numbers, the weights rest upon very broad statistical foundations as well as carefully thought out logical structures.

The major BLS price indexes are good examples of indexes with weights derived from comprehensive statistics for a base period. Thus the weights of the Consumer Price Index represent the quantities of the various commodities and services consumed by city worker families as measured in an extensive survey of family spending in 1950. The weights were adjusted to 1952 conditions before being introduced into the Consumer Price Index as issued in January 1953. In effect the Consumer Price Index formula is a variation on the Laspeyres base weighted index, named for the 19th century statistician who developed the original equation.

We use the term "fixed basket" in connection with the Consumer Price Index because each monthly set of price quotations is combined by the quantities represented in the basket to derive the current value aggregate. A comparison of this current aggregate value with a similar aggregate value based upon 1947-49 prices gives the index in relation to the standard base period for Government statistics.

A comparison with a similar aggregate for the previous month gives the percent change shown by the Consumer Price Index since the preceding month.

Many statisticians argue that the indexes should be constructed with current rather than base period weights. This is known as the Paasche formula. An index of this type has value for many purposes but, as a practical matter, the necessary data for weights cannot be obtained in time for current computation of price indexes. Moreover, a current weighted index presents a comparison of prices as against a base reference period. Comparison between any other two periods are invalid because the differences in index numbers involves not only changes in price, but also changes in weights. Thus current weighted formulas do not satisfy a major requirement of BLS price indexes that the indexes be comparable not only as against a base period, but also as against previous months and previous years.

Prices indexes derived from careful specification pricing of the type that the BLS builds into its Consumer Price and Wholesale Price Indexes are often compared, with confusing results, with indexes of realized unit value changes. For example, using data from consecutive censuses or annual surveys of manufactures, it would be possible to compute the dollar change in unit value per ton of all steel produced, or of all gasoline. Such comparisons are affected, however, not only by price change of carefully defined types of steel or gasoline sold through specific channels, but also by changes in the product mix. There might be more or less high-grade steel or high-octane gasoline in one period than another, for example. Moreover, the change in unit values may reflect different sources of supply or different customers. An index of unit values derived from purchasers would give a still different result as compared with unit values derived from producers' shipments since changes in transportation and distribution costs, as well as price change, would be involved.

Some confusion exists regarding the meaning of the term "base period" as applied to the BLS price indexes. Although the weights for the CPI are based on the year 1950, adjusted to 1952, the index as published describes the change in prices from the average of 1947-49. The latter reference point might be termed the index base, or base reference period. Ideally, the weight and reference bases should coincide, but in practice this is not always feasible. Basic data suitable for weights are not always available for the standard reference period established by the Bureau of the Budget for all Government statistical series. Moreover, it may be desirable for some index series to change the weighting structure more often than the reference period is changed.

For specific purposes it may be convenient to shift the reference base to a period other than the standard one for a given series. Thus a chart of the CPI and its major components on a 1939 base affords a graphic picture of the movements in consumer prices since immediately before World War II. Of course, as Wesley C. Mitchell demonstrated in the famous BLS bulletin on *The Making and Using of Index Numbers*,<sup>1</sup> shifting the reference base may lead to sizable errors, unless the translation is computed separately for each item in the index. This arises from the fact that as the index is carried further

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<sup>1</sup> U. S. Department of Labor, Bureau of Labor Statistics, bulletin No. 656.

away from its weight base the relative movements of the individual prices become widely scattered. The short method of shifting in effect applies a different set of weights to the individual prices than that which was carefully built into the original index series.

I have described in general terms the nature of our Wholesale and Consumer Price Indexes, indicating that each embraces a wide variety of commodities involved in market transactions in a defined stratum of economic activity. The question often arises, How well do these indexes indicate changes in the general price level? This is difficult to answer, because no one has succeeded in defining the universe of transactions included in a general price level in terms capable of measurement. In its broadest context the general price level embraces all transactions involving transfers of goods, services, money, and financial obligations however expressed. Many of these elements cannot be defined in terms such that a price or value could be determined for purposes of index construction or that weights for combining different elements could be established.

The nearest approach to an index of all prices is the implicit deflator which is a byproduct of the translation of current dollar estimates of the gross national product into constant dollars of a base reference period. The GNP implicit deflator is derived by first deflating each component of the GNP by the most appropriate price index from whatever source available. Each component is thus expressed in terms of constant dollars of the desired base period. A comparison of the aggregate of deflated components with the current dollar aggregate provides the implicit price index. If the deflation is carried out in maximum detail the resulting price index has the characteristics of a Paasche, or current weighted index. To the extent, however, that the original deflation is accomplished for larger groups only, using already available composite price indexes, the resulting implicit deflator has a larger component of weights from earlier periods, and loses some of its Paasche characteristics.

For most purposes measures of general price movements have more usefulness if limited to a definable transaction level or economic sector. It is in this respect that the BLS indexes provide effective measures of changes in price levels. The Consumer Price Index is a reasonably good measure of retail price trends, representing household purchases of goods and services. By definition the CPI does not measure changes in prices paid by high income or very low income families, farmers, or the self-employed. To a certain degree, however, the index covers the modal range in the entire retail market distribution of household goods.

The Wholesale Price Index may be considered a measure of general price movements at the production level of the economy. Although its commodity content is much larger than that of the CPI, it is a less satisfactory general price measure in that it does not include business services, construction, real estate, transportation, and securities.

There is a tendency to think of the CPI and the WPI as two comparable measures of price movements at different levels in the economy. In a sense, of course, this is true. But the assumption of similarity leads to erroneous conclusions regarding the relationship between the two. We are often asked to explain why the CPI is rising while the WPI is falling, or vice versa. When the Consumer Price Index rises

more rapidly than the Wholesale Price Index, many users leap to the hasty conclusion that the housewife is being victimized by the rapacious middleman. Such a conclusion cannot be supported by comparing the two indexes. In the first place the indexes do not measure prices of similar groups of commodities at two transaction levels. The Wholesale Price Index includes raw materials. It also includes semi-fabricated parts and components made from those raw materials and the final products incorporating the parts and components. The manufacturer's price of the consumer good may parallel the retailer's price, but in the WPI that price change may be offset by movements in prices of things that never enter the consumer market. This means that comparison of the two indexes will not provide a valid measure of trends in price markups or margins.

Thus far, I have referred to the Consumer Price Index and the Wholesale Price Index in discussing price index problems and objectives. A more detailed examination of the two indexes will serve to indicate their uses and limitations and provide a background for suggesting needed improvements in and additions to these basic measures of price movement.

The Consumer Price Index, inaugurated in essentially its present form in 1918, is defined as "a measure of changes in prices of the goods and services bought by families of city wage earners and clerical workers."<sup>2</sup> It is a price index, and not a measure of changes in family living costs. This distinction is worth emphasizing, because it has significant implications with respect to the use of the index in wage escalation.

The CPI is computed by comparing prices from period to period for a fixed "market basket" of goods and services. A cost-of-living index, on the other hand, would be analogous to an expenditures index. The usual concept of cost of living includes the changes in family expenditures which occur when its living habits change, its income rises or falls, and its requirements for food, shelter and clothing change with increases or decreases in the family size.

Although the index is not constructed to reflect changes in living costs as thus defined, the market basket items are representative of the things that wage-earner families actually buy. The content and importance of the items in the basket are determined by periodic surveys of family expenditures. The latest of these studies was carried out during the period 1949 through 1952, and resulted in the revision of the index first released in January 1953. The basic index structure has not been altered since that time, although we have changed commodity specifications or substituted new items in the market basket as items originally included were replaced in the market by others.

The market basket contains about 300 specific items of goods and services, including foods, clothing, house furnishings, rent, home maintenance, personal and medical care, recreational goods and services, and other items in the consumption pattern of the population group specifically covered by the index. The current prices of these items are weighted to represent all items consumed by the index families.

The prices for the index are obtained from representative stores and service establishments, or other appropriate sources, in 46 cities.

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<sup>2</sup> See BLS Bulletin No. 1168, *Techniques of Preparing Major BLS Statistical Series*, ch. 9, for full technical description of the Consumer Price Index.

The sample of cities includes the 12 largest urbanized areas in the country. An additional 9 large cities, 9 medium-size cities and 16 small cities, each representing a sampling cell in the universe of about 3,000 urban places in the United States, makes up the balance of the city sample.

In addition to the national figure, an index is published for each of the 20 largest cities in the sample. For five major cities monthly indexes are provided. Indexes for the other 15 are issued quarterly. This schedule of releases is governed by the frequency of price collection. We cannot collect prices each month in each city for all items in the market basket. Food prices are obtained monthly in all cities, and all items are priced each month in the five large cities. Most of the nonfood items are priced quarterly in the remaining 41 sample cities, on a rotating basis, so that prices are available each month from a subsample of cities of all sizes.

The most obvious and important use of the Consumer Price Index today is in wage escalation provisions of long-term labor-management contracts. It is estimated that approximately 4 million workers are employed under such contracts by which their wages are adjusted on a quarterly or semiannual basis for changes in the purchasing power of the wage dollar as measured by the index. In fact, of course, the index is a consideration in virtually every wage determination made in this country, whether by management alone or through collective bargaining.

Although the escalation provisions hinge on a single figure, usually the national index, other important uses involve not only the summary figure but the individual item and group series underlying the total. All of these uses have focused widespread attention on the index, raising questions about its meaning, accuracy, and appropriateness in various situations. Many questions arise from misunderstanding, but others point to the need for expansion and improvement in the underlying current price data and additions to the number and types of price measures made available. The increasing need for retail price data in deflating components of the national accounts can be satisfied only by expanding the scope of the current retail price reporting. The appropriate vehicle for this purpose is the current price program of the Bureau of Labor Statistics.

There is great demand for additional individual city consumer price indexes and for comparisons of living-cost differences among cities. For intercity comparisons, the most effective device is the standard budget. Such a budget, described as the content of a "modest but adequate standard of living" for a 4-person city wage-earner's family, was developed by the Bureau in 1947 and its cost computed for each of 34 large cities. That budget base is now out of date, but the Bureau is engaged in developing a new budget structure reflecting current standards. If funds can be provided for the necessary additional price collection, it is hoped that new budget estimates, in terms of annual dollar totals, can be issued by mid-1959 for each of the 46 cities in the Consumer Price Index sample. These figures will furnish a direct and easily understood means of comparing living costs among those cities. Standard budgets are also needed for other family types and for various levels of satisfaction. The present Bureau program includes the preparation of a budget for an elderly

couple, to provide a basis for evaluating the adequacy of retirement benefits and for estimating changes in living costs for retired couples when they move away from the place of former employment.

Reference has been made to the fact that the basic structure of the Consumer Price Index has not been brought up to date since 1952. While maintenance of a fixed base for price comparison is essential if the index is to serve as a wage-income deflator, it is recognized that the sample of items and their weights must be reviewed at periodic intervals. While there are some dissenters, it is generally agreed that such review and revision should be undertaken at intervals of not more than 10 years. In view of the time required for the completion of a new consumer expenditure survey, it is essential that a revision program be initiated in the very near future if the index is to be revised on that schedule.

As the earlier discussion has indicated, the Wholesale Price Index differs fundamentally in many respects from the Consumer Price Index. In fact, it specifically excludes from its scope sales to household consumers. The term "wholesale" in this instance refers to sales in large lots, not to prices paid or received by wholesalers, distributors, or jobbers. The index does not include Government, services, or constructions.<sup>3</sup> Whenever possible, the prices used in constructing the index are those applying to the first important commercial transaction for each commodity. The index is therefore frequently and more properly referred to as a measure of primary market prices.

The Wholesale Price Index is based on monthly price data for nearly 2,000 commodities, ranging from raw materials, such as grains, fibers, and iron ore, to finished products, such as canned foods, clothing, automobiles, and machine tools. For most of the raw materials the prices used are those established in the organized exchanges and quoted in the trade journals. Prices of semifabricated and finished products are generally obtained directly from the producers by mail questionnaire.

The weighting structure of the index is designed to account for the value of all commodities sold in the domestic market, including imports. The weighting data are obtained from value of shipments as reported in the census of manufactures, the value of agricultural and extractive industry products are reported by the Department of Agriculture and Interior, and imports as reported by the Department of Commerce. The general policy of the Bureau is to review and revise the weighting structure each 5 years, as the results of the quinquennial Census of Manufacturers becomes available.

Although, as I have indicated, the Wholesale Price Index is used as a measure of general price trends, it is the detail underlying the total index that has the widest usefulness. Individual item and group indexes are used in deflating components of the gross national product estimates. Segments of the index are used in escalation provisions of long-term production contracts, commercial leases, and supply contracts. For example, virtually all of the heavy power generating equipment produced is made under an arrangement by which the contract sum is adjusted for changes in the prices of selected materials and components between the initiation and completion of the job. Federal shipbuilding contracts contain similar provisions.

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<sup>3</sup>See Bureau of Labor Statistics Bulletin No. 1168, ch. 10, for full technical description of the Wholesale Price Index.

The wholesale price series are nationwide in scope, with no local detail except for individual item prices as quoted on organized exchanges. Thus, the monthly detailed report provides prices and indexes for potatoes at Boston, Chicago, New York, and Portland, Oreg. Flour, butter, poultry, milk, and other basic foods are reported for several market centers. Central and eastern regional prices are quoted for paperboard. For virtually all other commodities in the index, local detail is not available, chiefly because of sampling problems and the necessity of avoiding disclosure of confidential data. As prices are reported on an f. o. b. point of production or freight equalized basis, the combination of prices originating at different shipping points provides a consistent series. To the individual consumer of industrial products the index may, however, appear incorrect. Thus, the purchaser of, say, finished steel products, may find that the index movement doesn't follow the trends of his own costs. His costs may rise because of freight-rate increases, or because in a period when the terms of sale are changing he is unable to take advantage of better quantity or cash discounts offered by the producers.

It has been suggested that a valuable adjunct to the present wholesale price series could be developed through a series based on reports of prices paid by the distributor or industrial consumer. Such an index would reflect fully the effects of changes in freight rates and might also provide a useful check on the ultimate effect of the discounts and allowances offered by producers. The maintenance of a consistent and continuous index of prices paid presents several knotty problems. One of these is the sample of purchasers. Most industrial users of raw materials, components, and capital equipment do not buy all of these items every month. A very large reporting sample might be required, therefore, to furnish sufficient data to establish the average price paid at a point in time. Moreover, the composition of the reporting sample would vary from month to month, which would introduce problems of equating the variations from buyer to buyer in freight costs, discounts, and allowances.

The wholesale price series suffers from several deficiencies and inaccuracies, some of which are almost impossible to correct within the present frame of operations. While these deficiencies have little effect on the overall index, they present serious obstacles to the use of many subgroups and special product combinations that are desired for analytical, deflation, or escalation purposes. An important problem area includes heavy industrial equipment, ships, locomotives, and aircraft. Most of these products are manufactured to order, and no "market price" is established for them. Each ship differs from every other ship. Each purchaser of aircraft specifies particular features to be included in his order. The value of these unique products is included in the weight base, but their price in the current index computation is imputed to the price movement of their components or other items of a generally similar type.

The use of mail-price reporting has imposed some limitations on our ability to obtain accurate data. There is evidence that some manufacturers may have allowed special discounts or sales rebates to their dealers and have not reported the fact in filling out the monthly price schedule. The solution to this problem appears to rest in regular personal contacts with the firms, to explain the objectives of the price-

index program, to determine the best method of obtaining an actual realized price, and to encourage cooperation in accurate reporting. For some items it appears that direct collection, by personal interview, rather than use of the mail questionnaire, may be necessary.

Mention should be made of the need for price indexes on an industry basis. Some types of economic data, such as employment, capitalization, and dividend payments, are available on an industry but not a product basis. Comparable price indexes are frequently needed in the analysis of these series. Industry price indexes are also essential for the development of productivity measures, and for studies of interindustry transfers.

The derivation of adequate industry price indexes involves more than a mere regrouping of the present commodity series. Aside from the fact that the output of some major industries is poorly represented in the present series, there are difficult weighting problems. Ideally, the weights should be constructed on a value added basis, so that each industry series would be influenced by the actual value contribution made by that industry to the total output. The present item weights in many instances represent values of groups of items for which price movements are generally similar. This imputation pattern may ignore industry of origin, which means that the value of output for one industry may be included in the weight attached to the product of another. Among the other problems involved are the derivation of adequate weights for secondary products, and the inclusion of interplant transfers, now excluded from the weighting structure. Despite these problems, however, this is one of the gaps in the Bureau's price program which should receive early attention.

## PRICE AND INCOME MEASURES FOR AMERICAN AGRICULTURE

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The invitation to prepare this statement was generous: I was to concern myself with the general price level and nonagricultural phenomena only to the extent I so desired, I was not to feel mortgaged to any existing statistical measures simply because they were now provided for, and finally I was not to be overly concerned with theory; rather, I should so far as possible keep the discussion in terms of what appeared to be reasonably practical.

There are three comments I should like to make with respect to these terms of reference:

First, I am of course aware of and agree with the argument in favor of a stable "general price level." However, I do not know how to measure, at least in any precise way, the general, overall price level nor do I think that any single measure, assuming we were to agree on one, would wholly serve the purpose which the committee has in mind.

That is, it never seemed to me in the twenties and early thirties that the Wholesale Price Index measured the general price level even though we often talked as if it did. Nor do I today accept the Consumer Price Index, useful as it is, as a single sufficient measure of the overall concept. Further, except under pressure of great economic strain, and usually then also, it seems to me that many, often the most, of our price problems have to do with differences in price and related economic developments as between different sectors of the economy. Very simply, this means that we are as much interested in sector or partial price level measures as in the direction and magnitude of the total price movement.

Second: In discussing price and related economic measures for agriculture, it is difficult for me to start anywhere except with the measures now being used, along with our current recommendations for improvement.

Our farm statistics have gradually developed over quite a long time, they have been and are being used to evaluate programs and arrive at decisions, and the problem as I see it has to do with strengthening and improving our current measures, not with designing an entirely new set.

Third: Analysis of why prices behave as they do and the effects or implications of such behavior are as important as any set of price statistics. Prices or price indexes by themselves are purely neutral. They only tell in a predetermined way what has happened—not why nor whether it is good or bad, nor what should be done. So I conclude that we should never spend all our funds simply to collect, com-

bine, and release statistics. Appropriate analyses must also be arranged for.

There is a good argument that the only really good index or aggregative measure for any practical purpose is one which has been designed to fit precisely and particularly the problem at hand. In fact, I often find myself arguing along the lines of Kenneth Arrow's recent (*Econometrica*, October 1957) conclusion: "In view of the magnitude of an economic system, it would take only a very small percentage of improvement in economic stability or growth to make almost any conceivable data collection worthwhile" (i. e., the cost of collecting the relevant data would be quite small as compared with the possible gain). But there are practical limits: We must often analyze actual situations and arrive at decisions on the basis of statistics collected in accordance with some earlier estimate of what might be useful while at the same time fiscal administrators and congressional committees are rarely as enthusiastic about statistics as are the economists and the statisticians. So we must design our statistics to supply our analysts and policy-makers with as much data as possible bearing on what we believe to be the main questions ahead.

There has long been a strong, continuing interest in comparing prices received by farmers with either prices paid by farmers or prices of nonfarm commodities. As a result, we have now been calculating and publishing monthly indexes of (1) prices received and (2) prices and cost rates paid by farmers since the mid-1920's. I should now like to consider these two indexes, omitting, however, any discussion of the parity price calculations which also involve both indexes. There is a double reason for this omission: These are the two basic farm-price measures irrespective of their use in the parity calculations, while the parity problem itself has been recently discussed in a report to the Senate as well as in the statement which I submitted to the Joint Economic Committee only last November.<sup>1</sup>

#### PRICES RECEIVED BY FARMERS

The index of prices received by farmers as now published by the USDA in our monthly report, *Agricultural Prices*, is a straightforward aggregative price index, calculated from the base 1910-14=100. The weighting pattern for the period 1910 to 1935 is based on the average volume of farm sales of about 50 commodities during 1925-29, while from 1935 to date the weighting pattern is related to the average sales of 52 commodities accounting for 92 percent of all farm cash sales for the years 1937-41.

There are no really difficult problems associated with this index. The commodity mix has not changed so radically over the years as to raise serious questions as to comparability as between even widely separated periods and except for truck crops, some fruits, and tobacco, the accurate measurement of month-to-month changes is not too difficult.

<sup>1</sup> See: Possible Methods of Improving the Parity Formula, Report of the Secretary of Agriculture Pursuant to Section 602 of the Agricultural Act of 1956, S. Doc. No. 18, 85th Cong., 1st sess., February 1, 1957; and Orvis V. Wells, Parity Prices and Parity Income Formulas, 1933-57, included in *Policy for Commercial Agriculture—Its Relation to Economic Growth and Stability*, papers submitted by panelists appearing before the Subcommittee on Agricultural Policy, joint committee print, November 22, 1957.

There are nevertheless some improvements that would be desirable. We are now primarily dependent upon mail questionnaires for most of our basic data. This leads to certain limitations—limitations which can be removed only by providing for the direct enumeration of a set of dealers selected by modern sampling methods. This would go far to eliminate variations resulting from intermittent nonresponse of mail reporters—i. e., “holes” in the basic sources of price information—and to insure improved representativeness and stability. The data collection procedure for the Consumers’ Price Index may be looked upon as something of the pattern toward which we should move. With this development should go the collection of prices for more commodity breakdowns by main classes and main methods of sale. Farm forestry products, which account for several hundred millions of dollars of farm sales, might also be priced. Finally, it would be desirable to shift both the official reference base and weighting pattern for the index to a recent, post-World War II period.

Since American farmers exhibit a strong tendency toward continuing full production, although shifting substantially as between various crops and classes of livestock depending upon relative returns, fluctuations in the prices received index have a relatively high correlation with changes in cash farm sales. Further, since prices farmers receive for most commodities are still flexible, changes in this index, when measured relative to changes in the far more stable index of prices and cost rates paid by farmers, give an approximate indication as to the prosperity or well-being of commercial farmers (roughly, the 44 percent of farmers accounting for about 91 percent of all farm products sold).

#### COSTS AND MARGINS

Changes in prices received by farmers are also one of the main factors affecting the price of food at retail. However, what the housewife buys at retail is not the raw farm product but rather a combination of the farm commodity along with all of the associated assembling, processing, transporting, and selling services. Since food costs are one of the principal components of consumer expenditures, this means that it is desirable to measure the costs and margins which intervene between farmers and consumers in order that food costs can be broken down into the farm and nonfarm portions. Such calculations are facilitated to the extent that retail prices are collected on such food items as to allow a good composite price to be calculated for comparison with the prices of the raw commodity at the farm level—this is especially true for meat animals, for example.

We now estimate the value or retail cost of an average food basket of products grown on American farms. That is, the average quantities of food purchased by an average-sized family, using the same quantity food weighting pattern as used by the Bureau of Labor Statistics in calculating the Retail Food Price Index, is compared with the estimated farm value of an equivalent amount of the various commodities concerned. Such measurements are essential to understanding the forces affecting both short-run changes and longer term trends in prices of food at retail.

## PRICES AND COST RATES PAID BY FARMERS

Commercial farming is a business operation with the farmer's net income depending not only upon prices received, the efficiency of his own labor and management, and the effect of weather upon yields, but equally upon the level of prices and cost rates paid. As a result, efforts to measure prices paid by farmers, or comparisons between farm and nonfarm prices, go about as far back as efforts to measure changes in the average level of prices received.

Since the late 1920's the United States Department of Agriculture has been calculating and publishing an index of prices paid by farmers which has gradually expanded into an index of prices and cost rates paid. Compared with the index of prices received by farmers, where the statistical problems are relatively simple, the maintenance and improvement of this index presents some difficult, complex problems.

As in the case of the prices received index, the prices paid indexes are still calculated from the official base 1910-14=100. But whereas the general mix of farm commodities sold has remained relatively stable, this index now covers three considerably different periods as it extends back to 1910-14.

The first period was characterized by the farming methods which prevailed prior to World War I when horses and mules were almost the sole means of farm power, and is represented in the current calculations by price series representing farmers' purchases for living and production, excluding automobiles, trucks, and tractors, but including allowances for taxes on farm real estate, interest on farm real-estate mortgages, and wages to hired farm labor.

Then there followed a transition period during which farmers were shifting rather rapidly from horses and mules to automobiles, trucks, and tractors. Accordingly, price series for automobiles, trucks, and tractors, and various automotive supply items were incorporated into the index as of March 1924. The weighting pattern prior to January 1935 was based upon estimated average purchases and outlays of farmers for the years 1924-29.

The third period starts in the late 1930's and so far as the index as now calculated is concerned, extends from March 1935 to the present. This period is characterized by the increased use of fertilizer and spray materials, increasing wages to hired farm labor, and the substantial completion of the shift from horses and mules to automobiles, trucks, and tractors. The weighting pattern for this period is the estimated average purchases and outlays by farmers for the years 1937-41.

Obviously, the measurement of price changes over periods in which such wide differences have occurred in the actual mix of goods and cost elements entering into farm production and farm family living as have occurred during the last 50 years raises some very real statistical problems. The direct and by all means the most satisfactory solution to these problems is to shift the base and weighting pattern for the index of prices and cost rates paid by farmers to a post-World War II period. This was one of the chief reasons for the Secretary of Agriculture recommending to the Senate in January 1957 that the official reference base of this index be shifted to the 10-year period, 1947-56.

Meanwhile, the Congress did make funds available for a comprehensive survey in 1956 of farmers' expenditures for both production and farm family living purposes covering the calendar year 1955.

We are now analyzing these survey data with a view to calculating a current weighting pattern for the prices-paid index. This should be done whether or not the reference base is changed. But the statistical work would be simplified and the index strengthened if we could dispense with having to trace back through three sets of linkage factors to the original base, 1910-14.

In addition to adopting a new weighting pattern and base period for the index of prices and cost rates paid by farmers, it would also be desirable (a) to expand the coverage of the index to include important service or commodity areas not now covered and to strengthen the data for groups now inadequately covered, and (b) to adopt an objective probability sampling procedure combined with enumerative collection of data as already mentioned with respect to prices received.

The index of prices and cost rates paid by farmers as now calculated covers (a) prices paid by farmers for 191 items used in farm family living, (b) prices paid by farmers for 199 items used in farm production, and (c) allowances for taxes on farm real estate and farm mortgage interest paid, and wage rates paid to hired farm labor. Actually, prices are now covered for 350 items or commodities since 40 of them are common to both the family living and the farm production subindexes. The prices-paid index is calculated and released on a monthly basis but the wage-rate data are quarterly and annual rates are used for taxes and interest.

The 1955 expenditure survey indicates that our current information covers only about 81 percent of farmers' expenditures for commodities used for both farm family living and farm production.

The chief farm family living items not covered are those for medical, dental, and hospital purposes which amount to over \$1 billion, or 7 percent of total farm family living expenditures; expenditures for personal insurance of about \$400 million, or about 2.5 percent of total living expenditures; and expenditures for recreation amounting to \$300 million, or about 2 percent.

In the field of farm production, classes of items not now covered include machine hire and work paid for on a custom-rate basis, cash rent, irrigation charges, and marketing expenses for crops and livestock. Representative prices or charges should be collected covering these expenditures. Marketing expenses, for example, account for about \$500 million, or 2.5 percent of all production expenditures. In addition, the coverage of some commodity groups already represented in the index should be substantially expanded; e. g., containers for the marketing of farm products and pesticides for the control of insects and fungi.

Meanwhile, for many items used in the farm family living field, we ask local merchants to report the average price of the kind of item—e. g., workshirts, overalls, shoes, flour, etc.—most commonly sold. For the more costly items, we do ask for prices according to specifications. We should increase the use of specification pricing although it seems to me that the "most commonly sold" method has some advantages which also need to be considered, especially when dealing with essential, everyday items. These problems of coverage and the use of specification pricing relate in considerable part to the problem of available funds. We are now mostly using mail questionnaires. Widening the

coverage and enumerative pricing on an objective sampling basis would considerably increase the costs of our price work.

#### INDEX OF FARMLAND VALUES

One of the price indexes to which I would like to call the committee's attention is the index of average value per acre of farm real estate. Farm real estate accounts for about 70 percent of the value of farmers' nonfinancial assets, and changes in market values and rates of transfer serve as indicators of the general economic position of agriculture. Although, technically speaking, the index measures only changes in market prices of one productive factor, land, the nature of this resource is such that its price also reflects the confidence or judgment of farmers and others who invest in farmland as to the longer run prospects of agriculture. Consequently, the broad movements that occur in land prices often have significant implications with respect to agricultural credit, rural welfare, and the attainment of farmownership.

The regular crop reporters of the Department are the primary source of basic data used in constructing the index of farm real-estate values by the Farm Economics Research Division, Agricultural Research Service. They provide estimates of prevailing market values in their localities as of March 1, July 1, and November 1. Index numbers are computed for States, type-of-farming areas, and special groupings of States as well as for the United States as a whole. Special mail surveys are also directed twice each year to about 10,000 farm real-estate dealers, bankers, lawyers, and others in close contact with local market developments. Data from these surveys provide a check against the crop-reporter estimates as well as a general appraisal of local supply and demand conditions, availability of credit, types of sellers and buyers, and related information.

Although the National and State indexes are sufficiently reliable for most purposes, a larger number of reports, particularly by class or type of land, would improve the accuracy of the index in certain States. Steps have been taken in recent years to improve the reporting procedures in New England, Florida, Nebraska, and California with this end in mind. However, a need exists for information as to the level and trend in market prices for areas smaller than States which cannot be met by present reporting procedures. By necessity, a State index often averages significant variations in price movements within the State. A substantial increase in the number of reports for relatively homogeneous areas within States would be necessary to permit the calculation of indexes below the State level.

#### II

Price policy is chiefly a means to an end and price indexes themselves rarely measure the final results in which we are chiefly interested. For this reason, it seems necessary to call attention to the need for improving our estimates of farm income and farm expenditures as well as the need for breaking down farm income estimates as between different classes of farms. At the same time, attention is called to the fact that all of the data which we use in deriving average prices and price indexes are also useful and necessary in estimating farm income.

Formerly, farm expenditure and net farm income estimates were made for the United States as a whole with no breakdown either as between different classes of farms or as between the various States and geographic divisions. However, the census of agriculture now classifies farms and tabulates value of production, farm expenses, and related data by farm class. In addition, funds are now available for estimating farm expenditures and farm operators' net income on a State basis. The committee will also recall that during the recent hearings on Policy for Commercial Agriculture, Messrs. Nathan Koffsky and Ernest Grove of the Agricultural Marketing Service were asked to prepare a paper breaking down the national farm income estimates so far as possible between low-production and high-production farms (i. e., farms with annual farm sales of \$2,500 or more) for the years 1946 through 1957.

We need (1) to strengthen our current farm income estimates wherever possible, especially the estimated income of farm people from nonfarm sources, (2) to substantially improve our estimates of farm production expenditures both by States and for the United States as a whole, and (3) to find ways of breaking down our annual farm income estimates as between classes of farms, especially commercial versus noncommercial farms. Good farm income estimates properly broken down as between the various States and as between commercial and noncommercial farms would, along with a revised index of prices paid by farmers, yield a much better judgment than is now available as to the relative well-being of farm people.

Since the committee is chiefly interested in price policy, I shall not endeavor to go into all of the various problems having to do with the estimating of farm income and farm expenditures but they are considerable, and we also need to find some way of getting more adequate annual estimates of both the numbers of farms and of farm population.

So far as the aggregative farm income estimates are concerned, the accompanying table does set forth the main aggregates in which we are interested and to which our attention should be directed. Since farm income may be looked at in several different ways, it may be worthwhile to briefly define what each of these aggregates measures:

Cash receipts from farm sales or marketings measure the value of farm products sold by farmers during the calendar year.

Gross income from agriculture represents the total value of commodities and services produced by farms in the United States, without any deduction for production expenses. In addition to cash receipts from farm marketings, gross farm income also includes direct Government payments to farmers, the value of the net change in inventories of farm products, and noncash income—i. e., estimated allowances for food and fuel consumed directly in farm households and the rental value of the farm dwelling.

Production expenses comprise the aggregate costs paid out or incurred by farm operators for production purposes. Current farm operating expenses include wages paid hired farm labor, both in cash and in kind, purchases of feed, livestock, seed, fertilizer, outlays for repair and operation of farm buildings, motor vehicles and other machinery, etc. Charges are also included for depreciation of motor vehicles and machinery, taxes levied

on farm property, interest paid on farm mortgage loans, and net rents paid to nonfarm landlords. Production expenses do not include an imputed value for labor of the farm operator and his family or for land and other capital owned by the operator.

Realized net income of farm operators from farming is the balance which remains when production expenses are deducted from realized gross farm income. That is, it represents what farm operator families have available during the year for farm family living and savings on the basis of actual farm sales or family use of farm-produced commodities or services, including use of the farm dwelling. It is not adjusted for the value of the net change in farm crop inventories or numbers of livestock.

Total net income of farm operators from farming differs from realized income by the value of the net change in farm inventories. The changes in the physical volume in the various crop and livestock items are valued at the average price of the commodity for the year. This adjustment is added to or subtracted from realized gross or net income of farm operators to convert it to total gross or net income. Both the realized and the total estimates measure returns for the labor and management of the operator and his family and the return on land and other capital owned by the farmer.

Net income to all persons on farms from farming adds wages paid for farmwork to hired farmworkers living on farms to total net income of farm operators from farming. Income to persons on farms from all sources adds income received by persons on farms from sources other than agriculture to income from agriculture. Farm families on the average receive a fourth or more of their total net income in the form of earnings from employment in nonagricultural occupations or as returns from investment in nonfarm property. Hence the measurement of these items is obviously important as a supplement to the regular measures of farm income.

Each of these aggregative or total measures has its appropriate place or use, and the net income estimates when divided by the estimated number of farms or farm population give a much more accurate measure of changes in funds available to farm families than do any of the price indexes. The price indexes do, however, influence and help forecast changes in income, while the index, or sub-index, of prices paid by farmers for goods and services used in farm family living is also our best measure of changes in the purchasing power of the farmer's net income dollar.

#### INCOME BY TYPES AND SIZES OF FARMS

In addition to strengthening our aggregative measures of farm income and findings ways of breaking them down as between part-time, small-scale, and commercial farms, we also need supplementary analyses indicating the changes that are taking place with respect to different types of commercial farms.

The best approach to this that I am so far acquainted with is the costs and returns series for specific types of farms (e. g., central Illinois cash grain farms, Corn Belt hog-beef fattening farms, Cen-

tral Northeast dairy farms, central Kentucky tobacco farms, Southwest cattle ranches, Delta cotton farms, etc.) which are now maintained in the Farm Economics Research Division, Agricultural Research Service.

On the basis of census, special survey, and other data, representative commercial farming systems are derived for specified types and sizes of farms within given areas. Estimates for these representative farms are then made from year to year as to changes in organization, crop and livestock production, sales, expenses, net income, and related information. These series provide information on year-to-year changes as well as an appraisal as to differences among various types and sizes of commercial farms in major producing areas. So far, such series are available for about 30 types of farms in 16 of the more important type-of-farming areas. To be most useful, the number of farm types or areas for which such series are calculated needs to be sufficiently increased to be representative of broad types of farming (cotton, dairy, etc.) for the United States as a whole. Also, the collection of data from current surveys should be strengthened with respect to such items as hired labor, fertilizer, pesticides, farm machinery, and building repair and improvement.

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In discussing the various price and income measures in sections I and II above, I have tried to indicate what the main measures are and discuss briefly the improvements that should be made. The views expressed are personal rather than official. For more detailed information, the committee is referred to volume 1, *Agricultural Prices and Parity*; volume 3, *Gross and Net Farm Income*; volume 4, *Agricultural Marketing Costs and Charges*; and volume 6, *Land Values and Farm Finance*, of *Agriculture Handbook No. 118, Major Statistical Series of the United States Department of Agriculture; How They Are Constructed and Used*. United States Department of Agriculture, 1957.

*Number and percentage of farms and proportion of market sales, by economic class, United States, 1954*

Economic class	Value of sales	Number of farms	Percentage of all farms	Percentage of market sales
		<i>Thousands</i>	<i>Percent</i>	<i>Percent</i>
<b>Commercial farms:</b>				
With sales of \$2,500 and over:				
Class I.....	\$25,000 and over.....	134	2.8	31.3
Class II.....	\$10,000 to \$24,999.....	449	9.4	26.9
Class III.....	\$5,000 to \$9,999.....	707	14.8	20.5
Class IV.....	\$2,500 to \$4,999.....	812	17.0	12.1
Total.....		2,102	44.0	90.8
With sales of less than \$2,500:				
Class V.....	\$1,200 to \$2,499.....	763	16.0	5.7
Class VI.....	\$250 to \$1,199 <sup>1</sup> .....	462	9.7	1.4
Total.....		1,225	25.7	7.1
<b>Other farms:</b>				
Part-time.....	\$250 to \$1,199 <sup>1</sup> .....	575	12.0	1.5
Residential.....	Under \$250.....	878	18.3	.3
Abnormal <sup>2</sup> .....		3	.1	.3
Total.....		1,455	30.4	2.0
All census farms.....		4,782	100.0	100.0

<sup>1</sup> Farms with sales of \$250 to \$1,199 were classified as part-time if the operator worked off the farm as much as 100 days, or if other income of the operator family exceeded farm sales.

<sup>2</sup> Public and private institutional farms, experiment stations, and so on.

Based on Bureau of the Census data. Adapted from table 2 of Family Farms in a Changing Economy, Agriculture Information Bulletin No. 171, March 1957, USDA, ARS.

Selected data relating to farm prices and incomes, United States, 1939 and 1946-58

Year	Prices received and paid (1910-14=100)			Food market basket <sup>3</sup>		Measures of income from farming or to farm people (billion dollars)						Index of farm land values (1912-14=100)	
	Prices received by farmers' index	Prices paid or parity index <sup>1</sup>	Parity ratio (percent) <sup>2</sup>	Farm value	Marketing margin	Cash receipts from farm sales <sup>4</sup>	Gross farm income <sup>4</sup>	Production expenses <sup>4</sup>	Net income of farm operators from farming <sup>4</sup>		Income to persons on farms		
									Realized	Total	From farming		From all sources
1939 .....	95	123	77	<sup>3</sup> \$172	<sup>3</sup> \$279	7.9	10.6	6.2	4.4	4.5	5.2	7.7	82
1946 .....	236	208	113	( <sup>5</sup> )	( <sup>5</sup> )	24.8	29.3	14.3	15.0	14.9	16.7	21.0	141
1947 .....	276	240	115	467	444	29.7	34.0	16.8	17.2	15.5	17.4	22.3	167
1948 .....	287	260	110	497	485	30.3	34.6	18.6	15.9	17.7	19.7	24.8	170
1949 .....	250	251	100	435	493	27.9	31.6	17.9	13.7	12.9	14.7	19.9	177
1950 .....	258	256	101	432	488	28.4	32.1	19.2	12.9	13.7	15.5	20.8	174
1951 .....	302	282	107	497	527	32.9	37.1	22.3	14.8	16.1	18.0	23.6	200
1952 .....	288	287	100	482	552	32.6	36.7	22.5	14.3	15.1	17.0	23.1	221
1953 .....	258	279	92	445	558	31.2	35.1	21.2	13.9	13.3	15.1	21.1	221
1954 .....	249	281	89	421	565	29.9	33.7	21.5	12.2	12.7	14.4	20.2	216
1955 .....	236	281	84	395	574	29.5	33.2	21.6	11.6	11.9	13.6	19.9	224
1956 .....	235	285	82	390	582	30.4	34.4	22.3	12.1	11.6	13.4	20.1	232
1957 <sup>6</sup> .....	242	296	82	400	607	30.0	34.4	22.9	11.5	12.1	13.9	20.2	247
1956: 4th quarter .....	234	289	81	393	590	30.9	35.2	22.6	12.6	12.0	( <sup>6</sup> )	( <sup>6</sup> )	<sup>7</sup> 241
1957: <sup>8</sup>													
1st quarter .....	237	294	81	385	597	30.3	34.5	22.8	11.7	12.0	( <sup>6</sup> )	( <sup>6</sup> )	<sup>9</sup> 247
2d quarter .....	243	296	82	395	607	30.0	34.4	23.0	11.4	12.1	( <sup>6</sup> )	( <sup>6</sup> )	-----
3d quarter .....	247	295	84	414	616	29.8	34.3	22.8	11.5	12.2	( <sup>6</sup> )	( <sup>6</sup> )	<sup>9</sup> 253
4th quarter .....	241	298	81	407	607	30.0	34.5	23.0	11.5	12.2	( <sup>6</sup> )	( <sup>6</sup> )	<sup>7</sup> 259
1958: 1st quarter .....	254	302	84	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

<sup>1</sup> Index of prices and cost rates paid by farmers for goods used in farm family living and production including allowances for hired labor and taxes and mortgage interest paid per acre of farm real estate

<sup>2</sup> Index of prices received expressed as a percentage of the index of prices paid.

<sup>3</sup> The market basket includes estimated quantities of United States grown foods purchased per urban worker family in 1952. 1939 estimates based on same market basket as for 1947 to date. Comparable data for 1946 not available.

<sup>4</sup> Quarterly data are seasonally adjusted annual rates.

<sup>5</sup> Preliminary.

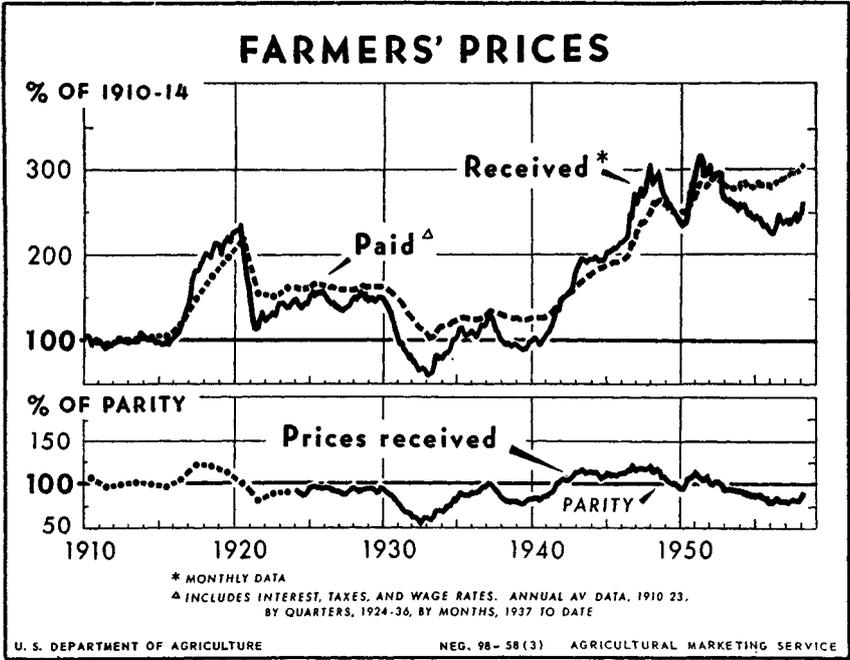
<sup>6</sup> Quarterly data not available.

<sup>7</sup> Nov. 1.

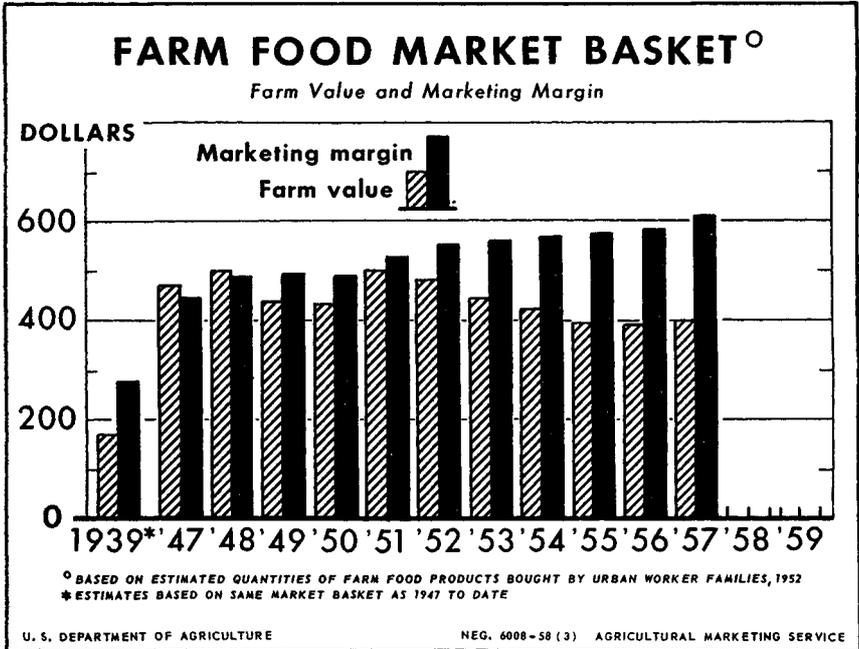
<sup>8</sup> Mar. 1.

<sup>9</sup> July 1.

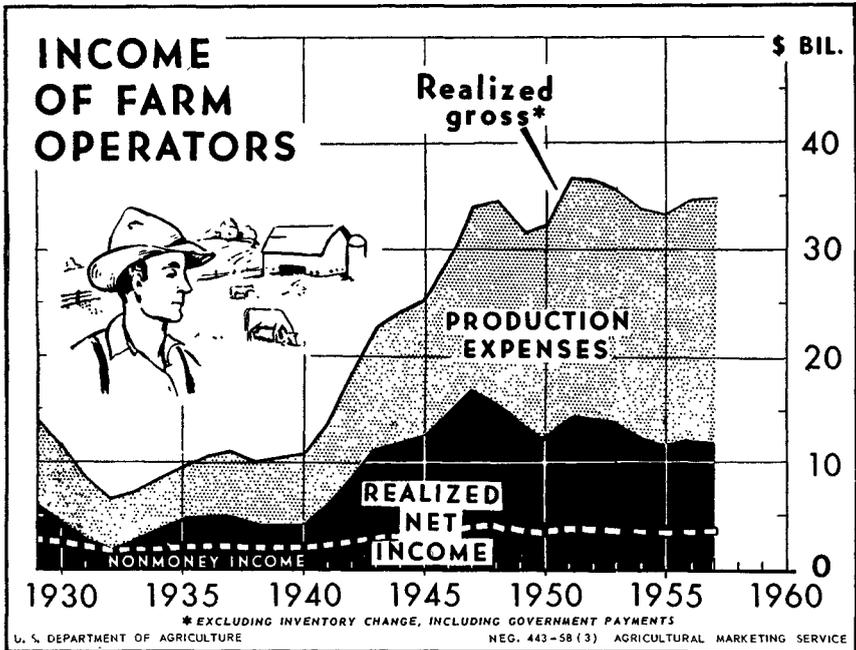
Compiled from Agricultural Marketing Service and Agricultural Research Service data.



The indexes of prices received and prices and cost rates paid by farmers are shown in the first section of the above chart. Note that while the index of prices received by farmers remains relatively flexible, the index of prices and cost rates paid by farmers has become increasingly inflexible, showing no real decline from 1952 to date. The relationship between prices farmers receive and the prices and cost rates they must pay—commonly referred to as the “parity ratio”—is shown in the second section of the chart.



The above chart breaks the retail value of an average American family's annual purchases of foods derived from American farms into its two basic components—that is, the farm value of the equivalent raw commodities and the total costs and margins which intervene between farmers and consumers. Note that from 1951 into 1956 marketing costs rose relative to farm prices so that the farmer's share of the retail food dollar declined from 49 percent to 40 percent. In 1956 and again in 1957, 60 percent of the cost of the food market basket was accounted for by marketing charges. Falling farm prices tended to offset the increase in marketing costs and margins from 1951 through 1956, but with some increase in farm prices in 1957, along with another increase in marketing costs, prices of food at retail also increased.



The above chart traces the realized gross and net income of farm operators from farming from 1930 through 1957 and indicates the increasing importance of production expenses as a determinant of net farm income. The rise in production expenses reflects two main influences: First, technological developments have substituted machines and other industrial products for human labor which has brought a high, relatively inflexible cash cost structure to modern American agriculture. Second, persistent inflation during the last decade has had a more basic effect on farmers' costs than on prices of products sold by farmers. In 1957, production expenses accounted for 2 out of every 3 dollars received by farmers from farming operations, as compared with a ratio of only about 1 out of every 2 dollars in 1947-49.



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**III**  
**PAST PRICE BEHAVIOR VIEWED IN THE CONTEXT OF**  
**CYCLICAL AND SECULAR ECONOMIC CHANGES**

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*III. Past price behavior viewed in the context of cyclical and secular economic changes*

- A. What have been the general price movements based on the various available indexes? What cyclical and secular economic changes have been associated with these price movements?
- B. In studying trends, particularly those of recent years, what has been the relationship between price changes and changes in the cost of the various factors of production—
  - 1. To what extent have price changes preceded or lagged behind changes in labor costs?
  - 2. To what extent have price changes exceeded changes in labor costs?
  - 3. What has been the effect of changes in capital costs—i. e., interest rates and other costs—on prices?

## THE BEHAVIOR OF PRICES, 1890-1940

Clarence H. Danhof, Tulane University

Information on the movements of prices over time plays an indispensable role in the analysis of economic fluctuations. When employed in conjunction with other indexes of business activity, price series contribute to the appraisal of business conditions. In short-run situations, price trends provide guides in suggesting probable economic developments. Prices play an essential role in the interpretation of data on production and income values and are similarly indispensable in appraising the effectiveness of the economy in supplying real goods and services. They are useful in measuring changes in the relative positions of economic groups. The internal structure of prices—of factors and end products—also invites attention. The possibility exists that analysis of the changing pattern of prices within the total structure may uncover recurring relationships that will contribute and assist in the development of control programs.

This paper reviews briefly some of the more significant aspects of price level movements and certain relationships within the structure of prices from the point of view of their relevance to the promotion of an economy operating at maximum effectiveness. Many aspects of the subject will be treated lightly since they will be dealt with more fully elsewhere in this compendium. The period covered is the half century, 1890-1940. The paper is primarily a summary of observations and conclusions of recent research.

### ROLE OF PRICES

A price originates as the money side of a single exchange action involving a buyer, a seller, and a specific good or service. The fundamental function of prices is to make possible the appraisal by buyers of the goods and services available, and the appraisal by sellers of opportunities to offer goods for sale. The system of prices acts to give producers minute information as to the terms of availability of production factors as well as to measure the effective desires of purchasers. Prices are thus the mediums by which the resources allocating and product determining functions are carried out in a free enterprise system. In performance of this service, specific prices are constantly changing, displaying varying degrees of sensitivity, shifting relationships one to another with varying frequencies and differing amplitudes.

To effectively analyze prices, whether at a point in time or over a period, they must be merged or consolidated. Thus, we may consider the prices of groups of commodities, classified in some logical relationships as to origin or use; prices of factors of production as contrasted with end-use goods; and prices as a totality, which when viewed as a historical series, constitutes the concept of the price level. Such

groupings may reveal significant trends, obscured in the great mass of historical data.

Such groupings are, however, no longer true prices. Each item in such a group of price measures as, for example, the BLS wholesale price series shown in the table, must be envisioned as an abstraction. It is an artificial summarization of a multitude of prices which over the period covered have moved in opposite directions and with varying amplitudes. It is obvious that much of what has actually happened is lost in reducing such activity to a single figure; on the other hand, the essential meaning in the complex of changing prices is approached in a sufficiently simplified form to provide a tool of wide applicability.

The changes found in such measures of the general price level may be usefully classified according to the period of time involved, or to conform to some change which is to be interpreted. For our purposes the importance of price movements relates to changes in economic activity and our primary interest is in the referral of price movements to the phases of the business cycle. There exist also movements over time periods longer than the cycle.

#### SECULAR TRENDS

The 30 years from the close of the Civil War to 1896 were characterized by a persistent decline in the price level. The wholesale index which stood at 116.3 in 1866 (1926=100) fell to 46.6 in 1896. This downward movement was remarkably continuous, interrupted only by a few short upturns and a few years of stability.

From the 1896 low, prices turned upward, moving sharply until 1900, and then more slowly until 1915, at which time prices were 50 percent above the low. War conditions stimulated further sharp increases, prices reaching in 1920 the highest levels of this half century.

The peak was short lived. Precipitous declines occurred in late 1920 and in 1921, the fall in the wholesale index from 154 to 98 being by far the sharpest short-term decline in the period. The movement was remarkable for its brevity. Stability was achieved in 1924 at levels well above prewar.

There was relatively little movement in prices in the 5 years following. This period of stability was interrupted by a renewed downward movement; the severe declines which characterized the early thirties. The low point came in 1933. Since that time the price level has moved consistently upward, interrupted only by mild reaction in 1937-38.

The causes of such long-term secular movements are not likely to be found in analysis of the internal structure of prices. Long-term trends in the prices of individual commodities usually reflect technological developments, changes in raw material supplies, or in consumption patterns and institutional relationships. Long-term swings in the general price level are generally associated with changes in external factors such as wars, technological developments, and institutional changes, particularly those relating to the currency supply. Though the relationship of secular to cyclical changes is the subject matter of a considerable literature, no significant generalization seems possible at this time.

## PRICES IN CYCLICAL CHANGES

During this half century 14 cyclical movements in economic activity may be identified following the criteria developed by the National Bureau of Economic Research. Cycle peaks and troughs are detailed as shown on the table, and the data grouped accordingly.

Some of these cycles were periods of mild adjustment, movements of output and prices ranging narrowly. The major disturbances were those of 1893-97 (two cycles), 1902-4, 1907-8, 1913-14, 1920-21, 1929-33, and 1937-38.

Significant declines in production and employment occurred in some of the pre-World War I contractions but price changes were in most instances relatively modest, declines being moderate and quickly recovered. During the contractions of 1899 and 1904 the prevailing rising trend of prices persisted although dampened in 1904 by declines concentrated in the metals and chemicals groups. From 1904 to 1907 metals were much the most volatile price group; suffering the largest decline in 1908. The contraction of 1908 was accompanied by a severe financial crisis, heavy unemployment, and reduced production. The decline of prices was, however, moderate and of brief duration.

The contraction of 1911 was accompanied by a general price decline of 6 or 7 percent and a recovery within a year to 1910 levels. The briefer but more severe contraction of 1914 made little impression on the general price level though declines in metals and fuels were substantial.

Manufacturing activity rose rapidly after 1914, reaching a peak in 1918. Prices followed behind, at first slowly, and then more rapidly, continuing to rise long after manufacturing activity was contracting. The peak was reached in 1920 at a level more than double that of 1910-14, representing an expansion proportionately far greater than occurred in physical production. The rise in prices was shared by all categories though there were marked differences in the timing of peaks and course of the subsequent declines. Chemicals reached a peak in 1918, farm products in 1919, and metals and building materials in 1920.

The 1921 contraction, though brief, was one of the most severe up to its date, measured in declines in production or employment. It is noteworthy for the precipitous decline in prices, a large part of the increase of the preceding 5 years being wiped out in an 18-month period. Metals experienced the smallest group decline in 1921 but continued to fall in 1922. All other price groups achieved stability in 1922 at a level about 30 percent above prewar.

Some recovery in prices was evident in 1922, the upward movement continuing in 1923. A mild contraction in 1924 proved a minor and temporary setback; prices continued to press upward, reaching a post-war high the following year, the all commodity index standing at 103.

A mild contraction in 1927 was accompanied by widespread price drops which reduced the all commodity index by 5 percent. Stability was characteristic of 1928 and 1929, but a decline of about 10 percent occurred in 1930. Further declines in 1931 and 1932 brought the all-commodity index down to 65 in 1932 and early 1933, a drop of roughly one-third in 6 years. Farm products, textiles, fuel, and lighting ma-

terial led the decline in time and in magnitude; metals and building materials evidenced the greatest resistance to the trend. Prices of raw materials in 1932 were 45 percent of 1926 levels while manufactured commodities were off 35 percent.

Marked recovery of prices occurred in 1935 and 1936, leveled off in 1936 and resumed in 1937. Increases were most marked in farm products. A renewed decline then pushed prices back to 1934-35 levels, with farm products and raw materials once again suffering the greatest reduction. Metals and building products successfully resisted the reversal. Prices in 1938-40 remained stable at these levels until 1940, although farm products and raw materials suffered further declines.

A much more detailed analysis of price history of this period is readily possible. This brief review serves here as background for analysis which utilizes far more detailed information. Such analysis suggests the operation of some simple but fundamental relationships.

It seems reasonable to conclude, for example, that there is no such thing as a "normal" price level; at least none seems to have existed in this half century. There have, however, been glimpses in this period of a desirable structural complex of prices: that is, a pattern of interrelationships which operate in such manner as to permit or induce a rate of maximum output, that maximum being established by resource availability.

It also seems clear that increases in the general price level occur when output is moving to higher levels. As the volume of output approaches the capacity of the system, strains develop, and very rapid price increases of considerable magnitude occur. On the other hand, declines in prices are general when productive activity declines. It would seem to be true that many prices can resist declines with sufficient strength so that very sharp reductions in activity may occur with only modest general price reactions. Perhaps of greatest significance is the fact that a low level of output can apparently be maintained alongside of prices stabilized at what seem to be disproportionately high levels.

A variety of relationships between prices and output exists within the price level. In agriculture, for example, production is more responsive to physical than to market forces. In such commodity groups as metals or building materials, there appears to exist, on the other hand, a substantial ability to resist price declines despite disproportionate drops in production.

#### SOME CHARACTERISTICS OF PRICE MOVEMENT

Economic output consists of goods and services valued at prevailing prices, measurable as an aggregate because of prices. Over time the aggregate value varies as a result of changes in both the prices and quantities involved. There is, of course, very great diversity in the magnitudes of price and quantity changes but the role of prices in such changes can be roughly identified.<sup>1</sup>

In the earliest phases of an upturn, increases in quantities seem completely responsible for expanding activity in nondurables, farm products, and consumer products. Prices rise but lag and quantity increases dominate the continuing expansion in all commodity groups.

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<sup>1</sup> These paragraphs are based upon Frederick C. Mills, *Price-Quantity Interactions in Business Cycles*, National Bureau of Economic Research, New York, 1946.

Thereafter price rises become a weightier factor in the increasing aggregate of business activity. Increased capacity is being brought into production and quantities increased correspondingly, but price rises continue dominant. In the final stages of business expansion, quantity factors become increasingly important, with accompanying weakness in prices. As contraction develops, prices weaken more slowly than quantities decline. Changes in physical quantities tend to reverse the direction of business movement more frequently than do prices.

Price movements differ as to the frequency of change, in the duration of a change in one direction, the magnitude or amplitude of the change, and in the timing of the movement with reference to other prices.

Some price series show daily changes as do many common stocks. Others change less frequently: wheat prices characteristically changed about once per month in the period 1890-1925. Still other prices remain fixed for much longer intervals. Steel prices in the same period changed once every 9 months. More recently automobile prices have characteristically changed only with annual model changes.

Moreover the magnitude of such changes vary. For example, the annual mean deviation of the price of steel rails was only 2.4 percent in the 1890-1925 period; in contrast, coke prices over the same period deviated 14.5 percent from the annual mean.

The amplitudes of price movements are widest for goods at the raw material level and at the consumption levels, less in the intermediate categories. Correspondingly, variations in quantities are greatest in such groups as durable goods. The sensitivity of prices has been intensively investigated by F. C. Mills. Mills concluded that there was a "definite tendency toward a decline in the variability of commodity prices during the period 1890-1912."<sup>2</sup> With reference to the years 1922-25, Mills believed that price variability was greater than in the earlier period due to the operation of war induced forces. The nature and significance of variability or flexibility of prices aroused a great deal of interest in the 1930's, the typical point of view being that increased sensitivity of prices would produce greater stability in production.<sup>3</sup> The subject is discussed elsewhere in this compendium.

From the point of view of the problems of identifying and measuring cyclical movements, these differences in variability are significant. The movements of the BLS Wholesale Price Index of Basic Commodities have been determined by the National Bureau of Economic Research as leading cyclical turns by 2.6 months at the peaks, and 3.2 months at the troughs.<sup>4</sup> The BLS Index of all wholesale prices other than farm products or foods, moves in rough coincidence with the cycle. Other price groups lag severely, as in the case of metals. On the whole, price series are useful in cycle prediction only in support of other types of indicators.

<sup>2</sup> Frederick C. Mills, *The Behavior of Prices*. National Bureau of Economic Research, New York, 1927, p. 156, of 1957-58.

<sup>3</sup> A review of the literature is conveniently available in Kenneth D. Roose, *The Economics of Recession and Revival. An Interpretation of 1937-38*. Yale University Press, New Haven, Conn., 1954, ch. 9.

<sup>4</sup> Geoffrey Moore, *Statistical Indicators of Cyclical Revivals and Recession*, National Bureau of Economic Research, New York, 1956.

## PRICES AS COSTS

Up to this point our concern has been with certain characteristics of the movement of the price level. Specific product prices reflect the conditions which bear upon the supplying of the goods, and particularly the prices that prevail for labor and raw materials. In the long run the relationship between the costs of the factors of production and the prices at which products are sold, must be such as to leave to the producer a profit sufficient to permit and induce him to continue or make indicated adjustments in his activities.

The intensity of resource use, and hence the volume of production of the individual firm, is influenced by its profit position, particularly by the direction of change of profits. Such profit experiences and anticipations are a function of the relationship between the quantities which can be sold at prevailing or anticipated prices and the trend of the cost of providing such quantities. The shifting relationship between product and factor prices invites attention as offering an approach to the problems posed by cyclical fluctuations.

There is evidence that the preeminent student of the business cycle, Wesley Mitchell, entertained some such general hypothesis. Profits of some sectors of the business world declined more quickly than those of others, responding to rising costs. Such reduced profits—though profits in general might be rising—would produce declines in capital expenditures, inventory liquidations—and in other ways might induce a retrenchment. Localized, such developments might have little, if any, effect, but if such adjustments became sufficiently widespread, a cycle is established.<sup>5</sup>

## RAW MATERIALS

Movements of raw materials prices can be judged only generally for the years 1890–1912. Thereafter BLS wholesale price groupings of raw materials, semimanufactured goods and manufactured products provide more suitable aggregate data.

Raw material prices since 1913 to 1940 have characteristically moved in advance of prices of fabricated products in both advancing and declining phases of the cycle. They have also varied more widely. Wholesale prices of semifabricated articles, on the other hand, have tended to rise higher and fall more slowly than manufactured goods.

On the basis of a detailed examination, F. C. Mills concluded that changes in materials costs played a neutral part in price movements of 1914–29. Though raw material costs rose somewhat relative to prices of fabricated products, increasing efficiency in operations served to maintain material prices in relation to finished products.<sup>6</sup> There is no reason to believe that any significant and persisting change in relations between raw material and finished prices operated during this period.

## WAGES

Wages are a very large part of aggregate production costs. In specific industries, wages may play a smaller role in costs but, never-

<sup>5</sup> Wesley C. Mitchell, *Business Cycles*, University of California Press, Berkeley, 1913, pp. 457–514, 562–569.

<sup>6</sup> F. C. Mills, *Economic Tendencies in the United States*, National Bureau of Economic Research, New York, 1932, pp. 104, 216, 388–389, 414.

theless, typically a critical one. As changes in the wage element in production costs differ from product prices, they may constitute a factor responsible for the amplitude of the aggregate cycle.

Many influences bear, of course, on the labor costs of production. Aside from hourly costs, there are such factors as labor utilization under or over the standard weekly hours, fringe costs, quality, and efficiency of the labor force. The wage rate is, however, probably the most important factor, particularly when viewing economic activity in the aggregate.

Data on average hourly earnings as shown in the table are available, although no single series covers this half century. Dealing with the period 1919-1938, Creamer and Bernstein conclude that the data on average hourly earnings probably reflect wage costs with sufficient accuracy for general analytical purposes.<sup>7</sup>

Average hourly earnings fluctuate much less, relatively, than manufacturing activity, wholesale prices, and with some exceptions, than prices of semifinished goods. The movements in wage rates lag well behind changes in business activity and in employment. In the period 1919-38, the lag in wage-rate movements, whether for manufacturing as a whole or for component industries, was generally in excess of 6 months and an average 9 months behind business activity. If major turning points are considered the lag was 7 months. Wage rates turned on an average 10 months later than factory employment.

Moreover, wage rates do not typically decline to the levels of other measures such as wholesale prices; rather, prices appear to move up to meet the weakening wage rates. In the case of prices of finished manufactured products, the experience is more fixed. However, in general, prices for finished products fluctuate more widely than earnings, particularly on the downswing. Earnings show some tendency to rise more than prices on the upswing.

#### CAPITAL

Consideration of capital costs involves a wide range of intimately interrelated factors. To mention a few, these include the policies of the banking system with regard to currency supply, the public's propensity to save, business profit expectations as contrasted with the desirability of liquidity, the relationship of price movements to debt burdens, the relationship of product prices to prices of producer durables, and many more.

Interest rates on short-term commercial paper are shown in the table, and data on other types of capital are available. The influences reflected in such prices are, however, exceedingly complex. Probably no relationship between commodity prices and capital costs—our principal concern—can be identified in this period in such a way as to be useful for analytical purposes.<sup>8</sup> The costs of capital are influenced on both the supply and demand side by numerous forces unrelated to specific prices though reflecting broad price movements.

Fortunately, it can be argued that the price of capital is rarely as important a consideration in business calculations as the costs of other

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<sup>7</sup> Daniel Creamer and Martin Bernstein, *Behavior of Wage Rates During Business Cycles*, Occasional Paper 34, National Bureau of Economic Research, New York, 1950.

<sup>8</sup> Frederick R. Macaulay, *The Movements of Interest Rates, Bond Yields, and Stock Prices in the United States Since 1856*, National Bureau of Economic Research, New York, 1938, ch. VI.

productive factors, and that it is frequently sufficiently small to be of no determinate significance.

#### PROFITS

In a free-enterprise economy, the entrepreneurial function of committing resources to production hinges upon the profits, which may be anticipated in the light of interpretations of recent experience. Profits are, hence, a social cost of production, and a brief résumé of profit experience in recent cycle history is relevant. Quarterly data are necessary to meaningful analysis, and are available for the period 1920-38 for a sample of corporations principally engaged in manufacturing and mining.<sup>9</sup> Aggregate profits of the corporate sample move with changes in industrial production. Such profits have the significant distinction of rising and falling more dramatically than any other of the comprehensive indicators of the National Bureau of Economic Research. The amplitude of movement contrasts as follows:

*Average amplitude of movement—Percentage of mean values during a cycle*<sup>1</sup>

	Rising stage	Falling stage
Corporate profits.....	168.8	174.6
Industrial production.....	35.2	32.5
Wholesale commodity prices.....	8.7	8.9

<sup>1</sup> Arthur F. Burns, *New Facts on Business Cycles*, 30th Annual Report, National Bureau of Economic Research, New York, 1950, p. 20.

Changes in profits are the resultant of movements of product prices, factor costs, quantities sold, or some combination. The average amplitude of prices is substantially less than for quantities, as the latter is reflected in such an indicator as industrial production. At the level of the firm, it is typically true that changes in volume of sales, rather than in prices, are the major factor in a change in profits. The firm has no control over sales except insofar as it can achieve a superior price-cost relationship. The possibilities of achieving a superior cost structure is limited, since the firm bids for factors in a competitive market. Faced with a changing volume of sales, the firm may adjust by changes in price, within a limited range, or by varying its production rates.

A downturn in business activity usually reveals itself to a business firm as resistance to purchase at prevailing rates; i. e., as a decline in the volume of goods that are taken. The consequence is an unplanned buildup of inventories of finished products and, probably, of semifinished goods and raw materials as well. The firm reacts by reducing its purchases of materials, labor, and, most of all, of producers' equipment. Selling prices may or may not be reduced, depending upon inventories, and the likelihood of reestablishing volume above its break-even point.

Available data suggest that the reactions of the firm also describe developments in the aggregate economy. There are, however, important exceptions. The aggregate data obscure the fact that some firms will almost invariably be experiencing trends opposite to those which

<sup>9</sup> Thor Hultgren, *Cyclical Diversities in the Fortunes of Industrial Corporations*, Occasional Paper 32, National Bureau of Economic Research, New York, 1950.

characterize the whole. At any point in time, there will be a group of firms within a given industry enjoying rising profits, another suffering from declining returns, if not losses, and a third enjoying stable returns. From the point of view of the cycle, declines in profits will occur for an increasing number of firms well in advance of the peak of aggregate profits. The opposite is similarly true; an increasing number of firms will have expanding profits well before the low point is reached in the profits of all firms.

There exist in the total economy at all times significant cross- and counter-currents. In any period of general stability, it would appear that these currents are of equal strength and their forces are canceled out; that is, the effects of the reactions of firms with poor profits upon the materials, capital, and labor markets tend to be wholly offset by the expanding activities of those firms with attractive returns. When, however, the currents run more vigorously in one direction than another, the result must be a shift in the level of aggregative activity. When the number of firms experiencing shrinking demand, and hence profits, is very numerous, and if their size in terms of employment and material purchases is substantial, the forces which produce an aggregative contraction may overcome the opposing forces, thereby transferring the contraction movement to the whole economy.

Relatively little is known of the characteristics of business firms grouped, as suggested, according to their profit trends. The inadequacy of available data and the complexity of the problem make analysis difficult. Nevertheless, further exploration in this area offers substantial possibilities of contributing critical information to our knowledge of the nature of business fluctuations.

#### CONCLUSION

This brief paper has attempted to address itself to the question: Is there in the history of the price structure of the half century, 1890-1940, any evidence that suggests that forces within the price system were responsible for initiating the excessive cyclical fluctuations to which the economy has been subjected?

Tentatively the answer appears to be "no". There has been a substantial increase in our knowledge of the price structure but no pattern of relationship has emerged, either in the data or in abstract generalization, which clearly suggests the presence within the system of prices of a cycle-producing force of an initiating nature and adaptable to controls.

It is sometimes held that the business cycle is peculiar to our type of society and, if not a direct product of the increasingly complex nature of our economic order, then closely associated with that fact. To the extent to which such a hypothesis may be true it becomes important to develop a price structure of sufficient sensitivity so as to maintain those relationships which will assure a level of activity close to full employment.

The problems of the flexibility of price responses offer some promise. Even in that area, however, nonprice determinants seem too important to suggest that anything more than minor improvements in the price mechanism might be anticipated. By and large the search for controls over excessive economic fluctuations would seem to lie in other directions.

## Business activity and prices, 1890-1940

Cycle	Year	Percent gainful workers unemployed	Physical output, manufacturing, 1899=100	Average full-time weekly earnings, manufacturing, 1890-99=100	Wholesale prices, 1926=100						
					Interest rates, prime commercial paper	All commodities	Farm products	Fuel and lighting materials	Metals and metal products	Building materials	Chemicals and allied products
P July	1890			101.0	6.91	56.2	50.4	38.1	105.3	46.5	73.2
T May	1891			100.8	6.48	55.8	54.2	37.0	92.2	44.2	74.0
	1892			101.3	5.40	52.2	49.5	34.8	84.0	41.7	74.6
P January	1893			101.2	7.64	53.4	51.3	35.3	76.8	41.6	72.7
T June	1894			97.7	5.22	47.9	44.6	34.3	65.7	39.8	65.5
P December	1895			98.4	5.80	48.8	43.9	40.3	70.4	38.8	64.7
	1896			99.5	7.02	46.5	39.6	39.5	71.2	38.9	65.0
T June	1897			99.2	4.72	46.6	42.5	33.9	65.0	37.4	70.9
	1898			99.9	5.34	48.5	44.9	34.5	65.3	39.6	77.4
P June	1899		100	101.2	5.50	52.2	45.8	41.2	100.0	43.6	81.1
T December	1900	5.67	102	104.1	5.71	56.1	50.5	46.3	98.0	46.2	82.1
	1901	5.74	115	105.9	5.40	55.3	52.8	44.6	93.1	44.3	84.2
P September	1902	1.62	129	100.2	5.81	58.9	58.4	51.8	91.0	45.3	86.5
	1903	4.78	132	112.3	6.16	59.6	55.6	60.3	90.2	46.7	84.1
T August	1904	4.38	124	112.2	5.14	59.7	58.5	53.3	79.9	45.0	84.1
	1905	1.85	148	114.0	5.18	60.1	56.4	49.6	89.1	48.1	82.3
	1906	0	159	118.5	6.25	61.8	57.3	52.0	102.4	54.0	76.8
P May	1907	2.12	161	122.4	6.66	65.2	62.2	54.4	109.8	56.8	78.5
T June	1908	6.27	133		5.00	62.9	62.2	53.7	86.3	52.0	79.6
	1909	1.92	158		4.67	67.6	69.6	51.6	84.5	53.7	79.9
P January	1910	1.45	168		5.72	70.4	74.3	47.6	85.2	55.3	82.0
	1911	4.06	161		4.75	64.9	66.8	46.7	80.8	55.3	81.6
T January	1912	2.35	185		5.41	69.1	72.6	51.4	89.5	56.9	80.7
P January	1913	2.58	198		6.20	69.8	71.5	61.3	90.8	55.7	80.2
T December	1914	5.56	186		5.47	68.1	71.2	56.6	80.2	52.7	81.4
	1915	5.87	218		4.01	69.5	71.5	51.8	86.3	53.5	112.0
	1916	.46	259		3.84	85.5	84.4	74.3	116.5	67.6	160.7
	1917	0	257		5.07	117.5	129.0	105.4	150.6	88.2	165.0
P August	1918	0	254		6.02	131.3	148.0	109.2	136.5	98.6	182.3
				<i>Index of pay-rolls, 1899=100</i>							
T April	1919	0	222	103.2	5.37	138.6	157.6	104.3	130.9	115.6	157.0
P January	1920	1.33	242	123.5	7.50	154.4	160.7	163.7	149.4	150.1	164.7
T July	1921	11.2	194	79.7	6.62	97.6	88.4	96.8	117.5	97.4	115.0
	1922	6.79	249	85.5	4.52	96.7	93.8	107.3	102.9	97.3	100.3
P May	1923	1.71	280	108.4	5.07	100.6	98.6	97.3	109.3	108.7	101.1
T July	1924	4.56	266	101.2	3.98	98.1	100.0	92.0	105.3	102.3	98.9
	1925	1.81	298	106.6	4.02	103.5	109.8	96.5	103.2	101.7	101.8
P October	1926	1.01	316	109.9	4.34	100.0	100.0	100.0	100.0	100.0	100.0
T November	1927	3.45	317	107.9	4.11	95.4	99.5	88.3	96.3	94.7	96.1
	1928	3.88	332	109.1	4.85	96.7	105.9	84.3	97.0	94.1	95.0
P June	1929	.89	364	116.4	5.85	95.3	104.9	83.0	100.5	95.4	94.0
	1930	5.91	311	94.1	3.59	86.4	88.3	78.5	92.1	89.9	88.7
	1931	14.19	262	71.2	2.64	73.0	74.8	67.5	84.5	79.2	79.3
	1932	22.71	197	49.2	2.73	64.8	48.2	70.3	80.2	71.4	73.9
T March	1933	23.36	228	52.8	1.73	65.9	51.4	66.3	79.8	77.0	72.1
	1934	19.04	252	67.8	1.02	74.9	65.3	73.3	86.9	86.2	75.3
	1935	17.56	301	78.0	.76	80.0	78.8	37.5	86.4	85.3	79.0
	1936	15.00	373	90.5	.75	80.8	80.9	76.2	87.0	86.7	78.7
P May	1937	12.15	376	108.2	3.94	86.3	86.4	77.6	95.7	95.2	82.6
T June	1938	18.40	295	84.2	.81	78.6	68.5	76.5	95.7	90.3	77.0
	1939	16.32	374	100.0	.59	77.1	65.3	73.1	94.4	90.5	76.0
	1940	13.08		114.5	.56	78.6	67.7	71.7	95.8	94.8	77.0

Sources: Cycle identifications: Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles*, National Bureau of Economic Research, N. Y., 1947, p. 78.

Percent gainful workers employed: Computed from data in *Historical Statistics of the United States, 1789-1945*, Government Printing Office, Washington, 1949, p. 65. 0 indicates that estimated employment equaled or in some years (1907, 1917, 1918, 1919) exceeded the estimated total gainful workers.

Physical output: Manufacturing, National Bureau of Economic Research in *Historical Statistics*, p. 179.

Weekly earnings: *Ibid.*, p. 66.

Interest rate: *Ibid.*, p. 278.

Wholesale prices: *Handbook of Labor Statistics*, Bureau of Labor Statistics, Government Printing Office, Washington, 1950, p. 118.

# AN INTERPRETATION OF PRICE MOVEMENTS SINCE THE END OF WORLD WAR II

Bert G. Hickman, The Brookings Institution <sup>1</sup>

This paper attempts to identify and analyze the principal factors which have shaped the course of prices during the past 12 years. The emphasis is upon the interpretation of price movements rather than the influence of price relationships on income distribution, resource allocation, or, for that matter, the level of aggregate business activity, although the grosser sort of expectational effects are considered in the latter connection. For the most part, then, the economic consequences of changes in relative prices are neglected except insofar as they are relevant to the behavior of the overall average of prices. I will not be interested here in questions of equity or responsibility or whether unregulated economic forces should be permitted to establish prices within the going institutional framework, but only in the analysis of why prices behaved as they did. All these other topics are bypassed not because they are unimportant, but because a documented interpretation of price tendencies during a span of more than a decade is a sufficiently lengthy undertaking. A good part of the justification for the undertaking, on the other hand, lies in whatever contribution it may make toward better understanding of the broad issues of cause and effect, equity, and responsibility.

The paper is organized chronologically, since the principal task is to interpret price behavior in terms of its several causes, and since this job of synthesis is best handled by introducing particular factors as they become important over time. It will not, however, be necessary to give equal weight to the occurrences of every year—we will be selective on that score—and there is at least one topic of an analytical nature which will interest us continuously: the interaction of prices and wages. A major advantage of the predominantly synthetic treatment of the paper is that it will enable us to see how wage-price interactions differ according to the surrounding economic circumstances. In this way needed perspective will be provided on a topic which is often subject to oversimplification and misplaced emphasis in the form of either-or propositions.

## A PRELIMINARY LOOK AT PRICES IN THE POSTWAR PERIOD

Let us take a moment to decide which aspects of postwar price experience we should most like to understand. A glance at chart 1 reveals a number of intriguing features which merit attention. Foremost is the fact that prices have moved substantially higher over the 12 years spanned by the chart. Thus the Consumer Price Index rose 56 percent between January 1946 and December 1957. The pace of advance was markedly uneven, however, and this is the second major fact that we notice. It suggests at the outset that it would be unwise to ignore developments during the period in an explanation of the increase over the period, and that a search for a single cause of the overall advance would be unrewarding.

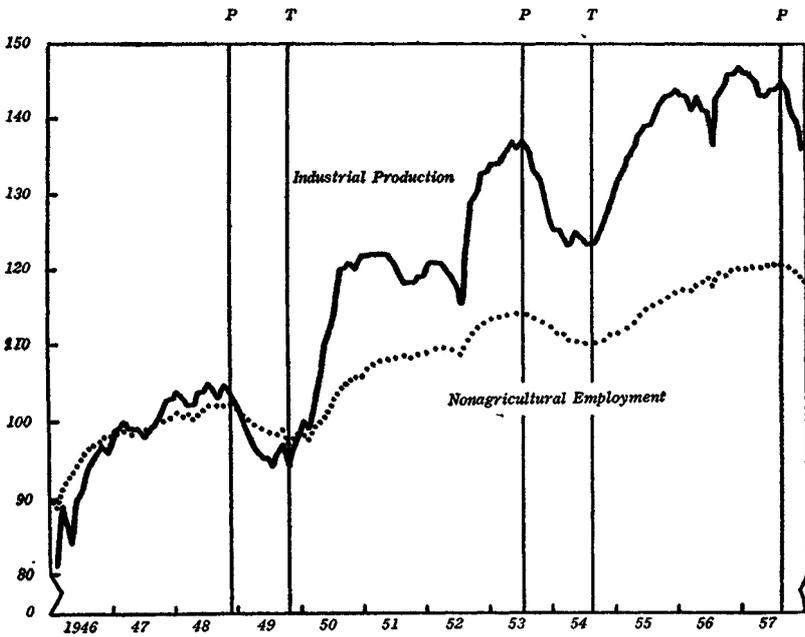
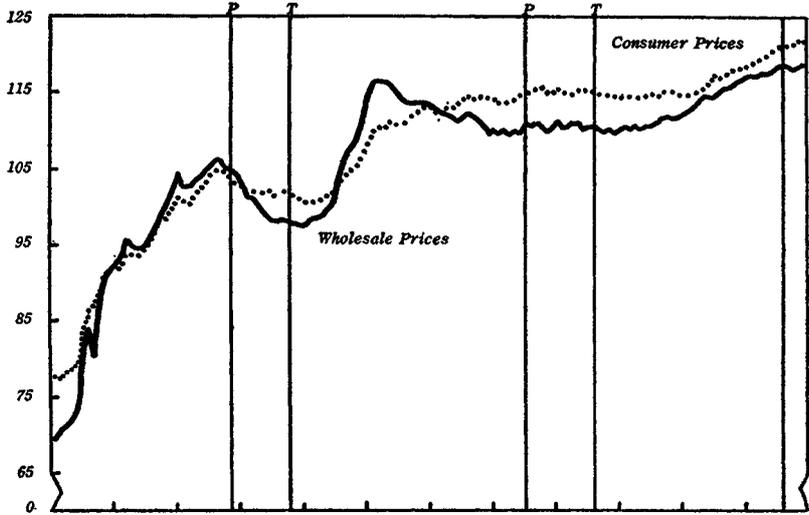
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<sup>1</sup> The views expressed in this paper are those of the author. They do not necessarily reflect the views of other members of the Brookings staff or of the administrative officers of the institution. My thanks are due to William R. Belmont, who drew the charts and assisted in the preparation of the paper in countless other ways.

Chart 1

Indicators of Prices, Production, and Employment  
(Monthly, 1946 - 1957)

Index  
1947-49= 100



Sources - Bureau of Labor Statistics, Board of Governors of the Federal Reserve System.  
Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.

These initial reflections are strengthened when we observe that the unevenness is of several kinds. First, there are variations associated with the ebb and flow of physical activity during business cycles. Prices increased during the 3 business expansions of the postwar period, but stood firm or declined during the 2 complete contractions included in the chart. There is a hint here of the operation of systematic cyclical factors affecting prices, production, and employment.

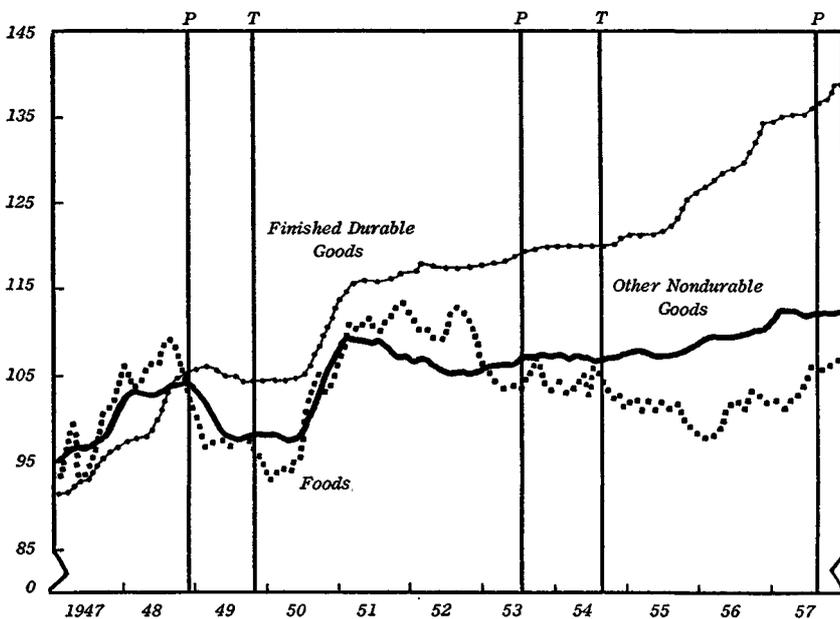
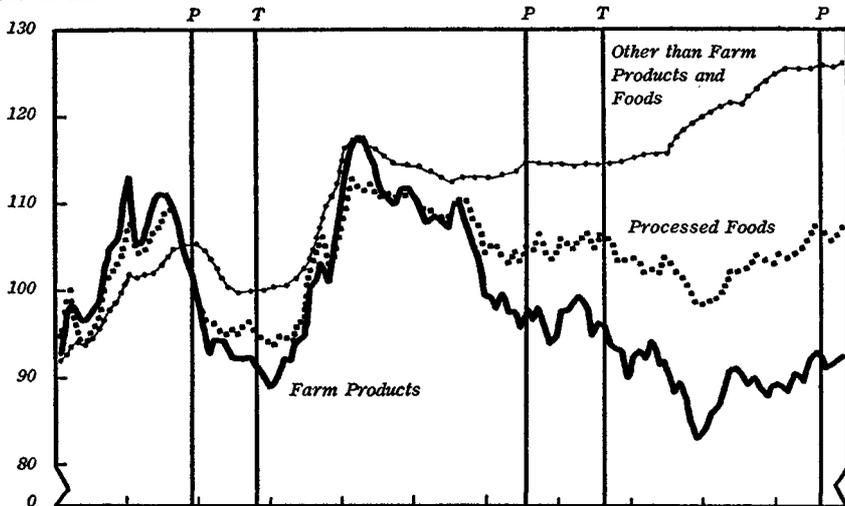
A goodly amount of irregularity is to be found even during like cyclical phases, however. Thus each successive business expansion saw a smaller rise of average consumer prices, with increases respectively of 33, 13, and 5 percent. The first expansion was clearly inflationary, whether one means by "inflation" a sustained and rapid advance of prices, or a rise which is both substantial, and substantially larger than the concomitant increase of production. The second upswing contains a subperiod which is also definitely inflationary; namely, the 8 or 9 months following June 1950 during which consumer prices increased nearly 1 percent per month. No comparable advance in the cost of living occurred during the most recent expansion. The index began to rise midway in the upswing and increased thereafter at the not inconsiderable rate of 0.3 percent per month, however, and it is both interesting and relevant to note that prices rose faster than production and employment at that time.

Apart from these differences in the speed and magnitude of price increases, there are striking distinctions with regard to the internal patterns of prices and production in the several expansions. Both prices and output rose fairly steadily during 1946-48, and when the one quickened or slowed, so also did the other, and roughly in proportion. A similar correlation is to be observed during the early inflationary phase of the second expansion, but at that point the resemblance ends. Wholesale prices actually fell during the remainder of the expansion, and consumer prices first rose more slowly and then leveled off. Production and employment paralleled these price tendencies from mid-1951 to mid-1952, but rose strongly in the face of stable prices from then until mid-1953. The pattern of the third expansion differed in still another way, with production and employment rising rapidly during the first 18 months and prices changing scarcely at all, only to be followed by an equally lengthy period in which these tendencies were reversed. Again, these variations suggest that different sets of forces, or different combinations of them, shaped the course of prices during one or another phase of the postwar experience.

The indexes of chart 1 serve admirably to map the time path of the overall average of prices. They are averages, however, and they sometimes conceal wide divergencies; after all, there would be little need to describe a central tendency by an average were it not for dispersion of the individual observations. Many hundreds of prices enter these indexes, and for present purposes it would be both impractical and uninformative to study them all. We will find it useful to give separate attention to a few major subgroups, however, for the light that they cast on the determinants of the overall price level and for what they reveal about the operation of specific forces. These subgroups are plotted in charts 2 and 3. Notice that the first of these charts begins in 1947 instead of 1946.

Chart 2  
*Indexes of Wholesale Prices*  
 (Monthly, 1947-1957)

Index  
 1947-49=100



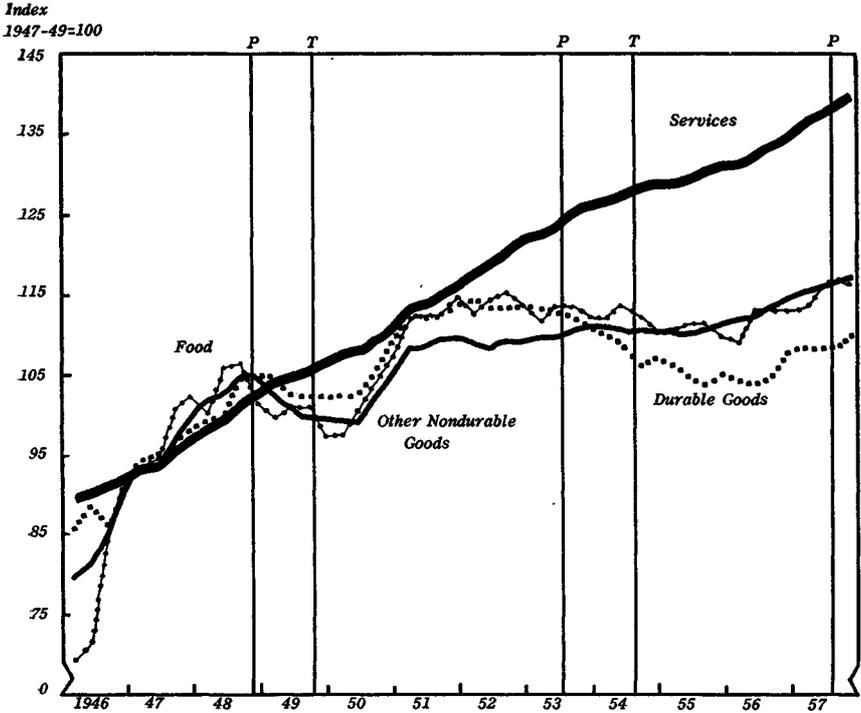
Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.

Source: Bureau of Labor Statistics.

Chart 3

## Indexes of Consumer Prices

(Quarterly, 1946-1957)



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.

Source: Bureau of Labor Statistics.

The dominant feature of chart 2, of course, is the gap that opened between the indexes beginning in 1951. It will be seen from the upper panel that prices of farm products and processed foods declined irregularly from 1951 through 1955, all the while that "industrial" prices were stable or rising. Since agricultural products are the basic raw materials for many manufactured nondurable goods, it is reasonable to expect the weakness of the former to be reflected in the prices of the latter, though not necessarily to the same degree because of changes in other components of cost or by reason of differential movements of demand at the various market levels. The expectation is confirmed by the breakdown of wholesale prices of finished goods shown in the lower panel.

Like all changes in relative prices, these disparate movements had their effect on the distribution of national income. The question which presently concerns us is whether they also influenced the price level. It is surely pertinent to observe that the gap opened and wid-

ened most noticeably during the only extended interval of overall price stability in the postwar period—that is, from about mid-1951 to late 1955 or early 1956. The observation alone is not enough to establish causation, of course. An unsupported claim that prices were stable on the average because agricultural prices fell could with equal arithmetic justice be countered with the assertion that the rise of nonagricultural prices caused the average to remain stable. The error in this kind of statement is obvious, but it is perhaps less apparent that it is also insufficient to show that the movement of, say, agricultural prices is due to factors peculiar to them alone; for this leaves open the possibility that the height of the price level is determined by general causes and that the change in agricultural prices simply induced a counterbalancing adjustment in other prices without affecting the overall average. These matters must be carefully considered at the appropriate points.

The classification of prices by durability of product is of interest in yet another connection. It will be seen that the curve of durable goods prices more nearly resembles an ascending staircase than an inclined plane. The steps do not appear in every year, but when they do it is usually after midyear. Traces of this tendency for price increases to concentrate in certain months can also be distinguished in the index of prices of nondurable goods excluding foods, but it occurs less regularly there, is centered on the months before and after the turn of the year, and is less pronounced, except possibly in 1955 and 1956. Food prices do not exhibit the tendency, although they seem to be subject to seasonal peaks of their own in the late summer and autumn. An investigation of the causes of the step pattern and its comparative strength among classes of products promises to reveal something about the nature and timing of inflationary processes.

The wholesale prices included in chart 2 refer only to goods. A breakdown of the Consumer Price Index includes prices of services as well, and shows that they are much less subject to short-term fluctuations than prices of goods (chart 3). Services reveal in purest form the underlying inflationary cast of the postwar period. Since they are produced as used and cannot be stockpiled, they are unaffected by temporary shifts of inventory demand by households or businesses. At the same time, their persistent upward course is symptomatic of constant pressure from increasing demand, increasing cost, or both. While it is true that their rise relative to prices of goods during the past 7 years must reflect a tendency toward lagging productivity or growing relative demand, their absolute increase need not have occurred if gains in real national income due to advancing productivity had been distributed in the form of general price reductions at a constant level of money income.

#### BASIC CONCEPTS

The theoretical apparatus which underlies the subsequent discussion rests on one or two key concepts which can readily be illustrated by examples.

First, there is the notion of aggregate supply. If we think of an individual business firm, it is apparent that its costs of production can vary in several ways. If it has unutilized plant capacity, it may be able to increase production considerably without forcing costs up, but as

it approaches capacity operations, unit costs are bound to rise even when there is no increase in the prices which it pays for labor, materials, or other resources. This is because there is an optimal balance between materials, manpower and equipment, and when that balance is exceeded, the output per additional worker or batch of materials must decrease—it will do little good to put two workers on a machine which can be operated efficiently by one. Costs may also be forced up at higher rates of utilization because prices of resources rise—premium pay for overtime is an important example—or because standby units of inefficient equipment may be pressed into service or it may become necessary to hire persons who are poorly trained or otherwise inherently less efficient than the normal complement of workers.

Analogous considerations apply when we think of the economy as a whole. When coming out of a period of recession, most firms will be operating well within capacity, and increases of demand will go primarily to stimulate production rather than prices. As national output continues to expand, however, bottlenecks will increase prices of some resources, capacity will be reached in some businesses, overtime pay will increase, and so forth. If demand continues to rise, firms will produce more, but they will also charge higher prices to cover the resultant increase of cost. Now, in actual practice it is always possible to get a little more output with a sufficiently lavish expenditure of resources, but it is a useful simplification to think of national output as having a fixed limit at any given time, at a point corresponding to full man-hour employment of labor. Once the limit is reached, further increases of money demand can only raise prices without inducing more output. That is about what happens during periods of pure inflation.

It must now be emphasized that two important cost influences were left out of account in the preceding paragraphs. This was deliberately done, for they are quite different from those discussed thus far. The variations in costs already considered were the result of changes in output which were induced by changes in demand—costs and prices would not have risen had demand not increased. The type of cost change to be considered now can occur at any given output and independently of any change of demand.

Physical limitations on output can be gradually overcome, given sufficient time, by construction of additional productive facilities and the growth of the labor force. Technological improvements, moreover, may make possible new methods of production which lower costs no matter what the rate of capacity utilization. In these cases, the same total output as before can be produced at lower prices, or alternatively, a larger output will be forthcoming at the same price level.

The second main type of independent cost change is an “autonomous” variation in the price paid for a resource. Wage increases negotiated in collective bargaining may usually be regarded as autonomous, since they are not necessarily induced by an expansion of output and will raise money costs of producing each alternative output. Independent changes may commonly occur also in the prices of raw materials imported from abroad, traded in world markets, or subject to supply interruptions due to the vagaries of weather. Provided demand remains unchanged, autonomous increases in resource prices will raise the prices of goods and reduce their output, whereas decreases will have opposite effects.

Demand will not remain unchanged in the ordinary course of events, however, and this brings us to the next major point—that on an aggregative or economywide basis supply and demand are not independent, but interact with one another in several ways. Thus in the present instance, an autonomous wage boost may increase aggregate demand in addition to raising costs. This is because wages affect incomes as well as costs, and income is one determinant of demand. Suppose that a general wage increase goes into effect at a time of full employment and when businessmen have no independent reason to be pessimistic about the near-term future of sales. Under those circumstances, businessmen are likely to maintain output, increase prices, and wait to see **whether the increase diminishes the physical volume of sales.**

With higher wages and stable employment, consumer demand will be augmented, though not enough to match the price increase. The increase of wage-earner consumption demand will be smaller than the price increase partly because prices will usually be raised enough not only to cover the wage increase but also to increase profits, and partly because workers will save some fraction of their added incomes. If no increase of demand is forthcoming from other sources, the same physical volume of sales as before cannot be maintained at the new price level, and either prices or production or both must be cut.

It should not be assumed, however, that other demands will remain unchanged. Large components of final demand are partly or entirely independent of the current level of income. Under the full employment conditions assumed in our illustration, it is probable that businessmen and governmental units will pay the higher prices now necessary to carry out their previously planned physical investments. There is likely also to be sufficient flexibility in the financial arrangements of nonwage personal income receivers to permit them to increase their consumption outlays and defend their living standards even if their incomes lag somewhat in time or amount. Thus aggregate demand may rise enough to sustain the price increase without any reduction of output.

This last result is quite possible and even probable under the assumed conditions, but it is by no means inevitable. To cite a single important exception, financial constraints might prevent the necessary expansion of money outlays for plant and equipment, business inventories, or durable consumer goods. Thus “it all depends”—but that is precisely the point.

It will be helpful to distinguish two other types of supply-demand interaction in these introductory remarks. The first occurs when the initial change on one side is conditioned by the actual or expected state of the other. Thus unions will ask for larger wage increases if they expect demand to be high or rising, and management will resist a given increase less strenuously if they hold the same expectation. Secondly, there is the interaction occasioned by the fact that an initial adjustment of price or output in response to a primary disturbance may induce secondary repercussions, as when a price rise caused by increased demand induces a wage increase which puts further pressure on prices.

In summary, the following points should be kept in mind as we interpret postwar price experience. What happens to prices and production depends on both supply and demand. Under given condi-

tions of supply, prices and output will rise and fall together along with demand, and their relative movements will be correlated with the level of economywide resource utilization. Under given conditions of demand, autonomous cost increases will raise prices and reduce output, and vice versa for autonomous decreases. An initial change on either side is unlikely to leave the other unaffected, however, and this means that one must be alert to several forms of interaction between the two. In view of these complexities, inferences about the causes of observed behavior should be drawn with care and assertions that single factors are responsible received with skepticism.

#### POSTWAR INFLATION, 1946-48

The economy was still operating under the wartime "disequilibrium system" as 1946 opened. The essential ingredients of the system were simple. Resources were diverted to war use only partly by taxation and the remainder of the transfer was deficit-financed. Since taxes were not used to reduce private incomes proportionately to the supply of civilian goods, it was necessary to control prices and allocate quantities by rationing. Since money incomes far exceeded permissible expenditures at controlled prices, and did so for several years, households and businesses perforce accumulated large holdings of money, Government bonds, and other liquid assets.

It was called a disequilibrium system, of course, because the demand latent in the prevailing level of money income and wealth was not allowed to determine prices. So long as prices were controlled, the economy was prevented from seeking a market equilibrium. The removal of controls during the last half of 1946 freed the economy to react to the accumulated demand pressures which had been contained previously by administrative devices. The result was a powerful inflationary shock (chart 1).

Effective demand was extraordinarily high at the time of decontrol partly because of the wartime heritage of financial liquidity and deferred demands which characterized alike the household, business, and foreign sectors. It was augmented also by the "first round" of wage increases of early 1946. Higher wage incomes increased the post-decontrol money demand for consumer goods, and since it is unlikely that other income receivers diminished their consumption or investment demands correspondingly, if at all, this meant that prices rose more than they would have at the old wage rates.

Thus, although the first round of wage increases was by no means the sole cause of the price inflation of 1946-47, it did contribute to it. To argue that it was the sole cause would be to assert that autonomous wage increases disturbed an initial equilibrium in which there was no excess demand, which is absurd. Similarly, to cite the lag of prices behind wages as evidence of a cost-price spiral is to ignore the fact that the lag was really determined by the timing of price decontrol relative to wage decontrol.

The pace of the inflation slowed noticeably in the second quarter of 1947 (chart 1). The index of wholesale prices actually declined somewhat and the average of consumer prices was stable. A corresponding deceleration occurred in physical activity. The period of tranquility was short-lived, however, and with the coming of summer, production recovered moderately and prices again shot upward. If

the respite is regarded as a temporary equilibrium, two questions come naturally to mind: What conditions produced the equilibrium? Why was it unstable? These questions will be answered in turn.

The first possibility to consider is that financial stringency may have retarded the expansion of demand in one or more parts of the economy. The essence of the sort of pure inflation now under discussion—that is, a situation where real output is virtually fixed and additional spending goes primarily to raise prices—is, of course, that it results from competition among the various claimants on the national product for the limited supply of goods and services. Gradual increases of supply aside, the inflation will continue as long as some spending units are displeased with their level of real expenditures—their share of total output—and are able to increase money expenditure in an attempt to bid goods and services away from rival spending units. Conversely, it will be halted if all spending units become satisfied (perhaps better, reconciled) with their current real expenditure in the sense that they cannot, or will not, find the means to finance a larger money outlay.

Any spending unit, be it in the household, business, Government, or foreign sector, has two sources from which to finance current purchases of goods and services. It can undertake expenditure out of current income receipts; or it can alter its wealth, either by borrowing or by drawing upon its assets. Thus financial stringency could take the form either of an income limitation, or a constraint on the desire or ability to diminish net worth.

Let us examine the incomes and expenditures of the major sectors for evidence of monetary constraints on spending (chart 4). The reader will note the continuous rise of personal consumption expenditure from 1945 to mid-1947 and beyond. He will notice also that throughout 1946 and early 1947 expenditure climbed more rapidly than income, a symptom of the excess demand for consumer goods which was released by decontrol and of the determination of consumers to maintain their real purchases after decontrol. Even the diminished increase of disposable income in the first quarter of 1947 and its actual dip in the second quarter failed to deter the rapid expansion of expenditure.

The fall in the rate of personal saving during the first postwar wave of inflation was accompanied by some deterioration in the financial position of consumers as a group, of course. The moderate reduction of consumer liquidity during 1946 may have inhibited the growth of spending in the first half of 1947, just as the retardation of disposable income may have done, but the fact remains that neither force was powerful enough to prevent further substantial increases of consumer expenditure in those months. We must look elsewhere for signs of flagging demand.

Nor do we fare much better when we turn to the Government and foreign sectors. Government purchases of goods and services did diminish during the first half of 1947, but relatively little in comparison with the increases in other categories of final expenditure. The reduction came entirely in the Federal sector and reflected primarily the further progress of war demobilization rather than any financial constraint. Net tax receipts (receipts less transfer payments) were substantially in excess of Government purchases during the last half of 1946 and in 1947. Incidentally, the Government surplus served as a partial restraint on the progress of the inflation, but it was not, of course, enough. The sharp rise of receipts during 1946 was largely induced by the expansion of money incomes and was therefore, itself, a reflection of the inflation which automatic increases of tax receipts could mitigate but not prevent.

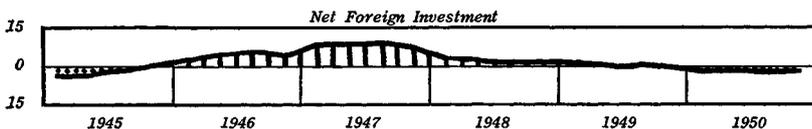
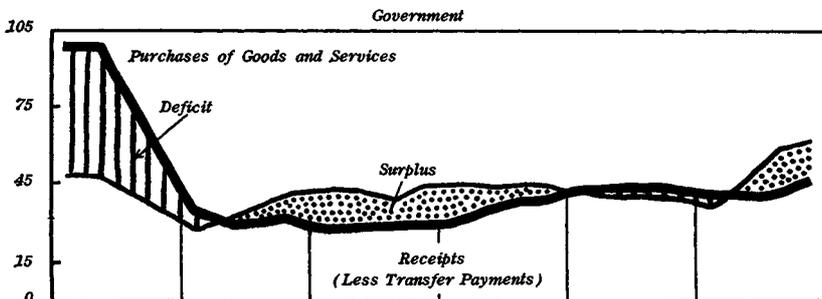
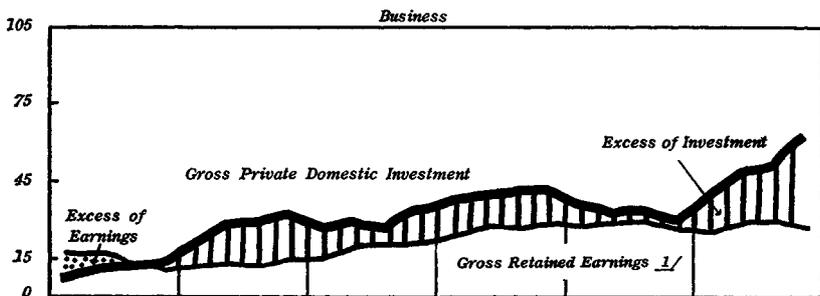
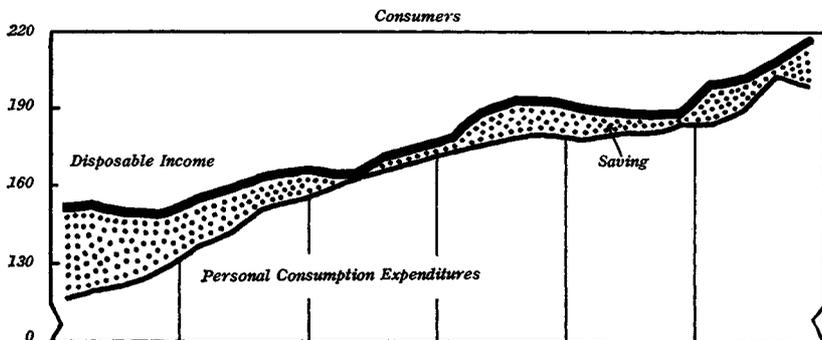
No assistance was forthcoming from foreign sources. On the contrary, net foreign investment rose substantially during 1947 under the spur of postwar needs for relief and rehabilitation in war-ravaged countries.

We come finally to domestic investment and its finance. It is apparent from chart 4 that gross private domestic investment fell in the early months of 1947 and remained relatively depressed until late in the year. Since gross retained earnings continued to rise, private deficit financing for purposes of investment was reduced. This last development was effect rather than cause, however, for there was no shortage of external funds to restrict investment during this period.

A breakdown of gross private domestic investment reveals that its decline after the fourth quarter of 1946 was due entirely to the inventory component (chart 5). Business fixed investment and residential construction continued to rise along with consumption and net foreign investment. Taken altogether, these facts demonstrate that the lull during the spring primarily reflected diminished demands for inventory and not a deficiency of final demands. There is strong evidence, moreover, that the decline of inventory demand was caused by nonmonetary factors.

Chart 4

The Nation's Income, Expenditure, and Saving By Major Economic Sectors  
 Seasonally Adjusted Quarterly Totals at Annual Rates, 1945-1950  
 (Billions of Dollars)

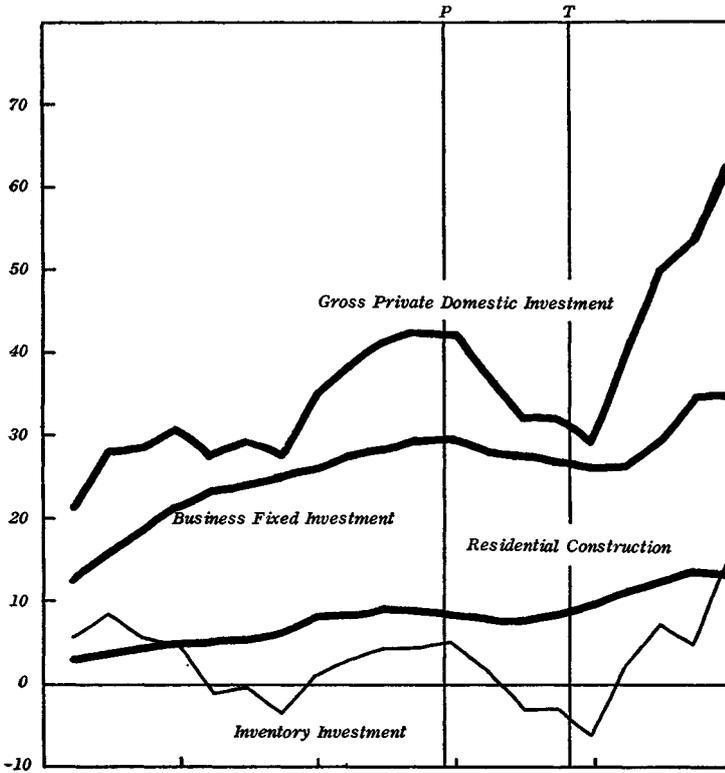


<sup>1/</sup> Includes undistributed corporate profits, inventory valuation adjustment, and capital consumption allowances.

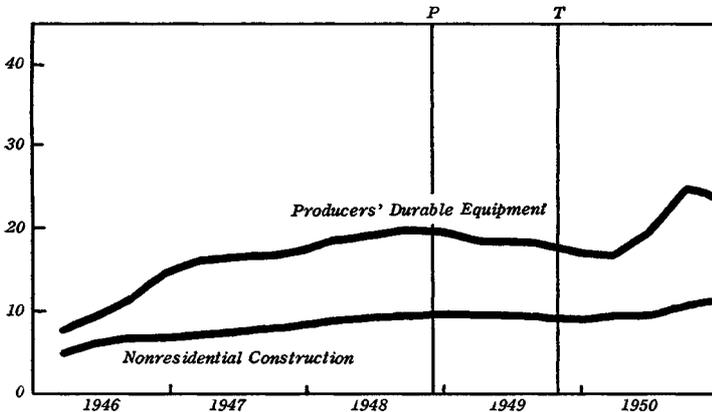
Source: Department of Commerce.

Chart 5

Gross Private Domestic Investment and Its Major Components  
 Seasonally Adjusted Quarterly Totals at Annual Rates, 1946-1950  
 (Billions of Dollars)



Components of Business Fixed Investment



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.

Source: Department of Commerce.

The reason for believing that monetary factors had little to do with the behavior of either fixed or inventory investment during 1946-47 is, of course, that the entire economy was quite liquid and bank credit was readily available at generous terms. Since the monetary authorities accepted the goal of stable interest rates, they were unable to act to prevent an expansion of bank credit and the money supply. Any increase in the demand for loanable funds which could not be satisfied from current saving or by dishoarding must needs be met by the banking system if interest rates were to be kept from rising.

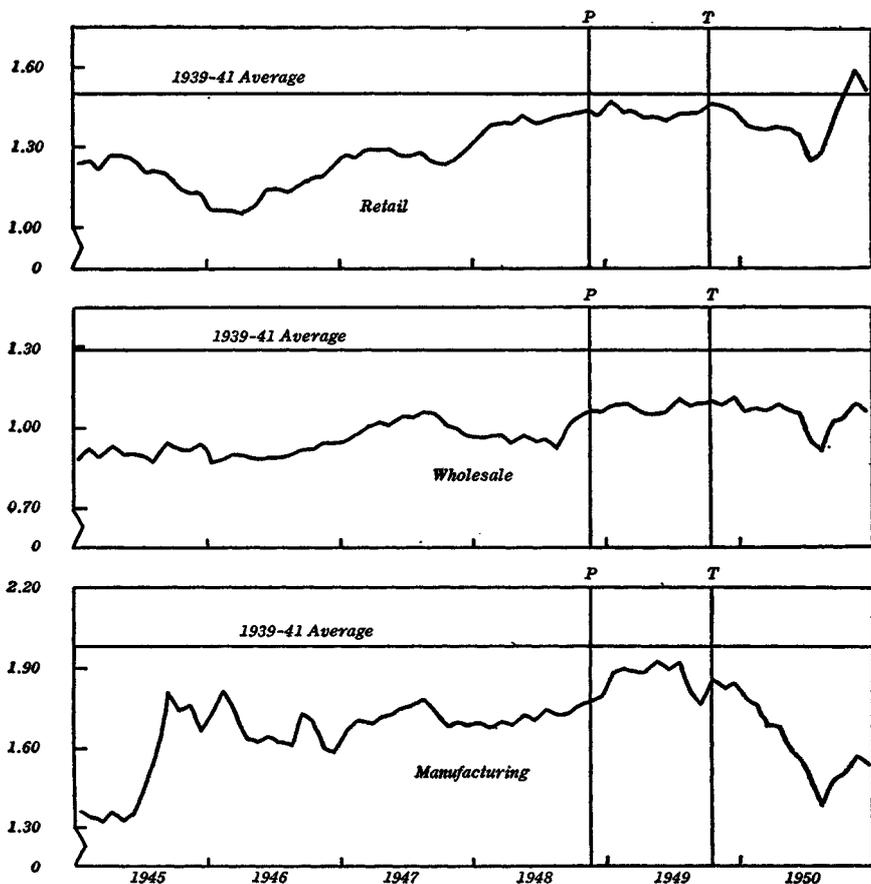
As it happened, the contribution of additional money supplies to increased spending was comparatively small during the period under review. Thus gross national expenditure increased 12 percent and the private portion of it 15 percent between the second quarters of 1946 and 1947. The money supply, consisting of currency outside banks and adjusted demand deposits, rose less than 3 percent over the same interval. A rise in the income velocity of circulation of money therefore accounts for three-fourths of the increased spending on national output and four-fifths of the rise of private spending. This implies a sharp reduction in the proportion of the money supply held idle. The dishoarding occurred, moreover, at low and stable rates of interest. Here is ample testimony of the involuntary nature of much of the liquid asset accumulation of the war years, which resulted by wars' end in holdings which were considerably larger than desired, given current prices for goods and going interest rates.

What, then, does account for the reduced inventory demand of early 1947? It was primarily a reflection of pessimistic short-term expectations. As the President's Economic Report of January 8, 1947, put it (p. 16): "Threatening the continuation and expansion of business investment is the fear that a drop in general consumer demand may be in the offing." This fear rested upon the knowledge that inflation had diminished the real value of disposable personal income during 1946 and that consumers had maintained real expenditure only by increasing money outlay sharply relative to income. This process obviously could not go on indefinitely and might be near its limit, especially since real demands for specific commodities could be expected to fall as the goods became available to rebuild household stocks.

The close parallels between the events of 1919 and 1946 had not escaped attention. Each were years of postwar transition during which abnormal domestic and foreign demands had driven prices rapidly upward. The deflation which had followed the earlier experience during 1920 was among the sharpest on record. History might repeat itself, and in the circumstances it was wise to pursue conservative inventory policies.

Chart 6 indicates how conservative those policies were. The ratio of inventories to sales in manufacturing was actually reduced during 1946. Retail inventories, in contrast, did rise strongly relative to sales between April and December. It is significant, however, that the ratio remained far below the prewar relationship of 1939-41. This last was true also of the wholesale and manufacturing sectors. Businessmen generally were making do with relatively smaller stocks than in prewar days.

Chart 6  
Inventory-Sales Ratios  
(Monthly, 1945-1950)



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.

Source: Department of Commerce.

Diminished inventory demands were felt largely by producers of nondurable goods. Some decline of postwar inventory investment was inevitable once stocks were rebuilt sufficiently to provide appropriate selections and acceptable delivery schedules. To judge from the levels maintained in later years, the appropriate "technical" ratio of stocks to sales was approximated by nondurable goods retailers late in 1946. Technical considerations would have been overridden, nonetheless, had retailers expected prices to advance rapidly or sales to spurt strongly. For reasons already discussed they expected neither to occur, or at least they were uncertain enough to play it safe.

Prices of durable goods were not exposed to the same degree of downward pressure from diminished inventory demand as nondurables. Average wholesale prices of finished durable goods rose more during the second quarter of 1947 than in the first, although prices of intermediate durable materials advanced more slowly than before. The latter retardation may reflect some easing in the intensity of demand, since unfilled orders of durable goods manufacturers leveled off in the first quarter and dropped in the second. Perhaps the most interesting development in this sector, however, was the stability of steel prices during the first 6 months of the year.

What makes it particularly interesting is that steel prices were not raised at the time of the April increase in wages of steelworkers, and did not rise until 3 months had passed. On no other occasion from then until now have steel prices lagged a general increase of steel wages. Because of their key position in the industrial price structure, the stability of steel prices probably contributed importantly to the shift toward expectations of stable or falling prices which characterized the period. It appears likely that steel and other administered prices were, in turn, strongly influenced by the public attention which was focused on the desirability of voluntary restraint in setting prices in the State of the Union Message and Economic Report of January 1947, and again in speeches made by the President in April. Be that as it may, price stability was short lived in these cases and most others, for it could not persist in the face of the resurgence of demand which soon developed. The next task is to identify the factors back of that resurgence.

Reduced inventory demand consequent upon pessimistic expectations about the short-term course of sales and prices was primarily responsible for the precarious balance of aggregate supply and demand in the spring of 1947. The balance was upset and inflationary pressures revived during the summer partly because a recasting of expectations took place. The reversal of expectations did not, however, occur for independent psychological reasons. Quite the contrary, it was due to a sequence of concrete economic events which first removed the drag exerted by uncertainty about short-term developments and a bit later contributed directly to an acceleration of final expenditure.

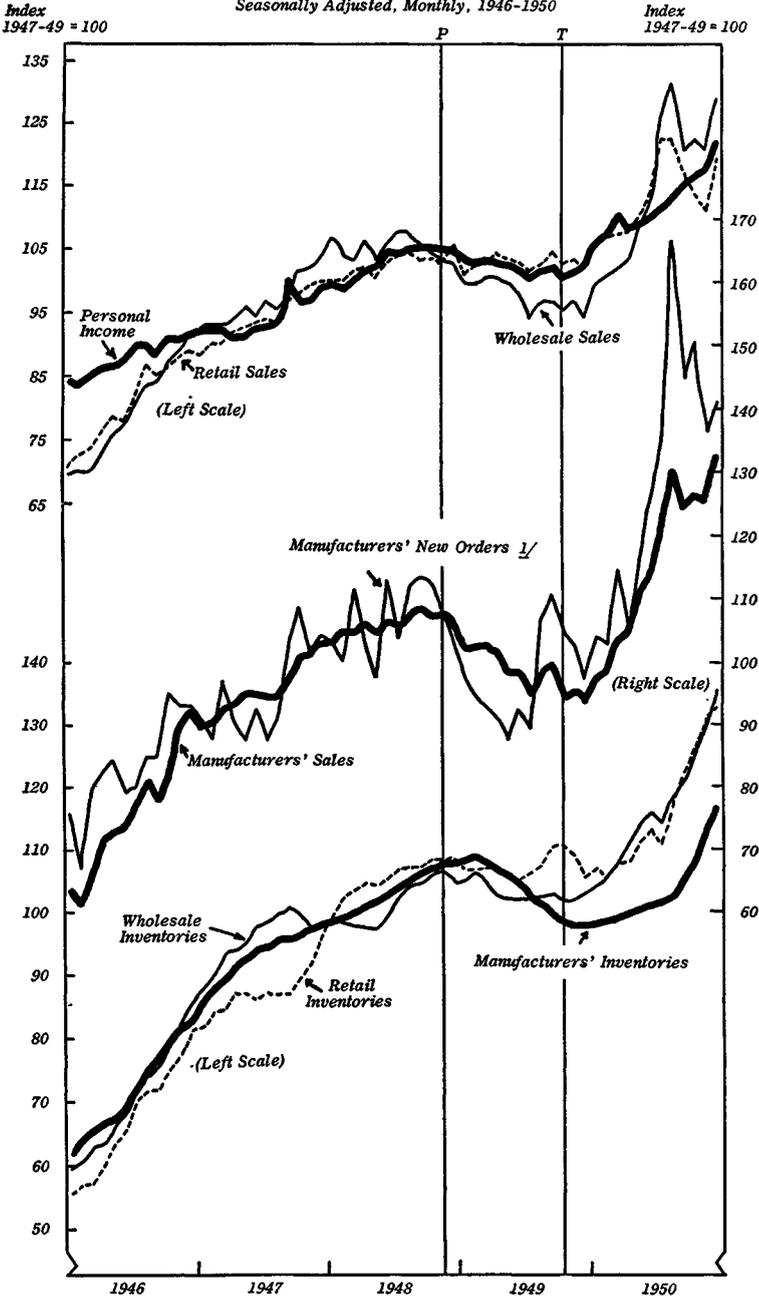
First, there was the fact that the pessimism about final demand proved to be unjustified. Consumer expenditures, business investment in plant and equipment, residential construction, purchases of State and local governments, and net foreign investment all increased during the winter and spring. Fears that new homes would be priced out of a market by rising building costs were lessened when new housing starts rose more than seasonally during the spring. It had been anticipated that the drain on gold and dollar assets of foreign countries would soon force a substantial reduction in net exports, but the prospects in this area were improved by the announcement of Secretary of State Marshall early in June that the United States would support a joint program for European recovery.

The acceleration of prices did not await actual increases of final demand. Specific factors boosted prices in two prominent sectors during the early summer. Food prices rose during July and August owing to a combination of short domestic and foreign crops and normal seasonal influences. A widely publicized wage increase in coal mining was accompanied by a simultaneous advance in coal prices in July and was followed by a steel price increase in August. These specific increases doubtless fostered expectations of a new wave of generalized price advances, the more so because it now appeared that earlier wage gains would be reflected in prices, as indeed they were. Thus, speculative purchases were partly responsible for the steep rise of manufacturers' new orders and sales which commenced in September (chart 7).

Retail sales also spurted strongly in September, however, providing still another stimulus to orders and prices. Legislation passed late in July permitted redemption of Armed Forces leave bonds on or after September 2. Quick advantage was taken of the opportunity to supplement current incomes, as transfer payments leaped more than \$10 billion at an annual rate in September and produced corresponding bulges in personal income and retail sales which persisted for several months. The spurt of final demand was augmented by substantial inventory accumulation at the retail level, and although the latter was partly offset by inventory reductions of wholesalers, factory sales and production nonetheless moved strongly upward. As production mounted, so also did earned incomes, further feeding the expansion of retail sales.

Chart 7

Indexes of Personal Income, Retail, Wholesale, and Manufacturers' Sales and Inventories and Manufacturers' New Orders  
Seasonally Adjusted, Monthly, 1946-1950



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.  
 1/ Not seasonally adjusted.  
 Source: Department of Commerce.

The expansion was given new vigor by the events just reviewed. The underlying sources of strength which stemmed from backlogs of consumer and investment demand and which had been present all along now asserted themselves for a time without the debilitating offset of inventory disinvestment. When these forces began to weaken, moreover, fresh stimuli came forward to prolong the movement.

The year 1948 had scarcely begun before the economy experienced a jolt which raised anew the possibility of imminent deflation. Farm and food prices broke sharply downward in February (chart 2). The reductions were apparently the result of favorable crop prospects at home and abroad, prospects which were disproportionately influential because of expectations that the extraordinary height to which agricultural prices had risen by the end of 1947 could not be sustained under normal conditions. This episode could have touched off a wave of deflationary inventory disinvestment had it created expectations of a generalized price decline, but it did not do so, and industrial prices remained largely unaffected. Expectations remained unshaken partly because the potential decline of agricultural prices was limited by support programs and partly because important shortages of durable goods and materials persisted and the response of prices in those sectors to augmented supplies or diminished demands could be expected to take place slowly in any event.

Although final demand was sufficiently high to support prices and outputs of most goods in the face of the agricultural price declines of February and March, and indeed for some months thereafter, the first quarter nevertheless marks the emergence of important deflationary factors. These factors were of more than transitory importance because they reflected a change in the basic conditions which had fostered the inflation. I refer to the weakening of real investment demand in the business and housing sectors and to the acceleration of the decline of net exports which had set in earlier.

A survey of anticipated expenditures taken in the opening weeks of 1948 foreshadowed a gradual downslide of real expenditures for plant and equipment by nonagricultural business during the year. The actual peak in physical volume occurred in the first quarter, but when account is taken also of investment by farmers, professional men, and institutions, the peak of total business fixed investment is delayed until the third quarter in physical terms and until the fourth in dollar amount (chart 5).

The early decline of nonagricultural business investment was concentrated in manufacturing industries, where it probably reflected diminished needs for deferred replacements and for capacity expansion to meet postwar levels of demand; modernization and expansion programs had progressed more rapidly in manufacturing than in railroading or electrical utilities, to name two important sectors in which investment continued upward during 1948. Some reduction of investment demand was to be expected once firms had attained satisfactory postwar relationships between capacity and output, even if output continued to increase as rapidly as before. Actually, manufacturing production increased rather slowly during 1947, and this fact may have influenced the formation of investment plans at the turn of the year. In some industries the retardation during 1947 was due to inadequate plant capacity or shortages of materials, but in many product lines it must be traced to a diminution of consumer

demand as households rebuilt their "capacity" to derive current services from durable or semidurable goods.

The foregoing reflections serve as a reminder that the inflation was driven throughout by demand elements which were to an important degree independent of the level or rate of change of real national income. Satisfaction of backlog investment or consumption demands would in itself tend to reduce inflationary pressures at any given level of real income and independently of financial considerations.

This is not to say that the slowdown of business investment was completely unrelated to financial developments, but the latter influences were secondary at most. Although corporate liquidity had decreased as the inflation progressed, investment funds from current operations improved as the ratio of gross retained earnings to corporate investment increased from 48 percent in 1946 to 69 percent in 1947 and 81 percent in the following year. External funds, moreover, were easily obtainable. Long-term interest rates had been allowed to rise by the Federal Reserve in the closing months of 1947. The increase was moderate, however, and the monetary authorities took the necessary steps then and later to supply reserves to the banking system whenever the stability of interest rates was threatened. The money supply declined fractionally after the first quarter of 1948, but bank loans rose substantially and income velocity and total spending continued to increase.

Financial constraints were more important in the areas of home building and foreign trade. The rise of gilt-edge interest rates had the effect of making GI and FHA mortgage loans at fixed rates less attractive to lenders, many of whom tightened up on loan applications. From April 30 to August 10 there was no statutory authority for FHA action on the most liberal type of mortgage for lower priced houses or on mortgage insurance for multifamily rental housing units. Housing starts fell sharply beginning in July, and it appears that tightened purchase terms and reduced availability of lower quality mortgage credit should receive a good deal of weight in an explanation of the decline.

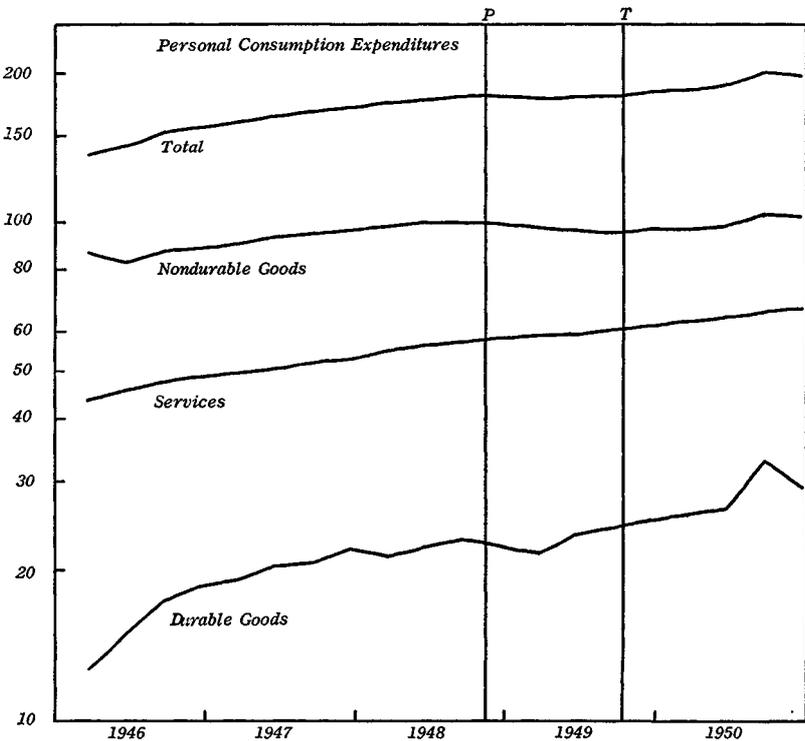
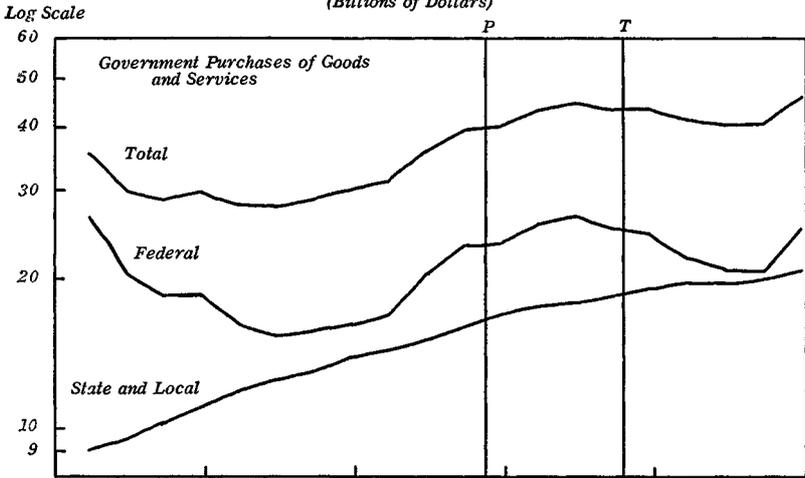
Net exports form the third important category of final demand which weakened well before the downturn of aggregate activity. Net foreign investment plummeted between the third quarters of 1947 and 1948 because foreign gold and dollar holdings had been depleted by

the extraordinary purchases of 1946-47 and because loan-financed aid by the United States Government was slashed (chart 4). Government expenditures in the form of gifts under interim aid and the Marshall plan rose during 1948 and offset a part of the reduction of foreign investment, but the export surplus nonetheless fell substantially, and on an annual basis accounted for seven-tenths of the total drop of \$7 billion in foreign investment. Fortunately, the bulk of the decline in the export surplus came before mid-1948 while other elements of demand were still favorable to the maintenance of physical activity, so that its major effect was to relieve inflationary pressures rather than to initiate a contraction.

After this lengthy recital of early developments that sapped the strength of the underlying forces which had fostered the inflation in previous years, the reader who does not have the details of 1948 fixed freshly in mind may be surprised to learn that the indexes of wholesale and consumer prices spurted yet again after March, and by September had risen respectively another 3.5 and 4.6 percent. This last fillip was given to the inflation by the actual and anticipated effects of Government fiscal actions. These included final approval of a new foreign-aid program under the Marshall plan, enactment of a stepped-up defense program, and a reduction of personal income taxes effective April 2.

The bulk of the substantial increase of Federal expenditures between the first and third quarters of 1948 (chart 8) resulted from foreign aid and the agricultural price-support program. Domestic defense expenditures rose only in the final quarter of the year. The economic stimulus provided by the defense program did not await the increase of expenditures, however, but was partly felt during the spring when its discussion and enactment affected business expectations and when substantial orders for aircraft were placed. The tax reduction could also be expected to have an early effect on retail sales because withholding from wages and salaries would be decreased at an annual rate of \$3 billion beginning in May.

Chart 8  
 Government Purchases and Personal Consumption Expenditures  
 Seasonally Adjusted Quarterly Totals at Annual Rates, 1946-1950  
 (Billions of Dollars)



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.  
 Source: Department of Commerce.

It was in this expectational context that prices of agricultural products turned upward again in April and that springtime wage negotiations were conducted in the large durable goods industries. Heavy industry had resisted wage increases following the agricultural price break of February, since it appeared that the cost of living would stabilize and that demand pressures were easing.<sup>2</sup> When farm and food prices recovered and the defense program and tax reduction were announced, the determination of labor to win wage increases was augmented and that of management to resist them diminished. The result was a series of wage and price increases in major heavy industries between May and July. Thus prices advanced on a broad front from April through July or August, with participation by agricultural and industrial commodities alike.

During the second half of the year the forces of deflation gained final ascendancy. The downturn developed gradually from an accumulation of depressing factors, each mild in itself, but in sum sufficient finally to cause a decline of aggregate activity. For reasons already discussed, residential construction eased downward in the third quarter and business fixed investment in the fourth. These developments had earlier origins, but a new depressant was added when retail sales leveled off during the third quarter (chart 7). The retardation affected particularly sales of nondurables, and since stock-sales ratios were being closely controlled by retailers, new orders were immediately trimmed to prevent further accumulation of stocks, wholesale trade in nondurables declined after July and factory sales after September, and manufacturing production of such goods eased during the third quarter and again in the fourth.

The retardation of retail sales was the more disappointing because it followed the April tax cut. Price and wage increases augmented personal incomes during the second and third quarters, and the tax reduction boosted disposable personal income even more, but these developments had the effect mainly of raising saving instead of consumption expenditure (chart 4). Personal saving increased from an annual rate of \$4.2 billion in the first quarter to \$10.6 billion in the second and \$12.6 billion in the third. The corresponding saving percentages were 2.4, 5.7, and 6.6. Thus the retardation of consumer spending occurred because spending did not keep pace with income and not because income failed to increase as rapidly as before; on the contrary, disposable income increased faster during the spring and summer than during the preceding half year.

The decline of consumption expenditures relative to income was a consequence of the diminution of pent-up consumer demands. To the extent that it was an expression of a general easing of demand, it was probably influenced by the progressive decline of liquidity during the preceding years of inflation. Individuals' holdings of liquid assets had increased more slowly than disposable income, inflation had reduced their real value 15 percent between the end of 1945 and 1947, and there may have occurred a shift of assets to firmer hands. Certainly the intense desire to increase expenditures in any and all directions which had characterized the first year or more of the inflation was no longer manifest, and this argues for the presence of some general constraint such as diminished liquidity.

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<sup>2</sup> Midyear Economic Report of the President, July 1948, p. 33.

Since household stocks of durable and semidurable goods had been replenished by 1948, however, the satisfaction of deferred demands proper may have provided the stronger general constraint. That this is so is suggested indirectly by the behavior of automobile purchases, for this was the principal example of a consumer good still in short supply. The rate of real expenditure depended upon production and showed no signs of flagging during the spring and summer of 1948 or indeed for many quarters thereafter. Consumer credit controls had been dropped in November 1947 and were not reimposed until September 1948. It is probable that had more cars been produced in mid-1948, more would have been purchased, and at higher prices if desired by sellers. Other expenditures would not have decreased correspondingly, moreover, because any current retrenchment of consumption outlays which might be made by families purchasing new automobiles would be smaller than the total outlay for the automobile, the bulk of which would be financed by asset liquidation or new credit.

The emerging inventory problems of retailers were not confined to nondurable goods. Expenditures for furniture and household equipment also leveled off in the third quarter and actually dropped in the fourth. Inventories of durable goods were not quite so closely controlled by distributors, however, and factory production of major durable household goods was maintained a few months longer than was true of nondurables, before joining the general decline after October. Thus by the final quarter aggregate activity was being depressed by reductions in business fixed investment and residential construction, by stable or falling retail sales, and by diminished inventory demand consequent upon the latter. About the only important category of demand still expanding was Government expenditure, and this was not enough to prevent a downturn of aggregate physical activity in November or December.

Prices fell along with physical activity as inflationary pressures ebbed. The indexes of wholesale and consumer prices led the October peak of industrial production by 1 month. Agricultural prices had started downhill for certain in July because increased production at home and abroad augmented domestic supplies at the same time that retail sales of food and other nondurables stabilized. Retail food prices dropped in concert with farm prices. Wholesale prices of products other than farm commodities and foods did not fall until December, however, and the Consumer Price Index of all items less food also held firm until year end. Reductions of industrial finished goods prices at wholesale and retail awaited the further easing of demand which came after the turn of the year.

#### MORE ABOUT THE INFLATION

The many references to demand and expected demand in the preceding pages will not have escaped the attention of the reader. The inflation was started by the discharge of excess demand after decontrol and it was ended when final demand weakened even as real income continued to rise and largely because backlogs were worked off in many lines. This does not end the matter, however, for the progress of the inflation—its duration and magnitude and the timing of the successive waves—might have been quite different in another economic

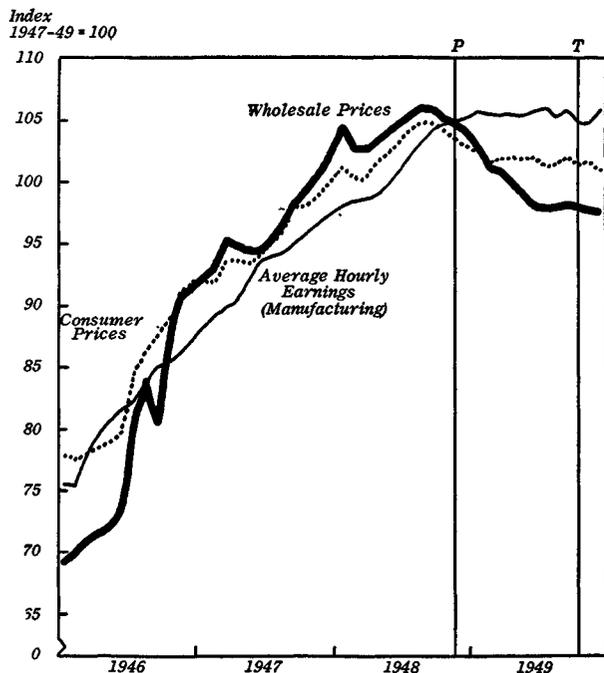
environment. As a bald statement, this is a self-evident proposition, but it is one which is often forgotten in relation to specific historical episodes, where the role of disturbing forces is likely to be emphasized to the neglect of factors which condition the response of the economy to disturbances and which are equally to be regarded as causes of the observed behavior.

There can be no doubt, for example, that the inflation could have been terminated earlier and with a smaller overall price rise by sufficiently vigorous monetary or fiscal actions. As it was, external monetary intervention did comparatively little to bring the inflation to a close and fiscal actions actually prolonged its final phase. Not much is to be gained by speculating about what might have been, however, especially since it cannot be known how far alternative policies could have been pursued without producing consequences less attractive than the gradual diminution of liquidity through price inflation and the concomitant gradual elimination of the more pressing physical shortages.

What can be done with profit is to inquire more closely into the time path of the inflation, given the fact that external intervention was minimal. We ask why it progressed in 3 waves instead of 1 uninterrupted advance, and why each wave was smaller than its predecessor (chart 1). Let us test first the hypothesis that the successive waves were recurrent phases in a wage-price spiral which was started and kept in motion by a series of wage increases. In that event, the interval between waves would be determined by systematic lags in the process of wage-price-wage adjustment, and the magnitude of the waves would depend upon the size of the successive adjustments.

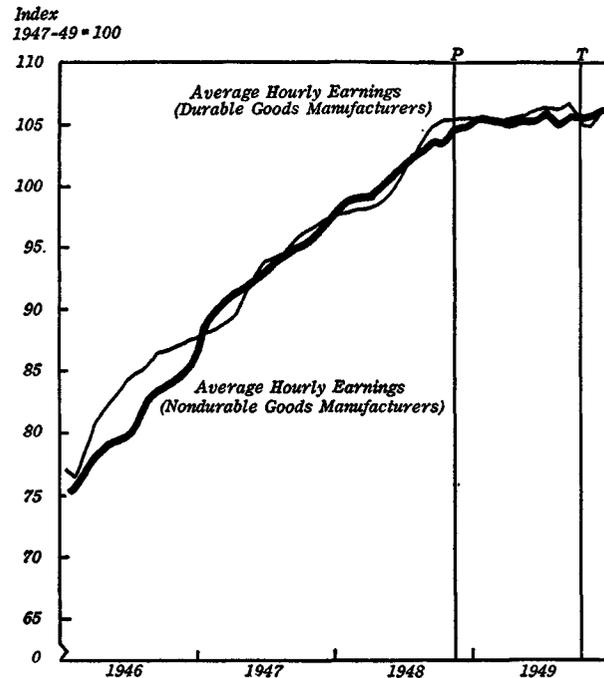
The hypothesis is lent a surface plausibility by the fact that wages led prices during the first two waves (chart 9). Thus average hourly earnings of manufacturing workers increased more rapidly than consumer prices during the first half of 1946. Prices moved ahead of wages after decontrol, however, so that by early 1947 the purchasing power of wages was considerably reduced. Wages spurted again during the spring of 1947, and after a lapse of 2 or 3 months, prices resumed their climb. Up to this point, then, there were alternate spurts of wages and prices. This neat phasing broke down in the third round of inflation, however, when prices and wages rose simultaneously in the spring and early summer of 1948. Apparently there was nothing inherent in the organization of the economy to *make* prices lag wages. But this reminds us that special circumstances may account for the two earlier instances of lagging prices. That is certainly true of the first round, when prices were decontrolled later than wages. Recall also the unusual conditions that prevailed at the time of the second lag, when public attitudes and short-term expectations were unfavorable to price increases and when springtime wage increases were absorbed for a few months in steel and other heavy industries.

Chart 9  
Indexes of Average Hourly Earnings and Prices  
(Monthly, 1946-1949)



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.

Source: Bureau of Labor Statistics.



Apart from timing, there is the question of amplitude. May not the progressively smaller size of the price waves be due to the fact that each round of wage increases was smaller than the last, beginning with a "typical" raise of 18½ cents in 1946 and moving on to 15 cents in 1947 and 10 to 13 cents in 1948? The answer must again be "No". The reason may be seen by asking under what conditions the statement might be true. It implies first of all that the role of demand is passive; that the amount of a price increase is determined by the size of an autonomous wage increase and that demand merely rises enough subsequently to sustain the higher price. Applied to a sequence of damped wage-price movements, it implies secondly that some mechanism exists to make each wage increase smaller than the last, unless, of course, this important fact is left unexplained. A plausible hypothesis for the sort of situation now under consideration is that wage demands are equal to the increase in the cost-of-living since the last wage increase, and that each wage increase induces a less-than-equal rise in consumer prices because of productivity gains, partial absorption of cost increments by manufacturers or distributors, or the sluggish response of prices of consumer services.

Now either or both of these assumptions may at times approach realism, but neither can be accepted in the present instance. With regard to the first, it is obvious that the margin of excess demand which existed at the time of decontrol for reasons independent of the wage advance was an important determinant of the size of the initial price wave. Nor was the wage increase of the first half of 1947 as large as the price increase of the last half of 1946. Wages caught up with consumer prices momentarily in mid-1947, but this was partly because they had gained relatively in the 4 or 5 months preceding decontrol and not because they advanced as much as prices in later months. All the same, there is empirical substance in the notion that the amplitudes of the price waves of 1947 and 1948 were approximately determined by the amplitudes of the corresponding wage movements. This does not mean, however, that we have here an example of "cost-push" inflation.

It is important to recognize the full implications of these last remarks. The crux of the matter is that wages and prices may spiral under conditions of either "cost-push" or "demand-pull." The "cost-push" terminology implies that the spiral originates and is kept going by autonomous wage increases because workers are trying to increase their share of real national income, whereas "demand-pull" carries the connotation that prices rise because of demand pressures and induce subsequent wage increases as workers strive to maintain their income position. A spiral may occur in either case, however, and for the same underlying reason—the attempts of contending parties to defend or increase their shares of the national product. These attempts may embrace investment goods as well as consumer goods, and the contenders are not limited to those facing one another across the bargaining table.

Since a spiral may occur for either reason, it may be difficult to decide whether a particular experience is caused by one or the other or some combination of the two. The task is complicated by the fact that lags in the process may be short or even nonexistent when current changes on either side are influenced by expected changes on the

other, and the further fact that independent disturbances may enter the picture as well. Let us nevertheless examine the movements of wages and prices during 1946-48 against the background of the earlier analysis of the period, which should help us around these difficulties.

It is easy to detect changes in basic wage rates in the statistics of average hourly earnings for a given industry, since abrupt vertical steps appear in the data whenever such changes occur. Unfortunately, these vertical movements tend to be smoothed out when hourly earnings are averaged for large numbers of industries, because the individual changes are spread over time. The smoothing is not complete, however, for some bunching does occur, and at those junctures the curve accelerates (chart 9). If a close positive relationship exists between changes in wages and in prices, it should be possible to observe corresponding accelerations of prices. For reasons already discussed, we take the timing and amplitudes of prices and wages during 1946 as given, and inquire into the subsequent reactions to this first wave of inflation.

The first important retardation of prices came during the second quarter of 1947. Was this the result of a prior deceleration of wages in manufacturing industries, which because of lags in the processes of production and distribution did not affect prices of goods to final users for several months? That is not the explanation, since the retardation was in prices of nondurable goods and especially foods, and since wages had accelerated in the nondurable goods industries in the preceding quarter and had been accompanied at that time by correspondingly rapid increases in prices of finished nondurables at wholesale and retail (compare charts 2, 3, and 9). The cause of the lull in prices was the reduced inventory demand analyzed earlier, coupled with the temporary absorption of springtime wage increases in the durable goods industries at their source.

Nor should the resumption of the inflation in the second half of 1947 be interpreted merely as a lagged response to previous wage increases. Prices moved ahead partly under the stimulus of rising demand. This is not to say that wage increases were unrelated to the movement, however. In the first place, they affected its timing. The coal mine wage-price increase of July and the August rise in steel prices helped touch off the new round of price increases in durable goods. Together with the simultaneous increases in agricultural prices, these specific advances contributed to the upward revision of price expectations which stimulated inventory demand. Secondly, the size of the price adjustment was doubtless influenced by the amount of the increase of labor costs under the 1947 wage agreements. Thus average hourly earnings rose 7 percent between April and November. Allowing for the price lag, we find that wholesale prices of finished goods increased 8.5 percent and the Consumer Price Index 7.5 percent between June and January.

Expected demand permitting, it is natural to suppose that business firms will increase prices at least proportionately to unit labor costs. The increases may not hold if the necessary demand fails to materialize, but under conditions of high liquidity, easy credit, and strong "real" needs for producer and consumer goods, money outlays will usually rise sufficiently to sustain the increase, and perhaps even more if speculative buying develops during the process. Because

profit margins may vary firm conclusions are impossible, but it appears likely that had the average wage increase been smaller during 1947, the average price increase would also have been smaller. Notice, however, that this would have meant that wage earners must needs resign themselves to a lower real wage than they had received prior to price decontrol. As it was, their attempt to compensate for the rise in the cost of living was successful for only a month or two during the second quarter of 1947, and once the new wave of price increases got underway wages again fell behind.

The wage pattern of 1948 was quite similar to that of 1947, but prices behaved rather differently because independent demand forces assumed greater importance. It will be recalled that one effect of the agricultural price break of February-March was to foster a hold-the-line attitude on wages and prices in the heavy industries. When the tax cut and defense and foreign aid programs were approved, however, it appeared that demand would prove adequate to sustain new price increases, and the result was a simultaneous advance of wages and prices during the late spring and summer. Average hourly earnings in durable goods manufacturing plants and wholesale prices of finished durable goods both increased 6 percent between May and September. Wages rose about as much in the soft goods industries, but in that sector demand was already weakening and prices of farm-produced raw materials were beginning to slide, so that prices of finished soft goods merely held their own instead of rising (chart 2). The same combination of easing demand and enlarged supplies forced food prices downward beginning in September, so that the consumer price index declined and real wages improved correspondingly during the closing months of the year.

This third wave is an interesting example of joint and simultaneous participation by demand and supply in an inflationary episode. On the one hand, it appears that substantial wage boosts would not have occurred without the announcement of the new Government programs, and on the other, the wage-price increases did not await an actual increase of final demand, and average prices of durable goods rose just enough to compensate for the average wage increase. Nondurable goods were subjected to approximately the same wage pressure, but present demands were clearly less intense and since the unconcentrated market structure of most of the nondurable goods industries makes prices quickly responsive to market forces, prices did not move up commensurately with wages.

We may sum up the principal analytical lessons from the wage-price behavior of 1946-48 as follows. The existence of a wage-price spiral does not in itself show whether it is due "basically" to cost or demand forces. Lags between wages and prices are not necessarily indicative of causal sequences and special factors may sometimes account for their occurrence. When wages rise autonomously and prices are marked up correspondingly, demand must play at least a passive role in sustaining the price increase if output is not to fall. Expected increases of demand may induce wage-price reactions before final demand actually rises, in which case wages and prices are likely to advance simultaneously. An observed sequence of price waves may be the result of the interplay of wages and prices in response to a single initial disturbance, but one must be alert to the

fact that autonomous forces operating outside of the mechanism of the spiral may exert a decisive influence over the course of events.

With regard to the pattern of the inflation itself, it was initiated by the excess demand released by decontrol, revitalized during 1947 by a combination of induced wage increases and largely permissive demand increments (including anticipatory inventory buying which was itself prompted by rising prices), and prolonged in its third phase by an autonomous increase of expected demand which induced a simultaneous wage-price advance. The duration of the waves and the intervals between them were modified by wage behavior, but cannot be explained by systematic lags between wages and prices. The inflation would doubtless have moved faster and with fewer pauses had it been customary to negotiate wage contracts twice a year rather than annually, or had cost-of-living adjustments been written into the contracts. Whether it would have been greater or smaller in overall magnitude depends upon a number of unknown factors, such as the extent to which frequent wage-price revisions would affect price expectations, the vigor of anti-inflationary public policy under the alternative conditions, and the relative importance of real and monetary stimuli to demand under circumstances in which liquidity was reduced more rapidly by price advances, giving less time for the reduction of physical backlogs of demand.

#### PRICES DURING CONTRACTION AND RECOVERY, 1949-50

The truly remarkable feature of the 1949 contraction of business activity was that it was so mild. What factors were responsible for the “\* \* \* unique and fortunate experience of liquidating a major inflation without falling into a severe recession”<sup>3</sup> and why was the price decline so moderate in comparison with the increases which came before and after? (See chart 1.) These are interrelated questions, for the moderate price decline was both consequence and cause of the mildness of the contraction in physical activity. What one would like to disentangle if he were sufficiently wise to do so, is the relative importance in the contraction of transient factors specific to it and of more lasting attributes of the postwar economy. It will be helpful to keep this ideal in mind during the subsequent discussion.

The contraction was mild enough to be called an inventory recession, and it has often been described by that term. Insofar as the term is taken to mean that final demand declined little and that most of the moderate fall in gross national product was accounted for by inventory change, it is quite accurate. This leaves unsettled the question, however, of whether inventory investment exerted more than a passive influence over the course of events. The amount of decline of inventory demand depends in the first instance, after all, on the behavior of final expenditures. If these drop only moderately, current production will soon fall below sales, attempts to adjust stocks to the smaller volume of sales will meet with early success, and new orders and production will quickly revert to equality or more with sales. Minor contractions are kept minor by those factors—not

<sup>3</sup>The quotation is from *The Economic Situation at Midyear 1949, A Report to the President by the Council of Economic Advisers*, p. 3, included in *Midyear Economic Report of the President, July 1949*.

always the same in every contraction—which foster stability of final demand. Let us first inquire what they were in 1949, and then go on to consider the role of inventory investment and whether it was partly an active one.

The behavior of the major components of final expenditure is summarized in charts 5 and 8. The following facts stand out: State and local government expenditures rose strongly throughout the contraction, just as they have done every year of the postwar era under the impetus of population growth and migration and because of the stubborn persistence of backlogs of needs for community services. Federal expenditure also increased during the first 6 or 7 months of the contraction, and the subsequent decline of defense spending was small and did not begin until other sectors were assuming active importance in the recovery. Thus autonomous demands on the part of governmental units moderated the decline and favored a prompt upturn.

The early revival of residential construction and personal consumption expenditure is also noteworthy. In both cases backlogs of real demand remained large—automobiles were at the forefront in the improvement in retail sales—and easier credit facilitated renewed expansion. Not only was credit eased generally by the cyclical fall of demand for external funds on the part of business and the expansionary monetary policy of the Federal Reserve System, but selective devices were used to improve terms of home mortgages and consumer installment credit. Indicative of the strength of combined real and monetary demand stimuli is the substantial rise of consumption expenditure which commenced after the first quarter of 1949 and continued even as disposable personal income dropped through the remainder of the year (chart 4).

Consumption expenditure would doubtless have increased as a percentage of disposable income in any event, given the special stimuli just discussed and the regular tendency for consumers to defend their living standards against falling incomes, but disposable income actually declined comparatively little, and this meant that expenditures rose rather substantially in absolute amount and became a positive force for expansion. Between the fourth quarters of 1948 and 1949 disposable income decreased about \$6 billion and consumption increased \$3.5 billion. Automatic stabilizers cushioned the contraction of income and helped foster the expansion of consumption. National income dropped \$16 billion, but induced reductions of undistributed corporate profits and corporate profit tax liabilities absorbed about \$6.5 billion of the decline, while nearly \$2 billion was offset by smaller personal taxes, and as much more by increased transfer payments which supplemented the flow of production income.

Business fixed investment led on the downturn, lagged on the upturn, and fell about 12 percent in physical volume between the third quarter of 1948 and the first quarter of 1950. Thus it was by all odds the major depressant of final expenditure at work in the contraction. The point which deserves greatest stress, however, is not that it declined, but that it did not decline much more. This is a good part of the explanation of how the inflation was liquidated without a severe contraction. The inflationary waves of 1946–48 had not engendered overly optimistic long-term investment expectations and had not caused an unwarranted expansion of productive facilities. The available

data on capital stock in relation to production and on capacity utilization by industry indicate that capital facilities were smaller in relation to output before the contraction began than they had been in 1929 or 1937. This favorable start might have been overcome had other elements of final demand decreased sharply during the contraction, of course, but the independent strength of Government and consumer spending prevented the development of any widespread condition of excess capacity.

The situation was much the same with regard to inventory investment. Inventories were not excessive before the downturn began—partly, of course, because they had been watched so very carefully during 1948, with mildly deflationary results during the latter months of that year in the nondurable goods industries. Even by the end of 1948 they were below the prewar relationship to sales in manufacturing and distributing alike (chart 6). Here is rather strong evidence that the restocking of 1946–48 was needed to reestablish normal, working relationships between stocks and sales, and that speculative inventory purchasing in anticipation of advancing prices had not gotten out of hand. This meant that inventory disinvestment during 1949 was confined largely to that required to bring stocks down to the reduced level of sales and production and was uncomplicated by any need to liquidate speculative holdings. Even the feedback effect of inventory disinvestment on production income and hence upon final demand was limited by the automatic changes in profits, taxes, and transfers mentioned earlier.

Inventory disinvestment could still have become a powerful independent force in the contraction had adverse price expectations and a psychology of liquidation-at-any-cost developed as it progressed. The initial absence of speculative holdings in itself inhibited such a development, however, and other factors were at work as well, including some significant changes in the institutional structure. I refer to the agricultural price-support programs, the Government commitment to promote full employment contained in the Employment Act of 1946, and the augmented importance and strength of labor unions in the mass-production industries dating from the midthirties. Taken altogether, these factors limited actual and potential price declines, thus undercutting such nascent fears as may have existed about the stability of prices.

The price declines which did occur were orderly and conformed to the usual pattern of changes during periods of economic contraction. That is, prices of finished goods fell least and those of materials experienced greater reductions. This is typical of contractions because deflationary impulses are propagated backward with increasing intensity from final sellers to manufacturers and thence to suppliers of raw materials; since, in their desire to trim inventories, firms at each stage of production or distribution curtail purchase orders by more than their own sales decline. The pressure on prices resulting from the magnification of downshifts of demand at each stage is especially powerful in markets where large numbers of sellers are actively engaged in price competition and where output changes slowly in response to demand. And, of course, the more prices of purchased materials weaken at each market level, the greater is the scope for reductions in prices of finished goods. It is in the light of

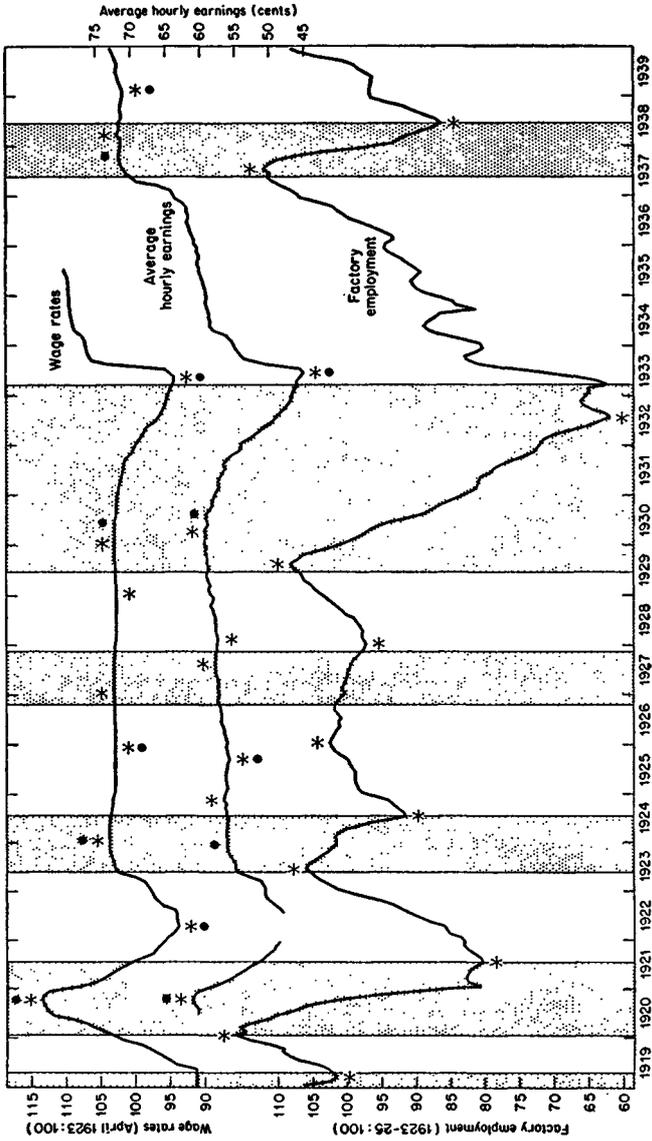
these facts that the importance of agricultural supports as a cushion to the price structure should be viewed, since farms supply the basic materials for a large number of nondurable goods. It is relevant also that a good part of the potential decline of farm prices during 1948-49 occurred before the contraction of aggregate business activity was actually underway (chart 2).

Additional support to prices was forthcoming from the downward inflexibility of wage rates (chart 9). Since the same factors which act to depress prices of purchased materials and components during contractions operate in the reverse direction during upswings, the margin between prices of unfinished and finished goods will usually have narrowed during an expansion and will provide room for some reduction of material costs relative to finished-goods prices during the ensuing decline. Under given circumstances, there is only so much scope for cost reductions from this source, however, and, once that limit is reached, unless wage rates are cut, businessmen will prefer to curtail production rather than reduce prices. This fact has several ramifications.

First, wage inflexibility retards the decline of finished-goods prices for many months during a contraction. The wage lag provides time for a moderate realinement of prices and inventories before deflationary pressures become intense—and a moderate realinement may prove sufficient if basic growth factors remain favorable to expansion. If wage rates were to fall from the beginning of the contraction, the chances of widespread postponement of purchases in anticipation of future price declines would be greatly enhanced.

Wage rigidity during minor contractions is not a new phenomenon confined to the postwar economy. Wages also lagged by long intervals during the business cycles of the interwar period, and responded scarcely at all to the mild downswings of 1923-24 and 1926-27 (chart 10). Hence, it cannot be asserted with absolute confidence that wages were stable during 1948-49 and again in 1953-54 because organized labor was stronger than in prewar years. Wages may have remained firm because the contractions themselves were mild and short lived, so that management determination to seek lower wage schedules was never put to the test and might not have been even in the absence of labor unions.

Chart 10  
Indexes of Wage Rates and Factory Employment and Average Hourly Earnings  
All Manufacturers, United States, 1919-1939



Shaded periods are contractions in business activity.  
\* Turning points according to standard method.  
● Turning points according to alternate method.

Reproduced with permission from Daniel Creamer, Behavior of Wage Rates During Business Cycles, National Bureau of Economic Research, 1950.

That is not the end of the matter, however. If businessmen become convinced for any reason that wage rates will not fall, they are, in the same measure, convinced that substantial price declines are not in the offing. These dual convictions must have been cultivated by the growth in the power of organized labor. Indeed, there is some evidence of this in the behavior of wages and prices during the severe contraction of 1937-38, which occurred after the mass-production industries were organized. It is inconclusive evidence, because the contraction,

though severe, was short lived, and fell within the range of the normal timelag of wages behind business downturns. All the same, the fact that the wage and price reductions associated with that contraction were comparable to those of 1923-24 and 1926-27 rather than 1920-21<sup>4</sup> is consistent with the a priori prediction of greater rigidity. Granted that businessmen expected greater rigidity, this factor would be particularly important in a contraction such as 1948-49, which followed a sharp inflation. This is because it would modify price expectations which might otherwise become quite pessimistic, and, by so doing, help to prevent the contraction from becoming severe enough ever to press heavily on wages.

The final aspect of wage-price rigidity to be discussed is, perhaps, the most important of all in connection with the contraction of 1948-49. It is doubtful that there existed then or exists now any sizable segment of opinion in business or Government circles that widespread wage reductions are beneficial as a means of combating unemployment, or that a deflation of wages and prices is a necessary though painful penalty for permitting an inflation to run its course. To quote the Council of Economic Advisers in mid-1949:

There would be no purpose, and much potential damage, in an attempt to get back to some drastically lower price level by wage cutting, since incomes are now geared to prices substantially higher than before the war or immediately after the war. Such an effort would involve a deep and vastly unsettling decline in wages as the accompaniment to a prolonged period of severe depression. From that, practically no one would gain; the economy would lose tragically.<sup>5</sup>

This attitude was reflected in the fiscal and monetary policies of the day. It contrasts strikingly with the situation of 1920-21, when deflation was regarded as a necessary evil, and when Federal Reserve actions were taken to tighten rather than ease credit. The differing attitudes toward the inevitability and desirability of wage-price deflation, and the associated differences in public and private actions, go far toward explaining the greater severity of the earlier experience despite the presence of underlying elements of strength similar to those following World War II.

In summary, prices declined comparatively little during 1949 because speculative excesses had not been a feature of the inflation; because institutional factors and public policies minimized actual and expected declines and prevented cumulative deterioration of short-term price and sales expectations; and because, in those favorable circumstances, the forces for expansion inherent in the postwar population upsurge and remaining backlogs of public and private demand could quickly assert their influence. The deflationary force of inventory disinvestment was largely spent by midyear, and a recovery led by Government spending, homebuilding, and automobiles actually began at that time. The upswing of industrial production was interrupted during the autumn by coal and steel strikes, but expansion was quickly resumed and developed rapidly during the first half of 1950. Prices responded, as they normally do in a period of recovery, with gentle increases for materials but little change for finished goods.

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<sup>4</sup> Creamer, Daniel, *Behavior of Wage Rates During Business Cycles*, Occasional Paper 34, National Bureau of Economic Research, 1950, New York, N. Y., p. 37, table 5.

<sup>5</sup> *Op. cit.*, p. 8.

## THE KOREAN INFLATION AND ITS AFTERMATH, 1950-54

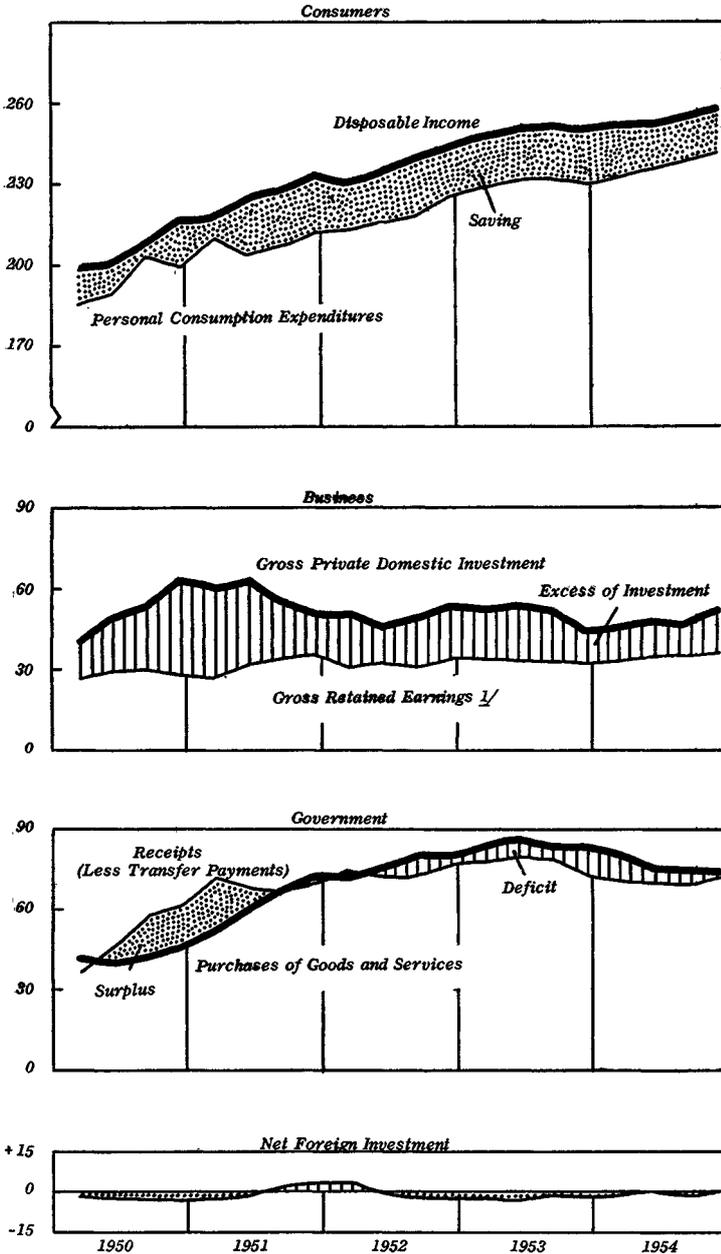
The normal processes of recovery had carried the economy most of the distance toward full employment by mid-1950, at which time the economic forces set in motion by the Korean conflict intervened to alter radically the character of the expansion. Prices were forced up violently in 2 consecutive waves of forward buying which swept over the country during the first 9 months of hostilities, and, although wholesale prices subsequently receded, the average of consumer prices never did (chart 1).

It will not be necessary to follow the events of the inflationary phase of the Korean expansion in detail, since the main facts are easily read from the behavior of expenditures, incomes, and prices during the period. First, we note that military spending was not the sole or even the principal cause of the buying waves, although the placement of defense orders doubtless stimulated business activity during the latter months of 1950. Rather, it was the forward buying of consumers and businessmen in anticipation of potential shortages which created acute inflationary pressures. The speculative nature of the surges of consumer demand is readily apparent from the wide swings of expenditure relative to income, timed as they were with the onset of hostilities and the later entry of the Chinese Communists into the war (charts 11 and 12). The fluctuations of retail trade were duplicated at wholesale and in manufacturers' new orders and sales, so that inventories rose all along the line from factory to retailer (charts 14 and 15).

A general price and wage freeze was announced on January 26, 1951. From then until early in 1953, prices were under varying degrees of wartime administrative control, but it was a fascinating and unexpected feature of those years that average wholesale prices actually declined substantially and, for many commodities, fell well below legal ceilings. This occurred, moreover, during a period of continuous full employment of labor and while the Government share of real gross national product was increasing from 7.7 percent in 1950 to 15.5 percent in 1952. What happened was that a decline of consumer demand in reaction from the early buying sprees neatly offset the rise of defense spending. This is not to say that price and allocation controls were unnecessary or ineffective, however. By insulating the several sectors of the economy from one another, they gave maximum effect to the relaxation of consumer demand.

As 1951 opened, the production of consumer goods was geared to high and rising retail sales. Household stocks had been augmented and personal liquidity depleted during the buying waves, however, and civilian goods appeared to be in plentiful supply and could no longer rise much in price now that controls were in effect. Retrenchment was indicated under the circumstances, and, beginning in February, retail sales declined suddenly and sharply, causing an equally abrupt and unwanted increase of distributors' stocks during the next few months (charts 14 and 15). The necessity subsequently to work off these excessive inventories magnified and prolonged the deflationary impact of the cutback of consumption expenditure well into 1952, despite a gradual recovery of retail sales after mid-1951.

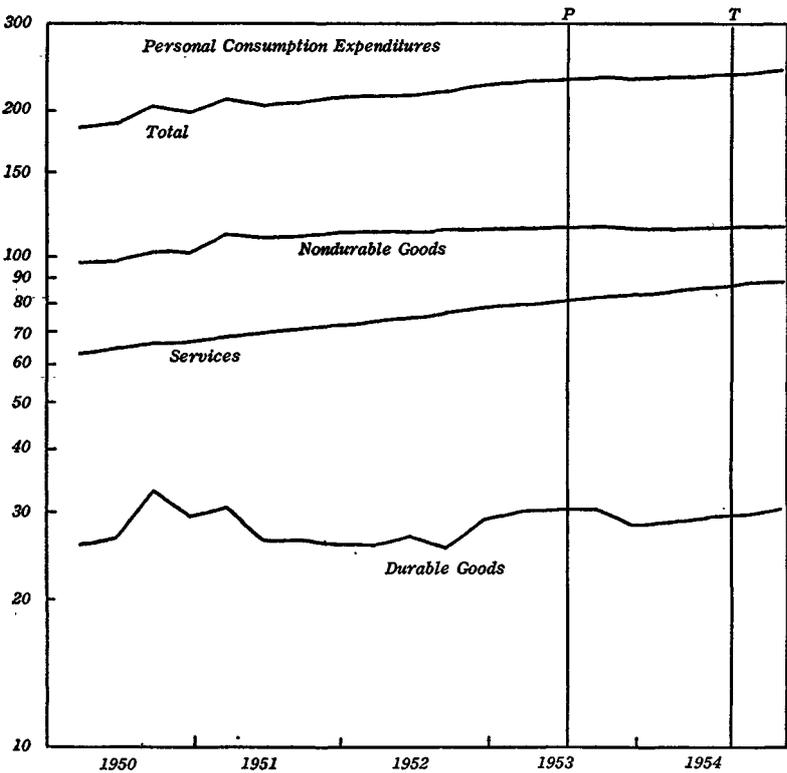
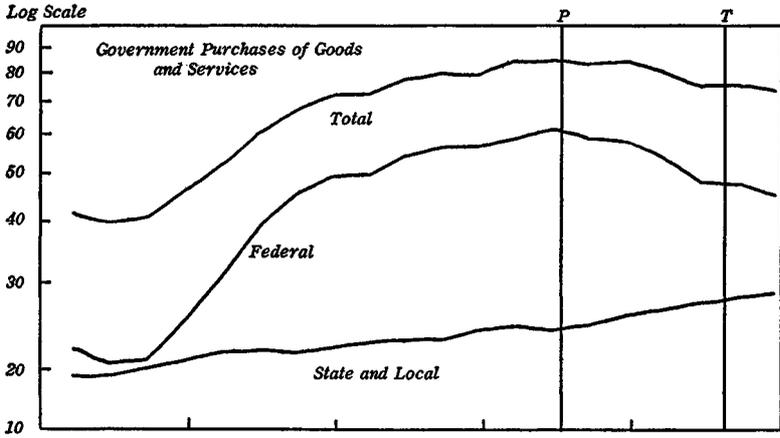
Chart 11  
 The Nation's Income, Expenditure, and Saving By Major Economic Sectors  
 Seasonally Adjusted Quarterly Totals at Annual Rates, 1950-1954  
 (Billions of Dollars)



1/ Includes undistributed corporate profits, inventory valuation adjustment, and capital consumption allowances.

Source: Department of Commerce.

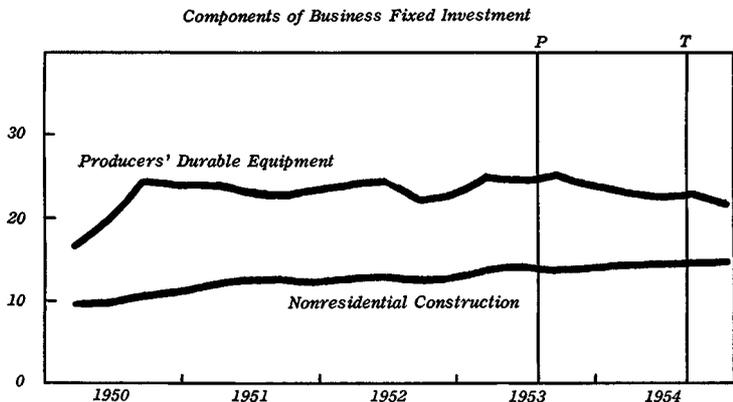
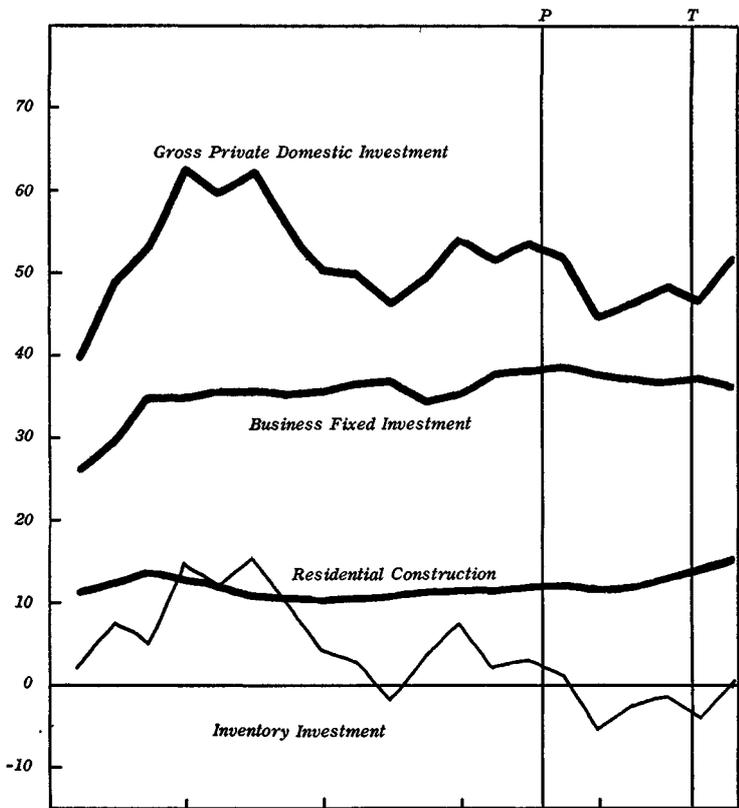
Chart 12  
 Government Purchases and Personal Consumption Expenditures  
 Seasonally Adjusted Quarterly Totals at Annual Rates, 1950-1954  
 (Billions of Dollars)



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.

Source: Department of Commerce.

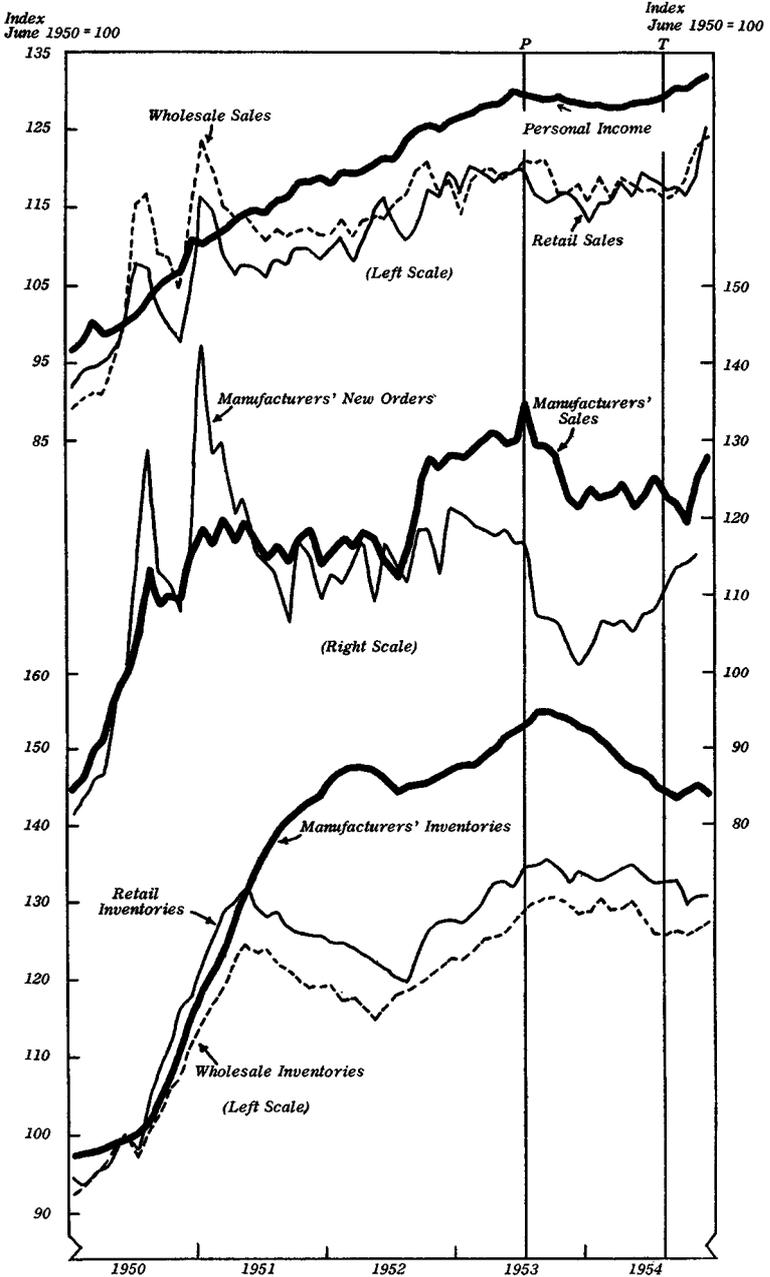
Chart 13  
 Gross Private Domestic Investment and Its Major Components  
 Seasonally Adjusted Quarterly Totals at Annual Rates, 1950-1954  
 (Billions of Dollars)



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.

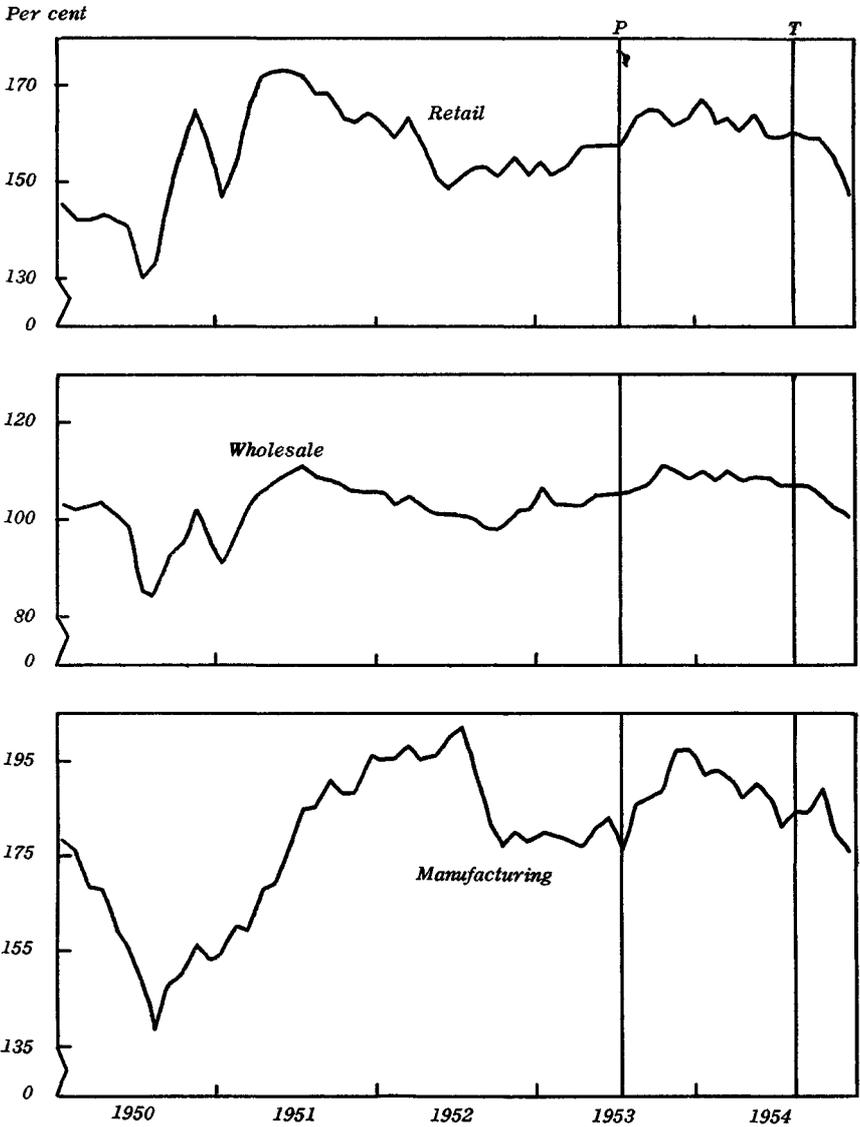
Source: Department of Commerce.

Chart 14  
Indexes of Personal Income, Retail, Wholesale, and Manufacturers' Sales  
and Inventories and Manufacturers' New Orders  
Seasonally Adjusted, Monthly, 1950-1954



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.  
Source: Department of Commerce.

*Chart 15  
Inventory-Sales Ratios  
(Monthly, 1950-1954)*



*Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.*

*Source: Department of Commerce.*

For a time it was as though two economies existed side by side without touching. The grand division was between consumption and nonconsumption goods. Reduced consumption and inventory demands depressed especially factory production and wholesale prices of textile, apparel, rubber, and leather products from early 1951 to mid-1952. Production of consumer durable goods also declined substantially, but their prices remained at ceiling levels. The production cutbacks were required by defense restrictions on materials, but retail demand had eased for durables as well as nondurables, and distributors' stocks remained above the 1949-50 levels, so that supplies were adequate at existing prices. Defense contracts and defense-oriented programs of facilities expansion replaced the business lost in the consumer sector, and average prices and production of durable goods were generally stable.

The downdrift was ended by mid-1952 insofar as nonagricultural business is concerned. The gap which had opened between income and expenditure with the retrenchment of consumer demand in 1951, narrowed again in 1952 as consumer purchases rose somewhat faster than income (chart 11). Inventory liquidation had substantially improved the position of distributors by early summer (chart 15). Allotments of critical metals to nondefense purposes were increased as defense requirements began to taper off toward a plateau planned for 1953. The incipient recovery of the consumer sector was interrupted by the steel strike of the summer of 1952, but the work stoppage ended late in July, and production, employment, and incomes expanded swiftly thereafter as factories and distributors rebuilt inventories and final sales of consumer goods accelerated. Thus the defense expansion was capped by a vigorous boom in civilian goods as it entered its closing phases. No comparable rise occurred in prices, however. Indeed, the indexes of wholesale and consumer prices decreased somewhat during late 1952 and early 1953—surely peculiar behavior for an economy in which production was high and rising and unemployment was less than 3 percent of the labor force. Nor is it adequate to observe that sharp reductions in foods lowered the average of wholesale prices and that prices of other finished goods actually increased a bit (chart 2), for the recovery of consumer demand might have increased non-food prices even more were it not for price controls. Let us follow up this thought and inquire into the causes and effects of the price divergencies which developed during the period of price and wage control.

Changes in relative prices may reflect a variety of possible forces acting singly or in combination. They may be initiated either by shifts of demand or supply among products; either type of shift may occur for several different reasons; and the timing and amount of the resulting price changes will depend partly on the structure of the affected markets—for example, whether there are many buyers and sellers, or so few as to confer some degree of individual control over price. Now, one obvious fact about the shifts of consumption and nonconsumption demand during the Korean period is that they occurred under conditions in which some prices were not free to move upward in response to market forces whereas others could fall below ceiling prices if demand weakened or supply increased enough. The probable result is that the differential between prices of durable and nondurable goods did not become as large as it otherwise would have

done, or alternatively, that the differential would have remained about the same but that prices of durables would otherwise have risen more and those of nondurables fallen less. In either event, the overall average of prices would have been correspondingly higher.

Suppose by way of illustration, that no administrative controls had been imposed on prices, wages, or critical materials and that no fiscal or monetary curbs to private expenditure had been in effect when consumer demand declined in 1951. Is it not likely that bottlenecks in metals and metal products would have forced prices higher in those sectors—including prices of durable consumer goods? Consumers might have reacted to this by purchasing fewer cars or refrigerators until prices came down again, or they might have substituted more spending on durables for less on nondurables and depressed the prices of the latter, but it is also quite possible that they would have increased total expenditure even at the same level of money income, thus sustaining a higher price level. More important, of course, is the fact that money income would not have been the same. Money wages would have risen along with prices in the durable goods industries, and the wage increases would have spread to other industries as well, raising the whole structure of prices and money incomes at the given level of real national income. Thus the relaxation of private demand contributed so much to overall price stability partly because it occurred in an institutional complex that constricted the normal channels for transmission of inflationary impulses between sectors and permitted deflationary forces full scope in the affected areas. By the same token, of course, the task of containing inflationary pressures by direct and indirect controls was greatly simplified by the voluntary reduction of consumer demand and the associated inventory adjustments.

Perhaps even the preceding discussion has left the reader inadequately prepared for the amplitude of the price declines in nondurables during 1951–52 (chart 16). The reaction was especially severe for prices of intermediate materials—intimately related to basic agricultural commodities—just as the preceding rise had been under the impact of speculative inventory demand at home and abroad. Prices of finished nondurable goods did not fall nearly as much, partly because the demand for finished goods always holds up better than that for materials during periods of declining sales and inventory liquidation, and partly because wages in nondurable goods factories continued to rise along with those in durable goods industries (chart 17).

Average hourly earnings of manufacturing workers kept closely in step with the cost of living until the summer of 1952. Consumer prices moved ahead during the first Korean buying wave, but wages responded quickly and by the time of the general freeze in January 1951, had achieved approximate parity with the Consumer Price Index not only for factory workers but for other large groups of employees as well. Wages were under direct control after the freeze, of course, but gradual increases occurred as adjustments were granted to groups whose real earnings had lagged in 1950, and to workers in general to compensate for increases in consumer prices during the period of price control. In this way higher wages became part of the cost-price-income structure of the economy, thereby limiting the price declines in the weaker sectors. With the exception of foods, average wholesale prices of nondurable finished goods never did fall back to the pre-

Korean peak of 1948, and not even foods did so at retail (charts 3 and 16).

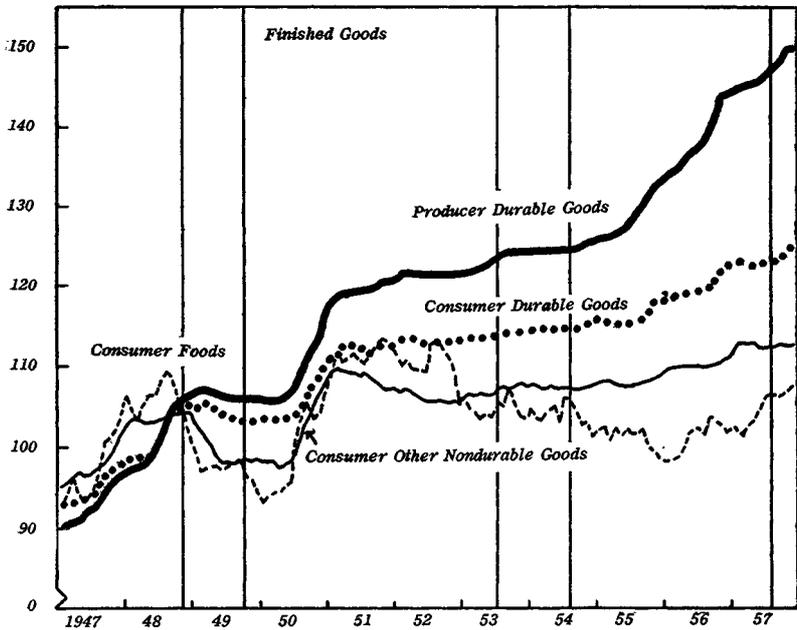
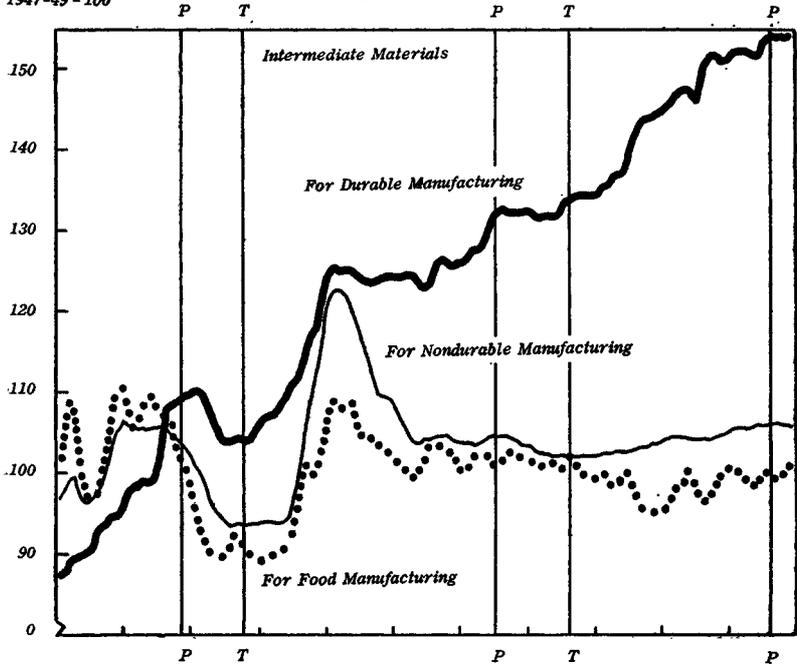
Wages surged forward during the last phase of direct controls in the latter half of 1952 and early 1953. The rise reflected a breakdown of the hold-the-line policy on real wages, and was part of a general movement to relax direct and indirect controls as it became apparent that this could be done without undue danger to the mobilization program or to economic stability. Substantial advances for steel, copper, and aluminum were permitted under a corresponding relaxation of the criteria for price increases, and metal users were allowed to pass through the resulting absolute cost increases but not to pyramid them by proportional markups. Were it not for the ceilings, prices of finished durable goods would doubtless have risen substantially after the steel strike, under the combined pressure of heavy consumer and inventory demand and the concomitant rise of resource prices. As it was, they increased only fractionally before the final elimination of price controls in April 1953.

Increases were small also among nondurables, however, where ceilings had been suspended for a large proportion of commodities, and despite a substantial upswing of wages, production and sales. The principal depressant at work—the emergence of agricultural surpluses—has been an important determinant of prices of nondurables ever since. In late 1952 and early 1953, increased domestic production and a sharp drop of exports augmented domestic supplies sufficiently to depress prices of food at wholesale and retail and to offset increases of demand for materials important in the manufacture of nondurable goods. During the last phase of the Korean expansion, then, the spread which had developed between prices of durables and nondurables initially because of shifts in relative demands for final products, was kept open with the assistance of shifts in export demand and domestic supply which were in good part independent of current final demands.

Chart 16

Indexes of Wholesale Prices of Intermediate Materials and Finished Goods  
(Monthly, 1947-1957)

Index  
1947-49 = 100

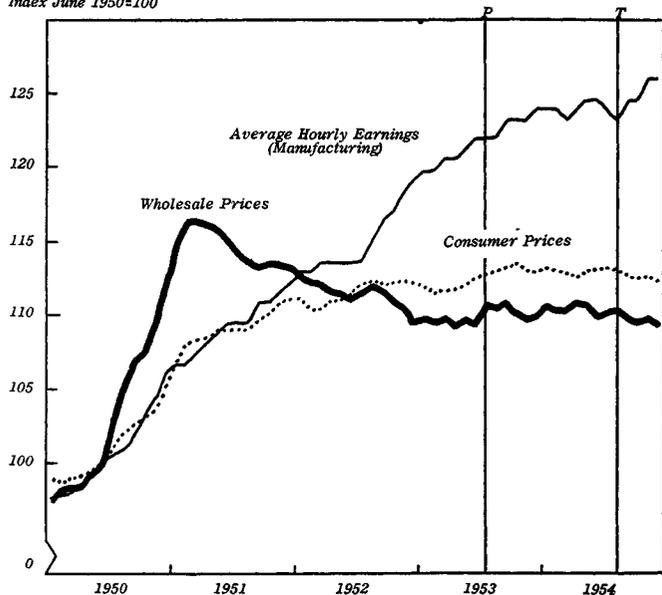


Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.

Source: Bureau of Labor Statistics.

Chart.17  
Indexes of Average Hourly Earnings and Prices  
(Monthly, 1950-1954)

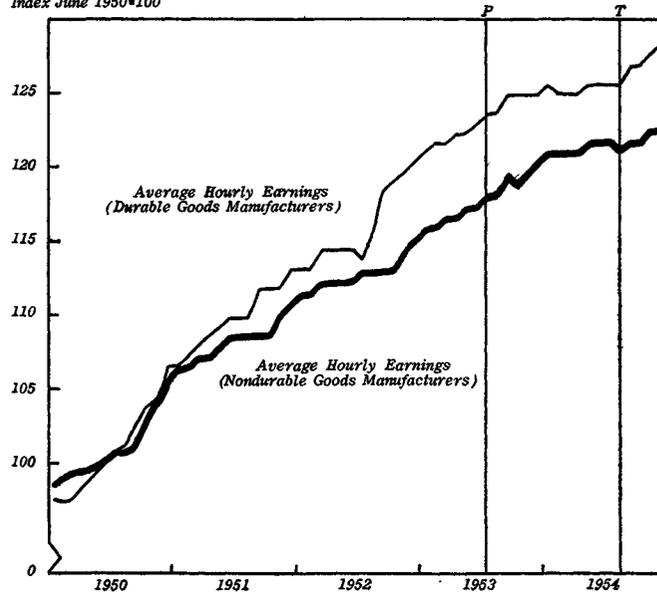
Index June 1950=100



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research.

Source: Bureau of Labor Statistics.

Index June 1950=100



The subtitle of the present section—"The Korean Inflation and Its Aftermath, 1950-54"—was chosen advisedly from two points of view. The contraction of 1953-54 was caused partly by the post-Korean cut-back of defense expenditures and defense-oriented investment and was in that sense an aftermath of Korea. More directly relevant is the fact that price behavior during the contraction was heavily influenced by the preceding reaction to the inflationary waves of 1950-51. These points will be discussed in turn.

The sharp rebound of business activity which came after the steel strike of mid-1952 and under the spur of mounting private demands has already received attention. The rate of recovery of sales and production was rapid indeed during the latter months of 1952, but the pace of expansion slowed materially during the winter and spring of 1953 (charts 1 and 14). Retail sales had increased more rapidly than personal income as consumers stepped up their purchases during the closing months of 1952. Retail trade leveled off early in 1953, however, partly because total consumption expenditure increased only in line with income instead of by more, and partly because this meant a still more pronounced retardation of sales of goods as distinct from services, just as the preceding acceleration of spending relative to income had been for goods rather than services. With sales flagging and inventories still increasing, distributors cut back on their orders, with the result that production of nondurables and of major household durable goods dropped after May, anticipating by 2 months the downturn of industrial production. Similar retardations appeared prior to the actual 1953 declines of defense expenditure and fixed investment, and probably contributed also to the downslide of new orders which preceded the July peak of aggregate manufacturing sales and production by many months (chart 14).

If the foregoing events sound a bit familiar, it is because they are not unlike those of 1948. Retail sales also slackened at that time, although for somewhat different reasons, and helped precipitate the downturn. Again, fixed investment flattened out before actually declining in the earlier period. Other parallels are to be found in the further development of the two contractions. Thus most of the decline of gross national product during 1953-54 was accounted for by inventory change. Just as in 1949, the deflationary impact of inventory adjustment was largely spent after 6 months of contraction (chart 13). Just as then, moreover, a substantial portion of the inventory decline was induced by falling retail sales in the early months of contraction; and as before, inventory disinvestment was quickly arrested because final expenditure held firm after its brief initial lapse. Even the proximate cause of the stability of final expenditure during the last half of either contraction was the same—an early recovery of consumption demand and residential construction which served to offset the further deterioration of final demand for business plant and equipment in both contractions and for Federal purchases in the later one.

I have emphasized these parallels as a reminder that "inventory recessions" remain just that only if final demand has independent strength and if short-term sales and price expectations do not deteriorate in cumulative fashion to undermine that strength. This is not to say that final demand held firm for identical reasons in 1949 and

1954, although there were important common influences even there in the operation of automatic stabilizers, the stimulus imparted to home building and consumer spending by easier credit, and the favorable state of long-term investment opportunities as evidenced by the comparatively minor declines of business fixed investment in both years. A principal difference, of course, was that Federal spending rose in 1949 and fell in 1954, whereas tax reductions stimulated private income and demand in 1954 but not in 1949.

Another difference between the two contractions, and one which is a little unexpected because the fluctuations of physical activity were approximately equal in duration and amplitude, is that average prices declined considerably during 1948-49 but edged fractionally higher in 1953-54 (chart 1). Is this evidence that, in the short space of 5 years, prices had become increasingly resistant to business contractions because of structural changes in the economy? Or was the greater stability during the second contraction due primarily to factors peculiar to it?

One possibility is that wages were more rigid than before. This is not borne out by the behavior of average hourly earnings in manufacturing industries, however, which leveled off as usual during contractions (chart 17). There is a point worth noting about the timing of industrial wages and prices in relation to business activity, nonetheless. Although demand was weakening before the business-cycle peak of July 1953, substantial cutbacks in production and sales did not occur until after that date. This meant that wages and prices were decontrolled a few months prior to the actual contraction. The increases which came with decontrol were moderate, but they were firm enough to hold during the ensuing recession, with the result that industrial finished-goods prices averaged higher than in the months preceding the downturn.

But price increases during the very months when the economy is in the process of transition from expansion to contraction are not especially surprising if allowance is made for the gradual and gentle form which the transition often assumes. The increases which occurred in prices of finished goods during the latter months of 1948 come immediately to mind (chart 2). It is not the fact that prices went up just prior to the downturn that distinguishes 1953-54 from 1948-49, but the fact that they stayed up throughout the contraction.

Since the decline of final demand was small and wages were firm, the scope for industrial price reductions was limited largely by the potential fall in prices of materials. As we have seen, substantial declines may occur from this source during mild contractions because the demand for materials weakens considerably more than that for final goods. Even this avenue was closed in 1953-54, however, principally because prices of nondurable materials had been forced down previously—the adjustment which ordinarily would come with a general contraction had already occurred because of the isolated contraction in that sector during 1951-52. Producers of intermediate nondurable materials were caught in a wage-price squeeze because their wage scales reflected the general boosts in the economy which came after 1950, but their prices were no higher than in 1948 (charts 16 and 17). Still, these prices did decline a little in 1954, and would have decreased more were it not that prices of crude materials were

lent independent support by the agricultural program. Again, agricultural price supports were already providing effective floors by 1953 because of the declines which had gone before, whereas in 1948-49 farm prices could fall much further before they were arrested by supports.

It appears, then, that the price stability of 1953-54 was in good part the result of factors peculiar to that contraction, and does not necessarily mean that prices have become permanently more rigid. To the extent that agricultural supports remain a feature of the economic structure, however, and especially when prices have been under support before a contraction begins, they will minimize cyclical declines in prices of important classes of goods. Since any diversion of purchasing power which might arise, if prices of foods and other non-durables were lower in the absence of supports, would during a period of contraction tend to stimulate larger physical sales of durables rather than higher prices for them, it is likely that the overall average of prices would be kept higher by the supports than it otherwise would be. And, of course, the net injection of income from Government sources via the support operation helps to firm demands generally. If the cost of living were, indeed, prevented from falling as much as otherwise, this would reinforce the tendency toward firmness by reducing wage adjustments under escalator clauses. This effect would be comparatively unimportant, however, since downward wage escalation is usually limited by agreement during any given contract period, and since small changes in wage rates up or down probably have little influence over administered prices.

#### EXPANSION AND INFLATION, 1954-57

"Expansion and then inflation" would be a more descriptive heading for this section. The business expansion which began in August 1954 lasted exactly 3 years. During the first half of this span, the average of consumer prices kept within a range of 1 index point, but it began rising in March 1956, and has continued upward ever since, with the advance persisting even into the present phase of cyclical contraction. While not as rapid as the vigorous inflations of 1946-48 and 1950-51, the consumer price increases of the past 2 years were at a substantial rate and were more than double the increase of disposable personal income in constant prices.

Price stability for finished goods is to be expected during the initial phase of expansion from a cyclical trough. Prices of materials may recover rapidly from the very beginning, but these elements of cost will have fallen so low during the contraction that increases can be absorbed for a time without encroaching on profit margins. Because excess capacity will have developed during the downswing, owing to the continued growth and modernization of plant and equipment and the decline of production, moreover, real cost savings will accrue as activity expands to make more efficient use of productive facilities and to make use of newly more efficient productive facilities. These real savings will make it possible to pay higher prices for both labor and materials without raising production costs.

Purely cyclical factors are not enough to account for the continued stability of consumer prices into early 1956, however. Industrial

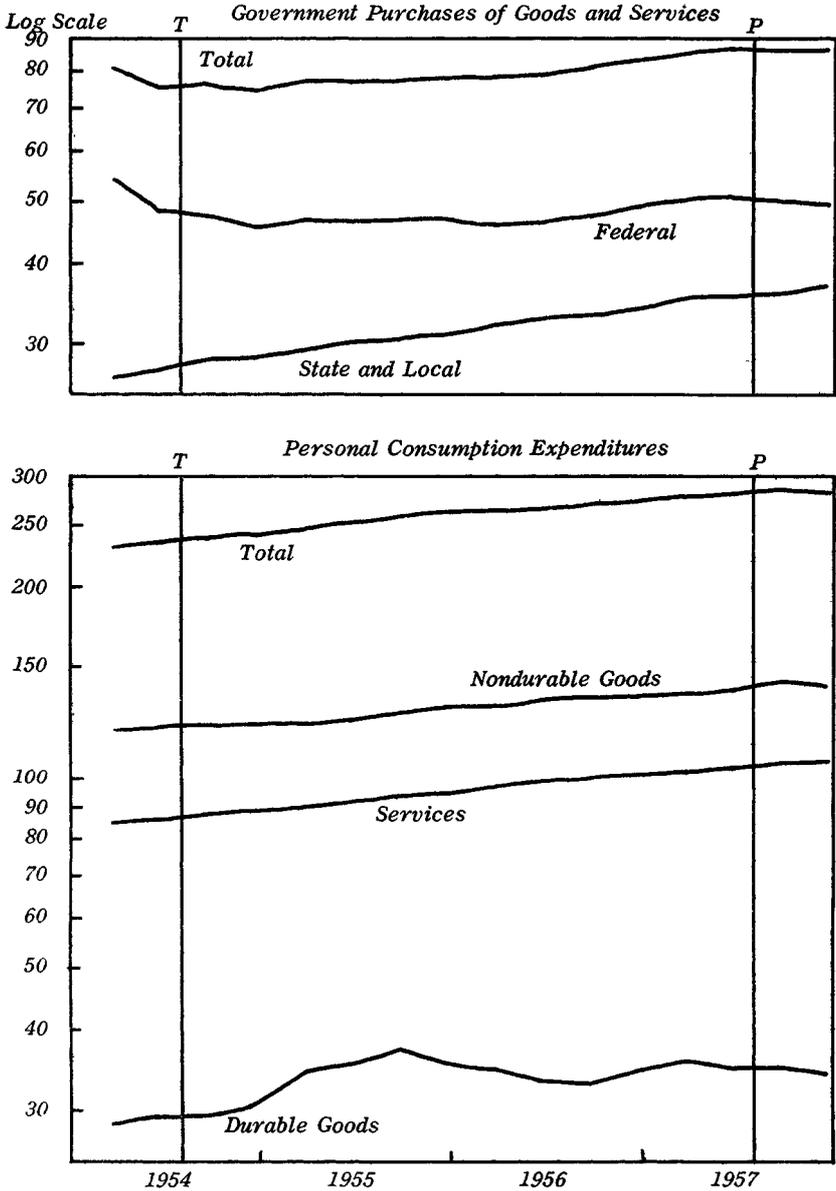
wholesale prices were fairly steady until mid-1955, but they increased sharply thereafter (chart 2). Leaving this rise unexplained for the moment, we notice that its effects on average consumer prices were minimized by two factors of noncyclical origin. Prices of farm products and foods fell off sharply during the last half of 1955, as agricultural commodities continued in excess supply because of a combination of high carryover stocks and record or near record 1955 farm outputs. Retail food prices declined in sympathy, though by smaller amounts, tending directly to reduce the Consumer Price Index. Consumers probably took advantage of lower food prices partly by increasing their food consumption and partly by increasing other expenditures. If so, the induced shift of demand was insufficient to raise other prices enough to compensate for the decline of food prices, since average prices were stable despite higher personal incomes.

One reason for the lack of fully compensating increases was that persistent agricultural surpluses had also weakened prices of basic materials used in other nondurable-goods industries, serving to restrain increases for finished goods in that sector. Another important factor was a fall of retail prices of durable consumer goods in the face of rising wholesale prices (charts 3 and 16). This was not a new development, however, for retail margins on durable goods had been narrowing for several years under the competitive pressures associated with the growth of the discount house and emergence of a buyers' market in automobiles. The potential for retail price reductions from this source appears to have become exhausted about mid-1956. Prices of household appliances did fall slightly over the next 18 months, but furniture prices rose moderately, and those of automobiles more substantially. In future, aside from seasonal changes in dealer margins, significant reductions of retail price tags will probably await or induce corresponding drops in wholesale prices.

Let us revert now to mid-1955 and the rise of industrial prices which began at that time. We need to go back, in fact, just a bit further in order to recall 2 important features of the recovery of 1954-55. One was the spectacular reception accorded the 1955 automobile models and the acceleration of consumer purchases of durable goods for which it was primarily responsible (chart 18). The other was the onrush of business plans for capacity expansion during the winter and spring of 1955. These plans were a lagged response to the business upturn, so that business fixed investment did not rise strongly until the latter half of the year (chart 19). The upsurge was foreshadowed during the spring, however, in surveys of investment plans and, even more concretely, in new orders for producer goods. Thus, prospects for 1955 sales and profits were excellent at the time of the wage settlements in major durable-goods industries during the late spring and summer.

Chart 18

*Government Purchases and Personal Consumption Expenditures  
Seasonally Adjusted Quarterly Totals at Annual Rates, 1954-1957  
(Billions of Dollars)*

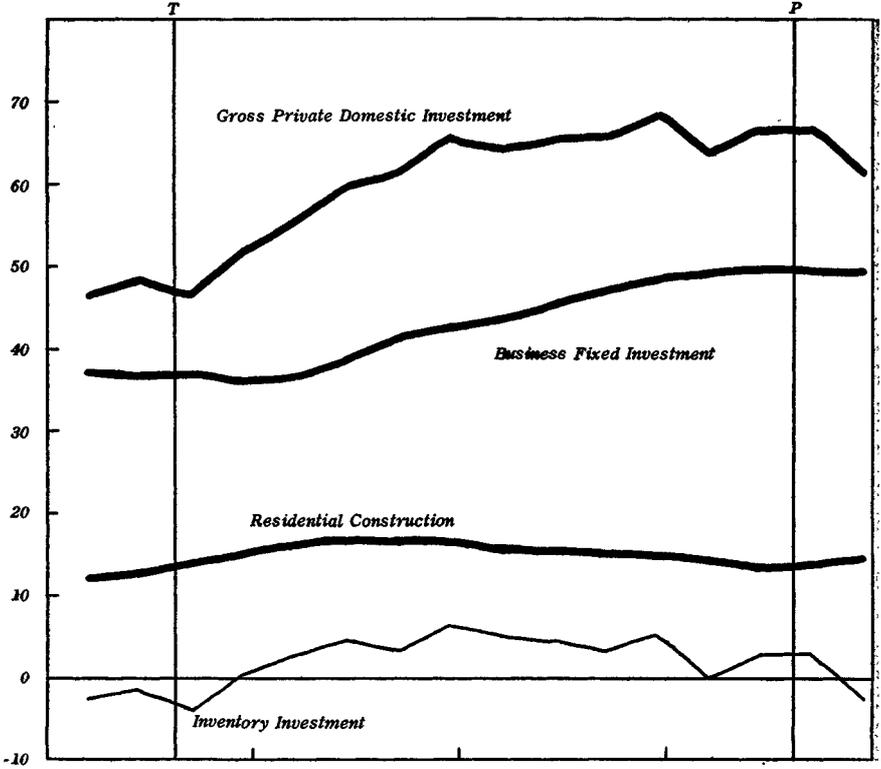


*Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.*

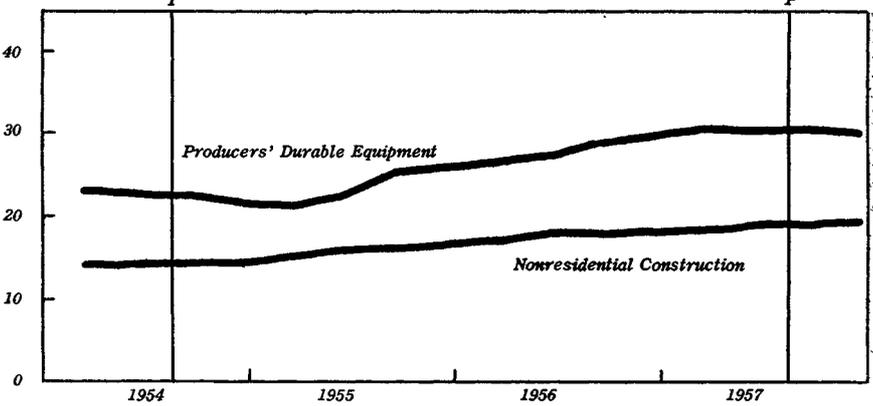
*Source: Department of Commerce.*

Chart 19

Gross Private Domestic Investment and Its Major Components  
Seasonally Adjusted Quarterly Totals at Annual Rates, 1954-1957  
(Billions of Dollars)



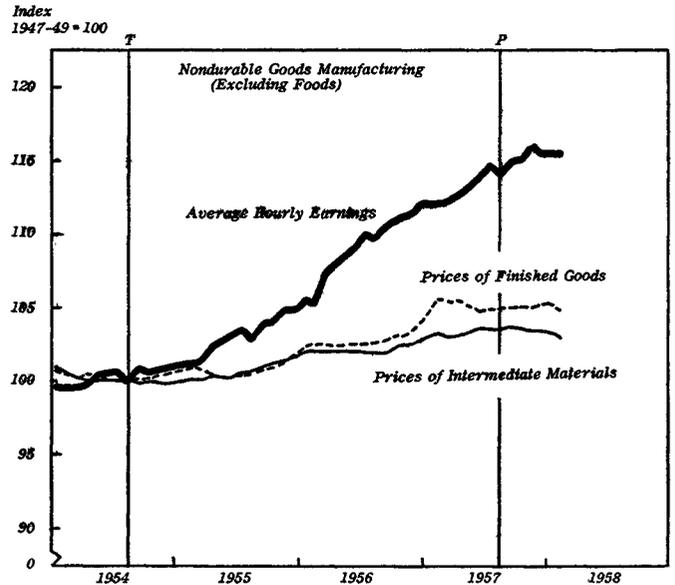
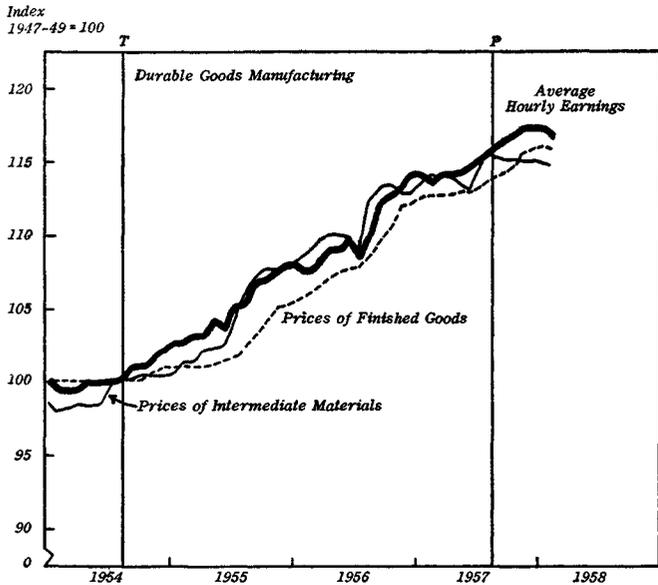
Components of Business Fixed Investment



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.  
Source: Department of Commerce.

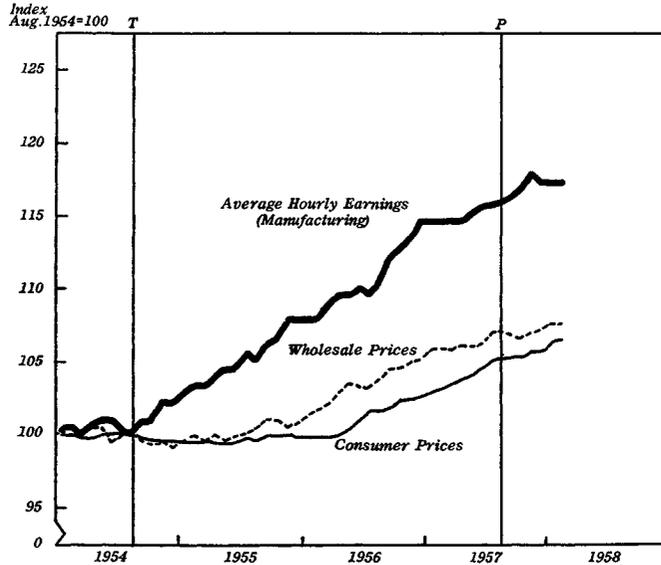
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Chart 20  
Indexes of Average Hourly Earnings, and Prices of Intermediate Materials  
and Finished Goods  
(Monthly, 1954-1958)



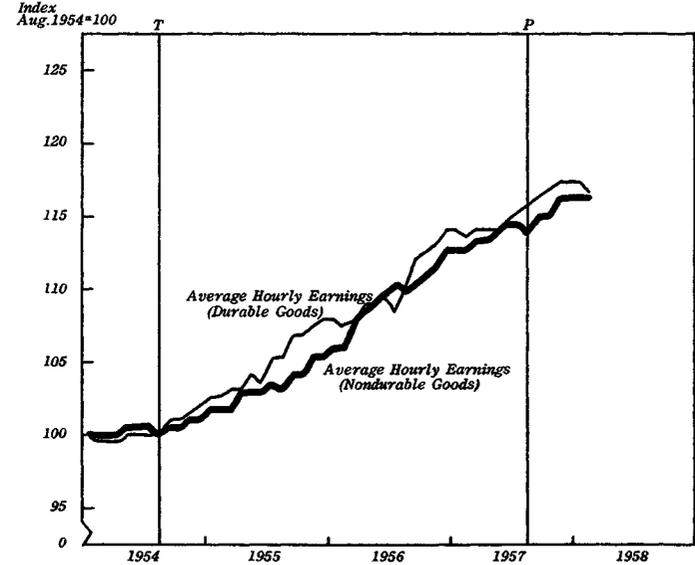
Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.  
Source: Bureau of Labor Statistics.

Chart 21  
Indexes of Average Hourly Earnings and Prices  
(Monthly, 1954-1958)



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.

Source: Bureau of Labor Statistics.



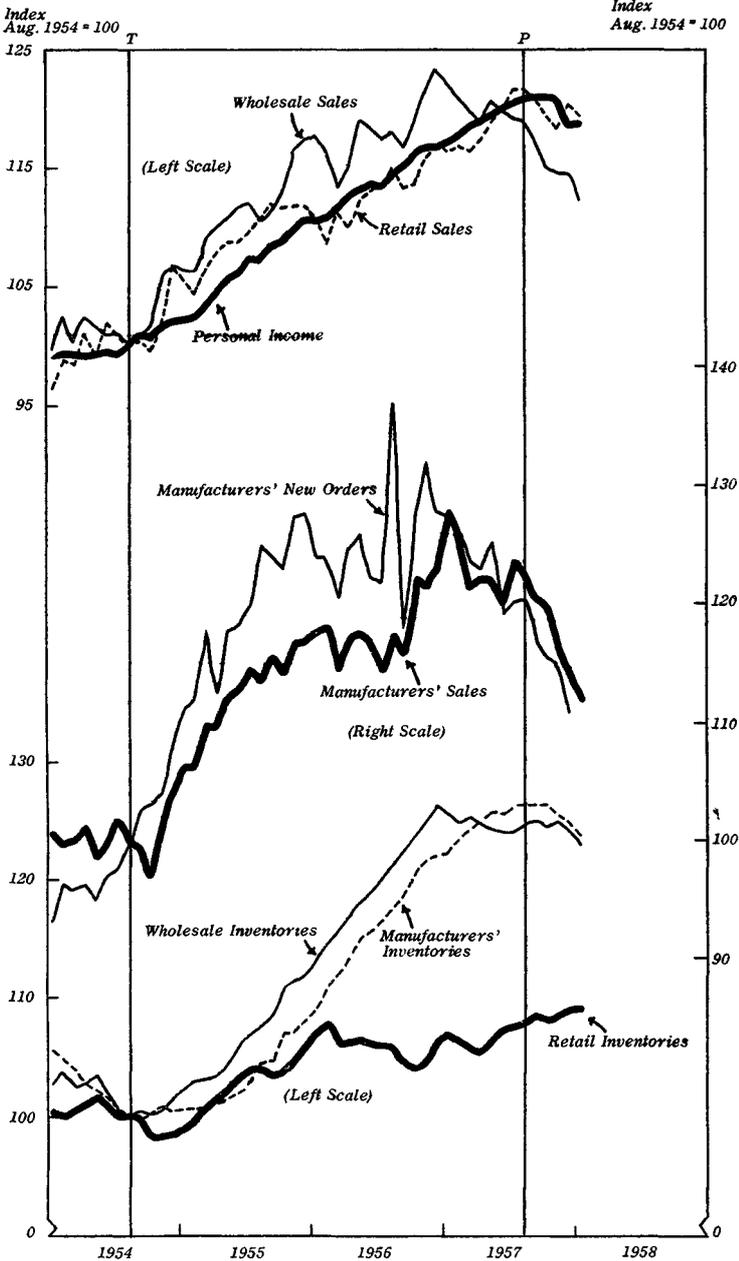
With product demands high and expected to rise further in many industries, sizable wage increases were demanded and received by employees in heavy industry. Parallel changes occurred in prices of intermediate materials for durable goods manufacturing—comprising principally primary metals, lumber, and plastics—and of durable finished goods (chart 20). Between June and November of 1955, average hourly earnings of production workers in durable-goods factories increased 3.7 percent and prices of intermediate materials 5.1 percent. Average wholesale prices of finished durable goods increased 3.4 percent between July and December, with consumer durables up 2.6 percent and producer goods 4.3 percent.

Were these price raises caused by increased demands or higher costs? The answer can only be: by both. Current demands for durable goods had recovered strongly before the wage advances, and further increases of demand were in the offing and the orders were on the books. These facts certainly augmented the size of the wage increases—contrast the increases of 1954 and 1955—but the timing and magnitude of the price increases were just as definitely influenced by the behavior of wages.

Prices of nondurable manufactures also rose during the last half of 1955. These increases were probably occasioned less by wage increases than by current demands. Retail sales of nondurables moved ahead strongly during 1955 and continued to rise as sales of durables fell during the last few months of the year. For reasons to be discussed later, prices of nondurables as a class are quicker to respond to demand shifts than are those of durables. Thus prices of nondurables dropped in the spring of 1955 despite substantial wage increases, and when average hourly earnings in nondurable manufacturing caught up with those in durable goods factories with a spurt during the spring of 1956, prices were steady and did not rise until late in the year (charts 20 and 21). Nor is the lag of price increases behind wage increases in 1955 and again in 1956 evidence that the latter caused the former. Technical lags in the processes of production and sale cannot explain a wage-price lag on the order of 6 months; and in point of fact, prices of intermediate materials and finished goods moved closely together from month to month, as the chart shows. Wage and cost increases do influence prices, but so also does demand, and in the instance of nondurables both factors operate quickly and may sometimes be offsetting, sometimes reinforcing, so that no simple relationship exists between prices and either factor alone.

A final feature of 1955 should be mentioned before we move on. The year marks a revival of labor-management interest in the long-term contract which specifies deferred annual wage increases and provides for escalation to protect the real value of wages during the life of the agreement. Such contracts were negotiated in the automobile industry and with General Electric in 1955. They spread to steel, meatpacking, and railroads in 1956. By the end of 1957, the Bureau of Labor Statistics had on file long-term agreements involving fixed wage increases of a deferred nature which covered 4.4 million workers. The deferred increases specified by "annual improvement factors" or "annual productivity increases" are generally in line with the long-term average rate of growth of output per man-hour for the economy as a whole, but that fact does not necessarily render them noninflationary. Even apart from other determinants of price and cost, the annual productivity gains in the industries directly affected by the contracts may change unevenly over time and may deviate widely from the average for the economy, both in any given year and over the long term. And, of course, since the deferred increases set a standard for other wages, they may lift the general level of money wages at a faster rate than overall productivity rises in any particular year, especially since productivity growth is markedly uneven. When this happens the upward pressure on prices from the cost side is increased everywhere, although average prices will not rise commensurately or at all unless demand permits.

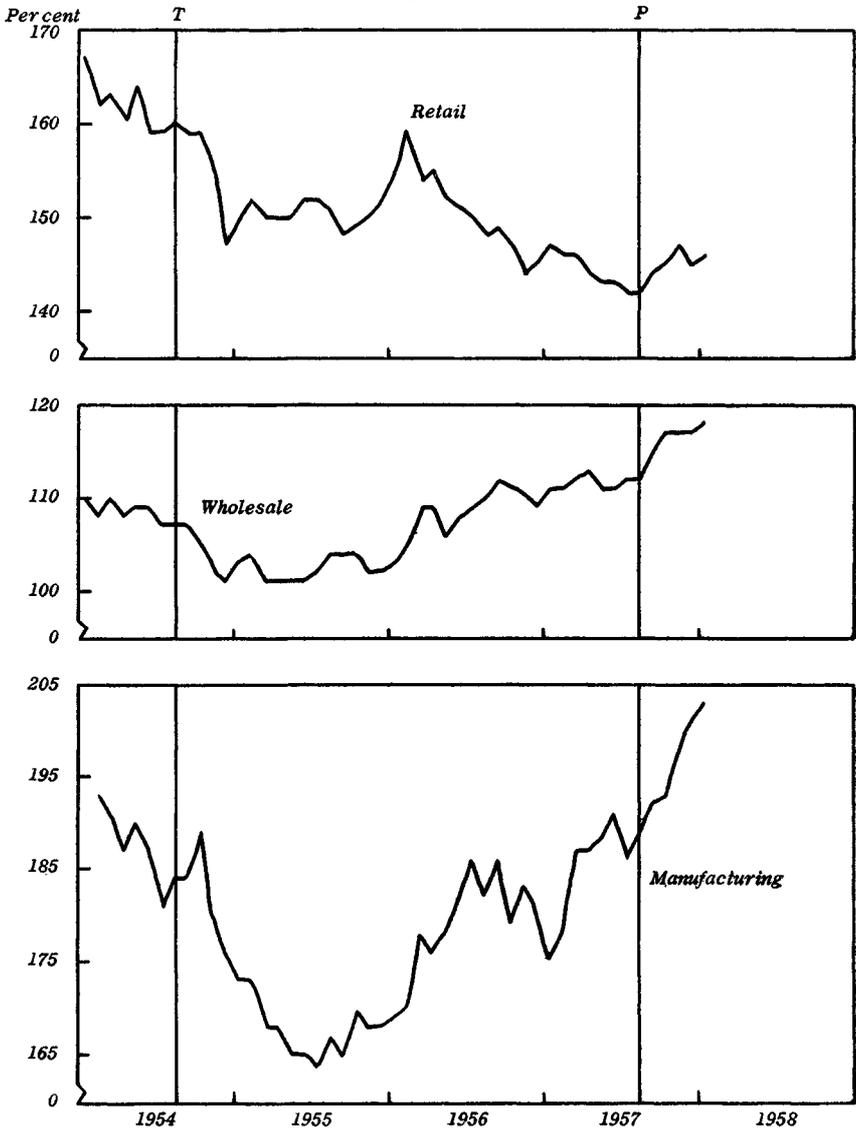
Chart 22  
*Indexes of Personal Income, Retail, Wholesale, and Manufacturers' Sales and Inventories and Manufacturers' New Orders*  
*Seasonally Adjusted, Monthly, 1954-1958*



Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.

Source: Department of Commerce.

Chart 23  
Inventory-Sales Ratios  
(Monthly, 1954-1958)



Source: Department of Commerce.  
Vertical lines indicate business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research, except for the peak of August 1957 which was dated by the author.

The pace of business expansion slowed notably during the first 6 or 8 months of 1956. Industrial production actually drifted downward, whereas more comprehensive measures of physical activity such as real gross national product merely flattened out. Industrial wholesale prices rose at a much diminished rate, although farm and food prices rebounded from the 1955 lows and the average of all wholesale prices moved ahead faster than in the preceding year (charts 1 and 2).

The slowdown occurred because demand pressures eased generally. In two major sectors of the economy final expenditures declined by substantial amounts: consumer purchases of automobiles, which had turned down after the third quarter of 1955, and residential construction, which had reached its peak slightly earlier (charts 18 and 19). Retail sales of nondurable goods did not actually decline during the early months of 1956, but neither did they increase much until May. Hence, automobile dealers took steps to reduce inventories and other retailers to avoid increases, with the ultimate result that inventory investment declined in sympathy with stable or falling retail sales, and production fell off among durable and nondurable factories alike (charts 22 and 23). About the only major component of private demand which was still rising strongly was business fixed investment.

The structure of industrial prices mirrors the pattern of relative demands just described. Prices of finished producer goods continued to rise during the first half of 1956, although at a slower rate than during the preceding or subsequent spates of wage-price increase. Average wholesale prices of consumer durable goods were stable as retail prices of automobiles declined moderately. Steady also was the average of consumer finished nondurable goods other than foods in primary markets (chart 16).

Granted that easier demands were instrumental in the retardation of price increases during this period, the next question is obvious. The slowdown of demand was in response to events which had occurred during 1955. In particular, the decline of homebuilding and automobile sales during the closing months of 1955 caused production to drop not only in those sectors but in supplying industries as well. About the turn of the year the declines became substantial enough to depress hours and employment of factory workers and slow the growth of aggregate personal income. Increased personal taxes restrained the increase of disposable personal income still further. Nonautomotive consumption expenditures continued to increase, but at a diminished rate and at the expense of a considerable reduction of personal saving. Apparently the retardation of disposable income contributed to easier demand conditions not only in automobiles but in consumer goods generally during the first 3 or 4 months of 1956.

Taking the analysis back another step, the decline of homebuilding after mid-1955 was caused primarily by measures employed at that time to stiffen terms on mortgages insured or guaranteed by the Federal Government, and by the concomitant restrictive actions of the Federal Reserve authorities which increased interest rates generally and made residential mortgages less attractive to lenders. Automobile sales, on the other hand, were probably not materially influenced by general credit constraints. The spectacular sales of 1955 models had satisfied the needs of many new-car buyers for at least 2 or 3 years

ahead, producing a temporary saturation of segments of the new-car market and a corresponding decline of sales of 1956 models. I conclude that the easing of demand in 1956 was partly a lagged response to credit policies which had accomplished the intended purpose and partly the result of an independent reaction from the prior surge of automobile sales.

The downward movement in automobiles and housing was prolonged into the summer months, although nonresidential construction offset much of the latter decline. Retail sales moved ahead during the late spring and early summer, but the increase reflected primarily higher prices for foods, and the physical volume of retail sales continued below the level reached late in 1955. Consequently, production of durables and nondurables alike remained depressed until July, and in that month a sharp though brief curtailment of steel production occurred because of a strike.

Industrial production and prices surged forward on a broad front beginning in August. The prime mover appears to have been increased activity in the automobile and ancillary industries as the new models went into production. Federal defense expenditure turned upward as well, however, and an added thrust was lent by restocking demand on the part of metal fabricators whose inventories of materials had been drawn down during the steel strike.

The entire fourth quarter was colored by the rebound of automobile production. As it turned out, sales increased less than expected, but in the meantime production was augmented by the inventory accumulations of automotive manufacturers and dealers. The increase of automobile production was superimposed, moreover, on the gentler but steadier rise of machinery production as business expenditures for equipment continued their advance. Since total industrial production advanced, so also did employment and earnings, the latter with an assist from wage increases. In this way, increased production consequent on expanded automobile output served to bolster personal incomes and helped to induce a part of the increased volume of retail sales which had been expected and the expectation of which had started the process.

Demand, expected demand, and independent or semi-independent cost increases are again intertwined in the price-output movements of this period. Again there is a close correspondence between the increases of average hourly earnings and prices of intermediate materials and finished products in the durable goods sector (chart 20). The increases were timed with the wage-price boost which followed the steel settlement. With wages and prices rising all along the line in metal fabricating, and with business demand for equipment still high, prices of finished producer goods rose 3.4 percent between July and October. Increased price tags on new model automobiles were primarily responsible for the abrupt 2.1 percent rise of average wholesale prices of consumer durable goods between September and November. Prices of nondurables, excluding foods, also increased after August, and by year end had risen 1.1 percent. These increases in primary markets were reflected in retail prices, and the Consumer Price Index gained 1.0 percent between August and December despite a slight decline in prices of food over those months (charts 1 and 3).

As 1957 opened the expansion was already more than 2 years old. It gradually lost its momentum as the year progressed, and by autumn

a downturn was underway. Interestingly enough, production, employment, and prices behaved much as they had done in 1956 until the period of actual contraction came during the last 4 months of the year (chart 1). For that matter, the contrast after August is found primarily in physical activity, because prices of finished goods rose after the contraction had begun and by amounts that while smaller than in 1956, were still significant (charts 20 and 21).

The early resemblance to 1956 is partly due to a repetition of the same deflationary forces that developed at the outset of the former year. Automobile sales increased moderately in the first quarter but fell thereafter. Residential construction continued downhill until July.

These declines were smaller than in 1956, but a new and ominous depressant was added when business fixed investment tapered off (chart 19). Money outlays for producers' durable equipment diminished fractionally after the first quarter and, since prices kept rising, the decline was somewhat larger in physical terms. Signs of the imminent slackening of fixed investment had appeared a few months earlier, of course, when new and unfilled orders of producers of investment goods entered a decline.

Thus, the year had scarcely begun before three important elements of final demand—business investment, residential construction, and automobile purchases—were exerting concerted downward pressure on production. Government purchases and net exports rose, however, with especially favorable results for the aircraft and petroleum industries—the latter because of the foreign demand stimulated by the Suez crisis. Nonetheless, the balance was on the side of contraction in durable goods. Employment, hours, and weekly earnings of factory workers in the affected industries declined along with production, but gains among salaried workers and elsewhere in the economy kept personal income rising until August. Purchases of consumer durables failed to rise along with personal income, but retail sales of foods and soft goods moved ahead strongly during the spring and summer as consumers augmented their total expenditure and shifted its composition in favor of nondurables. Since distributors were watching inventories carefully, however, the new business of nondurable manufacturers did not rise correspondingly and the volume of production was merely maintained instead of increasing.

The incipient contraction became actuality after August. What happened was that an economy already balanced on the edge of contraction because of internal developments in the private sector, was subjected to additional, autonomous deflationary shocks from reductions of defense spending and export demands. Neither decline was especially large, but they occurred when the economy was vulnerable to disturbance and hastened a downturn that would doubtless have come soon anyway. Now industrial production dropped more swiftly, nonagricultural employment began to decline, and labor income turned downward and carried aggregate personal income with it. Retail sales decreased as personal income dropped, spreading the contraction to the soft-goods industries.

The shifting fortunes of the economy and its several parts during 1957 left their mark on prices as well as production. Since demand had eased generally after the turn of the year, industrial wholesale prices were stable on the average until summer arrived (chart 1).

Even prices of finished producer goods rose comparatively little (chart 16). It is of course true that these prices tend regularly to rise more slowly after the annual wage-price adjustment is completed near the end of 1 year and before it begins in the next, but the diminished intensity of demand for producers' durable equipment is reflected in the small rate of price increase in comparison with the first half of 1956. Among important classes of finished goods, only foods rose appreciably in price during the spring.

It is apparent from the indicators of investment preparations—new orders, investment plans, and the like—that demand for investment goods stopped rising in 1957. It is quite another and more complicated issue, however, as to why this came about. Financial constraints were doubtless partly responsible. The Federal Reserve kept pressure on bank reserves through most of the year, and bank loans increased only half as much as in 1956. Since the demand for loanable funds exceeded the supply from banks and other sources, interest rates rose through October. Overall credit tightness probably limited investments in certain directions, especially when it came time to finance projects already planned. And, of course, financial stringency during 1956 may have affected 1957 investment. Perhaps the early decline of plant and equipment expenditure in the commercial sector reflects restricted access to credit sources on the part of small business. The continued decline of homebuilding until mid-year was certainly owing in part to difficulties in obtaining mortgages on favorable terms.

Another factor was at work to retard business investment at least in the manufacturing sector, however, and that was the sharp expansion of capacity implied in the high rate of current investment outlays during 1955 and 1956. Capacity utilization rates were still satisfactory at the end of 1956, but the growth of production had slowed in 1956 and could be expected to be gradual in 1957 since the economy was already at full employment. Merely maintaining current capital installations at the level already attained would insure future increases of capacity at a steady, high rate. Such considerations as these probably damped the planned increases in the rate of current investment, and by so doing helped to make capacity more redundant than otherwise, for the slowdown in the rate of investment implied a cutback of orders for producer goods and worked in combination with weakness in automobiles to reduce production throughout the metal and metal using sector of the economy. By September 1957, McGraw-Hill could report: "For the first time since we began asking the question in 1955 every manufacturing industry is now operating at a lower rate of capacity than it generally prefers," although noting also that no industries reported really depressed levels of business at that time.<sup>6</sup>

The industrial price stability which had been a feature of the first half of the year was disrupted by new increases for durable goods during the summer and fall. Prices of producers' equipment accelerated after June, whereas the index for consumer durable goods took its usual vertical step later in the year when the 1958 automobiles were introduced at higher prices. The price raises were occasioned, of course, by wage increases. This joint movement is reminiscent of 1948,

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<sup>6</sup> McGraw-Hill's Fall Survey of Preliminary Business Plans for Capital Spending in 1958-59, prepared by McGraw-Hill department of economics, p. 3.

when wages and prices advanced together in the durable goods sector just prior to another economic downturn. Actually, the timing itself is not particularly relevant, since demand for investment goods had eased but was still high before both downturns and markets could hardly be described as distressed. The principal difference between the two experiences is that in 1948 management resisted wage increases until expectations were altered by the tax cut and defense program, whereas in 1957 the increases were largely an automatic result of bargaining decisions made in 1955 and 1956. Thus about two-thirds of the 7.5 million workers who received increases under major collective bargaining contracts in 1957, did so because of deferred wage increases under long-term agreements.

The present contraction has been underway for about 6 months as this is written. Thus far the prices indexes—available now through February—are still rising. Retail food prices are moving irregularly upward as they have done since early 1956, primarily because of smaller supplies of livestock. Consumer services continue to rise gradually but steadily in price. Apparel has dropped a bit and retail prices of new automobiles were shaved after November but remain several percent higher than before the model changes. In primary markets, durable finished goods have held their gains of late 1957, but average prices of nondurables excluding foods dropped in February and may have entered a cyclical decline in that month.

#### SOME REFLECTIONS ON THE INFLATIONARY PROCESS IN THE POSTWAR AMERICAN ECONOMY

The reader must have been struck by the similarity of behavior of durable goods prices during the past 3 years and in 1947–48. (During the Korean war, of course, prices were under control.) In both periods these prices rose swiftly, and in both the advance accelerated in those months of the year when major wage increases went into effect, or shortly thereafter in 1947.

This timing relationship is certainly not surprising. Major wage increases are likely to raise unit labor cost in the short run, although productivity increases may offset part of the effect then or later. Prices of many durable goods are administered, moreover. Where industries are sufficiently concentrated so that individual firms recognize mutual interdependence, but there is no collusion, it is advantageous to all if prices are changed infrequently and in response to clearly identifiable factors known by each firm to affect the others in about the same way. When the individual firms are also large and in the public eye, a further advantage accrues if price increases can be attributed to cost increases, even though profit margins may be maintained or augmented in the process.

The magnitude of the increases cannot be explained simply by the fact that prices are administered, however. Even administered prices have to be set at some level—and at a level which is profitable to the company. This means that product demand cannot be ignored; it sets limits within which the firm must price if it is to attain profits which are satisfactory or better. By the same token, it sets limits within which costs must be held. These facts apparently are recognized by both labor and management, since the largest wage-price increases occur during periods of rising or high demand for durable

goods. (Deferred wage increases written into long-term contracts may invalidate this statement in 1958, at least with regard to wages.)

The high demand for durable goods during the past 3 years cannot be dismissed from an explanation either of changes in relative prices or of inflation of the price level. Given that demand, sizable wage and price increases appeared feasible and satisfactory at expected levels of production and employment for at least one, and in some cases several years ahead. But the wage increases spread to other industries as well, although often with a lag of several months (chart 21).<sup>7</sup> Labor costs of production were thereby raised generally, but prices did not rise by the same amount everywhere (chart 16). Why not?

First, although wage rates rose about equally through the economy, prices of materials did not. Many raw materials of agricultural origin were in chronic excess supply, with the result that prices were stabilized at levels governed by Federal programs and the entire cost structure of products fabricated from the materials or their substitutes was anchored.

Second, relative demands differed among the several product classes. Among durables, this shows up in the fact that prices of producer goods rose more than those of consumer items, and within the latter group, those of automobiles more than household appliances (these actually dropped at retail), despite the similarities in prices of materials and labor. As between durables and nondurables, the comparative strength of market demands is difficult to gage. The changes in wage rates and unit labor costs—whether fringe benefits and the earnings of nonproduction workers are included or excluded—have been about the same in the two divisions since the end of Korea, but the changes in prices of materials were not, and this may account for most of the contrast in the amounts of average price increase. Largely because many important industries in the division are unconcentrated and prices not administered, average prices of nondurables are rather sensitive to current market demands, so that prices do not always go up when wages do, and vice versa. This distinction rests on characteristics of market structure, however, and not on the relative strength of final demands among products.

I do not wish to imply by my emphasis on demand factors that there are no significant differences between 1947-48 and 1950, on the one hand and 1955-57 on the other. For one thing, money wages of factory workers lagged the cost-of-living during the earlier intervals, whereas they moved ahead of it in the last one until 1957. In the former inflations organized labor was reacting to previous price increases and attempting to restore the real value of labor income, whereas in the latter one it was seeking to augment real income. It is this last fact, coupled with the observation that money wages have outrun below-average productivity increments and raised unit labor costs, that has led many observers to speak of cost-push inflation during 1956-57. There are two kinds of inflation, it is asserted: demand-pull and cost-push—and it is the latter which we have recently experienced. This is misplaced emphasis.

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<sup>7</sup> Average hourly earnings rose as much or more in most of the nonmanufacturing industries for which data are available, including building construction, railroads, and trade.

There are not so much two kinds of inflation as two degrees of inflation. The earlier inflationary episodes of the postwar period were more vigorous, and more widely diffused among the various sectors of the economy than the last. Prices tended everywhere to move upward in common surges. One reason for this, of course, was that market demands generally were more intensive and less easily discouraged by price increases than latterly, and this in turn was due to the powerful inflationary potential supplied by deferred demands and postwar liquidity in 1946-48 and by generalized, war-inspired expectations of physical shortages and price advances during 1950. This is not to say, however, that cost pressures and, more specifically, wage increases were unimportant in 1947-48, for they did affect the timing and size of the price waves in those years. They did so not only in the durable-goods industries, and not alone because of the fact that they raised unit labor costs, but also because key wage-price settlements affected price expectations and hence product demands generally.

Demand pressures were clearly less intense in 1956-57, but that fact does not render them unimportant in the gentler inflation of those years. If one insists on a distinguishing categorization for this inflation, "bottleneck" may be more suitable than "cost-push." The former term at least carries the connotation of increased demand as well as increased cost in the sectors where prices rise strongly. It also has the virtue of emphasizing the fact that inflationary pressures may originate in particular sectors and spread to others, rather than appearing simultaneously everywhere.

That, in fact, is what one must expect under normal peacetime conditions. Widely diffused, powerful surges of excess demand are easily recognizable precisely because they are abnormal. Such abnormal conditions aside, inflationary forces will tend to fan out from initial areas of disturbance.

Demand may figure in two ways in the process. First, specific demands may foster individual price and wage advances and serve as inflation starters. Secondly, aggregate money demand will have to rise if prices are to increase in other sectors. If the postwar American economy does indeed have an inflationary bias—and I think that it does—it is because its institutional framework favors the initiation and propagation of inflationary impulses, and guards against their liquidation.

With regard to the initiation of inflationary impulses, there is the fact that organized labor groups will press for money wage increases during periods of business expansion, since this is the variable affecting real income over which individual unions have some degree of direct control. Their success in winning wage increases will depend in part upon management estimates of the extent to which wage increases may profitably be passed on in product prices. This will mean that wage levels will tend to be determined by the increases which occur in the industries whose profit prospects are most favorable, and it is at this point that high demands for specific products become crucial in helping to set standards for wage increases. The standard-setting wage increases may or may not exceed the long-term average rate of overall productivity increase, but they are quite likely to do so for any given year and especially during years of full employment expansion.

Apart from acute inflationary disturbances like price decontrol or Korea, a problem of adjustment is posed for the economy each time wages and prices go up in key industries. Confronted with the fact that over much of our basic industry wages and prices are determined at discrete intervals and set for a year or more ahead, the question is whether aggregate money demand will rise sufficiently in response to the specific increases to sustain a higher level of prices and money incomes. This question, be it noted, is the same no matter what the causes of the specific increases themselves: whether, for example, they are heavily influenced by expected demand as in 1948, or are the lagged result of bargaining decisions made 1 or more years previously, as in 1957.

The additional money demand will be readily forthcoming when real demands are strong and financial constraints weak, as in 1947. Under those circumstances, increases of current money demand—including speculative inventory demand—will be large enough to raise prices in all markets and hence wage and nonwage incomes in all industries about equally. When current (as contrasted with expected) real demands are weakening, however, as in 1948 or 1957, prices in other sectors, and hence nonlabor incomes per unit of output, will not rise correspondingly. And, of course, sales may become depressed everywhere, so that total wage earnings, profits, and other variable incomes may decline even in those industries where prices went up substantially.

The inflationary bias of the economy is apparent also when it comes to this question of the propagation of inflationary impulses. Our money supply is managed, and it is managed with regard to domestic stabilization objectives. This means that monetary controls will be used to curb an expansion of money expenditure under full employment conditions, and this whether aggregate demand is surging forward on a wide frontier because of powerful autonomous forces, or rising unevenly in response to the gentler prodding of demand or cost increases in specific sectors. It means also, however, that monetary (or fiscal) curbs will tend to err on the side of too little restraint, since the goal is not stable prices at any cost, but stable prices accompanied by full employment and economic growth.

A distinction is sometimes drawn between demand inflation and cost inflation on the grounds that the former can be stopped at a given level of real income by eliminating excess demand, whereas even if that is done, autonomous cost increases will renew the latter type of inflation and force either a relaxation of the demand constraint or a reduction of output. I suspect that this contrast is more a property of static equilibrium models than of the dynamic economy. In the first place, one should remember that autonomous demand shifts might also disturb a stable equilibrium if that were achieved through fiscal or monetary controls—and autonomous demand shifts occur frequently in the real world. Credit controls would have to be tight indeed to prevent a price advance fostered by new autonomous demands and financed by the activation of idle money balances. Secondly, financial constraints powerful enough to keep prices from rising under demand pressures, would almost certainly prompt a contraction of physical activity. If they did not lead directly to a downturn, they would do so indirectly by retarding or stopping the

expansion of physical activity, with adverse consequences for real inventory demand and perhaps for fixed investment as well. Such considerations argue for that cautious application of inflationary controls which is observable in practice, no matter what the origin of the inflationary pressures.

Finally, our institutions and policies guard against the liquidation of inflationary pressures. Deflation brings not only lower prices but unemployment and lost production, and these are adjudged the worse evils. Instead of forcing credit deflation, the monetary authorities pursue easy money policies during contractions. Expansionary fiscal actions—increased Government spending and tax reductions—are more likely than not. Automatic stabilizers cushion the drop of income and demand. Agricultural supports slow or prevent price declines, and administered prices are preserved by company policy. General wage reductions are neither recommended nor anticipated. In short, the preponderance of public and private economic forces work directly, and in many instances deliberately, against price reductions during business contractions.

Since my subject has been price behavior, I have written of inflationary bias in these paragraphs. It is readily to be seen, however, that the bias is largely a byproduct of properties of the postwar economy which most persons would agree were desirable ones. This fact should be kept in mind when judging the performance of the economy during these past years, and it should come to the forefront whenever the benefits of alternative goals and the risks of alternative policies are to be weighed.



## CYCLICAL CHANGES IN LABOR COST

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The cost of producing a commodity or service puts a floor under its price. If cost rises enough to wipe out the margin of profit at a former price, suppliers will have no motive for furnishing the product to their customers at that price, and either the price will rise or the suppliers will drop out of the market. At least over short periods, however, the relation between cost and price is often very loose. If cost rises moderately, business enterprises sometimes accept a smaller profit margin, at least temporarily, instead of increasing their prices in proportion. If cost falls, they sometimes collect a larger profit margin instead of reducing their prices proportionately. The study of cost is, nevertheless, an essential component in the analysis of prices.

At the National Bureau of Economic Research we have been trying to learn something about the relation between cost and the level of production in various industries, and also between cost and the general level of business activity. Costs may conveniently be divided into three classes: materials, labor, and general overhead. Labor cost is the kind on which there is most information and most of our findings pertain to it. These findings have not yet passed through the National Bureau's review procedures, and I am presenting them here on my own responsibility and not as official conclusions of the Bureau.

### AVAILABLE INFORMATION ON LABOR COST

For the analysis of an industry's prices, the aggregate labor cost incurred in the industry is of little significance except as a starting point for calculations. The important figure is cost per unit of product. The word "cost" will be used in this latter sense in this paper. There are few if any industries for which such a figure is published as a routine statistic. Consequently it is necessary to compute such figures. To make that computation we must have figures on the aggregate labor cost as a point of departure. But we must also have figures on the physical volume of production, otherwise we cannot divide aggregate cost by product. Moreover, we need monthly figures on both, since in this particular investigation we are interested in the relations between cost and fluctuations in production or business rather than in long-run trends, and monthly figures are usually far more instructive in the study of such fluctuations. There are many industries for which we cannot get the necessary information. Either labor data, or production data, or both are lacking. We have, however, been able to assemble figures for anthracite and bituminous coal mining, quite a few although by no means all branches of manufacturing, and railroads. The several industries and the periods covered by our monthly data are shown in table 1. For railroads the figures go as far back as the middle of 1921, for some important industries

they begin in 1932, for others there is no usable information until 1947.

Labor cost per unit has two components: the number of hours paid for per unit of product turned out, and the average amount of wages paid per hour. It is instructive to consider hours per unit and labor cost separately. We have therefore computed figures on man-hours per unit of product as well as labor cost per unit of product.

In general we use Bureau of Labor statistics data on labor. For many industries that Bureau publishes for a week near the middle of each month an estimate of the number of production workers, the average hours worked per week, and the average hourly earnings. Multiplying the first by the second, we get the aggregate hours worked during the middle week.

TABLE 1.—*Periods covered by monthly data on man-hours and labor cost per unit of product for various industries*

Industry	1st month	Last month
Anthracite mining.....	January 1932.....	September 1955.
Bituminous mining.....	January 1934.....	December 1955.
Manufacturing:		
Meatpacking.....	January 1932.....	December 1949.
Confectionery.....	January 1939.....	May 1949.
Cigars.....	.....do.....	June 1955.
Cotton.....	January 1932.....	May 1949.
Wool.....	.....do.....	Do.
Textiles.....	January 1947.....	December 1955.
Hosiery.....	January 1934.....	May 1949.
Men's and boys' suits and coats.....	January 1947.....	December 1955.
Women's outerwear.....	.....do.....	Do.
Lumber.....	.....do.....	Do.
Millwork and plywood.....	.....do.....	Do.
Paper and pulp.....	January 1932.....	June 1955.
Petroleum refining.....	January 1947.....	Do.
Tires and tubes.....	January 1932.....	December 1940.
.....	January 1947.....	July 1955.
.....	January 1933.....	June 1955.
Cement.....	January 1932.....	Do.
Steel.....	January 1947.....	December 1955.
Iron and steel foundries.....	.....do.....	Do.
Aluminum and copper mill shapes.....	.....do.....	Do.
Nonferrous foundries.....	.....do.....	Do.
Railroads.....	July 1921.....	August 1955.

From this point onward, our procedure depends on what kind of a measure of production we use. In some industries, for example anthracite, production can be measured tolerably well in terms of some simple natural unit, in this instance tons of anthracite mined. In such a case, we multiply the aggregate hours in the middle week by 4.33 to get an estimate of aggregate hours for the month, and divide that aggregate by the total production. In other industries, the diversity of products is so great that we have to use a composite index number as a measure. In that case, we construct an index number of the aggregate hours and divide it by an index number of production. For the latter, in general, we use one or another of the indexes computed by the Federal Reserve Board for various industries.

Where we use a production measure in natural units, we multiply man-hours per unit by average hourly earnings to get labor cost per unit. Where we use indexes, we multiply the index of man-hours per unit by an index of average hourly earnings to get an index of labor cost per unit.

In the case of railroads our labor as well as our production data come from the Interstate Commerce Commission. We measure pro-

duction in terms of traffic units, which we define as revenue ton-miles plus 2.4 times passenger-miles. The 2.4 factor is based on the average relative revenue per ton-mile and per passenger-mile over a long period of years.

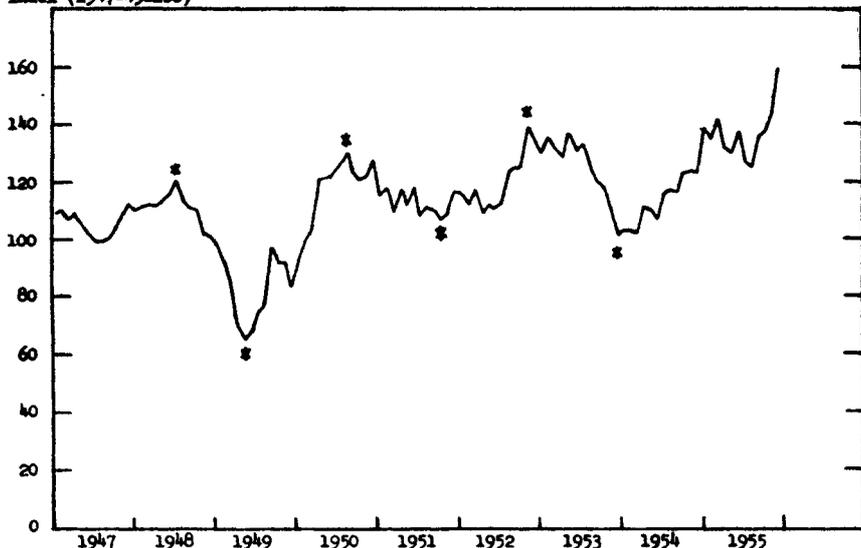
Finally, we adjust both the man-hours per unit figures and the labor cost per unit figures for seasonal variation. If man-hours per unit in a particular industry average higher in December than in the year as a whole, for example, we reduce the figures for the various Decembers.

#### IDENTIFYING CYCLES IN PRODUCTION

We likewise adjust the figures on production in each industry for seasonal variation. This enables us to determine what cycles, if any, have occurred in its production. By a cycle we mean merely an upswing followed by a downswing, or vice versa. The process can be illustrated with the help of chart 1, which depicts production in one of our industries, aluminum and copper mill shapes, for 1947 to 1955. As often happens, there are numerous minor month-to-month ups and downs in the curve. We disregard these, but try to pick out the larger swings. A helpful rule in this connection, and one that we follow, is that nothing shall be recognized as a cycle unless the up and down swing taken together last for at least 15 months. On chart 1, we find that production of mill shapes reached a peak in July 1948. After that there was a downswing, reaching a trough in May 1949. This was followed by an upswing, which reached a peak in August 1950, and so on. Asterisks indicate the dates of peaks and troughs.

CHART 1. ALUMINUM AND COPPER SHAPES: FEDERAL RESERVE INDEX OF PRODUCTION, JANUARY 1947-DECEMBER 1955

Index (1947-49=100)



## LABOR PER UNIT OF PRODUCT OFTEN VARIES INVERSELY WITH PRODUCTION

We are now in a position to learn what relation there is, if any, between man-hours per unit of product in this industry and the level of its production. Our first question is, how does man-hours per unit at each peak in production compare with man-hours per unit in the following trough, or vice versa? In answering such a question, however, we do not like to depend on the figure for a single month. We therefore take an average of man-hours per unit in the month preceding each peak, the actual peak month, and the following month. Likewise, we take an average for each group of 3 months that has a trough month in the middle.

Mill shapes is one of the industries for which we use index numbers. Computing 3-month averages, we find that the index of man-hours per unit (1947-49=100) was 91.3 in the vicinity of the 1948 production peak and 116.0 in the vicinity of the 1949 trough. We conclude that in this contraction of production man-hours per unit of product increased. At the 1950 peak the figure is 94.8. In the 1949-50 upswing, therefore, man-hours per unit of product declined.

So far, it looks as though man-hours per unit were inversely related to production in this industry. But we have data on only three completed contractions and only two completed expansions. This perhaps is not enough to justify a generalization about this particular industry. We do feel, however, that by pooling our data for this and other industries we obtain something more significant. In one industry or another, at one time or another, we have data on 69 expansions of production and 77 contractions. In 62, or 90 percent, of the 69 expansions, we find a net decline in man-hours per unit. In 58, or 75 percent, of the 77 contractions, there was a net rise in man-hours per unit. The pooled data suggest a strong tendency toward an inverse relation between man-hours per unit and total output. When one goes up the other goes down and vice versa. This means that man-hours in the aggregate usually do not rise and do not fall by as great a percentage as output.

These results, incidentally, show the superiority of monthly over annual figures. For the same industries and the same periods of time we have, of course, annual figures on production, and we have computed annual figures on man-hours per unit. When we base our conclusions entirely on annual figures, we get a similar result in expansions but not in contractions of output. Man-hours per unit falls in 86 percent of the expansions, but also in 55 percent of the contractions instead of rising in most of them. Note, however, that the majority of declines is much smaller in contraction than in expansions. This reduced majority of declines masks an actual preponderance of rises that is disclosed by the monthly data.

This comparison enables us to extend the statistical basis for our generalization about an inverse relation. There are an additional 197 expansions and 220 contractions in production for which we have nothing but annual data. Man-hours per unit fell, according to the annual data, in 84 percent of the expansions and, again, in 55 percent, or a much smaller majority, of the contractions. It seems likely that the small majority of declines in contractions here also masks a preponderance of rises that monthly data, if we had them for these industries and periods, would disclose.

Annual figures minimize or conceal the cyclical rises in man-hours per unit because they understate the declines in production and consequently the frequently adverse influence of diminished volume, while they do not similarly understate the effect of technological improvements, which operates to reduce man-hours per unit both in expansions and in contractions. It is true that annual figures also understate the influence of expansions in volume but in that case their influence is reinforced rather than opposed by that of technology.

Although such figures obscure the inverse relation between input per unit and production, there are some industries in which the relation is so strong that even annual data convincingly disclose it. We hesitate to generalize about an industry unless we have data for eight or more phases of production. (By a phase, we mean either an expansion or a contraction.) Among industries for which we have that much data (in either annual or monthly form), we find 22 with a strong inverse relation, 9 without any marked relation one way or the other, and none with a strong positive relation; i. e., none in which man-hours per unit rises and falls with volume.

#### LABOR COST ALSO VARIES INVERSELY WITH PRODUCTION, BUT RISES MORE OFTEN

We can analyze the direction of change in labor cost per unit of product in the same way that we analyze man-hours per unit. We can average the labor cost figures for the 3 months in the vicinity of each peak in an industry's output and likewise those for the 3 months in the vicinity of each trough. We can then note the direction of change during each expansion or contraction. For example, we find that the index of labor cost for mill shapes rose from 93.5 at the 1948 peak to 122.5 at the 1949 trough, then fell to 106.5 at the 1950 peak. When this is done for the 69 expansions, we find that labor cost declined from the trough of production to its peak in 41 of them, or 59 percent. There was a net rise from the peak to the trough in 70 of the 77 contractions, or 91 percent. Growing production was accompanied in most instances by falling labor cost, and diminishing production by rising labor cost. Like man-hours per unit, labor cost was inversely related to volume.

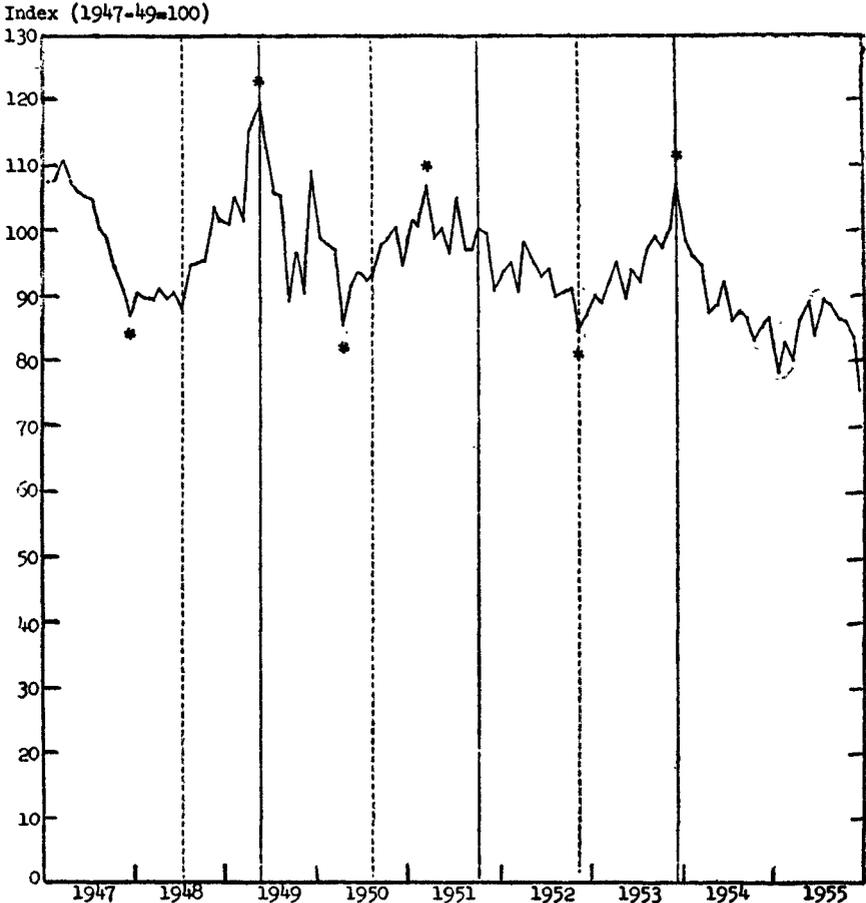
But rises in labor cost were more common than rises in man-hours per unit in both kinds of phases. In expansions, the percentage with rises is only 10 for man-hours per unit, but 41 for labor cost. In contractions the percentage with rising man-hours per unit is 75, the percentage with rising labor cost is 91. The reason for the difference is to be found in average hourly earnings. In expansions these have usually risen, and the rise has not infrequently been large enough to more than offset the fall, if any, in man-hours per unit. In the contractions for which we have monthly data, average hourly earnings often rose, although not as fast as in expansions. In some cases these rises were enough to offset the decline in man-hours per unit that did occur in a minority of contractions.

The greater frequency of rises in cost than in hours per unit may not have been characteristic of earlier contractions for which we have no monthly data. During contractions of production in the neighborhood of 1920-21 or 1929-32, we know that average hourly earnings fell in many industries, and in these periods falls in labor cost may have been more common than in more recent periods.

#### INVERSE RELATION MORE PRONOUNCED AT THE BEGINNING THAN AT THE END OF SWINGS IN PRODUCTION

So far we have confined our attention to the net change in hours per unit of labor cost between the beginning and end of an upswing, or the beginning and end of a downswing in production. But their direction of change is often not continuous during the course of such an upswing or downswing. Chart 2, again for the mill shapes industry, illustrates how the course may alter. The asterisks on this chart no longer represent turning points in production itself; the latter are indicated by broken vertical lines for peaks and solid vertical lines for troughs. The asterisks here indicate peaks and troughs, and mark off cycles, in man-hours per unit. Obviously the direction of change in man-hours per unit is not always consistent throughout a phase of production. During the 1950-51 contraction in production, hours per unit at first rose, afterward fell. (As before, we ignore minor fluctuations and take note only of the longer movements marked by the asterisks.) The decline continued all through the following expansion. On the other hand, both the beginning and the end of the last completed upswing in hours per unit coincide neatly with the beginning and the end of the last complete downswing in output.

CHART 2. ALUMINUM AND COPPER SHAPES: INDEX OF MAN-HOURS PAID FOR PER UNIT OF OUTPUT, JANUARY 1947 TO DECEMBER 1955



We have graphs like chart 2 for all our industries. They enable us to classify every production phase according to the sequence of change in man-hours per unit. In the present instance we classify the 1950-51 contraction in output as a case of rise, fall, the 1951-52 expansion as a case of (continuous) fall, and the 1952-53 contraction as one of (continuous) rise. We have classified all our production phases in this manner (table 2).

Man-hours per unit declined during the earliest months in a large majority of the output expansions, 58 of 69. In 23 of the 58 instances, however, the initial fall turned into a rise that persisted to the end of the expansion. Still other sequences occurred, but just before the end declines were far less common than at the beginning. Even so they somewhat outnumbered rises, by 36 to 33.

Most contractions, 45 of 77, began with hours per unit rising. Of the rises, 24 were consistently maintained, 20 turned into falls that persisted. Continuous declines also were fairly common. Whatever the sequence, hours per unit were falling at the end in a majority of instances, about as large as the majority of rises in the beginning.

In labor cost there was a similar contrast between the earliest and latest months of production phases. Declines were in a majority at the beginning, rises in a heavier majority at the end of expansions. Although rises preponderated at both the beginning and at the end of contractions, the preponderance was much heavier at the beginning. In both kinds of phases, however, and both at the beginning and the end, rises in cost were more frequent than rises in hours per unit.

TABLE 2.—*Expansions and contractions of production in various industries, classified according to sequence of change in man-hours per unit or in labor cost*

Sequence of change	Number of expansions or contractions with indicated sequence of change			
	In man-hours per unit		In labor cost per unit	
	Expansions	Contractions	Expansions	Contractions
Rise.....	8	24	18	38
Rise, fall.....	3	20	3	26
Rise, fall, rise.....			2	1
Rise, fall, rise, fall.....		1		1
Fall.....	29	23	12	8
Fall, rise.....	23	7	31	3
Fall, rise, fall.....	3	2	1	
Fall, rise, fall, rise.....	2		2	
Fall, rise, fall, rise, fall.....	1			
All sequences.....	69	77	69	77
Rising at beginning.....	11	45	23	66
Falling at beginning.....	58	32	46	11
Rising at end.....	33	31	53	42
Falling at end.....	36	46	16	35

The contrary movement of production on the one hand, and hours per unit and labor cost on the other, was therefore much more conspicuous at the beginning than at the end of upswings or downswings in production.

Changes can be studied in a more systematic and progressive manner by dividing each upswing or downswing into a standard number of stages regardless of its length. We define the initial, previously described, 3-month trough period of an expansion as stage I, the next peak period as V, and the terminal trough period of a contraction as stage IX. We divide the months between the actual trough month and the next peak and likewise those between each peak and the next trough into three periods, equally long if possible; if necessary we make the middle stage a month longer or shorter than the others. This procedure gives us stages II, III, and IV of an expansion or VI, VII, and VIII of a contraction. We strike an average of, say, man-hours per unit for all the groups included in a stage. In effect, we break each expansion into four successive segments, the first running from I to II, the second from II to III, and so forth; and we likewise break each contraction into four segments. The method is illustrated for one cycle of cement production in table 3.

The figures for man-hours per barrel on each line of the last column is an average for the months indicated on the same line in preceding columns. (This is one of the industries in which we use "natural" physical units rather than index numbers.)

Sometimes an expansion is too short for this procedure; the first and last stage would include almost all the months. In such cases, we restrict stages I and V or V and IX to a single month, the actual peak or trough month. Even so, 1 of our 69 expansions and 2 of our 77 contractions are too short for the application of this method.

TABLE 3.—*Division of 1938-44 cycle in production of cement into stages (initial trough in production, February 1938; peak, April 1942; terminal trough, May 1944)*

Stage	Months included		Number of months	Man-hours per barrel
	1st	Last		
I.....	January 1938....	March 1938.....	3	0.447
II.....	March 1938.....	June 1939.....	16	.396
III.....	July 1939.....	November 1940..	17	.375
IV.....	December 1940..	March 1942.....	16	.363
V.....	March 1942.....	May 1942.....	3	.365
VI.....	May 1942.....	December 1942..	8	.370
VII.....	January 1943....	August 1943....	8	.427
VIII.....	September 1943.	April 1944.....	8	.526
IX.....	April 1944.....	June 1944.....	3	.538

In the remaining 68 expansions and 75 contractions, we can now find out how frequent rises and falls in hours per unit were in the various segments. In table 3, for example, man-hours per barrel was 0.447 in I but only 0.396 in II; we therefore count the 1938-42 expansion in cement as one of the expansions in which hours per unit fell from I to II. All in all, this happened in 60 of our 68 expansions, or 88 percent of them. Similar percentages for all pairs of stages appear in table 4. We have computed stage averages and percentages for labor cost in exactly the same way; the percentages also are shown in the table.

Declines in hours per unit became less and less frequent in expansions. The percentage fell from 88 percent in the first segment to 85 in the second, 74 in the third, and 66 in the fourth. In contractions, the characteristic initial rises likewise became less frequent; the successive percentages are 72, 64, 60, 49. In the case of hours per unit, however, this does not mean that the characteristic change for the phase as a whole was actually reversed in the last segment. True, the percentage of rises is a trifle below 50; but the percentage of declines is only 45; in addition there were a few instances of no change.

Declines in labor cost likewise became less and less frequent from segment to segment of expansions. In fact, rises outnumbered declines in the third, and even more strongly in the fourth segment. In contractions, the progression was less regular, as the percentage of rises did not turn down until the third segment; but declines were considerably more common in the fourth than in the first.

TABLE 4.—*Man-hours and labor cost per unit of product frequency of rises and falls from stage to stage of production cycles*

From stage	To stage	Percentage of expansions and contractions in production in which—					
		Man-hours per unit—			Cost per unit—		
		Rose	Did not change	Fell	Rose	Did not change	Fell
I.....	II.....	9	3	88	16	0	84
II.....	III.....	13	2	85	38	0	62
III.....	IV.....	25	1	74	54	0	46
IV.....	V.....	34	0	66	71	1	28
V.....	VI.....	72	0	28	79	0	21
VI.....	VII.....	64	0	36	84	1	15
VII.....	VIII.....	60	3	37	81	2	17
VIII.....	IX.....	49	6	45	63	1	36

## PRODUCTION CYCLES VERSUS BUSINESS CYCLES

Everyone recognizes nowadays that there are broad upswings and downswings, that is, cycles, in economic activity at large. To go back no farther, there was a general contraction in 1953-54, followed by an upswing that now appears to have ended in 1957. At the moment of writing, we are in another downswing, although just how far along in it we do not yet know.

But production in a single industry often follows a different course from that of general business activity. A particular kind of output frequently declines during at least part of a business expansion and rises during at least part of a business contraction. From some points of view, it may be more interesting to compare the changes in hours per unit or labor cost between turning points in aggregate business rather than between turning points in each industry's own production. The National Bureau has worked out a chronology of turning points, and therefore cycles, in business at large, which we may use for this purpose. This means that from here on we no longer compare man-hours per barrel of cement around February 1938 with man-hours per barrel around April 1942 (see table 3); instead, for example, we compare man-hours per barrel around May 1938 with man-hours per barrel around February 1945; these dates are the trough and peak of a business expansion.<sup>1</sup>

We have hours per unit and labor cost data for these 2 dates in 10 industries, giving us 10 observations in that business phase. In one business expansion or another and one industry or another, we have 51 observations altogether. We have 61 observations for business contractions. The expansions represented are 1933-37, 1938-45, 1945-48, and 1949-53. The contractions are 1937-38, 1945-45, 1948-49, and 1953-54.

## FALLING MAN-HOURS PER UNIT MORE COMMON IN BUSINESS EXPANSIONS THAN IN BUSINESS CONTRACTIONS

In 39 of the 51 observations for business expansions, or 76 percent, there was a net decline in hours per unit from the business trough

<sup>1</sup> The 1938 date has been revised to June; but to keep our work consistent with other studies we use the old date. The effect on our conclusions is negligible.

to the business peak. In this respect, business expansions resembled production expansions. But in 41 percent of the 61 observations for business contractions or 67 percent, we also find a net decline in hours per unit. In production contractions, on the contrary, there was a majority of rises. The only distinction we can make between business expansions and business contractions is that declines in hours per unit are even more frequent in the former than in the latter.

The explanation of the difference between downswings in business and downswings in production is similar to one we have already discussed in other connection. When an industry's contractions fail to coincide with those in business, declines in production measured between business dates are smaller percentagewise than declines measured between production dates. Any adverse effect of diminishing volume is correspondingly minimized, while the contrary effect of any technological improvements is not correspondingly minimized. Consequently, an industry may have a less efficient labor-to-product ratio at the trough than at the preceding peak in its production, and still have a more efficient ratio at a business trough than at the preceding business peak.

#### LABOR COST RISES AND FALLS WITH BUSINESS

In the case of labor cost there is a much more striking difference than in the case of hours per unit. In 41, or 80 percent, of our 51 observations for business upswings, labor cost increased. In 35, or 57 percent, of our 61 observations for business downswings, labor cost diminished. In other words, cost appears to be positively related to the level of business activity, whereas it is inversely related to the level of production in the several industries.

In the case of upswings, the explanation is connected with the fact that the production expansions were on the average a good deal shorter than the business expansions. At the beginning of the 1933-37 business expansion, the recovery from the banking holiday, and the imminence of the blue eagle and NRA, seem to have stimulated a vigorous wave of buying and production. For many industries the rise proved to be temporary, although a good number had a second upswing after an intervening decline in production. In the 1938-45 business upswing, the construction phase of the war effort reached a comparatively early climax. This meant an early downswing for industries heavily dependent on construction. Manpower shortages apparently caused such a decline in others. In the 1949-53 business expansion, the Korean crisis caused a tremendous upswing in demand from consumers and from business itself; but as inventories accumulated this receded and presently restrictions on materials also limited production in some industries. Consequently there were a number of contractions in production, more or less in the middle of the business upswing, often followed by renewed rises in output during its later stretches. The difference in length is important because the cumulative effect of rising average hourly earnings on cost is greater over the longer periods; in many cases it preponderated over whatever net rise in the scale of production occurred over the same periods.

In business contractions, as already noted, technological progress tends to predominate over diminishing volume, bringing about a net fall in hours per unit, while average hourly earnings do not rise as

vigorously as in business expansions, if they rise at all. The net result was the rather narrow majority of declines in labor cost.

FALLING MAN-HOURS PER UNIT MOST FREQUENT IN EARLY BUSINESS  
EXPANSION AND LATE BUSINESS CONTRACTION

Business cycles, like those in production, can be divided into stages on the plan previously described. The 3-month periods in the vicinity of business troughs and peaks become stages I, V, or IX. Intermediate months in a business expansion are grouped into stages II, III, and IV, those in a business contraction into VI, VII, and VIII. We can compute averages of hours per unit or cost for each of these for any industries for which we have data covering a business phase. In that phase the stages will refer to the same time periods for all industries. In each phase, we get a number of observations of change between each pair of stages equal to the number of industries. In all four of the business expansions covered, in one industry or another, we get the same number of observations for each pair of stages as for net change over the phase, namely 51. Similarly, we have 61 observations for each pair of contraction stages.

As in production expansions, declines in man-hours per unit are very common in the first segment of business expansion and become less numerous thereafter (table 5). There is a slight increase in frequency, however, in the last segment. In contractions of business, as in production contractions, declines in hours per unit are comparatively infrequent in the first segment but become more and more frequent thereafter. In our data, they outnumber rises in the last three segments.

DECLINES IN LABOR COST SOMEWHAT SIMILARLY DISTRIBUTED

The frequency of rises in labor cost does not increase at all consistently from segment to segment (table 5). They were most numerous in the second segment, next most common in the fourth. The pattern is largely influenced by the peculiar history of average hourly earnings in the 1933-37 expansion. The blue eagle and NRA brought widespread increases in hourly pay; these tended to raise labor cost between II and III. Another round of sharp increases in wage rates tended to boost cost between IV and V. Taking all the observations for all four expansions together, however, the first segment was the only one in which declines in cost predominated over rises. The net declines in labor cost during business contractions were concentrated in the last two segments; it was only in these that declines exceeded increases in number.

TABLE 5.—*Man-hours and labor cost per unit of product frequency of rises and falls from stage to stage of business cycles*

From stage	To stage	Percentage of observations in which—					
		Man-hours per unit—			Labor cost—		
		Rose	Did not change	Fell	Rose	Did not change	Fell
I.....	II.....	22	2	76	43	0	57
II.....	III.....	33	0	67	86	0	14
III.....	IV.....	39	0	61	69	0	31
IV.....	V.....	37	0	63	76	0	24
V.....	VI.....	54	2	44	62	2	36
VI.....	VII.....	48	1	51	56	0	44
VII.....	VIII.....	30	4	66	28	2	70
VIII.....	IX.....	30	0	70	36	0	64

## TECHNOLOGICAL PROGRESS MINIMIZES CYCLICAL RISES IN COST

In the foregoing discussion a complicating influence, that of technological progress, has been mentioned incidentally. It deserves a more emphatic recognition. Technological improvements tend to reduce man-hours per unit not only in expansions but in contractions. If it were not for such improvements, declines in hours per unit would not be as frequent as they are in expansions of output, while rises would be even more frequent than they are in contractions. Even in an industry that clearly has an inverse relation between hours per unit and output, technological improvements enable the industry to reduce hours per unit in some contractions. Technical advances likewise maximize the frequency of decline in cost and minimize the frequency of rises in cost. The influence of technology on labor cost reinforces the usual influence of expanding volume and, mostly, to be sure, at other times, the influence of declining hourly earnings; it opposes the usual influence of contracting volume and the influence of rising hourly earnings.

## MEANING AND LIMITATIONS OF THE COST DATA

If we were dealing in each industry with the production of one homogeneous commodity, changes in total cost (labor, materials, and overhead) per unit would necessarily be reflected either in proportionate changes in the average price received by the industry or in altered margins of profit. With a single product, if total cost per unit rises, and the price does not rise by as great a percentage, the margin narrows; if price rises by a greater percentage, the margin widens in spite of the rise in cost. If cost falls, and the price does not fall in proportion, the margin widens; if price declines by an even greater percentage, the margin narrows in spite of the fall in cost.

We have presented data for labor cost only. In fact they do not include all of that, for administrative, general supervisory, and central office labor is not included. Total cost no doubt often fluctuates by different percentages than labor cost and may at times move in the opposite direction.

Even if the data represented total cost, they would still not pertain in any instance, except perhaps cement, to an industry with a vir-

tually homogeneous product. Where the product is complex, changes in total cost, based on the measures of production we are obliged to use, might understate or overstate the percentage by which prices would have to be raised or lowered to preserve an initial margin of profit. If the production of high quality coal rises faster than that of all coal, for example, the mining companies, without changing the price of any quality, will collect more revenue per ton of all coal, and hence if cost per ton rises, prices will not have to rise in proportion, and yet the original margin could be preserved. In more serious cases we try to minimize the difficulty by using composite indexes of output. But while those indexes are based in principle on value at constant prices, they do not pretend to reflect the full complexity of pricing. An extremely detailed measure of production, completely reflecting that complexity, might rise or fall from time to time by a greater percentage than the available index. Use of the latter would at such times overstate or understate the size of the adjustment in prices needed to preserve the initial margin.

## TRENDS IN PRODUCT PRICES, FACTOR PRICES, AND PRODUCTIVITY

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This paper is based on estimates of product prices, factor prices, and productivity in the private domestic economy for selected years of high-level economic activity since 1919. The estimates make possible an analytic description of the trends and interrelationships of these variables and of related variables such as the real income per unit of factor input in comparison with productivity, and the changing factor shares of the national income as a result of divergent price and quantity movements of labor and capital inputs.

The interrelationships described by the time series are based on identities, and by themselves do not reveal the mechanism by which prices change. They do provide part of the background required for analysis of the mechanism, and some interpretation is given in the paper, but this study is intended primarily to provide one of the key pieces of the mosaic to be built up by all the contributions to these hearings.

The estimates on which the analysis is based were prepared by the author in connection with a study for the National Bureau of Economic Research of productivity trends in the United States since the late 19th century. The sources of the estimates will be described in detail in the National Bureau study; a very brief description is appended to this paper. The bulk of the paper is drawn from a preliminary draft of one of the chapters in the Bureau study, but the draft has not yet been reviewed by the board of directors of the National Bureau, and the author assumes full responsibility for the estimates and his interpretation of their meaning presented here.

### THE TOTAL FACTOR PRODUCTIVITY CONCEPT AND MEASURE

Since the measures of real product and of real factor inputs are basic to the subsequent analysis, and since the concept of "total factor productivity" differs from the more usual "output per man-hour" partial productivity measure, a few words as to underlying concepts and methods are in order.

Total factor productivity is defined as the ratio of the physical volume of final output to the physical volume of labor and capital inputs, the units of the various types of output and of input weighted together by their base period unit values. Labor input is measured in terms of the man-hours worked in the various industry groupings, weighted together by base period average hourly earnings. Capital input is assumed to move proportionately with the constant dollar value of the net stock of real capital available for use (land, inventories, and plant and equipment net of depreciation); indexes of real

net capital stock in various industry groupings are combined by base-period capital compensation in each. Total factor productivity differs from the conventional "output per man-hour" measures in two respects: (1) Since man-hours employed in each of about 40 industry groups are weighted by base-period average hourly labor compensation, shifts in relative man-hours employed from lower-to-higher-paying industry groups result in a greater relative increase in the weighted "labor input" series than in unweighted man-hours, but do not influence the aggregate productivity measure which is in effect a weighted average of productivity indexes of the component industries; (2) since capital input is counted in the input denominator along with labor input, increases in output per unit of labor input that result from substitution of capital for labor do not show up as changes in productive efficiency; only if final output increases in relation to both corresponding factor inputs can we say that there has been a net saving of inputs or cost elements, and thus an increase in productivity.<sup>1</sup>

To illustrate the difference in movement of the several conceptually different productivity ratios, as well as to provide background for the later analysis, consider the following average annual percentage rates of change for the period 1919-53. This period is used since the trend rate of increase in total factor productivity in the private domestic economy has been significantly higher than it was in the decades preceding World War I. The average annual rate of increase in real product per man-hour was approximately 2.5 percent, compared with a 2.3 percent rate of increase in real product per unit of labor input (weighted man-hours); the 0.2 percentage point difference represents the effect on labor input of shifts from lower-paying to higher-paying industries. The difference between the 2.3 and 2.1 percent average annual rates of increase in real product per unit of labor input and in total factor productivity, respectively, reflects the net effect of substitution of capital for labor over the period.

#### PRODUCTIVITY AND THE PRICES OF PRODUCTS AND FACTORS

The general level of prices of the final goods and services produced by the economy must increase to a lesser extent than the average prices of the productive factors (or decline more) in proportion to advances in factor productivity. Increasing productivity means that the quantity of inputs used per unit of output declines, and this decline in unit factor requirements provides an offset against rising factor prices in like degree. Productivity gains thus act as a cushion whereby rising factor prices are reflected to a lesser extent in final product prices; or if factor prices decline, productivity advances are associated with a proportionally greater decline in product prices.

The relationship among the three variables may be stated precisely if the terms are appropriately defined. Factor price is the weighted unit compensation of the factor services, obtained by dividing national income (which is the sum of factor cost or compensation) by the sum of real labor and capital inputs (see table 1). The average unit compensation of labor is the compensation per man-hour in the various industries combined by variable man-hour weights. The

<sup>1</sup> For further discussion of concept, see John W. Kendrick, *Productivity Trends: Capital and Labor*, Occasional Paper No. 53 (National Bureau of Economic Research, 1956).

average unit compensation of capital is, in effect, the product of prices of capital goods and the rate of return on capital (including profit) in the several industries, combined by variable capital input weights. Operationally, the average price of each factor class is obtained as a quotient of the total compensation of each divided by the corresponding aggregate real input measure (see table 2a).

TABLE 1.—*Private domestic economy—Factor prices, product prices, and productivity*

	Net domestic product at factor cost		Factor input 1929 dollars <sup>1</sup>	Factor productivity index (2)÷(3)	Average price	
	Current dollars	1929 dollars			Factors index (1)÷(3)	Products index (1)÷(2)= (5)÷(4)
	(1)	(2)	(3)	(4)	(5)	(6)
A. Millions of dollars and index numbers, 1929=100						
1919.....	60,848	56,711	70,207	80.8	86.7	107.3
1929.....	82,669	82,669	82,669	100.0	100.0	100.0
1937.....	66,433	84,157	73,720	114.2	90.1	78.9
1948.....	203,191	135,991	92,827	146.5	218.9	149.4
1953.....	268,946	168,562	102,739	164.1	261.8	159.5
B. Link relatives						
1929/19.....	135.9	145.8	117.8	123.8	115.3	93.2
1937/29.....	80.4	101.8	89.2	114.2	90.1	78.9
1948/37.....	305.9	161.6	125.9	128.3	243.0	187.4
1953/48.....	132.4	124.0	110.7	112.0	119.6	106.8
1953/19.....	442.0	297.2	146.3	203.1	302.0	148.6
C. Average annual rates of change (percentages)						
1929/19.....	3.1	3.8	1.7	2.2	1.4	-0.7
1937/29.....	-2.7	.2	-1.4	1.7	-1.3	-2.9
1948/37.....	10.7	4.5	2.1	2.3	8.4	6.0
1953/48.....	5.6	4.4	2.1	2.3	3.6	1.3
1953/19.....	4.5	3.3	1.1	2.1	3.3	1.2

<sup>1</sup> Factor input here is derived as the sum of labor and capital inputs in absolute terms. It differs slightly from an index which represents a variable weighted average of indexes of labor and capital inputs.

NOTE.—Table may not be internally consistent due to rounding. Indicated derivations apply to sec. C only if 100 percent is added to the percentage rates of change.

TABLE 2a.—*Private domestic economy—Average factor prices: Labor and capital*

(Millions of dollars and index numbers, 1929=100)

	Labor cost		Average price of labor index (1)÷(2)	Capital cost		Average price of capital index (4)÷(5)
	Current dollars	1929 dollars		Current dollars	1929 dollars	
	(1)	(2)	(3)	(4)	(5)	(6)
1919.....	43,814	51,802	84.6	17,034	18,405	92.6
1929.....	59,749	59,749	100.0	22,920	22,920	100.0
1937.....	52,400	52,221	100.4	14,033	21,499	65.3
1948.....	154,769	66,859	231.5	48,422	25,968	186.5
1953.....	213,145	70,743	301.3	55,801	31,996	174.4

In order to obtain an index of final product prices consistent with the factor price measure, it is necessary to compute the quotient of net

private domestic product at factor cost in current prices and in constant prices. As a "net" measure, the implicit price deflator accords a smaller weight to the prices of capital goods than would price deflators of gross product, since capital outlays required to offset capital consumption are excluded. As a measure of the average prices of national product "at factor cost," the effect of indirect business taxes on market price is eliminated. In practice, it is obtained by dividing national income by real net product at factor cost. The latter variable is gotten by extrapolating base-period income by the index of real net product, since the deflated net product at factor cost should show virtually the same movement as deflated net product at market price.<sup>2</sup>

Now, net national product at factor cost equals national income ( $Y$ ); when divided by real product as defined ( $O$ ), a measure of average product price is obtained ( $P_o$ ); when divided by an index of real factor input ( $I$ ), a measure of average factor price is obtained ( $P_i$ ). The following equation demonstrates that average product price is the quotient of average factor price and productivity ( $T=O/I$ );

$$\frac{Y}{O} = \frac{Y}{I} + \frac{O}{I} \text{ or, } P_o = P_i/T$$

In table 1, the values of these variables have been entered for key years beginning with 1919. Over the period 1919-53, factor price has risen at an average rate of 3.3 percent a year, productivity by 2.1 percent, and the product price level by 1.2 percent. Thus, productivity advance has mitigated the effect of increasing money demand on factor price by approximately two-thirds.

The importance of the cushion provided by productivity against the impact of inflation may be realized more vividly in terms of the aggregate percent changes over the 34 years. If productivity had not grown at all, and all other things had been the same, prices would have tripled—which is what happened to factor price. But actually, productivity doubled, which reduced the price increase to 50 percent.

These changes were the net result of divergent tendencies over the several subperiods. In the first decade shown in the table, 1919-29, product prices actually dropped somewhat, despite a 15-percent rise in factor price, as a consequence of the accelerated rate of productivity advance that set in around the end of World War I. Between 1929 and 1937, in the absence of full recovery from the great depression, factor price was 10 percent lower in 1937 than in 1929, but product price was more than 20 percent lower due to the continued, although

<sup>2</sup> Cf. John W. Kendrick, *The Estimation of Real National Product*, *Studies in Income and Wealth*, vol. 22, N. B. E. R. The implicit price deflators for the net product at factor cost and at market prices do not diverge substantially over the period, as shown below:

*Implicit price deflators for net private domestic product*

[Index numbers, 1929=100]

	At market price	At factor cost	Ratio (1)÷(2)
1919.....	108.3	107.3	100.9
1929.....	100.0	100.0	100.0
1937.....	82.2	78.9	104.2
1948.....	144.3	149.4	96.6
1953.....	159.1	159.5	99.7

somewhat retarded, advance in productivity. With the wartime and postwar inflationary pressures, unit factor price in 1953 stood almost 3 times higher than the 1937 level, while the product price level had doubled. Continued strong productivity gains had cushioned the effect on prices of monetary inflation, which was accentuated by continuous rounds of wage increases in the postwar period. But it is clear that the magic of technological advance alone cannot prevent significant price rises in the face of major inflationary pressures.

At least the 1.3 percent average annual rate of increase in product prices 1948-53 is far lower than the 6 percent rate over the preceding decade. The 1.3 percent rate is close to the long-term rate, and more recent figures indicate that approximately the same rate prevailed from 1953 to 1956. The rate would have been lower in the last 3 years except for an apparent slowing of productivity advance. On the other hand, the rate of advance in factor prices also slowed—a condition not likely to prevail indefinitely for reasons we shall go into in the next section which deals with the individual factor prices.

#### RELATIVE CHANGES IN FACTOR PRICES

The index of total factor prices is a composite of the prices of the various component types of factors. Each individual factor price may have changed by more or less than the weighted average of all. Average hourly labor compensation has changed in somewhat different proportions in the various occupational or industry groupings; and unit capital compensation has varied among the several industries. But the interindustry structures of wage rates and of unit capital compensation have been relatively stable over time in contrast to the marked difference in movement between the prices of the two major factor classes, labor and capital.

Between 1919 and 1953, average hourly labor compensation increased at an average annual rate of 3.8 percent a year—almost double the 1.9 percent average increase in the price of capital. Over the 34 years, these average rates of increase were associated with a 256 percent increase in labor rates compared with an 88 percent rise in unit capital compensation. Reflecting the heavier weight of unit labor compensation, total factor compensation per unit rose by 200 percent over the period, which reduces to the average annual gain of 3.3 percent.

It will be noted that the 1.9 percent average annual increase in the price of capital was somewhat higher than the rate of increase in average product prices generally. Since there was little trend in the rate of return on capital, the explanation lies primarily in a somewhat faster rise in the prices of capital goods, as measured, than in the prices of other final products. Insofar as the quality of capital goods increased more than the quality of other goods, the differential price movement is overstated but cannot be quantitatively adjusted for.

During the first decade 1919-29, total factor price rose by 1.4 percent a year—less than half its rate of increase over the whole period. But the average increase in wage rates of 1.7 percent was twice the average increase in the price of capital, as was true for the longer period. Between 1929 and the submerged peak of 1937, wage rates were barely able to hold their own, while the price of capital declined

substantially as a result of the incomplete recovery from the great depression. The next subperiod, 1937-48, was the only one in which the rate of increase in the price of capital exceeded that in the price of labor—10 as compared with 8 percent a year—due both to the low 1937 base and to the postwar shortage of capital still prevailing at the high 1948 peak. The relationship during this period also reflects the high degree of monetary inflation accompanying the war and continuing well into the postwar period.

The relationship between factor prices reversed completely in the following period. Between 1948 and 1953, while the rate of increase in wage rates slowed somewhat to a 5.5 percent annual average, the price of capital actually declined. Here, it would seem inflationary pressure tended to originate on the labor cost side, with mild restraint on the part of the monetary authorities in the latter half of the period resulting in some squeeze on profits. Rough estimates for the period 1953-56 point to a continuation of the same basic situation. Wage rates rose by more than 4 percent a year on average, while a further squeezing of the rate of return on capital more than offset small increases in the price of capital goods and produced a 2 percent average annual decline in the price of capital.

Despite the decline in the rate of return on capital in the postwar period, the return was still sufficient to induce a volume of new investment consistent with relatively full employment. But it is obvious that the rate of return cannot continuously decline and still produce sufficient investment demand. Assuming an eventual leveling or rising rate of return on capital, and the same rates of increase in wage rates and productivity as have prevailed in the postwar period, the rate of increase in final product prices would accelerate as unit factor costs, following the current contractions, rise in greater degree than in the period 1948-57.

#### *Forces behind relative factor price changes*

Whatever the rise in unit factor costs, it may be expected that wage rates will rise faster than the price of capital in the future as in the past. In the past, this relative movement has resulted in the labor share of productivity gains and of the national income rising. So it is worth pausing to consider some of the reasons for a relative increase in the price of labor.

The variables determining relative price movements of the factors are complex, but two major influences stand out—one relating to the rate of return on capital and the other to the prices of capital goods, the product of which is the price of capital as we define and measure it.

With respect to the first influence, the statistics show that net capital formation has been high enough secularly in this country to result in a significantly greater increase in real capital stocks and services than in the labor force and man-hours worked. The law of diminishing marginal productivity tells us that under these circumstances, and in the absence of technological advance, the rate of return on capital would decline both absolutely and in relation to the wage rate. Actually, technological advance has shifted the factor demand curves upward so that there has been no pronounced trend in the rate of return to capital, while real wage rates have risen.

The second influence relates to the prices of capital goods. Increasing productivity in the capital goods industries as in the economy generally means that capital goods prices fall in relation to wage rates (increase less), assuming relatively full employment and competitive conditions which tend to cause prices to approximate the cost of production per unit, and result in labor being paid in accordance with its (rising) marginal productivity. Since there has been no corresponding offset in a rising rate of return on capital over the long run, the decline in capital goods prices relative to wage rates is a built-in factor in dynamic economies that promotes the substitution of capital for labor.

TABLE 2b.—*Private domestic economy—Relative factor prices*

Year	Price per unit of factor input			Relative factor prices, reciprocal ratios	
	Labor	Capital	Total	Labor to capital (1) ÷ (2)	Capital to labor (2) ÷ (1)
	(1)	(2)	(3)	(4)	(5)
A. Index numbers, 1929=100					
1919.....	84.6	92.6	86.7	91.4	109.4
1929.....	100.0	100.0	100.0	100.0	100.0
1937.....	100.4	65.3	90.1	153.8	65.0
1948.....	231.5	186.5	218.9	124.1	80.6
1953.....	301.3	174.4	261.8	172.8	57.9
B. Link relatives					
1929/19.....	118.2	108.0	115.3	109.4	91.4
1937/29.....	100.4	65.3	90.1	153.8	65.0
1948/37.....	230.6	285.6	243.0	80.7	124.0
1953/48.....	130.2	93.5	119.6	139.2	71.8
1953/19.....	356.1	188.3	302.0	189.1	52.9
C. Average annual rates of change (percentages)					
1929/19.....	1.7	0.8	1.4	0.9	-0.9
1937/29.....	.1	-5.2	-1.3	5.5	-5.2
1948/37.....	7.9	10.0	8.4	-1.9	2.0
1953/48.....	5.4	-1.3	3.6	6.8	-6.4
1953/19.....	3.8	1.9	3.3	1.9	-1.9

NOTE.—Table may not be internally consistent due to rounding. The quotients in cols. (4) and (5) of part C are derived as indicated only when 100.0 percent is added to the average annual rates of change.

TABLE 3.—*Private domestic economy—Factor shares of national income in current and constant dollars*

Year	Percent distribution of real factor cost in 1929 prices		Relative factor prices <sup>1</sup> (1929=100)		Percent distribution of national income in current prices	
	Labor	Capital	Labor	Capital	Labor (1)×(3)	Capital (2)×(4)
	(1)	(2)	(3)	(4)	(5)	(6)
1919.....	73.8	26.2	97.6	106.8	72.0	28.0
1929.....	72.3	27.7	100.0	100.0	72.3	27.7
1937.....	70.8	29.2	111.4	72.5	78.9	21.1
1948.....	72.0	28.0	105.8	85.2	76.2	23.8
1953.....	68.9	31.1	115.1	66.6	79.3	20.7

<sup>1</sup> Index of ratios of individual factor prices to total factor price (see table 2b).

NOTE.—Table may not be internally consistent due to rounding.

On the demand side, it is conceivable that inventions might be sufficiently labor saving (that is, require increasing quantities of capital relative to labor, given constant relative factor prices) to cause the demand for capital to increase more rapidly than the demand for labor. But if this has been the case (as distinguished from the substitution of capital for labor as a result of changing relative factor prices), it has not been a strong enough tendency to offset the effect on relative price of the greater increases in the supply of capital than of labor—since the estimates show that wage rates have consistently risen relative to the price of capital in all periods when capital per unit of labor was rising.

#### *Factor shares in national income*

The national income accruing to each factor is the product of the quantity employed and its price (unit cost). Aggregate national income is the sum of the compensations of all the factors. Thus, the share of each factor in total national income will vary in accordance with the net effect of changes in the quantity of the factor employed relative to total input, and the price of the factor relative to average factor price.

It was apparent in table 2b that the input of capital rose substantially relative to labor input between 1919 and 1953, and in all sub-periods except 1937-48. The ratio of capital to labor input went up by 27 percent over the whole period. As a ratio to total factor input, the increase was only 7 percent—since the marginal rate of substitution of capital for labor was more than 3:1 based on the average weights accorded the two factors over the period. The ratios of the input of each factor to total factor input is shown in the first two columns of table 3. From 1919 to 1953, the ratio of labor to total factor input declined from 74 to 69 percent.

But the decline in relative labor input was associated with a more than proportional increase in the price of labor services relative to total factor price. The 18 percent increase in this ratio (derived from the data of table 2 and shown in the third and fourth columns of table 3), is less than the 89 percent increase in the ratio of the price of labor to that of capital alone, again because of the much higher weight of labor.

Only in the subperiod 1937-48 did the relative price of labor decline. But in all subperiods, the relative prices and relative inputs of the two factors moved inversely. It is clear that it was through relative price movements that the different rates of supply of the two factors were absorbed into the productive system. That is, cost economies were achieved by producers in substituting the factor that was becoming relatively cheaper for the one that was growing dearer as a result of changing relative supplies. Over the period as a whole, the ratio of the percent change in relative factor prices to the percentage change in relative factor inputs was  $-0.24$ . The coefficient of substitution varied considerably among the subperiods, however.

The last two columns of table 3 show the net effect on income shares of the inverse movement of relative factor inputs and prices. Since the decline in the relative input of labor was significantly smaller than the increase in relative labor price, the share of labor increased from 71 percent in 1919 to 79 percent in 1953. The same percentages may be calculated directly from table 2. Only in subperiod 1937-48 did labor's share in the national income temporarily decline due to the peculiar circumstances described earlier. This implies that in all subperiods except 1937-48, and over the long period, labor received a significantly larger share of the productivity increment to real income (product) than its share of total income at the beginning of each period.

#### RELATIVE CHANGES IN REAL FACTOR COMPENSATION PER UNIT

Once the prices of the factors have been calculated, it is easy to compute the real earnings per unit of each of the factor inputs. This involves dividing the factor prices (i. e., the current dollar compensation per unit) by an index of the prices of products for which factor incomes are spent, directly or indirectly. For that index, we use the implicit price deflator for the net domestic product at factor cost. This index is composed of the prices of new capital goods and goods purchased by Government, as well as consumer goods, although consumer goods have by far the largest weight.

It could be argued that labor income is distributed in a somewhat different way among these types of goods (i. e., as among spending, saving, and taxes) than is the income accruing to capital, and that to measure the purchasing power of the different types of unit compensation different price indexes should be employed with weights based on the patterns of spending out of each type of income. But both types of income are used for all the major types of final product, and it is statistically impossible to relate patterns of spending to type of factor income since most spending units do not receive a pure form of either. In any case, the results using a different deflator would not differ substantially. Over the long period 1919-53, the consumers' price index increased by only a few percent less than our deflator.<sup>3</sup>

The results of deflating current dollar unit factor compensation by product price is shown in table 4a in index number form. Since average hourly earnings had increased substantially more than average compensation per unit of capital, it follows that the real increase in the former would also be greater. But price deflation accentuates

<sup>3</sup> Conceptually, a market price index would be preferable to our index at factor cost, but the differences between the two are minor and our index has the advantage of permitting precise definition of the relationships between productivity, prices, and unit factor costs.

the differential movement: between the years 1919 and 1953, real average labor earnings increased by almost 150 percent, more than 4 times as much as the 35-percent increase in real compensation per unit of capital.

The gains in real unit compensation of each factor may be compared with the gain in productivity, which is also the gain in real income per composite unit of factor input. (See table 4b.) The proportionate gain in real average hourly earnings of labor was one-fourth greater than the proportionate increase in total factor productivity over the period (although about equal to the rate of gain in real product per man-hour). The proportional gain in real unit compensation of capital was only about one-fourth of the total productivity increase.

The marked difference between the increases in real unit earnings of the two factors and the productivity increases is explained by the differential movement in the prices of the two factors. (See table 4b.) The price of capital fell by around 38 percent relative to composite unit factor price, and it was this relative decline that caused the real earnings per unit of capital to rise less than productivity and, conversely, made it possible for the real average earnings of labor to rise substantially more than the proportionate increase in productivity.

TABLE 4a.—*Private domestic economy—Real factor income per unit*

[Index numbers, 1929=100]

	Current income per unit (factor price)		Average product price	Real income per unit	
	Labor	Capital		Labor (1)+(3)	Capital (2)+(3)
	(1)	(2)	(3)	(4)	(5)
1919.....	84.6	92.6	107.3	78.8	86.3
1929.....	100.0	100.0	100.0	100.0	100.0
1937.....	100.4	65.3	78.9	127.2	82.8
1948.....	231.5	186.5	149.4	155.0	124.8
1953.....	301.3	174.4	159.5	188.9	109.3

TABLE 4b.—Private domestic economy—Productivity and real factor income per unit

Year	Productivity	Relative factor prices		Real income per unit	
		Labor	Capital	Labor (1)×(2)	Capital (1)×(3)
	(1)	(2)	(3)	(4)	(5)
A. Index number, 1929=100					
1919.....	80.8	97.6	106.8	78.8	86.3
1929.....	100.0	100.0	100.0	100.0	100.0
1937.....	114.2	111.4	72.5	127.2	82.8
1948.....	146.5	105.8	85.2	155.0	124.8
1963.....	164.1	115.1	66.6	188.9	109.3
B. Link relatives					
1929/19.....	123.8	102.5	93.6	126.9	115.9
1937/29.....	114.2	111.4	72.5	127.2	82.8
1948/37.....	128.3	95.0	117.5	121.9	150.7
1963/48.....	112.0	108.8	78.2	121.9	87.6
1963/19.....	203.1	117.9	62.4	239.7	126.7
C. Average annual rates of change (percentages)					
1929/19.....	2.2	0.2	-0.7	2.4	1.5
1937/29.....	1.7	1.4	-3.9	3.1	-2.3
1948/37.....	2.3	-.5	1.5	1.8	3.8
1963/48.....	2.3	1.7	-4.8	4.0	-2.6
1963/19.....	2.1	.5	-1.4	2.6	.7

NOTE.—Table may not be internally consistent due to rounding.

So long as capital increases more rapidly than labor, input and the price of capital rises less rapidly than wage rates, it is apparent that wage rates can rise somewhat faster than total factor productivity and still be consistent with a stable product price level. Beyond a point, however, increases in wage rates are associated with price inflation, if the monetary authorities accommodate the rise of unit costs. This historical survey indicates, at least roughly, where that point lies.

#### TECHNICAL NOTE

The estimates of real private product since 1929 are those published by the United States Department of Commerce (National Income, 1954 edition, a supplement to the Survey of Current Business, as revised) carried back to 1919 by estimates of the common components by Prof. Simon Kuznets supplemented by our own estimates of Government purchases of goods and services from private industry, based on Treasury Department and Census Bureau data for Federal and for State and local purchases, respectively.

The nonfarm employment estimates from 1929 forward are also those published by the Commerce Department inclusive of proprietors, supplemented to include unpaid family workers as estimated by the Census Bureau. The estimates of farm employment, including unpaid family workers, are those of the Department of Agriculture back to 1919. Nonfarm employment was extrapolated from 1929 to 1919 by estimates based largely on Census Bureau sources, and contained for the most part in various studies of output, employment, and labor force published by the National Bureau of Economic Research. The estimates of average hours worked per week in private nonfarm industries needed in conjunction with employment to estimate man-hours worked, are largely those of the Department of Labor and the Census Bureau. Farm man-hour estimates of the Department of Agriculture were used with a level adjustment. In establishing levels for some of the nonfarm industries in the early part of the period, use was also made of estimates for the years 1920-22 based on sample surveys by W. I. King for the National Bureau of Economic Research.

The estimates of real net capital stocks in the private nonfarm, non-residential sector are largely those prepared by Raymond Goldsmith and published in *A Study of Saving in the United States*, volume 3 (Princeton University Press, 1955), subsequently revised and extended since 1945 by Mr. Goldsmith. The estimates of real farm capital are chiefly those prepared by Alvin S. Tostlebe, *Capital in Agriculture: Its Formation and Financing Since 1870* (Princeton University Press for the National Bureau of Economic Research, 1957). Estimates of the real net stock of nonfarm residential real estate are based on those contained in the volume by Leo Grebler, David M. Blank and Louis Winnick, *Capital Formation in Residential Real Estate* (Princeton University Press for the NBER, 1956).

The national income estimates, used both as a basis for weighting the factor inputs by type and by industry, and for computation of the compensation per unit of factor input by type, are those published by the Department of Commerce since 1929. They were extended back to 1919 largely by the estimates of Professor Kuznets, *National Income and Its Composition, 1919-38*, adjusted for consistency with our employment estimates. The net income of proprietors was separated into labor and capital components by imputing the average annual compensation of employees in each industry group to the proprietors. The sum of the imputed labor income of proprietors plus wages, salaries, and supplements make up total labor compensation; the rest of national income equals capital compensation and comprises interest, net rents, and royalties, and profits.

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IV  
INTERRELATIONSHIPS AMONG PRICES, DEMANDS,  
AND COSTS

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#### IV. *Interrelationships among prices, demands, and costs*

##### A. General price movements.

1. Under what circumstances can we expect general price movements—inflation or deflation—to originate in an excess of demand over the supply forthcoming at constant prices? To originate in changes in unit costs? Can a cost-push price movement continue to operate in the absence of an “excess demand situation”? If so, then for how long, and under what conditions?
2. Accepting relative price movements as proper and necessary under a dynamic economy, will a change in relative prices induce more general price movements—i. e., are there any individual products or services so important to the economy as a whole that changes in their prices are necessarily followed by widespread changes in prices of other products and services? In other words, should policies for the control of inflation or deflation be substantially concerned with influencing prices of certain particular goods or services?
3. To what extent do general price-level changes tend to feed upon themselves, with accelerating or cumulative movements away from a stabilized price level?

B. In short-run situations, do movements of prices of some products and services tend to be determined mainly by changes in demand while others reflect mainly changes in unit costs? If this distinction seems useful, what products and services would you put in each classification, and why?

##### C. Relationships between prices and—

###### 1. Aggregate demand.

- (a) What are the relationships between the level of, and changes in, the supply of money, and the level of, and changes in, the general average of prices of goods and services? Of productive factors?
- (b) How and to what extent are prices in the United States affected by developments in other countries, especially changes in international prices? Under what circumstances does this relationship run in the reverse direction from changes in the United States to changes in international prices?

2. Consumer demand.
3. Investment demand.
4. Government demand.

**D. Relationships between prices and costs.****1. The determinants of costs:**

- (a) How are unit costs affected by the rate of utilization of plants and equipment? Of labor force? Of other resources?
- (b) How are unit costs affected by changes in the technical efficiency of productive factors or of the way in which they are combined?
- (c) How are unit costs affected by the size and scale of enterprises?
- (d) How are unit costs affected by changes in the prices of productive factors?

**2. Factors affecting prices of productive resources:**

- (a) What influences the price of productive factors: Wages? Profits? Interest? Rents? etc.
- (b) How are changes in demand for goods and services related to changes in prices of productive resources?

**3. How are unit costs related to prices in the long run? In the short run? What classes of costs are relevant to the analysis of such cost-price relationships?**



## THE SUPPLY OF MONEY AND CHANGES IN PRICES AND OUTPUT

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This paper deals with two broad issues that have arisen again and again in connection with movements in the general level of prices. One issue is the connection between such price movements and changes in the supply of money. The other is the relation between price changes and changes in output.

The course of economic history is replete with substantial price disturbances. Whenever such disturbances have occurred, two different explanations have been offered. One, common to all disturbances, is that the price movements reflect changes in the quantity of money, though the source of the monetary changes has varied widely—from clipping of currency to gold discoveries to changes in the monetary standard to the printing of paper money to the creation or destruction of deposit money by central banks and commercial banks. The other explanation has been in terms of some special circumstances of the particular occasion: good or bad harvests; disruptions in international trade; lack of confidence; the activities of “profiteers” or “monopolists” selling goods or of employers seeking to hold down wages; the activities of workers or unions pushing wages up; and so on in great variety. Perhaps the one common core of such explanations is that they generally attribute the price movements to the (socially) misguided behavior of particular individuals or groups. My own view is that these alternative explanations play little or no role in either long range or large movements in prices, though they may in short and minor movements, except indirectly as they affect the supply of money. It is clearly impossible to argue this view in detail within the compass of this paper. My reason for stating it is to make clear that I am putting such explanations to one side and concentrating instead on the monetary forces at work.

The relation between the supply of money and prices has been explored so frequently and thoroughly that I can hardly hope to add much that is new on an analytical level. My reason for dealing with it nonetheless is twofold: on the one hand, though it is the essence of the problem of long run and large price movements, it tends to be pushed to one side and neglected—partly, perhaps, because of the desire to be novel; on the other hand, extensive empirical work that is currently underway puts flesh on the analytical skeleton to an extent that has not heretofore been possible. One of the major aims and justifications of this paper is to summarize some of the broad findings on this work.<sup>1</sup> I shall do so in section 1 for the longer term changes in money and prices, in section 2, for the shorter term changes.

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<sup>1</sup> These are based partly on the preliminary results of an extensive study by Anna J. Schwartz and myself under the auspices of the National Bureau of Economic Research on the secular and cyclical behavior of the stock of money in the United States, partly on a series of studies done in the workshop in money and banking at the University of Chicago. The views expressed in this paper are of course my own and are not necessarily those of the organizations sponsoring these studies or of the other participants in them.

Discussion of public policy with respect to prices necessarily involves the issue what kind of movements are socially desirable. One major problem is the relation of price movements to economic growth. Is a rising price level favorable or unfavorable to rapid growth in output? No conclusive answer can be given to this question in the present state of our knowledge. Some analysis and evidence to justify this assertion are given in section 3.

The final section of this paper presents some implications for policy that are suggested by the relation between monetary and price change and between price change and output change.

### *1. Relation of stock of money to prices over longer periods*

There is perhaps no empirical regularity among economic phenomena that is based on so much evidence for so wide a range of circumstances as the connection between substantial changes in the stock of money and in the level of prices.<sup>2</sup> To the best of my knowledge there is no instance in which a substantial change in the stock of money per unit of output has occurred without a substantial change in the level of prices in the same direction.<sup>3</sup> Conversely, I know of no instance in which there has been a substantial change in the level of prices without a substantial change in the stock of money per unit of output in the same direction. And instances in which prices and the stock of money have moved together are recorded for many centuries of history, for countries in every part of the globe, and for a wide diversity of monetary arrangements.

There can be little doubt about this statistical connection. The statistical connection itself, however, tells nothing about direction of influence, and it is on this question that there has been the most controversy. It could be that a rise or fall in prices, occurring for whatever reasons, produces a corresponding rise or fall in the stock of money, so that the monetary changes are a passive consequence. Alternatively, it could be that changes in the stock of money produce changes in prices in the same direction, so that control of the stock of money would imply control of prices. The variety of monetary arrangements for which a connection between monetary and price movements has been observed supports strongly the second interpretation, namely, that substantial changes in the stock of money are both a necessary and a sufficient condition for substantial changes in the general level of prices. But of course this does not exclude a reflex influence of changes in prices on the stock of money. This reflex influence is often

<sup>2</sup> "The stock of money" is not of course an unambiguous concept. There is a wide range of assets possessing to a greater or lesser degree the qualities of general acceptability and fixity in nominal value that are the main characteristics of "money." It is somewhat arbitrary just where the line is drawn which separates "money" from "near-money" or "securities" or "other financial claims." For most of what follows, the precise line drawn will not affect the analysis. For the United States at present, I shall treat as "money in the hands of the public" the sum of "currency outside banks," "demand deposits adjusted," and "adjusted time deposits in commercial banks," as these terms are defined in Federal Reserve monetary statistics. I shall note explicitly any point at which the precise definition adopted affects the statements made.

<sup>3</sup> The nearest thing to an exception I know of is German experience from the midthirties to 1944. See John J. Klein, *German Money and Prices, 1932-44*, in Milton Friedman (Ed.), *Studies in the Quantity Theory of Money* (University of Chicago Press, 1956), pp. 121-159. The qualification, "per unit of output" is needed only to cover movements spanning long periods of time, like the long term decline in prices in the late 19th century. For moderately short periods, even the qualification is unnecessary.

important, almost always complex, and, depending on the monetary arrangements, may be in either direction.<sup>4</sup>

This general evidence is reinforced by much historical evidence of a more specific character demonstrating that changes in the stock of money, at least when they are fairly large, can exert an independent influence on prices. One dramatic example is from the experience of the Confederacy during the Civil War. In 1864, "after 3 years of war, after widespread destruction and military reverses, in the face of impending defeat, a monetary reform that succeeded in reducing the stock of money halted and reversed for some months a rise in prices that had been going on at the rate of 10 percent a month most of the war. It would be hard to construct a better controlled experiment to demonstrate the critical importance of the supply of money."<sup>5</sup> The effect of discoveries of precious metals in the New World in the 16th century and of gold in California and Australia in the 1840's, of the development of the cyanide process for extracting ore plus gold discoveries in South Africa in the 1890's, and of the printing of money in various hyperinflations, including our own Revolutionary War experience and the experience of many countries after World War I and World War II, are other striking examples of increases in the stock of money producing increases in prices. The long price decline in the second half of the 19th century in many parts of the world is a less dramatic example of a decline in the stock of money per unit of output producing a decline in prices.<sup>6</sup>

The relationship between changes in the stock of money and changes in prices, while close, is not of course precise or mechanically rigid. Two major factors produce discrepancies: changes in output, and changes in the amount of money that the public desires to hold relative to its income.

For the moment, we shall treat output as if it were determined independently of monetary and price changes, postponing to section 3 the relation between them. This is clearly a simplification that is to some extent contrary to fact, but certainly for the longer periods and larger changes that are discussed in this section, the simplification neither does serious violence to the facts nor leads to any significant errors in conclusions.

Suppose the stock of money were to remain unchanged for a period of years but total output over the same period were to double. Clearly, one would expect prices to fall—other things the same—to something like half their initial level. The total amount of "work" for the money stock to do, as it were, is doubled, and the same nominal quantity of money could perform the "work" only at lower levels of prices. Roughly speaking, this is what happened in the United States in the period from the end of the Civil War in 1865 to the resumption of specie payments in 1879: The stock of money was

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<sup>4</sup> For example, under a gold standard, a rising level of prices discourages gold production and so, after a lag tends to produce a decline in the stock of money. On the other hand, under a fractional reserve banking system, if rising prices lead banks to reduce the ratio of cash to liabilities, rising prices may tend to produce a rise in the stock of money.

<sup>5</sup> Milton Friedman, *The Quantity Theory of Money—A Restatement*, in *Studies in the Quantity Theory of Money*, p. 17. The quotation summarizes one item from a study by Eugene M. Lerner, summarized in his article, *Inflation in the Confederacy, 1861–65*, in the same volume, pp. 163–175.

<sup>6</sup> The decline in the stock of money per unit of output occurred as a result of (1) exhaustion of then-known gold mines; (2) the shift of many countries from a silver to a gold standard; (3) the rapid increase in output.

roughly the same in 1879 as in 1865—if anything, some 10 percent higher; output grew very rapidly over the period, probably more than doubling; and wholesale prices were half their initial level.<sup>7</sup> Thus, for price movements, the relevant variable is the stock of money per unit of output, not simply the global stock of money.

The second major factor that can introduce a discrepancy between movements in money and in prices is a change in the ratio that the public desires to maintain between its cash balances and its income<sup>8</sup>—the public including individuals, business enterprises other than banks, nonprofit institutions, and the like. The number of dollars an individual wants to keep in cash depends of course on the price level—at twice the price level he will want to hold something like twice the number of dollars—and on his income—the higher his income presumably the larger cash balances he will want to hold. But the price level is what we are trying to explain, and we have already taken account of the effect of changes in output. This is why we express this factor in terms of the ratio that the public desires to maintain between its cash balances and its income, rather than in terms of the number of dollars it desires to hold.

Broadly speaking, the public as a whole cannot by itself affect the total number of dollars available to be held—this is determined primarily by the monetary institutions. To each individual separately, it appears that he can do so; in fact an individual can reduce or increase his cash balance in general only through another individual's increasing or reducing his. If individuals as a whole, for example, try to reduce the number of dollars they hold, they cannot as an aggregate do so. In trying to do so, however, they will raise the flow of expenditures and hence of money income and in this way will reduce the ratio of their cash balances to their income; since prices will tend to rise in the process, they will thereby reduce the real value of their cash balances, that is, the quantity of goods and services that the cash balances will command; and this process will continue until this ratio or this real value is in accord with their desires.

A wide range of empirical evidence suggests that the ratio which people desire to maintain between their cash balances and their income is relatively stable over fairly long periods of time aside from the effect of two major factors: (1) The level of real income per capita, or perhaps of real wealth per capita; (2) the cost of holding money.<sup>9</sup>

(1) Apparently, the holding of cash balances is regarded as a "luxury," like education and recreation. The amount of money the public desires to hold not only goes up as its real income rises but goes up more than in proportion. Judged by evidence for the last 75 years in the United States, a 1 percent rise in real income per capita tends to be accompanied by nearly a 2 percent increase in the real amount of money held and thus by nearly a 1 percent increase in the ratio of

<sup>7</sup> The basic data underlying this statement are from the National Bureau study mentioned in footnote 1 above. They will appear in a monograph by Anna J. Schwartz and myself that is now in preparation.

<sup>8</sup> The reciprocal of this ratio is termed "the income velocity of circulation."

<sup>9</sup> On this subject, see Phillip Cagan, *The Monetary Dynamics of Hyperinflation*, and Richard T. Selden, *Monetary Velocity in the United States*, in *Studies in the Quantity Theory of Money*. The statements that follow are based also on additional work done in connection with the National Bureau study referred to in footnote 1.

For shorter periods, an additional factor enters. Cash balances are apparently adjusted to longer term income expectations ("permanent income") rather than to current income as measured on a monthly or annual basis. This introduces additional changes in the ratio of cash balances to current measured income. (See sec. 2 below.)

cash balances to income. This tendency is highly regular over the long sweep of time from 1875 to World War II; it has not been operative since the end of World War II but it is yet too soon to judge whether this a fundamental change or simply a reaction to the abnormally high ratio of cash balances that was reached during the war.

(2) The cost of holding cash balances depends mainly on the rate of interest that can be earned on alternative assets—thus if a bond yields 4 percent while cash yields no return, this means that an individual gives up \$4 a year if he holds \$100 of cash instead of a bond—and on the rate of change of prices—if prices rise at 5 percent per year, for example, \$100 in cash will buy at the end of the year only as much as \$95 at the beginning so that it has cost the individual \$5 to hold \$100 of cash instead of goods. The empirical evidence suggests that while the first factor—the interest rate—has a systematic effect on the amount of money held, the effect is rather small. The second factor, the rate of change of prices, has no discernible effect in ordinary times when price changes are small—of the order of a few percent a year. On the other hand, it has a clearly discernible and major effect when price change is rapid and long continued, as during extreme inflations or deflations.<sup>10</sup> A rapid inflation produces a sizable decline in the desired ratio of cash balances to income; a rapid deflation, a sizable rise.

Of course even after allowance is made for changes in real income per capita and in the cost of holding money, the ratio of cash balances to income is not perfectly steady. But the remaining fluctuations in it are minor, certainly far smaller than those that occur in the stock of money itself.

Some idea of the quantitative magnitude of the changes in the United States over long periods of time can be obtained by comparing average values of various items over the most recent complete business cycle—that running from a trough in 1949 to a peak in 1953 to a trough in 1954—with those over the earliest for which we have the relevant data—that running from a trough in 1878 to a peak in 1882 to a trough in 1885. The money stock multiplied 67-fold over these seven decades, and real income ninefold, so the money stock per unit of output rose about 7.5-fold. Prices something less than tripled, so the ratio of the money stock to money income roughly tripled. In the initial cycle, the stock of money averaged about 24 percent of 1 year's money income—that is, cash balances were equal to the income of about 3 months; in the terminal cycle, the stock of money averaged about 67 percent of 1 year's income—that is, cash balances were equal to the income of about 8 months. Over the period as a whole, the money stock rose at an average rate of 6 percent per year, money income at nearly 5 percent per year, prices at nearly 1½ percent per year, total output at about 3 percent per year, and population at about 1½ percent per year.

Of course, these changes did not occur smoothly. Figure 1 shows the more detailed behavior based on average values for each of the 19 business cycles that we have experienced since 1879. It is clear that there is an exceedingly close connection between movements in the stock of money per unit of output and in prices. The only major dif-

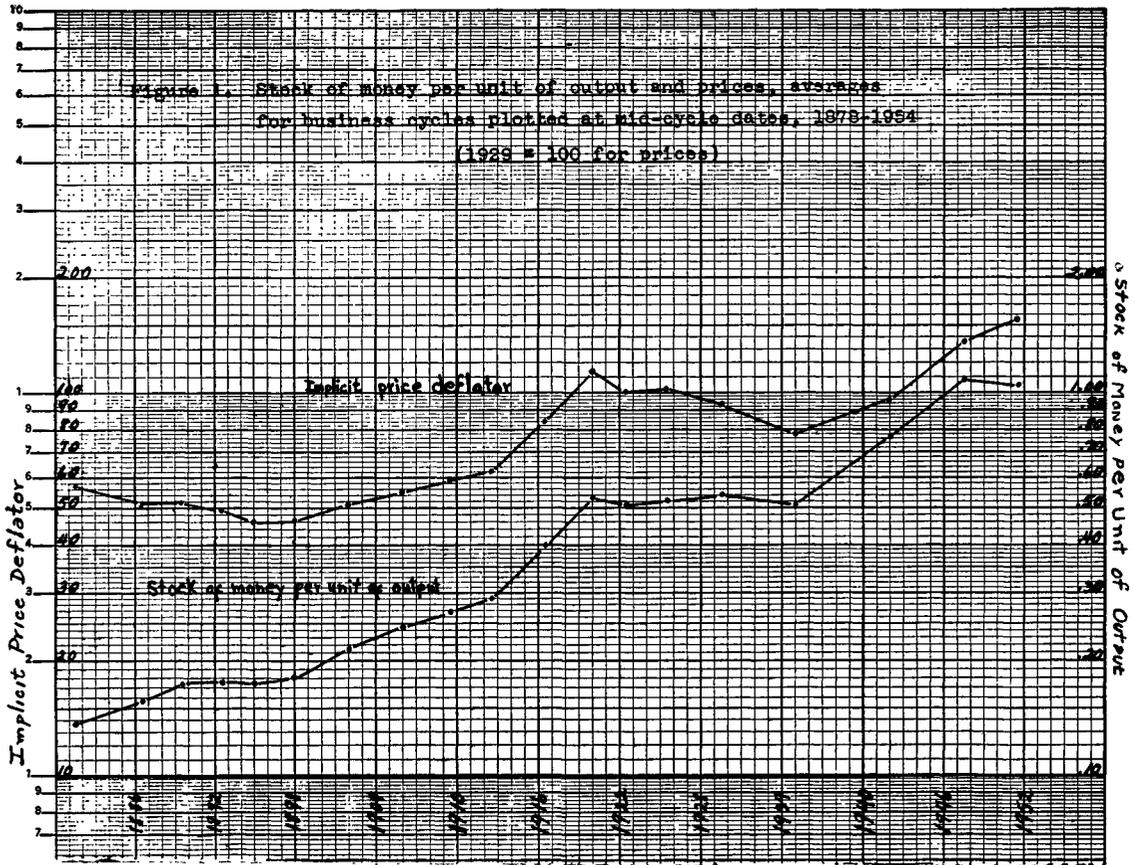
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<sup>10</sup> Evidence for this is presented in Cagan, *op. cit.*, and is available also from work by John Deaver on monetary changes in Chile.

ference is the more rapid long-term growth in the stock of money which in turn reflects the effect of the long-term growth in per capita real income and the associated rise in the desired ratio of money stock to money income.

*2. Relation of stock of money to prices over shorter periods*

Over the longer periods considered in the preceding section, changes in the stock of money per unit of output tend to dominate price changes, allowance being made for the effect of the growth of real income per head. This is less so over the shorter periods involved in the fluctuations we term business cycles, though the general and average relationship is very similar. The reason for the looser connection in such periods presumably is that movements in both the stock of money and in prices are smaller. Over longer periods, these movements cumulate and tend to swamp any disturbance in the relation between desired cash balances, real income, and the cost of holding money; in the ordinary business cycle, the disturbances, though perhaps no more important in an absolute sense, are much more important relative to the movements in money and prices.



On the average, prices rise during an expansion phase of a business cycle, fall during the contraction phase. In the usual fairly mild cycle of peacetime since 1879, wholesale prices have on the average risen about 10 percent from trough to peak, and have fallen by somewhat less than half that amount from peak to trough. The general pattern has not changed much except for the relation of the rise to the fall. During the period of generally declining prices from the 1880's to the mid-1890's, prices tended to fall more during the contraction than they rose during expansion; during the subsequent period of generally rising prices, the reverse was the case and in some instances prices continued to rise during part of the contraction; in the 1920's, the rise and fall were roughly the same; in the two postwar cycles the rise was decidedly larger than the fall, as in the pre-1914 period.

Taken as a whole, these mild cycles would have imparted a generally upward drift to prices. The failure of such a drift to develop during peacetime was a consequence of the more severe depressions that occurred from time to time. In the five business cycles for which the contractions were most serious and can be designated deep depressions (1891-94, 1904-08, 1919-21, 1927-33, and 1933-38), wholesale prices on the average rose about 10 percent during expansions, about the same as in the mild cycles, but then fell during the contractions over twice as much, ending up on the average some 12 percent below their level at the start of the cycle. It was the price declines during these deep depressions that, as a matter of experience, offset the upward tendency during mild cycles—"creeping inflation" in this sense is by no means a unique post-World War II phenomenon.

The stock of money shows the same relation to these cyclical price movements as that depicted in figure 1 for longer periods. During the mild cycles, the stock of money almost invariably rose during both expansion and contraction, but at a faster rate during expansions than during contractions. On the other hand, during the deep depression cycles listed above, the stock of money invariably fell during the course of the contraction, and there is only one other cycle during which there is an appreciable absolute decline during any part of the contraction (1894-97). This resemblance between the cyclical movement in the stock of money and in prices holds not only on the average but also from cycle to cycle, though of course with more variability for the individual cycles.<sup>11</sup>

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<sup>11</sup> One difference between the comparison made here and in the preceding section is that the money series used is the stock of money, not the stock of money per unit of output. The reason for this is the problem referred to in footnote 9 above. Over the longer periods, the stock of money rises more rapidly than money income; an increase in real income per capita leads to a more than proportional increase in real money balances—Income velocity falls with a rise in real income. Over the cycle, the reverse relation holds, if money income is measured by a figure like the regularly published national income or net national product estimates. Money stock falls relative to measured money income during expansion and rises during contraction—Income velocity rises during expansion and falls during contraction. It turns out that this apparent contradiction can be accounted for, both qualitatively and quantitatively, by distinguishing between measured income and a longer term concept that I have called permanent income and also between measured prices and permanent prices. One implication of this interpretation of the behavior of velocity is that division of the money stock by measured national income in constant prices would yield estimates of the stock of money per unit of output that were formally comparable to those plotted in figure 1 but did not have the same significance and meaning; the latter use an average output figure that is closer to permanent output or income than to annual measured income. Unfortunately, full analysis of this issue is impossible within the confines of the present paper. The forthcoming annual report for 1957 of the National Bureau of Economic Research will contain a somewhat fuller summary; and the monograph referred to in footnote 7 above, a full analysis.

There can be little doubt on the basis of this evidence that there is a close link between monetary changes and price changes over the shorter periods within which business cycles run their course as well as over longer periods and during major wartime episodes. But three important considerations must be borne in mind if this fact is not to be a misleading guide to policy.

The first is that the direction of influence between the money stock and income and prices is less clear-cut and more complex for the business cycle than for the longer movements. The character of our monetary and banking system means that an expansion of income contributes to expansion in the money stock, partly through inducing banks to trim more closely their cash reserve position, partly through a tendency for currency in public hands to decline relative to deposits; similarly, a contraction of income contributes to a reduction or a slower rate of rise in the money stock by having the opposite effects on bank reserve ratios and the public's currency ratio. Thus changes in the money stock are a consequence as well as an independent cause of changes in income and prices, though once they occur they will in their turn produce still further effects on income and prices. This consideration blurs the relation between money and prices but does not reverse it. For there is much evidence—one important piece on timing will be presented in the next paragraph—that even during business cycles the money stock plays a largely independent role. This evidence is particularly direct and clear for the deep depression periods. There can be little doubt, for example, that Federal Reserve action in sharply raising discount rates in January 1920 and again in June 1920 (5 months after the onset of the contraction in January 1920) played an important role in the subsequent decline in the money supply and unprecedentedly rapid fall in prices or that Federal Reserve policy in the early 1930's played an important role in producing a decline of a third in the stock of money from 1929 to 1933—by far the largest decline in the whole period covered by our data.<sup>12</sup>

A second, and perhaps more important consideration, has to do with the timing of the changes in the money supply and in income and prices. The generally upward trend in the money supply which accounts for its continuing to rise, though at a slower rate, during most contractions in economic activity as well as during expansions makes it difficult to judge timing relations from ups and downs in the money supply itself. For this and other reasons, we have found it most useful to examine instead the ups and downs in the rate at which the money supply is changing. The rate of change of the money supply shows well-marked cycles that match closely those in economic activity in general and precede the latter by a long interval. On the average, the rate of change of the money supply has reached its peak nearly 16 months before the peak in general business and

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<sup>12</sup> The other deep depression episodes are a bit more complex. The decline in the stock of money from 1893 to 1894 seems connected with the uncertainty about silver; in 1907, quite clearly with the banking panic which was of course in part a consequence of a prior decline in economic activity but not through the particular channels described above and which once begun very likely served as an important factor in making the contraction as deep as it was; in 1937-38, with the doubling of reserve requirements by the Federal Reserve System in two steps in 1936 and in 1937—the first step coincides with a sharp reduction in the rate of growth of the money stock, the second with the beginning of decline.

has reached its trough over the 12 months before the trough in general business.<sup>13</sup>

This is strong though not conclusive evidence for the independent influence of monetary change. But it also has a very different significance. It means that it must take a long time for the influence of monetary changes to make themselves felt—apparently what happens now to the rate of change of the money supply may not be reflected in prices or economic activity for 12 to 16 months, on the average. Moreover, the timing varies considerably from cycle to cycle—since 1907, the shortest time span by which the money peak preceded the business cycle peak was 13 months, the longest, 24 months; the corresponding range at troughs is 5 months to 21 months.<sup>14</sup> From the point of view of scientific analysis directed at establishing economic regularities on the basis of the historical record—the purpose for which the measures were computed—this is highly consistent behavior; it justifies considerable confidence in the reliability of the averages cited and means that they cannot easily be attributed simply to the accident of chance variation. But from the point of view of policy directed at controlling a particular movement such as the current recession, the timing differences are disturbingly large—they mean that monetary action taken today may, on the basis of past experience, affect economic activity within 6 months or again perhaps not for over a year and 6 months; and of course past experience is not exhaustive; the particular episode may establish a new limit in either direction.

The long time lag has another important effect. It leads to misinterpretation and misconception about the effects of monetary policy, as well as to consequent mistakes in monetary policy. Because the effects of monetary change do not occur instantaneously, monetary policy is regarded as ineffective. The most recent example is the tight money policy of 1956 and 1957 which coexisted with rising prices but whose delayed effects are with us in the current recession. A similar and even more dramatic example is the tight money policy from early 1928 on and the associated lack of growth in the money supply which coexisted with economic expansion but contributed to both the occurrence and the severity of the 1920 downturn. The fact that these policies had a delayed effect in turn misled the monetary authorities; on those occasions, and even more clearly in 1920, they were induced to believe that still stronger measures were required and so tended to overdo a repressive policy. On other occasions, notably in 1932 as well as earlier in that major catastrophe, the failure of tentative movements toward easy money to have an immediate effect led them to regard their actions as ineffective and to permit and contribute to the sharp decline in the stock of money which occurred and which played so crucial a role in that episode.

The third consideration is in some ways a different aspect of the one just discussed. The variation in timing means that there is considerable leeway in the precise relation between changes in the stock

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<sup>13</sup> The average at peaks is based on 18 observations, on troughs on 19. Of course, instead of interpreting the cycles in the rate of change as conforming positively with a lead, they could be interpreted as conforming inversely with a lag. A number of pieces of statistical evidence, however, argue strongly for the former interpretation.

<sup>14</sup> These are for the period since 1907 because our money data prior to that date are annual or semiannual. While the annual and semiannual observations give the same average timing as the monthly, individual observations are not comparable.

of money and in prices over short periods of time—there are other factors at work that lead to these variations and mean that even if the stock of money were to change in a highly regular and consistent fashion, economic activity and prices would nonetheless fluctuate. When the money changes are large, they tend to dominate these other factors—or perhaps one might better say, they will force these factors to work in a particular direction. Thus there seems little doubt that a large change in the money supply within a relatively short period will force a change in the same direction in income and prices and, conversely, that a large change in income and prices in short periods—a substantial short-period inflation or deflation—is most unlikely to occur without a large change in money supply. This is certainly the conclusion suggested by the evidence for the deep depression cycles and for sizable inflations. But when the money changes are moderate, the other factors come into their own. If we knew enough about them and about the detailed effects of monetary changes, we might be able to counter these other effects by monetary measures. But this is utopian given our present level of knowledge. There are thus definite limits to the possibility of any fine control of the general level of prices by a fine adjustment of monetary change.

### *3. Changes in prices and changes in output over longer periods*

Over the cycle, prices and output tend to move together—both tend to rise during expansions and to fall during contractions. Both are part of the cyclical process and anything, including a monetary change, that promotes a vigorous expansion is likely to promote a vigorous rise in both and conversely. The preceding section implicitly assumes this connection.

Over the longer period, the relation between price changes and output changes is much less clear and in the first section we took the behavior of output for granted. Now this seems clearly valid, not only as an expository device but also as a first approximation to reality. What happens to a nation's output over long periods of time depends in the first instance on such basic factors as resources available, the industrial organization of the society, the growth of knowledge and technical skills, the growth of population, the accumulation of capital and so on. This is the stage on which money and price changes play their parts as the supporting cast.

One proposition about the effect of changes in the stock of money and in prices that is widely accepted and hardly controversial is that large and unexpected changes in prices are adverse to the growth of output—whether these changes are up or down. At one extreme, the kind of price rise that occurs during hyperinflation seriously distorts the effective use of resources.<sup>15</sup> At the other extreme, sharp price declines such as occurred from 1920 to 1921 and again from 1929 to 1933 certainly produce a widespread and tragic waste of resources.

So much is agreed. The more controversial issue is the effect of moderate change in prices. One view that is widely held is that

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<sup>15</sup> However, even open hyperinflations are less damaging to output than suppressed inflations in which a wide range of prices are held well below the levels that would clear the market. The German hyperinflation after World War I never caused anything like the reduction of production that was produced in Germany from 1945 to the monetary reform of 1948 by the suppression of inflation. And the inflationary pressure suppressed in the second case was a small fraction of that manifested in the first.

slowly rising prices stimulate economic output and produce a more rapid rate of growth than would otherwise occur. A number of reasons have been offered in support of this view. (1) Prices, and particularly wages, are, it is said, sticky. In a market economy, the reallocation of resources necessitated by economic growth and development requires changes in relative prices and relative wages. It is much easier, it is argued, for these to come about without friction and resistance if they can occur through rises in some prices and wages without declines in others. If prices were stable, some changes in relative wages could still come about in this way, since economic growth means that wages tend to rise relative to prices, but no changes in relative prices, and, of course, there would not be as much scope even for relative wage changes. (2) Costs, and in particular, wages, are, it is argued, stickier than selling prices. Hence generally rising prices will tend to raise profit margins, giving enterprises both a bigger incentive to raise output and to add to capital and the means to finance the capital needed. (3) The most recently popular variant of the preceding point is that costs are not only sticky against declines but in addition have a tendency to be pushed up with little reference to the state of demand as a result of strong trade unions. If the money stock is kept from rising, the result, it is claimed, will be unemployment as profit margins are cut, and also a higher level of prices, though not necessarily a rising level of prices. Gently rising prices, it is argued, will tend to offset this upward pressure by permitting money wages to rise without real wages doing so. (4) Interest rates are particularly slow to adapt to price rises. If prices are rising at, say, 3 percent a year, a 6 percent interest rate on a money loan is equivalent to a 3 percent rate when prices are stable. If lenders adjusted fully to the price rise, this would simply mean that interest rates would be 3 percentage points higher in the first case than in the second. But in fact this does not happen, so that productive enterprises find the cost of borrowing to be relatively low, and again have a greater incentive than otherwise to invest, and the associated transfer from creditors to debtors gives them greater means to do so.

In opposition to this view, it has been argued that generally rising prices reduce the pressure on enterprises to be efficient, stimulate speculative relative to industrial activity, reduce the incentives for individuals to save, and make it more difficult to maintain the appropriate structure of relative prices, since individual prices have to change in order to stay the same relative to others. Furthermore, it is argued that once it becomes widely recognized that prices are rising, the advantages cited in the preceding paragraph will disappear: escalator clauses or their economic equivalent will eliminate the stickiness of prices and wages and the greater stickiness of wages than of prices; strong unions will increase still further their wage demands to allow for price increases; and interest rates will rise to allow for the price rise. If the advantages are to be obtained, the rate of price rise will have to be accelerated and there is no stopping place short of runaway inflation. From this point of view, there may clearly be a major difference between the effects of a superficially similar price rise, according as it is an undesigned and largely unforeseen effect of such impersonal events as the discovery of gold, or a designed result of deliberative policy action by a public body.

Some who believe that slowly rising prices are adverse to economic growth regard stable product prices with slowly rising wage rates as most favorable, combining the advantages of stable price expectations with some easing of frictions involved in relative wage adjustments. Others view gently falling prices and stable wages as most favorable, arguing that additional problems in wage adjustments would be balanced by the stimulus to thrift and accumulation.

Historical evidence on the relation between price changes and output changes is mixed and gives no clear support to any one of these positions. (1) In the United States, the period from 1865 to 1879 was a period of exceedingly rapid progress; and during the same period, prices were cut in half. True, neither price changes nor output changes proceeded regularly within the period. Output apparently grew most rapidly during the cyclical expansions in the period when prices rose mildly or were roughly stable; most of the price declines occurred during cyclical contractions. Yet the problem at issue is less the cyclical relation than the longer period relation and there can be no doubt that during the period as a whole prices fell sharply and output rose sharply. (2) The period from 1880 to 1897 was a period of generally declining prices, from 1897 to 1913, of generally rising prices; taken as a whole, the second period has generally been regarded as displaying more rapid growth than the first. But it is not clear that this is a satisfactory interpretation. The period of great monetary uncertainty in the early 1890's was associated with generally depressed conditions and was followed by a rapid rebound. If both are excluded, the remaining periods show about the same rates of growth in real output per head, although prices were generally falling during the 1880's and rising after the turn of the century. Moreover, the period from 1908-14 is one of relatively slow growth despite rising prices. (3) The decade of the 1920's, after the recovery from the deep depression of 1920-21, was a decade of rapid growth and prices were relatively stable. (4) In Great Britain, output per head apparently grew at a definitely higher rate during the period of generally falling prices before the mid-1890's than during the subsequent period of rising prices up to World War I.<sup>16</sup> (5) On the other hand, the attempt to achieve mildly falling prices in Britain in the 1920's was associated with considerable economic difficulties and something close to stagnation.

All in all, perhaps the only conclusion that is justified is that either rising prices or falling prices are consistent with rapid economic growth, provided that the price changes are fairly steady, moderate in size, and reasonably predictable. The mainsprings of growth are presumably to be sought elsewhere. But unpredictable and erratic changes of direction in prices are apparently as disturbing to economic growth as to economic stability.

#### 4. *Policy implications*

The preceding account of the relation of money to prices over long and short periods and of price changes to output changes has some fairly direct and immediate implications for public policy with respect both to growth and stability.

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<sup>16</sup> See James B. Jefferys and Dorothy Walters, *National Income and Expenditure of the United Kingdom, 1870-1952*, Income and Wealth Series V, table III.

(1) In order for the price level to be reasonably stable over the decades ahead, the total stock of money will have to grow to accommodate itself to the growth in output and in population. In addition, if past patterns continue, it will have to grow to satisfy the desire of the public to increase the ratio of cash balances to income as their real income rises. Past experience suggests that something like a 3 to 5 percent per year increase in the stock of money is required for long-term price stability.<sup>17</sup>

(2) An essential requirement for the avoidance of either substantial inflation or substantial deflation over the coming decades is the avoidance of a substantially more rapid or a substantially less rapid increase in the stock of money than the 3 to 5 percent per year required for price stability. A substantially more rapid rate of growth in the money supply will inevitably mean inflation; conversely, continued inflation of substantial magnitude cannot occur without such a large rate of growth in the money supply. A substantially slower rate of growth in the money supply, let alone an absolute decline, will inevitably mean deflation; conversely, continued deflation of substantial magnitude cannot occur without such a small or negative rate of growth in the money supply.

(3) A highly fluctuating price level is as disturbing to economic growth as to economic stability. Given that this is avoided, it is not clear what pattern of long-term price behavior is optimum for economic stability—whether a roughly stable price level, a gently rising price level, or a gently falling price level. It does seem clear that any of these is consistent with rapid economic growth. If it is necessary to state objectives in terms of a price level goal, then a stable price level has the very great advantages of (a) ease of public understanding, (b) definiteness rendering successive alterations in the precise goal less likely, and (c) probably the closest approach to equitable treatment of the various members of the community. However, the difficulty of assuring the close attainment of any price level goal suggests that it might be better to express the immediate policy goal in terms of some variable other than the price level, for example as being the attainment of a steady 4 percent per year rise in the stock of money, and then to let the price level be whatever would be consistent with this money goal. The resulting price level behavior could hardly depart much from relative stability and would certainly not be violently unstable.

(4) For cyclical movements, a major problem is to prevent monetary changes from being a source of disturbance. If the stock of money can be kept growing at a relatively steady rate, without erratic fluctuations in short periods, it is highly unlikely if not impossible that we would experience either a sharp price rise—like that during World Wars I and II and after World War I—or a substantial price or output decline—like those experienced from 1920–21, 1929–33, 1937–38.

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<sup>17</sup> This range is for the stock of money as defined in footnote 2, namely, currency outside banks plus adjusted deposits, demand and time, of commercial banks. For a narrower definition, currency outside banks plus adjusted demand deposits, the required rate of growth is less; for a broader definition, the preceding plus all time deposits, in mutual savings banks and the postal savings system as well as commercial banks, the required rate of growth is greater. The reason is that time deposits have been growing relative to demand deposits and currency, and, until 1957, mutual savings deposits relative to other time deposits.

(5) A steady rate of growth in the money supply will not mean perfect stability even though it would prevent the kind of wide fluctuations that we have experienced from time to time in the past. It is tempting to try to go farther and to use monetary changes to offset other factors making for expansion and contraction. Though the available evidence demonstrates a close connection between monetary change and price and income change in the course of business cycles—as over larger periods, it also casts grave doubts on the possibility of producing any fine adjustments in economic activity by fine adjustments in monetary policy—at least in the present state of knowledge. The evidence suggests that monetary changes take a fairly long time to exert their influence and that the time taken varies considerably. In terms of past experience, for example, action taken now to offset the current recession may affect economic activity in some 6 months or not again for over a year and 6 months. The tight-money policy of late 1956 and most of 1957, which was taken to offset the then existing inflationary pressure, almost surely had little effect on that situation and is only now exerting its influence and contributing to the current recessionary tendencies; the inflationary pressures in 1956 may well themselves have been in part a delayed consequence of the expansionary monetary policy taken to offset the 1953–54 recession. There are thus serious limitations to the possibility of a discretionary monetary policy and much danger that such a policy may make matters worse rather than better. Federal Reserve policy since 1951 has been distinctly superior to that followed during any earlier period since the establishment of the System, mainly because it has avoided wide fluctuations in the rate or growth of the money supply. At the same time, I am myself inclined to believe that in our present state of knowledge and with our present institutions, even this policy has been decidedly inferior to the much simpler policy of keeping the money supply growing at a pre-designated rate month in and month out with allowance only for seasonal influences and with no attempt to adjust the rate of growth to monetary conditions.<sup>18</sup>

(6) To avoid misunderstanding, it should be emphasized that the problems just discussed are in no way peculiar to monetary policy. Fiscal action also involves lags. Indeed the lag between the recognition of need for action and the taking of action is undoubtedly longer for discretionary fiscal than for discretionary monetary action: The monetary authorities can act promptly, fiscal action inevitably involves serious delays for congressional consideration. It has been argued that this defect of fiscal action is counterbalanced by a shorter lag between the action and its effects. This may well be, though there is little concrete empirical evidence that I know of; the belief is based

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<sup>18</sup> This is not intended to be a full statement of the optimum monetary structure. I would prefer automatic arrangements that would reduce the area of discretion. One particular set of such arrangements is suggested in my *A Monetary Fiscal Framework for Economic Stability*, reprinted in my *Essays in Positive Economics* (University of Chicago Press, 1953), pp. 133–156.

The extensive empirical work that I have done since that article was written has given me no reason to doubt that the arrangements there suggested would produce a higher degree of stability; it has, however, led me to believe that much simpler arrangements would do so also; that something like the simple policy suggested above would produce a very tolerable amount of stability. This evidence has persuaded me that the major problem is to prevent monetary changes from themselves contributing to instability rather than to use monetary changes to offset other forces.

On the issues in question, see also my *The Effects of a Full Employment Policy on Economic Stability: A Formal Analysis*, reprinted in the same book, pp. 117–132.

on general considerations of plausibility, which can be a misleading guide. And there are certainly no reasons for believing and no empirical evidence to show that the lag, whatever its average length, is any less variable for fiscal than for monetary action. Hence the basic difficulties and limitations of monetary policy apply with equal force to fiscal policy.

(7) Political pressures to "do something" in the face of either relatively mild price rises or relatively mild price and employment declines are clearly very strong indeed in the existing state of public attitudes. The main moral to be drawn from the two preceding points is that yielding to these pressures may frequently do more harm than good. There is a saying that the best is often the enemy of the good, which seems highly relevant. The goal of an extremely high degree of economic stability is certainly a splendid one; our ability to attain it, however, is limited; we can surely avoid extreme fluctuations; we do not know enough to avoid minor fluctuations; the attempt to do more than we can will itself be a disturbance that may increase rather than reduce instability. But like all such injunctions, this one too must be taken in moderation. It is a plea for a sense of perspective and balance, not for irresponsibility in the face of major problems or for failure to correct past mistakes.

## INFLATIONARY DEPRESSION AND THE REGULATION OF ADMINISTERED PRICES

By Abba P. Lerner, The Johns Hopkins University and Roosevelt University

Inflation, by which I mean a condition of rising prices, may be the result of action either by buyers or by sellers. We are much more familiar with inflation caused by buyers trying to buy more goods than are available, that is, spending more money than can buy (at current prices) the available supply of goods. When this happens, prices are bid up to the level at which the buyers are no longer trying to buy more than is available. The market is then cleared with every buyer able to buy as much as he wants to buy. If, as a result of this development, there arises a still further increase in the amount of money spent by the buyers, perhaps because they have received more money as sellers of something else, we have a continuing inflationary process.

Such a process cannot go very far unless there is an increase in the supply of money. Otherwise, with the rising prices, the public finds that the stock of money is too small for the greater volume of transactions, in monetary terms, that is going on. Many people then reduce their buying or increase their selling (so as to hold on to or to get hold of more money) and this tends to stop the inflationary process. But if the monetary authorities increase the supply of money, or permit the supply of money to be increased, then the inflationary process can continue.

Because we are much more familiar with this particular type of inflation, we have tended to assume that it is the only kind. This has led to the habit of considering an increase in the supply of money not as merely one of the necessary conditions for an inflationary process to be able to continue, but as the cause of the inflation, which it need not be. Our overoccupation with this particular type of inflation has also led many economists, including myself, to use the word "inflation" not only to stand for the condition of rising prices, but also to stand for "excess demand," the attempt to buy more goods than are available at the current prices, which is the cause of this type of inflation.

This extension of the meaning of the word inflation would be quite harmless if it were true, as it apparently was assumed to be true, that rising prices could come about only as a result of excess demand by buyers. This usage furthermore had the advantage of permitting the condemnatory word inflation to be used for attacking a condition in which prices were prevented from rising, as by price controls, when the economy would be better served if they were permitted to rise. Such price control under conditions of excess demand could then be called a kind of inflation—repressed inflation—which can be

even more harmful to the economy, and to society in general, than an open inflation with rising prices. So it seemed like a good idea to identify inflation with a condition of excess demand, whether the resulting tendency for prices to rise was permitted to express itself or not. Repressed inflation could therefore be called a certain kind of inflation and given a blacker name, and this seemed harmless even though it was something like calling an anti-Communist a certain kind of Communist.

But excess demand by buyers is not the only possible cause of a condition of rising prices. Prices may rise not because of the pressure of buyers who are finding it difficult to buy all they want to buy at the current prices. Prices may rise because of pressures by sellers who insist on raising their prices even though they may find it not especially easy to sell. We would then have not a buyer-induced inflation but a seller-induced inflation. To distinguish this from the kind of inflation we have discussed above, and which we may call a buyers' inflation (or demand inflation), we may call this kind of inflation a sellers' inflation.

If sellers' inflation is possible as well as buyers' inflation, it is not such a good idea to use the word "inflation" to stand for excess demand. That use of language tends to suggest that if there is no "inflation" in the sense of excess demand, there can be no inflation in the sense of rising prices. It leaves us with no way of describing the kind of situation in which we find ourselves when prices are rising because of upward pressure by sellers, and the authorities, in endeavoring to stop the rise in prices, have taken steps which have been very effective in removing excess demand, but which have not removed the upward pressure on prices from the sellers' side. Indeed such measures as budgetary restraint and tight money can be so effective in removing excess demand that they can overdo this and remove some demand that is not in excess. They would bring about a condition of deficient demand, or not enough demand to enable us to make full use of our productive potential. Nevertheless, prices may keep on rising. The net result would be both inflation and depression at the same time—prices rising—even though we are not fully utilizing our available labor force and productive potential.

This appears paradoxical only because of our habit of using 1 word, "inflation," to represent 2 different things, rising prices and excess demand, that do not necessarily have to go together in the actual world.

The distinction between buyers' inflation and sellers' inflation is related to but is not exactly the same as the distinction between demand inflation and cost inflation. While demand inflation seems to be synonymous with buyers' inflation, cost inflation suggests that there is a difference between cost, on the one hand, and profits, on the other, in their operation on price. This is especially true when the phrases "cost-push inflation" or "wage-cost inflation" are used as synonymous with "cost inflation." The impression is given that the whole of the blame falls on labor or on trade unions. When trade unions raise wages by more than can be absorbed by increasing productivity, costs rise. The employer then seems to be completely innocent of "profit inflation" in passing on the increase in costs as long as he does not increase his rate of markup, i. e., as long as he does not increase the prices he charges for the product in a greater proportion than his costs have increased.

There is, however, no essential asymmetry between the wage element and the profit element in the price asked for the product. A sellers' inflation could just as well be started by an increase not in the wage asked, but in the percentage of markup of price above cost. Prices would rise and wages would then be raised by workers in attempts to maintain (or restore) their original buying power. Business would then "innocently" raise their prices again only in proportion to the increase in their costs, and we would have the inflation upon us as well as boring discussions about who started it first and the famous chicken and egg.

The "who started it first" debate is a complete waste of time because there is no original situation in which there was a "just" or "normal" distribution of the product between wages and profits. Any increase can be seen either as the disturbance which bears the full responsibility for the inflation, or as nothing but the correction of an inequity perpetrated in previous history—all depending on the point of view. The term "sellers' inflation," by treating wages and profits on exactly the same footing, avoids the fruitless game of mutual recrimination. Sellers' inflation takes place whenever wage earners and profit takers together attempt to get shares that amount to more than 100 percent of the selling price. When the sum of what they try to get comes to more than 100 percent of the selling price it is futile to ask whether this is because the wages demanded are too high or whether it is because the profits insisted on are too great. No matter where justice may lie between the 2 claims, the only significant thing for our problem is that the sum of the claims is more than 100 percent. That is what causes the inflation.

It is, of course, impossible for the two parties to succeed in getting more than 100 percent of the proceeds between them, but it is precisely on an impossibility such as this that any continuing process depends. Buyers' inflation is similarly built on an attempt to reach the impossible. In that case, it is the attempt of buyers to buy more than 100 percent of the goods than can be made available. Their attempt bids up prices, but since that does not (and cannot) succeed in enabling them to obtain more than 100 percent of the goods that there are available to be got, they continue the attempt and we have the continuing process of buyers' inflation. In our case, the impossibility that generates the process is the attempt of wage earners and profit takers between them to get more than 100 percent of the money proceeds from the sale of the product. Each increases the part he tries to take, by increasing wages or by increasing prices. Since they cannot succeed, they keep on raising wages and prices and so we have the continuing process of sellers' inflation.

There is great resistance to recognizing the possibility of sellers' inflation. Sometimes, this takes the form of saying that there must have been some excess buyers' demand or prices could not have risen. This begs the whole question. Since it assumes, without apparently thinking it necessary to provide any support for the assumption, that the only possible cause of rising prices is excess buyers' demand, the argument assumes what it wants to prove.

A more sophisticated version of this argument points out that if output shrinks by less than the increase in prices, and this is usually the case during a sellers' inflation, there must have been an increase

in the total amount spent in buying the output. The arithmetically irrefutable increase in expenditure is then triumphantly exhibited as the excess buyers' demand that is responsible for the inflation. Expenditure is the same thing as buyers' demand, but an increase in expenditure is not the same thing as excess buyers' demand. An increase is not the same thing as an excess. An excess of demand by buyers induces the price increases—it is the cause of the price increases. An increase in expenditure could be induced by—it could be the result of the increases in prices brought about by the pressure of sellers. If there is no increase in expenditure the number of units of goods bought must fall in the same proportion as the price per unit is raised by the sellers. A 10 percent increase in prices would thus result in a fall in output of about 10 percent. This involves depression and unemployment that the authorities naturally seek to remedy by monetary and fiscal measures. Such remedies all involve increases in money expenditure, so that even if only a part of the unemployment is corrected (and this is usually the case because of the authorities' reluctance to undertake inflationary measures when prices are rising), we would observe an increase in total expenditure. Buyers' demand, however, instead of being excessive, could still be deficient, i. e., it could still be insufficient to enable the potential output of the economy to be sold (at the prices demanded by the sellers). An observed increase in total expenditure is therefore no proof that the price rise is due to excess buyers' demand. The increase in expenditure could have been induced by attempts by the authorities to keep down unemployment induced by price increases imposed by the sellers. In a sellers' inflation, an increase in expenditure is perfectly compatible with deficient buyers' demand.

A still more sophisticated argument along the same lines goes on to claim that even if prices are being raised by the insistence of sellers rather than by the pressure of buyers, the orthodox measures of reducing total demand would still check the inflation. By reducing total expenditure, or perhaps by merely refusing to permit the increase in total expenditure needed to accommodate the increased prices, the authorities would bring about depression and unemployment. This would stop the sellers from increasing prices. The question then resolves itself into how much unemployment would be necessary to stop the sellers' inflation, and whether it is morally desirable or politically possible for the authorities to induce or permit unemployment of the required volume and duration.

It has been suggested that even if the authorities are not really prepared to bring about the degree of depression necessary to negate the pressure of sellers' inflation, they could still do the trick by solemnly announcing a policy of refusing to provide the increase in expenditure called for by a continuing sellers' inflation. The threatened unemployment would then sober the sellers into calling off their inflationary wage and price increases.

It seems pretty certain first that such declarations would not be believed and that the bluff would quickly be called. But, even if it were believed as regards the economy as a whole, that would not prevent any specific wages or prices from being raised while the local conditions still permitted this. It would perhaps even aggravate the wage and price increases as each tried to get his increase quickly, while the local going was still good.

All this brings us to the perhaps only too obvious conclusion that sellers' inflation cannot be cured or prevented by measures directed against excess demand by buyers. It can be successfully treated only by attacking the pressure on prices by sellers.<sup>1</sup>

Before we can consider just how one can attack the pressure on prices by sellers, it would be desirable to get a perspective on the whole problem by a quick look at the general theory of inflation and deflation.

A somewhat schematic formulation of the development of thought on this subject shows four theoretical models of the operation of the economy.

Model A assumes perfectly flexible prices and wages, so that any excess of buyers' demands makes prices and wages rise, and any deficiency of buyers' demand (through the unemployment that results) makes prices and wages fall, until price stability and full employment are restored. Both monetary policy and fiscal policy are unimportant, or even unnecessary. As long as the volume of money is kept fairly stable by some automatic device such as the gold standard, the price level will automatically adjust itself so as to yield full employment with price stability and without inflation.

Model B embodies the recognition that we do not have the degree of price flexibility in the downward direction to make complete *laissez faire* a satisfactory monetary and fiscal policy. Unemployment (caused by deficient buyers' demand) does not reduce the wage and price level quickly enough to the level needed to restore full employment. The process is rather complex. To achieve the task, unemployment must reduce the wage level, and thereby the price level, to the degree necessary to increase the value of the existing stock of money (as each dollar becomes more valuable) to the extent necessary to increase expenditure in real terms (as each dollar spent constitutes more real purchasing power) to the volume necessary to give a satisfactory level of employment. This process can last for years, during which time prices and wages are falling as different resistances to the reductions are gradually overcome. Meanwhile, there continues an expectation of price and wage reductions still to come. This expectation induces investors as well as consumers to postpone their expenditures as long as prices are still falling, so that buyers' demand is reduced still further and the depression can get very much worse before it gets better.

The recognition of the nature of such a process leads to the abandonment of *laissez faire* in monetary and fiscal policy. Instead of

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<sup>1</sup> In an outstanding article which concentrates on showing the inadequacy and superficiality of proposals to prevent inflation by monetary and fiscal policies and declarations, Prof. Sumner H. Slichter seems to suggest that the distinction between buyers' inflation and sellers' inflation is a futile fantasy. Thus he says (using a somewhat different terminology), "Much time has been wasted in recent years in discussing whether inflation is demand inspired or cost inspired. (Some 70 or 80 years ago, the Austrian theory of value produced a similar debate as to whether demand or cost determines the value; the argument ended suddenly when it dawned on the economists that each blade in a pair of scissors cuts)" (On the Side of Inflation. *Harvard Business Review*, September/October 1957, p. 32).

However, the inapplicability of this analogy jumps to the eye in his very next sentence which shows that it can make sense to distinguish between the blades, since he goes on to say, "Thus changes in the price level may originate either with shifts in the demand schedules or with shifts in the supply schedules," and in another article. Professor Slichter definitely aligns himself with the sellers' inflation blade in declaring that: "There is no evidence that prices are rising ahead of costs and are pulling costs up. The evidence is all the other way: that prices are being sluggishly adjusted to slowly rising costs" (Government Spending Can Reduce Taxes. *Harvard Business Review*, July/August 1957, p. 106).

waiting for the price level to fall until it has adjusted itself to the volume of money expenditure, a policy is developed of adjusting the volume of money expenditure to the existing price level, so as to reach and maintain a satisfactory level of employment at the current prices.

This switch from *laissez faire* to an active monetary and fiscal policy is also applied in the opposite direction to deal with excess buyers' demand. Although there is not the same resistance to price and wage increases as there is to price and wage decreases, the necessary adjustment to excess buyers' demand by rising prices still takes time. It is no instantaneous adjustment (if only because of the existence of long-term contracts, and because of attempts to stop profiteering by preventing the necessary price increases) and so it causes disturbances that are unjust and reduce the efficiency of the economy. The policy is therefore applied in both directions, providing for increasing the volume of money expenditure whenever necessary to prevent or correct an insufficiency of buyers' demand; and for decreasing the volume of money expenditure whenever that is necessary to prevent or correct an excess of buyers' demand.

The volume of expenditure may be adjusted either by working on the stock of money (by monetary policy) or by working on the velocity of circulation of money (by fiscal policy), or by some combination of the two.

Model B, which is, of course, the Keynesian general theory of employment policy, differs from model A primarily in incorporating a policy of increasing or decreasing demand, if it should become too little or too great. (It has a steering wheel to keep the car on the road.) Because of this difference, a secondary distinction arises. With policy coming into the picture, it becomes important which of two instruments of policy is to be used, monetary policy or fiscal policy. Model B makes use of both instruments. (The car can use either kerosene or gasoline.)

Model C is not really a new model. It rather consists of a series of publicity releases of model B dolled up to emphasize one or another of its qualities as if this were a new invention that made model B obsolete. One very crude pamphlet of this series emphasizes the ability of model C to cut down on demand, if it becomes excessive or threatens to become excessive, seeming to imply that model B was a depression model, which could work only in the direction of increasing demand, if it became deficient or threatened to become deficient. (Model C has a steering wheel that can be turned to the right.)

A more refined variant of model C, let us call it model C\*, is concerned with the relative effectiveness of monetary policy and of fiscal policy in different circumstances. An economy may be so saturated with money so that further increases in the stock of money would not be effective in increasing expenditure, and reductions in the stock would have no significant effect in reducing total expenditure. (This is sometimes expressed, though not explained, by saying that changes in the money supply would be offset by opposing changes in the velocity of circulation.) Monetary policy is then useless and expenditure can be increased or decreased only by fiscal policy—by the Government increasing or decreasing its own expenditure, e. g. on public works, or permitting others to spend more by reducing taxes or forcing them to spend less by increasing taxes.

It is then suggested that model B works only in this case which is called the Keynesian case. It should more properly be called Keynesian special case (of the Keynesian general theory) when it is appropriate to concentrate entirely on fiscal measures to increase or decrease expenditure on consumption and investment. (Only gasoline can be used.)

In this kind of situation, even extreme price flexibility is unable to restore or maintain the desired level of real demand, because it operates, after all, as nothing but a roundabout way of increasing or decreasing the real volume of money in terms of buying power. It is a kind of automatic monetary policy which is useless for the same reasons as other monetary policy is useless, when the economy is so saturated with money that changing the quantity has no appreciable effect.

When the economy is at the other extreme from being saturated with money, and money is very tight, the situation is naturally reversed. Fiscal measures for increasing expenditure on consumption or investment are ineffective, because an increase in expenditure anywhere in the economy, say in Government expenditure on public works, results in an increase in demand for money to hold in connection with the increased volume of transactions. In the very tight money situation, this raises the rate of interest, or in some other way reduces expenditure somewhere else. Similarly, a decrease in expenditure anywhere releases holdings of money which permit an increase of expenditure somewhere else. Fiscal policy then is helpless, and what is called for is monetary policy to increase or decrease the money supply. (Only kerosene can be used.) This case is then called the Classical Case, as if it were one in which the Keynesian theory does not apply and where model B should be replaced by model C\* (which can burn kerosene). This case should more properly be called the Classical Special Case (of the Keynesian general theory). The Keynesian theory (model B) covers both situations in which fiscal policy is strategic (when model B uses gasoline), and situations in which monetary policy is strategic (when model B uses kerosene), as well as the more normal situations when both policies are effective (when model B can make use of both fuels, mixing the proportions to suit the terrain).

Model D is a genuinely different model, in which unemployment not only fails to make prices and wages fall quickly enough to serve as a cure for the unemployment, but is even unable to prevent prices and wages from continuing to rise. When we have strong trade unions with the power to raise wages, strong corporations with the power to set prices administratively, and a general atmosphere in which it is considered normal, natural and only fair for wages to be increased regularly, and by amounts greater than the average increase in productivity or in the share of the product that labor can obtain, prices increase, and the economy is subject to sellers' inflation. It is now no longer a question of whether fiscal policy or monetary policy is more effective in regulating the volume of buyers' demand or expenditure, since the inflation is caused not by excess buyers' demand, but by the existence of powerful institutions and mores that enable sellers to insist on and obtain continually higher prices. The widespread and generous feeling that workers are entitled to the increases

in wages that they get is made much easier by a recognition that any raise need not be taken out of profits, since it is possible, as well as proper, to "pass it along" to the ultimate purchaser in higher prices. Indeed, it is usually considered only right that profits, in dollars, should be increased so as to protect real profits from the declining value of the dollar.

We have already mentioned the argument that a really firm refusal on the part of the monetary authorities to prevent the volume of money from increasing, no matter what happened, would bring the sellers to their senses. Realizing, or discovering, that they will not be able to sell so much if they raise their prices, they will refrain from raising prices, and they will not grant, or ask for, wage increases that raise costs by more than can be squeezed out of profits.

There are several reasons why this is not practical. In the first place, the policy of firmly or obstinately holding the money supply constant does not prevent excess buyers' demand from coming about. It does not even prevent an increase in total expenditure. This is because the policy of holding the money supply constant is essentially a kind of monetary policy, and we may be in the Keynesian special case where monetary policy is not effective. That we are at the present time in such a situation is suggested by the fact that, while the supply of money has been held fairly stable in recent years, the volume of expenditure has continually increased. (Another way of expressing this, which is more common perhaps because it sounds like an explanation, is to say that the velocity of circulation has increased and that this has frustrated the restrictive monetary policy.)

There is, of course, a limit to the degree to which expenditure can increase without an accompanying increase in the money stock, and if the inflation were a buyers' inflation it would come to an end when this limit was reached (i. e., when the velocity of circulation could not increase any more). But where the inflation is a sellers' inflation, it does not stop at that point. After the increase in prices has absorbed all the increase in expenditure that is compatible with a constant money stock (i. e., that can be attributed to an increase in the velocity of circulation) it continues to increase. The increase in prices goes on further until it has reduced real expenditure and employment sufficiently to overcome the institutional forces that enable sellers to demand higher and higher prices. The question is how strong are these institutions? or, in other words, how severe a state of depression and unemployment would have to be maintained in order to destroy these institutions or to induce sellers not to use their power to raise prices; and how able and willing the authorities would be to bring about and maintain this degree of depression and unemployment?

The continuing increase in wages and prices in the present depression would be some indication that it would require quite a severe and prolonged depression to change people's notions of what is the proper development of wage rates (and of the corresponding prices, since the right of wages to increase goes together with the right of profits at least not to fall). It would take perhaps an even more severe level of unemployment to destroy the power of labor to force the wage increases on more reluctant employers who grant wage increases only when they feel they are forced to—i. e., that they would lose more from the strikes and other weapons of the trade unions than they would lose by agreeing to the higher wages (and passing them on).

At the same time, a policy of full employment seems to have won a firm place in the country's economic policy (even though its application may be rather shaky), not only because of the general acceptance of the desirability of prosperity, for human as well as for international political reasons, but because neither political party can afford the blame for even a mild depression. With such a setup, there is no need to worry whether the cure is worse than the disease—whether the depression would be more harmful than the inflation that it would prevent. This cure is not one that any government would carry out or even seriously attempt to carry out.

None of the problems of sellers' inflation or of inflationary depression could arise in a perfectly competitive economy, because in a perfectly competitive economy, we cannot have the institutions and mores that give sellers the power to push prices up. In a perfectly competitive economy, all that is needed for stability of the price level is a monetary and fiscal policy to keep buyers' demand from becoming either excessive or deficient. No one holds back any product from the market—or can establish a price which results in some of the potential product or the available labor not being taken off the market, so that unless there is excess buyers' demand, prices cannot rise, and if there is a deficient buyers' demand, prices must fall. Unless there is full utilization of resources, we cannot have inflation, and if there is a depression (or recession), we will have deflation (i. e., falling prices). In a perfectly competitive economy, we cannot have inflation and depression at the same time.

But where prices are administered by decrees of large firms, and wages are administered by joint decrees of powerful unions, together with powerful employers or employer groups, the situation is different. Sellers' inflation is a byproduct of the process; and, together with sellers' inflation, we can also have depression—indeed we will have depression with our sellers' inflation, just to the degree that the authorities try to cure the inflation by reducing ("excess") demand.

In an economy where there are both administered and competitive sectors, the phenomenon of sellers' inflation can spill over from the administered to the competitive part. It can even happen that the contagion of sellers' inflation in the competitive sector is more pronounced than in the administered sector. There is then a tendency to assume that the sellers' inflation thesis has thereby been disproved. Actually, this does not prove anything either way in the debate that can rage as to whether the inflation is a sellers' inflation or a buyers' inflation.

The contagion can be explained as follows. Prices and wages being raised in the administered sector but not in the competitive sector, there will be a switch in demand from the products of the administered sector to the products of the competitive sector. There is then a deficiency of demand in the administered sector and an excess of demand in the competitive sector. With factors of production immobile, there is unemployment in the administered sector, but there it does not cause either prices or wages to fall so that the unemployment persists. Attempts to reduce total spending, so as to check the rise in the overall price level, would increase still further the unemployment in the administered sector (while removing some, or all, of the excess demand in the competitive sector). Pressure is then put on the Government

to alleviate the depression ; and, in doing so, it must create enough demand to maintain the higher price level in both sectors.

As the economy gets used to such a process, in which wages and prices are rising all the time, an increase in strategic or key prices or wage rates in the administered sector come to be recognized all over the economy as presaging a general rise in prices. The competitive sector then does not wait for the excess demand to appeal. Its workers demand higher wages, its employers expect to be able to get the higher prices out of which to be able to pay the higher wages, and they grant the increases and raise the prices. They do not have to go into the calculations of what output and elaborate price maximize profit. They have the businessman's rough rule of thumb of a more or less traditional markup on their cost. This brings them straight away to the position that would be reached after the excess demand has materialized and has been validated and adjusted by the monetary policy undertaken by the authorities to cure or prevent the unemployment threatened by the increase in wages and prices in the administered sector.

The economist is tempted to draw diagrams showing the point of maximum profits of a firm, competitive or monopolist, and to demonstrate, in classical vein, that an increase in wages will move that point to the left, reducing the optimum output of the firm and causing the firm to restrict output and to raise the price by less than the increase in cost. This should cause unemployment which, in the competitive sector, would restore the previous price and wage levels. The sellers' inflation has disappeared into thin air.

The answer to this, in classical vein, is that the demand will not remain the same, because the phenomenon is not happening only to an individual firm (in which case it would be proper to assume the conditions of demand to be unchanged), but that the monetary and fiscal authorities, in providing additional overall demand to cure or prevent the unemployment in the administered sector, will raise every demand curve so that the firm will be able to sell as much as before and provide the same employment as before, even though the price is sufficiently higher to enable the higher wage to be paid. Profits, or the gap between cost and price, will also be higher, of course, although in real terms, allowing for the fall in the value of the dollar, everything will be just the same as in the beginning.

The answer in the businessman's language is that he has to increase his price in proportion to the increase in costs, in applying his regular markup ; and his experience is that since this is happening to everybody, including his competitors, and employment in the country is more or less being maintained, he will be able to pass it on to the consumer.

Although the infection starts with the administered sector of the economy, there is no reason why the epidemic should not hit the competitive (and nonadministered monopolistic) sectors of the economy sometimes more severely and sometimes less severely than it hits the administered sector. This is why the observation that prices rise more or rise less in the unadministered sector than in the administered sector proves nothing at all either way as to whether the inflation is a buyers' inflation or a sellers' inflation. But only a sellers' inflation is compatible with a depression.

The inflation and the inflationary depression that result from administered wages and prices have important similarities to, and are no less socially harmful than, the monopolistic exploitation that would result from the administration of excessive prices by public utilities. We have gone a long way toward eliminating the latter evil by the regulation of prices that may be set by public utilities for the services they supply. The same kind of device can be used to eliminate the former evil. Just as the public utility prices can be and are being regulated so as to prevent monopolistic exploitation, so administered prices and wages can and should be regulated, so as to prevent sellers' inflation and the depression it may bring with it.

The regulation of administered prices and wages so as to prevent sellers' inflation would have to follow somewhat different lines. It would not be directly concerned as to whether there is more than or less than a fair rate of return on investments. That would be left to the strong competitive forces that still prevail in our economy. Nor would any other regulations whatsoever be involved other than price regulation. The function of the regulation here proposed would be only to prevent restrictive prices or wages from being administered. A restrictive price is one that results in the demand for a product falling below capacity output. A restrictive wage is one that results in less than full employment in the specific labor market to which it applies. With a monetary and fiscal policy concentrating on the maintenance of adequate buyers' demand for full employment at a constant price level, while preventing buyers' inflation, it would be possible for wages per hour to rise on the average at the same rate as productivity per hour, with aggregate profits rising too at the same pace as aggregate wages and aggregate output, (except that increases in the degree of competition, which might be induced, could reduce the share going to profits and increase the share going to labor).

The regulatory body would therefore have to follow a set of rules which would do the following things:

(1) They would permit an administered price increase only when production and sales are at capacity. Such price increases should not be withheld on account of profits being high.

(2) They would enforce decreases in administered prices whenever production and sales are significantly below capacity. A price decrease should not be waived on account of profits being low, or even negative on this item in the firm's output, as long as the price more than covers current operating costs (more strictly short period marginal costs).

(3) They would permit increases in administered wages in general at a rate equal to the average trend of increase in national productivity.

(4) They would permit increases in administered wages greater than this wherever the labor market is tight—with say less than half the national average rate of unemployment.

(5) They would permit only smaller increases in administered wages, or no increases at all, where the labor market is slack—with say more than twice the national average rate of unemployment. (The expected continuing increase in product per head makes it possible to avoid reductions in money wages although it is unavoidable, for price stability, that some prices must fall if others rise.)

This is, of course, not a fully worked out solution ready for immediate application. There remains much to be developed—such as generally acceptable criteria of capacity of different firms and industries and generally acceptable measures of slackness or tightness in particular labor markets, or measures for dealing with possible attempts by monopolistic industries to restrict the installation of capacity, if they are prevented from restricting the utilization of existing capacity. (This would bring out the existence of a specific monopoly situation that calls for treatment quite apart from the problem of inflation.) The intensification of competition which the regulation would enforce would also, in some instances, lead to the elimination of high cost competitors. While the public would benefit from the increased efficiency of the economy—in higher wages and lower prices—such elimination of competition would conflict with certain existing so-called antitrust policies that have become in effect anticompetition policies and need to be reconsidered.

There remain also important problems of organization and administration of the regulatory body, as well as the need for widespread and intensive public discussion to bring about the familiarity with, and the understanding of, the nature of the proposed regulation which is essential for its effective operation in a democracy. And in the course of such examination and debate, important developments, changes and improvements are to be expected. Nevertheless, the general lines indicated seem to be inevitable if sellers' inflation is to be attacked directly and if we are not to depend on irrelevant nostrums or pious exhortation because we do not dare to attack the problem at its roots.

## THE DESTABILIZING INFLUENCE OF RAW MATERIALS PRICES

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Spot prices and other prices of many raw materials fluctuate in a sensitive and extreme fashion. They are at the tail end of the price structure and swing widely. The question that I want to explore is the extent to which the tail wags the dog and, particularly, thereby helps to drive him uphill. To put the matter in another way, is it possible that the response of all prices to swings in sensitive prices tends, under conditions that presently characterize our economy, to foster an upward trend in the price level? It seems highly probable that the answer is "Yes."

### SUMMARY OF THE ARGUMENT

Over the past decade and in earlier years, as well, the prices of manufactured goods have tended to show an upward trend relative to those of the raw materials of which they are constituted. Increases in labor costs do not account for the growing spread. Doubtless, more extensive processing, packaging, and increased distributing costs, and certain social costs borne by the manufacturer, have filled the gap.

But in spite of their diminishing importance over considerable stretches of years, it seems probable that the gyrations of raw materials have contributed materially both to the fluctuation and to the upward trend in the price level. The reason is that, on the one hand, their extreme fluctuations are transmitted to later stages of production. On the other hand, the price of fabricated goods responds more agilely to a rise in crude materials prices than to a fall. Sensitive materials prices, in other words, operate on the price level like a ratchet jack.

Change in the price of crude materials, like any cost, affects the price of the fabricated product. It also affects other prices by influencing expectations about prospects for prices and delivery conditions. The resultant change in short term demand-supply relationships affects prices at the later as well as at the earlier stages of production through which the basic product passes to the final consumer.

It is the contention of this paper that these two avenues whereby the price of crude demand-oriented materials influence other prices—the avenues of cost and of their implication in buying or inventory waves—join to cause rises in crude prices to be promptly and liberally reflected in rises in other prices. However, the rigidities of other aspects of the cost structure, along with common interpretations of the influence of price reductions on short-term demand, cause the response to falling sensitive prices to be far less wholehearted.

In view of the built-in resistance to downward pressures, reduction of upward movements is in the public interest. The analysis of process has implications about how such reduction might be achieved.

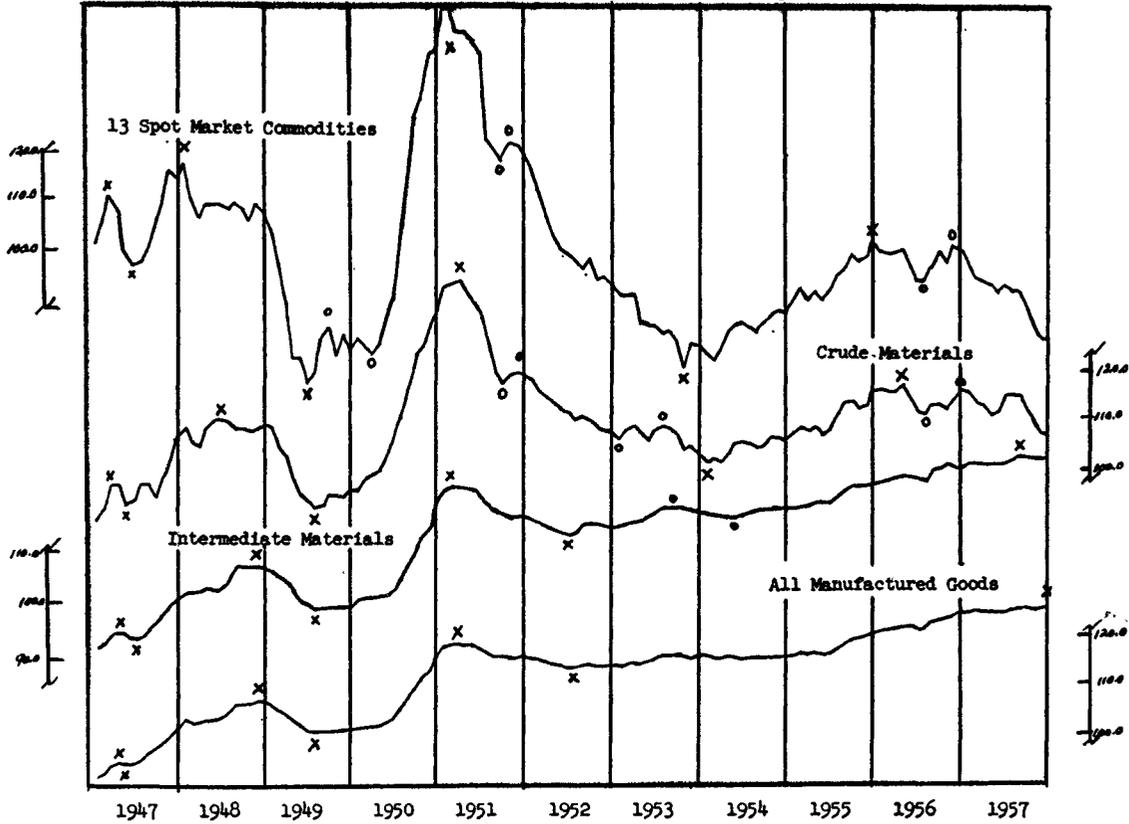
THREE CHARACTERISTICS OF THE TEMPORAL ASSOCIATION OF RAW- AND PROCESSED-GOODS PRICES

Chart I shows an index of spot-market prices of 13 industrial commodities. They include scrap prices for copper, lead and steel scrap, tin, zinc, print cloth, cotton, wool tops, burlap, hides, tallow, rosin, and rubber. Just below it is the Bureau of Labor Statistics' price index for wholesale prices of crude materials other than foods and fuels. This index covers the many such items priced by the Bureau and weights them according to their sales to manufacturers. The third line is the Bureau of Labor Statistics' index of wholesale prices of intermediate materials. The fourth covers all manufactured commodities other than farm and food products.

*Correspondence in cyclical fluctuation*

The chart shows that many of the fluctuations in any one series are also found at about the same time in the others; these common movements are marked by an X placed at their peak and trough months. (Other not generally shared reversals in direction are marked by O, and are discussed later.) The correspondence lessens as the eye moves down the chart, but even where the locations of maximums and minimums are not found at the same time in raw and in processed goods there seems to be a good bit of almost immediate response at the intermediate stage to price changes of crude materials. The association is clearer in rate of change. For individual commodities, of course, the association is considerably closer in spite of the fact that price indexes of partly finished or finished goods are notoriously imprecise images of the prices (including allowances for changes in terms and quality) at which sales are actually made.

CHART I. INDEXES OF WHOLESALE PRICES OF COMMODITIES AND MANUFACTURED GOODS OTHER THAN FOODS (1947-49=100)



*Greater amplitude of fluctuation in crude-materials prices*

The chart also shows that spot prices move more widely than all crude non-food-materials prices and a great deal more widely than wholesale prices of goods that have undergone manufacturing processes. If, for each series, we add the falls from the peak to the subsequent trough to the rise from the trough to the subsequent peak (turns marked with X on the chart), the average rise or fall per month for spot prices is 2.4 percent of the level in 1947-49. The corresponding figure (excluding foods throughout) for crude materials is 1.2; for intermediate goods, 0.6; for all manufactured goods, 0.4; and for finished manufactured goods, 0.3.

Crude materials other than foods constituted in 1947 about 6.9 percent of the value of the sales of all industries other than food industries. If we exclude the duplication of sales among manufacturing industries, crude materials constitute about 18.5 percent of shipments other than foods to the final-demand sectors such as export, Government, gross private capital formation and consumers. The relatively heavy fluctuation of crude prices can account for a very large proportion—an average of 57 percent—of the cyclical fluctuation of the price of finished manufactured goods other than foods during the 11 years, 1947-57.<sup>1</sup>

*Upward trend in processed—relative to crude-materials prices*

Over stretches of years there has been a tendency for prices of fabricated products to rise more (or fall less) than those of the crude materials of which they are made. Information for two periods may be reviewed.

Continuous indexes, those shown in chart 1, are available beginning January 1947. They show price trends after the immediate disruptions of wartime controls and decontrols have spent their force. From January 1947 to December 1957 the index of spot-market prices showed a net fall of 15 percent of the 1947-49 level. (Taken to its peak at the end of 1955, there was a net fall of 10 percent.) All crude material other than food and fuel rose 16 percent of their 1947-49 level, labor cost per unit of output rose about 15 percent and, even if calculated along a trend line that covers 25 years (on the assumption that employers tried to adjust for wartime changes), rose only about 27 percent of the 1947-49 level during the last 11 years. The price index of all manufactured goods other than foods, on the other hand, rose 34 percent of the 1947-49 average, and of finished manufactured goods other than foods, 33 percent.

<sup>1</sup> I am indebted to Beatrice Vaccara for providing the estimates of the proportion that crude materials constitute of gross and net manufacturers' shipments, as explained in the text. To estimate the percentage of cyclical fluctuation in finished-goods prices that can be due to fluctuation in crude materials, I add the cyclical rises to the falls ("rises" and "falls" are marked by X in chart 1) in crude materials prices and apply it to the crude sector—18.5 cents on 100 cents' worth of finished goods. This accounts for 57 percent of the rises and falls (analogously marked) in the price of finished manufactured goods other than foods. This figure for the whole period averages very different relations for each expansion and contraction. For contractions, the figures are a great deal higher than for expansions.

The differential trend of raw and manufactured goods prices after World War II was not the result of 1 or 2 freak movements, nor of differences in the date at which turns occurred, nor of the behavior of labor costs. Comparing movements that are shown as matched on chart I, the ratio of rises in spot-market prices to corresponding ones in margin over labor costs<sup>2</sup> is always larger during contractions than during previous and following expansions in spite of the fact that expansions in manufactured prices were usually longer than in raw materials and contractions shorter. This was also true when crude materials, rather than spot prices, were compared with margins. Another way of describing these relations is to say that when spot prices or crude-materials prices rose, manufacturers raised prices more, even after allowing for the probable increase in labor costs, than they lowered prices when materials prices fell, assuming that here, too, they would wish to allow for the movement of labor costs. Failure to allow for labor costs increases the difference.

It would be useful to test whether the same tendency appeared for matched pairs of prices for particular industries. But I have not tried to assemble these comparisons for the postwar decade. There is, however, an interesting group of well-matched prices for raw products and finished-goods prices for 18 industries, 1913 to 1935. These annual figures were collected by Solomon Fabricant many years ago. They, like the aggregate data for the recent decade, exhibit the tendency for finished prices to rise more over the years than the price of the major constituent, crude materials.

Figures are given in table I. They make rough estimates of trends by using trough-to-trough measurements. Ratios over 1.00 in columns 2, 4, and 6 indicate the presence of the lesser trend change of crude materials. The second column shows that this differential trend occurred in 15 of the 18 industries over the 20 years between about 1913 and 1933. Labor costs could not have been responsible, since cost per unit seems to have been about the same at the two dates. Columns 4 and 6 show that the same differential trend was present in 15 or 16 of the 18 industries when additional trough-to-trough measures are used to break the period into change during and after World War I.

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<sup>2</sup>The allowance for labor costs was based on changes in a 12-month moving average of production-worker payrolls per unit of output as estimated in *Productivity, Prices, and Incomes*, materials prepared for the Joint Economic Committee by the committee staff, table 52. In determining margin, it was assumed that labor cost constituted 40 percent of the total cost of manufacturing.

TABLE I.—Trend in prices of manufactured goods compared to that in prices of crude materials, 18 industries, 1913–33

	Prewar trough to 1932-33 trough <sup>1</sup>		Prewar trough to postwar trough <sup>1</sup>		Postwar trough to 1932-33 trough <sup>1</sup>	
	Percent change	Ratio, prices of manufactured goods to crude materials	Percent change	Ratio, prices of manufactured goods to crude materials	Percent change	Ratio, prices of manufactured goods to crude materials
	(1)	(2)	(3)	(4)	(5)	(6)
Bread and products.....	140.0	2.55	171.0	1.43	81.9	1.78
Flour and grain mill products.....	55.0		119.5		46.0	
Butter, cheese, and processed milk.....	77.5	1.09	137.4	1.00	56.4	1.09
Milk, raw at farm.....	70.9		137.0		51.8	
Meat packing products.....	89.6	1.28	123.8	1.09	65.1	1.17
Livestock and poultry.....	63.1		113.6		55.5	
Sugar, granulated.....	93.7	1.12	139.2	1.04	67.3	1.08
Sugar, raw.....	83.5		133.3		62.6	
Tobacco products.....	128.0	2.48	176.8	1.04	72.4	2.37
Tobacco leaf.....	51.7		169.7		30.5	
Cotton goods.....	118.9	1.85	198.9	1.34	59.8	1.38
Cotton, raw.....	64.2		148.2		43.3	
Woolen and worsted goods.....	113.9	1.88	178.5	1.67	63.8	1.13
Wool, raw.....	60.6		107.1		56.6	
Silk hose.....	64.4	1.41	157.1	.89	41.0	1.60
Silk, raw.....	45.6		177.2		25.7	
Boots and shoes.....	158.0	4.01	180.0	2.15	87.8	1.87
Hides and skins.....	39.4		83.8		47.0	
Auto tires and tubes.....	26.4	4.89	74.4	2.93	35.5	1.67
Rubber, crude.....	5.4		25.4		21.3	
Paper.....	154.0	1.86	180.0	1.40	85.6	1.33
Wood pulp.....	82.8		129.0		64.2	
Fertilizers, mixed.....	76.5	.91	141.2	1.08	54.2	.84
Fertilizer materials.....	84.2		130.6		64.5	
Petroleum products.....	66.3	.54	158.7	.56	41.8	.97
Petroleum, crude.....	121.8		281.8		43.2	
Linseed oil and meal.....	103.2	1.18	151.7	1.11	68.0	1.06
Flaxseed.....	87.6		137.1		63.9	
Simple processed iron and steel.....	128.1	.97	155.1	.87	82.6	1.11
Pig iron.....	131.7		177.6		74.2	
Copper products.....	64.8	1.56	104.3	1.11	62.2	1.41
Copper ingots.....	41.6		94.2		44.1	
Lead pipe.....	115.3	1.41	125.6	1.07	91.8	1.32
Pig lead.....	82.0		117.6		69.7	
Zinc sheet.....	117.1	1.90	107.3	1.10	109.1	1.72
Zinc slab.....	61.7		97.5		63.3	

<sup>1</sup> The prewar trough was located at the lowest figure reached by each index, 1913 to 1915, inclusive. The postwar trough was located at the lowest figure reached by each index, 1921 to 1922.

Source: National Bureau of Economic Research; compilations of annual price indexes, 1913 to 1935.

#### THE CAUSAL ASSOCIATION BETWEEN PRICES OF CRUDE, DEMAND-ORIENTED MATERIALS AND PRICES OF PROCESSED GOODS

The fact that raw materials have tended to rise less over the years than the prices of fabricated goods may seem to absolve them from responsibility as a potential inflationary force. But to do so is, I believe, to misunderstand the process whereby raw, particularly spot market, prices affect other prices. We live in a world in which there are few free competitive markets in the sense defined in Economics IA. Most prices, at least for processed goods, respond to other forces as well as to those of free competition. Businessmen make explicit decisions about them; product prices are in part "administered." Changes in crude materials prices bear on the character of decisions about product prices. In the context of this investigation, the point of chief interest is that they are likely to bear in a somewhat different way when prices are going up and when they are going down. To describe the character of this difference, it is necessary to concentrate

on sensitive prices for which changes in demand rather than extreme changes in supply are the primary source of usual market variation. A large proportion of basic industrial materials are of this sort. Characteristically, prices tend to rise and fall with rises and falls in orders and output. To see how this fact, and some others that I shall mention, bear on pricing strategy, it is necessary to consider two chief ways in which materials prices can affect product prices.

#### *Crude materials as a cost*

Raw materials are first and foremost a cost of production. When raw materials prices rise, the price of the goods in which they are incorporated must also rise if profits are not to be reduced. The amount that they need to rise depends on the relative importance of raw materials in the cost structure and what is happening to other costs.

Say materials are 30 percent of the total cost of an article that sells for a dollar. Suppose other costs do not change and materials rise by 10 percent. Then profits can be shielded by a rise of only 3 percent.<sup>4</sup> I want to underscore the character of this calculation; it is the *absolute* change in a cost that must be recovered, not its percentage change.

The change in finished prices that is likely to accompany a given rise or fall in materials prices depends in part on whether other costs are likely to be rising or falling at the same time. In recent years, labor cost seems to have risen, at least over a good part of the time, when materials prices rose, though its relation to cyclical fluctuation is not very systematic. But for goods whose basic materials prices parallel changes in demand, one type of cost does bear a systematic relation to the price of materials—the overhead or burden type of expense. Since these expenses are not a function of the months' or often even the years' output, they tend to represent a larger cost per unit when output is low than when it is high. Industry has also tended to add to other costs when opportunity arose—those associated with further processing of product, packaging, research, marketing and the like.

These facts suggest that it might be wise strategy to raise finished prices, when raw materials prices and demand rise, by more than the sum of the increase in materials cost plus any increase in actual labor costs and minus the decrease that had been experienced in actual per unit burden and overhead expense. The extra recovered margin would then provide for expected further increase in labor cost and changes in product, in distribution and the like—changes believed to strengthen the competitive position of the company. When materials prices and output decline, the fact that overhead expense per unit is increasing is a reason for prices not to decline by the absolute amount of the decline in materials.

I have analyzed how sensible business pricing policy might generate a stipulated association of changes in the price of crude and of processed materials. But why should the asymmetrical association to rises and to falls in materials costs be attributed to fluctuation in materials prices any more than to the character of the other costs and the drive to improve product and strengthen competitive advantage?

Of course, it is foolish to isolate any one factor in a total situation and say it governs the rest. I claim merely that sensitive demand-

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<sup>4</sup> Ten percent of 30 cents is 3 cents. Three cents is 3 percent of a dollar.

oriented raw materials prices play a more important role in the causal nexus than their position as cost justifies. One reason for this is their publicity value. Since, these days, pricing policy is defended at the labor bargaining table, at the lecturn and in the press, publicly reported costs—those of materials prices—that are rising swiftly provide a valuable talking point.

But a more important reason for assigning materials prices a strategic role in this process is a second avenue of impact of these prices on those of processed goods.

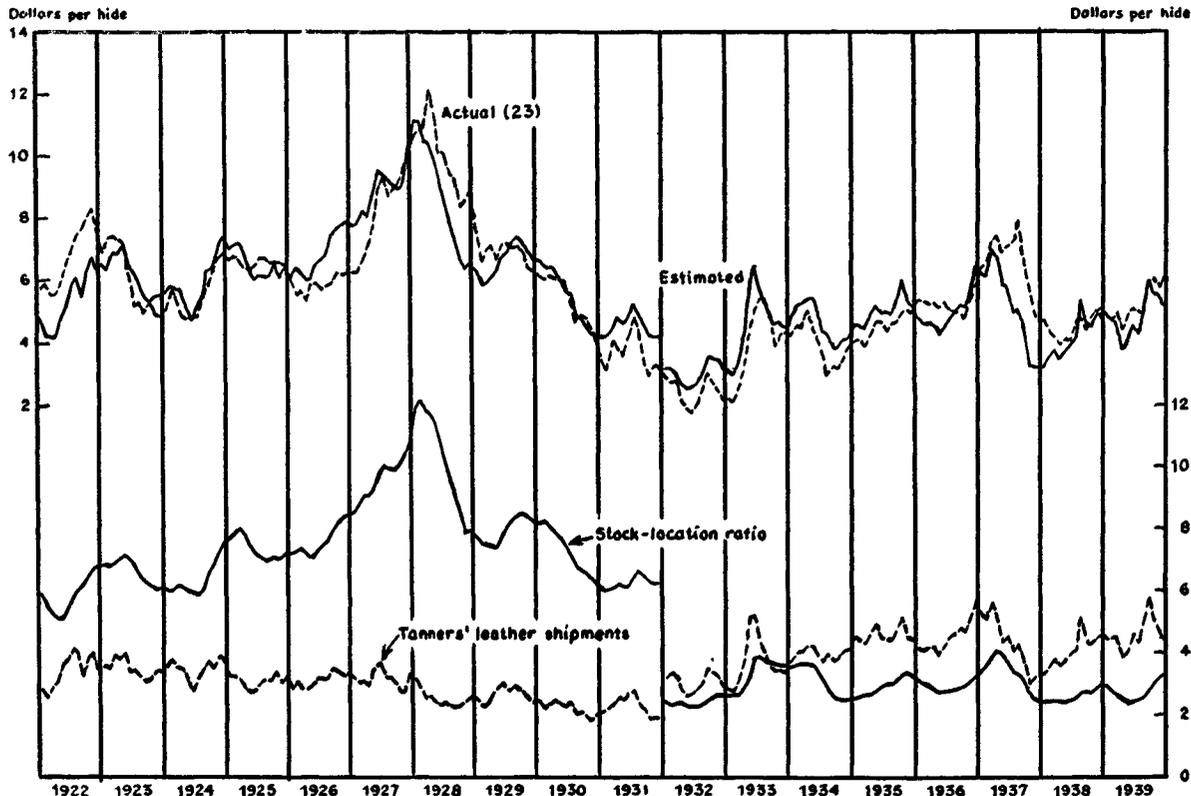
#### *Materials prices and buying waves*

The prices of demand-oriented sensitive raw materials, particularly prices quoted daily on open markets, provide a basis for expectations about market conditions. The expectation involves delivery conditions, selections, and price, and, typically, all three factors change together. A change in the price of a sensitive crude material often bespeaks changes in supply conditions in markets in which the crude material, semifinished goods made from it, and often even finished goods are bought by manufacturer or distributor. The appropriate response to an expectation that prices will rise, deliveries lengthen, or selections thin is that of extending the number of weeks' supply of materials held on hand and on order. A fall in the price of crude materials can have the opposite implications at any or all stages of a vertical sequence of production operations.

Needless to say, the buying associated with optimistic expectations influences the price of the raw product just as changes in its price, via the expectations based upon it, influence buying. Moreover the process as a whole is affected by conditions of final demand. These processes, like most social processes, are partly circular. The point is simply that this circular process is one that links sensitive prices, via buying waves for intermediate goods, to the prices of manufactured goods. Price fluctuation in raw commodities is increased by the buying waves and fluctuations of finished prices are also thereby increased. I shall come next to why the upward fluctuations may well be more augmented than the downward one, but, first, can one demonstrate the association of sensitive prices and buying waves?

As evidence on this point I submit three charts. The first applies to hide prices in the interwar years. The monthly course of hide prices was "predicted" by two variables: (1) Shipments of leather to leather-goods manufacturers and (2) a ratio depicting what may be thought of as a tug-of-war between buyer and seller to acquire inventories of hides and of leather. I call it the "stock-location ratio"; purchased and in-process inventories (leather in the hands of leather-goods manufacturers and raw or in-process hides in the hands of tanners) are divided by finished stocks (leather in the hands of tanners and hides in the hands of packers and dealers). The ratio depicts the efforts—stronger at some times than at others—of customers to buy stocks away from sellers. The calculations indicate that these efforts have an important impact on hide prices, just as expectations about hide prices must influence buying behavior.

CHART II. CONTRIBUTION OF EACH TWO VARIABLES TO THE ESTIMATION OF HIDE PRICES, 1922-39<sup>1</sup>



<sup>1</sup> Estimated prices are computed by the following formulas developed by the method of least squares:

$$1922-31: P = -3.98 + 6.089 R + 1.657 S$$

$$1932-39: P = -2.46 + 2.534 R + 2.443 S$$

where  $P$  is price per hide in dollars

$R$  is the stock-location ratio

$S$  is leather shipments by tanners in millions of equivalent hides.

Coefficients of multiple correlation are: 1922-31, 0.86; 1932-39, 0.81. Regression coefficients exceed their standard errors of estimate by between 6 and 18 times for the two values of the two variables.

Source: Consumption and Business Fluctuations: A Case Study of the Shoe, Leather Hide Sequence, by Ruth P. Mack, National Bureau of Economic Research, 1956, pp. 225, 226.

Similarity in the course of stocks, orders, and prices is also indicated in charts III and IV. Chart III makes comparisons for a group of semidurable industries. In the first 2 lines, an index of 9 spot prices may be compared with orders received by the manufacturers but not yet shipped to their customers. Unfilled orders, of course, increase as buyers try to provide further ahead; they decline as buyers return to a hand-to-mouth position. The third line is the stock-location ratio—purchased materials and in-process stocks of semidurable-goods manufacturers divided by their finished-goods stocks. Chart IV shows just the same three series for manufacturers of primary metals. In general, the three series seem to show a strong similarity within the industry sequence and sharp differences when the two sets of prices are compared.<sup>5</sup> Similar differences apply to the two sets of unfilled orders and to the stock-location ratios. Note how the semidurable series all decline throughout 1948 whereas metals do not decline sharply until the beginning of 1949. The 1949 trough is earlier and sharper in the semidurable group than in two of the metals series. The post-Korean peak is sharp and occurs early in 1951 in semidurable manufacture. In metals it spreads out through much of 1952 as the huge defense contracts stimulate the metals industries, though price ceilings affected the course of prices in 1951. The trough in both sets of data seems to locate in 1954, but the nondurable group rises to a peak in 1955 and starts to decline, whereas metals continue to rise well into 1956. It seems proper to conclude that the charts suggest an intimacy between buying waves and the most sensitive prices in the vertical sequences of industries concerned. I have little doubt that finer analytic tools and deeper understanding of the process would make it possible to sharpen the demonstration.

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<sup>5</sup> To some extent the price series is an element in the other two, but its influence could not be responsible for the basic similarities. The spot prices included in the price index apply at most to only a small part of the purchased stock since these are purchases at all stages of manufacture and of all materials that are used. The raw materials deflators calculated by the Department of Commerce have far gentler contours than the spot price indexes. In the stock-location ratio, the presence of a price element in both numerator and denominator further reduces the impact of prices on the course of the ratio.

CHART III. PRICES AND INDICATORS OF BUYING WAVES IN SEMI-DURABLE-GOODS INDUSTRIES

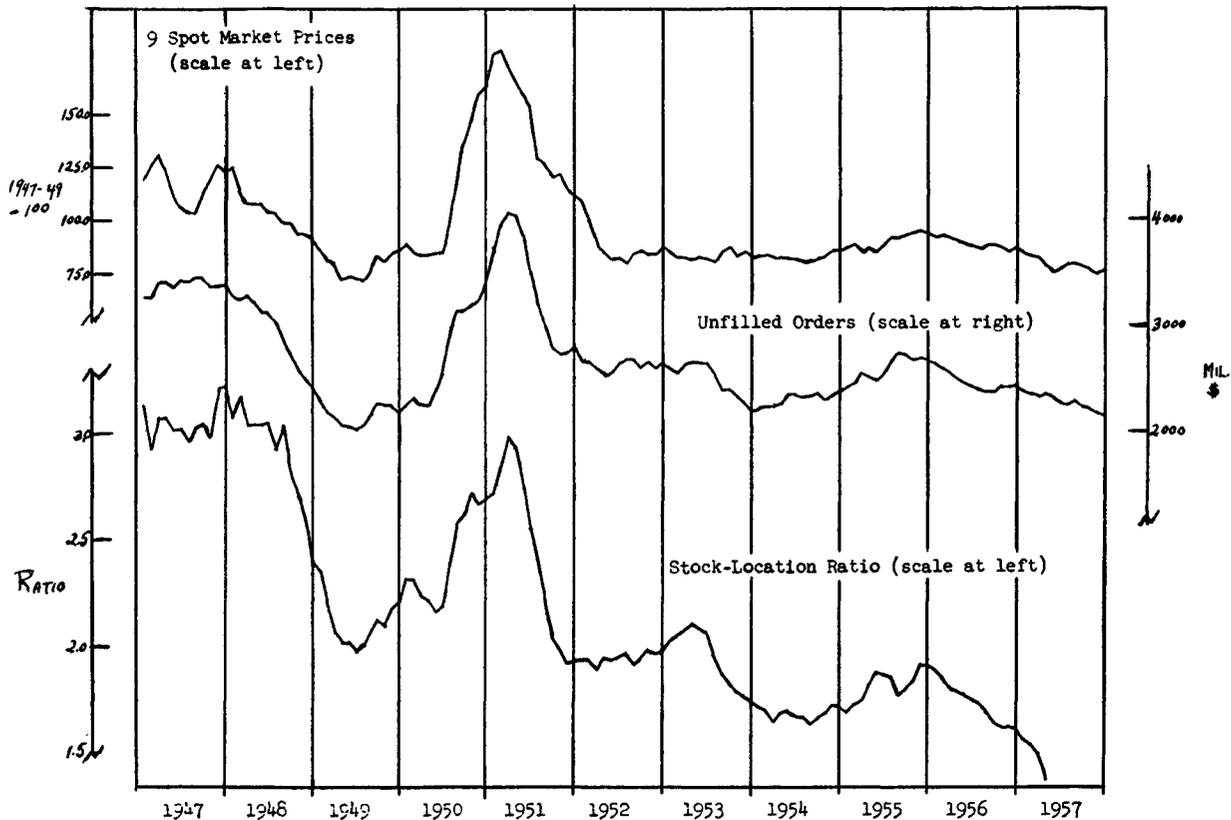
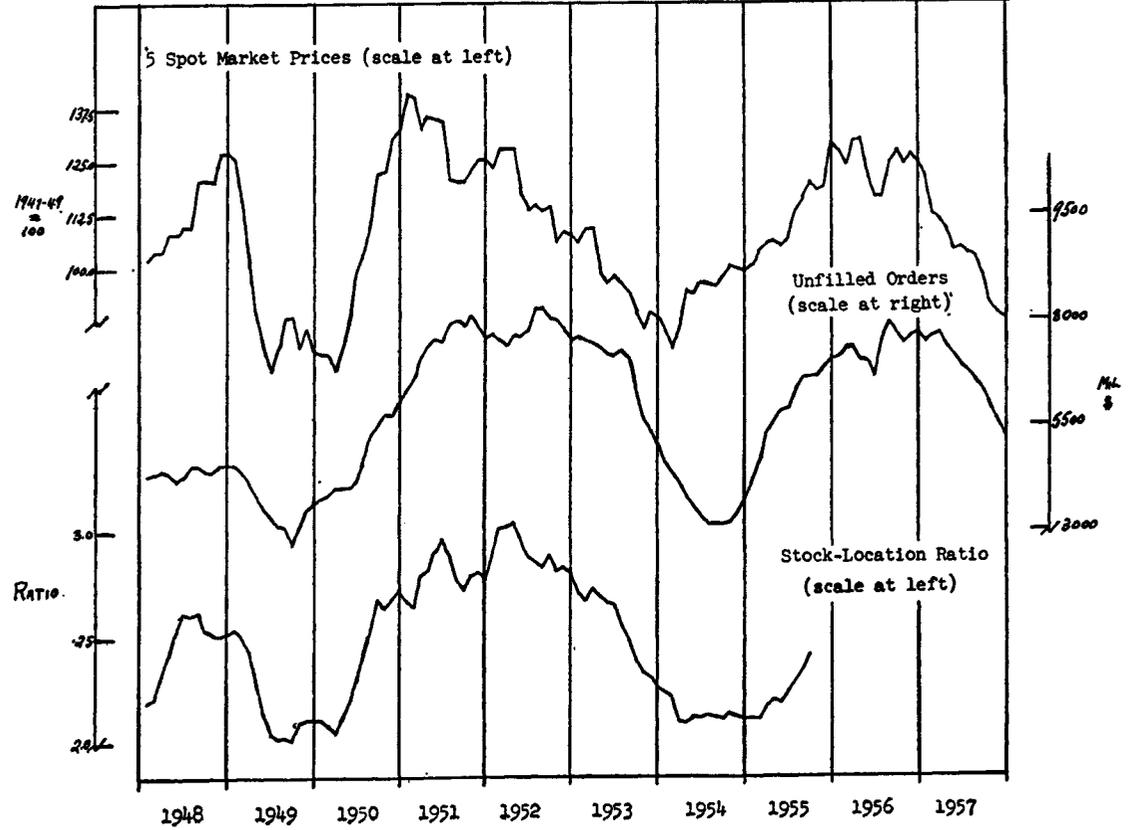


CHART IV. PRICES AND INDICATORS OF BUYING WAVES IN PRIMARY-METALS INDUSTRIES



*Asymmetry in the response to rises and to falls of crude prices*

I come now to why sensitive materials prices seem to have a special responsibility in furthering an upward trend in price. The reason involves why their upward fluctuations are more willingly reflected in selling prices than their downward ones.

The causal association between prices of crude, demand-oriented materials and prices of processed goods involves materials as an element in cost, that is, the relation of rises and falls in materials costs to the total cost structure. It concerns also the association between sensitive prices and buying waves for those commodities for which supply factors are not subject to abrupt autonomous change—demand-oriented sensitive prices. Changes in prices arouse expectation about further change; buying intended to lengthen or shorten market positions results at any or all of the vertically related stages; buying affects prices. Thus the buying wave, more popularly called an inventory cycle, is inextricably involved with sensitive materials prices. It is involved in several ways.

The first way involves the effect on demand of a change in price. We know from Economics A1 that the maximization of utility implies that a rise in price alienates demand and a fall stimulates it, other things the same. The previous section indicated how "other things" undergo systematic shifts because of price-associated expectations. A man will buy materials to lengthen his market position when he expects markets to tighten; he will buy less when he expects them to slacken. My point now is a further one: he is more willing to pass on the rise than the fall in materials prices to his own customers because he expects the demand of his customers to be, like his, stimulated by an expected rise and discouraged by an expected fall in price (providing, of course, he believes that his competitors, having experienced the same buying problems as he has, will handle their selling problems in the same way). Thus he has two reasons for raising prices—the fact that costs have increased; the fact that he expects that short-term demand will, if anything, be stimulated rather than repelled.

The impetus to pass on a fall in costs ordinarily comes more from the pressure of the buyer than from the spontaneous wish of the seller. This is true particularly since the argument of the previous paragraph applies in reverse—a price reduction in and of itself can be expected to discourage expectation-related demand. But the sellers' resistance to reducing prices may be paralleled by less than insistent pressure to do so on the part of his customers. When tight markets have continued long enough for stocks of purchased materials to have built up, the owner of the stock is wary of setting a downward spiral in motion by forcing price concessions from his supplier. The accounting law of cost or market, whichever is lower, means that loss on inventories will follow a reduction in materials prices. It may be better strategy to decrease buying and use up stocks before pushing for lower prices.

The argument suggests that prices of manufactured goods would lag sensitive materials prices more persistently at peaks than at troughs. The scanty number of observations covered by appropriate, readily available price statistics shows manufactured-goods prices lagging sensitive prices at each of the four major peaks that the data

cover whereas at troughs, they lead once, synchronize once, and lag once.<sup>6</sup>

The line of thought that emphasizes the link between sensitive prices and buying waves and the asymmetrical influence on pricing policy for rises and falls should be subject to test. One implication is that were it possible to hold other relevant factors constant, commodities having a high degree of cyclical variability of raw prices should tend to have finished-goods prices that have a trend rise far greater (or fall far less) than that of the price of the major raw materials of which they are composed. Small differential trends would be associated with low cyclical variability. The only data that could readily be used for the test were the 18 industries for which Fabricant had prepared price indexes for two or more stages of fabrication.

These figures seem to exhibit the sort of correlation between variability and differential trend that one would expect, though the test can only be thought of as highly tentative and requiring further substantiation.<sup>7</sup>

#### PROBLEM AND THERAPY

In industries in which short-run changes in the prices of basic raw materials respond primarily to changes in demand rather than to sharp autonomous changes in supply, there is a triple causal association between materials prices and product prices. First, materials prices are a business cost which, like other costs, must be recovered in selling price. Second, the fact that many crude materials prices are promptly and publicly reported gives them an instrumental value in recovering actual and expected increases in labor costs or increases in other costs which are expected to improve the competitive position of the company. Provision for increased complexity of product, packaging, marketing, research, are cases in point. Third, materials prices are linked with buying waves, and the associated inventory cycles, as cause and effect.

These several causal links between prices of crude materials and of products are relevant to the subject of this inquiry in two ways. In the first place, materials prices impart cyclical instability via all three causal links—enough to account for a large part of the cyclical fluctuation in the price of finished goods. The three causal links contribute to this result in various ways. As cost alone, the high per-

<sup>6</sup> Comparisons are for 1937, 1939, 1948, 1949, 1951, 1953, and 1957. The data used are: Bureau of Labor Statistics price indexes: all manufactured goods prices (excluding crude materials) since 1947 and combined semimanufactured and finished goods prices, 1935 to 1946. For this earlier period, sensitive prices were represented by an index of spot-market prices of 28 commodities and beginning in 1947 by spot-market prices of industrial commodities (shown in chart I). The lag (+) or lead (-) of manufactured prices relative to sensitive prices is: at peaks +5, +8, +1, +28, and troughs 0, +5, or -10.

<sup>7</sup> For the 15 industries in which raw-materials prices rose less or fell more 1913 to 1932 than did finished prices, average year-to-year differences in price indexes of raw materials, adjusted for the trend component, give a rough measure of cyclical price variability. We rank these figures from greatest to lowest variability and compare the rank standings for each industry with a second set of rank standings that are based on the spread between raw and finished goods prices between the trough in 1913, 1914, or 1915 to the trough in 1932 or 1933. Of course, other variables that ought to be controlled include differences among industries with respect to the trends in productivity, importance of materials as a cost, and peculiarities of supply conditions; institutional characteristics that influence the capacity to administer prices and the objectives to be thereby served. None of these matters could be controlled; but two industries, sugar refining and linseed oil and meal manufacture, had very few firms and low materials costs. Omitting these, the rank correlation for the 13 industries was 0.60 which is significant at the 5-percent level.

centage fluctuation of crude prices is watered down because they constitute only a fraction of all costs. Also the slow leaching of costs through the productive process delays the impact of raw on finished prices. Their involvement with buying waves, on the other hand, increases the promptness and extent to which changes in crude materials prices reappear in other prices, since the short-term shifts in demand-supply conditions that accompany buying waves have a direct impact on prices not only of crude materials but also on prices of intermediate and finished products.

Second, materials prices act as agent in facilitating an upward trend in the price level. Here again all three causal links play a part, but that of instrumental value and, especially, buying wave is particularly important. The impact of buying waves on the advantage of buyer and seller during periods of tightening demand is such as to further a rise in product prices relative to materials prices which is proportionately greater than the relative fall dictated by the advantage of buyer and seller during periods of hesitant or slackening demand.

The line of thought that I have outlined suggests that crude materials prices is an advantageous point at which to take steps to reduce cyclical fluctuations in prices and to curb their upward trend. What steps may be advisable?

The direction of the cure is implicit in the analysis of the process. It involves the damping of buying waves. This would reduce fluctuations in the price of demand-oriented crude materials. It would reduce the impact of fluctuation in materials on later stages of manufacture. It would reduce the ratchet-jack aspect of the process.

Though we know far less than we need to know about the alternating over and under buying of stock in trade, it seems clear that one element that generates this alternation is fear of scarcity. In connection with certain materials, it may be feasible to diminish fear of scarcity by the presence of reserve stocks handled in the interests of price stability.

But perhaps the most promising attack on actual scarcity is to lessen imagined scarcity which tends to validate imaginings. It is therefore reasonable to suppose that better and more complete information about stocks and orders—new and outstanding orders—would reduce surges and cessation in buying.

Specifically, we need information on orders received and orders placed by the same firms; we need information on unfilled orders and orders outstanding of the same firms. We need this information for vertical sequences that are continuous from the first to last processor. Information in physical units is more useful than in dollar units but is often too difficult to obtain. This committee has shown active interest in businessmen's expectations about sales and inventories. Yet businessmen are not clairvoyant and the value of orders they receive and of unfilled orders on their books must certainly be a major determinant of expectation about sales and stocks. Order information is often much easier to get and much more reliable than information on expectations. The several inquiries about statistics instigated by this committee and executed by the Federal Reserve Board 2 years ago were unable to cover data on orders; unfilled orders were not covered by the inventory committee and new orders were not systematically covered by the Gainsbrugh committee on expectation. It

seems distinctly in the public interest to improve such information both because of its value in forecasting general economic conditions and because it would help industry in its own interest to lessen fluctuation.

## RELATIONSHIPS BETWEEN FOREIGN AND AMERICAN PRICES

Gardner Patterson, Princeton University

The task assigned me was briefly to survey the problem of the interrelationships among American and foreign price levels from the long-term point of view. I was specifically asked not to deal with the immediate international problems arising from the present United States recession. My concern is with the problems arising from a persistent uneven pace of inflation among nations, and both "persistent" and "uneven" are important qualifications.

To properly assess the relationships between foreign prices and the American economy one must have some notion as to the importance of our international economic transactions. There is no simple measure of this. On the most general level, it can be said that as compared with many domestic economic activities the numbers are relatively small but that they are not so insignificant as to be safely ignored by those formulating policies to cope with the problems facing this committee.

### I. RELATIVE IMPORTANCE OF INTERNATIONAL ECONOMIC TRANSACTIONS <sup>1</sup>

Excluding military aid, our exports of goods and services have in recent years been running in the neighborhood of 5 to 6 percent of our gross national product, or some 9 percent of our movable goods production. Our imports (f. o. b.) have been equal to from 3 to 4 percent of our gross national product, or equal to some 6 percent of the estimated value of movable goods produced in the United States. Looked at from another angle, it has been estimated that about 7 percent of our labor force gain their livelihood, in one way or another, from foreign trade. For many sectors of the economy, foreign trade—and so price changes abroad compared to those at home—is much more important than these overall averages indicate. For example, foreign sales in recent years have, on the average, accounted for about 20 percent of our production of trucks, 25 percent of our output of construction and mining equipment, 10 percent of our machine tools, and from 25 to 40 percent of such agricultural products as cotton, wheat, rice, fats and oils, and tobacco. For some industries, on the other hand, exports are of very little importance: printing and publishing, clothing, manufacturing, food processing, and so forth. Similarly, in many areas the importance of imports is much greater to our economy than the above overall averages suggest. We are now depending upon foreign sources for about a quarter of

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<sup>1</sup> For more details on most of the points in this section, see U. S. Congress, Committee on Ways and Means, *Foreign Trade Policy, Compendium of Papers on United States Foreign Trade Policy* (1957), pp. 15 ff. See also U. S. Department of Commerce, Bureau of Foreign Commerce, annual bulletins on Exports in Relation to United States Production, in its *World Trade Information Service*, and, in the same Service, *Contribution of Imports to United States Raw Material Supplies*.

our consumption of iron ore, a third of our copper and fish, half of our raw wool and sugar, and most or all of our tin, nickel, lead, zinc, bauxite, chrome, manganese, cobalt, and so forth, to say nothing of our coffee and bananas.

From the aggregative point of view, it may be said that, by and large, the greater the excess of exports over imports the greater net financial boost or push (not always desired) our economy gets in the first instance from its foreign trade. The size of our current account export surplus—the excess of exports of goods and services over imports, or the excess of our foreign sales over our purchases from others—varies from year to year. Since 1950 it has averaged, excluding military aid, less than 1 percent of gross national product and was almost exactly 1 percent during 1957. This is a small percentage. But in absolute amounts, again excluding military aid, it averaged \$2.5 billion for the period 1950–57, and was over \$4 billion in 1957. That is to say, last year this was only a little less than most of the recent (March 1958) estimates of the anticipated decline in 1958, as compared with 1957, in the value of business investment in plant and equipment about which there has, quite properly, been much serious concern of late.

Perhaps this is enough to indicate that there are important structural and financial relationships between the American and foreign economies. Moreover, it seems likely that these interrelationships and interdependencies will increase in the years ahead. As our income goes up, the variety and quantity of goods which we demand grows and so our interest in foreign products; the evidence seems quite conclusive that foreign sources of raw materials will become increasingly attractive as our production grows and as the more cheaply exploited domestic sources are used up. Corollarily, the volume and value of our exports, especially of manufactured goods, also seem likely to increase as foreign incomes improve. These forces making for growth of trade seem likely to be more powerful than the drives toward protectionism which have been such a prominent part of our landscape in recent years.

## II. TRANSMITTING PRICE CHANGES ACROSS FRONTIERS

The effects on one nation of price movements in another, and the ways in which these effects are transmitted, are so complex that they are not known with precision. At the outset, it should be noted that price changes in some goods or services in one country may have virtually no discernible impact on prices elsewhere. This is the case for price changes in those many items which do not move across frontiers—haircuts, house rents, and so on. There may, of course, even here be indirect repercussions, especially through wage rates, but they are likely to be small. Probably more significant are the cases where price changes in one country serve to offset or counteract other economic changes and so are not transmitted in any clearcut way. Thus, an increase in the prices abroad of goods we import may have little impact on our economy if it is matched by a decrease in the cost of transportation. Or a decrease in prices abroad may largely be offset by a rise in our tariffs. Moreover, it may often be that the markets for certain goods are so poorly organized, or the goods so differentiated, that great divergences in prices can take place for quite some

time as between nations before consumers shift their sources of supply or before the new prices make themselves felt abroad in other ways.

Our chief concern here is with general price levels, not just selected individual prices, and it can be said that any substantial change in the price level in one country will have a noticeable impact on other countries. For purposes of illustration, assume that prices of most goods—and so the general price level—rise abroad faster than they do in the United States; as we shall see later, this seems to have been the common pattern in the past decade or so. To some degree these price rises will be transmitted directly to Americans by the simple fact that we are likely to continue to import at least some of these goods and the cost per unit, or price, goes up. If the price rise abroad is great enough we may reduce the quantity of our imports and rely more on domestic producers. But under these circumstances the domestic producers can usually obtain a higher price than before and so, here too, prices have increased in the United States. Another aspect of this is that since rising prices tend to lessen the danger or force of import competition, one of the moderating influences on price increases at home is removed. But this is not all. If foreign prices go up faster than ours, there is a tendency for buyers all around the world to shift to lower-price sources; this will mean an increase in demand for many United States goods and so more pressure is applied to our prices.

A bit more complicated, but fully as important, is the transmission of inflation, by which term I mean a general rise in prices, via what is called the "income effects." As inflation mounts in one country, money incomes also tend to rise. As money incomes rise, the money demand there for all sorts of goods increases. Included as the object of this enlarged demand are likely to be at least some of the domestic goods formerly exported plus all kinds of imports. More specifically, still assuming the pace of inflation abroad is greater than ours, this means an increase in our exports and a decrease in our imports. Now if we have lots of unemployed resources, these developments will give a welcome boost to our economy and may well increase total production and employment. But if we are already fully employed—and are ourselves already suffering from rising prices, though more moderate than other areas—these changes will aggravate our inflation. The actual ability of others to buy more and sell less depends on the previous balance of trade, on the state of their reserves, on the availability of unilateral transfers and loans, etc. If the first were unfavorable, the second low, and the last very limited, then the situation cannot long continue. But this state of affairs would raise some important policy issues for us which will be noted later. It was suggested earlier that changes in the overall inflationary pressure (wanted and unwanted) put on one economy by inflation in another via these income effects can roughly be measured in the first instance by the changes in the size of the export surplus; the absolute inflationary impact on the more stable economy over time, however, will be some multiple of this surplus, inasmuch as a large part of the additions to its national money income represented by the surplus of foreign sales over purchases will be spent again and again inside the country and only a part will "leak out" through domestic savings, higher taxes, and larger imports.

Inflation also is sometimes quickly spread among nations via the speculative channel. This is most likely to affect countries for which raw materials bulk large in imports (as the United States) or in exports (as many of the underdeveloped countries). Once the prices of raw materials start rapidly upward, for whatever reason, the fact of increase tends to encourage users to accumulate inventories, these goods typically being storable. The supply of most raw materials tends to be price inelastic, which means that any such increase in demand tends to have a very great effect upon prices. Thus both the importing and the exporting countries tend to inherit inflationary pressures from one another. Similarly, of course, once raw material prices start to fall they tend to fall far and fast.

The international transferral of inflations also takes place via its effects on a nation's terms of trade. An increase in the price of imports as compared with exports—a deterioration in a nation's terms of trade—means that the nation suffering such an adverse movement must increase the physical quantity of her exports to maintain the previous quantity of imports. This means (unless the worsening terms of trade are the result of at least a proportionate increase in productivity in the production of the exports) that, as compared with the previous situation, there are fewer goods available for purchase inside the country and this, of course, is inflationary. This phenomenon has had great quantitative significance for England in recent years, especially after Korea. It has been less important, though not negligible, for the United States inasmuch as our relative dependence on imports is much smaller.

### III. RECENT PATTERNS OF RELATIVE PRICE MOVEMENTS

If inflations do spread across frontiers, as has just been argued, then it is important to know whether, in fact, in recent years inflation has proceeded at different rates in different countries, and, if so, where the United States has stood on the ladder.

Price data are not available for some countries and international comparisons of price movements are fraught with possibilities of error, stemming from the wide differences of items covered, gross inaccuracies in observation, incomparability of many items whose prices are compared, the irrelevance of differences in prices for certain comparable goods and services, and so forth. Nonetheless, readily available data for most of the countries which now supply 1 percent or more of United States imports do show such great differences in the relative price movements that one can conclude, in the light of what has been said above, that a source of problems for the United States exists here.

The actual comparison varies much, depending on the year chosen for the base of the price indexes used. In the early postwar years, 1945-48, as the United States abandoned its controls more quickly than other nations, prices here very often rose faster than in many foreign countries where price controls were retained. For the decade since then, however, a substantial majority of countries appear to have more inflation than the United States, as the table below shows. That is, for the years 1948 through 1953 these data indicate the United States was subjected to serious inflationary pressures from

abroad. Since 1953 the rate of inflation has tapered off in most countries and the degree of difference has declined, but inflation still continues and it continues unevenly.

TABLE I.—Comparison of domestic inflations, autumn 1957

	1948=100			1953=100	
	Wholesale prices	Cost of living		Wholesale prices	Cost of living
Chile.....	1,880	1,650	Chile.....	696	636
Argentina.....		590	Brazil.....	195	212
Indonesia.....		347	Argentina.....		182
Brazil.....	372	342	Indonesia.....		163
Japan.....	291	195	Colombia.....	160	140
Peru.....	274	209	Peru.....	136	127
Colombia.....		206	Mexico.....	135	143
Mexico.....	205	200	France.....	119	111
Australia.....	204	201	Sweden.....	108	113
France.....	183	185	Australia.....	108	113
United Kingdom.....	159	153	United Kingdom.....	107	118
Sweden.....	150	147	Netherlands.....	107	117
Netherlands.....	143	152	United States.....	107	106
West Germany.....	117	117	Belgium.....	106	109
Canada.....	115	127	Denmark.....	105	113
Belgium.....	113	115	Japan.....	105	111
United States.....	113	118	West Germany.....	105	108
India.....	108	115	Switzerland.....	105	107
Switzerland.....	103	111	Italy.....	103	114
Philippines <sup>1</sup> .....	103	104	Canada.....	101	107
Italy.....	99	132	India.....	101	106
Venezuela.....	97	120	Philippines.....	101	106
Cuba.....		90	Cuba.....	100	97
			Venezuela.....	99	102

<sup>1</sup> 1950=100.

Source: Calculated from data published in United Nations, Monthly Bulletin of Statistics, various 1957 issues.

To us in the United States foreign prices have meaning only when translated into dollars and this requires a foreign exchange rate. A good many foreign countries have devalued their currencies during the past decade and so the above prices do not accurately reflect the prices to us in terms of dollars. Indeed, often devaluation was necessary in large part precisely because other countries had more inflation than the United States. Thus, another very rough indication that most other countries have suffered more inflation than we have is the fact that of the countries included in table I above all save Canada, Cuba, the Philippines, Switzerland, and Venezuela have officially reduced the value of their currency in terms of the dollar at some time or other since 1948. But it is also noteworthy that only the following have officially cut the dollar value of their moneys since 1953: Bolivia, Brazil, Chile, Colombia, France, and Mexico. Table II takes account of these official devaluations and expresses foreign wholesale price indexes in terms of United States dollars.

According to this calculation, the extent of inflationary pressure which was probably applied to the United States from abroad is much less than table I indicated. However, it must be remembered that most countries today follow a so-called "adjustable-peg" exchange rate policy; that is, their exchange rates are not allowed to fluctuate from day to day or even month to month in response to market forces, but are held fixed over long periods of time and then, if found inappropriate, undergo major adjustment in one fell swoop. This means that the impact of relative differences in degree of inflation tends to be felt for a relatively long period before the rate is adjusted.

TABLE II.—Comparison of wholesale prices, expressed in United States dollars, autumn 1957

[1948=100]		[1953=100]	
Japan.....	290	Brazil <sup>1</sup> .....	123
Brazil <sup>1</sup> .....	185	Peru.....	120
Australia.....	142	Chile.....	117
Peru <sup>2</sup> .....	134	Sweden.....	109
West Germany <sup>2</sup> .....	123	France.....	108
Canada.....	123	Australia.....	108
France.....	121	United States.....	107
United States.....	113	Netherlands.....	107
United Kingdom <sup>2</sup> .....	104	United Kingdom.....	106
Philippines.....	104	Belgium.....	106
Switzerland.....	103	Canada.....	106
Sweden.....	102	West Germany.....	105
Colombia <sup>3</sup> .....	99	Switzerland.....	105
Netherlands.....	99	Japan.....	104
Belgium.....	99	India.....	103
Venezuela.....	98	Philippines.....	102
Chile <sup>4</sup> .....	97	Italy.....	100
Mexico.....	95	Cuba.....	100
Cuba <sup>5</sup> .....	90	Venezuela.....	100
Italy.....	89	Mexico.....	95
India.....	78	Colombia <sup>3</sup> .....	94

<sup>1</sup> "Coffee export rate" used in converting domestic prices to dollar basis.

<sup>2</sup> 1950=100.

<sup>3</sup> Index of "Home and Import Goods" prices. Exchange rate used was "Other principal export rate."

<sup>4</sup> Average exchange rate of 40 pesos per dollar used for 1948 and 110 for 1953.

<sup>5</sup> Cost of living index.

Source: International Monetary Fund, International Financial Statistics, December 1957, various tables.

Another common indication of relative price movements is provided by the so-called terms-of-trade index, the ratio of the prices of the commodities a nation exports to the prices of the commodities it imports. A commonly used measure of this is to divide the unit value of exports of United States merchandise by the unit value of United States imports for consumption, the unit values being those calculated by the United States Department of Commerce. These calculations are based on actual prices paid and received, rather than on general price indexes, and take into account changes in the exchange rate. Using 1936-38 as equal to 100, the index shows a fairly steady deterioration from 1945 through 1951 and then a slight improvement, with a fairly stable relationship since 1954.

Again, the possibilities of errors are great and the recorded decline could be the result of a series of factors other than more domestically generated inflation abroad than in the United States. For example, important changes in the kinds of goods imported or exported could cause changes in the index even if prices for each good remained constant. Or, the higher prices for imports may have been the result of an increase in American demand for the goods. Still, when considered along with the other evidence this does lend support not only to the thesis that prices have moved unevenly among nations but also to the hypothesis that during much of the postwar period the United States has imported some inflation.

TABLE III.—*United States terms of trade index—Unit value of exports of United States merchandise divided by unit value of United States imports for consumption*

[1936-38=100]			
1936-1938	100	1951	68
1940	97	1952	71
1945	107	1953	74
1946	91	1954	71
1947	88	1955	72
1948	85	1956	72
1949	83	1957 (January-September)	75
1950	74		

Source: Calculated from data in U. S. Department of Commerce, Business Statistics, 1957 edition, and Survey of Current Business, January 1958.

#### IV. WHAT ARE THE PROSPECTS FOR THE FUTURE?

What is likely to happen is always more interesting than what has happened and it is to that we now turn. In my judgment, most other countries are likely to witness steady and serious inflation in the foreseeable future. Whether this will be at a faster rate than in the United States depends on our internal policy, and I leave consideration of this to others. My point is only that if our objective is to have stable prices our policies must make allowance for some, probably moderate but unremitting, inflationary pressures from abroad.

For some of the industrialized countries with whom we have contact, these inflationary pressures will arise in part from the defense burdens they have assumed. Much more important, I anticipate, will be the conjunction of (1) a vigorous pursuit by these governments of full employment policies, (2) the existence of strong and aggressive labor unions, and (3) the fact that much of the public now generally believes that by energetic use of monetary and fiscal measures any unwanted slack in demand or employment can be successfully combated. If, as seems to be the case in many countries, the politically and socially acceptable levels of unemployment are now very small, then tremendous upward pressure will be exerted on prices for the many well known reasons that apply to our internal situation. One way to insure full employment is for the Government, in one way or another, to stand ready to increase monetary demand whenever any slack develops, thus putting a floor under wages and leaving them no place to go but up. A full employment policy by the Government serves to increase the strength of unions, one of whose jobs is to increase the wages of members. Moreover, trade unions are becoming more powerful in most nations and their attempts to raise wages *pari passu* with productivity increases tend, as many have pointed out, to be inflationary, particularly (a) if the increase in wage rates tends to follow that of the more progressive industries, leaving those whose productivity is rising less no alternative but to meet the higher labor costs through higher prices, and/or (b) if the increase in productivity has been made possible by increased capital costs per unit of output, leaving management no choice but to raise prices if it is to cover costs. Another aspect of this is that full employment decreases the resistance of employers to wage increases, inasmuch as in an economy with full employment and rising wages management finds it easy to pass on its rising costs in higher prices to its customers. This may be even easier to do in economies where the form of business organiza-

tion, tradition, and the laws encourage monopolistic-like actions by businessmen. Furthermore, anticipation of full employment and rising prices encourages businessmen to invest and this can be inflationary in a full employment situation.

Of course, all industrialized countries do not, and will not, act in the same way on this or any other problem. Evidence of the past decade indicates, however, that the governments of many of the other highly industrialized nations, including for example the United Kingdom, Austria, and Norway, have felt compelled to push employment to levels well in excess of those determined as politically necessary to the United States. Thus, for example, in England, even under the Conservative Government, unemployment greater than 1½ to 2 percent of the labor force has become a matter of grave concern calling for remedial action. In the United States unemployment of these dimensions would mean less than 1.5 million jobless. Italy, on the other hand, has tolerated year after year a level of unemployment greater than we have now.

In many of the economically advanced countries governments have been assuming growing responsibility for providing social and welfare services at steadily increasing levels. Most indications are that this trend will continue. Such activities are, to some extent, an additional demand on the available resources, thus tending to push up prices. There is an accompanying tendency, frequently reported, of individuals saving less, inasmuch as some of their future needs are otherwise being provided for. This, too, is inflationary.

Many observers believe that another fundamental factor making for inflation in both the richer and the poorer foreign countries is the so-called "demonstration effect" of the higher and growing United States levels of living, increasingly made known to others as communications of all types improve between ourselves and others. The essence of the argument here is that as others watch us constantly increase the quality, the variety, and the amount of things we consume, their appetites are whetted and they are tempted to try to "live beyond their means." That is, the peoples of other nations attempt to consume more than there is for sale at the present prices. The result is inflation. Economists are not in complete agreement on this; some argue that the "demonstration effect" of Americans' higher living standards may encourage others to work harder, to save more, and to produce more, with the consequence of disinflation. The latter certainly could happen. But it is my hunch that in more cases than not the effect is inflationary. Another factor making for a persistent rise in prices in both developed and underdeveloped countries is that once inflation has gone on for any length of time, as it now has in most foreign countries, to say nothing of the United States, nearly all persons come to expect further rises, and their attempts to hedge against this—by getting out of fixed-income assets, asking for escalator clauses in wage contracts, and so on—act as a forceful propellant to further inflation.

There are special grounds for fearing that in the years just ahead inflation is even more likely to occur in the so-called underdeveloped areas than it is in the highly industrialized countries. In addition to the factors just cited, the governments of most of these underdeveloped areas are firmly committed to programs of economic development—that is, to rapidly and drastically altering the structure of their economies and to attempting to industrialize them. The

reasons for the adoption of this policy are well known to Congress and need not be explored here.

Let it be acknowledged at once that economic development does not of necessity lead to serious inflation. But it has done so in most cases since World War II; and it seems more likely than not to do so in the foreseeable future. The reasons are simple: changing the pattern of production of a country and increasing total production and productivity are likely to be relatively slow processes, not only because of technical problems but also because they usually must be accompanied by a great many fundamental social and cultural changes. Moreover, most of these areas are poor and so their ability quickly to raise large amounts of additional real capital internally is low. And, as is well known, the amount of available foreign capital also tends to be low compared to the demands or wishes of these countries. At the same time, the governments of these countries often find it to their immediate political advantage to hold out great promise to their peoples on these matters and so to increase the public's expectations of rapid improvement.

This complex of considerations has, in most instances, created for the authorities an irresistible temptation to attempt a level of capital formation and economic development well in excess of the physically available goods and resources. The important aspect of this in the present connection is that the favorite devices used have been "monetary" ones—budget deficits, easy construction credits, expanded agricultural-aid programs, etc. Often such programs are very successful at first. There are quite a few unemployed resources, not only labor but also land and, sometimes, capital, that can be put to work; the public is often willing substantially to increase its holdings of cash for a while; until labor is better organized—such organization is often one of the desired components of an economic development program—wages can be held down in spite of serious rising costs of living; and, for a time, past accumulations of foreign exchange holdings can be spent, which action soaks up some of the new domestic cash. The very fact of early success tends to be heady and all too often encourages an ever more ambitious program. But once these early "advantages" are exhausted, serious inflation begins. At this danger signal most economists advise the governments to trim their sails and reduce their economic development efforts. But this is asking more than can be expected of the governments of most poor countries—often nations with rather unstable political institutions. To them, and to many other thoughtful persons, inflation, especially if it can be kept fairly moderate by local standards—say, no more than 10 percent per year—appears a far less serious problem than having a rate of economic development less than might be the case. In practice, the inflation often gets completely out of hand, but that is beside the point for our present purpose, which is merely to note some of the reasons why we may expect prices to rise significantly—say, something more than 7 percent per year—in the years ahead in the poorer countries of the world. These countries supply many of our imports and the markets for a good bit of our exports.

## V. IMPLICATIONS FOR UNITED STATES POLICY

My thesis up to now has been that price changes can be expected to move among nations; that in the period since World War II inflation has characterized the economies of virtually every country with which we have important economic relations; that the pace of these inflations has varied a great deal; and that for most of this period the United States, on balance, has probably imported a substantial amount of inflation, but this has decreased in recent years. Finally, it has been argued that there are strong forces at work making for continuing inflation in both the other industrial economies of the world and in the so-called underdeveloped ones.

I would like now, briefly, to turn to some of the policy implications of all this for the United States. First of all, it seems clear that, in order to achieve internal price stability, the United States will have to overcompensate for the purely domestically generated inflationary pressures. That is, we will have to devise and pursue more rigorous—and probably more unpopular—antiinflationary policies than our own excesses would dictate. This is important, for it is always tempting to pursue policies on the assumption that some of our domestic problems will be solved by the actions of others. In this field our problems will be bigger than they appear when looked at only from the inside.

Perhaps the next most important implication is that these considerations argue for the United States pursuing a more liberal import policy than it now does. The fact of rising prices abroad will itself tend to curtail our imports and those that do come in, it was asserted earlier, will tend to raise our prices. But for them not to enter our market would make our inflation even more severe. One of the most efficient ways of restraining inflation is to increase the amounts of goods and services in a market while reducing the amount of money looking for goods to buy. Increasing imports does precisely that. By the same token, any United States Government action designed to keep out imports has direct inflationary effects. The price-raising effects of restricting imports may be in some small part offset if other countries retaliate and reduce their markets for our exports, but it is clear I think that a worldwide policy of curtailing trade all around makes for lower real incomes for everyone in the longer run. There are of course a host of other considerations relevant to the formulation of our international trade policy; most of those also argue for a reduction of American import barriers but a consideration of them is outside the present assignment.

Third, if there continues to be inflation abroad and the United States is able to stop inflation at home, or if the pace of inflation abroad is faster than here, the attractiveness to foreigners of American goods will increase and the attractiveness of their goods to us will decline. As a consequence, one may anticipate the emergence in some form or other of what has been called the "dollar shortage," that is, severe pressure of the balances of payments of other nations. As a consequence of this, one must expect an increase in barriers and in discrimination against United States exports. Although a raising of such barriers against our exports is to be regretted, we must refrain from retaliating in kind, for this would only enlarge the problem and add to inflationary pressures here in the United States.

The inflationary impact on us of rising prices abroad will tend to be less as the price of foreign currencies goes down in terms of dollars. From the point of view of maintaining stable prices in the United States, the above analysis indicates that our policy should be to encourage other nations to make more frequent adjustments in their foreign exchange rates than has been their usual practice, or at least to widen considerably the margins about parity within which the exchange rates can fluctuate. Indeed, these considerations indicate that the United States Government should reconsider its past policy of supporting an adjustable-peg system of exchange rates with very narrow margins which, in practice, means that the rates are virtually fixed, i. e., the peg is adjusted only after long intervals during which time others undervalue the dollar, and should seriously consider encouraging other countries to adopt a system of more flexible exchange rates. A policy along this line would seem to require an important change in the policies of the International Monetary Fund, in whose deliberations the United States exercises great influence.

What can the United States properly do to help other nations avoid inflation? Probably not much. The most important thing would be to prevent inflation at home. If we can do this, at least we will not add to their price level problems, which, in turn, add to ours. We also can refrain from such speculative stockpiling orgies as characterized 1950 and 1951, although those foreign countries providing strategic and critical raw materials found our eagerness to buy at almost any price welcome enough at the time. A continuation of our policy of helping to share the military burdens of our allies may in some cases give relief to inflation, but in others it is likely that our help "encourages" them to make greater domestic military efforts than they otherwise would and so, while strengthening the free world's defenses, it also adds to inflation. In any event, our military-aid policy should not be importantly changed because of this consideration. Probably the most important thing we can do to prevent inflation abroad is to resist the temptation to try to win friends in the poorer countries of the world by building up their expectations that, by undertaking elaborate economic development programs, they may achieve a rapid and large-scale improvement in their economic well-being. To do so is indirectly to encourage irresponsible inflationary policies. At the same time, if their expectations are already aroused, either by us or by someone else, then the amount of inflation they suffer, and so in part at least pass on to us, will be less as (1) we help these foreign governments resist resort to excessive money creation, and (2) as we provide, through both public and private channels, some of the capital they need to carry out their economic development efforts. It must be acknowledged, however, that, as respects (1), we can expect to have virtually no influence and, as respects (2), while enough aid will stop inflation abroad, not only does aid add directly to the inflationary pressures in the granting country (if it is operating under fairly high levels of employment) but it sometimes actually encourages the recipient to attempt to live even more beyond his means. Still, on balance, a strong case can be made for providing some help to the underdeveloped countries in their investment programs. And there are a couple of clear-cut general guidelines as to the sort of investment that should be encouraged by us to the extent

that our aim is to reduce inflation abroad: the favored projects should be ones promising fairly quick returns—and so leading to fewer frustrated expectations; and they should make use of resources with which these countries are most favorably endowed rather than those that they only wish they had. A policy of discouraging unduly ambitious development efforts and of facilitating those where there is good prospect for genuine economic advantage is admittedly most delicate and difficult. But the problem of coping with inflation is difficult—and important—too.

My conclusions from all this are that the problem of stabilizing prices in the United States will be made more difficult in the years ahead, as it has for many of the past several years, by the fact that serious inflation is likely to characterize for the indefinite future many, if not most, of the other economies with whom we deal. Although the impact on our domestic economy of foreign trade and of disparate international price movements is of much less importance for us than such matters as our internal wage rates, productivity changes, defense costs, Government fiscal policy, etc., it is much too important to be ignored. The more important implications of this for our domestic policies are that we must take even sterner internal anti-inflationary measures than our own excesses would require; we should adopt more liberal foreign trade policies; we should not retaliate when others discriminate against us in trade matters; we should discourage over-ambitious development efforts by the poorer countries of the world; and, while we should not try to solve their inflationary problems by aid, we should continue to help them in certain of their efforts to expand output. Fortunately, these policies can be defended on the basis of our national interest even if inflation were not one of the most serious economic problems facing us.

## PRICES, COSTS, DEMAND, AND OUTPUT IN THE UNITED STATES, 1947-57

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In the postwar American economy, the view has been widely held that it is excessive demand that has forced prices up. Yet a review of the period reveals that the only periods when demand was really excessive were the 3 years immediately following World War II (1946, 1947, and 1948) and the Korean war year of 1951. The peacetime American economy has, if anything, been suffering from a lack, not an excess, of effective demand. In the last 10 years there have been 3 years in which output has actually declined below the previous year: 1949, 1954, and again in 1958. The periods we tend to think of as unparalleled prosperity are those which have followed immediately upon the years of decline, when the increase in output was mainly due to regaining a fuller use of available equipment and manpower.

Why, then, is it that the sense of excess demand persists? There are a number of reasons. The level of employment in the postwar period has been continuously high; and the great depression of the 1930's created in people's minds a lasting impression that employment could be used as a barometer of the economic health of the economy. Furthermore—and this is probably more important—there has been a general feeling that prices have been rising relatively rapidly throughout the period, and that this coupled with full employment meant pressure on available resources. But this last premise cannot be accepted at face value without exploring in some detail exactly what has been happening to prices. It is, of course, possible to find price indexes that will show almost anything one wants to show, and it is difficult to obtain measures of price behavior that are unequivocal and do reflect honestly what is taking place in the economy. For the present purpose, the most general price indicators are those which result from the computation of gross national product in constant prices. These are called the implicit price deflators of the gross national product. They represent the difference between gross national product and its various components in constant prices, or real terms, and in current prices, or money terms. They are given in table 1 below.

TABLE 1.—*Implicit price deflators for gross national product, 1947-57 (year-to-year percentage changes)*

	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
Consumer goods.....	7.8	10.7	5.7	-1.0	1.3	6.9	1.6	1.3	0.8	0.3	1.7	3.2
Durable.....	1.8	8.5	4.3	-9	0	6.6	-6	.4	-2.3	.8	.7	3.2
Nondurable.....	9.7	12.9	5.9	-3.4	1.0	8.6	1.1	-4	.4	-7	1.4	3.2
Services.....	5.0	7.6	5.9	2.8	2.3	4.2	3.4	4.2	2.6	1.7	6.9	3.2
Producer goods:												
Residential construction.....	8.3	20.0	12.0	-2.5	4.2	6.9	2.7	2.0	-1.3	2.4	5.0	2.0
Other construction.....	8.6	20.0	10.9	1.0	1.7	8.8	2.4	4.3	.8	1.6	4.4	4.9
Equipment.....	10.2	14.4	8.1	4.8	2.1	8.6	.6	1.1	.3	1.6	4.4	5.5
Government:												
Federal.....	20.7	8.5	.8	3.8	3.2	11.0	-8	-2.3	2.4	3.9	3.2	4.0
State and local.....	8.6	12.6	10.8	1.5	1.5	7.8	5.1	3.1	2.0	2.0	5.6	4.5
Total.....	10.2	11.7	5.5	1.0	1.0	7.7	1.4	1.2	.8	1.1	3.1	3.8
Consumer price index.....	8.5	14.5	9.6	-1.0	1.0	8.0	2.3	.8	.3	-3	1.5	3.3
Gross Government product price index.....	18.0	8.8	4.5	6.2	3.6	2.9	5.4	3.4	4.0	6.1	5.6	5.3
Gross national product in constant 1947 prices.....	-12.5	-.5	4.8	-1.0	9.6	6.9	3.8	3.9	-1.5	7.2	2.4	.8

Source: Economic Report of the President, January 1958, table F-5, p. 122, table F-39, p. 161, and table F-2, p. 118.

#### THE MEASUREMENT OF PRICES

The implicit price deflators shown above are based primarily upon price information collected by Government agencies. This price information cannot always be a valid reflection of the true behavior or prices in the economy. Prices are obtained for commodities of fixed specifications. In fact, however, new items continually appear on the market, and old items change in quality. When improvements in quality cannot be measured, or new products appear which are more desirable than those they replace, price indexes which must leave these factors out of account will show too much price increase. In pricing consumer goods, the Bureau of Labor Statistics does attempt to take into account those changes in the nature of the product that result in an upward change in price. But improvements in quality may occur at no increase in cost, so that the consumer gets more value for his money. In such cases, no adjustment is made in prices, and the price indexes do not reflect the quality improvements. It would indeed be interesting if price comparisons taking quality improvements into account could be made between periods. This question might be asked another way. Suppose an individual were given \$1,000 and a choice of ordering goods either from an early postwar Sears, Roebuck catalog (say 1948) or a current (1957) catalog. If he were permitted to spend the money in terms of only one catalog, which catalog would he choose? The 1948 catalog has substantially lower prices, but also less advanced products. If the 1957 catalog were chosen, it could not be said that prices rose from 1948 to 1957, despite the evidence of the price indexes. Different people would undoubtedly answer this kind of question differently, but it is by no means certain that an overwhelming majority would choose to spend their money under 1948 price and product conditions rather than under 1957 conditions despite the fact that the implicit price indexes for consumers' goods have risen about 7 percent since 1948.

The measurement of consumer services is even more difficult. Generally speaking, the compensation of the person performing the service is taken as the major indicator of price. Thus the cost of domestic

servants, of haircuts, and of professional services all tend to be measured by this criterion. It is obvious, however, that the quality of any of these services may improve. Thus, for example, medical service is better than it used to be, but this is not taken into account. Similarly, quality changes in such services as housing and education cannot be measured. It is a serious error, as a moment's reflection will indicate, to assume that if teachers do not improve, education as a product does not improve over the years. We have only to ask ourselves whether we would be content to give children today exactly the same education as was given 50 years ago, using the same books and the same fund of knowledge. Education, like other products, is a combination of factors of production, and should not be assessed only in terms of an intuitive judgment about the contribution of any one of these factors of production.

Nor are consumers' goods and services the only area that presents pricing problems. For producers' durable goods, it is well recognized that equipment produced today is far more productive than that produced even 5 years ago, but such increases in efficiency are extremely difficult to take account of in price indexes. In terms of the ability of capital goods to yield productive services, there can be little doubt that the increase from year to year is substantial. But price indexes of producers' durable equipment generally reflect changes in costs of production, rather than changes in the performance of the equipment itself. Residential and commercial construction also poses problems. Again, price indexes are constructed by determining what a structure of standard specifications would cost. Here again, improvements in design and cost-reducing changes in specifications are not taken into account in the price comparison, so that the price index tends to have an upward bias. Finally, the pricing of goods and services purchased by Government presents considerable problems. For military equipment, it is often impossible to determine what happens to prices when design changes radically. For the services of Government employees, like services in general, it is assumed that there is no change in the efficiency or output per man, so that all increases in salary are, in effect, increases in the price of Government gross product. By this measure, the price of Government services as measured by the pay of Government employees has risen by an average of over 5 percent a year since 1946. There is good reason to believe, however, that the productivity of Government workers has increased substantially in this period. For one thing, the introduction of data handling machines and computers speeds up the operations of many stages of Government work. Statistics in the Government are now in large part handled mechanically rather than by clerks. The mechanization which is so characteristic of current developments in business is also occurring in Government.

There is thus an upward bias in the price indexes for almost every category of expenditure. For commodities it exists because quality changes and new products cannot be integrated adequately into the price data. For services it exists because by and large the value of services is assumed not to increase, although there is strong evidence that it does.

## THE BEHAVIOR OF PRICES 1947-57

If this upward bias in the price indexes is taken into account, a rather interesting picture emerges. The large price increases of the three post-World War II years and the Korean war period stand out. However, up through 1955, the other years exhibit overall price changes which probably are smaller than the overall quality improvement, so that, in fact, from 1948 through 1955 the American economy did not show an overall upward price movement in any period except the Korean boom. For the 6 years involved, the average annual price increase was only 1.1 percent; for consumer goods alone it averaged 0.6 percent.

For 1956 and 1957 the picture is quite different. Price increases were considerably more pronounced, and at the same time the growth in output was slowing down. In fact, even now, with a decline in output, prices are still rising.

Given this pattern of price development in recent years, how has it been related to cost and demand, and what kind of price behavior can we expect in the future?

In the early postwar period and during the Korean war, the existence of excess demand is sufficient to explain the price movements that occurred. Immediately after the war, the combination of long postponed expenditures and accumulated liquid funds resulted in a rapid increase in demand for consumer goods which were still in short supply in an economy that had not fully converted from war production. During the Korean war, expenditures by the Federal Government on national security increased from \$18.5 billion to \$37.3 billion in 1 year alone, thus pumping into the economy almost \$19 billion of additional expenditures. At the same time the increase in the Armed Forces reduced the civilian labor force, so that the normal increment of manpower from population growth did not occur. In a period of 2 years the real output of the economy rose by over 17 percent, and employment rose only 4 percent. Under such conditions, it is not at all surprising that the increase in real output could take place only with rising prices.

But the absence of a significant price rise on average in the other years prior to 1956-57 did not mean that there were no rising prices anywhere in the economy. During this period agricultural prices were generally falling. These falling agricultural prices were offset in most of these years by rising wages, so that prices on average were quite stable. From 1951 to 1955, there was a decline of almost 19 percent in wholesale prices of farm products, while average hourly earnings in manufacturing rose by 18 percent. In the commodity-producing industries, furthermore, wage cost rose more slowly than hourly earnings because productivity increased. In manufacturing as a whole, wage cost rose only 2 percent. Thus the pattern of price behavior in these years can largely be explained in terms of the behavior of agricultural prices, wages, and productivity. The movement of agricultural prices and productivity growth tended to hold down the increase in product prices, by keeping materials costs and labor costs below what they otherwise would have been. Wages, on the other hand, exerted an upward influence, increasing somewhat more than in proportion to the productivity gain. The net result overall was comparative price stability. The evidence of the forces

at work can be seen, however, in the changing price structure, as revealed by the components of the cost-of-living index or by the implicit price deflators of the gross national product. These indexes show that prices of durable goods, where productivity increases were greatest, have actually declined since 1951. Prices of nondurable goods using agricultural materials—e. g., food processing and clothing—have been relatively stable; although productivity gains in these industries probably were not as large as in the durable-goods industries, agricultural raw-material costs fell. In such areas as construction, productivity gains were less pronounced and material costs, being mainly nonagricultural, did not fall. Prices in this sector therefore rose since 1951 by 10 to 15 percent, a considerably greater price rise than that exhibited by the other commodity-producing sectors. The largest price increases occurred in consumer services and Government services; here price increases since 1951 have ranged from 15 to 27 percent. Services, in fact, have accounted for most of the upward price movement that has occurred in this period. Prices rose faster in 1956 and 1957 for 2 major reasons. First, the decline in farm prices stopped, for all practical purposes. Second, the general softness of the economy meant that the rise in output per man-hour was considerably less than in previous years. The increase in output per man-hour for the private sector of the economy is estimated to have been in the range of 1.3 to 1.7 percent per year for 1956 and 1957, as against an average of 3.1 to 3.5 percent for the previous 4 years. Thus the two important elements that had been offsetting the increase in wages disappeared, and the result was increasing costs, which were passed along as increasing prices.

## PRICES AND COST

It has frequently been charged that rising prices in these years were the consequence of monopolistically administered prices, that producers have been taking advantage of wage increases and other increases in costs to raise prices even more. If this were the case, profits should be increasing faster than wages. The evidence shows, however, that the reverse is true. Profits have been decreasing in relation to wages. This is shown in table 2 below.

TABLE 2.—*Relation of corporate wages and profits*

	Corporate wages and salaries	Corporate profits and inventory valuation adjustment	Profits as a percentage of wages and salaries
1948.....	85.0	30.6	36.0
1949.....	83.1	28.1	33.8
1950.....	91.3	35.1	38.4
1951.....	105.0	39.9	37.8
1952.....	112.5	36.9	32.8
1953.....	121.9	36.0	29.5
1954.....	119.1	33.1	27.8
1955.....	128.9	40.7	31.6
1956.....	139.7	40.4	28.9

Source: Survey of Current Business, July 1952, table 12, p. 15 and National Income Supplement, 1954 edition, table 12, p. 75.

The decline in profits relative to wages is a further confirmation that demand has not been excessive. When excess demand does exist, it tends to pull prices up. Costs are raised, in such a situation, by producers bidding against each other for existing resources. But the increase in costs will lag behind prices, since the demand for resources is essentially a derived demand and exists only because the prices of final goods are higher than costs. Nor does it follow that an increase in wages will always lead to excess demand that will result in a wage-price spiral. A given increase in wages, unaccompanied by any change in the rate of productivity increase, must be passed on as a price increase by the producer if he is to maintain his profits per unit at the same level. This means, however, that prices must rise in exact correspondence with the increase in wages. In order to sustain a wage-price spiral, therefore, an increase in spending would be required equivalent to the increase in wages. In a great many situations, such an increase in spending would not occur. In the first place, wage earners do not receive as spendable income all that producers pay them; taxes are paid to the Government, and additional funds may be siphoned off by contributory pension schemes and other fringe benefits. Furthermore, wage earners may decide to save a portion of their increase in wages. There is no reason to expect non-wage-earning groups to increase their spending to make up for the lack of spending of the wage earners, so that the volume of expenditure in real terms may actually decline. Similarly, the increase in prices of plant and equipment may mean that the real volume of investment will be reduced, since many producers have a fixed amount of money to spend for plant and equipment. This point is in a sense the reverse of the well-known Pigou effect, which states that a price decline will lead to a rise in real expenditures because of the increased real value of cash holdings. The rise in prices means that individuals' and businesses' cash holdings have a smaller value in real terms and this will tend to decrease the amount of real expenditures which they can and will make. It is quite possible, therefore, for wage increases to have a dampening effect on output. Such a situation is not the familiar wage-price spiral postulated by orthodox economics, but it seems quite likely that this is what has in fact occurred quite often in the United States economy. The increase in wages in 1937 (over 12 percent in manufacturing), may have contributed to the 1938 recession, which occurred even though the economy never reached full employment. Large wage increases also occurred from 1947 to 1948, from 1952 to 1953, and from 1956 to 1957. The recessions of 1949 and 1954 were not very severe, but nevertheless the rise in wages in the previous period may have had a dampening effect upon output. In 1956 and 1957, the rise in prices has been much sharper, and it also appears that the current decline in output may be more serious.

#### THE BEHAVIOR OF WAGES

From the foregoing discussion it might seem logical to conclude that the culprit in the present situation is wages, and that everything would be all right if the rate of increase in wages were slowed down. Such reasoning really assumes that wages throughout the economy follow key wage rates which in turn result from specific union bargains. A look at the data, however, reveals that the increase in

wages has not come solely in the industrialized or unionized portions of the economy. The implicit deflator for Government services, for instance, rose 58 percent from 1947 to 1957, while prices in general rose only 30 percent. In private services also, the rise in wages has been very considerable. In certain occupations the supply of labor is not increasing as fast as the demand for it. In industries where output has been expanding and productivity increasing, furthermore, there is a natural tendency for wages to rise faster than in the lagging industries, both because the increase in wages is necessary to attract more labor and also because producers can pay higher wages and at the same time enjoy increased profits, owing to falling unit costs and increased output. If we are to permit adjustments of this sort to take place and if we do not want to reduce wages somewhere else, it is obvious that on average wages will increase. If the growth of productivity is small, the average increase in wages may exceed that in productivity. But stopping the increase in wages would necessarily involve either suppressing the natural readjustments in wages among various groups in the economy, or bringing about actual declines in wages in sectors of the economy where productivity increases were slower than the average or where the supply of labor was greater. This would imply, for instance, that Government employees, instead of enjoying a 58 percent increase in wages since 1947, might have suffered a decline at least in real terms, since Government service is an area where the supply of labor is not limited, and where, according to our statistical treatment, productivity does not increase. Such a procedure as this, however, would run counter to the considerations of equity which influence private producers and Government alike. The concepts of fair wages and fair prices do exist even though they may not be fully justifiable in the strictest economic sense.

There is no assurance, furthermore, that tampering with wages would automatically correct the situation. Over the long run, the rate of increase of productivity might be affected, since it is at least in part the increase in wages and the expectation of future increases that induce producers to plan for and install the labor-saving devices that increase productivity. Moreover, even if the overall price level were lower, there is no guaranty that real purchasing power would be sufficient to keep the economy operating at full capacity. The maintenance of a close correspondence between growing purchasing power and growing capacity is a much more delicate problem than we have believed heretofore; there is no necessary reason why a reduction in wages should assure equilibrium between expenditures and productive capacity over any extended period of time. Tampering with wages would attack only the surface phenomena, and in the process our normal price mechanism would be seriously disturbed. The roots of the present difficulty are much deeper, and we must seek a solution that will reach the heart of the problem without constituting a serious interference with the market mechanism of price determination.

#### THE ROLE OF DEMAND

The level of demand in the economy has, obviously, an important role in reaching such a solution, because of its repercussions on price, cost, and output behavior. A high level of demand which absorbs most of the capacity of the economy is a necessary condition for a

high level of investment. An economy operating considerably below full capacity does not provide the incentive for producers to expand. They do not expect that an increase in output would press upon their capacity or require additional plant and equipment, and uncertainty regarding demand makes even long-range planning difficult. The high rate of technological change (and consequently obsolescence) generally makes producers wary of long-range commitments except in circumstances where even obsolete capacity could be utilized profitably.

It takes time, of course, before the capacity created by investment is available for productive purposes. But if, when the increased capacity does become available, demand does not or cannot increase to keep pace with it, investment may be curtailed, or at least it will increase at a lower rate. This will intensify the insufficiency of overall demand, and a cumulative decline may result. Thus, the seeds of a cumulative decline are potentially present in every period of high demand. In Schumpeterian terms, growth comes about in cycles, and a period of underutilization of capacity follows inevitably from a boom. In more recent years, this same phenomenon has been discussed in terms of the growth rates and the levels of investment that would be necessary to sustain capacity operation. Given the increased absolute amount of savings that accompanies a growing economy, it is obvious that the absolute amount of investment will have to increase if demand is to keep pace with capacity. If the economy is geared to an increase in the relative level of saving as income rises, the relative amount of investment must also increase. A failure of investment to absorb all the income that people would like to save will result in the underutilization of capacity. In the 1930's, much the same subject was discussed in terms of secular stagnation. It was argued that profitable investment opportunities were drying up, so that the aggregate demand was bound to fall. Today one no longer hears much about this secular stagnation thesis, but if we had a severe depression, it might well emerge again as an explanation of the behavior of the economy.

This relationship between the level of demand and investment has important implications for productivity change over time. In periods of rising demand, the apparent productivity gain will be substantial as underutilized capacity is employed more efficiently. Many sectors of the economy operate with decreasing costs. The distributive trades, for instance, can ordinarily sell a larger volume of goods with the same amount of resources. Similarly, mass production industries, such as consumer durable goods, generally have decreasing costs. A relative expansion of output in these sectors of the economy will therefore result in an increase in output per man-hour for the economy as a whole. On the other hand, true technological productivity increase will be relatively low in such periods, because of the relatively low level of investment in the immediately preceding periods when excess capacity existed. In periods of downswing, the technological productivity gains resulting from the relatively high level of investment in the preceding boom begin to appear, but they are somewhat obscured by the inefficiency of less-than-capacity operation of industry and the necessity for spreading fixed costs over a smaller output. Much of the real investment made during the boom goes unutilized, and the productivity gain resulting from it is wasted.

In other words, because investment fluctuates the average level of productivity gain is very much reduced. This means that the influence of productivity increases in offsetting increasing wages and thus lowering costs is reduced, and price rises tend to be greater. A more stably maintained high rate of investment and a fuller use of capacity might well result in a considerably greater rate of increase in productivity, and so in a lowering of costs. This in turn would have a beneficial effect on prices as well as on output.

It is often argued that wages, and therefore prices, will rise faster under full employment conditions, and that the only way to keep the increase in wages and prices under control is through the maintenance of some unemployment. This argument leaves out of consideration the impact of slackening demand upon productivity. There is good reason to believe that investment is more sensitive to the level of operation of the economy than are wage rates. It is true that a decline in profits tends to make producers resist wage demands more strenuously, and a decline in employment makes labor less adamant in its demands. But, as has been pointed out above, the same falling profits and the same expectation of excess capacity have important repercussions on investment. The slower increase in productivity through failure to utilize capacity and low investment may over time lead to a greater increase in wage costs than would have occurred had demand and investment been higher. To consider the effect of changes in demand on wage rates alone therefore leaves out half the problem. For the producer, the important consideration is not wage rates, but wage costs.

#### THE CURRENT SITUATION

There can be little doubt that the American economy is now operating considerably below full capacity. The Board of Governors of the Federal Reserve System has prepared a combined index of the degree of capacity utilization in industries producing such major materials as iron and steel, aluminum, copper, cotton yarn, synthetic fibers, cement, wood pulp, paper, petroleum products, coke and industrial chemicals. At the beginning of this year, combined capacity in these industries exceeded output by about 35 percent. It is true that these are some of the industries that are hardest hit, but they represent a substantial portion of the private economy. The Federal Reserve Board index of industrial production indicates that the first quarter of 1958 industrial output was at a level which had previously been attained 5½ years before (the last quarter of 1952). Furthermore, when fewer goods are produced, the output of retail and wholesale distribution will also fall. By now (April) the degree of underutilization of capacity in the materials-producing industries would be greater than 35 percent. For the economy as a whole, it is not unrealistic to suggest that output is a good 20 to 25 percent below physical capacity. At current prices, this means that we could be producing \$100 billion in goods and services more than we are.

Given an estimate of this magnitude, the question naturally arises whether we would have the capacity in terms of manpower, as well as plant and equipment, to produce such an additional volume of goods. Unemployment is now in the neighborhood of 7 or 8 percent of the labor force. The length of the average workweek, however, has dropped by another 4 or 5 percent, so that the total level of unem-

ployment, taking part-time work in account, might be as high as 10 or 12 percent. Moreover, the labor force has grown more slowly in the last year, owing to lack of employment opportunities, than would be normal for good times. During 1957, the labor force increased by only 0.6 percent. With full employment, an additional 2 percent increase in the labor force might be expected. Taking all of these figures together, man-hours could probably increase at least 10 or 12 percent without exceeding the full employment level; this would still leave 2 or 3 percent frictional unemployment.

Could such a 10 to 12 percent increase in man-hours result in a 25 percent increase in output if, as already suggested, the physical capacity to produce such output exists? An answer to this question may be sought by looking at the relationship between the changes in man-hours and the changes in output that have actually occurred in years of recovery from a recession or depression. Table 3 below shows the data for five such periods.

TABLE 3.—*Relation of changes in man-hours to changes in output in post-recession periods*

[Percentage change from preceding year]

Year	Man-hours employed in the private sector	Real private gross product	Ratio of col. 2 to col. 1
1922	8.6	16.3	1.9
1935	5.5	13.2	2.4
1939	5.3	9.4	1.8
1950	2.4	10.1	4.2
1955	3.5	7.9	2.3

Source: Prices, Productivity, and Incomes, Joint Economic Committee Print, 85th Cong., 1st sess., table 5, p. 91.

In the most striking instance, a 2.4 percent increase in man-hours in 1950 achieved a 10 percent increase in output. In the least favorable case, a 5.3 percent increase in man-hours in 1939 resulted in a 9.4 percent increase in output. The increase in output generated per man-hour exceeded that which would be needed to produce an increase of \$100 billion in output given our present unemployment in 3 of the 5 periods, and in both of the postwar periods.

It is true, of course, that such an increase in output could not be achieved in a short space of time; increases in output of the magnitude of 25 percent cannot take place quickly. Even the most rapid rates of increase seldom go beyond 15 percent a year. But it would not be unreasonable to expect a 10-percent rate of increase to be maintained for several years. In this connection it is interesting to note that the increase in private gross product in constant prices for the 2-year period from 1922 to 1923, following the recession of 1921, was 31 percent. If some of the increase in output were plowed into productivity-increasing investment it is reasonable to suppose that after 2 years of 10 percent growth sufficient additional capacity and productivity would have been generated to make a continuing 5 or 6 percent growth rate possible, instead of the 3 percent growth rate that the economy has been averaging over good times and bad.

If it is true that the economy is operating at a level of \$100 billion below capacity at the present time, it is obvious that our most important task is to get the economy back to full capacity operation. The amount we are losing by operating at our current level is more than the total expenditure of the Federal Government. Even more serious than the waste of resources by idleness is the effect that underutilization of capacity has on investment, and therefore on long-term growth. As other countries continue to grow, we are likely to slip behind. The impact of the underutilization of capacity is not so much in the immediate present as it is upon future increases in productivity. Future levels of consumption and investment will be correspondingly reduced. The cost of idleness is much greater than, for instance, the cost of as much as \$50 billion a year in foreign aid.

It has already been noted that the price-cost-output situation in the United States at the present time is not unique in the history of our economy. It is also true that many of the other industrial countries are currently having much the same problem of rising wage costs and prices without excess demand. In Sweden this price-cost problem is most severe; Norway, the Netherlands, Canada, and the United Kingdom have had difficulties of this nature but in somewhat less degree. Even in Germany, where unemployment has been a major problem throughout the whole postwar period, wage rates in the last year or two have risen more than productivity. France is the only one of the western European countries that has recently been experiencing demand inflation. Belgium and Italy are still suffering from some unemployment, and wage costs in these two countries have been falling. In terms of growth of output since 1950, three countries stand at the bottom of the list: Denmark, the United Kingdom, and the United States.

#### CONCLUSION

There is no automatic mechanism that will keep the economy operating at full capacity. Left to chance, there will be fluctuations, resulting in considerable underutilization of capacity over time. The fluctuations will not occur around the full capacity level. Excessive demand will normally be of short duration and concentrated in periods of large defense expenditures or other abnormal demand. The periods of underutilization of capacity will be long, and although they may not be reflected in unemployment they will result in general softness, slow growth, and slow productivity increase.

This chronic underutilization of capacity results not from the drying up of investment opportunities or from the maturing of the economy but from a failure of purchasing power to keep pace with potential production. The problem is that at the levels of output that would utilize capacity fully, the saving that consumers and business will want to do will exceed the investment that would normally occur at this level of output. There are two alternative approaches to this problem. First, a stimulation of consumption (either private or public) would reduce, at least in real terms, the amount of saving people want to do, and thus restore equality between saving and investment at capacity output. Alternatively, it would be possible to stimulate investment and thus bring it into equality with the saving individuals and business would want to do at capacity output. A free

choice solution to the problem of the long-run full utilization of the economy does not exist. Either consumption or investment, or both, must be increased to take up the slack in the economy. This means that the decisions of either consumers or those purchasing producers' durable goods, or both, must be altered by tax cuts or other incentive measures. It would always be possible to achieve full capacity utilization by providing more purchasing power to consumers, but this entails the danger that the level of investment may be lower, and growth and productivity increase smaller, than we as a nation would choose given the opportunity to evaluate the true alternatives. In such a situation accumulated liquid assets in the hands of individuals, and the national debt, would tend to be large, but capital in real terms would be small. Stimulation of real investment, on the other hand, would yield greater increases in productivity and growth, and thus would result in a larger amount of real capital.

The price-cost behavior in the economy is not the primary cause of the underutilization of capacity. The main cause is that at full capacity the economy does not operate in such a way that it continues to generate sufficient expenditures to purchase the output that can be produced. There is no automatic mechanism that will assure stability and full utilization of capacity. In the last analysis, the satisfactory operation of the economy is the responsibility of the Government. To the extent that the economy operates at less than full capacity, to this extent the Government has failed in its obligation to maintain the health of the economy. Monetary policy is not a sufficiently powerful tool to accomplish this task.

There is considerable danger that in an attempt to prevent rising wages and prices there will be agitation to atomize both labor and business. The solution is not to be found in this direction. What we need are positive steps toward solving the problem, not negative steps. Nor is it an adequate solution for the Government simply to return purchasing power to individuals to be spent on consumer goods. By such a device, the Government would merely be thwarting the decision of the private economy to save. It is true that providing stronger incentives to invest will not necessarily insure full capacity utilization; it will create more capacity which, in turn, will demand either further increases in the purchasing power of consumers or further increases in investment. This, however, is not a cause for discouragement; it is merely the hallmark of increasing productive potential. Instead of despairing at the increase in our productive capacity, we should utilize it for an increasing standard of living and our future growth.

## MODELS OF THE PRICING PROCESS<sup>1</sup>

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One set of papers in this compendium deals with the relative importance of demand versus cost factors in explaining recent price behavior in the United States. Another delineates the effects of prices on employment, output, and factor returns (incomes to factors of production).

The basic function assigned to this paper is to provide a connecting link between these two sets of forces by showing the interrelationships between them.

This paper seeks to achieve its objective by three stages. First, it will illustrate the interrelationships by reference to the controversy over dichotomization in the pricing process. Second, it will review recent developments in the theory of macroeconomic factor returns which illumine the issues under consideration. Third, it will draw on empirical materials to test some of the ideas set out.

### I. DICHOTEMIZATION OF THE PRICING PROCESS

One of the complaints lodged by the new economics was the indeterminacy of the absolute price level in classical economic theory. The indeterminacy was said to have resulted from a dichotomy in the analysis of the economic process of monetary economy. The dichotomy said that the commodity markets are dependent on and determine relative prices, but that the monetary sector is dependent upon and determines absolute (money) prices.

Following the pattern set by the scholarly literature on this subject, the present paper analyzes these issues by an 11-equation model of the economic system. This model has simple numerical parameters. It is not strictly empirically based, for such systems are too complex for easy exposition. The use of a simple model with illustrative numbers accomplishes several things. Since many factors are involved, a literary discussion typically ends in the same disagreements which provoked the initial debate, because the interactions between the many elements operating in an economic process cannot be handled in an orderly fashion.

On the other hand, econometric analysis must limit the number of variables to be manageable. For some situations, the key factors may have been omitted. Both literary and econometric discussions often have many unspecified, but implicit, assumptions which are crucial for determining the essential properties of the operation of the economy.

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The parameters of the equations in the present model are illustrative. But they make explicit the assumptions of the nature of behavior relationships. Different assumptions are readily made by changing the number and selection of variables and the values of the parameters of the equations. The system is set out completely in table I.

TABLE I.—*A model for investigating dichotemization of the pricing process*

I. THE FUNCTIONS	II. THE EQUATIONS
(1a) $M^s = \bar{M}^s$	(1a) $M^s = 200$
(1b) $M^s = M^s(r, Y)$	(1b) $M^s = \frac{6Y}{25} + 20r$
(2a) $M^d = kY$	(2a) $M^d = 2/5Y$
(2b) $M^d = L(r, Y)$	(2b) $M^d = .5Y - 12.5r$
(3) $M^s = M^d$	(3)
(4) $I = I(r, Y)$	(4) $I = .15Y - 4.5r + 20$
(5) $S = S(r, Y)$	(5) $S = .2Y + .5r - 25$
(6) $S = I$	(6)
(7) $Y = PR$	(7) $Y = PR$
(8) $R = R(N^d)$	(8) $R = 8.5N^d - .025N^{d2}$
(9) $N^d = F\left(\frac{W}{P}\right)$	(9) $N^d = 170 - 20\frac{W}{P}$
(10) $\bar{W} = W + \beta f(N^s) \cdot P$	(10)
(10a) $\alpha = 0, \beta = 1$	(10a) $N^s = 80 - 50/w$
(10b) $\alpha = 1, \beta = 0$	(10b) $\bar{W} = 5.29$
(11) $N^d = N^s$	(11)

SYMBOLS

$M^s$  = supply of money  
 $M^d$  = demand for money  
 $Y$  = national money income  
 $r$  = representative interest rate level  
 $I$  = investment (private)  
 $S$  = saving  
 $R$  = an index of physical output

$P$  = index of the price level  
 $N^d$  = labor demand  
 $w$  = real wage rate =  $\frac{W}{P}$   
 $N^s$  = labor supply  
 $W$  = money wage rate =  $wP$   
 11 equations and 11 unknowns

The system contains 11 equations and 11 unknowns. The values of the solutions are close to current national income accounts figures. The nature of the equations will be briefly described.

The system begins with two alternative money supply functions. Equation (1a) is money supply given at \$200 billions. This reflects the assumption that the money supply is determined by "banking policy" unrelated to economic variables in a clear or systematic fashion. Equation (1b) states that deposit creation through commercial bank lending policies is influenced positively by the level of business activity. Furthermore, at higher rates of interest more loanable funds are offered. The interest rate is meant to be representative of the complex of interest rates. The level of interest rates is most significant as an index of the kinds of credit standards and credit terms currently employed by lenders—in short, an index of the availability of loanable funds.

Equation (2a) is an expression of the quantity theory of the demand for money. The quantity theory in its most familiar form is  $MV = PT$ .  $V$ , transactions velocity, can be expressed as  $1/k$  which is the income velocity of money. The equation becomes  $M = kPT$ . If real output,  $R$ , is substituted for  $T$ , the total volume of transactions, the equation becomes  $M = kPR$ .  $PR$  is the same as money income,  $Y$ . The equation becomes  $M = kY$  where  $k$  is the proportion of income command over which people desire to hold in the form of money. In equation (2a) the value of  $k$  is set at  $2/5$ .

An alternative formulation of the demand for money is the liquidity preference theory. This states that the demand for money is influenced by 2 sets of factors instead of 1. The demand for money is influenced by the level of economic activity through the transactions motive for holding cash balances. In addition, cash balances are held for precautionary and speculative motives. The amount of liquidity people will buy is influenced by its cost—interest rates. The cost of liquidity is the interest which otherwise could have been earned by the cash balances by investing them.

The fourth equation is the investment function. It has a segment which indicates that investment depends upon output (sales), a form of the acceleration principle. Since profits before taxes are correlated with the level of economic activity, this segment of the investment function may also be said to reflect the profit variable as well. The sign and value of the interest term states that investment is negatively interest elastic. Autonomous investment of \$20 billion per year is the final segment of the equation.

The savings equation contains the same variables as the investment equation. The amount saved will reflect the level of business activity. Savings may also be stimulated by the payment of higher interest rates. Since savings is equal to investment by equation (6) and investment is income less consumption, consumption is also income less savings. Thus the implied consumption function is  $C=25+.8Y-.5r$ . The negative 25 in the savings equation reflects the positive intercept of the consumption function.

The foregoing six equations complete the monetary subset of the system. Alternative forms of the money supply and money demand equations will be used in observing the solution process of the complete system.

The last five equations represent the commodity or "real" subsector of the system. Equation (7) states that the price level is the ratio between money income and real output.

Equation (8) is an aggregate production function. It expresses real output as a function of the quantity of labor input. The constants in the equation reflect the stock of capital in the economy and indicate that this is a statical model. The parameters of this equation, reflecting the quality and quantity of the capital stock, determine the productivity of labor.

Equation (9) is the demand for labor function. It is obtained by taking the first derivative of the production function, equation (8). The result is  $w=8.5-.05N^2$ . When this expression is rearranged in the form of a demand for labor, it becomes equation (9).

Equation (10) is the labor supply function. We have two forms. Equation (10a) is the classical labor supply function which states that the supply of labor is an increasing function of the real wage. Equation (10b) is a Keynesian labor supply function. It depicts a situation in which labor union policy establishes what the level of money wages will be.

We have now the complete equation system of the economy. It seeks to represent practical and realistic elements of the economy and to show how they interact. Specific assumptions about the behavior characteristics of the economic process are made unambiguous.

*Situation I: Classical forms*

The operation of this system can first be illustrated by the selection of the classical forms of the equations where alternative forms are presented. This is not a complete classical system because to conserve space, the classical formulations of the investment and savings functions are omitted. Accordingly, equations (1a), (2a), and (10a) are used with the remaining 8.

Equation (3) becomes:

$$(3) \quad 200 = 2/5Y$$

This equation is readily solved, Y is equal to \$500 billions.

Equation (6) is:

$$(6) \quad .15Y - 4.5r + 20 = .2Y + .5r - 25$$

Since Y is equal to \$500 billions, r can be evaluated at 4 percent.

Thus investment and savings are equal at \$77 billions.

We observe therefore that the monetary subsector can be solved to obtain the money values of income, investment, savings, and the interest rate. Income is obtained from the two monetary equations. This level of income, along with the interest rate, determines the level of investment and savings.

The solution to the commodity market equations proceeds independently. Equation (11) is:

$$(11) \quad 170 - 20w = 80 - 50/w$$

The value of the real wage is \$5,000, a rough estimate of the average level of wages. With the real wage established, the demand for labor and supply of labor are 70 million people.

The value of the demand for labor, 70, is used in equation (8), the aggregate production function, to obtain real output of \$472.5 billion in constant dollars. This amount is divided into money income of \$500 to obtain a price level of 105.8.

We observe that employment, real wages, and output were determined in the commodity subsector without reference to the monetary subsector. Money income from the money sector was used to determine the absolute price level. Thus, in classical economics, money was indeed a veil and had no effect on the real factors in the economy. To increase the money supply would be to increase money income, but not real output or real wages and employment. Since the demand and supply of labor determined real wages, there was no scope for the establishment of a wage policy outside the boundaries defined by these conditions.

The Keynesian formulation finds an interrelationship between the monetary and real sectors. What characteristics of the Keynesian system bring this about?

*Situation II: Keynesian monetary equations, classical labor functions*

We begin with a complete money-supply equation (1b). This is taken in conjunction with the liquidity preference form of the demand for money equation (2b). Equation (3) now becomes—

$$(3) \quad \frac{6}{25}Y + 20r = .5Y - 12.5r$$

$$(6) \quad .15Y - 4.5r + 20 = .2Y + .5r - 25$$

Since two unknowns are involved, we need equation (6) to obtain the values of income and the interest rate. These are, respectively, \$500 billion and 4 percent. The numerical solutions under all the alternative assumptions will be identical so that attention will be focused on the solution process. In this set of relationships, it is necessary to have the money supply-and-demand equations to obtain the money value of savings and investment. Also, the savings and investment functions are needed to determine income as well as interest-rate levels.

In the real subsector, nothing has been changed. Hence, the solution would proceed in the same fashion as under the completely Classical case. Thus the liquidity-preference function is neither a necessary nor sufficient condition for the monetary subset to have an influence on real output, wages, or employment.

*Situation III: Keynesian labor-supply functions*

We now combine the Keynesian labor-supply functions with either form of the monetary subset. Since the monetary subset is solved independently under either set of assumptions, we may take the solutions from the monetary subset as obtained under either situation I or II. We then solve the real sector. To use equations (9) and (10b) in equation (11), we change equation (9) into the form:

$$(9) N^d = 170 - 20 \frac{W}{P}$$

We now solve for  $W$ .

$$(9) W = \frac{P(170 - N^d)}{20}$$

Equation (11) becomes—

$$(11) 5.29 = \frac{P(170 - N^d)}{20}$$

Solve for  $N^d$  in terms of  $P$ .

$$(11) N^d = 170 - \frac{105.8}{P}$$

This value of  $N^d$  is substituted in equation (8), which reduces to—

$$(8) R = 722.5 - \frac{279.84}{P^2}$$

In order to obtain solutions for the commodity sector, it is necessary to have the value of money income,  $Y$ , from the monetary subsector. Equation (7) then reads:

$$(7) 500 = 722.5P - \frac{279.84}{P}$$

We can solve for  $P$ , which is 105.8 as before.

The solution process with a Keynesian labor-supply function demonstrates how the monetary and real sectors may become interdependent. Other relationships would bring about the same result. For example, the "Pigou effect"—consumption will increase at enhanced real values of cash balances—could be incorporated into the savings function to read:

$$(5) 5 = .25Y + .4r - .13M - 20 \frac{P}{P}$$

Or the investment function may include a negative response to rises in real wages—

$$(4) \quad I = .2Y - 5w - 4.5r + 20$$

Other assumptions about economic behavior functions could be reflected in the set of equations to determine their consequences. Or problems, other than the dichotomization of the pricing process, could be investigated. In this connection, the Keynesian position on the "flaw" in the price system—its inability to bring about adjustments to restore the economy to a full-employment equilibrium could be studied. In general terms, the flaw argument can be briefly stated. Planned savings exceed planned investment, so income and output fall. The declines in output give rise to wage cuts; reduced income leads to less consumption, so the price level falls. Thus, the real quantity of money falls, its value rises. People bid for other assets, so that the rate of interest falls. Investment might rise toward the full-employment equilibrium level, but may fail to do so for one or both of two reasons. One, investment may not respond to declines in interest levels—a negative rate of interest may be necessary to call forth the necessary increase in investment. Two, at some lowered level of interest rates, the cost of holding cash balances has become so small that people may be willing to hold indefinitely large balances—the liquidity trap. As a consequence of either situation, equilibrium would settle at less than full-employment levels. This description of the flaw in the price mechanism does not depend on rigid wages, as the interdependence analysis did.

The rejoinder to the "flaw in the price mechanism" argument is the Pigou effect. Pigou argued that, as the price level falls, the value of cash balances rises and, as a consequence, consumption increases to bring the economy back to full employment equilibrium. This process does not depend on lowered interest rates to call forth more investment.

Thus, the effect of wage changes or monetary policy on prices, real output, and employment depends upon which of the alternative assumptions about the nature of the behavior equations is the most realistic approximation to actual conditions. This is an area requiring further empirical materials.

The system of equations presented above for analyzing the pricing process illustrates the operations of the economic system. It provides a framework for analyzing the relationship between prices, output, employment, and real wages. However, more recent literature has used a different approach to study wage policy.

## II. A MODEL FOR STUDYING THE MACROECONOMIC THEORY OF WAGES

Recent literature has centered attention on the income and spending aspects of wage increases. Gross national product from the spending side or demand side is related to gross national product representing the summation of factor returns. These relationships are shown in table 2. Equations 1 through 5 are spending or demand functions. Equations 6 through 15 represent aspects of factor incomes.

TABLE 2.—A model for studying the macroeconomic theory of wages

$D$  equals  $GNP$  spending

1.  $Y = C + I + G$
  2.  $C = .65 + .6(Y - T_x)$
  3.  $T_x = .2Y$
  4.  $I = 20 + .15Y$
  5.  $G = \$100B$
  6.  $P = -8 + .11Y$
  7.  $CT_x = .5P$
  8.  $D = .6Pa$
  9.  $CS = .4Pa$
  10.  $Pa = P - CT_x$
  11.  $i + r + p = \$73$
  12.  $de = .08Y$
  13.  $ti_x = -10 + .1Y$
  14.  $W = 50 + .5Y$
  15.  $w = \frac{W}{N} = \frac{300}{70} = \$4,286$
- $F$  equals  $GNP$  factor incomes  
 B. Symbols  
 $Y = GNP$

$C$  = Sales to Individuals (consumption)

$I$  = Gross Private Investment

$G$  = Spending by Government

$T_x$  = Taxes

$P$  = Corporate Profit before taxes

$Pa$  = Corporate Profit after taxes

$D$  = Dividends

$CS$  = Corporate Saving

$CT_x$  = Corporate Taxes

$i$  = Interest Income

$r$  = Rental Income

$W$  = Wages and Salaries

$L$  = Labor Force

$U$  = Unemployment

$N$  = Employment

$w$  = Average wage per worker

$de$  = depreciation

$P$  = unincorp. business profits

$ti_x$  = indirect business taxes

With a wage increase, factor incomes rise. Potentially, the aggregate demand function increases as well. Figure I illustrates the forces set out in table 2.

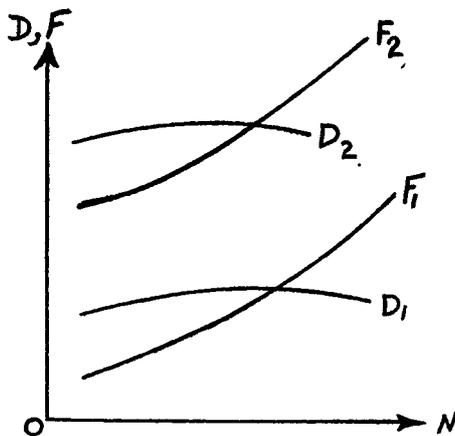


FIGURE I

The increase in wages raises factor returns from  $F$  to  $F_2$ . Whether employment increases or decreases depends upon changes in effective demand. Employment will either decrease, increase, or remain the same depending upon the relative shifts of the  $F$  and  $D$  functions.

Unfortunately, we have little empirical material on the spending propensities of different categories of income receivers in relationship to income changes of the kind suggested by the above analysis. The movement of the  $F$  and  $D$  functions will result from the operation of forces which the recent literature on the subject has only cataloged, but not adequately identified.

### III. PRODUCTIVITY, PRICES, AND INCOMES

Numerical models of the economic system are assuredly less powerful and informative than recent empirical, dynamic models of the

economy. Yet they possess the advantage of relative simplicity of exposition and force a clear statement of assumptions. These simple models demonstrate how complex the economic process must be and illustrate how numerous variables interact. The models could be used to make specific assumptions about behavior relationships and then reason to a conclusion about the consequences of wage changes, changes in monetary policy, changes in tax policy. Recently, studies have been made of the time paths of response of selected variables to changes in tax policy.<sup>2</sup> Similar studies are needed for analyzing the response of the system to changes in wages and prices.

Still another approach has argued that an analysis of market structure is necessary to provide "the first wholly satisfactory integration of the wage-price spiral with aggregative demand and price analysis."<sup>3</sup> My emphasis would be the reverse, that most analyses of postwar wage and price behavior have neglected macroeconomic considerations of the kind suggested by the models presented in the previous two sections. For the macroeconomic approach provides a framework for encompassing the effects of economic change on factor returns and their consequences for the rate and pattern of spending.

Partial equilibrium studies of wages, profits, productivity, and prices are characteristically incomplete. Much emphasis has been placed on the following relationship:

$$\left[ \begin{array}{c} \text{Percent} \\ \text{change in} \\ \text{prices} \end{array} \right] \text{ equals } \left[ \begin{array}{c} \text{Percent} \\ \text{change in} \\ \text{wages} \end{array} \right] \text{ less } \left[ \begin{array}{c} \text{Percent} \\ \text{change in} \\ \text{productivity} \end{array} \right] \text{ plus } \left[ \begin{array}{c} \text{Percent} \\ \text{change} \\ \text{in profit} \\ \text{margin on} \\ \text{sales} \end{array} \right]$$

However, the causative mechanism is not portrayed by this set of relationships. In the short run, the absolute level of productivity is a function mainly of the capital stock employed in an industry. Changes in productivity overtime are highly correlated with changes in output.<sup>4</sup> But increases in output have differential price consequences. The demand pull which calls forth output increases is a price rising influence. Increased output spreads overhead over a larger number of units and is a cost reducing factor. The net result depends upon the elasticities of supplies of products, as well as elasticities of demand, including market structure effects.

<sup>2</sup> Arthur Goldberger, *Properties of an Econometric Model of the United States*, Economic Society, Philadelphia, December 30, 1957.

<sup>3</sup> J. K. Galbraith, *Market Structure and Stabilization Policy*, *The Review of Economics and Statistics*, XXXIX (May 1957), p. 129.

<sup>4</sup> *Trends in Output Per Man-Hour and Man-Hours Per Unit of Output—Manufacturing, 1939–53*. BLS report No. 100, p. 314.

TABLE 3.—Behavior of selected economic variables for manufacturing industries, 1949-56

(1) Industry	(2) Percent increase in production, 1949-56	(3) Percent increase in hourly earnings, 1949-56	(4) Percent increases in prices (1947-49), 1956	(5) Percent increases net profits to sales, 1949-56		(6) Average level of concentration of employment, 1950
				Before taxes	After taxes	
Lumber and wood products.....	35.2	41.0	25.4	-27.2	-33.9	27.7
Furniture and fixtures.....	28.4	35.5	24.8	11.9	3.0	25.3
Stone, clay, and glass.....	56.4	43.4	26.9	12.2	-4.7	50.2
Primary metals.....	25.5	47.2	53.4	28.8	13.6	53.8
Fabricated metals.....	39.2	40.4	32.7	-10.3	-21.6	39.9
Machinery (not electrical).....	51.5	43.1	41.7	2.8	-15.6	41.6
Electrical machinery.....	111.2	36.8	37.6	-16.1	-33.3	59.6
Transportation equipment.....	89.5	38.0	29.1	-20.2	-35.7	60.4
Miscellaneous manufacturing.....	46.9	38.1	-9.0	8.1	0	38.4
Food and kindred products.....	15.3	44.2	6.1	-9.1	-27.3	42.3
Tobacco manufactures.....	4.9	49.5	15.5	50.7	16.3	57.3
Textile mill products.....	6.1	21.2	-12.1	-24.3	-36.6	31.5
Apparel.....	12.0	26.5	-3	43.2	23.8	-3
Paper and allied products.....	62.2	43.3	27.2	13.2	-6.2	33.5
Chemical and allied.....	73.5	44.8	7.2	15.4	-2.4	51.6
Products of petroleum and coal.....	35.6	41.9	17.3	17.5	20.2	40.3
Rubber products.....	38.5	39.9	45.8	50.9	15.8	75.0
Leather and leather products.....	8.3	31.6	-7	10.3	-4.5	24.2

Sources: Cols. 2-4, Federal Reserve Bulletins. Col. 5, Federal Trade Commission, Securities and Exchange Commission, Quarterly Financial Report for Manufacturing Corporations. Col. 6, Federal Trade Commission, Report on Changes in Concentration in Manufacturing, 1935-47 and 1950, pp. 132-136. Calculated by taking unweighted arithmetic average of concentration ratios of the 4-digit products included under the industries listed above.

Table 3 illustrates some of the problems of the microeconomic approach. With the data, matrices may be made of the influence on prices, wages, or profits or changes in production at different levels of concentration. These matrices show that for increases in production, price rises would be larger, but not uniformly so. For the same increases in production, larger increases in hourly earnings result in larger price rises, but not in a consistent fashion. Profit changes are most directly connected with increases in output, but numerous exceptions are found. Increases in production have a greater influence on price increases than the average level of concentration in manufacturing industries. Small production increases are associated with lower levels of concentration and large production increases are associated with higher levels of concentration. This explains why the incautious or determined will find with selected data an association between levels of concentration and price level changes.

Also impressive is the clustering of wage increases during the period at the 40- to 45-percent level, except for industries where production (sales) increases have been small. Where production increases have been lower, wage rises have also been smaller.

These data show that the many simple generalizations explaining recent price changes are subject to considerable reservation. Cost push does not explain price increases, because hourly wage increases and price increases have been smaller where production increases have been smaller. Administered prices do not explain price increases, since prices increases are small even among concentrated industries where production increases have been small, e. g., tobacco manufacturers.

Little relationship can be found between profit increases and price increases when these are stratified by groups of percent increases in production or in hourly earnings.

Thus the macroeconomic models depicted in the early part of the paper will not perform the complete task of explaining price changes; neither will the usual kind of partial analysis. Both are needed. But we cannot be content with the easy aphorisms suggested by the need for both approaches and the need for separating the influence of different kinds of forces. Individual institutional developments as well will have a substantial impact. Two illustrations will demonstrate this.

The Revenue Act of 1954 which liberalized the rate at which depreciation could be charged against income for tax purposes reduced the cost of capital equipment, i. e., increased its probable return. This change was doubtless a significant factor in the capital equipment boom of 1955 and 1956 and related price effects.

The lengthening of terms in auto installment contracts to 36 months during 1955 was equivalent to a substantial reduction in automobile prices as expressed by required monthly payments. This effective price decrease had an important influence on the 7.9 million production achieved in 1955 with its consequent influence on the projected levels of productivity in the automobile industry, the large wage increase and its subsequent spread through American industry.

#### IV. CONCLUSIONS

This paper has sought to show the interrelationships between the cost-demand influences on price on the one hand, as well as the impact of price changes on economic aggregates and factor returns. To do this it sketched the framework of macroeconomic systems which exhibited these relationships.

To show the operation of the relevant forces in clearer focus, empirical data on production, hourly earnings, prices, profits and concentration were brought together. The data controvert the easy generalizations which have been used to explain recent price behavior in the United States. The crucial role of institutional changes further limits the validity of monistic explanations of causative factors.

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V  
INTERRELATIONSHIPS AMONG PRICES, EMPLOYMENT,  
OUTPUT, INCOMES, AND RESOURCES

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V. *Interrelationships among prices, employment, output, incomes, and resources*

A. Price changes and the allocation of resources.

1. What may impede shifts in the proportions in which factors are used when changes in their relative prices call for such a shift? How can the mobility of resources be increased?
2. It is often said that in a dynamic economy high-profits opportunities are needed in order to attract additional resources to industries with rapidly expanding demand and thus bring down prices and profits in the long run.  
Does existing evidence show that industries and corporations making "high" profits tend to expand production and productive capacity more rapidly than industries and corporations making "lower" profits?
3. Do prices behave differently where capacity is being expanded rapidly from industries where capacity is more stable or declining? If so, why?
4. What are likely to be the effects of price level changes upon patterns of real investment and the allocation of resources?
5. To what extent are past and prospective price changes likely to affect personal consumption and savings patterns?
6. To what extent and under what circumstances is the choice of personal investment patterns of individuals affected by past and prospective changes in the general price level?

B. Relationship of prices to aggregate economic activity.

1. How, and to what extent, are aggregate employment and output affected by the direction and rate of change in the general price level? In relative prices?
2. Does inflation tend to generate an ensuing collapse of employment, production, and purchasing power, as well as of prices? If so, by what process? Does the rate of increase in prices influence the outcome?
3. What are the effects of price changes on profit margins, on rates of return, on investments, and on the stimulus for technical progress and expansion?
4. What effects do general price level changes have upon the size and composition of the labor force, and upon labor and managerial incentives?

5. What are the effects of price level changes on business financial structures—on depreciation of fixed assets, on requirements for working capital versus those for fixed assets, etc.? What are the effects on ability to finance technical improvements which make possible greater productivity and improved products? On ability to finance expansion? What are the characteristics of an “ideal” financial structure for a business enterprise—internal versus external funds, equity versus debt, etc.?

From existing data, what can be stated about the relative amount of investment by firms of various sizes in each industrial segment and about the principal sources of capital utilized by each size of firm?



# THE COMPOSITION OF THE PRICE STRUCTURE, RESOURCE ALLOCATION, AND EMPLOYMENT LEVELS

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## THE SIMPLE VIEWS

### *Flows—Of output and of expenditures*

The price-market-organized economy of the United States today produces both a flow of expenditures and a flow of output. The flow of expenditures is largely fed by the flow of income but varies therefrom by (1) decisions to hold more or less money, or (2) decisions to borrow from, or to repay loans to, a fractional reserve banking system and thus to expand or to contract the supply of money. The flow of output is motivated by the flow of expenditures and thus represents the response of producers, usually private businesses, thereto. This flow of output is functionally related to the employment of inputs and the generation of income. The two flows are thus obviously interrelated.

### *Flows to maximize output*

At any point in time, a price is determined for each unit type of each factor of production, human or material. At this price, some units will not seek employment either because of the greater psychic value of leisure that would have to be given up or because of money costs associated with that employment which reduce net compensation to zero or below that level at which leisure seems more attractive. To force the employment of these voluntarily idle resources obviously involves either a waste of resources or a dictation of a real consumption rather than a leisure choice for the individual. Both are usually seen as undesirable. On the other hand, a society which attaches a positive value to expanded real output will certainly wish to provide employment at the existing factor price to each factor unit seeking employment at that price. The maximum flow of output is that made possible by the full utilization of resource units seeking employment at existing factor prices.

If this maximum output flow is held desirable—or, alternatively, if the unemployment of resources is held undesirable in its own right because of the unsatisfactory redistribution of income which it implies, or because of its social consequences, then desirable also is that flow of expenditures which calls forth this flow of output.

### *Policy for maximum output flow*

In the simple view now being discussed, the existence of unemployment which signals a failure to maximize output requires action. Required is either an expansion of the flow of expenditures (via (1) reduced money holdings or (2) expanded borrowing from the banks) or an expanded physical volume response by producers to a given

expenditures flow (via a changed functional relationship between the flow of expenditures and the employment of inputs).

Assuming prior maximizing behavior and its continuance under static conditions by private individuals and businesses, only government can generate an expanded expenditures flow. It can do so by either reducing its cash balances or—and more importantly—by bank borrowing to cover deficits resulting from either (1) tax cuts, which increase private incomes, or (2) increased purchases by governmental units themselves. Since tax cuts may result in either (1) increased money holdings, or (2) the repayment of bank loans by individuals in lieu of increased expenditures, a given deficit is usually thought more stimulating of employment and output when it results from spending on goods and services by government rather than from a tax cut.

#### *Prices and maximum output flow*

Prices are implicit in this simple view. Implied is the orthodox model of micro economics in which (1) outputs are rationed among customers via price, (2) inputs are rationed among producers via price, (3) output volume changes are signaled by changes in the relationship between revenues (related to output prices) and costs (related to input prices), and (4) input volume changes are signaled by changes in the price thereof. But, in this simple view, these prices, once determined by market forces, are seen as unchanging, so that the real value of the expenditures flow and the real quantity of the output flow remain unchanged so long as the dollar values thereof remain unchanged.

Indeed, the only conceivable explicit treatment of a price in this simple view is with regard to the rate of interest. This rate can be seen, sometimes is seen, as varying with (1) the desire to hold money, or (2) changes in the supply of money, actual or potential, by the banking authorities. Thus, an "easy money" policy (via (1) lower rediscount rates, (2) open market purchases, or (3) reduced reserve requirements) increases supply and lowers the rate of interest. The decline in this price (relative to all others seen as unchanging) is seen as increasing borrowing and as expanding the flow of expenditures by borrowers (usually ignoring its impact on the desire to hold money or an asset values). However, this increased borrowing and its consequent expansion of the flow of expenditures is frequently seen as not sufficient to overcome any substantial failure to maximize output because of unemployment. Action via Government deficits is still seen as the more important policy position.

Certainly, the simple view does not explicitly take account of such price changes as might be expected to occur in the face of a substantial unemployment or a failure to maximize output. Neither does it explicitly consider whether or not these changes contribute to a growth in output (and employment) or to a further decline in output (and employment).

#### *The causes of recession (depression)*

The simple view, focusing on flows of expenditures and output but ignoring (or minimizing) the impact of price movements, must find the causes of recession in either (1) a decline in flow of expenditures, or (2) an increase in the supply of the factors.

A decline in the flow of expenditures will follow upon the substitution of money holdings or bank-debt retirement for goods as the result

of (1) expectations with respect to such price movements as are anticipated, particularly with respect to the rate of interest and related securities' prices, (2) tastes or preferences for goods, particularly important for durable goods when timing of purchases can change drastically, and (3) bank policy which may be pointed toward a reduction in the money supply, and hence a reduction in bank loans outstanding.

An increase in the supply of factors obviously does not mean a decline in output. An increasing supply of factors in the face of constant employment means instead (1) a growing margin between actual and potential output, and (2) increasing problems relating to unemployment directly. A failure to expand a flow of expenditures and output thus spells recession. A recession is not only a decline, but a failure to grow. The avoidance of recession, therefore, requires a broadening of the flow of expenditures with an increase in factor supplies which, in the simple view, can come only with a substitution of goods for money accompanied by an expansion of bank loans.

In this view, it is worth emphasizing that recessions do not develop as the consequence of, and are not accompanied by, general or relative price movements.

#### PRICE MOVEMENTS—THE SIMPLE VIEW

##### *Introduction*

It is, of course, perfectly possible to deal with price movements, their causes and their consequences, within the simple situation of the preceding section. This is now to be done.

This discussion is to be divided into three parts as follows: (1) An indication of the kind of price movements which can be expected either to accompany, or to cause, a movement away from a full-employment equilibrium situation; (2) an analysis of subsequent price movements which accompany, or cause, either a further movement away from equilibrium or a return to it; and (3) a look at the kind of policies suggested by the specific consideration of the role of prices.

##### *Price movements and the onset of the recession*

*Accompanying output price movements.*—A narrowing of the flow of expenditures (via an increased holding of money, repayment of bank loans outstanding, or reduced borrowing from banks) implies a diminution in demand for most outputs. Under competitive conditions, this means a short-run decline in price and in volume as existing firms reduce output. This will be followed, in the long run, by a rise in price toward original levels but with a further decline in output accompanying a withdrawal of firms. Under monopoly conditions (including conditions of monopolistic competition) for firms aware of their demand and cost functions and motivated to maximize profits, the narrowing of the flow of expenditures usually results in both lower prices and reduced output. Under monopoly conditions (including conditions of monopolistic competition) for firms pricing on a "full cost" basis (i. e., setting price at average cost plus a conventional markup), the narrowed flow means sharply reduced volumes and possible price increases as average costs rise with the movement of outputs back from "capacity" (i. e., minimum average cost) levels. Under oligopoly conditions, a tendency to set prices on a "full cost" basis plus tacit or informal agreements which cause

prices to be "sticky" are likely to yield price stability and sharply reduced outputs. In each case, however, a narrowing expenditures flow means reduced volume.

*Accompanying factor price movements.*—When output diminishes with a narrowing of the flow of expenditures, the demand for factors diminishes. Under competitive conditions in the factor market, this means both lower factor prices and reduced employment thereof. Under conditions of noncompetitive factor supply wherein factor prices are given and unchanged, employment in response to a given expenditures flow declines more sharply. In either case, however, the result is a diminished volume of factor employment.

Similarly, if factor supplies increase while expenditures flows and factor demand held steady, competitive conditions in the factor market will mean lower factor prices and expanded employment while non-competitive conditions mean factor-price stability and stability of employment in the face of mounting unemployment.

*Causal output price movements.*—Given a flow of expenditures, autonomous output price increases (via such developments as (1) a change in market structure which replaces a competitive with a higher monopoly price, (2) a reduction in supply consequent upon a technological change which moves marginal cost curves of firms to the left, or (3) an increase in conventional markups for "full cost" prices) reduce the real value of such flows. Physical output flows are diminished with a consequent diminished use of factors.

Incidentally, autonomous price increases of the kind noted above do not seem likely of frequent occurrence. They do not seem likely to be a usual trigger for a recession.

Closely related to such autonomous output price movements are those movements which stem from autonomous shifts in demand. Suppose for example an autonomous change in preferences in favor of a specific good. In most market situations, the price of this goods will rise and additional resources will be required for its expanded production. At the same time, the demand for substitute goods will fall, their price will fall, and fewer resources will be required for their diminished production. In this case, two relevant possibilities exist. First, there is the possibility that the changed situation may lead to a diminished flow of expenditures. This is likely if the preferred goods are conventionally purchased out of income while the disadvantaged goods are conventionally purchased with the aid of borrowed money. Such a set of facts may well lead to the retirement of debt without an offsetting decline in money balances and thus yield a reduced expenditures flow. A reduced flow of expenditures is also likely if the supply curve for the preferred goods is quite inelastic (so that expenditures thereon rise relatively little) while the similar curves for disadvantaged goods are quite elastic (so that expenditures on them fall rapidly). In either case, a reduced-expenditures flow will pinch volume. Second, a given flow of expenditures now motivates a different pattern of output and the use of a different "bundle" of factors. This flow may motivate an output which does not fully utilize the existing supplies of any factor and may certainly leave supplies of certain specific factors unemployed. It is thus possible that price changes accompanying autonomous shifts in demand may lead to a diminished expenditures and output flow; although, of course, the opposite effect is also possible.

*Causal factor price movements.*—Given a flow of expenditures, autonomous increases in factor prices will motivate higher product prices, reduced outputs, and diminished factor use. Such autonomous increases are most likely via a change in market structure which replaces a competitive with a higher monopoly price.

*Price movements as recession correctives*

The preceding section notes price movements which accompany or trigger a narrower real flow of expenditures. More interesting and more important than these price movements already noted are those which accompany or motivate processes which (1) return the economy to full employment, (2) push the economy to lower levels of employment and output, or (3) leave the economy in equilibrium at less than full-employment levels.

*A basic situation.*—Assume a previously presented situation in which the expenditures flow narrowed for reasons unrelated to a price change. Price consequences were lower prices for some outputs (i. e., those outputs sold competitively or by noncompetitive firms which know demand and cost functions and move to maximize profits) and lower prices for some factors (i. e., those sold in competitive markets). Consequences also included a reduced volume of output and reduced factor employment.

Viewing this situation further, the lower factor prices mean lower costs. These lower costs will mean lower output price, greater output volume, and diminished declines in factor employment provided that the expenditures flow does not narrow further. Indeed, if the factor-supply schedule is sufficiently inelastic, or if it shifts sufficiently to the right to take account of a growing real income provided by given wage rates as output prices decline; factor prices (and hence firm costs) will fall rapidly enough so that the economy's real output and employment will have declined but little. On the other hand, if the factor-supply schedule is elastic, factor prices (and hence firm costs) will fall so slowly that the economy's real output and employment will remain at low levels. The key conclusion, however, is that output and employment do not regain levels attained prior to the initial narrowing of the expenditures flow.

The foregoing assumes that the new, narrowed flow of expenditures can be maintained. If it can, the economy will stabilize at the new, lower levels of output and employment. On the other hand, if the flow of expenditures narrows further, additional declines in output and employment are in prospect. Or, if the flow of expenditures does now rise, then growth in output and employment toward full-employment levels can be anticipated. The important question has to do with the relative likelihood of either a decline or an increase in the expenditures flow.

Pressures toward decline are strong. They include (1) the immediately preceding decline in money income (by definition as the expenditures flow narrowed) and in real income (as output diminished) which may well lead to protective action designed to increase money holdings or to retire debt, both reducing the expenditures flow, (2) the immediately preceding decline in factor employment which may well suggest still further efforts at protective action, (3) the immediately preceding decline in output prices which may well lead to the anticipation of further declines and a consequent postponement of

purchases, and (4) the immediately preceding likely unfavorable bank experience in the face of declining incomes which will probably motivate decline, rather than increase, in bank lending and the resultant money supply. If these strong pressures do, in fact, further narrow expenditures flows, market adjustments—of which price changes are a part—are inadequate to stem the recessionary tide.

However, an increase in the expenditures flow is not impossible. If (1) the immediately preceding price declines are deemed only temporary and the anticipation of future increases stimulate purchases, (2) efforts are made to protect living standards in the face of lower incomes by reducing money balances or by bank borrowing, (3) the increased real value of money balances or fixed dollar value asset holdings when output prices decline so meet liquidity requirements that buyers are willing to spend a larger portion of current income or to borrow more, and (4) if bank policy looks toward maximum lending, the flow of expenditures will expand. If this expansion does, in fact, occur, then market adjustments—of which price changes are a part—are adequate to stem the recessionary tide and to return the economy to full employment.

Market adjustments, price adjustments, are thus not always adequate to restore a maximum flow of output. Indeed, on balance, it seems unlikely that they will usually be so. If they are not, policy suggested by the simple view in which prices were taken as given still seems desirable.

*Other situations.*—A flow of output at less than full-employment levels has previously been seen to appear with a constant expenditures flow but (1) growing factor supplies, (2) autonomous output price rises, or (3) autonomous factor price rises. Each of these situations can be analyzed similarly to the basic situation. In each case, stability at new, lower output and employment levels will accompany the maintenance of the constant expenditures flow. A decline in the flow will mean a further decline in output and employment and the inability of market adjustments to stem a downturn. An increase in the flow will mean an upturn in output and employment to full-employment levels and an ability of market adjustments to restore a position of maximum output.

In the first case (growing factor supplies), a further view of the situation discloses lower factor prices, lower costs, lower output prices, greater output volume, and at least some increases—although not to full employment levels—in factor employment if the expenditures flow is just maintained. In this case, pressures toward a decline in the expenditures flow seem less strong and an increase more likely. While total money and real income both declined in the basic situation, money income now holds constant and total real income rises. While employment actually declined in the basic situation, in the present case it is growing. While bank experience was unsatisfactory in the basic situation, it is unlikely to have been generally so with the better-income positions here viewed. Only the immediately preceding decline in output prices, which may well lead to the anticipation of future declines and a postponement of purchases, really point to a reduced flow. Countering this is the possibility that increased factor supplies mean increased labor supplies, a growing population, a more rapid rate of family formation, and an increased implied stimulus to borrow for consumer and civic durable items which this more

rapid population growth and rate of home formation implies. On balance, the chances are good in this case that market adjustments will lead to a widened expenditures flow and the achievement of maximum output levels.

In the second case (autonomous output price rises), reduced output and reduced factor use will again mean lower factor prices, lower costs, a decline of output prices toward—but not to—levels prior to the exogenous increase, an increase in output volume toward—but not to—the prior level, and at least some recovery toward—but not to—full-employment levels if the expenditures flow is just maintained. In this case, pressure toward a decline in the expenditures flow seem less strong than in the basic situation but stronger than in the case of growing factor supplies. As compared to the basic situation, money income has remained constant rather than declined and output prices have risen rather than fallen. Both of these developments argue for reduced pressures for a decline in the expenditures flow and make a possible increase easier of visualization.

In the third case (autonomous factor price rises), higher factor prices are followed by higher costs, higher output prices, reduced volume, and reduced factor employment if the expenditures flow is just maintained. As in the second case, and for the same reasons, pressures toward a decline in the expenditures flow seem less strong than in the basic situation and make a possible increase therein easier of visualization.

#### *Price movements and policy*

Market adjustments, in which price movements are an important factor, are capable of restoring maximum output and full employment only when they permit, and are accompanied by, a widening flow of expenditures. Any policy which encourages this broadening of flow is thus to be desired.

Such policies certainly include (1) the inculcation of attitudes favorable to the viewing of price declines as temporary and likely to be followed by increases, (2) the maintenance of the broadest possible market for, and maximum liquidity of, securities holdings to reduce to the minimum the desire to add to money stocks or fixed-income securities or to encourage a partial liquidation thereof, and (3) the encouragement of banks to pursue a vigorous policy of loan expansion, perhaps with the cooperation of Government via loan guaranties.

It should also be pointed out that at any given level of expenditures flow, the greater the downward flexibility of output and factor prices, or conversely the less the autonomous upward movement of output and factor prices, the better is volume of output and employment maintained. Price flexibility does serve to maintain output and employment except as it encourages a narrowing of the expenditures flow (as has been shown likely in the basic situation). Autonomous upward price movements do serve to reduce output and employment except as they encourage a widening of the expenditures flow (as has been seen to be quite possible, but not necessary, in a preceding section).

## PRICE MOVEMENTS—A MORE COMPLEX VIEW

*Flows are not homogenous*

Thus far, the flow of expenditures and the flow of output have each been seen as broad homogenous flows. This view is, of course, unrealistic.

Expenditures flows are for thousands upon thousands of different products. These flows are not easily interchangeable. For examples, a flow of expenditures for commercial aircraft is not easily rechanneled into a flow of expenditures for guided missiles, a flow of expenditures for machine tools is not easily rechanneled into a flow of expenditures for automobiles, or a flow of expenditures for television sets is not easily rechanneled into a flow of expenditures for television repair services.

Output flows are similar of thousands and thousands of different products. These flows too are not always easily interchangeable. For examples, the same men and machines in the same locations may not shift easily from the production of commercial aircraft to the production of guided missiles, from the production of machine tools to the production of automobiles, or from the production of television sets to the provision of television repair services.

*Flows must be mutually consistent*

*In terms of output.*—The many expenditures flows must call forth many output flows which are mutually consistent therewith if the flows are to persist at a given volume. Thus, a flow of expenditures on, and a flow of output of, new machines must not so expand capacity of the industry using the new machines that the flow of expenditures on its product is incapable of motivating a full employment of the expanded resources available to it. Similarly, a flow of expenditures on, and a flow of output of, product to be added to stocks (inventories) must not become excessive relative to the flow of expenditures on, and the flow of output to, final users. Continuing, a flow of expenditures on, and a flow of output of, any product cannot be inconsistent with the flow of expenditures on, and the flow of output of, any complementary product.

Any disarticulation of output flows like those pointed to above will lead to the narrowing of an expenditures flow and—even with price flexibility—a reduced volume of output and employment, reduced money and real incomes, and reduced expenditures flows on other products as a consequence of these reduced incomes (except as the depressing effect of the decline in income is offset by reduced money holdings, reduced bank-debt retirement, or expanded bank lending).

*In terms of factors.*—The many expenditures flows must call forth many output flows which are consistent with the available supplies of inputs. It is perfectly possible that a particular intended (ex ante) expenditures flow may be frustrated by a shortage of a necessary input, this frustration following either rationing of limited output by producers or rising prices coupled with elastic demand. Or this particular intended flow may be widened by the shortage of a necessary input and rising prices coupled with an inelastic demand. The shortage of a particular input, if it results in a narrowed actual (ex post) expenditures flow, spells unemployment of cooperating factors not in short supply, reduced incomes, and, again, a tendency for reduced

expenditures on other products because of these reduced incomes. The shortage of a particular input, even if it results in widened expenditures on the product in which it is included, spells decline since (1) cooperating factors not in short supply will be unemployed, and (2) the widened expenditures here must be in the face of narrowed expenditures for other outputs (unless such expenditures are maintained by, again, reduced money holdings, reduced bank-debt retirement, or expanded bank lending).

Such disarticulations in factor requirements thus also create a tendency toward the narrowing of expenditures flows and recession.

*In terms of income distribution.*—Even if the many expenditures flows mesh well together, even if they call forth a pattern of resource use consistent with patterns of supply, disarticulation is possible if income is distributed according to a pattern which is inconsistent with the maintenance of the original expenditures flow. For example, if income yielded by a specific pattern of expenditures and output flow emphasizing expenditures on, and output of, durable consumers goods, is accumulating to income receivers not likely to emphasize expenditures on such items, then expenditures thereon are likely to narrow with the unfortunate consequences already frequently cataloged. Of course, the income receivers with expanding incomes may widen expenditures flows elsewhere with stimulating consequences to the economy as a whole. It should be noted, however, that a full offset requires that expenditures elsewhere increase by the amount of the decline in durable consumers goods purchases, a requirement which means that persons with growing incomes save no part thereof.

Disarticulations of income distribution with respect to flows of expenditures and output may, therefore, also lead to declines in output and employment.

#### *Price changes and disarticulations*

The arguments of the section entitled "Price Movements—the Simple View" indicate that price changes and market adjustments (1) accompany changes in a flow of expenditures or (2) cause changes in a flow of output in response to a given flow of expenditures. These arguments are equally valid here. Price changes and market adjustments both accompany the changed expenditures flows stemming from disarticulations and cause the changed output flows which result in disarticulations.

Disarticulations thus give rise to narrowed real expenditures flows via either (1) narrowed money flows, or (2) constant money flows at higher output prices. Conventional price changes and market adjustments do not restore real flows (outputs) no matter how flexible prices may be.

Any narrowed real expenditures flow is likely to spread via the pressure of reduced incomes and reduced expenditures to other flows and through the entire economy unless, at some point, money holdings are reduced, bank-debt retirement is slowed, or there is net new borrowing from banks.

#### *Income distribution and disarticulations*

*Introduction.*—The view that there are a good many flows of output and expenditures also allows explicit consideration of the impact of changes in the distribution of income. Thus, a disarticulation which

leaves a flow of income without an immediately desired flow of output and, hence, adding to money balances or reducing bank indebtedness is depressing (via a reduced expenditures flow) and points to the possible desirability of redistributing the income flow in directions where there is an immediately desired flow of output and which will encourage the activation of idle balances and new borrowing rather than debt retirement to widen the flow of expenditures.

A specific and important instance of the kind described generally above occurs when a flow of income to businesses and individuals which normally goes to purchase capital goods (or inventories) is not so spent (perhaps because of output disarticulation). Indeed, in this area, it is likely that not only does current income go unspent, but new borrowing is replaced by debt retirement. This situation is frequently held to point to the desirability of immediately and consciously changing the flow of income away from these recipients who frustrate its translation into an expenditures, an output, and an employment flow, to those whose flow of expenditures would be stimulated thereby. The latter are usually seen as lower income bracket consumers or as small-business men with a great expansion potential but little current income or borrowing potential.

It has frequently been pointed out that the transfer of income is inevitable in any case; that only the level of the economy's output and employment at which the transfer will take place is in question. This view holds that, if the transfer does not take place early, income and activity in the entire economy will decline and that that income to businesses and individuals which originally financed capital expansion will, along with the income of the unemployed, be that which declines most sharply. Indeed, this view argues that the basis for a restoration of this income and of a flow of expenditures on capital goods (inventories) is best laid by an immediate transfer which will remove the disarticulation via absorbing excess capacity and excess inventories by way of expanded consumption.

*Price changes and income transfers.*—Disarticulations lead to decline via reduced real expenditures flows which are diffused through the economy with general declines in income which conventional price movements, by themselves, are powerless to halt. This has given rise to proposals for specific price changes not called forth by orthodox economic forces acting on individual decision makers.

Generally, these proposals call for an increase in prices for those items sold by those whose incomes it is desired to increase because they will, therefore, expand their expenditures flows, and a decrease in prices for those items sold by those whose incomes it is desired to decrease because they have already narrowed their expenditures flows.

These prices are to be maintained whether or not, atomistically viewed, they maximize the individual positions of the market participants.

Specifically, with a decline in expenditures flows for capital goods (or inventories), wage rates should be raised while volume is consciously maintained and retained profits and dividends are pinched. Or, conversely, wage rates might be maintained while output prices are consciously reduced and retained profits and dividends are pinched. The latter alternative, however, does create the added danger of reduced consumption if further price cuts thereby come to be anticipated.

Logically, this income redistribution via conscious changes in prices (of labor and of output) and conscious maintenance of output is a powerful antirecessionary device. It also requires either (1) substantial Government control over prices and outputs or (2) a very high level of industrial statesmanship. Conventional market forces do not call forth the actions required. Furthermore, under reversed conditions wherein the output distortion requires, and stimulates, an expansion of investment expenditures, a redistribution of income toward savers (i. e., businesses and upper-bracket income persons) is logically required. This shift, also not called forth by conventional market forces, would necessitate (1) substantial Government control over wage rates or (2) a very high level of labor statesmanship.



## INVESTMENT AND THE PRICE SYSTEM

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In a capitalist, free enterprise economy, most decisions about output, investment, and consumption are made by individuals, families, or corporations who are seeking to further their own self-interest. It has long been the wonder of philosophers, economists, and political scientists that such a system should, in most instances, lead to socially desirable results. This happens, to put it simply, because the way for people to serve their best interest is to make money, and the way to do this is to make something which other people want and are willing to buy. In such an economic system, prices are the measure of the value of a product, and the prospect of selling a product at a profit constitutes the inducement to produce.

The function of profit in a free enterprise economy is to draw productive resources into the correct industries, so that these industries can increase their output. The resource should, from the point of view of the society, be used where they will best satisfy consumer wants and needs. Producers must pay for the resources which they use, and then sell the product at a price which consumers are willing to pay, when they compare this price with the prices of other products which could be used to satisfy their wants. If consumers find a product so valuable that they are willing to pay the producer more than enough to pay the productive resources, and leave a large profit besides, then more resources should be devoted to the production of this product. In this way the resources will be used to produce that product which is most valuable to the consumer.

Investment is undertaken by individuals, or groups of individuals, who seek thereby to make profits. In general, if there is an industry which presents opportunities for unusual profits, as compared with the necessary investment, entrepreneurs invest and attract resources to the industry. This increases the output of the industry, and profits are reduced to a more normal level.

Usually this flow of investment funds and of resources into high profit uses is in the public interest. This is because the industries and firms which make high profits use resources more efficiently and satisfy consumer wants better. This procedure also requires that low profit firms and industries contract, and sometimes are even forced out of business. The system then involves the survival and growth of the fittest, with fitness measured by the ability to serve the consumer and earn profits.

As a Nation, however, we are interested in investment not only from the point of view of the expansion of particular industries, but also because investment employs people and creates income when it is undertaken, and permits growth of national product and income at a later date. We are interested, therefore, in appraising the performance of the investment sector of our economy from three points of

view: that of the economy as a whole, that of the firm, and that of the industry. I am going to discuss each of these briefly, with emphasis on investment at the industry level.

#### INVESTMENT BY THE TOTAL ECONOMY

It is not easy to appraise the performance of our economy from the standpoint of the total level of investment. The only criteria that we could use are that investment should be high enough to maintain full employment and to produce a satisfactory rate of growth for the economy as a whole. We have, to be sure, ample evidence that investment has been high enough to maintain full employment—or to put this another way, has been high enough to employ the savings from a full employment level of income—since the end of World War II. The question of a satisfactory rate of growth is complicated by the fact that we have no good standard of what is satisfactory or unsatisfactory in this field. Many individuals argue that our post-war rate of growth is not satisfactory because it is substantially lower than the Russian rate of growth. If, as has been suggested, Russian output were to catch up with ours in the next 15 to 20 years, this might well be a more serious blow in our contest with communism than was the recent Russian success in conquering space.

It seems clear that our economy will not grow as fast as the Russian economy has been growing unless we take special measures to stimulate investment. However, it is not my intention to advocate that such measures be taken, particularly since I believe this decision to be a political one rather than an economic one. As an economist, I see no cause for alarm at the rate of growth which our economy is now achieving. Furthermore, I should like to issue a warning to those who think that a race with the Russians in this area is necessary. It will not be easy to devise methods of stimulating investment which will not destroy the freedom which is essential to a capitalist economy, and which will not create a much more serious problem of inflation than we have been facing for the last 10 years.

#### INVESTMENT BY THE INDIVIDUAL FIRM

Recent studies<sup>1</sup> of investment decisions of the firm stress the importance of profits as a requirement for investment. These studies do not, to be sure, indicate that the firms with the highest profits are always the ones which invest the most, and we should not expect to find that our general economic principles are followed to the letter in each and every instance. The price system can be said to work satisfactorily if by and large there is a tendency for investment to flow into those firms and industries which are most profitable; and the evidence supports the conclusion that this is the case.

Perhaps the most important result of the recent studies has been the shift in emphasis from considerations of the demand for investment funds to considerations of the supply of such funds. Earlier treatments of the investment problem stressed the importance of profits in creating a demand or desire to invest and increase production. The

<sup>1</sup> See for example, Meyer and Kuh, *The Investment Decision*, Harvard University Press, 1957, and the National Bureau of Economic Research Conference on Research in Income and Wealth, vol. 19, *Problems of Capital Formation*, Princeton University Press, 1957.

idea was that entrepreneurs wish to make profits, and therefore seek to invest money in profitable enterprises. The assumption seemed to be that the funds would be available for the entrepreneurs to borrow, and that they would naturally channel the funds into the most profitable places.

More recent studies of investment decisions of the firm stress the importance of profit in providing a source of investment funds, rather than as signaling a profitable place to use funds. That is, a firm which wishes to invest must either borrow the money, or get more money from stockholders, or use money which it has saved itself. The two sources of internally saved money are depreciation and profits which have not been distributed to stockholders as dividends. Firms which have large profits are in a better position to retain some of these profits and to use them for investment purposes.

This emphasis on the supply of investment funds stems in part from the way in which investment decisions are usually made by the firm. There are usually individuals in the lower levels of management in any firm who think of many ways in which to invest the firm's funds. Therefore, the problem of top management usually seems to be one of reducing the requests for funds on the part of lower management to the level of funds which are available to the firm. That is, the firm usually looks as though it wants to invest more money than it actually has available. Therefore, the availability of the funds seems to be of crucial importance.

It is clear, of course, that for the economy as a whole it is not always the availability of funds which limits investment. In times of recession, such as these, the funds are available but there is apparently not enough demand. This is simply another illustration of the familiar theme that things do not always look the same from the point of view of the individual firm as they do from the point of view of the economy. Profits are clearly important on the demand side as well. This is because a firm which has been making profits usually feels more optimistic about the future and wants to invest more than a firm which has been having difficulty making profits. This association on the demand side would, of course, increase the apparent correlation between investment and profits as an internal source of funds. In a situation of this kind, it is frequently difficult, if not impossible, to determine how much of the association between profits and investment is due to the increased availability of funds which is associated with the increased profit, and how much is due to the increased demand for funds which is also associated with the increased profit.

From the point of view of this analysis, however, it makes no difference why profitable firms invest. The price system is functioning properly if resources are flowing into the profitable firms, since these are the firms which know how to use the resources to best satisfy consumer demands. The evidence of recent studies shows that profitable firms do indeed attract investment and expand.

#### INVESTMENT BY INDUSTRIES

Most of the interest in investment in recent years has been either in the investment of the firm or the investment of the economy as a whole, and little has been said about investment at the industry level.

One reason for this is that investment decisions are made by firms, not industries. Another reason is that better data are available for firms than for industries.

I have therefore analyzed two sets of data with a view to seeing how the profit system and the price mechanism are apparently working at the industry level. All of my data are confined to manufacturing, and the number of industries into which the manufacturing sector of the economy is divided is quite small. In no case do I consider more than 21 manufacturing industries, and in much of the data only 11 industries are available. The industries are therefore very broadly defined, which has certain advantages as well as disadvantages. The main advantage is that the broader the industry, the less likely are firms to engage in activities which cut across industry lines. Therefore, the data are somewhat more reliable for broad industries than they would be for more refined industries since the data came from firms and each firm is placed in only one industry. On the other hand, broadly defined industries can cover up many interesting things which are happening within the industry. It may be that some segment of the industries are exceedingly profitable and are expanding rapidly, while other segments of the industry are stationary or even declining.

The two sets of data which I have analyzed differ in the length of the period covered, and in the definition of investment, as well as in industrial breakdown. The first set of data, from the National Industrial Conference Board, covers the entire period from 1925 to 1954 for 11 industries, and has a finer industrial classification since 1939. The Census Bureau data covers only selected years from 1947 to 1954.

The conference board data uses a very broad definition of investment, including as investment all the assets of a firm except holdings of securities and securities of other firms. The Census Bureau data is concerned with expenditures which are more commonly thought of as investment.

Finally, the conference board has information on the total investment tied up in an industry at any time, as well as information on the amount of investment during a particular year. This permits measurement of the rate of return on investment, and the rate of increase of investment. The Census Bureau data give only plant and equipment expenditures during a particular year, and other Department of Commerce sources give profits (not of income tax) for the same years. The Census Bureau data permits only measurement of the relative change in investment from 1 year to another as compared to the relative change in profits between the same years.

In spite of these important differences in definitions and in treatment of the data, both sources indicate that, by and large, investment is being channeled into the more profitable industries. Again, as in the case of the investment of the firm, we find that there are individual exceptions from time to time, but still in general the industries which realize the highest profits, or which show the greatest improvement in profit position, are the ones which expand investment the fastest.

Thus both sets of data apparently present the results of an economy which is functioning the way a free enterprise society is supposed to operate.

## THE CONFERENCE BOARD DATA

The first set of data which I have analyzed is put out by the National Industrial Conference Board, and gives investment and rate of return on investment for 11 manufacturing industries from 1925 through 1954, and for about 20 manufacturing industries since 1939. The 11 industry data has the advantage of giving a long historical sweep. The finer industrial classification permits a somewhat more detailed analysis of postwar developments.

The definition of investment which the conference board uses is the broadest possible one. They define investment as the total assets of a firm, less only holdings of the securities of other firms and of the Government. This means that the investment figure includes not only plant, equipment, and inventories, which are usually thought of as investment, and are included as investment in our national income accounts, but also such items as cash and accounts receivable, which are not included as investment in the national income accounts. The conference board includes all assets because the firm needs to raise money to obtain these other assets in much the same way that it needs to obtain money to finance plant, equipment, and inventories.

Profits for the industries are given after income taxes have been paid, and also after deducting any interest or dividends which the firm collected from its security holdings. The rate of return on investment in any year is then the profit earned during the year divided by the total amount of money which is invested in the firm as of the end of the year. Thus the profit is earned during the year, but the investment may have been made at any time prior to the end of the year.

The question which I seek to answer is whether those industries with the highest rate of return on investment are also the industries which increase their investment the most. In order to do this, it is necessary to measure investment during any given year relative to the size of the industry; that is, relative to the amount of investment in the industry at the start of the year. This means really that we are measuring the rate of increase of investment, rather than the absolute amount of investment. I also sought to reduce the influence of irregular factors by averaging both the rate of increase of investment and the rate of return on investment over 2-year periods. This means that if automobiles, for example, had a particularly good year followed by a poor one, these 2 years would be averaged together. The idea in back of this procedure is that investment is usually made for the long term, and on the assumption that some years will be good and others poor. A 2-year average gives a somewhat better indication of the normal rate of return, and also of the normal rate of increase of investment.

I also experimented with somewhat longer periods, such as 4 and 8 years, and found that the relationship between profits and investment improved for these longer periods.

Table I shows the correlations between rates of increase of investment and rates of return on investment, by industry, for various time

periods.<sup>2</sup> It should be noted that the correlations are quite good in the postwar years, and in the early thirties, and are somewhat lower during the war and recovery from the depression of the early thirties. The 4- and 8-year correlations are all high, except for those that include the mobilization period of World War II.

The data not only confirm the idea that industries which make high profits in any particular period are those which invest during this period, but also confirm the idea that a particular industry invests more when its profits are high than when its profits are low. For our broader industrial classification of 11 manufacturing industries, we have data for investment and profits covering 14 2-year periods. We find that the correlation between the rate of investment and the rate of return through time is uniformly high for all industries. This is a reflection primarily, of course, of the business cycle. During periods of prosperity both profits and investments are high, while those are low during periods of recession and depression. In some industries the war years caused a certain amount of discrepancy in the correlation between rates of return and rates of investment. However, even in these industries, the disturbance was not enough to reduce the correlation significantly.

It is also worth noting that the profit position of an industry changes relatively slowly through time. That is, the industry with the highest rate of return on investment in any 2-year period is likely also to have a comparatively high rate of return on investment during the following 2-year period, and probably had a comparatively high rate of return on investment during the preceding 2 years. In spite of the relatively slow change during 2-year periods, very significant changes are possible over longer periods. In fact, industries which showed high rates of return during the war period are unlikely to be showing high rates of return today and probably did not show high rates of return during the late 1920's. Nevertheless, there is apparently a pattern of rates of return which appears during normal peacetime prosperous periods. During the period under study this pattern was broken first by the great depression, and second, by the World War. Nevertheless, this normal pattern has reemerged to a noticeable extent in the 1950's.

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<sup>2</sup> These correlations are of ranks, rather than of actual rates of return and investment. My hypothesis is that the most profitable industries should invest the most, and I can test this by correlating the ranks of the industries according to profitability and increase in investment.

TABLE I.—*Correlation of rate of return on investment with rate of increase of investment for manufacturing industries*

[Selected time periods, 1927-54]

Time period	Correlation	
	11-industry classification	Finer industry classification
<b>2-year periods:</b>		
1927 and 1928	0.15	
1929 and 1930	.69	
1931 and 1932	.75	
1933 and 1934	.75	
1935 and 1936	.27	
1937 and 1938	.30	
1939 and 1940	.33	
1941 and 1942	.35	<sup>1</sup> 0.257
1943 and 1944	.37	1.065
1945 and 1946	.75	1.475
1947 and 1948	.37	2.426
1949 and 1950	.54	3.574
1951 and 1952	.51	3.455
1953 and 1954	.58	3.187
<b>4-year periods:</b>		
1927 through 1930	.61	
1931 through 1934	.86	
1935 through 1938	.57	
1939 through 1942	.28	
1943 through 1946	.56	
1947 through 1950	.77	
1951 through 1954	.54	
<b>8-year periods:</b>		
1931 through 1938	.83	
1939 through 1946	.27	
1947 through 1954	.62	

<sup>1</sup> There are 19 industries in these years.<sup>2</sup> There are 18 industries in these years.<sup>3</sup> There are 21 industries in these years.

Source: National Industrial Conference Board.

It should also be noted that the price system has apparently performed its function quite well during the post war period. At the end of the war there was a substantial shortage of productive capacity and likewise, a shortage of many consumer goods. At this time the rate of return on investment was exceedingly high, and so was the rate of increase of investment. In fact, the rate of return was so high that it induced so much investment that the rate of return finally fell back to a more normal level during the early 1950's. Thus, it appears that the high rates of return during the reconversion period served a useful function.<sup>3</sup>

<sup>3</sup> This particular conclusion is confirmed by the data from the First National City Bank of New York, which shows a very high rate of return on investment in the reconversion period which gradually becomes smaller and reaches what could be considered a rather normal level in the 1950's. This is all the more interesting because the National City Bank does not measure the rate of return in the same way that the conference board measured rate of return. Instead of taking the total asset of the firm as a measure of investment, the National City Bank uses the net worth. Therefore, the rate of return is profit as a percent of net worth.

## THE CENSUS BUREAU DATA

The Census Bureau has published data on plant and equipment expenditures by industry for several years since 1947. The 1947 data came from the census of manufacturers, while data for 1949, 1951, 1953, and 1954 were obtained from the annual surveys of manufacturers. This data gives plant and equipment expenditures by industry during the particular year, and gives us no information as to the total level of investment of the firm either during the year or at the beginning of the year. Accordingly, I have not sought to associate investment in plant and equipment in any particular year with the profits in that year, but rather to associate changes in plant and equipment expenditures with changes in the level of profits in the various industries. Data on profits for the same industry classification that are used by the Census Bureau in these reports are available from the Department of Commerce in their national income statistics. The hypothesis which I wish to test is whether the industries which have shown the greatest growth in profits are also the industries which have shown the greatest growth in plant and equipment expenditures.

In order to reduce the effect of fluctuations in profit from year to year, profits were not calculated for a single year but rather for a 2-year period, in much the same way that the conference board data were handled. Thus, for example, in seeking to explain the change in the rate of plant and equipment expenditures between 1947 and 1954, I did not calculate the increase in profit between 1947 and 1954. I chose rather to take the average profit in the 2 years, 1946 and 1947, and compare these with the average profits for the 2 years, 1953 and 1954. The purpose of averaging profits over a 2-year period is, as before, to make irregular or unexpected changes in profit less important. Unfortunately, a similar averaging of plant and equipment expenditures was not possible because data was generally available only for alternate years.

Two difficulties which arise in making this comparison should be noted. First, it seems clear that the industries which are large and have large profits will probably also be the ones which have large increases in profit and large increases in plant and equipment expenditures. In order to avoid this difficulty, therefore, I considered the relative change in profit and in plant and equipment expenditures. That is, I found out, for example, what the percentage increase in profits was between 1947 and 1954, and I also found the percentage increase in plant and equipment expenditures between 1947 and 1954. I then sought to determine if these industries had the highest percentage increase in investment. The second difficulty arises because I am taking a ratio of investment (and profits) in 1 year to the investment (and profit) in another year. If the investment in either one of these years did not bear its normal relationship to profit in that particular year, then the ratios which I get will be misleading. Let us suppose that we have an industry in which investment is usually closely tied to profit. Even so, there will be some years in which the investment is higher than what one would expect on the basis of profits and some years in which the investment is lower than what one would expect on the basis of profits. If we now calculate the rates of growth of investment and profit between any 2 years, we will

find that the ratios are misleading if either 1 of the 2 years did not bear its normal relationship of profit to investment.

TABLE II.—*Correlation of percentage changes of plant and equipment expenditures and profits, for manufacturing industries—Selected time periods, 1947-54*

Percentage changes between 1947 and <sup>1</sup> —	Correlation
1949-----	—0.04
1951-----	.59
1953-----	.86
1954-----	.69
Percentage changes between 1949 and <sup>1</sup> —	
1951-----	.59
1953-----	.55
1954-----	.45
Percentage changes between 1951 and <sup>1</sup> —	
1953-----	.25
1954-----	.36
Percentage changes between 1953 and 1954-----	.48

<sup>1</sup> Percentage changes in profits are calculated using a 2-year base period, including the year preceding the base year used for plant and equipment expenditures, and a 2-year final period, again including the year preceding the final year for plant and equipment expenditures.

Source: Census Bureau and Department of Commerce.

Nevertheless, the relationship between changes in profits and changes in investment is quite good. Table II shows the correlation coefficients of the rank of the percent increase in investment and the rank of the percent increase in profit. These coefficients are quite high except for the changes which took place between 1947 and 1949; 1947 was a period of rapidly rising prices and an extreme shortage of capital goods. There were many firms which would have liked to invest a good deal more than they were able to invest, because they wished to be able to increase their output. We have reason to suspect, therefore, that 1947 was not a year of normal relationship between profit and investment. Therefore, it should not surprise us too much to find that the changes in investment between 1947 and 1949 were not correlated with the change in profit in these years. In fact, I find it somewhat surprising that the correlations between 1947 and some of the later years are as high as they are. I would rather have expected to find that any changes which use 1947 as a base were rather abnormal and misleading. This is not the case, however, and the correlations between 1947 and 1953 and 1954 are among the highest. This may arise because one would rather expect these correlations to improve with age. This is because changes from year to year tend to be rather smaller than changes between 5-year periods. Thus, any observation which tends to be higher or lower than "normal" will cause a larger change in year to year rates of increase than it will cause in rates of increase for years which are 5 or 10 years apart. Indeed, this improvement of correlation as the time period grows longer is apparent in the data.

#### CONCLUSIONS

Investment by private enterprise in our economy has been large enough in the postwar period to keep the working force fully employed, and to achieve a satisfactory rate of growth for the economy. It is true that we have not had continuously full employment, and that we fall short of this goal at the present moment, but these lapses from

full employment have been neither serious nor prolonged. It is not reasonable to expect a free economy to be devoid of fluctuations in output and employment.

A more legitimate concern is that the Russian economy has apparently been growing faster than ours, and will eventually surpass us if this continues. It would indeed be unfortunate if we were no longer able to combat communism with the argument that we have both more freedom and a more abundant economy. However, it is certainly not worth giving up our freedom to seek economic abundance, even in the unlikely event that we could achieve faster growth by doing so. Our fundamental argument must be for the freedom and dignity of the individual, and our cause will surely be lost if we abandon these.

Recent analyses of investment by firms and industries indicate that our economy has been performing satisfactorily in these areas as well. Investment and resources are generally flowing into the more profitable uses, even though there are individual exceptions to this general tendency.

# RESOURCE ALLOCATION, ECONOMIC STABILIZATION, AND PUBLIC POLICY TOWARD PRICES

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## I. INTRODUCTION AND SUMMARY

In this paper I shall argue that public policy in the United States should try to maintain a stable price level and a high stable level of employment, and that employment is the more important of the two, but that apart from certain important qualifications public policy should pay no attention to the prices of particular goods and services, or to the quantities consumed by particular individuals. Thus the monetary and fiscal stabilization policies that I shall endorse are explicitly designed to minimize Government action directed at particular goods and services.

Other contributors to this compendium will surely pay competent attention to many technical aspects of prices. I have chosen to deal with the relationships between public policy toward prices and some relevant economic principles, in the belief that this will be helpful in arriving at useful public policies.

My argument has six main points, some of which are controversial. They may be summarized at the outset, in a somewhat oversimplified fashion, as follows:

(1) With certain important qualifications that I shall discuss, in a private-property free-contract economy public policy is not properly concerned with the relative prices at which particular goods and services are exchanged in the market, such as 1,000 haircuts for one stripped 1958 Plymouth; nor, therefore, is public policy properly concerned with the absolute prices of particular goods and services, such as \$1.75 for a haircut, or \$1,750 for a stripped 1958 Plymouth. This is because relative prices have a job to do in allocating resources, and, with the qualifications alluded to, this job is done in what economists call an optimal way if the relative prices are determined by free contract.

(2) Again with certain important qualifications that I shall discuss, in a private-property free-contract economy public policy is not properly concerned with the quantities of particular goods and services produced by the economy as a whole, or consumed by particular individuals. This is because, with the qualifications alluded to, freedom of contract leads to what economists call an optimal allocation of resources.

(3) There is an important area within which public policy is properly concerned with particular relative or absolute prices, and/or with the quantities of particular goods and services consumed by particular individuals. This area provides the qualifications referred to under points (1) and (2). These qualifications arise in part from the question of wealth distribution, a question not answered by the economists' definition of "optimal allocation of resources." In addi-

tion, most of these qualifications involve one or more of the following situations: An individual is not well informed about the alternatives facing him, or about the consequences of his actions; an individual is not the best judge of his own interests; an individual cannot sell or mortgage himself as he can other wealth; an individual's deed brings about gains or losses to himself that are greater or less than the gains or losses to society, so that an individual who pursues his own private gain is not advancing the interests of society as much as he might. Familiar examples of the last are theft, fraud, extortion, tax evasion, monopolization, etc.; others will be discussed below.

(4) Public policy in a private-property, free-contract economy is properly concerned with stabilizing the absolute price level, or simply the price level for short, that is, with stabilizing an appropriate average of the absolute prices of all goods and services. (We now have three price indexes for measuring the price level: the gross national product deflator published annually—not quarterly, alas—by the Commerce Department, and the Wholesale and Consumer Price Indexes published monthly by the Bureau of Labor Statistics.) The reason we ought to strive for a stable price level is not that a rising price level or a falling level is bad in itself—indeed, I shall argue that almost any kind of changes in the price level would be fine as long as everybody foresaw them accurately in advance; the reason is rather that the price level has a job to do that it can only do well if its future movements are accurately foreseen by everyone, and that stabilizing the absolute price level is the best way to permit everyone to foresee its future movements accurately.

(5) Public policy in a private-property free-contract economy is properly concerned with maintaining a high stable level of employment of resources, especially human resources. The reason for this is that full employment is better than unemployment, and that in the absence of public policy to the contrary we have experienced occasional periods of substantial unemployment.

(6) Although there appears to be some conflict between the objectives of a stable price level and a high stable level of employment, particularly in recent years, appropriate monetary and fiscal policy can come tolerably close to achieving both of these objectives at the same time. If it is necessary to choose, I would be inclined to accept some price level instability rather than very much unemployment, because while both bring about a redistribution of income and wealth among people, unemployment brings about a loss of income and wealth to the economy as a whole, in addition to a redistribution.

Sections II to VI below discuss some economic principles fundamental to these 6 points, and the remaining sections (VII to XII) discuss the 6 points in more detail.

## II. THE PROBLEM OF THE DISTRIBUTION OF WEALTH

Any economic society must decide, explicitly or implicitly (the latter is the more typical), what kind of distribution of income and wealth among its people there shall be. This is a highly controversial issue. Most people prefer receiving a larger to a smaller share of the total social income and wealth. In addition, many if not most people have ideas about what constitute fair principles for distributing income and wealth, and these ideas are not all consistent, to say the least.

Fundamental conflicts of interest arise here. Social and economic institutions and laws are involved in the resolution of this issue, not once for all, but again and again, year after year.

### III. PRIVATE PROPERTY AND FREE CONTRACT

A society based on private property and freedom of contract settles this issue by taking the initial distribution of property as given, and letting the subsequent distribution arise from free contracting, in a manner familiar to all. There are rules for deciding who owns each piece of property. Typically, each person initially owns himself (and within limits his immature children), and whatever property he has been given by his parents or others, by inheritance or otherwise. Each person has control over the use of his own property, except that we do not permit a person to sell or mortgage himself or his children. Property can change hands only by free contract agreed to by all parties to the contract (this usually involves exchange), or by free gift. A person's wealth increases rapidly if he receives large gifts, if he produces much, if others become willing to offer high prices for what he owns, and if he saves much. Because of freedom of contract, no person is forced to accept a material position that he thinks is inferior to the one that his original property will provide for him. If anyone can produce property that he regards as more valuable than the resources he consumes in the process, then he can gain from production. And if he can find other people who will give him in trade things that he regards as more valuable than the things he gives up in return, then he can gain from exchange.

Under certain conditions, this kind of an arrangement would lead to what economists call an optimal allocation of resources. The conditions, of course, are the source of the qualifications mentioned in connection with points (1) to (3) at the beginning of the paper. Let me now turn to the economists' definition of "optimal allocation of resources," then state the conditions, and then argue that if they are met, private property and freedom of contract do lead to the economists' optimal allocation of resources. This will occupy sections IV-VI:

### IV. DEFINITION OF AN OPTIMAL ALLOCATION OF RESOURCES

An optimal allocation of resources, in the technical language of the economist, means a situation in which no individual can be made better off without making some other or others worse off. It may help to give examples of situations that are not optimal allocations. For example, if I own a house and I want to sell it provided I can get at least \$25,000 for it, and if you want to buy it provided that you can get it for \$30,000 or less, then (if we are both well informed about the matter, and if the interests of third parties are not affected) the existing allocation of resources is not optimal, and it can be improved by a contract for the sale of the house from me to you at some price in the range of \$25,000 to \$30,000. Our respective gains from the improvement in allocation will depend on the price we agree upon: the higher the price, the larger will be my gain and the smaller will be yours.

Take another example that is more typical in that it involves production as well as exchange: Suppose that you are willing to buy a widget for \$120 or less, and that I can cause a widget to be produced

with resources that I can buy for \$90 or more from their owners (including myself). Then, again if all parties are well informed and the interests of persons not party to the action are not affected, the existing allocation of resources is not optimal; it can be improved by a contract for the sale of a widget from me to you for a price somewhere in the range from \$90 to \$120, and another contract for the sale of the required resources from their owners to me at a combined price somewhere in the same range, but at or below the price of the widget. Gains from the improvement in allocation will accrue to you, me, and the owners of the resources that are used to produce the widget, in a manner depending upon the prices agreed on for the widget and the resources. An optimal allocation is a situation in which no more contracts agreeable to all parties remain to be made.

Notice that I said "an optimal allocation," not "the optimal allocation." This is not an accident; it is important. There is an infinite number of optimal allocations, according to this definition. For example, suppose that the existing allocation is optimal; i. e., it is impossible to make anyone better off without making someone worse off. Then suppose that you give a thousand dollars to me. The new allocation is still optimal provided that my wants lead me to buy with my new wealth the same things that you decide to forego because of being poorer: the people whose wares you no longer buy now sell them to me instead, so that no one is affected but you and me, and it is again the case in the new situation as in the old that no one can be made better off without making someone else worse off.

If wealth is transferred from you to me, it is more typical if I do not choose to buy with my new wealth just the same things that you decide to give up, but I choose to buy at least some other things instead. This means that if the resource allocation existing just before the transfer was optimal, then the one existing just afterward is not, because resource owners and I can now make mutually agreeable contracts providing for the production of more of the things that I want and can now pay for, and less of the things that you want and can no longer pay for. But, if free contract is permitted, a new allocation of resources will arise that is optimal in the same sense as was the old: nobody can be made better off without making someone worse off.

The foregoing should make it clear that when an economist says that an allocation of resources is an optimal one, he is taking the currently existing distribution of wealth as given, and is saying that the economy is satisfying efficiently the wants that are regarded as most important by those people who happen to have the wealth. No judgment is made at all on the question of whether the currently existing distribution of wealth is too unequal, too equal, fair, proper, justified, or anything of the sort. Thus in saying that a particular allocation of resources is an optimal one, the economist completely sidesteps an important public policy question, namely, what should the current distribution of wealth be?

It is important to notice that if the current distribution of wealth is accepted, and if individuals are allowed to contract freely thereafter, then the distribution of wealth may and almost certainly will change, in favor of those who receive gifts, who produce much, whose property becomes highly valued by others, and who save much.

It may seem strange to use the term "optimal" in a way that does not raise the important policy question of wealth distribution. But

on reflection, I think it is not so strange after all. If economics is to be a science, then it must contain propositions that will be recognized as valid by scientifically trained people, regardless of the value judgments that they hold or the vested interests that they have. The statement that it is better for people to get more rather than less satisfaction from their wealth must be acceptable to nearly everybody, Socialist or private enterpriser, rich or poor, and hence it is useful to have a term that describes a situation where the best has been achieved in this respect. Optimal allocation of resources is that term, and its meaning is therefore perfectly clear.

The policy question of what kind of wealth distribution is proper is one concerning which economics as a science has no well-established answer. Indeed, in most respects it is not a scientific question at all, but a question of value judgments.

#### V. CONDITIONS FOR AN OPTIMAL ALLOCATION OF RESOURCES UNDER PRIVATE PROPERTY AND FREE CONTRACT

Now it is time to state the conditions under which private property and free contract will lead to an optimal allocation of resources, thus defined. The following discussion draws heavily on Prof. Frank H. Knight's account of the assumptions necessary of the existence of perfect competition, set forth on pages 76-80 of his book, *Risk, Uncertainty, and Profit*, first published in 1921 as one of the Hart, Schaffner & Marx prize essays in economics. For completeness, I shall first repeat that an optimal allocation of resources is a situation in which nobody can be made better off without making someone else worse off.

The required conditions are as follows (all are clearly unrealistic in some way) :

(a) *Motivation*.—Each individual seeks intelligently to satisfy his wants as completely as he can with the means he has. In particular, he will always buy from the lowest priced seller he knows of, and will always sell to the highest priced buyer he knows of.

(b) *Information*.—Each individual knows what his present and future wants are and how important they are to him; he also knows what present and future actions are open to him, and what the consequences of his actions will be. In particular, he knows everyone else's present and future bid and asked prices for all wealth, he knows what and how much he can produce now and in the future with any given combination of resources, and he knows to what extent his present and future wants will be satisfied by each kind of wealth.

(c) *Mobility*.—Resources are perfectly mobile, that is, it takes no time and costs nothing to convert from one kind of productive activity to another, or to exchange goods in the market.

(d) *Competition*.—Every individual is such a small buyer and seller of the things he deals in, relative to the total transactions of the market, that his decisions to bid or ask or buy or sell have no perceptible effect on the prices bid or asked by others.

(e) *Third parties*.—Every individual deed affects only the doer, and every contract affects only the parties to the contract. In particular, this excludes contracts by which third parties are injured, and also contracts by which third parties are benefited.

(f) The institution of private property and free contract as we know it is modified to permit individuals to sell or mortgage their persons in return for present and/or future benefits.

These conditions have been deliberately designed so that if they were fulfilled, then each individual would seek and find others with whom he can make mutually advantageous contracts, and such contracts, and such contracts would be made, until no more remain to be made. When that state of affairs occurs, an optimal allocation of resources has been achieved.

#### VI. THE ROLE OF RELATIVE PRICES IN RESOURCE ALLOCATION

It is now easy to explain the role of relative prices in the process of resource allocation. First, note that if everyone seeks the best price he can get, and no one can control prices, and everyone knows what prices are being quoted, then it will turn out that for each good or service there is a single market price: No one will pay more and no one will accept less. Market prices may change in response to changes in resource availability, technology, tastes, or wealth distribution, but they are not perceptibly influenced by any individual's action.

Market prices, and in particular relative prices, have several jobs to do in allocating resources; these jobs can conveniently be grouped into three related but more or less distinct main groups. The first is to decide how much of each product is to be made, and for whom. The second is to decide what combination of resources is to be used in making each product. And the third is to decide how much of current output shall be consumed and how much shall be saved and invested for increasing future output.

Relative prices perform these jobs in several ways. They carry information throughout the economy concerning products that are being made in larger or smaller than optimal amounts, and concerning products that are not being produced with the optimal combination of resources. They provide the incentive for people to shift toward an optimum. And they distribute the product among resource owners, since each resource owner is paid the market price for his resources, thus receiving an income that he can use in the way most satisfying to him.

The price of a product, relative to the combined price of the resources used to produce it, tells whether the right amount of that product is being produced or not. If the relative price of a product is high, so that the rate of return to capital in that industry is higher than elsewhere in the economy, then too little of this product is being produced, because buyers can induce resource owners to shift resources from elsewhere to make more of it, at prices that will satisfy both the buyers of the extra product and the owners of the transferred resources. (Recall the example of the widgets in sec. IV.) And the fact that the rate of return in that industry is higher than elsewhere in the economy provides the incentive for more resources to come into it. Similarly, if the price of a product is low relative to its cost, that is a sign that too much of it is being produced, and provides the incentive for resources to leave that industry.

If the price of a resource is low, relative to the value of the output it can produce in a certain firm, that is a sign that too little of the resource is being used in that firm, and the firm will induce owners of

the resource to shift some of it from elsewhere in the economy to that firm, at a price that will satisfy both the firm and the owners of the resource. Similarly, if the price of a resource is high relative to the value of the output it can produce in a firm, then the firm is using too much of the resource, and the firm is led to cut down on the use of it.

Thus, in the end, producers are induced to make for each buyer the things he values most highly. Resource owners are induced to apply their resources where they can produce things that are most highly valued by buyers. And each producer is induced to make his product with the combination of resources that costs least; i. e., that is the least useful to other producers.

Interest rates form the relative prices of future versus present goods and services (if the absolute price level is stable—of that more later). Through interest rates, consumers decide how much to consume and how much to save, and entrepreneurs are induced to invest in activities whose products will be most highly valued relative to their cost; i. e., relative to the things that must be foregone to obtain them.

It is important to remember that relative prices established under free contract will not lead to these optimal results unless resource owners are permitted to receive the market price for each unit of resources they own, for otherwise the incentive to allocate optimally is affected. This means that large incomes will be received by those who own large amounts of valuable resources. Policy directed toward the distribution of the ownership of resources will be considered in section VIII.

One of the most important advantages of free contract, barely mentioned so far in this paper, is that it provides automatic adjustments to changes in tastes and technology. Resources shift out of industries whose products have become less desirable or more expensive to produce, and into industries whose products have become more desirable or cheaper to produce. Equally important, producers who feel that they have ideas for useful new products or better techniques are free to try them out, and if buyers find they are worthwhile, they will be adopted.

#### VII. PREVIEW OF THE REST OF THE PAPER

If the foregoing two sections were a perfectly accurate picture of the real world, there would be no need for public policy at all, except to maintain the institution of private property and free contract, and possibly to modify the initial distribution of wealth (of which more in the next section). Though the real world is not just like the picture drawn, there is a significant resemblance.

In the remainder of this paper, I shall argue first that there are important areas within which government is justified in modifying the results that would follow from free contract alone (this is the third of the six points that I stated at the beginning). Then I shall argue that after that is taken account of, there remains a significant field within which public policy should not be concerned with prices of particular goods and services, or the quantities consumed by particular individuals (these are the first 2 of the 6 points). Then I shall argue that public policy should be concerned with stabilizing the price level and with maintaining a high stable level of employment, that both objectives can be tolerably well attained, and that if it is necessary to yield a little on one of them, it is better to yield on the stable price level (these are the last 3 of the 6 points).

## VIII. PUBLIC POLICY TOWARD THE DISTRIBUTION OF WEALTH

Let me distinguish two kinds of justifications for public policy to affect the prices of particular goods and services, and/or the quantities consumed by particular individuals. One kind deals with policy to affect the distribution of wealth, which, as pointed out earlier, is a subject not dealt with in the analysis of an optimal allocation of resources. The second kind deals with policies designed to correct misallocations of resources that arise, under free contract, from the fact that not all of the conditions (a) to (f) in section V above are satisfied in the real world. This section is devoted to the first kind, regarding the distribution of wealth, on the assumption that conditions (a) to (f) are met. The next section is devoted to the second kind.

The definition of an optimal allocation of resources that I adopt provides no ground at all for deciding that one initial distribution of wealth is better than another. If a choice among wealth distributions is to be made, it must be made in some other way. Most people, including me, feel that the wealth distribution is a matter of public concern, at least within limits, and that it is proper for government to move toward a greater degree of equality than would result from the institutions of private property, free contract, and unrestricted inheritance (though there is wide disagreement about how far to move). This feeling is based partly on a belief in equality of opportunity (this applies particularly to restrictions on inheritance), and partly on the belief that it is fair and right to compel the fortunate to help the unfortunate.

There are many different policies that can redistribute wealth. It is clear that the best ones are those that do not misallocate resources at the same time. After all, the object of wealth redistribution is to make someone poor better off than before at the expense of someone rich; not to make everyone worse off. This is one of the most important things economists have to say to policymakers.

Consider taxes on income, wealth, gifts including inheritance, and consumption—either total consumption, or the consumption of specific luxury commodities. It is clear that a tax on income can be avoided to some extent by not earning as much income as without the tax; taxes on wealth and inheritance can be avoided in part by accumulating less wealth; and taxes on consumption can be avoided to some extent by saving or by shifting to the consumption of untaxed commodities. Any of these taxes has some misallocative effects, as economic analysis can show; the only tax that does not is one that cannot be avoided in any way. The only one I can think of is a sudden expropriation and redistribution of wealth that people were completely unprepared for, and that they firmly believe will never happen again. Of course, once a government levies any tax, it creates expectations that it may do so again, so even this will not work perfectly except the first time. The taxes that have the least misallocative effects are those that have the least effect on relative prices, namely taxes on inheritance, total consumption, or income. (The bad effects of income taxes can be reduced by allowing taxpayers to average their incomes for tax purposes over their lifetimes, as suggested by Prof. William Vickrey in his book, *Agenda for Progressive Taxation*, published in

1947.) Worst are taxes on the consumption of particular goods and services only.

Subsidies are just like taxes, except that they encourage rather than discourage the activity singled out. Direct cash payments to people with low incomes or wealth are accordingly better than subsidies for the consumption of particular goods and services. (I am still assuming that people are well informed about how to serve their own interests.)

A particularly good way to transfer wealth to a person may be to subsidize his education, on the grounds that wealth redistributed in this way is likely to stay redistributed. (Here I am assuming that, at least before he was educated, he was poorly informed about how to serve his own true interests—but this anticipates the next section.)

#### IX. PUBLIC POLICY TO CORRECT RESOURCE MISALLOCATION UNDER FREE CONTRACT

I now turn to policies designed to correct resource misallocations that arise, under free contract, from the fact that in the real world the conditions under which free contract leads to optimum resource allocation do not always hold.

A familiar case is that of monopoly, which is distinguished by the seller's ability to affect the price of his product significantly by selling more or less of it. A monopolist, if he exploits his position, turns out less product than would a competitive industry in his place, and charges a higher price, in order to make more profit than would a competitive industry. In effect, he prevents some resources from being used to make his product, even though there are would-be buyers who are willing to pay more for the product than the resource owners could get for the necessary resources if they sold them elsewhere. Economic analysis can demonstrate that the gains that the resource owners and would-be buyers would get, if they were allowed to exchange, are great enough to pay the monopolist's profit and still leave something over. Hence the monopolist creates a misallocation of resources, because he creates a situation in which someone could be made better off without making anyone worse off. Public policy to prevent monopoly is accordingly proper.

A second example is that of protection against common disasters, e. g., activities such as national defense, fire and police protection, and sanitation. Here the distinguishing characteristic is that if one individual contracts for protection for himself, he thereby protects his neighbors at least to some extent, whether they agree to help pay for the protection or not: He cannot have the fire in his own house put out without reducing the risk that his neighbor's will catch fire, he cannot protect himself from attack without reducing the likelihood that his neighbor will be attacked, and he cannot practice sanitation without reducing the chance that his neighbors will become infected.

If everyone else is going to pay for protection, it may be in the private interest of a single individual not to do so, because he gets substantial protection anyway from the fact that others are providing it for themselves. This is not fair. More important, since many people pursue their interests in this way, the cost of protection for the remaining ones may be so great that they do not think it is worth

while. For this reason, some private multiparty contracts that would benefit all parties never get made. Therefore, provided it can be shown that a community enterprise financed by appropriately apportioned taxes or assessments could convey to each person benefits that he values more highly than he values his share of the cost, public policy for this purpose improves the allocation of resources and is proper. Indeed, in such a case, the public policy is merely an effective substitute for the private contract that does not get made. However, the proviso is crucial: If it is not possible to apportion the costs of the enterprise in such a way that everyone will value his benefits more highly than his share of the costs, then the enterprise represents a misallocation of resources, and public policy to create it must be justified, if at all, on some other ground.

Suppose it has been decided that the costs of a proposed public enterprise can be apportioned in such a way that every individual will experience a net gain. This of course may include situations where some people lose by the enterprise itself, but can be compensated by the gainers so that everyone can still be better off on balance. Then the question arises: Should the costs be so apportioned? Or should they instead be apportioned equally or in some other simple way, with a resulting transfer of wealth to the large gainers from the small gainers and/or losers? I would argue that if a large extra cost were required in order to make each individual's net gain positive, and if the net losses of the losers under a simpler cost allocation scheme were small, then the simpler allocation method ought to be used, and the small wealth transfer ought to be tolerated. On the other hand, if the wealth transfers would look large to the losers, I would argue that compensation ought to be paid. Any substantial wealth transfers that are made as a result of public policy ought to be a part of the explicit wealth-redistribution policy, and be debated and judged as such.

When a government decides to collect taxes or assessments for some activity, the question still remains as to whether the activity should be carried out by the government directly, or whether it should be performed by some private agency or agencies under contract with the government. This is not as important a question of principle as the question of whether to plan and finance the activity publicly; it should be decided essentially on grounds of efficiency.

A third case is that of resources whose competitive exploitation would result in a waste of the resources. For example, when many people own land lying above an oil deposit, it is in the private interest of each person to drill and pump oil as fast as possible, before his neighbors have time to get a very big share. But when everyone does this, total costs will be greater and less of the oil in the deposit will be recovered than if just a few wells were drilled in the right places. Everyone could be better off under a unified drilling and pumping operation, and there is a clear case for community action requiring this. Fishing is another industry where this problem can arise.

There are many public policies whose justification rests on the premise that people are not well informed, either about their own true interests, or about the alternatives open to them, or about the consequences of their actions, or about all of these. Rules requiring the disclosure of information about the contents of food and drugs, and

about the nature of corporations whose stock is offered for sale, are of this kind. So also are certain health, safety, and building regulations.

A more basic policy that is justified this way in part is the prohibition against a person's selling or mortgaging himself: Freedom is a paramount value, and whenever a person feels that he wants to sell himself for something else offered in return, he should be protected against his own poor judgment. I feel that there is another quite different justification for this policy, namely that human beings are simply not like other property, that they have a dignity that demands they not be treated so, even though it is true that human beings are an important form of wealth, constituting a large share of total wealth.

The policy of compulsory education and tax-supported schools rests on several of the justifications suggested above. The compulsory aspect is based in part on the presumption that parents who would not provide for the education of their children are not sufficiently aware that education is a powerful force for the welfare of those who have it, both increasing their knowledge of what opportunities exist, and widening the range of opportunities open to them in particular. Both compulsory education and tax-supported schools are based in part on the disparity between private and total net benefits. If I provide for the education of my children, you are made better off than if I do not, whether you have children or not. The benefit to my family alone, from the education of my children, may not be great enough in my estimation to cover the cost, but the combined benefit to my family and others is great enough so that if a suitable apportionment of cost is made among us all, we can all get a net gain from the education of my children. And similarly with other children.

The tax support of schools makes sense for another reason. It is clear that investment in education has a high payoff from a social point of view, especially if particularly promising students are permitted to continue beyond the minimum prescribed level of education. Some of these promising students come from families that do not have the resources to send them to school. The capital market is not organized in such a way that loans for the purpose of education are easy to get, partly because people are not permitted to mortgage themselves: a promising but impecunious student has nothing besides himself that he could mortgage. Hence tax support for schools is a way of making investments in education that, productive as they are, might not be made otherwise.

#### X. THE PROPER PROVINCE OF FREE CONTRACT

After taking notice, in the preceding section, of the area within which government can properly modify the results that would come from free contract alone, I now turn to argue that there remains a significant field within which the allocation of resources under free contract is better than if public policy concerns itself with the prices of particular commodities or the quantities consumed by particular persons (these are the first 2 of the 6 points stated at the beginning).

Clearly there is a significant field where individuals do know what they want better than the government does, and seek it fairly intelligently; where they are reasonably well informed about their oppor-

tunities; where resources are reasonably mobile between different uses; where substantial competition prevails; and where effects of private contracts on third parties are unimportant by comparison with what it would cost to administer compensating payments. This field includes a large part of the consumer goods area of the economy, and of the area where techniques and capital goods and other resources are marshaled for the production of desired goods and services. The mechanism by which relative prices established under free contract allocate resources is described briefly in section VI above; that section is an important part of the argument here.

The economic history of the last hundred or 200 years supports this argument in two ways. For one thing, it is possible to point to many public policies that have sought, with public-spirited motives but with unfortunate results, to do a better job of allocating resources than free contract would do. When the FCC allocates valuable property in the form of television channels to private citizens, it would be better to auction them off, and thus allocate them to people who have the highest opinion of their value, and at the same time to collect some revenue so that taxes could be lower, rather than giving them away free on the say-so of officials—a procedure that provides strong temptation to dishonesty. If regulation is needed to prevent railroads from exercising monopoly power, it should be administered in such a way that a railroad can abandon a service that uses resources more valuable than the service itself. Since the community wants to assist low-income families who are in agriculture, it should do so in a way that does not promote the production of additional farm products at costs greater than consumers are willing to pay. There are many other examples.

The second way in which economic history supports free contract in a wide field is in terms of the results of relying on it. I know of no social and economic arrangement in the history of the world that has succeeded in increasing the standard of living of the average man as rapidly as has the system of private property and free contract that has prevailed in the Western World. Other systems have demonstrated the capacity to challenge it in the rate of growth of total output, but not in the rate of growth of the output and distribution of the things that consumers want.

#### XI. GOALS OF STABILIZATION POLICY

I now turn to my last three points, concerning stabilization policy. I take it for granted that the maintenance of a high stable level of employment is highly desirable, and that if we can attain it without giving up other valuable things, we certainly should do so. I shall argue that a stable price level is also desirable, not for itself, but because it is desirable that changes in the price level be accurately foreseen.

Consider first the relationship between flexible prices and unemployment. Suppose that the price level were perfectly flexible both upward and downward, so that whenever more goods and services were demanded with money than supplied in the economy as a whole, the price level would rise immediately to remove the discrepancy, and so that whenever less goods and services were demanded with money than supplied in the economy as a whole, the price level would fall

immediately to remove the discrepancy; then there would be no unemployment problem. (There would of course be some normal minimum amount of unemployment, perhaps 3 or 4 percent of the labor force, associated with the transfer of workers from one job to another, but this is no cause for concern.) Therefore from the point of view of minimizing unemployment alone, perfect downward flexibility of the absolute price level appears desirable. We do not have it, we never have had it, and as far as I can see we never will have it, although we seem to have a fair degree of upward price flexibility, as evidenced by the fact that general shortages of goods and services are rare and brief except when they are created by the imposition of price ceilings or quotas.

If the price level is to be quite flexible upward but not very flexible downward, as appears to be the case, then, in the absence of public policy to the contrary, it is likely that in periods of strong demand the price level will rise, and in periods of weak demand there will be more than normal unemployment while the price level falls only slowly, as has occurred more or less regularly in the past.

Even if we could have a perfectly flexible price level, I believe we would not want to rely on it, because in practice rapid changes in the price level are bad. Why are they bad? Only because they cannot be accurately foreseen by everyone. When people make contracts whose performance will stretch out over time, such as loans, rentals, insurance, annuities, pensions, etc., or even when they simply hold cash, they cannot do so wisely unless they know what the price level will be at relevant points of time in the future as compared with its present level. For example, suppose I lend you \$100 today, to be repaid after a year, and suppose we want to agree on terms that will make it possible to buy 1.05 times as much a year from now, with the principal and interest that you are going to pay me then, as can be bought now with the \$100 I am about to lend you. If we know that the price level will not change during the year, we will agree that you are to repay me \$105, which is \$100 with 5 percent interest. If we know that the price level is going to double during the year, we will agree that you are to repay me \$210, which is \$100 with 110 percent interest. If we know that the price level will fall to half its current value during the year, we will agree that you are to repay me \$52.50, which is \$100 with minus 47½ percent interest. As long as the future behavior of the price level is known, it does not matter much what it is going to be; we can adjust our loan contract to allow for it. But if we don't know what will happen to the price level, then a contract for the repayment of \$100 at an interest rate of, say, 5 percent is of unknown worth in terms of real purchasing power \* \* \* it will be worth more if the price level falls than if it rises. An escalator clause could be written into the contract, as is done with some wage contracts, but this device is cumbersome, and it could not very well be used to protect the holder of cash from fluctuations in its real value.

The same principle applies to any other contract stretching over time: if the future course of the price level is known, then the contract can be written to take account of these changes, and thus to provide for the payment of the amount of real purchasing power that the parties to the contract want to agree upon.

If the real value of future payments to be made under such contracts is uncertain, because future price levels are uncertain, then the use of such contracts will be discouraged, with a consequent misallocation of resources. Also, if the price level rises unexpectedly, there will be an unexpected transfer of wealth from lenders to borrowers, which is unfair, and vice versa if the price level falls unexpectedly, which is also unfair.

The argument for a stable price level, then, is essentially an argument against imperfectly foreseen changes in the price level. It is much easier to persuade people that the price level will be stable in the future than to persuade them that it will rise or fall at some definite rate, or that it will follow some prescribed path. An additional advantage of a stable price level over a varying one, assuming that foresight is equally good in both cases, is that with a stable level it is not necessary to do quite so much computing in order to write out a contract that does what one wants in real purchasing power terms. Further, there is a large volume of outstanding contracts for insurance, loans, etc., that were presumably made on the expectation that the price level would stay approximately constant, and there is no equitable reason to transfer wealth from the lenders to the borrowers under these contracts, or vice versa, by changing the price level now.

In view of the foregoing argument, I believe it is preferable to maintain an approximately stable price level rather than having a flexible one, and to rely on monetary and fiscal policy to prevent rises in the price level during periods when demand is strong and to prevent unemployment and declines in the price level in periods when demand is weak.

#### XII. STABILIZATION POLICY IN PRACTICE

A rising price level together with full employment is due to the fact that more goods and services are demanded with money than are supplied by resource owners at the existing price level. Unemployment is due to the fact that fewer goods and services are demanded for money than are supplied by resource owners at the existing price level. The cure for the former is to diminish the demand for goods and services, and the cure for the latter is to increase it. The Federal Government has several tools in its policy arsenal that can do this without price controls or other serious interferences with resource allocation as established by free contract. These include the following (I describe them in terms of what one wants to do in a case of unemployment; in a case of inflation the reverse of each would apply) :

(i) Increase the quantity of money (deposits and currency) in the hands of the public without doing anything else—this is perhaps done most simply by a Government deficit produced by either a cut in taxes or an increase in transfer payments to the public (particularly the unemployed).

(ii) Reduce interest rates and increase the quantity of money in the hands of the public through open market purchases of outstanding Government securities by the central bank. (A reduction in reserve requirements for commercial banks makes possible an essentially similar operation in which banks buy the public's promissory notes.)

(iii) Increase Government purchases of goods and services by means of deficit financing, thus creating a direct demand for production and increasing the quantity of money in the hands of the public.

Of these three, the first already occurs to a considerable extent automatically, due to the operation of various built-in stabilizers such as progressive income taxes and unemployment benefits. All three can be applied in a deliberate discretionary fashion, however. I believe that if they are pursued vigorously, as soon as substantial unemployment becomes evident, they can cure any depression promptly; and of course if they are pursued too vigorously and too long, they can turn any depression into an inflation. Similarly, I believe that, if they are pursued vigorously in reverse, they can stop inflation promptly; and if overdone can turn any inflation into a depression.

I do not believe that the great depression of the 1930's affords a fair test of the effectiveness of countercyclical monetary and fiscal policy, because either wrong or too weak policies were followed in the first 4 years of the decline. For one thing, the quantity of money in the hands of the public was permitted to undergo an almost steady decline of about 25 percent from the fall of 1929 to the middle of 1933; it should have been kept fairly stable instead. Also, shortly after industrial production had begun to rise in the early spring of 1931, and then had turned down again the summer, the Federal Reserve raised its discount rate from  $1\frac{1}{2}$  to  $3\frac{1}{2}$  percent, and then maintained it at or above  $2\frac{1}{2}$  percent for the next 2 years, when it should have been kept low. Thus it was only after the depression had become very deep, and private spending had fallen drastically, that public policy began to come strongly to the rescue. This may explain why it was not very effective when it did come.

The declines in 1948-49 and 1953-54 were much milder, especially the second one. I believe that this was partly because in both of them public countercyclical policy was more appropriate. In the 1948-49 decline, taxes were cut in the latter half of 1948, and the Federal Reserve at least did not raise the discount rate after the decline began (though it did not lower it). In the 1953-54 decline, taxes were cut early in 1954, and the Federal Reserve lowered the discount rate quite promptly and kept it low until the spring of 1955.

If I may be permitted to express the opinion, it seems to me that early in February of 1958, when the January unemployment figure of 4.5 million came out and showed an increase of 1.1 million from December, about twice as large as the expected seasonal increase at that time of year, it was then time for a tax cut.

There is one cloud on the horizon of the picture I have painted of the effectiveness of stabilization policy, and that is this question: If unemployment is to be kept fairly stable at a level as low as 4 percent of the labor force (which is approximately the postwar average), can the price level be kept from rising? Or put another way, if the price level is to be kept stable, can unemployment be kept as low as about 4 percent of the labor force?

If one compares the histories of recent depressions, one finds it hard to give a clear "yes" answer to this question. In depressions between the two World Wars, prices apparently fell more readily than since the second war. And if one compares the three postwar recessions, which (at this writing) are about equally severe, the current one being a

bit deeper than the others, one finds the following declines of the Wholesale Price Index, the Consumer Price Index, and average hourly earnings in manufacturing, each measured from its own peak month to its own trough month:

	1948-49	1953-54	1957 (latest)
	<i>Percent</i>	<i>Percent</i>	
Wholesale Price Index.....	-11	-1	Still rising (February).
Consumer Price Index.....	-4	-1	Do.
Average hourly earnings in manufacturing.....	-1	-1	-½ percent (February).

This suggests that prices are becoming less and less flexible downward. If so, and if prices rise at all in the prosperous periods that intervene between recessions, then we are in for a gradually rising price level on a sort of ratchet principle: little or no change during recessions, and increases in between. If this is really the case, I believe it is tolerable if the price level does not rise more than, say, 20 percent in a generation. I would prefer to accept an average price increase of 1 percent a year, rather than having to accept an average level of unemployment of 5 percent instead of 4 percent, if the choice came down to that, because the price rise is largely redistributive, whereas the extra unemployment represents foregone production of goods and services.

# INFLATION, THE WAGE-PRICE SPIRAL AND ECONOMIC GROWTH

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The relation between economic growth and inflation is not a simple one. Investment adds to effective demand, helping to drive up prices; it also adds to the capacity of the economy, making possible an increased supply of goods in the future. Inflation increases the opportunities for profit, but may discourage saving and distort the directions of investment. This paper examines this relationship, primarily emphasizing postwar experience in the United States. Most of our attention will be devoted to the effect of investments and growth on inflation, a relationship which has been discussed less fully than the reverse.<sup>1</sup> Much of our analysis will run in terms of the movements of the wage-price spiral.

## I. LONG-RUN TRENDS OF OUTPUT AND PRICES IN ADVANCED ECONOMIES

The ambiguity of the relationship is brought out most clearly by the long-run experience of many countries. Table I, which draws on the long-run growth data assembled by S. Kuznets, gives the rates of growth of output per decade for 8 countries, and the rates of price change that accompanied the growth. It can be seen that periods of rapid growth occurred with and without inflation, and that periods of stagnation also saw a very wide range of price changes. Thus, as a long-run phenomenon, there is no historical association between growth and inflation.<sup>2</sup>

<sup>1</sup> But see A. Smithies, *The Control of Inflation*, Review of Economics and Statistics, August 1957, pp. 272-281, and S. Slichter, *Thinking Ahead: On the Side of Inflation*, Harvard Business Review, September-October 1957, p. 15.

<sup>2</sup> For the United States, the correlation coefficients for the two series of decade-by-decade changes of prices and output are 0.08 and -0.05. For most of the other countries, the correlations are dominated by extreme values of inflation associated with little growth.

TABLE 1.—Rates of growth of output per decade and rates of change of prices per decade in some advanced countries

Decades	From preceding decade		Decades	From preceding decade	
	Output growth	Percent price change		Output growth	Percent price change
<b>UNITED STATES</b>			<b>UNITED STATES</b>		
1869-78			1874-83		
1879-88	88.0	-19.5	1884-93	54.8	-16.0
1889-98	38.2	-12.9	1894-1903	45.2	-7.1
1899-1908	56.4	+9.3	1904-13	50.6	+20.7
1909-18	35.5	+34.6	1914-23	29.0	+64.0
1919-28	39.2	+46.3	1924-33	29.1	0
1929-38	6.2	-18.0	1934-43	26.0	-7.1
1939-48	71.7	+34.2	1944-53	52.0	+84.8
1950-54 <sup>1</sup>	29.0	+34.5			
<b>UNITED KINGDOM</b>			<b>ITALY</b>		
1865-74			1864-73		
1875-84	21.1		1874-83	4.2	+13.1
1885-94	37.6	-15.0	1884-93	19.4	-8.7
1895-1904	29.2	-0.9	1894-1903	11.8	-2.6
1905-14	16.5	+9.6	1904-13	30.7	+11.4
1915-24	-0.8	+106.0	1914-23	9.3	+260.0
1925-34	21.1	-16.6	1924-33	40.6	+35.0
1935-44	30.2	+17.1	1934-43	8.8	+18.5
1949-53	22.7	+51.3	1950-54	23.9	+4442.4
<b>JAPAN</b>			<b>SWEDEN</b>		
1883-92			1864-73		
1892-1902	64.8	+35.4	1874-83	30.6	+7.5
1903-12	34.7	+38.2	1884-93	21.7	-12.0
1913-22	45.3	+86.5	1894-1903	40.5	+2.7
1923-32	67.4	-7.1	1904-13	40.3	+13.9
1933-42	52.1	+28.6	1914-23	25.1	+99.2
1950-54 <sup>1</sup>	10.6	+18856.3	1924-33	23.2	-11.3
			1934-43	36.3	+13.0
			1950-54 <sup>1</sup>	60.1	+62.4
<b>NORWAY</b>			<b>DENMARK</b>		
1900-1908			1874-83		
1909-18	33.0	+71.9	1884-93	24.3	-6.2
1919-28	29.1	+60.8	1894-1903	38.4	0
1929-39	38.1	-37.5	1904-13	41.9	+3.5
1950-54	33.5	+174.6	1914-23	35.8	+126.5
			1924-33	36.7	-26.7
			1934-43	16.1	+25.6
			1950-54	28.5	+119.3
<b>NETHERLANDS</b>					
1904-13					
1914-23	25.1	+58.3			
1924-33	40.1	-12.7			
1934-43	.2	-7.1			
1950-54 <sup>1</sup>	33.7	+145.4			

<sup>1</sup> Last figure for all countries is not a decade-by-decade comparison.

Source: S. Kuznets, *Quantitative Aspects of the Economic Growth of Nations, Economic Development and Cultural Change*, vol. V, No. 1.

The explanation of these figures is quite simple. First in the late decades of the 19th century, which saw some of the most rapid growth of western countries, prices were generally falling. Second, the most drastic inflations were related to major political events—wars, revolutions, civil strife, and so forth—which led governments to depreciate the currency through resort to the printing press, and of course also interfered with the growth process. The severe inflations that followed the two World Wars also had chaotic effects which reduced growth.

The first generalization that must be drawn about inflation is this: historically, inflation has primarily been a political rather than an economic phenomenon.

## II. PRICE AND WAGE CHANGES OVER THE BUSINESS CYCLE

Turning to the briefer interval of the business cycle, the relation between investment and price changes becomes clear cut. In the upswing, investment is high and prices increase; in the downswing, investment is low and prices fall.<sup>3</sup> But the degree to which prices fall appears to be diminishing in the American economy. Yet it would be an overstatement to argue that prices do not fall at all in business contractions.<sup>4</sup> Table 2 summarizes the price declines in recessions since 1920. It will be seen that wholesale prices were more flexible than retail prices; it is the former which is the better indicator of price movements, since consumer prices move sluggishly and with considerable time lag after the economic events. It should also be noted that the postwar recessions were very small, and that one episode in the 1920's of comparable magnitude also saw very small price changes.

The causes for this change in price behavior are well known. They are the wider prevalence of administered prices, the preference of American business for cutting output rather than price, the downward rigidity of wages enforced by unions and the prompt fiscal and monetary actions by government which are designed to minimize downward disturbances.

The extent to which wages have become rigid on the down side can be seen from the behavior of straight-time hourly earnings in various industries in the recessions of 1937, of 1949 and 1954.

TABLE 2.—Output and price changes during business declines, 1920–58<sup>1</sup>

Date of decline	Percent change in FRB index of production	Percent change wholesale prices	Percent change CPI
1920-21.....	-30.2	-44.1	-19.9
1923-24.....	-20.0	-8.8	-4.4
1929-32.....	-55.6	-35.1	-25.6
1937-38.....	-33.3	-12.4	-4.2
1948-49.....	-18.3	-8.0	-4.4
1953-54.....	-15.9	-1.4	-1.0
1957-February 1958.....	-12.2	+ .4	+1.2

<sup>1</sup> BLS. Figures show the change from the peak month to the trough.

TABLE 3.—Change in hourly earnings in manufacturing during three recessions

	1937-38	1948-49	1953-54
Percent decline of employment all manufacturing.....	-25.9	-5.3	-10.8
Percent change of wages in all manufacturing.....	-5.7	-0.1	+1.1
Durables.....	-4.2	-0.1	+1.6
Nondurables.....	-3.0	-0.1	+1.9
Percent of industries in which annual average wages fell <sup>1</sup> .....	( <sup>1</sup> )	2.2	4.9
Percent of industries in which average monthly wages fell, peak to trough of wages <sup>2</sup> .....	56.8	33.5	9.5

<sup>1</sup> Not available.

<sup>2</sup> Based on an industry breakdown of 118 industries in 1937, 223 in 1948, and 265 in 1949. BLS data published in the Monthly Labor Review (and in Employment and Wages for 1937-8) were used. This includes industries outside of manufacturing.

<sup>3</sup> Though in the 1920's these price changes were very small.

<sup>4</sup> For a fuller discussion of this phenomenon see A. F. Burns, *Prosperity Without Inflation*, Fordham University Press, New York, 1957.

Line 1 shows the extent of decline of manufacturing employment. Lines 2, 3, and 4 show the movements of average earning each month per hour in manufacturing, from their peaks to their troughs, showing that the declines have diminished—actually increasing in the recession of 1953–54. Line 5 shows the percent of industries in which annual average earnings declined, a very small number in the postwar period, and concentrated in the competitive industries like textiles, logging, and jewelry. Finally, line 6 shows the percent of industries in which average hourly earnings fell from the peak month to the trough month, a much larger number due to the short duration of the postwar recessions, with the declines scattered among industries in almost all sectors of the economy, including durables industries. This last measure indicates the diffusion of short-run wage declines, and it can be seen that while the 1948–49 recession saw many industries affected, the 1953–54 recession was much less diffused, even though the decline in employment was greater. This need not necessarily reflect a structural change in the economy, since average wages in the latter recession increased.

### III. THE WAGE-PRICE SPIRAL IN THE POSTWAR PERIOD

Much of the concern about the price trends in our economy has been prompted by the wage-price spiral, in which wages are pushed upward regardless of circumstance, productivity does not keep pace with wages, and business is content to pass the resultant wage costs on in higher prices, perhaps adding a little markup of its own. This phenomenon is widely blamed on the structure of our labor and product markets, and it is felt that the only policies which would succeed in stopping this process would be those which would directly address themselves to the market structure, rather than to the overall levels of effective demand.<sup>5</sup>

In this section, we shall consider postwar wage and price behavior. While we find that there clearly is a wage-price spiral, it does not operate quite as simply as the picture drawn above, nor is it as immune to policies other than antitrust policies.

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<sup>5</sup> See J. K. Galbraith, *Market Structure and Stabilization Policy*, *Review of Economics and Statistics*, May 1957, pp. 124–133.

TABLE 4.—Rate of increase of straight-time hourly earnings and change in employment in durable and nondurable manufacturing, 1947-57

Year	Durable		Nondurable	
	Percent wage increase <sup>1</sup>	Percent employment change <sup>2</sup>	Percent wage increase <sup>1</sup>	Percent employment change <sup>1</sup>
1947.....	10.5	8.2	11.2	2.3
1948.....	9.2	-7	11.4	1.4
1949.....	1.2	-10.2	1.0	-4.1
1950.....	7.7	7.3	7.5	2.9
1951.....	6.4	11.5	5.4	1.9
1952.....	6.4	4.6	2.9	-2
1953.....	5.1	8.4	5.3	.2
1954.....	2.2	-10.6	1.9	-3.6
1955.....	4.8	4.7	3.7	2.1
1956.....	6.1	2.9	7.1	.9
1957.....	3.8	.1	2.8	-1.2
1947-57.....	84	27	78	4

<sup>1</sup> Increase in hourly earnings excluding overtime, monthly average for December.

<sup>2</sup> Change in annual average employment.

Source: BLS Monthly Labor Review.

The spiral is usually assumed to occur in its purest form in oligopolistic industries, many of which are clustered in the durable sector of manufacturing. Table 4 shows the rate of wage increases in durable and nondurable industries, as well as the rates of change of employment. Wages rose throughout the period, though at widely fluctuating rates. Employment in durables rose by 27 percent since 1949, while in nondurables it remained almost constant. The increases in wages were very similar however, just a little bit higher for durables, indicating that wage movements tend to be rather uniform despite fairly substantial variations in the economic circumstances of the industries. Also, somewhat surprisingly, there is little evidence of a systematic lag between the wage movements in the two sectors, though our figures for annual changes might miss lags of a few months. Given the very close correspondence between the wage movements in durables and nondurables, our subsequent analysis will be in terms of all manufacturing. Also, we confine ourselves to the period 1948-57.<sup>6</sup>

The rate of increase of money wages has been very uneven, as can be seen from table 5. Generally, in good times the increase has been much larger than in recessions. Data for some of the factors which have been cited as explaining wage movements are also given. The percent change in manufacturing employment clearly is one important determinant;<sup>7</sup> the 3 years in which wages rose much the least were the 3 periods of shrinking employment. But the influence of employment changes on wages appears to be much weaker in other periods; as long as employment is increasing, the rate at which it in-

<sup>6</sup> For a detailed account of the inflation in the early postwar years, see L. V. Chandler, *Inflation in the United States, 1940-48*, Harpers, New York, 1951.

<sup>7</sup> The correlation coefficient between the two series is .63.

creases does not appear to have a strong influence.<sup>8</sup> In a period of severe labor shortage, wages would rise more rapidly of course, but this situation never prevailed in the last decade.

TABLE 5.—*Increase in wages, prices, profits, employment, and productivity*

[Percent]						
Year	Increase in wages <sup>1</sup>	Change of employment, all manufacturing <sup>1</sup>	Change in consumer prices <sup>1</sup>	Profit margins <sup>2</sup>	Increase in productivity <sup>3</sup>	Change, real wages <sup>4</sup>
1947.....	10.9	5.4	8.9	-----	(4)	1.8
1948.....	10.6	.3	2.6	11.1	2.5	7.8
1949.....	.7	-7.5	-2.2	9.3	2.1	3.0
1950.....	8.1	5.2	6.8	12.6	9.7	1.2
1951.....	6.2	7.0	5.7	12.2	1.3	.5
1952.....	5.0	2.5	.9	9.2	1.6	4.1
1953.....	5.5	5.7	.7	9.2	3.4	4.8
1954.....	1.7	-7.3	-1.5	8.2	2.8	2.2
1955.....	4.5	3.6	.3	10.2	5.8	4.2
1956.....	7.0	2.1	2.9	9.7	.4	4.0
1957.....	2.5	-4	3.1	9.3	.8	-6

<sup>1</sup> Change from December to December.

<sup>2</sup> Annual average values; SEC data.

<sup>3</sup> BLS data published in President's Economic Report, 1958, p. 108.

<sup>4</sup> Not available.

Movements in consumer prices also influence wages, with wages rising more or less concurrently.<sup>9</sup> The wage rise of 1948 appears to have lagged behind the price increases of the postwar inflation; during the Korean war, wages kept pace with prices, while in 1955-56 wages rose earlier and by a larger amount.

High profit margins are also a stimulus to wage increases. On the whole, wages rose most when profits were particularly high, though there also was some spillover of the upward pull on wages in the following year.<sup>10</sup> Our data do not permit us to evaluate the relative importance of profits and prices as wage stimulants. Periods of high profits were also periods of rising prices, and, insofar as there was some lag of wages behind prices, it was also a lag behind profits, since inevitably profits would rise when wages did not keep pace with prices.<sup>11</sup>

It is also interesting to note that productivity changes explain very little of the annual wage changes. Except for the year 1950, when both wages and productivity surged up, the two series move independently.

Table 5 also throws some light on the movement of real wages, defined as money wages divided by the Consumer Price Index. Increases of real wages cannot be explained by the employment situation nor by movements in productivity; they appear to be the outcome of the changes in money wages and prices. Thus, real wages stayed

<sup>8</sup> The result also holds when wages are considered against total unemployment. This lends support to the view that a substantial amount of unemployment halts the wage-price spiral, but variations in degrees of full employment do not have much effect. The degree of unemployment required appears to be of recession proportions, suggesting that keeping unemployment at the requisite level is not a realistic (nor a desirable) proposal. See N. Jacoby, *Thinking Ahead: The Threat of Inflation*, Harvard Business Review, May-June 1957, p. 15.

<sup>9</sup> The correlation coefficient between wages and prices is 0.64.

<sup>10</sup> The correlation coefficient between wages and profits is 0.67.

<sup>11</sup> The multiple correlation coefficient of wages against employment changes and price changes is 0.67; substituting profit margins for prices yields a coefficient of 0.73.

constant in periods of great prosperity (1951) and rose in periods of considerable slackness (1949, 1954). They rose particularly in periods of price stability, suggesting that labor as a whole has a large stake in stable prices.

To summarize our conclusions about the nature of the wage-price spiral, (1) there is a steady upward thrust in wages, due to the institutional nature of collective bargaining; (2) the amount of increase in a year is affected quite drastically by the change in manufacturing employment, with the influence particularly strong in periods of decline of employment; (3) profit levels and movements in consumer prices also affect wage movements; and (4) in periods of sharp price rises, wages lag behind prices; in periods of stable prices, money wages continue to rise.

#### IV. INVESTMENT AND THE WAGE-PRICE SPIRAL

The rate at which the wage-price spiral progresses depends on the degree to which productivity increases offset the rising wages, and on the movements in profits and in material prices. Table 6 shows the rate of increase of wholesale prices of finished goods in manufacturing, and the difference between wage increases and productivity increases in this sector. It can be seen that prices rose most when productivity lagged far behind wages, though rises in material prices and large profit margins also contributed to the inflation. But perhaps most important is the diversity of experience of the period. In the rise of 1948, wages and materials prices rose and profit margins were high; in 1949, a rather slack year, materials prices fell, profit margins were below average, but prices outran productivity, raising prices. In 1950, profits rose very sharply, materials prices rose, but productivity took such a jump that it exceeded the increase in wages by 6 percent, keeping the price rise of the year quite small; 1951 saw prices rise substantially as profits continued high, materials rose very considerably, and wages moved parallel with prices. The next 4 years saw stable prices; profits fell below average levels; materials prices first fell and then recovered somewhat; wages outran productivity in 1952 and 1953, but this was offset by the reverse relationship in 1954 and 1955. In 1956 and 1957, inflation resumed; profits remained at normal or subnormal levels, while materials prices began to creep up. But a large impetus appears to have come from wages, which rose by 5 percent a year while productivity was stagnant.

Thus, the rate at which productivity increases is an important variable in the inflationary process. As table 7 shows, this rate has moved very widely from year to year, and so we must search for some explanation. The Bureau of Labor Statistics, in a detailed recent study, cites five important groups of sources of rising productivity: (1) shifts to high-productivity industries; (2) increasing capital per worker; (3) technological progress; (4) changes in the volume of output; and (5) improvement in human resources.<sup>12</sup> The first factor, interindustry shifts, accounts for little of the total postwar increase. As for the other factors, while they certainly were at work, they seem

<sup>12</sup> U. S. Department of Labor, Bureau of Labor Statistics, *Postwar Productivity Growth in the United States, April 1957* (mimeo), a paper presented at International Conference on Productivity, Paris, France.

to operate slowly and gradually, and explain relatively little of the year-by-year variation in productivity.

TABLE 6.—Price increases, excess of wage increases over productivity increases, material costs, and profits in manufacturing, 1948-57

[Percent]				
Year	Price increases <sup>1</sup>	Wage rise minus productivity rise <sup>2</sup>	Materials price rise <sup>3</sup>	Profit margin on sales, manufacturing <sup>4</sup>
1948.....	7.9	6.9	8.9	11.1
1949.....	2.8	3.0	-3.8	9.3
1950.....	1.8	-6.2	5.3	12.6
1951.....	9.5	6.8	14.0	12.2
1952.....	-1.6	3.6	-9.9	9.2
1953.....	-1.8	2.8	1.8	9.2
1954.....	.3	.1	.3	8.4
1955.....	.2	-2.4	2.7	10.2
1956.....	2.8	4.5	3.9	9.7
1957.....	3.6	4.4	2.3	9.3

<sup>1</sup> Increase in annual average prices of finished goods in manufacturing; BLS data.

<sup>2</sup> Percent change, annual average hourly earnings excluding overtime in manufacturing, minus percent change of output per man-hour; BLS data.

<sup>3</sup> Computed from annual average prices of materials used in durable and nondurable manufacturing, weighted by the sales in the 2 sectors.

<sup>4</sup> SEC data, profit margins before taxes.

TABLE 7.—Rate of increase of output per man-hour in manufacturing, investment in plant and equipment, and rate of increase of equipment per man-hour

Year	Percent increase, output per man-hour <sup>1</sup>	Investment in plant and equipment (1947 dollars) <sup>2</sup>	Percent increase, equipment per man-hour <sup>3</sup>	Percent change in employment <sup>4</sup>	Percent change, output per production worker-hour <sup>5</sup>
		<i>Billions</i>			
1948.....	2.5	8.4	9.0	0.3	4.5
1949.....	2.1	6.3	12.4	-7.5	4.6
1950.....	9.7	6.5	5.5	5.2	4.4
1951.....	1.3	8.6	2.3	7.0	2.8
1952.....	1.6	9.2	6.3	2.5	1.5
1953.....	3.4	9.3	4.8	5.7	2.9
1954.....	2.8	8.6	9.2	-7.3	3.9
1955.....	5.8	8.7	.9	3.6	5.4
1956.....	.4	10.7	(6)	2.1	.8
1957.....	.8	10.9	(6)	-4	3.9

<sup>1</sup> Computed from BLS data, reported in President's Economic Report, 1958, p. 108.

<sup>2</sup> SEC data, reported in President's Economic Report, deflated by implicit gross national product deflators.

<sup>3</sup> MAPI data reported in Joint Economic Committee, Productivity, Prices, and Income, materials prepared by the committee staff, joint committee print, 85th Cong., 1st sess., 1957.

<sup>4</sup> BLS data, reported in Monthly Labor Review.

<sup>5</sup> Computed from data in BLS, Postwar Productivity Growth in the United States, op. cit., p. 22; data for 1948, 1949, and 1957 based on interpolation for output by means of FRB index for industrial production, and for hours from BLS data for production workers and average workweek.

<sup>6</sup> Not available.

Table 7 shows some of the relevant data. Increases in output per man-hour, our measure of productivity, moved very unevenly, ranging from 9.7 percent in 1950 to 0.4 percent in 1956. Investment in plant and equipment explains none of the year-by-year variation; changes in equipment per man-hour appear to have an influence on productivity in the succeeding year, but it is the change of man-hours, not of equipment, which is the explanation; that is, after years of slackness in the economy, productivity comes into its own when a high level of activity is restored. This effect is also borne out by the employment data. The years of greatest productivity increase saw big

increases in employment; the worst years saw employment stable. But, on the other hand, when employment really fell a large amount, productivity rose somewhat.

Part of this pattern can be explained by the shifting proportion which production workers represent in total employment.<sup>13</sup> The number of employees other than production workers in manufacturing rose throughout the period, regardless of the movements in output, though not always at the same rate. To some extent, this is due to a trend toward white-collar jobs; partly it can be explained by management's greater willingness to lay off production workers rather than supervisory and clerical overhead; and surely Parkinson's law of the inexorable growth of bureaucracies offers some explanation. In any event, the increases of output per production worker-hour are considerably more regular than for all employees, explaining much of the cyclical movements in average productivity.

As for the long-run movements in productivity, investment in plant and equipment, in research, and in education are the major determinants. Even though the effects are not clearly identifiable in the same year or with a fixed lag, there can be no doubt that a high rate of investment will mean rising productivity, a low rate of investment stagnant productivity. Since it is the rising productivity which takes the edge off the wage-price spiral, it is an important postulate of an anti-inflation policy that there should be no unnecessary interference with business plans for investment, and that inducements in this direction be offered.

Of course, investment not only raises productivity; it also adds to demand and drives up prices. It adds to employment, and thereby strengthens the bargaining position of unions. It also serves to drive up material prices, and in the event that the demand for capital goods strains the capacity of the capital goods industries, there will be a runup of capital goods prices.

Whether the net effect of investment on the rate of inflation is positive or negative is a question which has no clear-cut answer. It depends on the circumstances of the moment. To illustrate this point, we examine in more detail the most recent inflationary episode.

#### V. THE INFLATION OF 1955-57

After almost 4 years of stable prices, inflation again set in in 1956 and 1957. The Consumer Price Index rose 6 percent, with medical care, personal care and transportation rising most. The increased prices in the personal services are primarily due to the gradual rise in service wages, which does not appear to be offset by much of an increase in productivity.

In addition to the inflation in service industries, the wholesale prices of finished goods in manufacturing rose substantially. This was not fully represented in the Consumer Price Index because the finished goods of manufacturing do not constitute a very large portion of the index, and also because the retail margins on durable goods shrank somewhat. But the inflation in manufacturing is perhaps the more serious one. For one thing, the rising wages in services are

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<sup>13</sup> I owe this observation to Prof. J. S. Duesenberry.

a belated reflection of the wage patterns set in manufacturing; and for another, the price increases were larger in manufacturing. Among the price deflators of gross national product, the most comprehensive price indexes applicable to the American economy, the largest increases occurred in producers' durable equipment (12 percent), nonresidential construction (10 percent) and Government purchases of goods and services (10 percent), while the price of GNP as a whole rose 7 percent and consumption 5 percent.

The inflation of recent years has been widely associated with the capital goods boom and with the wage-price spiral. As far as changes in the Consumer Price Index are concerned, this is not really true, since it was the personal service components that rose most. But the two cases do appear to explain the inflation in wholesale goods prices. That wages rose while productivity stood still was seen in table 7; and the size of the price rises in the capital goods sector is certainly convincing evidence that it was the center of the inflation.

Table 8 presents some of the relevant data, presenting increases of prices, wages and profits for selected industries from 1953 to 1957. Several significant observations can be made. First, it will be seen that wages increased fairly uniformly, much more uniformly than prices or profits. Second, not all of the machinery industries enjoyed such large price increases.

The chief bottleneck appears to have been in the steel industry. Here prices and wages rose most. The industry operated at peak capacity from April 1956 to March 1957, the height of the capital goods boom, except for the strike in the month of July. Profits were at a very high level, despite the strike which lost almost a month of production. Prices of some kinds of machinery rose an equal amount, 30 percent, but wages in this sector rose no more than the average, producing profits which were very high. All other prices rose much less, ranging from 20 percent in rubber, to 14 percent in autos, to less than 4 percent for nonferrous smelting and chemicals.

The unevenness of the price increases, even among industries with oligopolistic market structures, suggests that demand factors were of considerable significance in the last inflation. But it was not a general excess of demand over the Nation's capacity to produce, but a few critical areas in the hard-goods sector. The absence of an excess of overall effective demand can be seen from the small rise of real GNP in 1956 (and no rise at all in 1957), and the widespread and growing idle capacity which was reported in the McGraw-Hill surveys of those years.

TABLE 8.—*Wage, price, and profit changes, selected industries, 1953-57*

Industry	Percent price rise <sup>1</sup>	Percent wage rise <sup>1</sup>	Percent profit rise <sup>2</sup>	Profit 1953 <sup>3</sup>	Margins 1957
All manufacturing.....	10.0	18.1	42.5	4.2	5.0
Durable manufacturing.....	13.0	19.3	( <sup>3</sup> )	( <sup>3</sup> )	5.1
Machinery excluding electrical.....	11.0-31.0	18.9	63.4	4.2	5.2
Electrical machinery.....	21.9	18.2	48.4	4.1	4.1
Rubber products.....	20.5	20.2	36.6	3.8	4.4
Contract construction.....	9.8	21.0	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
Steelmaking.....	30.7	26.4	61.2	5.3	6.9
Nonferrous smelting, etc.....	3.8	24.1	28.9	6.4	7.4
Coal mining.....	13.4	22.6	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
Copper mining.....	( <sup>3</sup> )	21.0	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
Iron mining.....	( <sup>3</sup> )	26.2	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
Autos.....	14.1	19.2	44.0	4.0	5.4
Chemicals.....	3.5	22.4	72.5	6.1	7.8

<sup>1</sup> Average 1953 to October 1957: BLS wholesale prices and hourly wages.

<sup>2</sup> SEC data, 1953 versus last quarter of 1956 plus 3 quarters of 1957.

<sup>3</sup> Not available.

The amount of inflation caused by these bottlenecks was very considerable. Not only does the price of the steel and machinery represent higher costs to a broad range of industries, but the large wage increases granted by the bottleneck industries set the pattern for collective bargaining in many other industries, and certainly were a strong contributory cause to the generally large wage increases of 1956 and 1957.

Our emphasis on a few bottlenecks is not designed to make light of the wage-price spiral and the underlying oligopolistic market structures. On the whole there was a substantial correlation between the degree of monopoly in an industry and the size of its price increases,<sup>14</sup> though it is difficult to determine to what extent this relation is due to market structure rather than the greater prosperity which happened to fall on the relatively concentrated industries in the last boom. And we have already seen earlier that wages in this period seriously outran productivity, even though consumer prices were relatively stable. But the data do suggest that the wage-price spiral does not fully explain the inflation by any means.

#### VI. SOME POLICY CONCLUSIONS OF THE RECENT INFLATIONARY EPISODE

If our interpretation of the inflation of the last 2 years is correct, certain conclusions about the appropriateness of the policies employed will follow. The tight monetary policy was our most important anti-inflationary action; fiscal policy was used only to the extent of cutting some expenditures, particularly defense, in the late stages of the boom, and of at least keeping taxes at constant rates.<sup>15</sup>

Given the policy weapons available, the fiscal and monetary measures undertaken were about the best that could be done to fight inflation, aside from bad timing, assuming this to be the paramount policy objective at the time. And even if the growth of economy were considered a more important objective than price level stability, it is

<sup>14</sup> The rank correlation between the concentration ratios of the 21 industries in manufacturing and their price increases between 1953 and 1957 is 0.68.

<sup>15</sup> But the more liberal depreciation allowances permitted by the tax revisions of 1954 certainly worsened the inflation considerably.

dubious that more inflationary policies would have increased growth. But the policy instruments were inadequate for the purpose.

As far as controlling the wage-price spiral is concerned, the rate of wage increases was slowed down in 1957; this must be considered one of the successes of the monetary policy. But it was slowed down at a considerable price. First, the general level of economic activity was kept in check below the overall capabilities of the economy. Thus a certain amount of potential output was thrown away. Second, there were the much discussed discriminatory effects against residential construction, small business, and local governments. Third, because of the slackness in manufacturing, as evidenced by idle capacity and a decline in employment, productivity stagnated. Thus, even though wages slowed down, labor costs continued to rise, and that, after all, is the critical consideration from the anti-inflationary point of view. Finally, insofar as investment was reduced below the capacity of the capital goods industries, a condition that did not really become significant until 1957, future productivity in the economy was diminished.

The monetary policy also reduced the pressure on the specific bottlenecks which were the focal points of the inflation. Certainly the demand for steel and machinery was reduced; the reduction of local public works, of investment, and of residential construction affected steel demand. But the policy did not restrict with sufficient precision. In residential construction, the major sector affected, steel is not such a large factor input, and the industry itself had lots of idle capacity. On the other hand, consumer durables, which really are fabricated steel products, were relatively little affected. And the investment of large business in equipment and industrial plant was also relatively immune. So the edge was taken off the general prosperity without really eliminating the bottlenecks in the economy.

What would have been more desirable policies in this situation? If our analysis is correct, policies more suited to the specifics of the case would have resulted in less inflation, more prosperity, and a growth in final demand which would have permitted consumers to take the increased output off the market. Policies directly hitting at the market structure and behavior that causes the wage-price spiral would in principle be desirable.<sup>16</sup> A vigorous antitrust policy, both for management and labor, would certainly be a step in the right direction. But it is my guess that any policy instrument that would be effective would have such adverse side effects in the form of bureaucratic interference with business and collective bargaining, that it would not be worth the cost.<sup>17</sup>

Policies that cope more effectively with the bottlenecks are definitely possible however. Consumer credit controls would have been eminently desirable; the steel shortage would have been solved without crippling residential construction, and insofar as some of the machinery industries were not running at capacity, investment would have been somewhat greater. Finally, a backlog of demand for durables would also have proven very advantageous in the subsequent recession.

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<sup>16</sup> For some proposals along these lines see J. K. Galbraith, *Are Living Costs Out of Control?* Atlantic Monthly, February 1957, and A. P. Lerner, *Halting the Current Recession*, Commentary, February 1958, pp. 110-117.

<sup>17</sup> For a fuller presentation of this view see S. Slichter, *op. cit.*

Better control over the level of investment is also necessary. In theory, monetary policy is a direct, general control instrument over investment; but it does not live up to its billing. Somehow, more of investment must be brought under Federal Reserve or Treasury control. It is to be hoped that the Monetary Commission appointed by the Committee for Economic Development will present some proposals for new Federal Reserve powers along these lines. One instrument to be administered by the Treasury has been proposed:<sup>18</sup> depreciation allowances permitted for tax purposes would be made variable with economic conditions. For example, in the midst of a capital goods boom, relatively small allowances might be permitted on new investments in the first few years; at other times, large allowances might be made, thus providing a strong incentive to business to smooth out the sharp surges in investment.

There are good arguments against policy instruments with specific impacts, such as consumer credit controls or variable depreciation allowances. They are unpleasant to administer and generate political pressures which interfere with reasonable timing. But if we are unwilling to add such instruments to our policy arsenal, we should face the fact that we cannot cope with inflation without reducing the growth of the economy and running serious dangers of depression.

There is always some danger in drawing policy conclusions from the latest experience, for history does not repeat itself precisely, and the next inflation will no doubt have unique properties of its own. But the type of inflation we have experienced recently is likely to recur. The necessary conditions for the wage-price spiral will persist; and investment has come in spurts throughout our history. We should, therefore, be prepared for a repetition of the case.

#### VII. CONCLUDING COMMENTS

The data analyzed in this paper are economic aggregates which can only convey a part of the true picture of recent economic history. Our conclusions must, therefore, be tentative, and no more. Yet even the aggregates convey certain fundamental points about the inflationary process in the United States which even more detailed analysis would probably not overthrow. Let us restate our main conclusions.

(1) Over the broad sweep of history in many countries, no inexorable correlation between inflation and economic growth can be found.

(2) The downward rigidity of wages and prices in the United States has become stronger since the 1930's.

(3) There is a wage-price spiral in manufacturing over a wide range of economic circumstances, but its speed is affected by several factors.

(4) The rate of increase of wages is influenced by changes in employment, by profit levels and by movements in consumer prices.

(5) The rate of increase in productivity is uneven and is particularly large in years of high economic activity. The slow increase of output-per-man-hour in slack years is due in part to the undiminished employment of nonproduction workers.

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<sup>18</sup> E. D. Domar, *The Case for Accelerated Depreciation*, *Quarterly Journal of Economics*, November 1953, pp. 493-519.

(6) The increases in the wholesale prices of finished goods of manufacturing can be explained in terms of the extent to which wage increases exceed productivity increases, in terms of profit margins and of material prices. In the inflation of 1950-51, profits and materials prices provided the primary inflationary impetus; in the inflation of 1956-57, wage increases without productivity increases appear to have played the largest role.

(7) The inflation of 1956-57 in manufacturing had a very uneven incidence. Partly it was due to the wage-price spiral; but to some extent it was also caused by bottlenecks in some segments of the durable sector, particularly the steel industry and some parts of the machinery industry.

(8) The policies used to fight this inflation were too broad, with only a fraction of the overall effects serving to reduce inflation. The use of more specific instruments of policy is suggested.

## PRICING FOR STABILITY AND GROWTH

John P. Lewis, Indiana University

The fact that price variables thread their way throughout the economic fabric creates two outlining problems for this Joint Economic Committee study. It is hard to narrow the scope of the overall study to anything much less general than "the behavior of the American economy." And it is hard to divide the subject into sub-topics that will avoid a great deal of overlap among the contributors.

This paper, I fear, may be particularly guilty on this matter of overlap. The committee staff has provided an outline for the study that is coherent and comprehensive. However, it would be difficult to deal with any one of the more specific assigned topics adequately without touching upon some or most of the others. The present group of papers, for instance, is supposed to discuss "prices, employment, output, income, and resources." But one cannot explore the inter-relationships of these variables very far, even descriptively, without also considering wages and other costs, expenditures, productivity, and capacity. Nor is it easy to pursue any such descriptive analysis very assiduously without slipping over into some prescriptive or policy inferences.

Accordingly the choice seems to be between an intensive investigation of selected aspects of the assigned topic or an attempt to deal rather sweepingly and, no doubt, somewhat superficially with much of the whole range of issues to which the committee is addressing itself. My choice has been dictated by what, I suspect, is a minority view as to the priorities among our informational needs concerning "the price problem." Our paramount need at present, it seems to me, is not for more detailed and trustworthy information about specific aspects of price behavior or for more penetrating analyses of particular relationships between prices and other variables. Rather it is for a clearer, more comprehensive and candid overview of the price problem based upon the facts and probabilities that economic investigation already has revealed.

It would be thoroughly irresponsible, of course, to imply that we do not badly need still more and better data in this area, or that further detailed empirical analysis cannot improve our generalized diagnoses of the problem. As the committee staff's document of last June, *Productivity, Prices, and Incomes*, admirably emphasized, the data presently available for the analysis of the aggregative relationships between prices and other variables are by no means complete, wholly reliable, or uniformly well suited to the purpose. Moreover, we could use a great deal more in the way of case-study information about the institutional details of pricemaking and wagemaking procedures in large industrial corporations and certain other pricing jurisdictions.

Nevertheless, we do already have a good deal of usable data about price behavior and price relationships in the contemporary United

States economy. The joint committee itself, in the staff document just mentioned, has taken a major stride toward assembling, digesting, and interpreting such information. We already know enough to sort out the general outlines of the price problem that the American economy probably will face during the next decade or so, to sort them out tentatively but with some degree of confidence, and to begin identifying the kinds of policy alternatives which the problem poses.

The rhythm of some social problems is such that forehanded policy planning cannot always safely await the findings of exhaustive research. We are dealing with such a problem here. Therefore, in what follows, I have attempted a broad-stroke diagnosis which runs the risks of oversimplification, of being upset by new evidence, and certainly of dismemberment by the other participants. But I hope it may bring some of the major issues implicit in the present study, and some of their interrelationships, into sharper relief.

#### THE PROBLEM OF PRICING PRACTICE AND ITS CONTEXT

I have been speaking of "the price problem." This is an ambiguous phrase. It could refer to a variety of difficulties. If, for example, commodity and factor prices became so thoroughly inflexible and rigid that relative price changes no longer did any or much of the job of guiding the allocation of resources in directions that consumer, investor, and Government buyers want, we could call that "the price problem." Or if total spending in the economy had gotten consistently into the habit of outstripping our ability to produce, so that we persistently suffered from the kind of excess-demand inflation which afflicted the economy in 1941-45, 1946-48, and during the first 8 months after the Korean outbreak, we certainly might call that "the price problem."

However, I take it that when most of us say "the price problem" today we're thinking of something different—namely, our fear that pricing practice in the United States may, to a degree, have become antisocial. By "pricing practice" I mean the pricemaking and wage-making activity, much of it involving the making of discretionary decisions, that currently is carried on within the framework of such institutions as large industrial corporations, labor unions, regulatory commissions, and farm price-support programs. Our nagging fear is that—by accident rather than design—we have stumbled into a combination of institutional and other arrangements that has begun to yield a pattern of pricing practice that will have unfortunate results for the economy as a whole. This worry, which first became widespread in the United States in the late forties, has been vigorously revived by events since 1955. It is the anxiety which the catch phrase "cost-push inflation" rather crudely expresses. And I presume it represents the chief motivation for the present joint committee exercise.

Before we try to outline how pricing practice can influence the badness—or goodness—of the economy's "results," I should specify briefly the standards of economic performance I am invoking.

#### *The economy's performance standards*

We are interested, in the first place, in full production and full employment. By full production I mean producing up to our normal

productive capacity—which grows irregularly but persistently, thanks to our rising ability to produce per man-hour and a growing labor force. To insist on this performance standard is not to argue the desirability of abnormal rates of output with overtime, extra shifts, and inadequate maintenance of equipment. But it is to say that we want to produce what we're tooled up to produce and are disposed to produce. And it is to recognize that leveling, let alone declining, output represents increasingly unsatisfactory performance. On the employment side, static output means rising unemployment, not only because of a growing labor force but because of the ability, as time passes, to produce a given output with fewer and fewer workers. Our employment objective is to minimize all but so-called frictional unemployment.

In the second place, I shall assume that we seek price-level stability. There are, of course, some economists who register a positive preference for a slowly rising price level; and there is a smaller minority which favors gradually declining average prices. But for reasons that I shall not take time to detail because they are widely recognized, it seems to me that the conventional goal—that of price-level stability—is the correct one for public policy planning. It should be emphasized that, in principle, this objective is in no way inconsistent with plenty of flexibility in relative commodity and factor prices to guide the allocation of resources.

In the third place, we seek a lively rate of growth in the physical size of the economy—that is, in normal productive capacity or, if you prefer, in our ability to produce per man-hour times the number of man-hours the labor force wants to work. We might also say here that, over the long run, Americans want continuing growth, not only in output, and in output-per-head, but also in leisure per head. The fruits of rising labor productivity can be taken in either form—more output or more leisure—and over the long sweep we have taken a combination of the two. However, it is mainly the desire for continuing expansion in our output capability that seems to have captured the imaginations of Americans since World War II. And, as the joint committee's especially valuable hearings on world economic growth and competition in December 1956 emphasized, this is the kind of growth that is vitally related to the Nation's strategic interests.

Just 2 further notes on this matter of performance standards: In adopting the 3 I have just mentioned—(1) the fullness of production and employment, (2) the degree of general price stability, and (3) the rate of growth in productive capacity—as standards for judging the healthiness or unhealthiness of pricing practice's impacts on the economy, I should emphasize that this list of criteria certainly is not exhaustive. Even within the realm of considerations commonly called economic, one might want to add an explicit, end-in-itself concern for the efficiency of resource allocation, or for the equitability with which incomes are distributed, or for the degree to which economic (and hence, political) power is dispersed through the system rather than being concentrated in unwieldy lumps. Moreover, there are some frankly noneconomic standards against which the effects of pricing practice might sensibly be measured—for example, the need to maintain adequate domestic supplies of strategic raw materials.

However, the following discussion is limited to effects upon production and employment, on the general price level, and upon economic growth. I assume that these are the things the committee is mainly worried about in the present context.

The other footnote to be made concerning the performance criteria is simply that we should not expect simultaneously to satisfy all of them completely. Social practices and policies almost always involve some compromise between partially conflicting objectives, and so it is in this case. There is a need for new public policies when the best possible compromise under existing policies not just misses, but rather badly misses one or more of the marks which the standards set. Since I am inclined to advocate new policies in the present instance, I want to make it plain that no counsel of perfection is intended.

*The influence of pricing practice on stability and growth*

(1) *Via its impact on income distribution*—one of the two principal ways in which the pattern of pricing practice in the United States registers its effects upon the economy's stability and growth performance is through its impact upon the distribution of gross national income among the buyers of the gross national product. The price system—the relationships among finished, intermediate, and raw product prices together with wage rates, rents, interest rates, profit margins, and depreciation rates—constitutes 1 of the 2 great distributive mechanisms in the economy. The other is our system of taxes and Government transfer payments. Together they determine how gross income gets split up among the major purchasing groups. And this income split heavily influences the abilities and inclinations of the purchasing groups to maintain or increase their expenditures.

This last is most clearly true in the case of consumers, where the volume of spending is plainly highly dependent on the volume of disposable personal income. The dependence of business investment expenditures upon the amount that businesses retain out of their gross receipts in the form of depreciation allowances and undistributed after-tax profits is much less complete or reliable. But there is a relationship, as there is between the net receipts and the expenditures, especially for current expense purposes, of State and local governments.

In very rough, overall terms the pricing system's function with respect to income distribution may be thought of as that of determining whether the division of the private income shares between households and businesses is kept within the tolerances necessary to maintain a balance between consumption spending and investment spending. Stable growth requires a reasonably steady rate of investment, and therefore it requires that current profit rates not deteriorate enough to discourage investment and that current gross retentions by business be sufficient to facilitate the financing of investment. At the same time, however, nothing can discourage investment so decisively as a withering of the markets for the products of the new and improved productive capacity which investment helps put in place. This means that real consumer incomes must be kept growing, mainly through rises in wages relative to product prices, so that consumption growth can parallel and, as it were, make good the growth in productive capacity.

More closely considered, the issue comes down essentially to that of how we distribute productivity gains—that is, how we distribute the potential savings in unit labor costs that accrue from technological and other developments which enable us to produce more output per man-hour. Considering the private economy as a whole, there are three broad channels through which such productivity gains can be distributed—to property or capital, in the form of higher profits, interest, rents, or depreciation charges per unit of output; to labor, in the form of higher money wage rates; or to consumers and other end users, in the form of lower product prices. The kind of pattern of pricing practice that is required to support steady economic growth essentially is one which keeps productivity gains flowing through these channels in such fashion as (1) not to impair the incentives for and the financing of investment, and (2) to prevent the spoilage of markets.

For purposes of later reference it should be emphasized that these growth needs with respect to income distribution do not, in themselves, imply any particular necessary course for the price level. On other grounds it may be argued that continuing price inflation or continuing price deflation would sooner or later become incompatible with steady growth because of its eventual impact upon buyers', and especially upon investors', expectations. But this is a separable issue that will be touched upon later. As far as growth-conducive income distribution is concerned, the pricing requirement is a relative one. The needed nurturing of consumer real incomes, for example, can take the form of rising money wages and stable money prices, or of stable money wages and falling money prices, or of rising money prices coupled with faster increases in money wages. The last is the pattern that we actually have gotten in the United States recently and it is one, I shall argue, that is apt to persist.

(2) *Via its impact on price-output relationships.*—The most obvious and direct effects which pricing practice works upon the economy's production, employment, and price-level performance are those which it exercises through its impact on the pattern of price and output responses to changes in demand. Since total demand or expenditures equals total real output times average product prices, every change in aggregate demand must cause a change in output, or a change in the price level, or some combination of the two. The pattern of general price-output relationships, for which the technical term is "the aggregate supply function," has not been widely discussed in popular economics writing, but it can be thought of as one of the basic determinants of the economy's behavior, and implicitly it crops up in forecasting and economic policy discussions all of the time. For it is necessary to have some notion of what the joint price and output responses to a change in demand will be to have any opinion about whether the change in demand will be desirable or not. In a recession, for instance, a man who advocates cutting personal income taxes as a means of stimulating consumer demand is assuming that the impact of additional demand will not, at least, be wholly spent in raising consumer prices but, instead, will cause a significant rise in real output—and, therefore, also probably in employment. In other words, he is implicitly assuming he knows something about the shape of the aggregate supply function.

Fifteen years ago it was customary among American disciples of

“the new economics” to assume that the pattern of price-output relationships in the United States approximated something along the lines of figure 1, wherein the effect of increases in demand would be almost wholly to raise output rather than prices up to “the point of full employment.” There, it was assumed, price-output relations suddenly turned a sharp corner so that, thereafter, the effects of further increases in demand would be almost entirely perverse, raising prices but not output. This picture, which John Maynard Keynes had initially drawn only as a simplifying premise, without any pretension that it described how things actually work in a modern western economy, rested on two assumptions: (1) that competition among workers and among other resources for employment and among products for markets would be effective in keeping the lid on price increases up to the full employment point, and (2) that full employment capacity could be assumed to be quite literally fixed in a “short run” that was long enough to be significant.

Figure 1

THE SIMPLIFIED, OPTIMISTIC  
PRICE-OUTPUT HYPOTHESIS

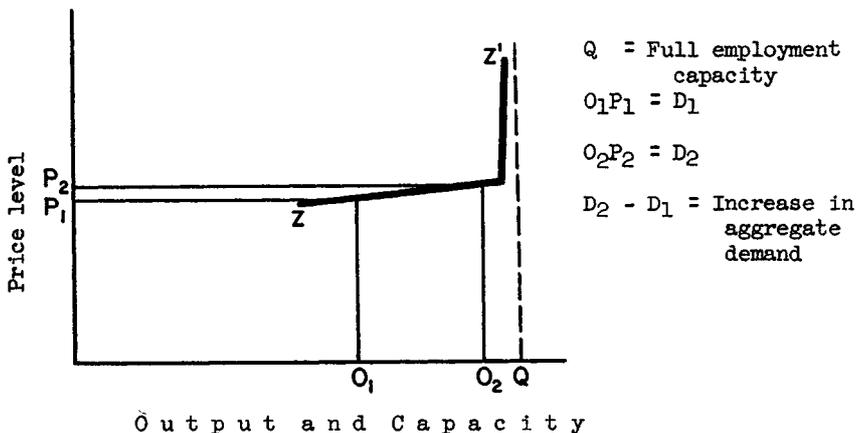
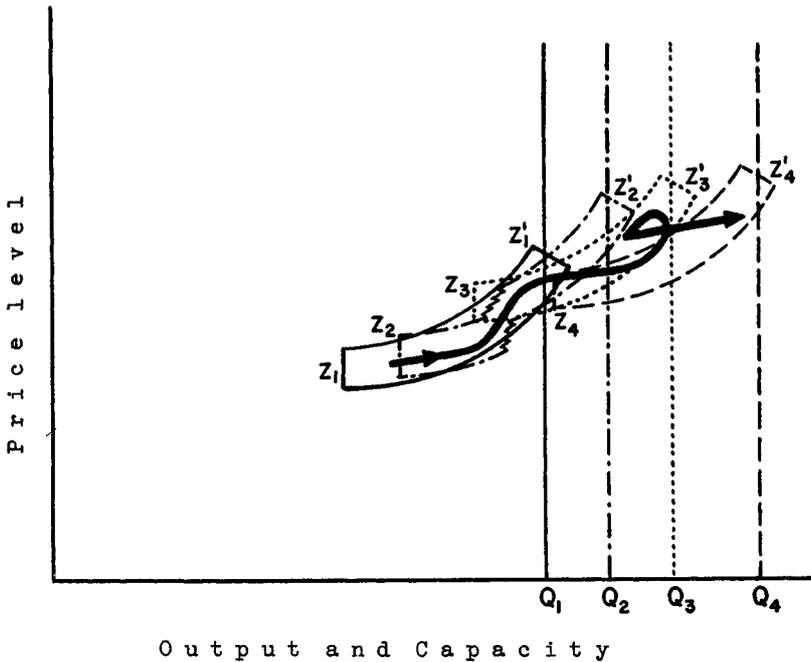


Figure 2

A MORE REALISTIC IMPRESSION OF CONTEMPORARY  
PRICE-OUTPUT RELATIONSHIPS IN THE UNITED STATES

In the late thirties and early forties economists and economic policy advisers seized upon this hypothesis, chiefly, I am convinced, because it was so attractive. It was a most appealing hypothesis because it seemed to narrow down the problem of how to maintain full employment without inflation simply to a question of aggregate demand management. This was the kind of stabilization assignment that government was best equipped to tackle. It already possessed the necessary tools—namely, those of fiscal policy and monetary policy—for exerting a powerful influence upon aggregate demand, and the corner or kink in the aggregate supply function made a perfect target for them. It looked as though government should be able to maintain substantially full employment and a substantially stable price level just by making more enlightened use of its traditional fiscal and monetary powers, without having to experiment with any more noisome and meddlesome interventions into private decisionmaking.

The trouble, of course, is that the simplified, appealing aggregate supply hypothesis is a very unrealistic picture of price-output relations in the contemporary American economy. For one thing, it is misleading to regard normal capacity as fixed, even during a year's time; it keeps shifting to the right in the diagrams and this, as far as it goes, has an anti-inflationary effect on price behavior; it stretches out the path of price-output relationships laterally. On the other hand, even if factor and product markets were purely competitive in a textbook sense, bottlenecks in particular industries would create upward pressures on the price level in recovery periods well before the labor force was fully employed. The capacities of particular industries never are as well coordinated with the economy's overall capacity as the simplified price-output hypothesis implies.

Beyond all of this, however, the hypothesis is rather completely upset by the kinds of price and wagemaking that characterize most American commodity and labor markets. With widespread collective bargaining, wage increases are by no means confined to literally full-employment periods. On the other hand, collective bargaining probably slows down the pace of wage increases in periods of labor shortage. Moreover, industrial corporations, as well as many wholesalers and retailers, which have the market power to engage in discretionary pricemaking have widely adopted cost-oriented rather than demand-oriented pricing policies. This makes them quick to pass through wage, materials, and other cost increases in any but sharply recessionary periods. Conversely, it makes them slow to charge the full toll the traffic would bear in such periods of clearly excessive demand as 1946-48.

One effect of these institutional circumstances is to take the corner or kink out of the short-run aggregate supply function, in a manner suggested by any of the ZZ' bands of price-output tendencies sketched in figure 2. Another effect has been the inadvertent creation of a kind of vast, lumbering escalating mechanism in the economy which tends to translate increases in costs into increases in prices, into increases in costs, into further increases in prices, ad infinitum. The classic such device is the cost-of-living escalator in labor contracts, but it is no worse than the parity formula for farm-price supports or cost-based corporate pricing. (And as long as I have just used the word "worse," let me emphasize that each of these procedures is quite reasonable and desirable from the viewpoint of the producer group most directly concerned; it appears objectionable only when viewed in a total-economy perspective.) Inadvertent cost-price escalation tends to shift upward the short-run pattern of price-output relations associated with any given volume of capacity—a tendency which is partially offset by improvements in productivity and expansion in capacity. In recent years, at least the offset appears to have been no more than partial.

A third effect of contemporary pricing practice upon the aggregate supply function is to make the function nonreversible when demand declines. Administered prices and wages are highly resistant to moderate slumps in spending. It is significant, for example, that the composite price index used for deflating the gross national product rose a little in both of the recession years, 1949 and 1954. This characteristic gives the escalator a ratchet effect which breaks down substantially only in such violet downturns as 1929-33 and 1937-38.

The synthesized view that emerges of price-output relationships in the American economy is of a phenomenon that is jointly conditioned by the underlying pattern of pricing practice that I have just sketched, by the rate of change in capacity, and by the rate of change in aggregate demand. Figure 2 is an attempt to illustrate how these factors might interact under one hypothetical, but not improbable, chain of events. The curved bands of short-run price-output relationships (the ZZ' curves) are shown as shifting mostly to the right and a little upward as the combined result of expanding capacity and of cost-price escalation not fully offset by improving productivity. But a violent rise in demand relative to capacity will cause a sharp rise in prices (as temporary bottlenecks develop and expectations of shortages and further price increases take charge) almost without regard to how close to capacity the economy is currently operating. The sharp upward jog in the actual path of prices and output which figure 2 indicates is meant to reflect such a sudden spurt in demand, one which shifts the relevant short-run aggregate supply function permanently upward because of the substantial irreversibility of the price level. Later on the figure suggests a fairly pronounced full employment boom in which demand does crowd capacity; then a mild recession in which prices keep edging upward, then resist downward pressures as demand fades; and finally a recovery.

The chief implication of the foregoing analysis is that contemporary pricing practices in the United States is contributing a pronounced upward slant to the price level—a much stronger inflationary bias than the economy had over the long run prior to World War II. This issue of inflationary bias, of how serious it is, and of what, if anything, should be done about it, is one of the concrete problems that pricing practice poses for public policy planners, and I want to discuss it below under that heading. At the moment I want only to emphasize that to find that the economy has become more characteristically inflation-sensitive in the past two decades is not necessarily to argue that all of this is the result of very recent institutional changes—in particular, the result of the increased power of organized labor.

Trade unionists and labor economists very properly resent having all of the sins of so-called “cost-push” inflation heaped on the heads of the unions. Personally, although it is very hard to test the proposition empirically, I am convinced that institutional changes, including the rise of the unions, have significantly altered the shape of the short-run aggregate supply function during the past 20 years, making it more steeply inclined in underemployment situations and hence more inflation-prone. But changed wage bargaining is no more responsible for the present shape of the function than is cost-plus business pricing; and other elements of pricing practice, including the farm price-support system, contribute to the joint result. To argue over who is to blame for the inflationary bias of present pricing practice is fruitless and rather childish. As I have indicated already, none of the contributing elements is blameworthy when viewed in its own limited context. What are bad are the social results which, inadvertently, they jointly achieve. It is not too far off the mark to say that all of the major producer groups—business, labor, and agriculture (which has achieved self-protection through the medium of public rather than private policies)—are equally innocent as to intent, equally guilty as to consequences.

Furthermore, it is not necessary to posit major institutional changes in the shape of the short-run aggregate supply function during the last couple of decades to conclude that average pricing has taken on a greater inflationary bias during the same period. It may well be that many of the pricing practices about which I have been complaining—e. g., cost-plus pricing in administered price industries—have been with us for a very long time, and that the supply curves in figure 2 are almost as descriptive of pricing tendencies 30 or 40 years ago as of those now. What indubitably have changed, however, are the determination, preparedness, and ability of government to prevent deep recessions in demand. The latter have been the only times when the price level has receded significantly. Perhaps, except for those periods, American pricing practice has had an inflationary bias for several generations. But the problem it posed only became serious once Government undertook to solve an even greater problem; namely, that of eliminating the major downturns which historically had been the chief counterinflationary expedients in the system.

*In summary: the consequences of pricing practice, and the practical issues they pose*

My effort thus far has been to outline a theory of the effects of pricing practice upon the economy's stability and growth performance which can be used as an analytical framework for identifying the key questions which public-policy planners should ask about pricing practice at this juncture. In summary, that framework comes down to this:

That, first, our pattern of price- and wage-making largely determines the distribution of gross spendable private incomes between households and business and, hence, considerably influences both the volume and composition of aggregate demand; that by determining the distribution of gross private income and, more particularly, of the income increments resulting from productivity gains, pricing practice influences both (a) the rate of investment and, hence, of capacity expansion and (b) the extent to which growth in consumer demand keeps pace with capacity growth; and

That, second, pricing practice, in conjunction with the rate of change in capacity, the closeness of demand to capacity, and the rate of change in demand, determines the mix of output changes and price-level changes which changes in total spending bring about; that, accordingly, pricing practice is directly instrumental in determining how closely the economy approximates full production and full employment and what kind of a price level record it makes.

Now, given this rather abstract framework, there are three concrete questions, it seems to me, that public policy planners should try to answer about United States pricing practice in the recent past and the foreseeable future.

The first deals with the matter of income distribution. It is whether the price system, judging from its recent past, so clearly promises not to satisfy the price-wage-profit requirements for sustained economic growth that remedial policies plainly are called for.

The second question concerns price-wage-profit adjustments in short-run business reversals such as that which now afflicts us. Does present pricing practice so clearly aggravate short-run instability or forestall helpful contracyclical adjustments that new remedial policies are needed?

The third question involves the long-run outlook for the price level (which, as I have indicated already, is related to but separable from the question of the pricing requirements for sustained growth). Does present pricing practice so clearly hold out the prospect of substantial long-run inflation as to demand the development of new anti-inflationary policies?

Most of the remainder of the paper deals with these three questions. Because they depend on issues of fact where our information is incomplete, as well as upon matters of prediction, anyone's answers to them must be tentative and opinionated. However, mine, for what they are worth, are "No" to the first two, "Yes" to the third.

#### DO PRICING MALADJUSTMENTS THREATEN LONG-TERM GROWTH?

##### *Real returns to labor and property: the overall picture*

If price-wage-profit adjustments are to serve the needs of long-term growth, they must, as a first approximation, maintain a workable balance between the real returns to property (these generally providing the rewards for past investment and some of the financing for future investment) and the real returns to labor (these accounting for the bulk of consumer buying power).

Economists have been particularly fearful that real wages may tend, more often than not, to lag behind the growth in real output per man-hour, thus making for "underconsumption" or what I have called "market spoilage." This is cited as part of the hidden economic sickness that developed in the United States during the 1920's; there were fears of it again in the late forties; and the same concern has been expressed very pointedly in some quarters recently. At the moment I am concerned only to judge whether the long-run trend of real wages during recent decades justifies this anxiety. The question of whether a tendency for real wages to lag behind rises in output per man-hour in boom periods may accentuate short-run fluctuations in business activity is a separable issue.

Over the long run of the past three decades, the evidence assembled in productivity, prices, and incomes indicates no cause for anxiety about any secular attrition in the growth of real wages, and, hence of real consumer incomes, relative to output per man-hour. There is some evidence of such a tendency during the twenties, but certainly not since. On the contrary, from 1929 to 1956, according to the staff document's estimates, there was a rise of 116 percent in real average hourly earnings in the nonagricultural economy compared with an increase of only 78 percent in real output per man-hour. There is a generally similar showing for the manufacturing sector during the same period. And, in a slightly different dimension, the various estimates indicating that over the same span of time unit labor costs have risen a little more than unit values added likewise show that there has been no secular lag of real wages behind labor productivity during the past generation.

Instead, the long-run question which the staff data raise is the opposite—whether there is not cause for alarm about a declining trend in the real unit returns to property or capital. Superficially, the most striking statistic in this regard is the one indicating that the property shares of before-tax national income, which received 42 percent of the total in 1929, claimed only 30 percent in 1956 (or, alternatively, that

the compensation of employees share rose from 58 to 70 percent). However, as the staff report was careful to point out, most or all of this apparent decline in property's relative claim on before-tax income was attributable to shifts in the composition of industrial activity—especially shifts of activity from the unincorporated business sector, where the “wages” of owner-managers are all counted as profits by our national income accounting system, to the corporate sector, where the same type of compensation is treated as wages and salaries. Nevertheless, since property incomes have borne a disproportionately large share of the big increase in taxes since 1929, there is no doubt that the after-tax real returns to property per unit of output has declined substantially during the past three decades.

Does this represent a growing maladjustment that promises trouble for investment incentives and investment financing over the long run ahead? I can find no basis for believing it does. In the first place, while profit-sales ratios (or profit-output ratios) have declined, there has not been anything like a comparable decline in profits relative to net worth. This is because capital-output ratios have fallen very substantially; in other words, we are getting much more output mileage out of given quantities of capital; the efficiency of capital utilization has substantially improved. Thus the calculations of the Machinery and Allied Products Institute show that, for manufacturing corporations, after-tax profits as a percent of net worth have virtually matched the 1925-29 average in the postwar period, even after sizable downward adjustments of the postwar profits data to correct for inventory revaluation and the understatement of depreciation allowances figured on a historical cost basis.

In the second place, as far as business' internal sources of funds for investment are concerned, the growth of total profits has been augmented by the heavy growth in those gross revenues which are set aside for depreciation. Even without “correction” for understatement, this internal source of funds, which, of course, is not subject to income taxation since it is charged as a business expense, not only has grown in absolute current-dollar terms from \$7.7 billion in 1929 to \$33.3 billion in 1957; it has maintained its percentage take of the after-tax, after-transfer distribution of the gross national income despite the big expansion in Government's share of the total during the past 30 years.

In the third place, there is the pragmatic test of whether recent investment behavior indicates that a secular decline in the real after-tax returns to property per unit of output has been causing any withering of investment incentives or permanent constriction of investment financing. Certainly on this basis there is no indication of a permanent or continuing problem. On the contrary, throughout the postwar period in which the real spendable returns to property per unit of output appear to have been significantly lower than in earlier periods, the appetite for investment has been high and business has succeeded in financing large volumes of investment. (This is not to deny that the volume of investment spending has continued, although in somewhat muted fashion, to fluctuate in the short run, or that the Federal Reserve's tight-money policy somewhat restricted the supply of investment finance in the recent boom.) It seems reasonable to conclude from the record that there is no absolute level of real returns to property per unit of output that remains fixed through time as the mini-

num necessary for calling forth an adequate volume of investment; and that with falling capital-output ratios a secular decline in profit-sales ratios is a normal and healthy trend which in no way threatens the prospects for continuing vigorous growth in the economy as long as continuing innovation and continuing rivalry among firms for market shares keeps churning up a flow of relatively attractive new investment opportunities.

On balance, then, I am brought to the general conclusion that there is nothing obviously wrong, as far as the requirements for continuing growth are concerned, with the long-run trends in the real distribution of income between capital and labor that contemporary pricing practice has been achieving. At least there is nothing so plainly wrong as to justify at this time new public-policy efforts to modify or offset the effects of pricing practice on this ground alone.

#### *The matter of differentials*

The view just stated is based on aggregative data. It could be upset by a finding that pricing practice is yielding price (including wage and profit) structures that are so rigidified as to impede the ready movement of resources among employments that may be indicated by changes in technology or in the composition of demand. This is so, even within the framework of the present discussion, which abstracts from a concern over the achievement of optimum resource allocation as such. For a freezing, or complete elimination, of the differentials among wages in different occupations, industries, and areas, or of the differentials among the returns to different types of investment, could throttle the economy's overall growth by checking the expansion of its most progressive sectors.

I assume and hope that other papers in the study will explore this issue far more carefully than this one does. However, I should be skeptical of any finding that the factor-price and commodity-price structures had become so inflexible as seriously and persistingly to obstruct the shifting of resources in response to changes in technology and demand. Under modern pricing-practice differentials in the wage and in many portions of the commodity price structures have become sticky—perhaps much stickier than they used to be. But the price-and-wage structures still are quite plastic over time. And certainly the rates of return to different investments, both expected and realized, still are highly diverse and variable.

#### *A possible future headache*

This discussion of the pricing requirements for continuing growth has been couched basically (and, I believe, correctly) in relative terms. As emphasized earlier, the primary pricing question for the growth outlook concerns the real income split between households and business without regard to whether the price-level trend around which this distribution occurs in rising, stable, or falling. The question of whether real consumer incomes grow via rising money wages and stable consumer prices or through some other combination of money price trends is, in this context, a secondary issue.

However, when speculating about what might happen in the United States in the fairly distant future, one can spot certain difficulties for real income distribution that might arise out of the particular pattern of money-wage and money-price adjustments that the economy

has adopted. Part of the problem of distributing productivity gains in a fashion that support the growth of consumer markets is posed by the fact that advances in productivity are not evenly distributed throughout the industrial fabric. In particular, as the findings of John Kendrick and others summarized in *Productivity, Prices, and Incomes* indicate, the advances have been much more marked in manufacturing than in other parts of the economy during the past half century; and in any short period probably a large part of them are concentrated in relatively few industries. For the distribution mechanism this creates the problem of spreading the resulting income benefits widely enough to support growth in mass consumption. In general, the pattern for effecting rising real wages in recent decades has involved distribution of productivity gains through the money-wage channel. We have had a rising consumer-price level but still faster increases in average money wage rates. In the most progressive industries some of the higher-than-average gains have been distributed to consumers through the medium of relative reductions in product prices (which often has actually meant less than average price increases). But much of this distribution has been through the medium of higher than average wage increases for the often large labor forces of those industries.

Now the long-term possibility that worries me is this. Suppose that future productivity gains continue to be concentrated as much or more than ever in selected areas of manufacturing that eventually achieve highly automated operations which require only scanty work forces of managerial, technical, and service personnel. Would not money-wage increases become a very ineffective way of making a mass distribution of the income gains accruing in such highly efficient but largely depopulated enterprises? The obvious solution would be greater reliance on relative price reductions in such cases, but if this were not to entail accelerated price inflation in the less progressive industries, it would require a greater willingness on the part of price-makers in the progressive industries to engage in absolute price cutting. A theoretically feasible alternative would be much wider spread ownership of the stock of highly productive automated manufacturers, so that distribution of productivity gains through the profit (and dividends) channel would have a broad impact on mass consumer-purchasing power. But we might encounter a good many disruptive hitches before either of these solutions, or a combination of them, was working smoothly.

However, it may be rightfully objected that all of this last is hypothetical stuff which is scarcely relevant to the near future. With respect to present policy needs, I revert to my previous judgment: So far as the growth requirements for real income distribution are concerned, there is no plainly evident need for efforts to reform present pricing practice.

#### WHAT ABOUT SHORT-RUN MALADJUSTMENTS?

Inflexibilities and other imperfections in pricing practice often are blamed for contributing to short-run fluctuations in demand and for impeding stabilizing adjustments when downturns get underway. It is contended that in boom periods wages lag the surge in sales, causing profits to bulge, and thereby both stimulating "overinvestment" and

preventing consumer purchasing power from keeping pace with expansions in productive capacity; and, further, that in periods of sluggish business administered pricemakers do not make sufficiently aggressive use of price cutting as a sales-promoting tool.

Both of these complaints have been heard recently, the former, especially from union spokesmen, in connection with the 1955-57 upswing, and the latter during the current recession. Although the picture of wages lagging profits happens not to fit the particular facts of the 1955-57 boom very well because of the unusually feeble growth in labor productivity in the years 1946 and 1957, in general there is a good deal of appeal in these arguments. In particular, I am impressed with the idea that producers of consumer goods which seem to have a fair degree of price elasticity could often, when an upswing is well-advanced, help keep it going and better their own positions by some decisive one-shot price cutting. Corporate decision makers sometimes fail to pursue their own as well as the economy's best interests in this regard because of excessively wooden adherence to cost-plus formulas of pricing. For instance, it seems to me that the manufacturers' increases in the prices of the 1958 model automobiles were exceedingly ill advised from their own point of view. If the automobile companies late last summer had decided to accept a lower ratio of profits to their "standard volume" of sales, it could have meant not only more production and employment for the economy, but higher total profits for the companies.

Thus, from the perspective for short-run stability, I could not call contemporary pricing practice ideal. But it is far more benign in its effects than most of its critics suggest. Especially, I would assert this: the general stickiness of prices and wages—the fact that the wage structure and major portions of the price structure will change under pressure but typically resist rapid change—is a great blessing, not a handicap, for the economy so far as short-run stability is concerned. The familiar labels, "pure competition" and "perfect competition" are loaded terms, and the loading is highly inappropriate if the extreme sort of price and wage flexibility that one finds in perfectly competitive markets were extended to the whole economy so that prices and wages skyrocketed every time aggregate demand nudged full capacity and then plummeted when it receded a little.

"Perfectly" flexible prices and wages would be a perfect mess in this regard. They would almost hopelessly disrupt any kind of orderly business planning. Economic rewards would be determined more by the windfall gains and losses handed out by the roulette wheel of violent, unpredictable inflation and deflation, and less by productive contribution. Worst of all, reactions to expectations of price and wage changes would work their maximum effect in aggravating fluctuations in demand. The violent cumulative downward or upward price spiral, when it really fixes its hold on buyers' expectations, is one of the most thoroughly pernicious forces that can afflict the economy. Present pricing practice provides extensive protection against it, and this is a great advantage.

This point reflects a rather basic premise of the present analysis upon which I should like to expand for a moment. It is that our best hope for achieving substantial overall stability in the economy—an objective, I believe, toward which we have taken major strides in the

past 30 years—lies less in the direction of eliminating fluctuations in particular sectors of demand than it does in weakening the interdependencies among the sectors. The principal reason that the economy is more stable than it was a generation ago is not that we have smoothed out most of the short-run swings in the particular categories of spending, such as plant and equipment, housing, and inventory investment, which so often have triggered major downturns in the past. Instead, the chief reason for improved stability is that a combination of public and private policies has had the partly inadvertent effect of greatly weakening the various cumulative mechanisms which so regularly used to spread the infection of decline from a few sectors to the whole economy and convert limited reversals into general down spirals. This dampening of the cumulators has improved the chances for autonomous increases in some sectors to emerge as offsets to autonomous declines in other sectors.

The development of contemporary pricing practice has had a significant part in this weakening of the cumulators. For one thing, as just noted, it checks one of the most vicious of the latter—the expectational downward price spiral in which buyers hang back from buying in anticipation of further price reductions. For another thing, contemporary wagemaking, by partly disconnecting the course of money wages from short-run fluctuations in business, has contributed to the insulation of disposable personal income from temporary drops in the gross national product. And it is this insulation which is largely responsible for weakening the most pervasive cumulator of all: the traditional tendency for induced declines in consumption to respond to and thereby “multiply” the impact of reductions in non-consumption spending.

For these reasons I view with alarm the suggestions of those who would tinker with the wage-price-profit mechanism in a way meant to make it respond sensitively to each incipient surge and sag in aggregate demand. These people, if I interpret them correctly, are perfectionists who strain toward the hope that short-run fluctuations in the various components of demand all can be neutralized and that, year in and year out, the components can be kept in unerring balance. This, it seems to me, is an unattainable goal for a dynamic, mostly private economy. The danger is that, in striving for this goal we may undo some of the good progress that has been made toward the less ideal but more feasible alternative of a semicompartimentalized economy in which a sag in plant and equipment or inventory investment doesn't stampede everything else with it, but instead has an excellent chance of being more than offset by a spurt in housing or State and local government outlays.

If this latter, less ambitious, but more attainable approach to stability is our strategy, then we should put aside any thought of major reliance upon price and wage adjustments for short-run stabilizing purposes. Spurts and sags in gross national income should concentrate their impact where they now largely do—upon business profits and on the net receipts of government—and average wage rates should be geared to long-term growth requirements, rising fairly steadily in both good times and bad. And while it would be nice, as I have suggested, to see some manufacturers do a little more experimenting with “promotional pricing” in the advanced stages of booms, any reforms

that would greatly increase the volatility of commodity prices should be given a wide berth.

In short, from the perspective of the short-run stabilization problem, present pricing practice appears to have greater virtues than it does faults and does not invite public policy intervention.

#### DOES PRESENT PRICING PRACTICE PROMISE SECULAR INFLATION?

Of the three concrete questions about contemporary pricing practice which I think public policy planners should try to answer, this was chronologically the first to command widespread attention among economists in the postwar period. Has the American economy acquired a persistent inflationary bias? This is the only 1 of the 3 that seems to me rather plainly to require an affirmative answer. It should be emphasized that such an answer cannot yet be conclusively deduced from historical evidence. Actually, of the whole postwar period, only the years since 1955 offer reasonably clear-cut corroboration for the inflationary-bias thesis, and even these were rendered somewhat peculiar by the sluggishness of productivity growth in 1956 and 1957. Nevertheless, the argument that can be adduced for the prospect of a rising tendency in the price level is highly persuasive.

It should be made plain at the outset that this argument, or at least that part of it which I am citing, does not depend upon an expectation of inadequate demand discipline in the economy, if that phrase is understood in this sense: a systematic or average tendency of aggregate demand to exceed current normal capacity output at currently existing prices. Rather, to revert to our analytical framework, the inflationary prospect which faces us inheres primarily in the character of the economy's aggregate supply function. Even if we make optimistic assumptions about the growth of productivity and capacity, and even if we assume no spending spurts in which demand accelerates rapidly relative to capacity, it is argued that we face the prospect of up-slipping costs and prices. (This, incidentally, is the only precise sense I can make of the term "cost push" inflation. Any price-level increase that does not involve a reduction in output must entail an increase both in demand and in supply prices, or "costs." But if the increase in demand is no more than is necessary for an orderly maintenance of full production and full employment, and you still get higher prices, it is a "cost push" inflation.)

In a general way I have already made the case for this kind of inflationary bias in my description of the pattern of price-output relationships that characterizes the economy. But looking to the future, the case can be made more specific.

First, during the next quarter century the surging growth of population in the economically less-developed regions of the world, plus rapid industrialization in some of those areas, plus massive productive expansion in the United States and many other advanced economies are altogether likely to create extreme demand pressures on many raw materials. Even with very optimistic allowances for new materials technology, many temporary supply bottlenecks and resulting increases in raw-materials prices are probable.

Second, even if we were to assume no further rises in capital goods prices, further increases in depreciation charges per unit of output would be predictable for some time to come in the United States

because of (a) the displacement of old, lower-cost assets with present higher cost assets, (b) the continuing shift of the composition of business capital from (long-lived) plant toward (short-lived) equipment, and (c) more rapid obsolescence of given types of capital.

Third, the only plausible hypothesis is that, under existing institutional arrangements, average annual increases in money wage rates will continue to exceed average annual increments in output per man-hour, as they have done in the postwar period. It may be that money wages will not outrun productivity as much as they have in the past dozen years. For, while debates over whether wages had led prices or vice versa appear to me to be largely pointless (on the ground that the several elements of the escalating mechanism have been mutually responsible), some of the wage increases, no doubt, were simply pace-keeping gains to match the consumer price rises produced by the excess-demand inflations of 1946-48 and 1950-51. Nevertheless, I see no basis for hoping that union leadership in the manufacturing industries will, under its own motion, henceforth become sufficiently moderate in its demands to settle for annual gains in wages (including fringe benefits) that do not exceed manufacturing's average annual productivity improvement of, say, 3 or 4 percent. Nor would it be particularly plausible to expect the internal politics of the labor movement readily to tolerate, or tougher bargaining on the part of management to enforce, such moderation.

Fourth, there is, furthermore, the prospect of a continuing relative shift of labor to service and distribution trades where labor productivity gains typically are less robust than they are in manufacturing. With wage patterns being set in manufacturing and, at the very least, keeping pace with the productivity gains in that area, powerful labor market pressures are created for wage increases in excess of productivity gains, and hence for price increases, in the nonmanufacturing area. As Mr. Edwin Dale of the New York Times and others have pointed out in recent writings, this kind of pressure is heavily responsible for the 1955-57 inflation. It is due to continue.

Fifth, under existing institutional arrangements, there is no reason to expect a voluntary modification of cost-plus forms of corporate pricing or a voluntary acceptance of lower rates of return on net worth.

Sixth, it seems to me rather likely (although this is an impressionistic view not based on much quantitative evidence) that the long-term reduction in capital-output ratios in the United States, which has reconciled declining returns to property per unit of output with the maintenance of adequate returns on net worth, may be in the process of slowing down or reversing. This, if it is so, is because of accelerating obsolescence in capital goods and the devotion of more and more investment to so-called "product development" which mainly entails the proliferation of the many highly similar but differentiated products and the killing off of perfectly good older products with slightly improved ones. There is nothing intrinsically wrong with such activity; it is the mark of an opulent economy. But it tends to raise capital costs per unit of output.

Seventh, there is no reason under existing institutional arrangements, particularly if Government does not allow any old-style major downspirals in demand to develop during the years ahead, to expect any abatement in the pricing system's ratchet characteristics. We

shall, no doubt, experience sudden, emergency-related spurts in demand on the 1950-51 model now and again. When we do, prices will surge upward and never will recede to their old levels.

The case for the prospect of secular inflation could be spun out further, but I think the foregoing should suffice. Long-term economic prognosis is the most uncertain of business in any case. But if we are talking about an economy that continues to avoid a hydrogen war, few long-run developments are more likely, it seems to me, than that costs and prices will continue to slip upward if existing pricing practice persists. The average rate of slippage is quite unpredictable. This much, however, might be hazarded: that it really would only take a very modest interaction of the factors that have been listed to yield an average inflation of 3 percent a year that would double the price level in less than 20 years.

#### THE PROBLEM FOR PUBLIC POLICY

My net finding is that, from the viewpoint of long-term growth requirements, there is nothing convincingly wrong with the pattern of functional income distribution which American pricing practice has been yielding in recent years; and the latter's impact on the problem of short-run instability is mostly benign. But existing pricing practice does promise a disturbing rate of secular inflation. In other words, although present arrangements seem to be producing a commodity and factor price structure that may be quite satisfactory in its relative dimensions and internal flexibility, we can expect the whole structure to ascend an irregular but generally rising track, unless there are effective policy antidotes.

Any public policy attempt that may now be made to reform pricing results therefore should, I think, be squarely and simply based on our desire to avoid inflation as such, not on collateral aims to promote growth or prevent recessions. It is possible, to be sure, that the benefits to be derived from effective anti-inflationary policies would be broader than simply the checking of inflation itself. This would be so, if it should turn out that, in future continuing, more or less steady inflation were not compatible with continuing steady growth. As I see it, there is nothing in the foregoing analysis or in this Nation's experience to prove such an incompatibility.

On the other hand, we do not know yet what the consequences will be when and if the expectation of substantial secular inflation has begun fully and regularly to be reflected in the buying decisions of business, and—even more—of consumers. Perhaps under these circumstances it will be impossible to keep a limited rate of inflation limited, or to keep investment and consumption expanding in a sufficiently orderly way to facilitate steady growth. A number of eminent economists have reached this conclusion.

Such a conclusion, however, is still speculative. At present the only convincing reason for developing new anti-inflationary policies is to avoid the evils of inflation itself. These evils, of course, are by no means inconsequential—I personally think they are serious enough to warrant some new public policy experimentation. But the positive decision which policymakers must make is essentially whether the checking or avoidance of these evils is worth the disadvantages of

the policies that it would take to do the job; the decision should not be camouflaged in a growth-promoting or recession-avoiding rationale.

*Avoiding the wrong policies*

In a moment I want to suggest very briefly what some of the characteristics of a workable program to reduce the inflationary bias in present pricing practice might be. But first I want to emphasize the strongest policy conclusion that I draw from the foregoing analysis: Our need to avoid the wrong kind of anti-inflationary policies for checking the sort of secular inflation which is implicit in present pricing practice is more urgent than our need to find the right kind of policies for the job.

The wrong kind of policies for this job are those which try to stop inflation by restricting aggregate demand—namely, monetary and fiscal policies. These are the wrong policies for two reasons. First, they attack the wrong problem. The secular inflation problem that faces us is not an average excess of demand over capacity. Rather, it is the shape of our aggregate supply function. The problem inheres in a whole web of institutional arrangements that determine the pattern of price-output relationships in this country. An effective antidote must do nothing less than modify the shape of the United States aggregate supply function.

Monetary and fiscal restraints are the wrong solutions, second, because in attacking the wrong problem they can do far more harm than they can possibly do anti-inflationary good. If they are stringent enough they may slow up “cost-push” inflation, although even in this respect their limited effectiveness may be temporary and illusory; for in curtailing demand they are apt to curtail investment and thereby reduce the most effective continuing offsets to “cost-push” inflation that the system presently contains—namely, productivity improvement and capacity expansion. At any rate, they cannot slow down such an inflation very much—certainly they cannot stop it in its tracks—without causing underproduction and unemployment and without retarding growth.

Our situation is very much like that of a woman who has a moderate tendency toward obesity because of a glandular imbalance but whose physical prognosis otherwise is quite good. If she determines to stop getting fat, well and good—this is a sound objective, provided she can find the right therapy for the glandular problem. But she can ruin her health by indiscriminate dieting. To rely upon monetary and fiscal policies for whipping cost-push inflation is analogous to such dieting. And those monetary swashbucklers who were saying last year that it was high time for the Federal Reserve System “to teach administered price and wagemakers a lesson” made about as much sense as would the lady if she decided to educate her glands by reducing her calorie intake. For the objects of such a training program are deeply imbedded institutional pricemaking processes, most of which make eminently good sense in their own contexts and all of which are exceedingly resistant to central bank manipulation.

The natural result of this kind of lesson teaching is precisely what we now have: The least necessary recession since 1937–38 and the first recession since 1937–38 for which gross errors in public stabilization policy bear a major part of the responsibility. If the committee draws one conclusion from its present study, I hope it may be

that 1957 should go down as the last year in which the United States fought a dedicated anti-inflationary battle with self-immolating weapons.

*Designing the right policies*

The question of how Government might exercise some leadership in developing policies which would take some of the inflationary bias out of American pricing practice is a subject which, for any adequate treatment, would require a second paper. It is an exceptionally difficult subject because it requires creative thinking. What we are talking about essentially in this area are some new social inventions that have not yet been contrived.

There is remarkably little in American public-policy experience that is very relevant to the problem of reducing the upward tilt of price-output relationships. Here, for reasons of space, I must fall back on unsupported and probably unpersuasive assertions. However, I should argue that the antitrust type of policy, while mostly on the side of the angels, cannot supply the principal answer; that it is foolish to talk as though a "peacetime OPA or OPS" were the policy alternative because permanent, general unilateral price control would not only be politically infeasible and esthetically intolerable, but technically unworkable; and that certainly the court-commission system of policing the rates of specially regulated industries offers very little in the way of helpful precedent.

My one serious suggestion as to policy design is that the problem should be examined initially in a political science framework. The prospect of a significant inflationary bias in the economy is only one symptom, although perhaps the most prominent symptom, of the fact that in the large group economy which the United States has mainly come to be, the algebraic sum of the immediate interests of our large producer groups does not always add up to the public interest. The major producer groups are wielders not only of economic but of very considerable political power. On the one hand, I do not expect to see the problem of inflationary bias solved wholly by "business and labor statesmanship" or by the private pursuit of "long-run enlightened private self-interest"—unless the latter gets awfully enlightened and not very self-interested. On the other hand, it is unreasonable to think of government, under normal, nonemergency, peacetime circumstances as a detached, self-sufficient power which can swing a big stick and successfully force all of what are, to some practical extent, its political superiors to behave in ways which they intransigently resist.

The problem has another political dimension—namely, that any direct public intervention into pricing practice happens to smack of a type of regulation which is regarded as particularly meddlesome, invasive of the prerogatives of management and labor, and generally distasteful by the American public. However, there is also the underlying circumstance that the concentration of discretionary economic power which the major producer groups presently wield is, in terms of some of our most cherished political ideals, anachronistic. The exercise of this power is not closely disciplined by an impersonal market mechanism. Neither is it extensively accountable to the community as a whole through the political process. This leaves key private deci-

sion makers in an exposed, potentially insecure position, of which most of them are keenly aware, and heightens their natural desire to wield their power in a socially responsible manner.

All of this suggests to me that if inflation is to be avoided during the coming generation the Federal Government will play a very crucial role in the avoidance. But that role will be essential catalytic, not unilateral. Workable policies will be ones which, rather than swinging a big stick or calling down public shame upon objectionable pricing practices, work quietly to channel the reservoir of potential statesmanship that does exist in the corporate and labor communities into effective action. I should expect techniques of public policy to be mostly suasive and advisory rather than authoritative, but this would not mean generalized preachments from the housetops. Rather, it might mean specific price and wage advice directed to specific key pricing jurisdictions by public representatives intimately acquainted with the circumstances of the industry and privileged to render their advice before, rather than after, decisions had jelled. I should certainly expect such procedures to grow slowly and at first haltingly. But I should not be surprised if most progressive corporate and union leaders ultimately came to regard such a communications channel to and from government less as an invasion of their prerogatives and more as a conveniently overt means for rendering accountability to the public as a whole.

If any social inventions are to be attempted in the area of pricing practice, they will need, I think, to partake of some of the general characteristics just suggested. The most that public policy can aspire to do in this field is to help encourage, guide, and coordinate the socially responsible impulses of private decision makers. If those impulses should be weak, there would, I think, be no escape from substantial secular inflation that would be at least distasteful and could be disastrous.

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VI  
PRIVATE PRICING POLICIES: THEIR FORMULATION  
AND EFFECTS

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## VI. *Private pricing policies: their formulation and effects*

- A. How are pricing decisions made in various types of business concerns—manufacturing, wholesaling, and retailing? In each type of establishment—
  1. Who makes the decisions?
  2. What type of information and data are used as a basis? (Illustrate with specific types of forms, etc., if possible.)
  3. To the extent that costs enter into price decisions, what are the relevant costs—past, present, or estimated (forecasted) future costs?
  4. Why are decisions made?
  5. What methods are used in such decisions—percentage markup, dollar margin, standard volume cost plus profit, etc.?
  6. To what extent are these policies geared to maximizing profits in the short run and the long run?
- B. How do (a) market structure, (b) degree of industrial concentration, and (c) product characteristics affect pricing policy?
- C. How do such factors as (a) customer goodwill (public relations), (b) labor-management relations, (c) marketing research, and (d) advertising budgets, enter into pricing policy decisions?
- D. How are price policies and the responsiveness of prices to changes in demands and costs influenced by changes in economic organizations and methods which are employed to provide services of productive factors—e. g., development of collective bargaining, institutionalization of flow of financial resources, internal financing, etc.
- E. How does control over costs as manifest through “administered” prices of labor services and the extent of monopoly among vendors of purchased materials and services enter into pricing policy decisions?
- F. Under what conditions, if any, and within what range are firms able to establish pricing policies with only a secondary regard for demand considerations? How might the results of such policies be expected to differ from those under “competitive price” conditions with respect to output and prices? How pervasive are such “administered price” policies?
- G. To what extent, and how, can business direct price policies so as to contribute to general economic stabilization and growth in a dynamic private enterprise economy?

## BUSINESS PRICE POLICIES AND ECONOMIC STABILITY

Wroe Alderson, Alderson & Sessions, Inc.

The term "business price policy" implies that the price behavior of business firms is not completely determined by market forces. In other words, the notion that businessmen can exercise policy with respect to price is equivalent to saying that the market leaves some area of discretion for pricing. The paradox of business policy is that it constitutes a voluntary restraint on the firm's freedom of action. The problem for public policy is whether the ultimate effect of price policies exercised by individual firms in the real world is in reasonable conformity with the theoretical notion of equilibrium adjustment under pure competition.

Freedom to exercise price policy is a characteristic feature of an economy in which most enterprises operate in a climate of monopolistic competition. Each firm has some measure of monopolistic power because the relationship of perfect substitutability does not hold between its products and the most nearly competitive products. No firm, however, is obliged to set the monopoly prices indicated by theory, but may if it wishes take account of qualifying considerations such as potential competition. Thus the practical application of any version of monopoly theory tends to be ambivalent, with the alleged monopolist being charged at one time with exploiting the consumer by taking all that the traffic will bear and at another time with setting low prices to drive out present competitors or to keep out potential competitors. An area of discretion which can be governed by price policy exists in the case of monopolistic competition as well as in the rare case of pure monopoly. The factors which might cause a departure from the highest price which the traffic will bear are probably more numerous and more influential under monopolistic competition.

The purpose of this article is to describe some variations in price policy observed from the vantage point of a management consultant and to attempt some evaluation of the factors which influence business thinking in this area. The overall objective, of course, is to aid in evaluating the relationship of price policy to the problem of economic stability. To what extent does the exercise of price policy by many individual enterprises impede or facilitate the approach to economic equilibrium and the avoidance of business recession? Are there any modifications of price policy, which businessmen might adopt voluntarily or in response to Government action, which would contribute to economic stability?

### BASIC ELEMENTS OF PRICE POLICY

There are numerous factors which might enter into the formulation of price policy by a business concern. First there is the question of

objectives or what it is that the businessman is attempting to maximize through price policy. Next there is the whole structure of price relationships which may be the subject of price policy and which cannot be expressed simply in terms of low or high prices or of competitive or monopolistic prices. Again there is the information about the market and market changes which the businessman utilizes in making calculations or judgments concerning prices. Whatever type of information is used, there are characteristic difficulties in obtaining reliable data in any of these areas. Finally there are conceptual factors entering into the business philosophy of the particular firm which may influence its pricing behavior quite as significantly as any of the more objective and quantifiable factors which have already been mentioned.

It is generally assumed that the fundamental objective of the business firm is to maximize its profits. Yet there are countless instances in which business management sets lower prices than they might be expected to set if they were interested only in short-run profits. Closely related to long-run profits as a goal is the company objective of sales growth. The goal of growth may be expressed either in terms of an absolute increase in dollar sales or an increasing percentage share of the market. To increase its market share a company must not only grow, but grow faster than its immediate competitors. A possible way of reconciling these various goals is to assume that the management of a firm is generally trying to maximize the value of the company's assets. Asset values are affected both by growth and profitability. The value of assets increases when earnings are left in the business to build new plants or to finance promotional campaigns. Assets also increase in value if the company makes a profit on its operations and maintains its dividend payments. Various aspects of business policy can be related through the notion of maximizing the value of assets. It will be assumed here that price policy also is generally determined by this basic objective.

There are at least four separate aspects of price which can be the subject of policy. The simplest of these may be described as the price level or the price per unit at which a company offers a given product. While price level is fundamental, business price behavior is often misunderstood because attention is focused too exclusively on price level. Very often a producer offers the same type of product in a variety of sizes, styles, or qualities. Thus the second aspect of price policy is the determination of the price lines at which these varieties of the product will be sold. Offering what is basically the same product in several price lines means that price policy takes account of the fact that some consumers are prepared to pay more than other consumers in this product class. Generally the more expensive product has additional features, better quality, or elements of prestige which do not pertain to the lower priced product. When a product is offered at a variety of price lines the question of whether prices are rising, falling, or remaining static can become quite complicated. To add a lower priced line amounts in a sense to an overall price reduction, even when there is no change in the price of items further up the scale. If the new price line offers the same basic utility leaving off only frills or secondary features, then this constitutes a price concession to consumers who are not willing to buy at the higher prices. Another way that price changes occur is by incorporating features in

the lower price lines which were previously available only in the higher priced lines. This kind of change occurs year after year in the pricing of automobiles. A decrease in the average price of a product such as an automobile can also take place at the initiative of the consumer. For example, in the last several years there has been a relative increase in sales of the lower priced cars and a relative decrease in sales in the medium price bracket. The offering of the same basic product in a variety of price lines obviously gives more opportunity for consumer choice to influence the market than if the consumer merely had to choose whether to buy or not to buy at a single price line.

Another major aspect of price policy is that concerned with price structure. The term "price structure" refers here to the relationship between prices at which a product is offered at various stages in the channels of distribution. A manufacturer may not merely sell to his immediate customers at net prices, but he may suggest what he regards as appropriate levels at which the product might be sold by wholesalers and retailers.

In some cases he may attempt to enforce these retail prices through price maintenance contracts or other devices such as consignment. In other cases he is vitally concerned about wholesale and retail prices even though he does not attempt to control them. If for any reason consumers are having to pay more for product A than for directly competitive products, the result is obviously a limitation on the market for the producer. When such a situation exists the manufacturer may attempt to find new distribution channels, to induce present channels to handle the product at a lower cost, or to attempt direct sales of all or part of his own organization. A manufacturer who sells through trade channels is not always able to stimulate immediate consumer demand by cutting his own prices. Price policy must take some account of the means for making a price cut effective at the consumer level.

Another subject for price policy is that of price trends. Many manufactured products are brought out at a relatively high price with the expectation that prices can be lowered as volume increases. If the minimum production unit is of substantial size, the producer may have to count on a period of several years before he reaches a break-even level of production. Typically he is not willing to take the same sort of risk with respect to expenditures for creating a market. Thus the initial prices are likely to be set at a high enough level to create funds for advertising and promotion. These funds, in turn, are used to build demand for the product so that it may eventually be offered at a lower price and achieve the mass production levels originally anticipated.

While a product may be introduced with an expectation that its price can be gradually lowered, there are other factors affecting price trends which must be embraced by policy. Management usually attempts to get the maximum promotional advantage out of price reduction either by making the cuts less frequent and thus more impressive as to size, or by making them soon enough to deprive competitors of the advantages resulting from initiating price cuts. Another qualification in the overall policy as to price trend may arise if it develops that consumers are more interested in product improvement than in economy. If improvements occur, however, without corresponding

price changes, the improvements in themselves are equivalent to price reductions.

A more serious qualification for the present purpose is that which may arise from a general acceptance of upward price trends in an inflationary period. The notion that consumers have come to regard an upward trend as inevitable may very likely make businessmen less sensitive to the competitive advantages to be obtained by price reduction. In particular cases there are limits on the extent to which an individual business can go contrary to price trends in its particular field. Some years ago a drug chain attempted to sell aspirin to its customers at 29 cents per hundred when the prevailing price for other brands was 59 cents per hundred. The chain finally had to raise the price of its own product to 49 cents per hundred to overcome consumer suspicion about quality and found little difficulty in selling the product thereafter.

The manufacturer of a specialized product has no choice but to calculate some price at which he will offer it. His situation is unlike that of the farmer growing wheat or cotton or other basic products for which there is an established market price. Even assuming that the manufacturer has every desire to select the competitive price rather than a monopoly price, he still has the responsibility of calculating what the competitive price is for his product. In making this calculation he uses various types of data about costs and about demand and competition. The criticism is frequently raised that the producer tends to rely too largely on cost data, as for example in applying the full cost principle of pricing. To the extent that this occurs, one of the major reasons for it is convenience. That is to say that the producer usually has available certain information on the cost of the raw materials and labor and other elements entering into the production of the product. Very often he will add some conventional markup to his basic costs on the assumption that this margin will cover his overhead. Actually, if he has a large production unit and small initial sales, he usually cannot hope to cover his full overhead in any feasible initial price.

In practical terms, any margin of the initial price over direct production costs is likely to go into advertising and promotional expenditures designed to increase volume. The conventional markup used in a full-cost formula might or might not yield an adequate fund for promotional expenditures. It would be pure coincidence if an optimal price, from the promotional standpoint, were to be established in this way. What the seller needs at the start is a price that will yield as many dollars as possible to be used in promotion. Consumers with the greatest need or interest pay a premium for the prestige or satisfaction of being among the first to buy, and thus provide the funds for persuading those who are less knowledgeable or enthusiastic.

The best way to establish an initial offering price is to start from the demand side rather than from the cost side. The two elements must, of course, be brought into balance eventually, but in the beginning it is better to ignore costs than to ignore demand. Very typically the optimal offering price is the price which will generate the largest dollar volume of sales. Many producers behave as if they were trying to approximate such a price both in the initial stages and in the later history of a product. Advertising and promotion expenditures may be regarded as designed to overcome resistance to the

acceptance of a product. One basic source of resistance, of course, is price, so that an offering price which generates the largest dollar volume of sales is entitled to first consideration as the one which minimizes resistance to price. Presumably at this price fewer dollars will have to be spent for advertising and promotion to achieve the same sales volume than at any other price. In the initial stages there is no hope of recovering total production costs, if that is defined to include the overhead of the entire plant capacity. The chief problem in the beginning is to generate funds to cover marketing costs. The producer, therefore, actually wants to maximize his gross margin over direct costs related to his choice of a product design to satisfy that part of the market which is ready to buy.

#### PRODUCT DESIGN, PROMOTION, AND COMPETITION

Price policy at this stage is related to policy with respect to product design and promotion. The best initial offering is a product design which will satisfy immediate demand in such a way as to generate the dollars needed for promotion. Costs vary with product design, and hence product design determines the prices at which costs and demand can be brought into balance eventually. All of these considerations as to policy in the initial stages still hold with some modifications throughout the product's history. An existing product becomes a new product to some extent when new features are added, when new types of distribution channels are employed, or when new classes of consumers become interested in buying.

Price policy also takes account of competition, both initially and increasingly as the product becomes established in the market. Experience begins to accumulate concerning the response of sales to competitive moves. The sales executive who is watching competition does not necessarily try to match the lowest competitive price in the market. Quite often a producer of a major brand will tolerate a certain spread between his own prices and those of minor competitors, but will adjust his prices downward when this spread begins to widen. In many cases it would be quite impractical for him to match the lower prices since the price spread is the only factor which enables the minor brand to exist. It is assumed that its producer would maintain the spread no matter what action was taken by the major producer.

Competitive considerations frequently induce a manufacturer to improve his product rather than reducing his price where both courses are available. He may accomplish the same result of increasing his sales or market share through product improvement, but in a more gradual fashion, allowing his competitors more time to adjust and reducing the hazard of violent reaction. Generally speaking, product improvement leads to attrition at the fringes of his competitor's markets, while drastic price reduction may constitute an attack on the core of their markets.

Once a product is on the market the producer reacts to changes in cost, demand, or competition. His response to changes in his direct costs is often to make a corresponding change in his own prices. This is a very crude way of calculating the required adjustment in prices, but it is often a matter of convenience rather than monopolistic

intent. The pyramiding of prices increasing at the retail and wholesale level has often been deplored, but many of these intermediaries operate on narrow margins and are adopting what they regard as the simplest way of calculating a safe adjustment. Thus the food retailer usually increases his price on canned foods simply by calculating his conventional percentage markup on the new cost price to him. In retailing fresh beef, however, he cannot readily calculate an average margin for the various cuts which he takes out of a side of beef. The custom, therefore, is to make an adjustment in cents per pound on each cut corresponding to the increase in cents per pound on the side of beef.

Whether price policy emphasizes cost, demand or competition, there are characteristic difficulties in obtaining reliable data for pricing purposes. Some comments have already been made with respect to the problems of taking account of overhead elements in production costs or estimating the funds that will be needed for marketing costs. In the case of a firm making two or more products, there is the ever-present problem of joint costs. In these instances a producer who says that he is basing his prices wholly on costs is engaged in some measure of self-deception to the degree that he cannot wholly segregate his costs product by product. The extreme case is that in which one product is regarded as the by-product of another, and yet some revenue is received from its sale. A truly scientific optimization procedure would evaluate various pairs of prices on the main product and on the by-product in order to come up with the combination which would optimize sales and profits for the product and the by-product taken as a whole. Something like this is done on an intuitive basis in industries faced with this problem. Many difficulties arise in carrying out such a policy as, for example, when a sudden shift in demand reverses the roles of companion products. Even in so simple a case as the production of chlorine and caustic soda from the electrolysis of salt, it has not always been easy to say which was the main product and which was the by-product.

To an increasing extent, it is the practice to price a new consumer article by first making a judgment as to the price at which the product will sell at retail, and then working backward from the consumer price, making allowances for retail and wholesale margins, and finally arriving at what will be available to the manufacturer for producing and marketing the product. Sometimes these judgments as to consumer price are made by marketing executives of the manufacturing company, but they may also rely on judgments of retailers in the fields in which they expect to introduce the product. The retailers' judgments are strongly influenced by the prices of what he regards as competitive products and by the desire to see the new product priced cheaply enough to insure a reasonable rate of turnover. Even so, the retailer may demand a wider margin on the new product than for other products in the same class, at least until experience has demonstrated its salability. The manufacturer, on the other hand, is obliged to give greater weight to the margins over production costs that he should have available for marketing the new product. He may be willing to sell a smaller number of units at a higher price in order to get started. As a result, retail distribution may be very limited in the beginning, depending largely on specialty stores in his particular field with spotty representation, if any, among mass merchandisers.

Sometimes the introduction of a new product is preceded by extensive studies to determine how many units will sell at various prices and also to determine what margins will be required to obtain the desired cooperation from wholesalers and retailers. These studies of consumer reactions to price do not often provide the basis for setting up a demand curve showing a continuous relationship between price and quantity. This is possible in exceptional instances where a large amount of data on demand and competition is generated through regulation of an industry. Thus in a recent case in which natural gas was being introduced into a market for the first time, it was possible to develop empirical demand curves for each separate use for gas such as household heating and industrial interruptible use. Massive consumer surveys might provide the basis for demand curves on a product or class of products that is already in general use, but there are special difficulties in the case of a product that is about to be introduced. The sales of such a product will depend not only on price, but on the amount of advertising and promotion, the extent of retail distribution that is achieved, and the degree of cooperation on the sale of the product obtained from wholesalers and retailers.

It is usually feasible to obtain by survey methods what might be called a relative revenue curve, which reflects estimates of the percentages of a sample group which would buy at various prices, assuming that everything is equal with respect to advertising and distribution. Such a relative revenue curve at least provides a place to start in trying to base pricing decisions on demand considerations. It is believed that many businessmen proceed intuitively as if they first had tried to estimate the shape of this relative revenue function and then selected the price which would maximize dollar sales volume, all other things being equal. Whatever the producer does, however, to make a judgment as to the optimum consumer price, he still has ahead of him negotiations or adjustments to the views and requirements of the distributive trades. For examples, cases are known in which a seller has finally adopted a price lower than that which he regarded as the optimum consumer price, because his distribution channels for other products were accustomed to selling lower priced items. This is doubtless a common experience of producers who are trying to develop a large volume of sales quickly through such mass distributors as variety chains.

The difficulties with respect to information concerning competition are obvious. In what the seller does today he has to anticipate moves that competitors may make in the near future. Products are sometimes introduced at less than what the seller regards as the optimum price in the hope of achieving rapid market penetration because of the expectation that competitors will bring out similar products in the very near future. Modern competition for differentiated products does not resemble the day-to-day equilibration of market forces so much as a series of military campaigns. One competitor in a group may make rapid gains because of a new product feature, a new advertising appeal, or a new merchandising plan. Meanwhile his competitors are doing their best to develop counter strategies through which they can at least recover their old positions and hopefully make some gains of their own.

Some substantial but temporary cut in prices is often one of the features of such a campaign in its early stages. The price cut may

be part of an overall plan to call attention to a new product or product feature, to attract consumers to try the product, or to induce retailers to give special cooperation in display and other sales aids during the period of the campaign. Where this kind of competitive strategy is a customary aspect of the marketing of a class of products, the average price over a year's time on any product may be significantly lower than the normal or list price. It is difficult to evaluate the interplay of competition in such cases, but the sellers are apparently convinced that they reach a larger total market by such price variations over an operating period than by giving the same average price throughout the period. Businessmen are generally guessing about such issues and their price policies might be different if they had valid information. Quite often the results of a special price cut turn out to be disappointing when analyzed. Sales tend to slump after the offer has expired so that there has been no real gain in sales over the period. Obviously the seller is not generally well informed as to the effect of his competitor's special price cuts since he knows so little about his own. The tendency in the absence of knowledge is to try to meet all of the competitor's special price cuts in one way or another, and in addition try to outwit him by offering something different or better. The main limitations on the frequency of such deals in some fields such as packaged grocery products are chiefly the administrative burdens that they impose on both the producer and his trade channels. Retailers from time to time rebel and refuse to handle special offers, thus exerting some influence on the manufacturer to wait until he has developed something more attractive before he brings out another deal.

#### POLICIES OF RETAILERS AND OTHER INTERMEDIARIES

The discussion so far has emphasized the viewpoint of the producer and his problems of price policy rather than those of the intermediaries who buy and resell such products. A discussion of business price policy in the field of fabricated products necessarily starts with the producer because it is usually he who must consider the relations between product design, pricing and promotion on the demand side, and production and marketing costs on the supply side. There are exceptions, of course, in which the large retailer establishes primary price policy and his suppliers attempt to operate within the framework which the retailer establishes. Often in such cases the product is sold under the retailer's brand name, and it is he who is the sponsor of the product rather than the producer. In fact, the "product sponsor" might be defined as the agency which takes responsibility for determining basic policy as to product design, price, and promotion, and generally owns the trademark under which the product is sold.

What then is left for price policy for those firms who handle the product but are not the product's sponsors, as for example, the retailer handling a branded and advertised package product. Such a retailer serves first of all as a critic of the manufacturer's price policies by either agreeing to handle a product under the suggested terms or refusing to handle it. If he decides to handle the product, he may choose to take less than the suggested retail margin unless he is restrained from such action under resale price maintenance. He may have several motives in the voluntary reduction of his own

margin on a product. If the product is very heavily advertised, he may feel that the best possible advertising for him is to offer such a product at a reduced price. His price policy in such a case is to use certain products to bring people into his store and to try to make up the loss in margin on other products he carries. This is the so-called loss leader policy which has been the subject of much debate among both businessmen and economists. It is a policy which tends to reappear among retailers in times of business recession. In fact, the resale price maintenance laws intended to curb loss-leader practices were born in the depression years of the 1930's. It is the writer's opinion that these laws have had very little effect on price levels for most lines of merchandise, since rising price trends have been prevalent throughout most of the years that they have been in effect. It is ironic that the price maintenance laws and possibly the Robinson-Patman Act have been seriously undermined by recent court decisions just at the time when business recession might lead to a widespread use of loss leaders by the larger retailers or price discrimination by their suppliers.

A second motivation for the retailer to take a lower margin is a genuine conviction that he can still make money on the product at these narrower margins. Margins tend to become conventional for various classes of goods and to remain fixed even though marketing conditions change. Thus when a product develops a large volume of business it does not generally cost the retailer as much to handle it as it did when the product was just getting started. Both his inventory requirements and the amount of time he must spend in selling the product tend to be reduced as volume increases. In some lines of retailing, such as appliances, a substantial part of the costs of the dealer or distributor are involved in the service that must be given in installing a product or in repairing it during the warranty period. As products are improved, breakdowns are less frequent and the actual cost of service is reduced. Today, for example, consumers very seldom have to call in the serviceman to repair a refrigerator, and there has been a reduction in service calls even on such appliances as washing machines and television sets.

The so-called discount house, which has made such great inroads in the sale of some consumer durables, has followed price policies which represent a mixture of the motivations which have been described. To some extent they have prospered by drawing volume from other stores as visualized under the loss-leader philosophy. There would have been less room for them to enter the field, however, if the traditional outlets had not been wedded to conventional margins, which were established partly to cover a large service requirement but could no longer be justified on that basis. In some lines of retailing the adherence to conventional margins is so great as to bring about a transfer of a substantial share of the market to other channels. This has happened in the case of sterling flatware, for example, in which the old-line jewelry store has lost a third or more of its volume to house-to-house operators.

A third type of price policy exercised by retailers is designed to cater to the desire of the consumer to bargain and to make him feel that he is making a smart deal with the retailer. This element in retail price policy is present in many lines of consumer durables, but particularly in the sale of new automobiles. Here it is quite cus-

tomary for the retailer to name a large starting price and then to inflate the trade-in value of the used car that the consumer is turning in. Nevertheless there is genuine price competition in the sale of new cars, even though the buyer must be reasonably well informed and engage in comparison shopping in order to take advantage of it. Price competition is especially keen among automobile dealers when demand slackens, because of the many thousands of dollars tied up in inventory. In many cases a car which would normally carry some hundreds of dollars of gross profit for the retailer may be sold at a margin of only \$50 or even at cost in order to meet the car dealer's need for cash. One incentive for him to carry on such relative profitless transactions is that of meeting the quota the manufacturer has given him in order to maintain his status in a class of favored dealers.

A phenomenon of retailing which is closely related to price policy is that of giving trading stamps with purchases. This practice has spread rapidly in the last several years and has now reached a peak that could only be matched in earlier periods of recession. The effect of trading stamps on the net prices of merchandise is a controversial issue. Critics have contended that they must necessarily lead to an increase in prices, but several well conducted studies have shown the contrary. That is to say that in cities in which some competitors give trading stamps and some do not, the stores that give stamps still seem to be meeting competitors' prices. Consumer interest in trading stamps takes some extreme forms. For example, cases are known in which consumers have objected to the reduction of prices in supermarkets because this would cut down the number of trading stamps they would receive.

There are other elements in retail-price policy that are based on assumptions about consumer-price psychology. Thus \$2.98 has long been established in department stores as a more favorable price than \$3. Most merchants in the consumer-goods field still take this doctrine seriously enough to engage in odd-cent pricing on many products both in packaged goods and general merchandise lines. Ordinarily it does not represent any substantial price reduction, and there is some evidence that consumers are readily deceived by such practices. One experiment reports that the sale of a product increased substantially when the price was changed from 1 for 33 cents to 3 for \$1. Certainly this type of thinking, both by the retailer and the consumer, has diminished in recent years since what were regarded as psychological prices in the past have been difficult to maintain under changing conditions. Thus a \$2.98 price may not end up being a good psychological price if the consumer also pays a 9-cent sales tax so that she is actually out of pocket \$3.07. Similarly, the steady upward trend in retail prices since the war has tended to obliterate some of the well-established price lines or supposedly psychological prices from the past. Thus, when a 39-cent price can no longer be maintained on a product because of increasing costs, the new competitive price may turn out to be 44 or 45 cents rather than jumping to 49 cents as the next highest psychological price.

Behind all of these devices and practices, there is one general principle with respect to the price policy of retailers and consumer reactions to retail prices. That is to say that, in using lower prices as a way of selling goods, the retailer attempts in one way or another

to get the maximum psychological impact out of the price cut. His experience has convinced him that merely offering a lower price may not produce increased sales because of the limitations on consumer knowledge of both prices and of product quality and features corresponding to price. Thus the retailer must either be serving a price-conscious consumer or undertake to sensitize the consumer to price before a price cut can be effective in moving merchandise.

This statement applies primarily to the behavior of the more aggressive retailers who take the initiative in cutting prices. It is chiefly these dealers who exercise effective price policy with other retailers cutting prices only to arrest the loss of business to the leader. There is, however, some area for discretion for the exercise of price policy, even for the smaller stores. They can follow the leader all the way down in a period of falling prices or they can decide at some point to hold their prices and settle for a smaller volume of business. Many retailers took the latter course during the depression years when they were confronted by aggressive and continuous price cutting by large stores such as Macy's. These large stores, under pressure to maintain their physical volume, were apparently determined to sell for less than other stores no matter what the level. In any case, many small stores eventually concluded that this was the case and that it was fruitless to continue the battle. In some instances they were able to survive on the reduced volume which came to them purely on a convenience basis, even though their prices were substantially higher than those of their major competitors. When this type of uneasy equilibrium is established, retail competition ceases to exert a downward pressure on prices. So long as it continues the large retailers are obliged to apply pressure to the supplier for lower prices, so that in underselling their competitors they will not actually be selling at a loss.

There is another way in which the commercial or industrial buyer exerts pressure on his suppliers for lower prices. That is the pressure to give lower prices on original equipment business in order to maintain the demand for replacement sales. Thus the automobile manufacturers, who to considerable extent are engaged in assembling parts manufactured by others, enjoy a relatively low price on most of these original equipment purchases. A tire manufacturer, for example, likes to see his tires on as many new automobiles as possible in the hope that the consumer will insist on the same brand of tire when he comes to buy new ones. Tires continue to be improved to the point where they may eventually last as long as the automobile, and at that point price relationships between automobile manufacturers and tire manufacturers will doubtless be in for drastic revision. On many automotive parts, replacement business has already dwindled away to a relatively insignificant amount. A somewhat related phenomenon in price policy is that of placing a low price on a piece of equipment as compared to the price on consumable items that are used with this equipment. A classic instance is that of the low price of the safety razor as compared to the price of blades. The exercise of this type of price policy assumes, of course, that both elements are made by the same manufacturer, who can earn enough on one item to justify the production and distribution of both.

## MARKETING PLANNING AND PRICE POLICY

In assessing the impact of business-price policy on economic stability, it is necessary to take account of restraints on the exercise of policy imposed by the organizational environment in which it operates. These limiting factors may be discussed in terms of the three broad concepts of plans, problems, and executive philosophy. A business plan is an attempt to lay out a course of action over some stated period of time designed to produce some result which can be stated either in terms of specified outputs during the period or a specified state of affairs at the end of the period. Policy with respect to price or other aspects of business operation may be regarded as an instrument for making the plan effective. A plan is geared to the accomplishment of ultimate goals rather than immediate objectives, defining "ultimate" in the special sense of objectives related to the entire planning period and "immediate" in the sense of pertaining to transient conditions arising during the period. A policy as related to a plan is a limitation on the exercise of discretion during the planning period. A price policy recognizes an area of discretion for pricing and sets limits on the exercise of that discretion.

A plan regarded simply as a schedule of proposed activities is sometimes conceived in terms of what has been called a certainty model. That is to say that the plan is based upon certain assumptions about the future and perhaps even embodies the fundamental assumption that adequate knowledge about the future is available or can be obtained.

A set of policies, including price policy, in effect acknowledges that uncertainty will occur in the detailed execution of the plan or at least will exist subjectively in the minds of subordinate executives who are attempting to put a plan into effect. The policy in effect tells the subordinate executives how to classify events and how to deal with each class of events to promote the plan. Policies, of course, exist in organizations which are not engaged in market planning in any precise and detailed way. Even in these cases policies may be regarded as an expression of the plan, even though that plan is only vaguely formulated and is not being currently revised in the light of changing conditions. If the plan is vague, policies may remain static over a long period because of the difficulty of evaluating their pertinence to the execution of the plan.

The situation changes when management is committed to market planning as an orderly and continuous procedure. A clear rationale as to the relationship between plan and policy can then be developed. In these cases the objectives of the plan can be stated usually as accomplishing certain outputs during the planning period, subject to certain restraints as to the state of affairs which should exist at the end of the period. This concept provides a frame of reference within which price policies can be formulated. Suppose, for example, that the objective is to maximize net profits over the planning period, subject to the restraint that the company wishes to enjoy at least its present market share at the end of the period. A price policy which is consistent with these goals is likely to point toward maximizing the dollar volume of sales over the period unless there are elements in the structure of variable costs which would rule out such policy. Fixed costs, of course, make no difference and the greater the im-

portance of the fixed cost of component total costs the more likely is the policy of maximizing sales to be adopted.

For the purposes of the present discussion, there is one consequence of the dependence of price policy on plans which is of primary significance. That is the fact that if policies are a means of effectuating plans, the revision of policy should come up for consideration whenever plans are changed. While effective planning will no doubt reflect better-than-average success in forecasting the future, it should also reflect greater-than-average flexibility in correcting plans when the forecasts turn out to be seriously wrong. Where this flexibility in planning exists, a normal result should be flexibility in policy and an exercise of price policy in terms of a more immediate and a more accurate knowledge of supply, demand, and competition. Thus progress in the professional techniques of planning should be one of the long-run factors which may eliminate any tendency for business-price policy to contribute to economic imbalance.

#### PRICING BY EXCEPTION

The second conceptual area to be related to business-price policy is that of problems which may arise and may have to be solved by executive action, even though they require an exception from policy. This general notion is sufficiently important to have given rise in recent times to the term "management by exception." This term implies that plans and policies can hold for most situations, but that the day-to-day work of the executive consists in recognizing and dealing with the exceptional case.

A problem may be said to arise as the result of uncertainty created by unforeseen conditions and which raises questions as to the achievement of plans and objectives. Another way to define this uncertainty as related to price is that doubt has arisen as to whether effective action can be taken within the area of discretion defined by policy.

Some of the problems which must be dealt with at the higher executive levels are unique and nonrecurring. Examples would be a decision concerning a merger with another firm or a decision to drop a product which was declining in sales or failing to return profit. The latter decision would usually be taken only after reviewing the possibilities for changing the trend through changes in the product itself, in promotional expenditures, or in pricing policy.

Problems facing subordinate executives or individual salesmen may be of a more chronic character and affect one transaction after another. In some companies the salesman operates in a rather wide area of discretion, particularly with respect to price. When this is true, the price policy as stated may be a very mild restraint on response to day-to-day market forces. This type of response to the market may not be very orderly or accurate, but it certainly leaves room for a substantial average decrease in prices when business falls off.

The exercise of discretion by the salesman in making prices to individual customers may be either official or unofficial. In the first case the company management has set very broad limits within which the salesman can vary prices according to conditions. With respect to packaged products designed for the consumer, some restraints are imposed by the provisions of the Robinson-Patman Act. Management must either allow only those variations which it thinks can be

justified under the act, or accept the possibility of prosecution if a greater range of price discrimination is tolerated. Quite aside from official policy, individual salesmen may take their chances of going beyond it, feeling that it is better to risk disciplinary action from management than to miss a particular sale. If the company's need for volume is sufficiently serious, it may wink at these violations of policy and the salesmen quickly learn to gage the amount of departure that will be tolerated. The point here with respect to the effect on market prices is that there are two ways in which a price may fall below the price which management regards as its normal asking price. One is by outright delegation of a considerable amount of discretion to the salesmen, and the other is by considerable tolerance of individual departures from stated price policy.

In the opinion of the writer, pricing by exception is not the best way of dealing with a changing market situation. Price relationships with customers that degenerate into a network of exceptions can create much tension and suspicion among customers and even threaten the survival of the firm. The eagerness of the individual salesman to close a deal is not a very good criterion, even with respect to the individual transaction. Salesmen operate in different territories with varying types of customers and degrees of financial stress with respect to their personal situations. The ideal aim of price policy in a changing market should be to bring about a rapid but orderly adjustment, maintaining the normal flow of volume by assuring equitable treatment for all customers.

The administration of an equitable price policy assumes that several elements are present. The first is that only a moderate range of discretion is permitted to the individual salesman and that adherence to these limits is enforced with some vigor. Salesmen should be encouraged to report promptly when the company seems likely to lose an important order because of price competition. Some running analysis needs to be made of departures from official prices, at least on a sampling basis. If these departures become serious enough or if there is a growing number of instances in which exceptions must be granted outside the area of discretion determined by price policy, then it is likely that policy should be revised. Policy cannot be very useful unless it guides salesmen and subordinate executives in the great majority of the situations which confront them. The exceptions do not have to constitute a very large percentage of all transactions until they begin to take up more than half the time of the salesmen and their immediate supervisors. Perhaps even more serious is the fact that, even with the time devoted to exceptions, there is little likelihood that such operations will result in a genuinely effective adjustment to market conditions. With respect to economic stability, this approach to individual bargaining transaction by transaction may actually precipitate developments that are harmful rather than beneficial. Certainly when business turns down there is always a danger of overcompensation to the trend on the part of the individual seller. The attempt to recover volume through individual price concessions is likely to undermine the confidence of trade buyers in the integrity of their suppliers and thus contribute to the decline in general business confidence, which is one of the factors in prolonging recession.

The conclusion was reached a little earlier that better planning techniques would contribute to better price policies. Similarly, it seems

clear that better administration of price policy could make a similar contribution to economic stability through sound market adjustment. The administrative procedures which have been pictured provide for a direct and orderly feedback from the sales force as it is confronted with individual cases of price resistance. This is somewhat different from the overall planning approach which involves a weighing of the changing trends at the top level and the translation of these judgments into new plans and corresponding policies. Ideally, of course, effective planning and effective price administration should both be present to bring about the revisions in pricing policy and practice which a changing market requires.

#### MANAGEMENT PHILOSOPHY AND PRICE POLICY

There are some still broader considerations influencing business price policy which might be described as falling in the area of management philosophy. This term was meant to include broad attitudes concerning the current state of the economy, the interaction of its parts, and the role of management with reference to the effective use of the firm's productive capacity. Any or all of these elements of management philosophy could have a substantial effect on the formulation of business-price policy.

The primary considerations with respect to the executive's view of the current state of the economy pertains to trends which he thinks he should allow for in business planning. An instance would be a conviction that inflation would continue for the foreseeable future. It is conceivable, of course, that a management might anticipate rising prices in general, and yet attempts to find some competitive advantage for itself by cutting its own prices or gaining a relative price advantage by refraining from increasing its prices. The incentive to adopt such a policy would rest on the belief that a large body of consumers were still highly sensitive to prices and eager to resist the inflationary trend.

A management might well come to the opposite conclusion; namely, that consumers generally now accepted inflation as one of the facts of life and would not be greatly influenced in favor of a product merely because its price was not rising as fast as competitive prices. A marketing organization that accepted this philosophy might not fight too hard to stem the rising tide with respect to its own costs, but assume that these costs could readily be passed on to its customers. Such a philosophy would be quite contrary to that which influenced price policy in many business firms a generation ago. At that time many executives set themselves a goal of steadily dropping their prices and, if possible, raising the competitive differential between their products and similar products. These businessmen regarded price not merely as a way of adjusting supply and demand in the immediate market, but as a way of creating new markets, especially among lower income families. There are doubtless fewer executives who would rely on such a program today in view of the inflationary trends which have been in effect ever since the war. There is, of course, the additional consideration that the notion of a mass market, which could only be cultivated through deep-cut prices, has been somewhat modified through the progressive narrowing of income differentials. With the leveling up of family incomes at the lower end of the scale there

is doubtless a greater tendency to rely on product differential rather than lower prices as a way of reaching special segments of the market.

Another aspect of business philosophy related to inflation is the conviction that at some point inflation must lead to a collapse and disastrous deflation. Individual businesses have pursued policies apparently dictated by such a philosophy and accumulated large cash reserves, rather than making expenditures for plant and equipment or for market expansion. This point of view could affect pricing behavior in one of several ways. On the other hand, such a firm might not be able to meet the lowest prices in the market because its equipment was relatively obsolete and could not produce at the lowest cost. Another effect might be to make the firm less enterprising in the type of price offer or product change which might be equivalent to a reduction in average prices. The firm might in effect withdraw from the market gradually by being content with the business it could obtain by ultraconservative methods.

Another point of view which might lead to rigidity in price policy is the conviction that business is inevitably faced with a steady increase in overhead, leaving less and less room for executive action with respect to either costs or prices. The best that the executive might hope to accomplish under this view is to rely on the inevitable growth of the market and at the same time to engage in delaying tactics with respect to cost increases, but with no real hope that genuine economies or cost decreases can be achieved. A management with this viewpoint might spend a good deal of effort in trying to hold off by a year or two such cost-increasing measures as fringe benefit programs for labor. Similarly, the firm might attempt through political activity to delay mere inevitables in the long-run. With an inflationary trend in evidence with respect to both prices and costs, the firm may attempt in one way or another to present the increase in its costs from running ahead of its increase in sales revenue.

Another general consideration is the judgment of management with respect to the present status in the market of any product which it makes and sells. It may feel that the product is in the very early stages of market acceptance but still has a profitable future ahead. The company might feel that the product was not yet sufficiently known or understood by enough people for price appeal to make much difference. Later on in the period of rapid growth for the product the company might make extensive use of price appeal to widen the market before competition catches up. In still a later stage a product may face a declining market and management is faced with withdrawing it at some time in the relatively near future. The decision might be to hold the price and sell the product as long as it continued to be profitable, rather than dropping the price and thus diverting resources and effort from new products with a better growth outlook. A company would thus base its policies on the view that it was selling a succession of products rather than attempting to keep a single product on the market at any price.

Similarly, price policy might be influenced by a company's evaluation of its overall position in the market and the kind of behavior expected of it by its customers and its competitors. A very large company, for example, is under some restraints in the exercise of aggressive price policy since such action might be interpreted by the anti-

trust agencies as an effort to destroy competitors. Other facets of a company's position in its field have to do with whether it sells a broad line or a narrow line of products, and whether it is a specialized producer of quality products or is truly committed to mass production. A company with a broad line of products encounters additional complications if it attempts to cut prices on a part of the line. Such action may cause serious strains in its overall marketing program and precipitate various kinds of unfavorable reactions from intermediaries and dealers.

Some large companies regard their primary role as that of providing the benefits of mass production to the consumer. This usually means limiting the number of styles or models of the product in order to maintain continuous runs for mass production equipment. Such a company may not be able to meet the lowest competitive prices, but may put forward a strong claim that its combination of price and quality represents the best value for the money. This philosophy of manufacturing might be expected to lead to some stability in prices with the result that the company's price advantage would increase when the general price movement was upward and decrease when prices were moving downward.

One other aspect of management philosophy which is important to price policy pertains to labor relations. Much has been said about the wage-price spiral in which large firms presumably grant wage increases to labor and in turn make corresponding increases in the price of their products. Some industries are undoubtedly in a better position to pursue such a policy than others. Where this is true, it represents an exploitation of the economy for the benefit of labor and management in the favored fields. Some years ago there was discussion among economists of the concept of bilateral monopoly. The pure case assumes that two monopolists handle the same product in succession, and that they are equally dependent on the ultimate sale of the identical product. Given these conditions the theoretical conclusion is that monopoly prices would tend to be higher than if only a single monopolist were involved. The writer is very skeptical as to the occurrence of bilateral monopoly in the marketing of products. There are very few situations in which the area of operation of the successive sellers corresponds so exactly as to permit the results of bilateral monopoly to accrue. The facts are quite different, however, with respect to the relationship between management and the labor union. The labor union which serves as the bargaining unit for a large plant has an area of operation corresponding exactly to that of the management of this plant. The members of the labor union have only one customer for their services, and management in the short run has 1 and only 1 source for the labor it requires for its operations. Under these circumstances, it is quite conceivable that the full effects of bilateral monopoly will accrue.

In summary, there would seem to be several main lines of progress with respect to bringing about a better relationship between business policy and economic stability. Reference has already been made to the desirability of better planning and better price administration. The pattern of operation within business itself will undoubtedly move in this direction supplemented by help from consulting firms, trade associations, and government agencies. With respect to the general attitudes which have been described as management philosophy,

change would occur either through modifying the conditions which have led to these business attitudes or convincing management that they are drawing incorrect conclusions from these decisions. The first type of action is illustrated by the efforts that government agencies were making until relatively recently to arrest inflationary trends. It is recognized that this is a difficult operation, and that it is all too easy to throw the economy into a deflationary trend in attempting to apply the brakes.

The other question of the inferences to be drawn from the state of the current economy points to an expansion and improvement of economic studies designed to test some of these general operating assumptions which appear to influence business policy. The studies by the Federal Reserve Board on buying expectations have doubtless been a tempering influence. Other publicly sponsored studies might analyze in greater detail the relative influence of such factors as price, product design, and advertising in stimulating demand. Business itself is struggling with the problem of measuring the effectiveness of advertising and apparently making some progress toward developing techniques for determining the optimum size for profitable operations and the optimum allocation of advertising funds. Too much energy perhaps goes into deploring the fact that we have the kind of economy we have and not enough into lines of investigation which may develop means for promoting its optimum operations.

J. M. Clark has concluded that we must rely on a greatly increased sense of responsibility on the part of business management so that policy may be exercised in the public interest. Perhaps a useful counterpart would be a greater sense of responsibility among the economic agencies of government for a more comprehensive understanding of how our marketing system works and how it can be made to work better.

# PRICES AND BUSINESS CYCLES

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## I. INTRODUCTION

My purpose is to relate market structures, price characteristics, and economic fluctuations. The hypothesis will be advanced that prices behave in a certain, predictable manner over the business cycle, and that this behavior is a contributing factor in the business cycle. In most situations, this consideration would be quite minor in relation to the multitude of causes and contributing factors in business fluctuations. However, progress frequently occurs in incremental stages, and it is in this spirit that the following is presented.

## II. CLASSIFICATION OF PRICES

Many studies have been made of the behavior of prices over the business cycle.<sup>1</sup> Perhaps the best summary of these relationships is to be found in Professor Mills' *Price-Quantity Interactions in Business Cycles*.<sup>2</sup> Professor Mills analyzes the price-quantity behavior of 16 commodity groups. It is proposed that these 16 commodity groups can be separated into 2 sectors, and that these sectors will differ significantly with respect to some basic characteristics. The classification is as follows:<sup>3</sup>

C SECTOR	M SECTOR
1. Domestic crop products	1. Raw materials
2. Foods	2. Producer goods
3. American farm products	3. Manufactured goods
4. Domestic animal products	4. Nonmetallic minerals
5. Nondurable goods	5. Other than American farm products
6. Consumer goods	6. Capital equipment
7. Human consumption goods	7. Metals
8. Producer goods for human consumption	8. Durable goods

We are concerned with consumer prices, so the emphasis will be on items 3, 5, 7, and 8 in the M sector rather than on the commodities typically purchased by business firms.

Proposition 1: The C sector consists largely of commodities that are staple, nondurable goods. The M sector consists largely of durables.

<sup>1</sup> For example: F. C. Mills, *The Behavior of Prices* (New York, 1927). W. C. Mitchell, *What Happens During Business Cycles* (New York, 1951). F. C. Mills, *Prices in Recession and Recovery* (New York, 1936). G. Tintner, *Prices in the Trade Cycle* (Vienna, 1935).

<sup>2</sup> New York, 1946.

<sup>3</sup> There is considerable overlap among the categories within each sector, but very little between sectors.

This classification would seem consistent with the definitions of durable and nondurable goods employed by the National Bureau of Economic Research and the Government.<sup>4</sup>

Proposition 2: The C sector commodities are produced under conditions that are relatively more competitive than the M sector commodities. That is, the staple nondurables in the C sector are more likely to meet the following competitive requirements than are the durable commodities in the M sector:

- (a) The commodity is homogeneous.
- (b) A large number of independent firms produce the commodity.
- (c) It is relatively easy for a new firm to enter the industry.

This classification would seem consistent with most of the concentration data and studies available.<sup>5</sup>

Proposition 3: Prices of the C sector commodities are more likely to be in the inelastic ranges of their respective demand curves than are the prices of the M sector commodities. This proposition follows from two considerations: (1) the nature of the commodities involved; (2) the difference in market structure between the two sectors.

The C sector commodities are characterized by substantially smaller income effects than the M sector commodities.<sup>6</sup> Thus, if the substitution effect is approximately the same among the major commodity groups selected by Mills, the stronger income effect for the M sector commodities will make their demand curves elastic relative to the C sector commodities. This follows from the Slutsky equations.<sup>7</sup> This conclusion is in agreement with the widely held view that agricultural commodities and staples have inelastic demands, particularly relative to manufactured commodities and durables.<sup>8</sup>

Also, there would be a tendency for the relatively monopolistic industries producing the M sector commodities to restrict their prices to the elastic ranges of their commodities' demand curves. This tendency follows from the observation that an industry's profits are maximized within the elastic range of the market demand curve, since marginal revenues become negative in the inelastic range. The relatively competitive industries producing the C sector commodities may not have sufficient control over their prices to follow suit. Thus competi-

<sup>4</sup> For example: See S. Kuznets, *Commodity Flow and Capital Formation* (New York, 1938) or *The Structure of the American Economy, Part I* (Washington, 1939), p. 264. Nondurables are goods that would be destroyed by consumption within 6 months, while durables typically would provide service for longer than 3 years.

<sup>5</sup> For example: A. C. Neal, *Industrial Concentration and Price Inflexibility* (Washington, 1942), pp. 138-139. Federal Trade Commission, *The Concentration of Productive Facilities* (Washington, 1947). Federal Trade Commission, *Industrial Concentration and Product Diversification in the 1,000 Largest Manufacturing Companies: 1950* (Washington, 1957). National Bureau of Economic Research, *Business Concentration and Price Policy* (Princeton, 1955). N. J. Silberling, *The Dynamics of Business* (New York, 1943), p. 634. *The Structure of the American Economy, Part I*.

<sup>6</sup> The income effect is reflected by the change in the quantity of a commodity taken as a result of a change in consumers' incomes. From Mills, *Price-Quantity Interactions*, pp. 46-47, it can be seen that all of the M sector commodity groups experienced wider quantity variation over the cycle than did the C sector groups (price variation being approximately the same). Also, see Neal, *Industrial Concentration*, p. 123, and Nelson, *Price Behavior and Business Policy*, TNEC Monograph No. 1, p. 38, where it is shown that production fell significantly more for durable goods than for nondurable goods at the outset of the great depression.

<sup>7</sup> E. E. Slutsky, *On the Theory of the Budget of the Consumer*, Readings in Price Theory (Chicago, 1952).

<sup>8</sup> H. Schultz, *The Theory and Measurement of Demand* (Chicago, 1938). Also O. W. Knauth, *Some Reflections on Retail Prices*, Economic Essays in Honor of Wesley Claire Mitchell (New York, 1935).

tive forces may drive prices into the inelastic range of the market demand curve. For example, this has been characteristic of many farm commodities.

### III. PRICE BEHAVIOR OVER THE BUSINESS CYCLE

There is a significant difference in the patterns of behavior of the prices associated with the C and M sectors. Professor Mills summarizes such behavior for a period ranging from 3 to 20 business cycles.<sup>9</sup>

The analysis is presented in the context of the reference cycle, a device which classifies every cycle into nine stages. Stages I-IV represent the expansion phase of the cycle, stage V coincides with the crest, and stages VI-IX represent the contraction phase. In general, prices of the C sector commodities behaved as follows: (1) they rose much faster during the early period of recovery than during the later period of prosperity (typically the increase from stage I to stage II was substantially greater than the increase from stage IV to the crest of the cycle at stage V); (2) the decline in prices was particularly sharp from stages VI-VIII; (3) the last period of business contraction (stages VIII-IX) is characterized by either gentle decreases, no change, or even a slight increase in prices for this sector of commodities.

Prices for the M sector commodities generate a different path over the cycle. Relative to the C sector prices, they tended to rise more during the latter stages of prosperity than during the early periods of recovery; they also tended to fall more during the last periods of depression than during the early periods of recession. These relationships are summarized in figure 1, where it is apparent that a ratio of C sector prices divided by M sector prices generates a series that leads turns in the business cycle. That is, such a price ratio would normally turn down before the crest in general business activity is reached, and would turn up before the trough of the depression is approached.

This pattern of price changes over the cycle is consistent with the nature of the commodities involved and with differences in market structure between the two sectors. The staple, nondurable commodities in the C sector are likely to hold high positions in the consumers' hierarchies of wants, so that the demands for these commodities will be among the first to increase with the improvement of business conditions. Thus, if a depression has caused a deterioration in the diet of a family, this is likely to be the first condition that is rectified with the return of better times (however, there frequently is a strict limit to the increase in demand for such a commodity). Therefore, the demand curves for the C sector commodities are likely to increase at an earlier point in the recovery than are the demand curves for the M sector commodities. This would be part of the explanation for the earlier increase in C sector prices. Another factor contributing to the lead in C sector prices is that they are more likely to be market established prices, and thus would tend to reflect changes in demand and supply almost instantaneously.<sup>10</sup> Prices for the M sector com-

<sup>9</sup> Mills, *Price-Quantity Interactions*. Also, see R. A. Gordon, *Business Fluctuations* (New York, 1952), pp. 241-242; G. Haberler, *Propensity and Depression* (New York, 1946).

<sup>10</sup> S. Nelson, *Price Flexibility*, TNEC Monograph No. 1 (Washington, 1941).

modities are more likely to be administered, which would cause a lag between a change in market conditions and the resulting change in the administered price.<sup>11</sup>

Further considerations would be: (1) The relatively competitive C sector industries would be less likely to have idle plant capacity of comparable efficiency with operating plants (excess plant capacity is incompatible with competition and constant costs) so their supply curve would have a positive slope; (2) the M sector industries would be more likely to have access plant capacity of comparable efficiency with plants in operation so that the relevant supply curve at the start of recovery could be perfectly elastic (therefore a change in demand would not affect price); (3) there might be a substantial decrease in the supply of the C sector commodities during the early part of the recovery phase, thus contributing to the early increase in such prices (the shift in supply would result primarily from an increase in the entrepreneurs' alternative costs).

On the contraction side of the cycle the demand curves in both commodity sectors are going to fall (except for a few "inferior" goods in the C sector). Indeed, the M sector demand curves may fall faster and further than would be the case in the C sector. However, two factors might prevent a comparable fall in M sector prices: (1) the usual lag of administered prices behind market prices, *ceteris paribus*, and (2) the substantial increase that might occur in the supply of C sector commodities as a result of the fall in the alternative costs of worker-entrepreneurs (since alternative employment opportunities would decrease as the recession grew worse). Thus C sector prices will fall faster than M sector prices during some of the early phases of the recession. The prices for C sector commodities will not continue to fall relative to M sector prices, however. M sector goods probably rank lower in the consumers' hierarchy of wants, and the purchase of such durable goods can be postponed. Thus a point in the recession will be reached where the demand for M sector commodities is falling faster than the demand for C sector commodities, and the prices will behave accordingly. These relationships are summarized in figure 1.<sup>12</sup>

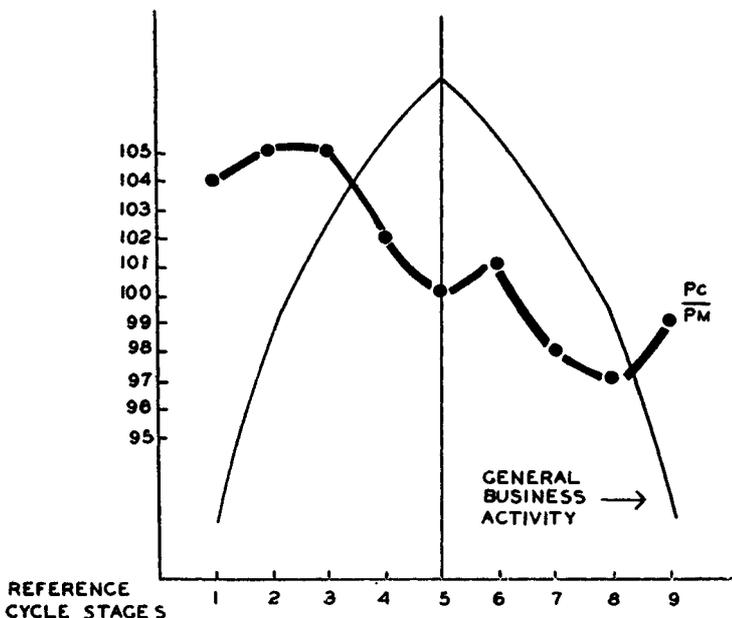
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<sup>11</sup> J. A. Schumpeter, *Business Cycles*, vol. II (New York, 1939), p. 539. J. K. Galbraith, *Monopoly Power and Price Rigidities*, *Quarterly Journal of Economics*, May 1936; also *Market Structure and Stabilization Policy*, *Review of Economics and Statistics*, May 1957.

<sup>12</sup> These patterns are supported by other time series studies. The ratio of nondurable and durable prices was calculated for the period 1929-53 from data in *National Income*, 1954 (Washington, Department of Commerce), pp. 216-217. Deviations were calculated from a least-squares trend for this series and from a similar trend for gross national product for the period 1929-54. Turning points in the price deviations led turning points in GNP deviations in 5 instances, lagged in 1 instance (the 1938 trough), and coincided in 2 others. Quarterly data for the two coinciding turns (the 1948 peak and the 1949 trough) were analysed. Food prices were used to represent the C sector and metals prices to represent the M sector. The price ratio led the quarterly deviations of gross national product for these two periods. Also, see my "A Note on Demand Elasticity, Prices, and the Business Cycle," *Journal of Farm Economics*, vol. 38, where some evidence is presented that the farm parity ratio tends to lead the Federal Reserve's index of industrial activity. The parity ratio would constitute an approximation of the ratio of C sector prices to M sector prices.

Also, see G. Tintner, *Prices in the Trade Cycle* (Vienna, 1935), for evidence that these relationships hold for other economies.

FIGURE I  
PRICE RELATIONSHIPS OVER THE REFERENCE CYCLE



**Pc:** average of following cyclical price relatives: food; nondurables; farm.  
**Pm:** average of following cyclical price relatives: metals; durables; nonfarm.  
 Source: F. C. Mills, Price-Quantity Interactions in Business Cycles.

#### IV. PRICE-INDUCED CHANGES IN THE PROPENSITY TO CONSUME

The propensity to consume relates consumption and income at a constant level of prices.<sup>13</sup> Thus a change in prices normally will induce a shift in the propensity to consume.<sup>14</sup> Some aspects of this relationship will be analyzed in this section.

I shall start with the simplest case. Assume that the price of a commodity changes without affecting the money incomes of the purchasers of the commodity. Assume further that each consuming unit orders its wants in such a manner that a lower ranked want is not considered until some quantity of a higher ranked commodity has been purchased, and that various forms of savings will be interspersed in this hierarchy. Finally, it is assumed that, on balance, most commodities are superior goods for most consuming units, so that a typical family will react to an increase in income by increasing its demand for most goods. Consider the effect of an increase in price in this context. If the price change encompasses an elastic

<sup>13</sup> J. M. Keynes, *The General Theory of Employment, Interest, and Money* (New York, 1935), p. 286.

<sup>14</sup> Examples of other economists who have considered this relationship: J. D. Sumner, *Public Utility Prices and the Business Cycle*, *Review of Economics and Statistics*, vol. XXI, p. 104. D. H. Wallace, *Monopoly Prices and Depression*, *Explorations in Economics* (New York, 1936); also *Industrial Markets and Public Policy*, *Public Policy* (Cambridge, 1940). W. Fellner, *Employment Theory and Business Cycles*, *A Survey of Contemporary Economics* (Philadelphia, 1949), p. 84. J. H. Kirk, *Agriculture and the Trade Cycle* (London, 1933). J. Tinbergen and J. J. Polak, *The Dynamics of the Business Cycle* (Chicago, 1950). E. S. Mason, *Price Policies and Full Employment*, *Public Policy*.

segment of the market demand curve, it implies that, on balance, households have reduced their expenditures on this item. This will increase the amount of income that can be allocated to lower ranked goods. Included in these lower ranked goods, presumably, would be some form of savings. We would normally expect these accounts to increase as a result of the increase in income allocated to lower ranked items.<sup>15</sup> Thus, consuming units would be saving more out of given levels of income, so the price change would have reduced the propensity to consume. If the price increase had enclosed an inelastic segment of the demand curve, the presumption would be that the propensity to consume would tend to rise. That is, households would increase their outlays on the commodity in question, thus reducing the amount of income available for lower ranked goods, including some savings items.

What of the situation where both incomes and prices are changing? Let a typical household have a demand for a commodity represented by  $D_1$ , so that they are spending  $p_1 \cdot q_1$  on this item out of an income of  $Y_1$ . Say that their demand increases to  $D_2$  as a result of an increase in income to  $Y_2$ , and their expenditure on the commodity in question increases to  $p_2 \cdot q_2$ . Let  $p_1 \cdot q_3$  be a point on the new demand curve. Then  $p_1 \cdot q_1$ ,  $Y_1$ , and  $p_1 \cdot q_3$ ,  $Y_2$  are the coordinates for this commodity associated with two points on the original propensity to consume. Now if the new demand curve is inelastic between the two prices,  $p_2 \cdot q_2$  will exceed  $p_1 \cdot q_3$ , and the new propensity to consume will be higher than the original, *ceteris paribus*. The reverse holds if the segment of  $D_2$  is elastic. If the segment has unit elasticity,  $p_2 \cdot q_2$  will equal  $p_1 \cdot q_3$  and there will have been no change in the propensity to consume, *ceteris paribus*.<sup>16</sup> Thus, if only one price changes, we can be certain that the propensity to consume will shift in the same direction if the pertinent demand segment is inelastic, or in the opposite direction if the demand segment is elastic. If several prices change, some in elastic and some in inelastic ranges of their respective demand curves, we can only presume that the same tendency will hold. That is, if the inelastic prices rise faster than the elastic prices, it would be assumed that the propensity to consume would tend to rise. The net effect on the propensity to consume could not be predicted with certainty unless we possessed information concerning the income and substitution effects for all the commodities whose prices changed, and knew the effect of the price change on the distribution of income.

Shifts in the propensity to consume will contribute directly and indirectly to fluctuation in general business activity. The direct contribution would be in terms of the multiplier effect. An increase in

<sup>15</sup> The savings accounts would increase under any of the following conditions: (1) if the original elastic range price were the only one to change; (2) if the demands for lower ranked goods were, on balance, elastic; (3) if the induced rise in prices of lower ranked goods with inelastic demands were sufficiently mild.

<sup>16</sup> It follows from this analysis that an increase in prices will tend to increase the marginal propensity to consume, regardless of elasticity considerations. Let  $p_0 \cdot q_0$  be a point on  $D_1$ . Then  $p_2(q_2 - q_0)$  divided by  $Y_2 - Y_1$  would be the marginal propensity to consume this commodity for the consumption function associated with  $p_2$ . The original marginal propensity to consume the commodity would be  $P_1(q_1 - q_0)$  divided by  $Y_2 - Y_1$ . Assume the shift in the demand curve either increased or did not alter the slope of the demand curve. Then it follows that the new marginal propensity to consume is greater than the one associated with  $P_1$ , *ceteris paribus*, since

$$P_2 \frac{\Delta Q}{\Delta Y} > P_1 \frac{\Delta Q}{\Delta Y}$$

the propensity to consume will have the same positive leverage effect on economic activity as an increase in investment.<sup>17</sup> Also, shifts in the propensity to consume will cause changes in the rate of change of consumption—usually in the same direction. This tends to induce investment in these lines, thus augmenting the multiplier effect with the acceleration effect.<sup>18</sup> Thus shifts in the propensity to consume could be a contributing factor to changes in economic activity.<sup>19</sup>

#### VI. SUMMARY AND POLICY

Our proposition can be summarized as follows: (1) The ratio of prices of nondurables (usually in the inelastic range of demand) divided by prices of durables (relatively elastic) forms a series that leads the turning points in general business activity; (2) this change in relative prices may cause the propensity to consume to shift in the same direction; (3) the shift in the propensity to consume causes a shift in the same direction of general economic activity; (4) therefore, changes in relative prices may be a contributing factor in the fluctuation of general business activity.

The derivation of policy implications from this analysis is a task that warrants extreme caution.<sup>20</sup> It is worth restating that the relationships described in this paper may be relatively trivial as causative forces in any specific empirical situation. Indeed, this would usually be the case in my judgment, so that elaborate or radical policy measures would not be justified by these relationships alone. Also, it should be observed that regulation of the variables involved in this analysis by any agency except an impersonal market would be in conflict with the efficient operation of an enterprise economic system. That is, by and large in our economy, prices allocate resources and distribute income. Thus, if any agency obtains control over prices, it also contains control over the allocation of resources and the distribution of income. This might increase economic stability, but it would be at the expense of a wise use of our resources and possibly of choicemaking in the economic and political spheres. The following comments are made in the context of these considerations.

In my view, there are two situations in which this analysis might be used as a basis for deriving policy: (1) where these relationships are critical in a specific empirical situation (which is not very likely); (2) where the derived policy is consistent with that implied by the analysis of other factors in the business cycle, so that the policy is reinforced by other (and probably more important) considerations.

For example, one policy implication would be to prevent the rise of prices in the elastic range of their respective demand curves during the final stages of prosperity, since this probably contributes to the upper turning point. To the extent that such prices are administered by monopolistic or oligopolistic firms, the policy would be consistent with

<sup>17</sup> A. H. Hansen, *Business Cycles and National Income* (New York, 1951), p. 172.

<sup>18</sup> G. Cassel, *Theory of Social Economy* (New York, 1932), p. 596.

<sup>19</sup> For other studies of causes and effects of shifts in the propensity to consume, see, for example: J. S. Duesenberry, *Income, Savings, and the Theory of Consumer Behavior* (Cambridge, 1949). F. Modigliani, *Fluctuations in the Savings-Income Ratio: A Problem in Economic Forecasting, Studies in Income and Wealth*, vol. XI (New York, 1949). M. Friedman, *The Theory of the Consumption Function* (Princeton, 1957). R. Ferber, *A Study of Aggregate Consumption Functions* (New York, 1953).

<sup>20</sup> Prof. J. H. Williams has observed, with characteristic wisdom: "But I will say that I think the most dangerous policymaker is the man who knows the answer, because he feels he can take it literally from his theory," *American Economic Review*, March 1952.

that derived from the analysis of resource allocation, and would seem appropriate (after all, one agency other than an impersonal market that may control prices is a powerful business firm).

Another example pertains to taxes. I have endeavored to explain how price-induced shifts in the propensity to consume might be a contributing factor in the business cycle. Such shifts may be offset by altering the tax structure. That is, a reduction in taxes would increase the propensity to consume. This action might be employed to counteract a price-induced decrease in the propensity to consume. The reverse analysis also is appropriate. If price-induced increases in the propensity to consume are a pertinent factor during a period of inflation, such increases could be offset by higher taxes. In this case, this analysis would reinforce the tax policy implications of income theory.

## RETAIL PRICE POLICIES

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### THE IMPORTANCE OF RETAILING

A very few simple statistics suggest the importance of retailing, and therefore of retailers' price policies, in the total economy. In 1954 slightly over 1,700,000 retail establishments had sales of about \$170 billion.<sup>1</sup> Barger has estimated that between 75 and 80 percent of all finished goods produced in this country normally reach their final markets through retail outlets, and that the value added by retailing has constituted somewhere between 27 and 30 percent of the final price of all goods retailed.<sup>2</sup>

Since the costs and margins of retailing represent such a substantial share of the final prices of all consumer goods, retailers' price decisions and pricing methods should, and probably do, constitute a substantial portion of the total price influence upon the overall economy. Yet retail (and wholesale) pricing has received far less scientific study and analysis than have price questions at manufacturing, extractive, and agricultural levels. The safest generalization that can be offered is that our ignorance far exceeds our knowledge of price behavior. Many factors often mentioned as explanations for this lack of attention lie outside the scope of this paper, but we should look at at least three conditions affecting the study of retail price behavior. These three are (1) the heterogeneity of retailing, (2) the fictitious nature of some retail price data, and (3) the relationships between retail prices and retail price making authority.

### THE HETEROGENEITY OF RETAILING

Often it seems convenient to speak of "the retailer," or of "retailing" as an entity. It may also be extremely misleading. Merchants differ in size, in capitalization, in commodities handled, in organization structure, in customer appeals, in expense rates, in unit of sale, in competitive pressure, and in motivations. Conceivably all of these factors could affect the pricing strategies used, and all of the variations could weaken the strength of any generalization. At the same time, this very heterogeneity provides a marvelous opportunity for research to determine the influence of particular variables or combinations of variables upon actual practice. We need many more studies of differential behavior under differential internal and market conditions.

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<sup>1</sup> 1954 Census of Business, Census of Retail Trade, Bulletin R-2-4, p. 1.

<sup>2</sup> Harold Barger, *Distribution's Place in the American Economy Since 1869* (Princeton, Princeton University Press, 1955), pp. 22-25, 57-60. A number of definitional questions (e. g., should restaurants be classified as food processors or as food retailers?), technical estimating problems, and year to year variations affect the exact size of these figures without materially altering their general magnitude.

## THE FICTITIOUS NATURE OF SOME RETAIL PRICE DATA

Although the United States is often regarded as the "home of the 'one-price' system" in retailing, actual practice indicates the presence of some noticeable deviations. "Discount buying," as the term is popularly used, covers a wide range of practices including: bargaining and haggling over prices (and perhaps, more commonly, trade-in allowances); rebates to favored customers (the "under-the-canopy" discount in the gasoline trade); employee, professional, club and group discounts offered by conventional retail stores (and leakage of discount privileges to supposedly ineligible customers); buying leagues; club merchandising plans and "wholesale-retail catalog jewelry" operations; employer-purchasing for employees; "backdoor" selling to consumers by manufacturers and wholesalers; discount house operations; and the like.<sup>3</sup>

In fact, the deviations are so many and so diverse that rigorous definition of such common terms as "discount house" and "discount selling" inevitably involves a highly arbitrary and selective process. Most sales, especially of low priced, mass merchandised items, are made on a "one-price" basis, but the deviations are serious enough to weaken the value of announced prices for some types of price study.

## RELATIONSHIPS BETWEEN RETAIL PRICES AND RETAIL PRICE MAKING AUTHORITY

The area of retailers' price discretion is not codeterminate with total retail margins. Some retail prices, for example, are the results of decisions made at other levels, and in this sense, the retailer's influence is smaller than his margin would indicate. Conversely, one could argue conceptually that existing retail prices imply at least implicit rejection of an infinite range of potential (even if extremely unlikely) prices, and that consequently the area of retail decisionmaking far exceeds the range of current price tags. However the problem usually presents itself to the retailer (and to the economist) as one of inhibitions upon retailer discretion. Some of the more important limitations are noted below.

*(1) Government*

In peacetime the United States Government and subordinate jurisdictions do very little direct retail price fixing, except for the relatively inconsequential volume of goods for which Government acts as a retailer; e. g., liquor sales by State stores and the operations of post exchanges. Government control of public utility and quasi-public utility prices charged consumers by transportation agencies, water- and power-plants, and banks are outside the scope of this paper. Establishment of retail fluid-milk prices under milk-marketing orders probably represents the most significant peacetime example of direct governmental retail price setting. Except for some relatively minor local monopolies resulting from application of zoning ordinances, and the special cases of alcoholic, pharmaceutical, and optical goods retailing, Government exerts little influence on retail pricing through restriction of entry.

<sup>3</sup> I. THIL, *The Fiction of the Quoted Price*, 4 *Law and Contemporary Problems* (June 1937), 363-374; S. C. Hollander, *The One-Price System—Fact or Fiction*, 31 *Journal of Retailing* (Fall, 1955), 127-144.

Governmental influence becomes more important, even though less clear cut, through such indirect activities as the establishment of excise and sales taxes which alter the final pattern of total charges facing customers. About 30 States have Unfair Practices Acts, laws prohibiting retail sales of merchandise at prices lower than acquisition cost (or acquisition cost plus some minimum markup) except under specified distress conditions. These laws are extremely difficult of enforcement, and probably are applied with less than equal rigor in all jurisdictions, and with extreme determination in none.<sup>4</sup> Nevertheless the laws probably tend to limit one extreme of the range of potential prices available at any one time. Federal antitrust statutes also place some actual or potential limit upon chainstore pricing, as evidenced by several important cases in the food field in recent decades.

## (2) *Suppliers*

Manufacturers and wholesalers may absorb part or all of the retail price-determination function under one of several different arrangements. Resale price maintenance, often called "fair trade," is the particular arrangement that has attracted most attention in recent years. Pursuant to the exceptions to the antitrust laws created by the Miller-Tydings Enabling Act and the McGuire Act, a number of States permit manufacturers located outside their borders to establish the minimum prices that dealers within the State are to charge on consumer sales.<sup>5</sup> In general, enforcement of the minimum prices, which is largely in the hands of the manufacturers, has tended to break down in the sale of such items as electrical appliances, fountain pens, phonograph records, and photographic equipment. On the other hand, price maintenance seems to have provided a relatively tight control over the prices of packaged drug and cosmetic items, and of books. Little information exists concerning its success in such fields as men's furnishings, where it is used by only a small portion of all manufacturers.

One competent researcher, using the consumer diary records of a marketing research service, has reported fairly widespread violations of established minimums in the sale of toothpaste and similar merchandise,<sup>6</sup> but a more recent and more extensive study has indicated a considerably higher degree of compliance.<sup>7</sup> The reasons for the differences in degree of control obtained by resale price maintenance are not completely certain, but are likely to be found in part in considerations of market structure and in part in the nature of the commodities handled. We will return to this question later. The exact effect of resale price maintenance upon the level of prices has been the subject of considerable controversy, and no precise measures are

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<sup>4</sup> See R. H. Lovell, *Sales Below Cost Prohibitions, Private Price Fixing Under State Law*, 57 *Yale Law Journal* 391-425; *Prohibiting Price Discrimination and Sales Below Costs—The State Unfair Practices Acts*, 32 *Illinois Law Review* 816-852; H. F. Taggart, *The Cost Principle in Minimum Price Regulation* (*Ann Arbor, Michigan Business Studies*, vol. 8, No. 3), 1938; J. E. Thatcher, *Constitutionality of the Unfair Practices Acts*, 30 *Minnesota Law Review* 559-584.

<sup>5</sup> At the present time the resale price maintenance situation is extremely fluid; the practice having been upheld by courts of final jurisdiction in a number of States, invalidated in a number of others, and awaiting final test in still more. The U. S. Supreme Court has provided no explicit ruling on the legality of resale price maintenance under the McGuire Act.

<sup>6</sup> W. S. Bowman, *Prerequisites and Effects of Resale Price Maintenance*, 22 *University of Chicago Law Review* 825-873.

<sup>7</sup> R. H. Oakes, *Resale Price Maintenance in Chicago 1953-55*, 30 *Journal of Business* (April 1957), 109-130.

available.<sup>8</sup> However most disinterested observers seem to believe that fair trade has tended to narrow the range and raise the average level of prices. Probably at no time have more than 5 to 10 percent of all goods retailed in this country been subject to fair trade.

A wide range of pricemaking activities of varying impact may be summarized under the head of manufacturers' (and wholesalers') "suggested" and "recommended" prices.<sup>9</sup> These practices include preticketing or premarking the goods with the final consumer price, advertising retail prices to consumers, publishing price lists, and refusing to sell to retailers who may, or have, cut prices.<sup>10</sup> The degree of compliance obtained probably depends upon several factors including (1) the extent to which the suggested price coincides with or deviates from the price the retailer would have used in the absence of any suggestion, (2) the extent to which the manufacturer really cares whether the retailer observes the suggested price, (3) the degree of retailer dependency upon the supplier for desired merchandise, and (4) the intimacy of contact between manufacturer and retailer. (Typically long channels of distribution involving many intermediaries complicate control problems, short channels simplify them.) However, marketing literature contains practically no studies of the extent and nature of the control obtained through price suggestions and recommendations.

A high degree of control over retail price may be obtained by consignment selling. The manufacturers or wholesaler retains ownership of the goods until final sale to the consumer, and the retailer merely acts as an agent in arranging the transaction. Consignment plans have been used in a number of cases for a number of reasons, notably for many years in the retail distribution of electric light bulbs. However the administrative, legal, financial, and tax problems of consignment selling usually prove overly burdensome, and this type of selling is of marked significance only in a few fields such as the retail distribution of bread and magazines. Some fields, notably food and hardware retailing, have been highly receptive to so-called voluntary chain arrangements under which independent merchants affiliate with sponsoring wholesalers. In 1953, for example, about one-third of all independent grocery stores belonged to voluntaries; and these stores had sales of about \$12.3 billion as contrasted with the \$9.9 billion done by the twice as many unaffiliated outlets.<sup>11</sup> Voluntary chains have been considerably less significant in other fields, but their fundamental nature is not too dissimilar from manufacturer-sponsored franchising plans in gasoline, automobile, farm machinery, and service trades. The closeness of control, relative power position between franchisor and franchisee, and degree of sponsor interest in retail prices varies greatly from case to case. Nevertheless, the fran-

<sup>8</sup> See M. Frankel, *The Effects of Fair Trade; Fact and Fiction in the Statistical Findings*, 28 *Journal of Business* (July 1955), 182-194.

<sup>9</sup> "The manager of a hardware store makes little effort to divide his inventory into a large number of margin groups for pricing purposes. The customary practice is to use the manufacturers' list prices as selling prices." F. A. Wingate, *A Study of Price Formation at the Retail Level With Special Reference to Syracuse, N. Y.* (unpublished doctor of philosophy dissertation, the Ohio State University, 1950), p. 131. See F. Hall & A. L. Seelye, *Vertical Price Fixing in Texas*, 35 *Texas Law Review* (June 1957) 772-811 for an indication of the range of "price suggestion" practices coming before the courts in one State.

<sup>10</sup> Publicizing retail prices and premarking may actually encourage price cutting by providing the retailer with dramatic and convincing evidence of the price cut.

<sup>11</sup> E. H. Lewis, *Comeback of the Wholesaler*, 33 *Harvard Business Review* (November-October 1955), 120.

chise and voluntary chain arrangements do provide situations in which the pricing suggestions of a central authority may receive considerable attention.

Some retailing is done by manufacturers themselves. While this constitutes a small percentage of all retail business, it, of course, does provide situations in which retail prices are determined by manufacturers. In spite of the many examples that can be cited of all types of manufacturer-dominated operations, they probably are less significant in total retail price determination than are the suggestions, recommendations, and controls offered to more or less independent retailers.

### (3) *Horizontal price fixing*

It is very difficult to measure the amount and extent of horizontal price fixing, either through direct collusive agreements among retailers or through the intervention of third parties such as retail trade associations. For obvious reasons, such agreements usually are not well publicized (although there have been some rather interesting exceptions in the retail gasoline trades). Retail price setting often appears as a matter of local interest, and the attitudes of various jurisdictions toward such matters vary greatly. Purely local actions are not widely reported.

Consequently no exact information is available on collusion in retail pricing, but 1 or 2 observations can be made. The closeness of contact between individual merchants in many communities (especially in smaller towns and neighborhood shopping centers), and the availability of many strong retail trade associations would seem to provide conditions under which collusion could occur. On the other hand, the ease of entry into the retail business, the large numbers of firms that would have to be enlisted in any collusive scheme, the diversity of retail interests centering around the pricing of any one commodity (service stores versus nonservice stores, chain versus independent), and the overlapping of commodity groups (note the number of items retailed by two or more types of retailers such as grocery, drug, hardware, variety, and department stores); all provide classic conditions working against collusion. Although the subject merits further study, retailing would seem to be a field little affected by explicit horizontal price agreement.

The phenomenon of price leadership, under which all or most sellers follow the prices set by one or more "leader" firms, is more complex and harder to evaluate than ordinary horizontal price collusion. It may represent a tacit understanding to avoid price competition, or it may represent a purely competitive response to the actions of a strong competitor. Cassady and Jones found it possible to identify the leaders (in the sense of being the first firms to post new prices) for most of some 82 price changes in the Los Angeles retail gasoline market between 1923 and 1949.<sup>12</sup> A Government handbook suggests that small retailers may be able to obtain guides to price decisions by watching syndicate stores and mail-order houses.<sup>13</sup> The extent, nature, and

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<sup>12</sup> R. Cassady, Jr., and W. Jones, *The Nature of Competition in Gasoline Distribution at the Retail Level* (Berkeley and Los Angeles, University of California Press, 1951), pp. 177-178.

<sup>13</sup> *Establishing and Operating a Variety and General Merchandise Store* (Washington, U. S. Government Printing Office, 1946), p. 153.

motivation of most retail price leadership remains unknown. However it must be said that the institutional factors working against direct collusion also tend to work against collusive types of price leadership and followership.

#### (4) *Others*

Conscious and overt control of retail prices by other groups can probably be dismissed in fairly cavalier fashion. Consumer cooperatives have never been major factors in American retail trade, and consumer groups have little direct influence upon retail prices. (This is, of course, entirely aside and apart from the influence resulting from retailers' judgments of individual consumers' willingness or unwillingness to buy at given prices.)

By and large retailing is nonunionized. Less than 7 percent of all retail workers are subject to collective bargaining contracts.<sup>14</sup> Moreover a substantial portion of this group belongs to weak unions that have relatively little strength, even in wage and hour bargaining. Consequently union interference in retail employer price practices may be regarded as the exception, rather than the rule.<sup>15</sup>

About 107 United States cities have local better business bureaus (under business sponsorship) to combat misrepresentation in the retail and service trades and to provide consumer protection against fraudulent schemes. Officially, and as a general rule, the bureaus have no interest in price per se. However some price influences may result from such activities as the recent campaign against the advertising of false and misleading comparative prices.<sup>16</sup>

#### (5) *Extensions of influence*

So far, we have looked at restrictions upon the retailer's pricemaking authority. At the same time we can also see retail influences extending back via several approaches into wholesale and manufacturing levels. Just as some manufacturers have integrated forward into retailing, so too have some retailers integrated back into manufacturing, although the total volume involved probably is not large. Some large-scale retailers exercise considerable control over the manufacturing processes and costs of some vendors operating under various types of supply contracts.<sup>17</sup> And most important of all, manufacturers' and wholesalers' prices in many lines have to be set so as to accord with prevailing retail margins and/or price lines.

### CENTRALIZATION VERSUS DECENTRALIZATION OF PRICING

In most small retail businesses (the great majority of all retail outlets) all decision making is concentrated in the hands of the owner(s) or manager(s). Consequently whatever pricing decisions have to be reached are made by the operating proprietors.

The vast number of price and merchandise decisions needed in larger retail organizations usually requires some delegation of the

<sup>14</sup> M. S. Estey, *Patterns of Union Membership in the Retail Trades, Industrial and Labor Relations Review* (July 1955), p. 562.

<sup>15</sup> Some interesting exceptions in the service trades have been cited by W. F. Brown and R. Cassidy, Jr., *Guild Pricing in the Service Trades*, 61 *Quarterly Journal of Economics* (February 1947), pp. 311-328.

<sup>16</sup> That is, claims that an item now "on sale" has been reduced from some fictitious price, or that it "usually" or "regularly" sells for such a fictitious higher figure.

<sup>17</sup> W. T. Kelley, *Specification Buying by the Large-Scale Retailer*, 18 *Journal of Marketing*, pp. 255-265.

pricemaking function. Generally purchasing, pricing (and often, overall sales) responsibility is assigned to commodity specialists, called "merchandisers" or "buyers." A very large department store, for example, may have a hundred such "buyers" or "department heads" for its different commodity departments. Chain organizations usually need fewer buyers than do department stores of equal sales volume, since the chain buyer usually concentrates on purchasing and pricing matters, and has no responsibility for operating practices on the selling floors. The buyer, or department head, may find his pricing authority limited by the need for approval from a superior executive (e. g., a "merchandise manager"), or a buying committee, but the basic responsibility will be his. However top management commonly sets departmental price and profit goals for the individual buyers.

Decentralization of pricing is the exception rather than the rule. Chain organizations sometimes allow store managers (or district managers) to vary prices to meet local demand and competitive conditions. Managers of individual stores usually must be allowed to determine at least some of their own markdowns (or price reductions) to dispose of damaged, perishing, or obsolescent merchandise. One study has noted, however, that department heads in department stores may find the elaborate procedures established for the control of markdowns serving as a hindrance to needed price adjustments.<sup>18</sup> Considerable debate exists over both the social and commercial merits of chain store geographic price rigidity resulting from centralization of pricing authority.

In some cases where bargaining and haggling are customary, e. g., used car lots and some types of furniture stores, pricing authority may be delegated to the individual salesman, or at least to senior salesmen (often called "turnover men"). In such cases, top management usually sets minimum limits for the salesmen.

#### DOLLAR MARGINS VERSUS PERCENTAGE MARGINS

One of the most significant figures in judging retail operations and in determining retail prices is the margin (sometimes called "markup" or "markon"), i. e., the difference between acquisition cost and selling price. Considerable controversy exists as to whether retailers do, and should, think in terms of dollar margins or percentage margins. The first type of thinking may be exemplified by a desire "to make 36 percent on each item"; the second by a desire "to make \$10 on each unit sold."<sup>19</sup> In either case, the total of all margins received must be large enough to cover the costs of the business, but the differences in approach could have considerable price and policy repercussions.

The constant application of a percentage margin would, for example, result in retail price movements of equal percentage magnitude and

<sup>18</sup> R. M. Alt, *Department Store Price Policies*, unpublished doctor of philosophy dissertation, Harvard University, 1946.

<sup>19</sup> Percentage margins may be expressed as a percent of either cost or selling price. The latter base has become the more common under modern practice for computational and control purposes. However, the choice of base in this sense has little effect on price decisions, so long as the particular percentage desired is adjusted to take account of the fact that the cost base is smaller, and therefore requires a larger percentage, than the retail base. For example, a margin of 50 percent on cost gives exactly the same result as a margin of 33 $\frac{1}{3}$  percent on retail price. Conversion tables for shifting from one base to the other are widely distributed and available to most merchants.

greater dollar magnitude than wholesale cost movements. Constant percentage margins also result in relatively higher dollar margins on expensive items than on inexpensive ones.

The arguments advanced for using the percentage approach rest upon two premises. One is that many operating costs, such as dollar investment in stock, dangers of markdowns, and amount of sales effort required, tend to vary directly with the price of the goods. The other argument is that purchasers of expensive items are usually willing to pay for higher markups than are the bargain customers.<sup>20</sup>

Department stores have usually been considered as prime exponents of the margin approach.<sup>21</sup> The extent to which department store buyers actually use a flat percentage margin can be determined only through examination of individual item price decisions.<sup>22</sup> However departmental margins obtained in department stores do show a very strong tendency to cluster around central figures. Thus, out of 160 departments in department stores of the largest size bracket covered by the controllers' congress 1956 survey, 90 showed "typical" (really national modal) cumulative markons ranging between 37.0 and 40.9 percent, and the same number had maintained gross margins (cumulative markon adjusted for markdowns, stock shortages, workroom costs, and cash discounts received) in the same range.<sup>23</sup> The degree of concentration would have been even higher if home furnishings departments had been removed from consideration.

Recently considerable interest has been expressed in department store circles over an approach known as Merchandise Management Accounting, which—

is premised upon the simple determination of an item's probable profits (in dollars and percents) at various levels of markup in advance of a decision to buy. \* \* \* It results in a shift in buying emphasis from item gross margins to a more significant level—item profitability.<sup>24</sup>

Some students of retailing believe that the percentage margin approach has disadvantaged department stores in selling relatively high-priced merchandise, such as electrical appliances; and that merchandise management accounting will make department stores more competitive with discount houses, presumably traditional believers in the dollar approach. By placing greater emphasis upon item marginal (or "extra") costs the new technique may tend to stress volume considerations rather than high unit gross margin.

Grocers, on the other hand, are often described as primarily interested in dollar margins. An extremely interesting and recent study of detailed price behavior in six Super-Valu grocery stores (units of a midwestern voluntary chain) conducted by Progressive Grocer magazine, contains this statement:

\* \* \* Food retailers long ago recognized the equal importance of dollar profits when evaluating percent margins. They operate on the theory that if they worry about the dollars, the percents will take care of themselves \* \* \*.

<sup>20</sup> See, J. W. Wingate and E. O. Schaller, *Techniques of Retail Merchandising* (New York, Prentice-Hall, Inc., 1950), pp. 141-148.

<sup>21</sup> Cf. P. Bliss, "Price Determination at the Department Store Level," 17 *Journal of Marketing* (July 1952), pp. 37-46.

<sup>22</sup> The price charts filed with OPA probably would constitute fairly satisfactory raw data for such a study, in spite of the distortions caused by price control and wartime conditions.

<sup>23</sup> M. O. R. 1957 (New York, Controllers' Congress, National Retail Dry Goods Association, 1957).

<sup>24</sup> *Ibid.*, pp. XXIII-XXIV. Also see M. P. McNair and E. G. May, "Pricing for Profit," 35 *Harvard Business Review* (May-June 1957), pp. 105-122.

[In the stores studied there were 150 items that carried a margin of 10 percent or less on sales.] These items on the average earn more than twice as many dollars per item as the average of all items with higher margins. The 150 items which carry a 10-percent gross profit or less earn an average gross profit of \$1.14 per week [per item per store], while the 4,325 remaining items which carry over 10-percent gross profit average only 48 cents gross profit per week.<sup>25</sup>

The closest correlation developed in the Super-Valu study seems to be between linear feet of space occupied by each of some 40 grocery product groups and the dollar margin realized on each group.<sup>26</sup> Presumably, however, this correlation is due to decisions concerning space allocation as much as, or more than, decisions concerning prices. Detailed analysis of item price behavior, particularly in response to cost changes, seems needed to determine all the effects of the dollar margin approach. Regardless of the basic approach taken, most price decisions have to be modified or adjusted by some of the factors discussed below.

#### FACTORS INFLUENCING PRICE DECISIONS

Some retail prices are, as we have noted, determined by nonretailers. At times it seems difficult to locate the factors (aside from general considerations of desired dollar or percentage margin) governing retailers' exact decisions on the remaining prices. One student has reported:

Many of the [retailers] interviewed were not able to explain how they reached decisions on pricing questions. Their approach to price determination is almost intuitive.<sup>27</sup>

Yet, intuitively, we can all sense the appearance of some semblance of order and pattern in retail prices; quite clearly they are not random results of pure chance. G. Zipf has subjected the prices set by one large retailer to rather sophisticated analysis, and has noted pronounced regularities.<sup>28</sup> Ralph Cassady has argued that retail gasoline price behavior can be explained through observation of market conditions.<sup>29</sup> Rather general agreement seems to obtain that the following factors are likely to induce and explain much retail pricing. The difficult thing seems to be determination of the relative importance of each consideration under any given set of circumstances.

##### (1) *Basic price policy*

This is perhaps most likely to enter into the determination of the magnitude of the desired basic margin. Retailers do have to decide whether to emphasize price appeals in their business, or whether to try to draw trade on some other basis. Retailing texts usually describe the problem as one of deciding whether to sell "below, at, or above, the market" (i. e., the general range of competitive firms) and note that most merchants have to price "at the market."

##### (2) *Competitive pressure*

Economists have ventured into considerable debate over the extent to which retailing accords with the classical model of a competitive

<sup>25</sup> Super Valu Study (New York, Progressive Grocer, 1958), p. S-5. An item is defined as one size of one brand of one product.

<sup>26</sup> *Ibid.*, p. S-54.

<sup>27</sup> Wingate, *op. cit.*, p. 47.

<sup>28</sup> Quantitative Analysis of Sears, Roebuck & Co.'s Catalog, *Journal of Marketing* (July 1950).

<sup>29</sup> Price Making and Price Behavior in the Petroleum Industry (New Haven, Yale University Press, 1954), pp. 240-241.

world: i. e., many sellers, many buyers, no significant differentiation of sellers and consequently random matching of buyers and sellers, a high degree of price knowledge, no restrictions on price movements, and strong economic motivation on the part of both buyers and sellers.

The heterogeneity of retailing, of course, clouds the picture. One can easily conceive of special situations in which a retailer is vested with unusual monopoly power, perhaps by location or by special prestige. The few service stations permitted on limited access toll turnpikes would be an example of such special locational advantage. Some economists are convinced, however, that this is only one instance of the general imperfection of retail competition.<sup>30</sup> A crude summary of their reasoning and predictions follows:

(a) Each retailer, by virtue of his unique location and through product and service differentiation, enjoys some degree of monopoly power.

(b) This leads to quasi-monopolistic pricing, and to operation at less than optimal scale. Retail rents reflect the monopolistic factor.

(c) Monopolistic conditions, including the failure of retail prices to follow wholesale prices, widen retail margins at times, thereby attracting additional sellers, dividing up the market into smaller segments, and reducing operations further below optimal.

(d) The multiplicity of sellers forces heavy emphasis upon selling and promotional costs.

In practice, the emphasis upon promotional costs has not developed. Even department store advertising and promotional expense usually averages little more than one-half markdown expense. Personal salesmanship is not being intensified, and the great majority of retailers do little or no advertising.

Rising price levels and the relatively full employment conditions of recent years may constitute the real explanation for the nonrealization of another part of the forecast. However, during the last 25 years the retail market has not been sliced up into the predicted smaller and smaller segments served by retailers of increasing suboptimality, requiring higher and higher percentage margins.

Moreover, Barger's study, cited earlier, noted an amazing stability in the sum of retail and wholesale margins through recent years:

Since World War I, for all finished goods and construction material sold at retail, retailers and wholesalers have together obtained with remarkable regularity around 37 cents of each dollar of retail value.<sup>31</sup>

Studies of retail occupancy costs seem to show the predicted spatial monopoly factors.<sup>32</sup> However, attempts to measure the degree of imperfection through observation of retail price patterns have been less successful. First of all, we often do not know what those patterns are, and second, their significance is not always clear when we do find them. Given existing variations in retail service and location, is price uniformity between stores a sign of competition or of market imperfection? What are more significant—the prices charged for individual

<sup>30</sup> E. g., K. W. Rothschild, *Price Theory and Oligopoly*, *Economic Journal* (September 1947).

<sup>31</sup> *Op. cit.*, pp. IX, X.

<sup>32</sup> E. Burnham, *The Department Store in Its Community*, 18 *Harvard Business Review* (summer, 1940), pp. 455–471; R. Bellamy, *Size and Success in Retail Distribution*, 8 *Oxford University Institute of Statistics Bulletin* (October 1946).

items, or the costs of a "market basket" of assorted goods in various stores? (Studies of grocery store prices often indicate greater discrepancy between item prices than between bundle prices, as one store's reduction on one commodity is offset by another's reduction on a second item.)

At least one study (of possibly limited applicability) is available for an English city indicating that produce retailing there showed few signs of the spatial monopoly factors predicted by British economists.<sup>33</sup> In this country, the Bureau of Labor Statistics has found that retail price movements are rarely affected by urban locational factors—at least in the case of so-called "shopping goods."<sup>34</sup> Conceivably, competitive forces may not affect items bought in routine fashion the same way they do shopping goods (which by definition are purchased under conditions of consumer willingness to invest considerable time and money in the transaction). A recent French study using several interesting analytical techniques arrived at just such a conclusion: That the markets for "occasional (i. e., shopping) goods" were far less imperfect than those for "current (i. e., convenience) goods."<sup>35</sup> The difficulty of enforcing resale price maintenance in the marketing of electrical appliances, as contrasted with the relative ease in application in the drug and cosmetic trade, probably can be attributed in part to this distinction between shopping and convenience items.<sup>36</sup> Yet the evidence of this distinction is by no means conclusive: Price advertising seems to dominate sales promotion in the grocery field, price wars seem to break out in the gasoline field as frequently as anywhere else, and as Hood and Yamey have pointed out, convenience goods retailers (who presumably would be the ones most protected by spatial monopolies) have been the most ardent advocates of various types of legislative price protection.<sup>37</sup>

### (3) Costs

Cost considerations enter into a discussion of retail pricing in several ways. As noted, the belief is sometimes expressed that the imperfections of the retail market encourage the existence of relatively inefficient firms. Most retail industry cost surveys available for public consumption, such as those compiled by trade associations, show only industrywide average cost figures and permit of no judgments as to efficiency or inefficiency. More studies of cost dispersion are needed.<sup>38</sup> However, available information on cost dispersions certainly hints that at least some firms are not operating at the optimal scale, even after making allowances for possible variations in services and amenities offered. Analysts are not agreed on the shape of the cost curves for each retail industry, although the suspicion generally

<sup>33</sup> G. R. Allen and M. E. E. Rutherford, *Fruit and Vegetable Prices in a Large City*, 2 *Journal of Industrial Economics* (August 1954), 221-225.

<sup>34</sup> *Average Retail Prices: Collection and Calculation Techniques and Problems* (Bulletin 1182, Bureau of Labor Statistics, 1955), p. 16.

<sup>35</sup> J. Aubert-Krier, *Monopolistic and Imperfect Competition in the Retail Trade*, in E. H. Chamberlin (ed.), *Monopoly and Competition and Their Regulation* (London, Macmillan, 1954).

<sup>36</sup> Differences in the solidarity of the distributive trades, in manufacturer interests, and in buying motives, also must be credited with considerable portions of the differences in results.

<sup>37</sup> J. Hood and B. S. Yamey, *Imperfect Competition in Retail Trade*, 18 *Economica* (N. S.) (May 1951), 119-137.

<sup>38</sup> The heterogeneity of retailers (even within a single trade such as "hardware"), of operating methods and of accounting techniques impose Herculean difficulties upon industrywide cost studies.

seems to be that fewer, and larger, outlets would lower retailing costs.<sup>39</sup>

So far we have been looking at reported cost rates as a possible measure of competitive influences on prices and services. Cost may, however, have a more direct bearing on pricing. A retailer can stay in business without recovering operating costs (or even acquisition costs) on every item or in every transaction. However, overtime, his total margins must at least cover his out-of-pocket costs if he is to stay in business, and presumably his price decisions will reflect, among other things, his cost experience and anticipations.<sup>40</sup> Moreover, retailers often claim that, all other things being equal, items involving high handling costs (including the danger of serious spoilage or fashion obsolescence) receive higher markups than low-cost items. If this is true, the questions of cost determination and allocation become crucial. There is room for considerable study, for example, of the ways in which retailers handle inbound shipping charges and their influence on pricing. A pertinent question would seem to be: To what extent are those charges treated as costs of doing business, and consequently averaged out over all the items in a store or a department, and to what extent are they treated as acquisition costs of individual commodities? Similar questions arise with regard to the influence of such operating characteristics as the space required by individual items (an important consideration in grocery retailing today) or the rate of turnover of individual commodities.

The influence of handling costs on prices is vitiated by the fact that many retailing costs often appear as the "common" or "joint" costs of running a store, rather than as individual item costs. "Specific handling cost have little bearing on the determination of markup ratios. Even the large [grocery] chains have never attempted to make extensive studies of the distribution costs allocable to individual items or classes of items."<sup>41</sup> Merchandise Management Accounting, discussed above, on the other hand, rests upon the assumption that relationships between individual items and retail operating costs can be identified sufficiently clearly to serve as managerial guides.

A related pricing problem concerns the method of charging for such services as delivery, return privileges, clothing alterations, and credit. The Twentieth Century Fund's committee on distribution, for example, recommended that retailers charge separately for these items, rather than averaging them into general operations. Then, it was argued, the costs would be borne by those customers who actually used the service, and consequently would only be used by those who wanted service enough to pay for it. In turn, this would reduce the total work

<sup>39</sup> C. F. Bellamy, *op. cit.*; Burnham, *op. cit.*; A. Plant and R. F. Fowler, *The Analysis of Costs of Retail Business*, *Economica* (May 1939); R. S. Pollard and J. D. Hughes, *Retailing Costs: Some Comments on the Census of Distribution*, 7 *Oxford Economic Papers* (N. S.) (February 1955), 71-93; M. Hall and J. Knapp, *Gross Margins and Efficiency Measurement in Retail Trade*, *ibid.* (October 1955), 312-326; J. Dean and R. W. James, *The Long Run Behavior of Costs in a Chain of Shoe Stores* (Chicago, University of Chicago Press, 1942).

<sup>40</sup> Strictly speaking, a rational, economic man would not have to recover invested or sunk costs to decide to stay in business, although the expectation of such recovery would be needed to induce new investment. In practice, retailing requires a relatively low capital investment relative to operating costs and especially relative to sales volume; consequently the theoretical distinction is not of great importance here.

<sup>41</sup> Wingate, *op. cit.*, p. 270. See also, C. H. Sevin, *Distribution Cost Analysis* (U. S. Department of Commerce, Economic Series No. 50; Washington, Government Printing Office, 1946).

and cost of retailing in our society.<sup>42</sup> To some extent the committee's recommendation has been answered by the development of different types of stores, offering different bundles of services, and (to some extent) charging different prices. Separate service charges also seem to have become somewhat more common in many branches of retailing since World War II, although no proof of this is at hand. If this observation is current an interesting question for further study concerns its effects upon the utilization of the separated services.

(4) *Demand considerations*

A number of interesting phenomena affecting retail pricing can be grouped together under the general heading of psychological and demand factors. Most of these considerations probably tend to limit the flexibility of retail prices in response to minor economic changes.

(a) In a number of fields it has become common practice to group all retail prices at certain very specific points, often called "price lines." These price lines may become so well established that manufacturers organize themselves to supply particular price points. Similarly merchants will figure back from the retail price tags they intend to use to determine how much they can pay for an item. In the women's dress trade, where pricing lining is very common, manufacturers tend to become known as producers of "\$14.95" or "\$19.95" dresses. Price adjustments are made by varying the materials or workmanship offered at the set price. The writer's impression, subject again to no empirical verification, is that price lining has become somewhat less important under the strains and stresses of wartime controls and postwar inflation.

(b) Somewhat related to the question of price lines, but tolerating more flexibility, is the matter of "psychological pricing," or "odd and even pricing." The use of certain price endings, such as \$0.79, \$0.89, \$0.95, \$0.98, \$0.99, is a very common retail practice. Students of retailing have often debated the sales merits of such endings, as contrasted to "even" endings of 50 cents and \$1, without coming to any firm conclusion.<sup>43</sup>

(c) The way in which the price is stated can be important in some cases. Some consumers, for example, seem to derive an impression of a bargain from a high list price reduced by an inflated trade-in allowance. The giving of trading stamps may prove more effective than equivalent price reductions. The carpet industry has engaged in considerable debate over whether retail carpet prices should be expressed as so much per square yard, or the equivalent amount per square foot.

(d) Price sometimes appears to the consumer as a guide to value. Within limits, higher prices may make some items more attractive than lower prices. Retailers are often advised to avoid pricing their private brands too far below the going prices for comparable national brands, lest they give an impression of inferior quality. The importance of this sort of behavior can easily be exaggerated, however, and modern writers are beginning to emphasize the rationality of the consumer.<sup>44</sup>

<sup>42</sup> P. W. Stewart and J. F. Dewhurst, *Does Distribution Cost Too Much?* (New York, the Twentieth Century Fund, 1939), pp. 351-352.

<sup>43</sup> E. Ginsberg, *Customary Prices*, 26 *American Economic Review* (June 1936), 296.

<sup>44</sup> See, W. Alderson, *Marketing Behavior and Executive Action* (Homewood, Ill., Richard D. Irwin, Inc., 1957), ch. VI; R. Cox, *Three-in-One Marketing*, 34 *Harvard Business Review* (November-December 1956), 61-68.

(e) Finally, prices resulting from rules of thumb (including the application of uniform markups) must be modified in accordance with the retailer's judgment of his customers' willingness and ability to pay specific amounts for specific items. Relatively few attempts to construct formal empirical demand curves (schedules of amounts that will be taken at various prices) have been made for commodities moving in retail trade.<sup>45</sup> Nevertheless it can be argued that many retailers have, and use, intuitive and rough estimates of their customers' demand schedules at least for general classes of goods. Thus R. Holton, in an extremely stimulating article, argues that the variations in supermarket margins for different classes of grocery products are based upon the operators' estimates of consumer demand functions.<sup>46</sup> Low margins are taken on "staples," which seem to have a highly elastic demand (i. e., relatively small price changes will induce relatively large changes in the quantity sold), while "luxuries," have relatively inelastic demands and tolerate considerably higher margins. Holton suggests that this may explain an extremely interesting phenomenon, the movement of drug and cosmetic items from drugstores into supermarkets without concomitant reductions in margin.

Prof. Bob Holdren of Williams College has sent me part of the first draft of an unpublished paper, in which he approaches the variation in margins from a somewhat different, but not totally inconsistent, point of view. His basic assumption (which has some, but not necessarily conclusive, empirical verification) is that shoppers seek to minimize the time and energy inputs expended on grocery shopping. Price reductions on certain types of items are likely to persuade customers to visit particular stores. (These may be the items on which consumers are particularly price conscious—probably the ones purchased most frequently, and the ones which serve as the planning nucleus for shopping trips.) Higher margins can be, and are, taken on the "impulse" items, which are not central to the consumers' decision to select one store or another. Both the Holton and Holdren approaches stress the importance of demand considerations.

#### MAJOR QUESTIONS FOR FURTHER STUDY

Opportunities for further research have been indicated or implied in many sections of this paper. We could benefit from increased knowledge concerning almost every facet of retail price behavior and price formation. However, three questions seem particularly pertinent to the overall concerns of the joint committee.

#### *Lags and rigidities*

Does retail pricing, through built-in rigidities and inflexibilities, reduce the effectiveness of price changes at manufacturing and wholesale levels in bringing about an equilibrium between supply and demand? Or does retail pricing, through the application of constant percentage margins to given cost prices, actually magnify the adjustment effects of price changes at prior levels? <sup>47</sup>

<sup>45</sup> See, R. H. Whitman, Demand Functions for Merchandise at Retail, in O. Lange et al. (ed.) *Studies in Mathematical Economics and Econometrics in Honor of Henry Schultz* (University of Chicago Press, 1942) for one such attempt.

<sup>46</sup> Price Discrimination at Retail; the Supermarket Case, 6 *Journal of Industrial Economics* (October 1957), 61-68.

<sup>47</sup> See, G. Tintner, *Prices in the Trade Cycle* (Vienna, Julius Springer, 1935); E. Bovet, *L'Organisation Rationnelle de la Distribution* (Neuchatel, Delachaux et Nestle, 1954).

A recent comparison of wholesale and retail price indexes, prepared by two economists of the National Industrial Conference Board, describes a general similarity of movement over long periods. But, "while similar for some periods, short term changes in the indexes diverged considerably in other periods, and in some months even moved in opposite directions."<sup>48</sup> Part of the discrepancy can be explained on statistical grounds, since the wholesale index measures a somewhat different bundle of items than the retail (consumer price) index and assigns somewhat different weights to the common items. Another part of the explanation seems to be due to varying lengths of the trade cycle (period of movement from raw material to retail counters) for different items. However built-in rigidities in retail pricing seem, at least to this writer, as another part of the explanation, and as worthy of further study.

#### *Discrimination and redistribution of income*

Holton, in the article cited, argues that the pricing practices he has noted (low margins on staples, high margins on luxuries) tend to favor the staples buyer over the luxury buyer, and thus may be presumed to work a sort of "Robin Hood" effect on the distribution of incomes. The Twentieth Century Fund Committee on Distribution recommendations cited above implied that, without differential pricing, customers who used credit, delivery and exchange privileges did so partly at the expense of the nonusers. (The effects of services on total store volume and consequently on unit expense rates were more or less ignored in this section of the report.) R. E. Dodge, *Discount Selling* by the "Legitimate" Retailers is simply the latest of a number of reports indicating that high and medium income consumers make greater use of (and probably have greater access to) discount purchasing sources than have low income consumers.<sup>49</sup> The choice between dollar and percentage margins tends to determine how the costs of retailing are apportioned among purchasers of low- and high-priced items. The fundamental questions that arise, then, are whether retailing margins tend to fall regressively, progressively, or in neutral fashion and what are the consequent effects upon consumption?

#### *Efficiency and stability*

M. P. McNair has described a kind of cycle in the life of retail institutions in the following terms:

An innovator has an idea for a new kind of distributive enterprise \* \* \* he attracts the public on the basis of the price appeal made possible by the low operating costs inherent in his innovation \* \* \* he trades up, improves the quality of his merchandise, improves the appearance and standing of his store, attains greater respectability \* \* \*. Then comes the period of growth \* \* \*. The maturity phase soon tends to be followed by top heaviness, too great conservatism, a decline in the rate of return on investment, and eventual vulnerability. Vulnerability to what? Vulnerability to the next revolution of the wheel, to the next fellow who has a bright idea and who starts his business on a low-cost basis, slipping in under the umbrella the old-line institutions have hoisted.<sup>50</sup>

<sup>48</sup> H. B. Junz and T. R. Gates, *Do Retail Prices Follow Wholesale Prices?* Vol. 14, *The Conference Board Business Record* (June 1957), pp. 269-276. Lagging the retail series by as much as 3 months did not improve the correlations.

<sup>49</sup> Vol. 33, *Journal of Retailing* (winter 1957), pp. 182-183.

<sup>50</sup> *Significant Trends and Developments in the Postwar Period in A. B. Smith (ed.) Competitive Distribution in a Free High-Level Economy and Its Implication for the University* (University of Pittsburgh Press, 1953), pp. 17-18.

Central questions worthy of increased attention are: To what extent do existing price policies contribute to topheaviness? To what extent do restrictions on retail pricing hinder the evolutionary process? What are the net social costs (if any) of pricing innovations?

## SOME CHARACTERISTICS AND ECONOMIC EFFECTS OF PRICING OBJECTIVES IN LARGE CORPORATIONS <sup>1</sup>

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Over the past decade, there has been a recurring public concern over our apparent inability to achieve a fully employed economy with a reasonably stable price level. In the post-World War II period—at least until fairly recently—this dilemma has been faced at the public-policy level primarily as a problem in monetary and fiscal policies. Ever since the thirties, many economists have felt that private pricing policies of business probably react adversely on business stability, the level of employment, the pattern of resource allocation, and efficiency in the use of capital. For the most part, however, public policies have come to accept industrial pricing as essentially given, except as it might be modified by the application of the antitrust laws. The reluctance of the Federal Government to deal more directly with price behavior is perhaps explained by the apparent ease of relying upon monetary-fiscal policies to deal with price fluctuations and unemployment, the lack of general agreement among economists and public officials of the specific ends and means associated with a program of direct action, and the relative dearth of detailed information on pricemaking in industry and its impact on the economy.

The uneasiness associated with persistent inflationary pressures, with excess capacity, over the past decade suggests that we may be relying too heavily upon, or perhaps expecting too much from, monetary and fiscal policies. Whatever be the direction of the economy in the immediate future, at this juncture when reappraisals of the efficacy of monetary-fiscal measures are being made, it is important not to neglect consideration of strengthening or implementing means of influencing competition that may help promote economic growth and stability.

It seems desirable at the outset of this discussion at least to mention that the most direct connection between price behavior and the general behavior of the economy lies in the magnitude of business profits through the relative effects upon consumer spending on the one hand and business investment in plant and equipment on the other. It is not the purpose of this statement to develop these particular relationships, which are covered elsewhere in this compendium; rather, it is to examine the nature and probable effects on economic stability and growth of corporate price and profits policies, and to explore possible appropriate public policies to help prevent private price policies from adversely affecting economic stability and growth.

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<sup>1</sup> Part of the data used in this paper is based upon a forthcoming Brookings Institution study on Pricing Policies of Large Corporations by A. D. H. Kaplan, Joel B. Dirlam, and Robert F. Lanzillotti. The interpretations and conclusions are those of the author, and do not necessarily reflect the views of the Brookings Institution, its staff, or its trustees.

## I. PRICE-POLICY OBJECTIVES IN INDUSTRY

Rather limited information is available on the process of industrial pricing, and particularly the nature of corporation objectives or goals underlying pricing decisions. Many motivations influence corporate managements—e. g., power, prestige, personal satisfaction, etc.—but it is safe to assume that income motives dominate pricing policy. For the most part, economists are inclined to assume that a good basic working hypothesis is the desire to maximize profits (i. e., accounting profits in the ordinary business sense) within some given interval of time. It is easy to assume further that actual profit results represent the realization of the maximum attainable for the firm, but such a simplified approach is essentially arid in terms of the insights it affords to management thinking and policy formation.

Recent studies of pricing policies and practices of large industrial companies disclose the existence of various well-defined pricing objectives or goals and pricing procedures for appropriate implementation.<sup>2</sup> There is now sufficient empirical evidence to conclude tentatively that pricemaking in industry is based upon the selection of one of several possible choices of action, and in making a choice managements base their actions upon what are conceived to be the companies' particular overall goals or objectives. While some large corporations appear to have little latitude in selecting a pricing policy in some markets and at certain times, the prominent corporations in a considerable percentage of manufacturing industries are to a large degree masters of their fates, and accordingly are able to adjust their price policy (and other policies) to the company's *raison d'être*.

Pricing objectives evidently vary from company to company within a given industry and among different industries. Also, not all pricemaking in a single company is ruled by a single policy—multiple objectives are found in many cases. We can usually say, however, most large companies have as an objective certain specific long-term goals other than simply year-to-year survival. The most common type of objectives of large corporations appear to be—<sup>3</sup>

- (1) Pricing to achieve a specific long-run target rate of return on capital investment (including long-term debt);
- (2) Pricing to stabilize industry prices, margin, and profits;
- (3) Pricing to realize a specific target market share or degree of market "penetration;"
- (4) Pricing to meet or prevent competition;
- (5) Following the price leader.

All of these objectives cannot be developed in detail in the space available; so attention will be centered on what appears to be the most prevalent objective, a long-term target rate of return on investment. Also, even in those cases where one or another of the company objectives are tied more closely to actual pricing decisions, a close inter-

<sup>2</sup> See especially the Brookings Institution study cited above; *Pricing Policies and Practices*, National Industrial Conference Board (preprint, 1957); hearings before the Joint Economic Committee of the Congress of the United States, 85th Cong., 1st sess. (January-February 1957); and *Administered Prices*, hearings before the Subcommittee on the Judiciary, United States Senate, 85th Cong., 1st sess. For a discussion of earlier literature on the subject, see Richard B. Hefebower, *Full Costs, Cost Changes, and Prices*, in *Business Concentration and Price Policy*, National Bureau of Economic Research (Princeton, 1955), pp. 361-396.

<sup>3</sup> *Ibid.*

relationship exists with the desire to match or better the company's recent or average profit rate. It may not be remiss to assume that multiple objectives are governing in pricing decisions of large companies—i. e., a combination of target rate of return and other objectives such as target market share and desire to stabilize industry prices.

## II. TARGET RATE OF RETURN PRICING

The National Industrial Conference Board survey of 155 companies does not indicate the respective frequencies associated with each of the pricing objectives cited, except to state that of those having an established policy (whether written or not) :

Representative is the statement by a vice president of a general industrial machinery concern that "the basic policy is to establish prices that will return a predetermined profit margin applied on a predetermined volume of sales."<sup>4</sup>

Out of a sample of 20 large industrial corporations in the Brookings study, one-half can be regarded as having their pricing policies based mainly upon the objective of realizing a particular rate of return on investment, in a given year, over the long haul, or both.<sup>5</sup> In most cases a target return on investment approach to pricing is regarded as a long-run objective, i. e., an averaging out of earnings in boom years and poor years, which appears to be true also of various companies in the N. I. C. survey.<sup>6</sup>

A distinction can be made, however, between those companies that use a profit target as a rigid and primary guide to pricing and other firms for which a planned profit rate is used as a benchmark for products whose prices might otherwise be subject to wide and dangerous fluctuations. New products are especially singled out for target-return pricing, with the predetermined target usually higher than on established products, at least in the initial years of production. Mature products (e. g., steel, aluminum, and some chemicals) also are among those priced on a target rate-of-return basis.

There are good reasons to believe that there is an increasing tendency for large companies to adopt some form of target rate of return pricing. The reasons for this are :

(1) Large firms say that because of their market position they must plan ahead for markets, products, and investment expenditures (plus the ability to do so—financial strength and market position) ;

(2) A profits target provides a good standard in relation to the many competing uses for investment funds by many divisions in the large firm and a good standard for appraising the performance of various divisions and products groups ;

(3) The impetus given to return on investment thinking by "cost-plus-fixed-fee," and other contractual arrangements made with the Government in the war and postwar period ;

<sup>4</sup> Op. cit., p. 3.

<sup>5</sup> Kaplan et al., op. cit. The companies included in the study are : Aluminum Company of America, American Can, A. & P. Tea Co., Du Pont, General Electric, General Foods, General Motors, Goodyear, Gulf, International Harvester, Johns-Manville, Kennecott Copper, Kroger, National Steel, Sears, Roebuck, Standard Oil of Indiana, Standard Oil of New Jersey, Swift, Union Carbide, and United States Steel.

<sup>6</sup> Op. cit., p. 3.

(4) The desire to imitate policies of highly successful companies such as General Motors and Du Pont which have used a profit target basis for pricing for many years, and whose approach has been copied by other large companies.

The target or planned rate of return on investment may be on a before or after income tax basis, but typically an after tax target rate is used. The size of profits targets range from a low of 10 percent to a high of 20 percent after taxes, or an equivalent before tax target of approximately 20 to 40 percent.<sup>7</sup>

A variety of explanations is given by managements to explain or justify the particular profit target used as a guide in pricing decisions. The most frequently mentioned explanations are: (a) fair or reasonable return, (b) the traditional industry concept of a "just" or "fair" return in relation to risk factors, (c) a desire to equal or better the corporation average return over a recent period, (d) what the company feels it can get as a long-run matter, and (e) use of a specific profit target as a means of stabilizing industry prices. Most typically the first and second are mentioned, and in some cases the entire list is offered as justification for the company's profit goal.

Firms that price on the basis of a planned target return on investment (alone, or in conjunction with a target market share and/or desire to stabilize margins) appear to have these special characteristics:

(1) The number of firms in the industry is typically "few"—in the economic sense, "oligopolistic";

(2) They are price leaders in their particular industries;

(3) They sell products in a market or markets that are more or less protected due to various entry blocks, e. g., large initial capital investment required, importance of patent or trademarks, and control of, or at least existence of, a well-established dealer organization;

(4) They are frequently introducing new products or new models, and following "skimming" price policy (maintaining a selected price as long as actual or potential competition permits) or a "penetration" price policy (designed to penetrate mass markets via relatively low prices);

(5) There is a relatively high capital/sales dollar ratio, and unit costs (variable or incremental) are relatively stable over rather wide ranges of output and over relatively longtime intervals. Also, as will be mentioned below, because of downward rigidity in wage rates and in the prices of some semifinished materials and intermediate components, average full costs are assumed to be relatively rigid over the course of business fluctuations.

<sup>7</sup> See Kaplan, et al., *op. cit.*

TABLE I.—Comparison of profit targets and actual profits of 10 large corporations, 1947-55

Company	Profit target	Rate of return on investment after taxes, 1947-55 <sup>1</sup>	
		Range of returns	Average return
Aluminum Company of America.....	20 percent before taxes.....	Percent 7.8-18.7	Percent 13.8
Du Pont.....	Specific target not given (estimated to be 20 percent after taxes)	19.6-25.9	25.9
Esso (Standard Oil Company of New Jersey)	Specific target not given (estimated at 10 to 15 percent after taxes)	12.8-18.9	16.0
General Electric.....	20 percent after taxes.....	18.4-26.6	21.4
General Motors.....	do.....	19.9-37.0	26.0
International Harvester.....	10 percent after taxes.....	4.9-11.9	8.9
Johns-Manville.....	About 15 percent after taxes.....	10.7-19.6	14.9
Standard Oil Company of Indiana.....	Specific target not given.....	7.9-14.4	10.4
Union Carbide.....	(3)	13.5-24.3	19.2
United States Steel.....	8 percent after taxes.....	7.6-14.8	10.3

<sup>1</sup> Federal Trade Commission, "Rates of Return (After Taxes) for Identical Companies in Selected Manufacturing Industries, 1940, 1947-55," pp. 28-30, except for International Harvester, whose rates were computed by the author, using the same methods outlined in the Commission report.

<sup>2</sup> Various profit return figures were mentioned in discussions with officials of Union Carbide, with considerable variation among the various divisions and products of the company. No official profit target was given, but the author estimates the average profit objective of the corporation to be about 35 percent before taxes, or an effective rate after taxes of about 18 percent.

Source: The profit targets are the author's own interpretations, based on work done on the Brookings Institution study mentioned above.

A comparison of rates of return on investment with profit targets on investment for 10 large corporations which can be regarded as having such an objective, shows that over the 9-year period 1947-1955 they averaged slightly more to substantially more than the profit objective (with only one exception—International Harvester) see table 1. It might appear that because of the differences noted the target objectives are really not governing in pricing decisions, or that they represent nominal company goals. More than likely, however, the differences are explained by the additional allowance made in pricing formulas to compensate for the fact that in this period of generally rising prices the historical costs did not reflect current replacement costs of plant and equipment. If an allowance or "adjustment" is made for the changes in the general level of prices, average actual rates of return in most cases probably would more closely approximate the targets. Therefore, it seems reasonable to conclude that these particular large companies have realized profit rates in relation to investment that closely conform to their respective profit targets.

#### *Mechanics of target return pricing*

A typical approach in target return pricing is the use of a system of "standard" costs or similar formula for estimating per unit costs at the company's "normal" or projected rate of output over a period of years, e. g., 75 or 80 percent of plant capacity. These systems usually provide a formula allocation of all common costs (that is, all costs other than direct labor, materials, and power). The particular margins added to these "synthetic" per unit costs are governed by what is necessary to yield the predetermined target rate of profits on investment at given sales volume, corrected for any other considerations which may be relevant.

The principal type of target-return pricing is building prices directly from standard costs, plus a margin sufficient to provide the desired profit target; but in many cases firms select a price first (via consumer surveys, comparisons with prices of substitute product, or determination of economic value to user), and then tailor engineering design and costs to fit the product requirements. In the second method, the profit margin added may be the customary margin on direct or full costs, or a flexible margin on direct or full costs, which are expected to yield the prescribed return at anticipated volume of sales. This, of course, is only a general description, considerably simplified; some variations in different parts of this approach are found from company to company.

#### *Influence of consumer demand*

The attention given to the sensitivity of consumer demand to price changes (price elasticity of demand) appears to vary primarily according to the type and age of product in relation to the structure of the market. On mature or established products, demand characteristics are considered primarily in terms of projections of sales, or establishment of output objectives, based upon a target percentage gain over the previous year or period of years. In effect, predominate emphasis is placed on determining where the market is and overall secular growth.

In some firms, particularly those subject to regular model changes, careful and continuing analyses are made of the probable impact of national income changes on industry and company sales. In the case of completely new products, some firms undertake market surveys of consumer reactions to different prices related to the number of special features incorporated; others suggest alternative possible prices for new products or materials directly to potential industrial buyers to elicit probable consumption estimates upon which price and output decisions can be based. In general, pricing officials evidently give little weight to the influence of different possible prices upon sales in established lines—total demand being taken for granted and not much concern expressed for sensitivity to either small or large price changes.

#### *Influence of actual costs*

Actual per unit costs of production appear to have very little influence on the current structure of prices in large companies. Even in those companies in which accounting departments compile the most detailed cost data, a typical practice is the calculation of costs for only one rate (or range) of output, i. e., standard cost at long-run "normal" rate of output (e. g., 75-80 percent of rated capacity). In several of the target return-minded companies mentioned above, pricing officials are provided with monthly statements of actual costs, showing in addition to total unit costs, direct material, labor, and power costs separately by individual products. Yet, the pricing officials typically determine prices on the basis of some variety of standard or normal costs, and only in special situations do actual cost figures appear to be used for price setting. Of course, standard costs will reflect cost changes over time, but the important point is that at any given time, and over relatively long intervals, prices will not bear any necessary or direct relationship to actual full or direct per unit costs.

A number of reasons can be deduced for not utilizing detailed information on current actual costs in pricing, in spite of the advanced status of cost accounting. Basically, there appears to be a combination of (a) lack of awareness of the value of distinguishing between various cost components (especially variable and fixed costs) at different outputs, (b) a wariness, even fear, of anything that approached pricing on an incremental or out-of-pocket cost basis, or (c) frank disinterest in such information. In cases where detailed current cost data are compiled, they are more often than not used for purposes of controlling internal efficiency and in connection with decisions to add new, or drop sagging, lines and in make-or-buy decisions.

As a general conclusion on the influence of the nature of current demand and actual current costs on prices, it appears that price officials of large corporations feel they do not need to have precise estimates of the price sensitivity of demand nor detailed information on current costs. They vastly prefer to use standard or normal cost methods—systems which they feel provide them with more security and stability—and, annually or semiannually, revisions can be made in these standards in the light of actual cost experience.

The price policies and practices of large pace-setting corporations are so important that it may be worthwhile to examine an example of policy and pricing mechanics in some detail. The nature of target return pricing and its problems are well illustrated by United States Steel.

### III. UNITED STATES STEEL: AN EXAMPLE OF TARGET RATE OF RETURN PRICING

Several different pricing objectives of United States Steel are in evidence so that it first is necessary to distinguish between and understand those mentioned. (1) The basic goal is the desire to earn a general profit target of about 8 percent after taxes on stockholders' investment plus long-term debt, which yields "ideal" prices, i. e., prices that are believed to be "just, fair, and economic." This approach is influenced by the management's concept of the corporation as the industry leader vested with responsibilities similar to those of a public utility. One official stated that he was "unable to understand or properly describe the corporation's pricing policy except as something like the approach of the public utilities." (2) A second objective is a target market share (with target overtones) as stated in the corporation motto:

To obtain as a minimum that share of all markets for the products sold, product by product, and territory by territory, *to which the corporation's capacity in relation to the industry as a whole entitles it*, and to accomplish this participation ratio through the exercise of judgment so as to insure the *maximum continuing return on investment to the corporation.* [Italic added.]

(3) A third rationale centers on an explanation for the differences between the "ideal" system and what officials regard as "the practical exigencies of steel price making," e. g., limitations imposed by followers who are disloyal, and prices of competitive products that get out of hand. This objective, which in practice is an integral part of the first, is sometimes expressed in terms of the desire to stabilize industry prices and margins.

United States Steel's prices are based upon standard (estimated) costs when operating at 80 percent of rated capacity. Standard costs are compiled for each mill of the corporation, but the individual standard costs are used for gaging relative efficiencies of plants for incentive purposes. In determining the price structure for steel products, an average standard cost is used (weighted by the volume at various mills). A distinction is made between "price structure" and "price level"—meaning in the first case, a strict buildup of prices from standard costs and in the second case the average level of prices for the corporation, which involves many qualitative considerations as discussed below. In essence, what this boils down to is a distinction between the annual general revision in the level of prices characteristic of the past decade and "adjustments" in the structure (based on standard costs alone) made at the time general revisions are considered.

In United States Steel, pricing decisions are centralized in the executive vice president, commercial, with the assistance of the price division which prepares recommendations for price revisions. The precise details of the price increase in July 1956 and July 1957 are not available, but these aspects can be singled out. Price revisions in the past decade have coincided with labor-contract renegotiations, so that an insight to price changes begins with an estimate of the expected effects of the settlement on costs. There is a rule of thumb in the steel industry that every cent per hour increase in direct wage (and fringe) costs adds another cent to steel producers' nonwage costs per ton of steel—a working figure derived from experience in earlier wage settlements. With this 1 to 2 labor-to-total-cost ratio as a guide, the anticipated cost of the wage and fringe benefit package, which is doubled and then multiplied by the average number of man-hours required to produce a ton of steel—United States Steel uses a figure between 16.5 and 19 man-hours per ton<sup>8</sup>—gives them the anticipated costs per ton of steel.

Following this rule of thumb, since the corporation expected the wage package to add 24 cents per hour in 1956 and 21 cents per hour in 1957 per ton of steel, average price increases of approximately \$8 to \$9 in 1956 and \$7 to \$8 in 1957 would be indicated.<sup>9</sup>

The actual average increases were \$8.50 and \$6, respectively—some products were increased more and some less (from \$3 to \$16 in 1957 on more common products). How were the final figures determined?

A variety of influences and considerations both extra and intrafirm, come to play in the final decision. Among the outside influences are the company's leadership position and its concomitant rationalizations and sensitivities to expectations of the trade, prices of substitute metals, customers, pressures from congressional committees and the public, and the threat of antitrust action. Underlying these general considerations are product-by-product analyses made by the price division, in which, along with the general factors mentioned, consideration is given to the suggestions and proposals of the various product departments. Whenever a product section of the company feels a

<sup>8</sup> This is higher than the industry average of 15.9 in 1956 and 15.2 in 1957, based upon American Iron and Steel Institute data, which United States Steel explains is due to the corporation's greater degree of integration than the average steel firm. Hearings Before the Joint Economic Committee, loc. cit., pt. 2, pp. 387-389.

<sup>9</sup> According to Iron Age, for example, Two-week-old strike cuts production, predicts added labor cost of 20 cents an hour in settlement which should bring an \$8-a-ton price increase. (July 5, 1956, p. 123.)

change (increase or decrease) in base price, extra, or other item (freight absorption, discounts, etc.) is needed, or whenever the price of a new product must be determined, it makes such recommendations in writing.

These recommendations and attached supporting data are presented to the director of the price division for his evaluation, and in turn are submitted to the executive vice president, commercial, for final action. Of special interest here are the kinds of data prepared for the price-maker in the price recommendation, as follows:

(1) Cost and revenue compilations are prepared both for the specific product and the product group of which it is a part. Actually, primary attention is given by the price officials to the effects on product group profits rather than the particular impact which a price change may have on an individual product's profit position.

(2) The unit costs shown are actual costs (standard cost, plus all variances, selling, general, and administrative, and extra depreciation; i. e., accelerated depreciation and amortization in excess of normal depreciation).

(3) There is no breakdown as between variable and fixed costs to guide the price maker; hence, there is no indication of how large the overhead factor is (although the extra depreciation is calculated separately).

(4) Costs are not shown separately by individual or class of customer, but for some products the costs compiled would be tantamount to such a breakdown.

(5) The differential efforts of the proposed price change on net mill revenue for individual products and product group are indicated. This is supplemented by the information supplied under a section headed "Impact on Specific Accounts or Industries."

Even though the recommended price revisions (or new product price) meet with the approval of the price division and the executive vice president, commercial, they will not necessarily be implemented immediately or in the immediate future. Implementation appears to depend upon the nature of the revision, i. e., whether it is a change in base price, extra, freight allowance, discount, or allowance. There is a definite tendency to hold back base price changes during the year, the postage settlement being regarded by the management as the most propitious time for making general revisions.

There are difficulties involved in attempting to follow a rigid formula in the pricing of steel because of the desire:

(a) to maintain market position through advance investment planning for new facilities,

(b) to penetrate new markets or increase the corporation's "participation" in certain markets in which it would like to have a larger share, and

(c) to hold customers lured by secret price concessions as balanced against—

(d) the differences in costs among plants, and

(e) the manifestations of public utility thinking mentioned above.

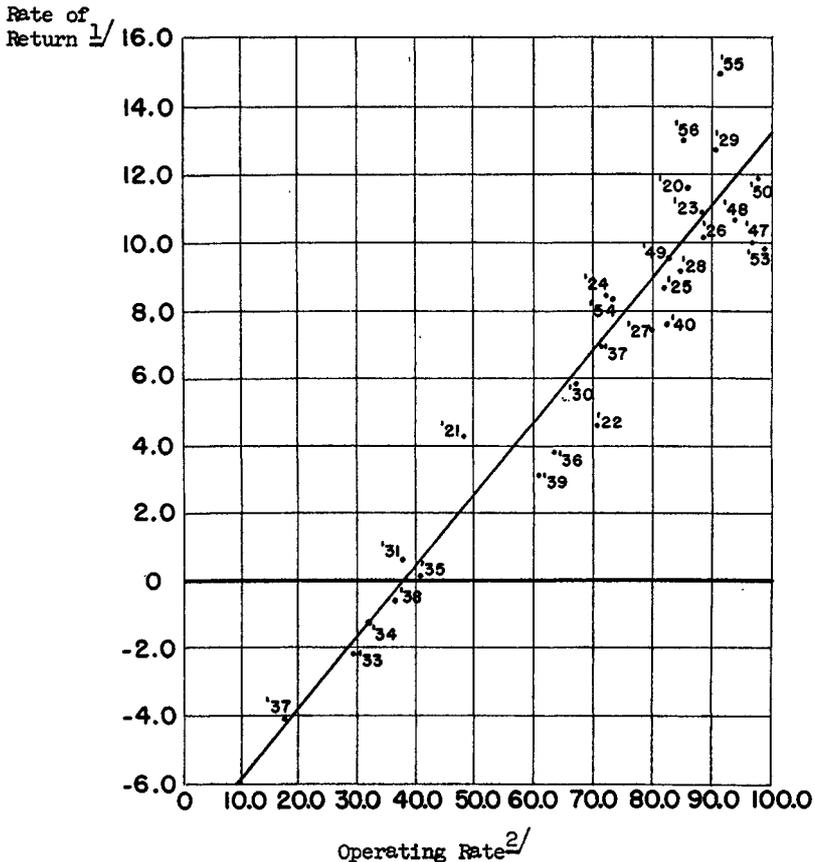
Balancing these considerations has led to a need for relatively stable prices. Target rate of return pricing tied to a system of standard costs, which is designed to avoid the necessity of making the short-run changes in prices that would result if adjustments were continuously made for changes in volume and current actual cost, therefore it is a logical approach for the company.

This policy of holding to prices computed from standard costs based upon 80 percent of capacity as the normal operating rate is

reflected in varying year-to-year rates of return for the corporation with fluctuations in operating rates, although the average return over the past decade, at least, meets target requirements. A study prepared by the Federal Trade Commission discloses that over the 1920-56 period there is a very close relationship between rate of return on investment and operating rate as shown on the attached chart—figure 1. The Pearsonian coefficient of correlation is 0.91, which may be interpreted as showing that over 80 percent of the variation in rate

Figure 1

RELATIONSHIP BETWEEN PER CENT OF CAPACITY OPERATED AND RATE OF RETURN ON STOCKHOLDERS INVESTMENT AFTER TAXES, 1920-1956, U. S. STEEL CORPORATION\*



\*Excludes 1941-46 and 1951-52.

<sup>1</sup> Federal Trade Commission.

<sup>2</sup> United States Steel, basic facts about United States Steel.

Source: Administered Prices, Hearings Before the Subcommittee of the Committee on the Judiciary, U. S. Senate, 85th Cong., 1st sess., pt. 2, p. 379.

of return on investment is “explained” by variation in operating rate.

## IV. THE MOTIVATING RATIONALE OF LARGE CORPORATIONS

The foregoing discussion of the approach of big corporations to pricing, which could only be sketched briefly in the space available, suggests that a predetermined profit target rate of return on investment may be a typical approach to pricing—frequently balanced with market share considerations. The time horizon for large companies with respect to these profit objectives and pricing policy is best described as long run, in conformance with the expectation of realizing an average rate of return over years of both high and low operating rates.

On new products, new materials, or new models, the time horizon may be more short range in the sense that the target payout on investment is delineated from the start. As a generalization, large companies have had enough experience with new products so that they view product innovations in terms of a “life-cycle” for pricing purposes, under which the desire to recoup development and other investment costs is balanced with the desire to prolong the time span from distinctiveness to obsolescence by discouraging potential competitors with a relatively low price and low profits policy.<sup>10</sup>

In line with a long-run view of company objectives, managements of large companies find it increasingly necessary to utilize some form of capital budgeting and profits planning in order to allocate capital funds to competing uses, and to provide necessary plant expansion for maintaining market position. The crucial aspect of profit planning from the standpoint of price policy is that those projects which offer the best promise of reaching a given target or better over the long haul are likely to be given priority. As one firm puts it, “Our objective is to build for the long term a solid market that will stick to our ribs through periods of adversity as well as prosperity.” A profit target, then, is designed to provide for continuity of profits more than for a particular rate of return in any given year.

This rationale of corporate behavior is often tied in with an expression of responsibilities “akin to those of a public utility.” Whatever tendencies or rationalizations large corporations already have along this line are reinforced by the disposition of the community and the Government to regard and appeal to such firms as “pattern setters” for industry generally—and in pricing they are expected to restrain themselves from taking full advantage of immediate profit opportunities. Recent examples of this are contained in the last two Economic Reports of the President:

Specifically, business and labor leadership have the responsibility to reach agreements on wages and other labor benefits that are fair to the rest of the community as well as to those persons immediately involved \* \* \*. And business must recognize the broad public interest in prices set on their products and services (Economic Report of the President, January 1957, p. 3).

\* \* \* Business concerns must reexamine their policies and practices. Price increases that are unwarranted by costs or that attempt to recapture investment outlays too quickly not only lower the purchasing power of the dollar but may be self-defeating by causing a restriction of markets, lower output, underutilization of capacity, and a narrowing of the return on capital investment (Economic Report of the President, January 1958, p. 53).

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<sup>10</sup> Cf. Joe S. Bain, Pricing in Monopoly and Oligopoly, *American Economic Review*, March 1949, pp. 448-464.

Such open recognition and appeal, or threat, to market power provides a kind of "public-utility conditioning" of large corporations, which is reflected in "fair-return-just-price" protestations by managements. In line with this thinking, large companies time and again surround the announcement of periodic general price revisions with elaborate justifications based upon recently negotiated changes in wage costs in order to demonstrate the need for price relief. In this, they find additional justification for their own (and their customers') desire to avoid the annoyance and costs of frequent changes in price structures.

This desire for stabilized pricing is usually described as "administered pricing," with the implication that prices are under the control of a leading firm or firms that make policy or set the pace for the other firms in the industry. Usually overlooked in discussions of this topic is the more important aspect discussed above, namely, that the leader's price policy is likely to conform in turn to some predetermined target consideration. Realization of target objectives—to provide a steady flow of profits in order to maintain industry position and to penetrate new markets—requires planning capital investment with excess capacity "built in." The best example of this is the fact that prices are set in many cases on the assumption of operating rates of around 70 to 80 percent as the long-run normal. In the cases of multiproduct-multiplant companies, moreover, rate of return on related capital investment provides an objective standard for making decisions regarding expansion in different product lines and markets. Price policy thus is formulated in terms of meeting profits-investment requirements. To the extent that profits planning is controlling in corporation investment decisions, it affords a means of forging a general corporate profits policy—even in the conglomerate company—which in turn serves as an effective guide for pricing decisions on down the line. It would seem, therefore, that if the nature of "administered" decisions of the large corporation is to be fully understood, it is probably more accurate to think in terms of administered profits as well as administered prices.

This ability of large firms to administer profits to conform to corporate objectives raises a basic question for public policy: Does this kind of profits planning and its attendant price behavior tend to promote or inhibit business stability and economic growth? In order to answer this question satisfactorily would require a theoretical standard of socially "necessary" or "normative" profits in relation to aggregative behavior of the economy.

Assuming we will have continuing business fluctuations over time, a norm of socially desirable profit levels would have to provide not only for average long-term profits, but a pattern for business profits over the course of economic fluctuations. No such theoretical standard has been developed as yet which at the same time applies to industry generally and to particular industries. The development of a generally acceptable criterion presents many problems. It is not merely a matter of deciding what relationships prices should bear to unit costs on the average and over time, but it involves deciding on, among other difficulties, a "proper" valuation of business assets and "proper"

distribution of income and wealth.<sup>11</sup> "The establishment of a normative profit margin is thus not merely an arithmetical but also a legal and institutional problem which involves the definition of normatively accepted property values."<sup>12</sup> Lacking such a normative profits criterion for industry, what can be said with respect to the probable effects of administered profits on cyclical movements?

#### V. STABILITY AND GROWTH IMPLICATIONS OF TARGET RATE OF RETURN PRICING

In approaching the question of the impact of the foregoing on stability and economic growth, it is necessary to recognize that profits-target-minded corporations, especially the large, dominant firms in industry, appear to operate under the working assumption of the full-employment guaranty of the Government. Along with this basic assumption, there is tendency to accept another working variable, i. e., the persistence of a long-run inflationary bias. The effects of profits-investment planning within this framework on pricing, cyclical movements, and general progress will be considered briefly.

In the following analysis these basic assumptions are made with respect to the nature of the general economic policies in effect in the future: (1) That we will continue to have monetary policies following the lines of the post-World War II decade; (2) a fiscal policy committed to maintaining a full-employment level of national income—which have in the past decade "permitted" a slowly rising price level; (3) a defense contract policy that leans heavily on oligopolistic firms; (4) an antitrust policy that accepts the present general structure of industry; (5) a labor policy that accepts the present structure of labor markets; and (6) a foreign trade policy that tends toward no further relaxation of trade barriers.

On the upward phase of the cycle, an exhilarating effect on investment may be produced, especially if actual plant operating rates consistently exceed the normal or standard rate for pricing purposes and profits in turn exceed target expectations (and the reverse in the downswing). Investment outlays also may be pushed ahead of original plans if necessary to maintain market position, or desire to increase the penetration of markets in which current shares are not regarded as satisfactory. In many cases, especially steel and aluminum, the impact of competition with rivals assumes the form of striving to complete new facilities in time to guarantee "availability" to customers.<sup>13</sup>

This stimulus may accelerate investment in plant and equipment unduly in relation to population increases and the general rate of growth in the economy. It should be recognized that there is an organizational limitation on the amount of expansion that can be handled by management, even in the large size corporation, so that spurts in plant expansion within a given company may be forced to give way

<sup>11</sup> Regarding the latter, "proper" distribution of income and wealth can be viewed in at least three significant senses: (1) interpersonal distribution, (2) interbusiness, and (3) personal vis-a-vis business.

<sup>12</sup> Joe S. Bain, *The Normative Problem in Industrial Regulation*, American Economic Review, Papers and Proceedings (March 1943), pp. 54-70.

<sup>13</sup> United States Steel officials have indicated that the Fairless works, for example, was intended to permit the corporation to "steal a march" penetrationwise in the growing sheet market, but was completed too late to make the desired gain.

to a stretching out of capital expenditures. However, if one looks at experience of the past decades, this does not appear to be a very serious inhibiting influence for industry generally.

If attention is focused on the effects on prices of price-setting based upon profits-investment planning, there are good reasons to believe that on the upswing of the cycle with conditions of high and generally rising demand, the price-setting corporations restrain themselves in making price increases. This is due to a combination of factors: The influence of high-level appeals from Government officials, fear of encouraging antitrust actions, pressure of labor union demands, the influence of the target return objectives themselves, and possibly fear of engendering a softening of demand. Surely, if United States Steel found that an average increase of \$8.50 per ton was possible on July 1, 1956, and an increase of \$6 per ton on July 1, 1957, it seems reasonable to assume that such increases were possible a month or more earlier. We may conclude that, for various strategic reasons, including the power politics of industrial pricing, unused opportunities for higher prices and higher profits will probably exist under inflationary conditions.

Under the circumstances, if restraint is in fact exercised in periods of inflationary movements so that the prices of producers do not fully reflect demand influences and fundamental cost pressures, there may develop "spillover" effects of "released purchasing power" on the prices of more competitively priced goods. This will not be easy to measure, but may be a contributing reason for the higher than average percentage increases in some sectors of the economy than in others.

Profits-target-minded firms may also find it desirable to exercise restraint on the downswing of business fluctuations. If prices are maintained under circumstances of general economic decline, another kind of distortion in the price balance of the economy may be produced, due to the more than proportionate absorption of purchasing power away from other industries, thus possibly aggravating price declines elsewhere in the economy—especially more competitive areas. On the other hand, if the price policies of profits-target-minded firms promote the continuity of profits, and firms as a consequence will maintain investment expenditures, a favorable impact may be exerted on economic stability. A fortiori, if demands are more sensitive to price reductions than generally assumed by industry, lower prices during downswing would lend even more stability to production and profits—if demand elasticities are high enough. However, large producers do not normally think in terms of large price reductions as an offset to swings in volume, and many believe—with good reason—that demand elasticities change unpredictably, especially at turning points in the cycle.

It should be recognized that if the demand for the products of some of these industries is more elastic than these firms believe, these pricing policies may lead to greater fluctuations in output and profits than otherwise. Thus, to the extent that investment may prove to be more closely related to current profits than as assumed above to long-run profits, these pricing policies may lead to greater fluctuations in investment and greater instability.

It would appear, therefore, that the validity of the contention that actions of administered profit industries will lend a stabilizing in-

fluence against downward as well as upward movements of the economy, rests mainly on the assumption that long-run investment plans will not be altered sharply, because prices and profits will hold up better, and recover more quickly, thus encouraging the pursuit of long-range thinking in investment spending. An empirical verification of these relationships would be desirable but is difficult because of the lack of detailed information on the course of individual company investment planning and subsequent revisions over the course of business fluctuations.<sup>14</sup>

In testing the question as to whether the pricing of products in industries characterized by significant control by small groups of firms contribute to inflationary (and possibly deflationary) pressures, attention is usually centered on price changes over relatively short periods of time. Following this approach, it is possible to demonstrate, depending upon the breadth of industry coverage and time period selected, that for industries in which large firms are regarded as having enough market power to set prices and hold to them, prices generally have increased by more than, less than, or about the same percentages as cost increases; in other words, almost anything.<sup>15</sup> If one takes a broad coverage on industry price movements, the conclusions may be challenged on the grounds that important extremes are averaged out in the process. On the other hand, if a sample of firms or industries is selected, the results may be suspect on the grounds that the figures may not be representative.

From the standpoint of policy formation it is of importance to examine the relative changes in prices over longer periods of time in order to determine if any particular pattern exists. There are pitfalls in this kind of comparison also, e. g., particular commodities and base period selected, price lags, and so forth, but it may afford some additional insights which are not apparent in examining month-to-month or year-to-year changes over relative short-time intervals. A careful examination of detailed cost-price relationships and productivity changes for individual products and product groups also would be required in order to determine what proportion of these percentage changes are due to the "push" of wage rates in relation to the "pull"

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<sup>14</sup> Empirical verifications of the variables influencing investment expenditures and the relationship between planned and actual plant and equipment expenditures in individual companies and industries are still in the exploratory stage. According to a recent study of companies for the year 1949, "Firms with total assets exceeding \$50 million were considerably more accurate in anticipations than firms with assets between \$10 million and \$50 million \* \* \* [A] large organization must make its plans further in advance than a smaller firm. The decision-making process is more formalized; a capital budget is more likely to exist. The number of administrative levels which must give approval is larger. These factors contribute not only to the making of decisions well in advance of actual expenditure but also to the inflexibility of plans when made; and the effect is to reduce the likelihood of large deviations from anticipations." Also, "Only the smallest firms mentioned changes in earnings outlook as a significant factor in reducing planned outlays." Irwin Friend and Jean Bronfenbrenner, *Plant and Equipment Programs and Their Realization, Short-Term Economic Forecasting* (National Bureau of Economic Research Studies in Income and Wealth, vol. 17, 1955), pp. 70-71 and 91.

A more recent study for the year 1955 confirms the finding that unexpected sales and earnings developments of large companies do not materially alter investment plans. "Among firms \* \* \* spending more than planned, the proportion of reasons related to higher sales and earnings decreases as size of firm increases. \* \* \* The differences are much more pronounced among firms spending less than planned; they fall from 50 percent of the smallest companies to only 5 percent of the largest." Murray F. Foss and Vito Natrella, *Investment Plans and Realization, Survey of Current Business* (June 1957), pp. 14-15.

<sup>15</sup> For example, see Alfred C. Neal, *Industrial Concentration and Price Inflexibility* (American Council of Public Affairs, 1942); Richard Ruggles, *The Nature of Price Flexibility and the Determinants of Relative Price Changes in the Economy, Business Concentration and Public Policy* (Princeton, 1955), pp. 441-495; and *Administered Prices*, hearings before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, United States Senate, 85th Cong., 1st sess., pt. 1, especially pp. 128-162.

of demand, in conjunction with an appraisal of the degree of control over supply and price and the other influences mentioned. Such detailed information is lacking. In the meantime, the durability of profits over the period as already noted, attests to the apparent continuity and adequacy of prices vis-a-vis profits targets, even though the companies might feel they could provide justification for higher prices in relation to cost increases.

#### VI. CONCLUSIONS

In the foregoing discussion an effort has been made first to present some insights into the nature and probable impact of pricing of large corporations. In this connection, economic theory can only provide a list of the probable effects and indicate their nature based upon the empirical information available. As a generalization, it seems reasonably clear that the goals to which pricing is expected to conform in the large pattern-setting corporations in American industry are selected from among various alternative objectives, which in the final analysis come down to fairly specific profit objectives. The very ability of such companies to choose from among alternative policies reflects the degree of control over supply and price in the hands of corporate management. In some cases this measure of control is quite obvious. The gradual and cautious policy of price reduction was possible in aluminum for decades because there was only one domestic producer of virgin aluminum ingot. The ability of managements to decide with respect to new products to set from the start high "prestige" prices, or to explore the further reaches of demand, or a combination of the two, are choices that are open only when the firm has some measure of control over supply. It is no less effective in cases where products are established and sellers few. While such control over supply may not be unique to large corporations, it appears to be a necessary condition to an objective of profits planning.

As a long-run matter, what can be said about the probable relationship between the profits targets and some given "normative" criterion of profits incorporating appropriate risk premiums and rewards for innovations? According to corporate managements, the approximations are close—if any weight is to be given to the "just-price fair-return" explanations of their targets. There is good reason to believe that the sizes of long-run profit targets are less than the most profitable position for the firms, as indicated by comparisons shown in table 1.

To the extent that favorable expectations are maintained because of the realization of target objectives, reliance by these firms upon an assumed full-employment guaranty can lend greater cyclical stability and in turn encourage a higher rate of growth in the economy. The experience of the past decade when demands persistently exceeded anticipations and investment had to grow faster to keep up with consumer demand, illustrates the point. We may conclude, that if firms generally plan profits and investment on reasonably "correct" anticipations about the long-run course of general economic activity, the depth of short-term business decline may be attenuated and speed of recovery accelerated. In turn, a favorable impact may result on innovation and progress. The favorable impacts of operating within these assumptions, of course, may be in part a reflection of the in-

fluences and effectiveness of monetary-fiscal policies, in which case we may be dealing with the "feed-back" effects of such policies, and not simply the autonomous actions of large corporations.

By way of specific proposals, there is an increasingly pressing need for more empirical industry studies, especially with respect to pricing policies and practices. Much research in the area of industry has been done by scholars both independently and for research foundations. Such studies when properly undertaken are quite costly, even for the large foundations, and even under conditions of the highest degree of cooperation and rather wide access to management officials and records, limitations are inevitably imposed upon researchers with respect to publishing materials as freely as they would like. Because of these and other related considerations, such studies are not uniform in their coverage of subjects; they relate to differing time periods, and are insufficiently numerous. They are thus inadequate to serve as a basis for formulation of appropriate public policies. We simply do not have enough information to act intelligently in formulating good economic policies in this area. It would be desirable, therefore, to explore the possibility of establishing a permanent research commission, committee, or other appropriate organization, to undertake and support comprehensive and continuing cross-section economic studies of industrial pricing policies and practices. In my opinion, this is one of the very best actions that could be taken.

There are certain specific avenues that might be explored as a means of insuring that the objectives managements set for themselves serve the best interests of the community. There appear to be self-imposed limits on profits targets of the large company, but there is no assurance that market influence will necessarily be used in the public interest.

As a means of curbing abuses of market power, suggestions have been made for resort to more high governmental appeals to industry leaders and for public hearings on proposed price increases in certain industries. Moral suasion and jaw-bone psychology cannot be ignored by industrial leaders, but we cannot assume that such appeals will be consistently effective at the right times and in the right places. There also are other side effects of this approach, such as the adverse psychological impacts it may have on business and consumer expectations.

A second suggestion along these lines that has been mentioned is that public hearings and discussion should be held in certain basic industries after appropriate notice of contemplated general revisions in prices.<sup>16</sup> This kind of an approach represents an experiment in "quasi-public utility" status and presumes that the public airing of a company's justification for the impending increases will encourage more restraint and industrial statesmanship. The procedure would be designed to exert a further restraining influence on the managements of large companies with respect to price increases, along the lines of the impact of other public pressures mentioned above. This proposal has merit, but obviously is not an ideal solution to the problem. There is, of course, no assurance that firms will be any more inclined to be restrained by this procedure than they are by current manifestations of public concern about prices. Also, the proposal appears to have an implicit inflationary bias and thus is geared essen-

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<sup>16</sup> See testimony of John K. Galbraith in *Administered Prices*, loc. cit., pp. 50 ff.

tially to the problem of holding down price increases. A separate procedure would be required in order to deal with the problem of encouraging firms to reduce prices, maintain operating rates, and encouraging efficiency.

In addition to these types of governmental regulatory controls, it is not inconceivable that the most extreme form of outright fixing of prices, output, capacity, and so forth, via some variant of Government regulated cartel might be utilized in certain industries in such a way that the public interest would be served. However, the strong points of these devices seem to lie in restrictive-discriminatory activities, and it appears highly unlikely that within our present institutional framework managerial objectives would be subordinated to the larger public interest in any assured manner. In any of these quasi- or full-fledged regulatory arrangements, there are manifold problems to be recognized in any attempt to restrict profits systematically by relating prices in some direct manner to average costs. The difficulties of public utility regulation, with long drawn out judicial processes in establishing a "fair" rate of return, are illustrative of problems entailed.

There are other possibilities including direct Government competition, subsidies, and various types of taxes. These particular areas contain some rather involved and sometimes esoteric features so that it is perhaps desirable to leave their examination to experts in the field. It might be mentioned in passing that there are some avenues worth exploring more fully in the tax area, such as special tax concessions as against rapid amortizations (the latter, in postponing tax liability may add undesirable pressures to investment demand under inflationary movements, and may have an unfavorable impact on investment if the rapid writeoffs end and tax liability increases in times of recessionary movements).

Fully competitive determination of prices and profits would provide a more systematic limitation on industry prices and profits. Also, with the appropriate degree of responsiveness and flexibility of labor and material costs, as well as mobility of labor and capital, greater stability and more economic growth might be induced. However, under the assumptions made earlier with respect to the general structure of industry, and the practical difficulties of making significant changes in that structure under present legislation, our problem is one of; (1) learning more about the nature of and implementation of pricing objectives in large companies, (2) tracing through the effects of such objectives, and (3) devising appropriate policies for insuring that long-run pricing-profits-investment planning serves the public interest.

The limited information available on pricing in large companies indicates that even though they are not controlling, present market forces do limit the range and discretion of large companies. Likewise, the ever-present threat of antitrust action also acts as an important restraining influence on the abuse of market power. But, to expect our present antitrust laws, under our present legal institutions and judicial interpretations, to be able to effect the reconstruction of industry that would be required to establish the conditions outlined immediately above, is to saddle the laws with an objective and burden they were not designed to handle. The purpose of antitrust laws, as I see it, is proceeding on a case-by-case approach to prevent accumulation and use of power that unnecessarily jeopardizes competitive behavior.

In effect, this calls for a selective, not a comprehensive approach. Antitrust policy, especially with respect to mergers, can help prevent an increase in concentration of economic power (i. e., make sure the growth of large firms does not exceed the growth of the economy generally), and thus preserve healthy corporate incentives.

Economic statesmanship has been fairly impressive on several fronts, but only time will disclose whether profits averaging of generally prosperous years against those of recessed years in line with corporate profits planning will, in fact, help dampen swings in business fluctuations and contribute to economic growth. The economic statesmanship which the large firms have begun to display is being put to a real test currently, and it remains to be seen how far the philosophy of administered profits for the long haul will carry through with an averaging of earlier years by accepting lower profits in the current period of reduced economic activity.



## CYCLICAL IMPLICATIONS OF PRIVATE PRICING POLICIES

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### I. SCOPE AND METHOD

This paper is focused on a few aspects of industrial pricing policies. It is oriented particularly around industrial price behavior during recession. Accordingly, little will be said about pricing during a business upswing or about economic growth aspects of pricing.

This paper does not deal specifically with the present recession, but is intended rather as a more general analysis of pricing during recession. However, this discussion applies to the present and to future recessions—rather than to those of the past. The phenomenon of “inflationary recession” must deter us from generalizing on the basis of economic fluctuations during the 1920’s and 1930’s, let alone those of an earlier period. The combination and balance of forces operating in the pricing sphere apparently has changed substantially since, say 1930. Consequently, notions that were appropriate in an earlier decade would probably lead us to misunderstand and mismanage the present recession. Since we have had very little experience with our substantially altered economic system, we are unlikely to understand it thoroughly; we must not therefore rely very confidently upon any general conclusions we are tempted to reach.

This paper is confined primarily to industrial prices and therefore discusses retail, wholesale, and service prices only indirectly. However, interrelationships among prices at different levels in the industrial structure must not be overlooked. Pressure on prices at retail often is shifted back to the manufacturer and by him to suppliers of major raw materials. These vital interrelationships should not be passed over lightly as a consequence of having different people discuss retail and industrial prices; they shall be touched on here only in passing.

Further, this paper discusses industrial pricing during recession primarily from the standpoint of the price setter. It revolves around a consideration of businessmen’s pricing objectives, policies, methods, and strategy; it deals also with their perception of the business scene, their knowledge of market developments, their anxieties and hopes, as well as their actual market behavior. This view of pricing stands in sharp contrast with studies by others for this committee which are based upon a broad statistical analysis of price quotations or of announced price changes. A thorough understanding of the total pricing picture requires the use of both methods.

The study of pricing from the standpoint of the individual businessman overcomes the grave weaknesses that arise when one uses price quotations or announcements about price as the basis for study. Especially during periods of recession, these often do not represent

the prices actually paid. This approach to an understanding of pricing offers other advantages also. First, it makes much clearer the causes for price behavior, for at bottom they do lodge in the objectives, framework of analysis, and perceptions of the individuals responsible for setting price. Second, it frees us from dependence for basic data upon experience during earlier business recessions which may differ substantially from the present one, and from those we can anticipate in the future.

On the other hand, this method of studying prices during recession suffers two major difficulties: In the first place, it limits one to the small number of cases with which any individual can have close personal contact; second, and related to the first, it forecloses generalizations about the effects of such things as differences in industrial structure, the nature of the product, the age of the industry, rate of technological change on price behavior during recession.

## II. BUSINESSMEN'S PRICE OBJECTIVES—WITH PARTICULAR REFERENCE TO PERIODS OF RECESSION

Businessmen have a whole hierarchy of conscious objectives that come into play during recession. Uppermost is the goal of survival for the firm. If this is assured, profitability will be a primary objective. About on a par with profitability in the minds of most businessmen is the maintenance of the firm's market share. A minority of business executives will consciously endeavor, in addition to pursuit of the foregoing objectives, to adopt courses of price action during recession that will ease the firm's marketing problems when business ultimately revives.

Beyond these objectives for the business, business executives' goals include some more personal aims. They want to maintain and advance their own positions within the firm; in addition, they will want to avoid blame for the decline in sales and profits and will try to get credit for pulling the firm out of its decline. Also, they may favor policies which make a minimum drain on their time and energies.

These many objectives are not necessarily consistent with one another; conflicts of objectives are likely to arise during recession. For example, it might prove immediately expedient to liquidate a large inventory by a drastic price reduction, but such action might make the maintenance of price on other sales more difficult and also cause difficulties in raising price once the recession ends. Sometimes, also, considerations of profit would dictate that a firm accept a reduced market share, posing a choice among conflicting goals held by management. Similarly, many business executives fear that top management or the board of directors will demand a report on what they have been doing to combat a decline in sales; at such times they are more comfortable if they can point to some concrete action they have taken. A reduction in prices often satisfies persons prodding for some action, even though it may involve a sacrifice of both short- and long-run profits.

The existence of potentially inconsistent pricing objectives results in diversity of behavior, for individual firms and executives attach different weights to their various goals. Also, decisions made involving multiple and conflicting goals generally are made by less rigorous and systematic methods than less complex choices, and therefore are extremely difficult to unravel and understand.

## III. BUSINESSMEN'S MAIN PRICING POLICIES DURING RECESSION

Businessmen's pricing objectives, pricing policies, pricing strategies, and pricing methods shade off into one another. Also, they are closely interconnected for particular objectives require special policies; these in turn dictate the use of specific pricing strategies and sometimes even the particular pricing method to be employed. It is possible to distinguish four main combinations of pricing objectives-policies-strategies-methods that are prevalent among business managements in the United States. (For want of a better term, these combinations of related pricing goals and methods will be called "pricing syndromes.")

One widely employed "pricing syndrome" aims primarily to minimize price disturbance in both the selling and buying industries. This syndrome calls for stabilized prices during both recession and revival, for it rests upon the conviction that stable prices are beneficial to buyer and seller alike. The main benefits from stable prices are that the selling industry will not suffer sharp erratic spurts and declines in sales as buyers speculate in inventory; and, buyers will be spared the risks of loss from unavoidable inventory speculation. The pricing method implied by this pricing syndrome is that of adhering to past prices as long as possible. An important rationalization for this syndrome is that management should be obliged to forego price increases during periods of active business and in compensation should be spared price reduction during recession. The strategy required by this pricing syndrome is that customers should be persuaded that they gain from this pricing policy so that they become its advocates.

A second pricing syndrome has as its chief objective the maximization of profit in the fairly short run. With this objective, a seller reduces prices voluntarily only when he expects it to result in a fairly prompt rise in his sales and profits. He does not worry about possible long-range effects of his price reductions because he is convinced that there is no stable connection between present and future prices and short-run and long-run profitability in his business. With this pricing objective, sellers will reduce price only when they have strong reason to believe that unit sales would be strongly stimulated thereby. Inasmuch as the sales of many products (though we do not know just how many) are quite insensitive to changes in price, this pricing syndrome rarely calls for prompt reductions during early recession. Indeed, one would expect unit sales to become less sensitive to price reductions during recession for price considerations would then be diluted with such factors as financial liquidity, the exception of further price reductions and the like. Moreover, it is difficult to understand why firms would be able to profit by price reductions during early recession, unless they had been charging too much for their own good before recession struck. Accordingly, one would expect firms to profit from a price reduction during recession only when it had a reasonable hope of winning customers away from rivals and keeping many of them. This hope would be unreasonable in most important industrial situations because it has become established practice for customers to ask their usual suppliers to match price concessions offered by other sources. Thus, efforts to maximize short-term profits during recession generally lead businessmen to avoid price reductions as long as possible. This pricing syndrome often includes outspoken espousal of

price maintenance combined with the expressed determination to match price cuts by rivals.

A third pricing syndrome might be termed "an early yielding to the inevitable." This view of pricing involves a conviction that no firm can resist the basic economic forces at work during recession and that these forces are salutary—even though painful. Thus, the objective underlying this pricing syndrome might be termed the goal of playing the game according to the rules, because one would ultimately "get caught" if he were to violate them. Given this objective, the firm's pricing policy would require a reduction in price when it became clear that the economy was undergoing general recession. Several strategies are compatible with this pricing syndrome: First, the firm may try to gain an advantage over its rivals by being the first to cut price; or, second, it may refrain from price reduction itself, figuring that even though a price decline is inevitable, the later it comes the better. If the second strategy is adopted, the firm will make special efforts to learn what its competitors are charging and stand ready to adjust its prices very speedily; with this view of pricing, a businessman is not likely actively to discourage price reductions by his rivals.

A fourth pricing syndrome calls for adherence to the firm's "basic pricing method." The objective of this pricing syndrome is to maintain what management believes to be sound business practice, and to avoid unplanned expedients. Underlying this pricing syndrome is the conviction that management has selected a pricing method after careful deliberation; presumably management took account of the fact that general business is variable and the "regular" pricing method meets the needs of such conditions. Thus, a recession would not call for any revision of the method used to establish prices—though it might require a change in price itself. The most commonly employed method of arriving at price is some variation of the "cost-plus" method. For some businessmen, this pricing method rests upon the conviction that a manufacturer simply processes materials obtained from others and his rewards are a fee above the costs of the things he requires in his processing activities; beyond repayment of his costs, he is "entitled" to a "fair" profit for taking the risks involved in his business. Given this view, the pricemaker should not be expected—and will not feel obliged—to reduce price unless his costs decline; on the contrary, if his costs were to rise at a time when business was declining, he would feel entitled to raise his price.

The foregoing discussion does not describe each pricing syndrome in its full complexity and passes over the many subtypes that exist. However, the main concepts involved in each of the four discussed are quite familiar and require no further elaboration for the purpose at hand, which is to explain the circumstances under which prices are altered during recession and the timing, form, and typical consequences of those changes. These four pricing syndromes may not cover all important pricing policies, though they probably do account for the overwhelming majority of cases.

#### IV. CONDITIONS UNDER WHICH PRICES ARE REDUCED DURING RECESSION

##### A. When the "weak link" breaks

Implicit in every pricing syndrome is the axiom that one must match price reductions by rivals if they do, or threaten to, make heavy

inroads on sales. A businessman may deplore a price reduction by a rival, consider it poor business from his rival's standpoint and a misfortune for the entire industry, but he cannot ignore it if his sales suffer as a result. Consequently, one must expect price reductions to become general in an industry once they have been made by any firm that accounts for a significant proportion of the business. (The dependence of any firm's sales upon the prices charged by rivals depends primarily upon the proximity of the products to one another—either geographically, when transportation costs are heavy—or in the qualities and features that buyers believe inhere in them.)

An unsystematic study of announced price reductions during the present and the last recession suggests that the most important cause of price reductions these days is that a competitor has already reduced prices. Thus, to explain a general price reduction for a product requires that one seek out the firms which were the first to reduce price and account for their actions. The result is the "weak link" explanation for price declines.

Price reductions during recession generally are initiated by firms that have been very hard hit by the business decline. They may have suffered a larger reduction in sales than most firms in their industry due to accidents of product mix or because they did not have as popular a "line" as their rivals at the time the recession developed. Or, they may be firms with the lowest financial liquidity—or with the largest obligations coming due. Sometimes the "weak links" are firms whose managements are prone to panic under pressure; they may be executives of low intellectual caliber who are unwilling to reason through the consequences of their price actions. We do not consider as "weak links" those firms which hope to divert business from many rivals without stirring them up to retaliate or those that hope to "beat their rivals to the punch" and make a minor "killing" before the others do something to protect themselves. The "weak link" is a firm that is, or imagines itself to be, in danger of being driven out of business or of sustaining extremely heavy financial losses or of suffering a loss of standing (as, for example, a loss of a high credit rating or a reputation for uninterrupted dividends) that is extremely valuable to continued operation.

Under such circumstances, the management of a stricken firm will almost always feel compelled to take some action that promises speedy relief. The only policy that is clearly intolerable at such times is that the firm do nothing to save itself. One of the most potent and speedy sales promotion devices is a price cut. Other measures, like an advertising program, redesign of product, the addition of more salesmen, et cetera, involve added expenditure when the firm is suffering a shortage of funds; also they are slow to produce benefits—even when they are ultimately beneficial. Consequently, the price cut is the favored remedy of a stricken business. Very frequently, one might say almost always, price reductions under such circumstances only aggravate the situation of the firm making the price cut; moreover, the management making the price reduction could reasonably have been expected to recognize that it would not get additional business in response to the price cut. However, it is one of the established facts of industrial history that prices will be cut under such circumstances.

There is a close connection between the "weak link" case of price reduction and industrial structure. Prices are most volatile in indus-

tries where there are some firms of small size and limited resources which cannot withstand a sharp decline in revenues or a prolonged modest drop in sales. The financial pressure which builds up on them ultimately is converted into a price reduction which ultimately (sometimes it spreads slowly) exerts pressure on the entire industry to which they belong.

Industries that have no "weak links"—that is, even their weakest links are very strong—are likely to avoid price changes throughout a recession. If prices are reduced in these industries, it is only because they hold reasonable promise of stimulating sales greatly. Also, if recession is short and mild, or, if it follows on a prolonged period of highly profitable prosperity during which firms accumulated large liquid resources, "weak links" may never develop or will develop late in recession.

Other factors than the existence of "weak links" explain price reductions during recession. Among the more important occasions for price reductions are: First, a decline in a major cost element; second, pressure from large buyers; third, recognition that a general recession has begun.

#### *B. When a major cost element is reduced*

Many price reductions occur during recession when a major cost item declines. However, not all industries would reduce price under such circumstances, as was explained in the foregoing discussion of the main pricing syndromes. There are two main types of situation in which prices will ordinarily be lowered if a major cost element were to become significantly cheaper: First, where prices are traditionally based upon costs and the pricing formula would call for a price reduction; and second, where the industry is extremely prominent in the economy and failure to lower prices would give rise to a congressional investigation or an expensive antitrust indictment.

One must not overlook the diverse behavior of costs during recession. On one hand, average costs ordinarily rise markedly due to the drop in unit sales volume because fixed charges cannot be reduced for a substantial period. Reductions in variable costs, if there be any, often would not offset the higher per unit fixed costs. Consequently, it is only an exceptional firm whose average costs will decline during early recession, even if it were one of the few whose variable costs fell substantially at such times.

However, industrial firms employing a "cost-plus" method of pricing do not base their prices upon full average cost, but use a special cost base for price. These special cost computations usually are unaffected by variations in sales volume, for they include costs plus profit at some "standard" volume. In the case of distributors, prices are almost always based upon invoice costs of merchandise and are therefore unaffected by variations in costs of operation due to fluctuations in sales volume.

The fact that average unit costs generally rise during early recession—and often throughout recession—explains the reluctance of businessmen to pass on modest reductions in their variable costs. They recognize that their unit costs have increased and therefore tend to delay a price reduction even when strict adherence to their pricing formula would require one.

*C. When a large buyer brings strong pressure to bear*

Buyer pressure sometimes results in price reductions. In part, the skilled buyer seeks out the "weak link" among suppliers and hastens the break by bringing his full bargaining power to bear upon him. Pressure by buyers on their suppliers frequently will lower price in the absence of a weak link; the main situations referred to here are: First, the buyer has himself been compelled to reduce price because of the "weak links" in his own industry and feels pressure to get his suppliers to assume part of the burden of the price cut; second, the buyer is convinced that a reduction in the price of the items he sells would stimulate sales greatly and he endeavors to win the cooperation of his many suppliers to a coordinated program to reduce price for mutual benefit.

Generally a buyer cannot persuade his suppliers to reduce price simply by showing that his own prices have been reduced; he must convince his suppliers that they would benefit from a price reduction rather than seek sympathy and a form of charity. (For example, he may promise them a larger share of his business.) Actually, his suppliers are likely to have suffered greater sales reductions than he did and therefore to seek rather than extend sympathy.

Buyers sometimes try to inspire price reductions by producers of the many important elements that enter into their final product. They recognize that the price they charge depends heavily upon the prices they are compelled to pay; also, that the amount they pay any single supplier has relatively little effect on the total cost of the final product. Consequently, their only hope of stimulating sales by a price reduction is to persuade all of their suppliers to participate in a cooperative program in which all lower price. Such a program is extremely difficult to institute and is even of questionable legality. However, some manufacturers apparently do attempt to persuade suppliers to reduce prices by committing themselves to reduce their own "markup" and thereby to gain the benefits of a larger price reduction and possibly a larger sales increase than would be possible by the unilateral action of either.

Often the large skillful buyer wins a secret concession for himself rather than a general price reduction for all buyers; his concession may not take the form of an outright price cut but some other form that is less vulnerable to attack on grounds of legality. Indeed, the seller would favor selective price reductions during recession—that is, concessions only when and to those for whom they are unavoidable. However, price concessions tend to spread fairly rapidly when the existence of recession is unmistakable.

*D. Some price reductions seem to result simply from the fact that sellers recognize that a recession is in progress*

Many of these price cuts can be traced to the opinion that price reductions are inevitable during recession. Just about every businessman one meets is familiar with and a frequent exponent of the "law of supply and demand." Even though he must know that he decides about price himself, he also feels that price is set for him by the forces of "supply and demand." During a recession businessmen find their sales volume declining and they anticipate further reductions in sales. This condition they describe as a "drop in demand" which, according

to the law of supply and demand, dictates that they reduce price. By this line of reasoning, some businessmen conclude that a price reduction either is in their financial interest or is inevitable or is required of them by the logic and ethics of a free enterprise system.

If these businessmen were to view "demand" as a statement of the relationship between their price and the amount they would sell, they might recognize that their profits would be lowered by a reduction in price; and, it might also do other types of damage to the firm's market position as well. Faced with a conflict between their self-interest and their conception of what is inevitable and ethical, they might decide to resist any price reduction. Many apparently do not recognize the possibility of such conflict and lower price simply because there is a recession. The prevalence of this line of reasoning is reenforced by history. Prices have fallen in most industries during past recessions, suggesting to some that prices must fall anyway and therefore they might just as well reduce them.

Thus far, businessmen's pricing objectives during recession and the pricing policies, strategies, and methods they employ have been described along with the main circumstances that lead to price reduction during recession. Three further matters require discussion to round out this brief sketch of how prices behave during recession, as viewed from the standpoint of the price setter. The first is the question of timing; specifically, can we reasonably hope that prices will be adjusted at the very onset of recession? Do price adjustments follow speedily upon a decline in sales or do they follow, if at all, only after a long delay? Second, what different forms do price reductions take and are they similar in their economic effects? Third, under what circumstances do price reductions stimulate sales?

#### V. TIMING OF PRICE REDUCTIONS DURING RECESSION

One is able to date the beginning of a recession only on hindsight, and even then only with great difficulty. The same reasons that make it difficult to know when general business has started to decline make it difficult for a businessman to answer the question, "How's business?" He, too, can only know the right answer long after he was asked.

Apart from the very real difficulties of analyzing business developments to discern underlying changes in the course of events, one must reckon with the strong subjective elements in all interpretations of current business conditions. To a large extent, people see what they expected would happen, what they want to see, or what they most fear will take place. As a crude rule, the first executives to recognize recession are those who had been expecting it; conversely, those who thought business would remain strong will recognize it last for they will attribute the first signs of sales weakness to any of the many special circumstances that can reasonably explain a decline in sales.

What a businessman does about price depends mainly upon his view of what is happening to the economy, his industry, and to his firm in particular. For example, if he believes his sales decline is confined to his own firm—that it was not due to general business recession—he usually would consider a price cut more appropriate than if he believed the business decline was general throughout the industry or the economy. Businessmen are unable to learn what is happening

to the entire industry's sales in many cases. Consequently, they find it extremely difficult to diagnose their own sales declines. And, once they do learn the level of sales in the entire industry, and become convinced that a general industry decline is underway, they still face great difficulties in determining whether it has resulted from recession or from some other cause. That is, they can learn their own industry's experience much more rapidly than they can learn what is happening to the economy generally.

One important fact must be emphasized: A considerable period must be expected to elapse before a businessman can identify a drop in sales as the result of general economic recession. It is impossible to fix any exact time period that it takes for a recession to be recognized but 6 months after the start of recession probably is a conservative average.

It emphatically is not suggested that price will be affected in 6 months after the start of recession, but simply that the existence of recession will be acknowledged by most in that time. Many may, even when they accept the fact that a recession has started, also hold the opinion that business will revive very speedily. In other words, we must recognize that not only will businessmen take a considerable period to recognize a period of recession, but many will expect a revival of business in the near future that would discourage them from price actions that they might take if they expected recession to continue and worsen. Of course, "weak links" that are under severe pressure will be driven to take action almost no matter what they think. We must never underrate the great uncertainty that surrounds any business decision. When high officials of Government, whose opinions are based upon the advice of staffs of technicians, disagree about the business outlook, one can be certain that businessmen will hold diverse views about the future of business.

Thus, one must become reconciled to a belated recognition of recession by businessmen. Consequently, even in the unusual case in which their pricing syndrome would call for reduction in prices during recession, their price changes will be very delayed. Certainly, they would not come early enough to nip a recession in the bud—even if price reductions were (and we shall see presently that they probably are not) an effective antidote for recession.

#### VI. THE FORMS THAT PRICE REDUCTIONS TAKE DURING RECESSION

As was already discussed, most businessmen will recognize the possibility that an on-going recession may be extremely brief. (There will almost always be some authority or high Government official to cite as basis for such a view.) Consequently, if they feel compelled to reduce price they will strongly favor price reductions that are of a temporary character and avoid as long as possible a change in price quotations—and most especially a revision of their price lists. As a result, businessmen have developed a wide variety of price concessions that differ in their apparent permanence. Some of the more common forms of price reduction that prevail at present will be listed, with brief indication of the potency and general economic effects of some of them.

One form of price reduction involves making up "special merchandise" for the buyer which costs the supplier less than his usual line of wares. On such deals, the supplier may take a thinner markup than

he usually obtains, though such need not be the case. In effect, this type of price reduction involves a change in the range of offerings available to buyers without any significant reduction in the prices paid to suppliers for their services as processors of raw materials. Also, such arrangements are "one-shot deals" which need not be repeated and need not be offered to other customers. (Such special merchandise may be passed off to the ultimate consumer as "regular goods.")

Price reductions sometimes take the form of giving higher quality merchandise at the same price. Selected customers may be offered their "pick" of items, if the product is not completely standardized. On occasion, suppliers will ship a higher quality of product, formerly selling at a higher price, at the same price the buyer paid for goods of lower quality previously. Where the buyer is given "first pick" his gain comes at the expense of other buyers; however, if they notice the decline in the average quality of goods offered them (ordinarily, they would not notice the change promptly because they generally will buy without inspection and only their subordinates would actually see the merchandise when delivered) the seller might be forced to reduce price to move it. In the second case—where goods of a higher grade are sold at the price of a lower grade—there has been a genuine price reduction, but a very restricted one. In the first place, it has been a secret concession, rather than one offered to all buyers equally; in the second place, it has required the buyer to purchase goods of higher quality when he may not have wanted to do so; in the third place, because it does not reduce the buyer's outlays, it probably does not stimulate purchases as much as a reduced price for goods of the quality he formerly purchased.

Perhaps the most common and speediest form of price reduction is the secret price concession, which offers one or more—but not all—buyers a lower price than they had been paying. For legal protection (and to "prove" to unfavored customers that no concession was given to other buyers) the reduced price might not even be recorded on the customer's invoices. Occasionally, recipients of secret price concessions are forced to give up some desired features in the product or to accept poor service—thus partly offsetting the gains from the price reduction. Sometimes this concession is not explicit, but the supplier feels entitled to send the poorer quality of product to the buyer getting the reduced price on the belief that, "he has no right to complain."

Other common types of special price concessions include—

1. Special credit accommodation, including a longer period in which to make payment, a delayed billing for the merchandise, etc.
2. Special return privileges, allowing the buyer to obtain full credit on unsold merchandise.
3. Increased discounts for prompt payment.
4. Increased quantities at the same price—giving 13 bottles to the dozen, etc.
5. Absorption of freight.
6. Provision of services free.
7. Extension of price guaranties.

## VII. THE EFFECT OF PRICE REDUCTIONS ON A FIRM'S SALES

Classical economists simply assumed that firms could increase their sales by reducing price. We know however that the effects of a price reduction are not simple or predictable. What are the likely responses of buyers to a price reduction? Can many firms reasonably expect to gain substantial benefits by reducing prices during recession? Second, do price reductions during recession increase total purchases? This section is concerned with the first question only; the second is discussed in the following section.

A price reduction by a single firm is likely to have three types of effects—and an even larger number of possible combinations of effects. First, it might cause buyers to patronize different sources. Second, it might cause buyers to alter the quantity they purchase. Third, it may shift the timing of purchases. The firm making price reductions will hope to win new customers, sell more to old customers, and speed up the purchasing of old and new customers. What reactions to a price reduction are most usual?

No comprehensive study has been made on this subject. (One survey, conducted by Purchasing magazine, is in process.) One can be confident that not all buyers in a trade will react similarly to a price reduction; possibly substantial differences in usual response are found among industries. However, the consensus of informed opinion holds that the most typical effect of a price reduction is to induce buyers to seek (and they almost always obtain) the lower price from their usual supplier. Under such circumstances, the price reduction will not have helped the firm making it.

To understand this prevailing practice, one must recognize that there are many intangible benefits to be gained from continuing to deal with the firm one has patronized over a long period. Also, there often would be some personal embarrassment in shifting suppliers after a long period of pleasant dealings. Thus, it has come to be expected—the “polite” thing to do—that a buyer will offer his regular supplier an opportunity to match a concession tendered by another source. Indeed, it seems that buyers will fail to do so only when they have been quite dissatisfied with their present supplier and really welcome an excuse to shift sources. Whereas a buyer might be embarrassed to tell a longtime supplier that he is no longer going to buy from him under ordinary circumstances, he would find it relatively easy to do so if he felt that his regular supplier was charging him “too much”—even though he knew he could have obtained a similar reduction from his regular supplier if he had demanded it.

Another fairly common buyer response to a price reduction seems to be to refrain from purchasing as long as possible in the expectation that further price reductions can be won from the same or other sources later. Generally, buyers are confident they would be notified before prices were returned to their earlier level, though their confidence would vary with the form of the price concession they had been offered. The effect of a price reduction in such a case is to lower current sales—precisely the opposite effect to the one desired by the price cutter.

Some buyers may respond to a price reduction by increasing their purchases out of fear that the price reduction would be withdrawn speedily since no other firm has yet offered it. Certainly, the seller

would try to achieve this effect, but he is unlikely to succeed in many cases. The greater the optimism about the future outlook, the stronger the inclination of the buyer to hasten his purchases. However, optimism is one of the rarest of commodities during recession.

If the foregoing discussion is valid, individual sellers have little reason to expect to gain substantially by cutting price; consequently, there is little basis for expecting that many will do so voluntarily. Moreover, as is explained in the following section, price reductions apparently do not do much to spur purchasing and therefore cannot be expected to be a brake to recession or to speed revival.

#### VIII. THE GENERAL ECONOMIC EFFECTS OF PRICE CHANGES UPON SALES DURING RECESSION

The conventional, and probably the majority, view holds that prompt price reductions would offset wholly or in part the original causes of a sales decline. In its simplest terms this view holds that people can afford to buy more at low than at high prices and price reductions increase the cost of savings by requiring the saver to forego the consumption of more goods to save a given sum. For these reasons, price reductions are believed to increase unit sales and total expenditures and ultimately stimulate production.

Some eminent economists hold precisely the opposite view. They regard price reductions as unstabilizing and likely to intensify a recession. The main basis for this conclusion is that many buyers may interpret price reductions as heralds of further reductions in price. If these men are right, price reductions are signals to hold current purchases to a minimum. Similarly, price reductions are very disquieting to investors for they lower the anticipated rate of return.

Clearly, it is essential that this conflict be resolved and preferably not by further assertions, however embellished they might be by ingenious reasoning. At issue is a factual question and one that can and should be settled by reference to facts. Namely, how do persons responsible for purchasing—whether on behalf of households, retail establishments, distributors, manufacturers, or producers of raw materials—interpret and respond to price changes during early recession? This committee could render a valuable service if it were to sponsor, or at least inspire, empirical investigations to illuminate this question. It probably is not too late to make such a study now because the memories are very fresh, the recession is not very old (even though we hope it is near its end), and because in the case of business buyers there may exist some documents which state the firm's buying policies and indicate how they have been affected by the existence or absence of price changes.

This writer emphatically does not know whether price reductions stimulate or inhibit revival or balance; it is doubtful that their effects are the same in all industries and they are unlikely to be the same as they were even 25 years ago. Furthermore, the effect of a price reduction may depend primarily upon whether it comes before the fact of recession is generally acknowledged or comes as belated acknowledgment of a general weakening in demand.

Clearly an investigation of business pricing policies during recession becomes almost pointless if there is no clear gain or loss from either stable or highly volatile prices. For that reason, concentrated study

of buyer reactions to price changes would seem to be a necessity. If such a study were made, it should be made of all levels of industry and of consumers and rely heavily upon personal interviews of a moderately "deep" type. Also, such an investigation would particularly seek out memorandums and policy statements that disclose management's thinking about when to buy and how management actually interpreted specific price reductions made by suppliers.

#### IX. ARE BUSINESSMEN'S PRIVATE PRICING POLICIES CONSISTENT WITH PUBLIC POLICY DURING RECESSION?

Since we do not know the effects of price reductions on sales in all market situations, we cannot tell whether businessmen would be benefited or injured by speedy price reductions with the onset of recession. Conceivably, businessmen would gain even as would the economy generally from speedy price adjustments; in that case, there would be a happy harmony of private and public interest. Proper public policy would then simply require that businessmen be given assistance and encouragement to do what was good for them.

If public policy is to be served by speedy price cuts during recession either of two effects must be achieved. First, sales of that product must increase without lowering the sales of anything else; or second, savings on the purchase of that product must be devoted to the purchase of something else—rather than to the reduction of debt or just saved. High sensitivity of sales to a price reduction in itself would not make a price reduction beneficial either to the economy or to the individual businessman. Very possibly, his gain in sales at the lower price would come at the expense of virtually certain sales at a future date and at a higher price.

Thus, it is not clear that the public interest is served best simply by a speedy increase in sales during recession that was induced by price reductions.. One must inquire also into the full and longer run effects. Specifically, a price reduction might speed up sales but not increase them. Thus, to apply a brake to a decline might come at the expense of delaying or taking the steam out of the upswing. Revival might be impaired in two ways: First, by having shifted purchases forward in time and thereby lowering the level of demand at a later date; second, by making prices low and production unprofitable with the effect that investment becomes less attractive. In this roundabout way we see that a proper public policy regarding price during recession should not be framed solely with respect to stopping recession. The measures used must be such that subsequent revival is not impaired. One would want to avoid a policy that stopped a recession moderately quickly but kept output on a reduced level.

It is beyond the scope of this paper to discuss the economic developments during a recession that foster subsequent revival. Recessions do, in some ways, though not in all, set the scene for revival. They generally are characterized by inventory decumulation, postponement of purchases, deferred maintenance, and so forth, which ultimately result in increased purchasing. If, by some change in pricing arrangements, these developments do not take place or are cut short, one must expect the subsequent revival to be altered, if it comes at all. The vital distinction suggested here is between price actions which

would prevent a business downswing from cumulating—which produces no benefits for the future—from developments which contribute to revival. Recession cumulates as reductions in income suffered by one group spread to other groups as they curtail purchases. Perhaps the most direct and effective remedy does not lie at all in the area of price changes but in changed money disbursements.

Thus, there is no necessary conflict between public and private interest with respect to pricing during a recession. On one hand, the public interest is not always served simply by applying a brake to recession. On the other hand, businessmen might gain by price reductions which strongly stimulate sales and which shorten a general recession. We have found no basis for expecting many businessmen to reduce price voluntarily during recession. Price reductions contrary to the businessman's interest will be resisted—often successfully. Since most major industries are characterized by close interdependence of rivals, no one could hope to effect a gain at his competitor's expense by cutting price. Consequently, only dire necessity (a shortage of cash or an actual threat of bankruptcy) and shortsightedness will lead businessmen to cut prices in such situations. If we were to try to combat recession by compelling early price reductions, it would be necessary to rely upon extensive Government price fixing—a solution that would create far more problems than it would solve.

Another alternative—that of creating markets where there are so many producers that they will not strongly be affected by the actions of any one—would involve even more drastic governmental actions. You just cannot chop up existing firms into lots of smaller ones; what is more, Congress wouldn't do it even if it would mitigate recessions.

We must accept a structure of industry much like the one we have at present for quite a few recessions to come; we must also accept the fact that price reductions will be as delayed and as small as businessmen can make them. We must, therefore, find a solution for recession in another area; namely, by changing expenditures and income through tax, monetary, and social-security policies. We just do not know enough about the effects of price reductions to undertake the drastic programs needed to insure that they come about. There is even a real danger that volatile prices during recession injure rather than benefit the economy. There is no need to completely overhaul the Nation's industrial structure to mitigate recession. We have far quicker, easier, and more promising solutions.

#### X. PRIVATE PRICING POLICIES AND THE DISTRIBUTION OF THE BURDENS OF RECESSION

The discussion up to this point has dealt with the relationship between private pricing policies and the duration and severity of recession. Recessions have another aspect that must be considered: The distribution of the burden of recession among individuals and economic groups. Business pricing policies influence the distribution of personal income, for a reduction in prices shifts income from the seller to the buyer; conversely, when prices are increased, the seller gains to the detriment of the buyer. Accordingly, private pricing policies have a fairly straightforward effect upon income distribution and an unclear influence upon the course of a recession. Thus, a mitigation of recession

could possibly require an aggravation of income inequality. Faced with such a choice, there might be genuine reasons for knowingly accepting a somewhat longer and more severe recession, if it shared its economic and human costs very equitably.

The foregoing discussion has stressed that prices are reduced very late and unwillingly during recession by most businessmen. To the extent that businessmen maintain prices in the face of declining personal income, they aggravate the loss of real income by persons whose income has been reduced by recession beyond what it would be if prices were to decline. A reduction in prices would compel businessmen to share the burden of recession with other groups whose personal incomes were reduced.

It must therefore be recognized that pricing policies during recession must not be evaluated exclusively by the test of how they would influence the duration and severity of recession. However, it probably would turn out that even concern for equitable sharing of the burdens of recession would not call for a change in existing pricing methods; measures that operate through changes in the income stream would seem far more appropriate and efficient. Whatever methods one favors, it does not alter the point that the economic costs of recession must be shared as equitably as possible.

#### XI. RELATIONSHIP BETWEEN PRICING POLICIES FOR RECESSION AND FOR ECONOMIC GROWTH

Private price policies are, and inevitably must be, adopted largely without regard to broad national objectives, as was explained. If private pricing policies either quicken or impair economic growth, it is quite by accident. Indeed, even if private businessmen tried conscientiously to adopt pricing policies that would spur economic growth, it is not clear how these policies would be identified. In some cases, growth would be fostered most by prices that made investment in the industry very attractive; such prices presumably would be relatively high compared to costs. In other cases low prices relative to costs would spur growth most by speeding buyer acceptance of the product. It is very difficult to know in any specific case which policy would be most favorable to economic growth. A businessman who is financially involved in the product is not likely to be a good judge. Moreover, it is not clear that the Nation can legitimately expect him to add this concern to his others—even if he were competent to do so and could be objective.

Thus, the conclusion again emerges that social objectives—whether they be economic stability or economic growth—cannot be pursued effectively through private pricing policies. Business objectives and policies are neither regularly consistent or inconsistent with these broad social objectives. If those objectives are to be attained, a national policy will have to be devised in spheres outside the pricing area. Otherwise, it will be necessary to build so many constraints into our present industrial arrangements that we will erect a fundamentally changed economic system. Such an outcome would not be objectionable if the changed economy were superior to the present one. I would expect it to be far worse.



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VII  
RELATIONSHIPS BETWEEN PUBLIC POLICIES,  
PRIVATE PRICING POLICIES, PRICE CHANGES,  
AND PRICE RELATIONSHIPS

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477

VII. *Relationships between public policies, private pricing policies, price changes, and price relationships*

- A. How do Government policies, (a) tax structures, (b) spending programs, (c) antitrust enforcement, (d) price maintenance, (e) types of monetary controls, and (f) direct Government support through developmental, insurance, or guaranty programs, enter into pricing policy decisions?
- B. Through what mechanics does public policy affect costs of productive resources and the proportions in which they are used?
- C. Through what mechanisms does public policy affect individual demand choices?

## PRICE EFFECTS OF TAX CHANGES

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Government taxing and spending policies play a powerful role in determining the general level of prices. Tax collections of \$105 billion by all governments of the United States in 1957 indicate the magnitude of this role. These taxes absorbed about one-quarter of the gross national product.

All taxes transfer income from the taxpayer to the government. Because of this "income effect," any tax depletes private money income by the amount that it increases government revenues. Thus, a direct tax such as an income tax reduces the purchasing power of the person legally liable for its payment. Similarly, an indirect tax such as a sales tax tends to absorb the income of the one who bears its final incidence. The doctrine is generally accepted that an excess of tax revenues over government expenditures tends to be deflationary, and that a budget deficit tends to be inflationary.

This paper is not concerned with the income effects of taxes, however, but with their so-called "announcement effects."<sup>1</sup> These refer to the process by which a tax may be shifted from the legal taxpayer to others through reallocation of resources and changes in prices. A tax may be shifted forward to others through an increase in price, or shifted backward through lower prices paid for the factors of production. Thus a business may influence its income-tax liability, within limits, by restricting production and raising the price of its products; and a brewer may shift an excise tax on beer by reducing output and increasing its price to cover the tax. A necessary condition for the shifting of a tax is a relative contraction in the supply of the commodity or service taxed.

The degree to which taxes affect the supply of resources so as to permit a price change varies with the type of tax. A poll tax, for example, is a fixed charge on a person which cannot be transferred to others. Some excises may be accompanied by price changes in the short run. (This is a period long enough to permit a desired change in output without altering the scale of plant.) Others, such as income taxes, may affect prices only in the long run.

The following discusses the current theories of how the principal types of taxes in the United States affect prices. Because of the unsettled nature of much of this theory, the conflicting views will be presented. To avoid possible side issues, it is assumed that changes in tax rates are accompanied by an increase or decrease in government expenditures equivalent to the change in tax revenues.

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<sup>1</sup> See A. C. Pigion, *A Study in Public Finance* (London : MacMillan, 1947), p. 55.

## PERSONAL INCOME TAXES

The personal-income tax is the chief support of the United States tax system. In 1957 personal income taxes of the Federal, State, and local governments amounted to over \$37.3 billion and accounted for almost 36 percent of all government tax revenues (table 1). Of this amount, \$35.6 billion was collected by the Federal Government and \$1.8 billion by the State and local governments. Personal-income taxes, therefore, have important implications for the economy in terms of their potential effects on aggregate purchasing power and prices.

TABLE 1.—*Federal, State, and local tax collections, 1957*

[Billions of dollars]

Type of tax	Total	Federal <sup>1</sup>	State <sup>2</sup>	Local <sup>3</sup>
Individual income.....	37.3	35.6	1.6	0.2
Corporation income.....	22.2	21.2	1.0	.....
Sales and excise.....	19.7	10.5	8.3	.9
Property.....	11.8	.....	.5	11.3
Payroll.....	7.6	7.6	.....	.....
Licenses.....	2.8	.....	2.2	.7
Death and gift.....	1.7	1.4	.3	.....
Severance.....	.4	.....	.4	.....
Other taxes and customs.....	.9	.8	.2	.....
Total tax collections.....	104.4	77.0	14.4	13.0

<sup>1</sup> Net of refunds.<sup>2</sup> Preliminary.<sup>3</sup> 1956 collections.

Sources: The Budget of the U. S. Government for 1959; The Budget in Brief, 1959; U. S. Department of Commerce, Detail of State Tax Collections in 1957; U. S. Department of Commerce, Summary of Governmental Finances in 1956.

Taxes on wages, salaries, and similar compensation can affect prices—directly or indirectly—only through their effect on the supply of labor. From the worker's point of view, an increase in income tax is equivalent to a reduction in wages. It is, therefore, subject to similar wage rate considerations that influence a choice between the amount of work offered and leisure.

If the short-run supply of labor is in fact responsive to changes in wage rates, a tax increase may reduce the "price" of leisure.<sup>2</sup> That is, the lower wages may reduce incentives to work in favor of greater leisure. Such a reallocation of resources, by which leisure is substituted for work, is known as the "substitution" effect of a tax. It would reduce the supply of labor offered and thereby tend to increase wages. Carried to its logical conclusion, higher wages would raise labor costs and eventually result in higher prices of goods and services.

In general, however, the substitution effect of an income tax increase tends to be offset by its "income" effect. Because of pressures to maintain living standards, higher income taxes may induce even greater effort in order to restore the previous take-home pay level. Studies of Douglas and others support the belief that more, rather than less, unskilled labor will be offered in the market at lower wages.

<sup>2</sup> Duncan Black, *The Incidence of Income Taxes* (London: MacMillan and Co., Ltd., 1939), pp. 157-167.

The supply of higher skills may be relatively fixed.<sup>3</sup> This inelasticity of supply may reflect the institutional rigidities of employment in the United States, where wages and hours are established for fixed contractual periods, with little flexibility in hours of work. It more probably reflects heavy commitments to support families at a fair standard of living and to meet current obligations, leaving little free choice between work and leisure. Some flexibility may be seen in the case of working wives, absenteeism, "moonlighting," and overtime work. Census data, for example, indicate that 1 out of every 20 workers in the United States holds down more than 1 job.<sup>4</sup>

On balance, it may fairly be concluded that the supply of labor in general is relatively inelastic and not very responsive to changes in wages. For the industrial worker, income tax increases tend to encourage longer hours of labor; for more skilled and professional workers they may lead to some net decrease in effort. If this hypothesis is correct, an increase in income tax, even with high marginal rates, does not reduce the aggregate supply of labor services so as to lead to discernible increases in wage rates and prices in general.

However, an income tax increase may bring about demands for wage boosts in certain industries where labor is well organized. Such demands may be especially encouraged when income tax withholding results in an immediate reduction in take-home pay. Their success will depend largely on the comparative bargaining power of labor and employers, and the extent to which employees have not previously pushed their wages to the maximum. If workers in particular industries succeed in raising wages as a result of higher taxes, the tax is shifted forward to employers. Such higher labor costs, in turn, may be followed by higher prices of the commodity produced. The outcome of such particularized price increases would therefore be equivalent to the effect of an excise tax, discussed below.

Notwithstanding some reallocation of resources and possible shifting of the personal income tax in particular areas, it would be fair to conclude that the incidence of an income tax on wages and salaries in general tends to remain where it is legally imposed. The disincentive effects of the tax with respect to the substitution of greater leisure for labor tend to be offset by greater efforts to restore income in order to meet fixed commitments and maintain living standards. Personal income tax changes thus have no appreciable effects on the general level of prices.

#### PAYROLL TAXES

Substantial taxes, based on payrolls, are collected each year to finance social security benefits and unemployment and disability insurance. In 1957 total payroll tax revenues amounted to \$7.6 billion, or about 7 percent of all United States taxes.

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<sup>3</sup> For a good summary of these wage theories, see G. F. Break, *Income Taxes, Wage Rates, and the Incentive To Supply Labor Services*, National Tax Journal, VI, 4 (December 1953), pp. 333-352. A recent study of British solicitors and accountants indicates that the "incentive" effects of high taxes may be more than offset by disincentive effects, but not enough to be of any economic significance. G. F. Break, *Income Taxes and Incentive To Work*, American Economic Review, XLVII, 5, September 1957. In another recent interview survey of 1,429 workers in England and Wales, 75 percent of the men and 60 percent of the women were of the opinion that the income tax tended to have a disincentive effect in reducing output. Royal Commission on the Taxation of Profits and Income: Second Report (London, 1954), p. 108.

<sup>4</sup> U. S. Department of Commerce, *Current Population Reports, Multiple Jobholding: July 1957*, series P-50, No. 80, February 1958.

Part of these taxes are assessed on employers and part on employees. Old age and survivors insurance taxes are divided equally between employee and employer (except for taxes on the self-employed, levied at 150 percent of the employee rate), and virtually all unemployment insurance taxes are paid by the employer.

Payroll taxes on employees, presently assessed at 2¼ percent of wages and salaries up to \$4,200 annually, are akin to income taxes. However, since they are used to finance retirement and survivors' benefits to be received in the future, their income and disincentive effects on the supply of labor are probably negligible.

Employers pay not only social security taxes on payrolls, at a rate of 2¼ percent of wages and salaries up to \$4,200 annually, but also unemployment insurance taxes up to a 3 percent or more of payrolls. The latter range from 0.3 percent to over 3 percent, depending on State law and the unemployment experience rating of different industries. The average rate is probably near 1 percent of payrolls.

Payroll taxes thus vary with wages and become imbedded in the cost of production. The fact they are assessed more or less uniformly on all employers in the same industry facilitates their shifting, and they become reflected in the prices of goods and services. Since the rate changes are small and they rest on a variable cost—labor—such shifting tends to take place in the short run.

#### TAXES ON BUSINESS INCOME

Business income taxes include principally taxes on corporations, amounting to about \$22.2 billion in 1957, of which all but \$1 billion were collected by the Federal Government (table 1). In addition, an indeterminable amount of individual income taxes, discussed above, were assessed and collected on business proprietorships and partnerships.<sup>5</sup>

#### *Theoretical considerations*

According to the classical view a tax on business income cannot affect prices either in the long or short run because it rests on an economic surplus, that is, profits. Since pure profits are not an element of cost, it was held, a change in income tax has no effect on the supply of goods, and therefore could not be shifted. It is increasingly recognized, however, that the concept of taxable business income is not the "profits" of classical theory but includes substantial elements of cost, or imputed interest and wages of management that are essential to attract capital and management to business.<sup>6</sup>

Because such noncontractual interest is a fixed cost, which has only a limited influence on short-run capital adjustments, income tax changes are generally held to affect prices only in the long run. In the short run, under competitive conditions, a tax change would have no effect on prices. Firms would maximize their profits by continuing to produce at the same rate as before, up to the point where the cost of producing an additional unit equals the market price. Individually they are too small to influence prices in their industry by a change in production; competing firms thus have no opportunity to shift the tax on income through higher prices.

<sup>5</sup> In 1953, unincorporated businesses reported total net income of \$21.6 billion. U. S. Treasury Department: *Statistics of Income for 1953, Partnership Returns; Statistics of Income for 1953, Individuals.*

<sup>6</sup> D. Black, *op. cit.*, ch. II.

Neither does a monopoly, in theory, have an opportunity to shift an income tax in the short run. If a monopoly is already maximizing its profits before tax, any attempt to shift the tax through higher prices and lower output would be self-defeating. This conclusion would be modified, in practice, to the extent that a full monopoly price is not in fact being charged, whether for strategic business or political reasons. (Regulated monopolies such as public utilities generally fall within the latter category; they are treated more fully below.)

American business is not characterized by either of these extremes of pure competition or monopoly, but by an imperfect or monopolistic competition. As in the case of other businesses, such firms are presumed to maximize their profits at a price where the cost of producing an additional unit is equal to the additional revenue from its sale. Because of differentiated products or brand name, a firm may have some control over the price it charges, subject to the reaction of its competitors. Where there are a limited number of producers, each with an appreciable share of the market, the price policies of one are closely followed by others.

Many economists are inclined to the view that firms operating under these conditions generally adjust prices to take account of changes in income taxes.<sup>7</sup> If they are already maximizing their profits before tax, a change in tax would appear to preclude a change in price. However, market conditions are such that the optimum price is rarely attained in practice. Frequently the "correct" price will be determined only through trial and error and, because of business or political considerations, it is frequently set below what the market will bear. A significant factor affecting return on investment, such as a higher income tax rate, may therefore occasion a new look at prices. Since competitors are subject to the same tax change, a price adjustment by a leading producer is likely to be followed by the others. The likelihood of such price following is apt to be greater where there are only few rivals, that is, under oligopolistic conditions.

One approach to such a policy is explained by so-called full-cost pricing. According to this policy, a firm will determine the price of a product by adding a certain percentage for "profit" to its variable units cost and share of overhead. If the business regards income tax as a part of costs to be recovered, it will add an additional amount to cover an increase. Prices would then be raised and production restricted to reflect the higher income taxes on profits.

Over the long run, higher taxes on income tend to be reflected in higher prices, not only in monopolistic industries but also in highly competitive ones. In reducing the net return to investors, the tax impinges on minimum returns on capital necessary to attract new investment. The supply of equity capital—internally and externally—will tend to be restricted until the normal return on investment is restored to that available in competing uses.

This tendency is evidenced in the capital budgeting policies of many businesses, which invest only in projects yielding more than a minimum rate of return after income tax. The General Electric Co., for example, has indicated it limits new expansion to projects that "have prospects of earning a return of at least 7 percent of sales,

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<sup>7</sup> For an excellent review of current thought, see B. U. Ratchford and P. B. Han, *The Burden of the Corporate Income Tax*, *National Tax Journal*, X, 4 (December 1957).

after taxes, or 20 percent return after taxes on money invested in any particular expansion."<sup>8</sup> Other companies, in establishing a maximum "payoff" period for the recovery of capital after taxes, implicitly provide for a lower limit to the rate of return on new projects. Such a minimum return tends to be fixed by a company's cost of capital as determined by the ratio of earnings per share to market price and cost of borrowing.

If the above analysis is correct, taxes on business income, through their restrictive effect on new investment, tend to be reflected in higher prices over the long run. Because of price increases (or higher turnover) profits tend to rise to a level which, after taxes, are sufficient to attract new capital. The business income tax thus tends to be incorporated in the price structure as an essential economic cost. While the tax is paid out of the profits of the owners, it is really borne by the consumer in higher prices or by labor in lower wages. (The latter development is less likely in an expanding economy and full employment.) However, although more and more economists believe that the corporation income tax tends to be shifted in the long run, this is a very uncertain position and opinions vary widely.<sup>9</sup>

### *Empirical studies*

The results of empirical studies in this area are no less uncertain than the conclusions on theoretical grounds. Because of the virtual impossibility of determining what prices and net profits would have been in the absence of corporation tax changes, all such studies are inconclusive.

These investigations have been based both on the opinions and policies of businessmen and statistical analyses of corporation earnings. In a survey of businessmen made by the National Industrial Conference Board in the late 1920's, industry was overwhelmingly of the opinion that the tax was not shifted in higher prices.<sup>10</sup> A more recent conference board survey of whether the corporation income tax had a "conscious influence" on price policies indicated no change in the predominant view that the tax has no effect on prices.<sup>11</sup>

One of the most thorough statistical studies was made in England by W. H. Coates, who concluded that changes in profit margins over a period of years, 1912-23, did not evidence a shifting of the tax.<sup>12</sup> More recently, attempts have been made to determine the long-run effects of changes in corporation tax rates on the profits of corporations in the United States. One such study of trends in earnings of

<sup>8</sup> The New York Times, May 5, 1957.

<sup>9</sup> Shoup seems inclined to the view that the tax rests for the most part on the owners of common stock but concedes the possibility that the tax is shifted in part through higher prices. C. S. Shoup, *Some Considerations on the Incidence of the Corporation Income Tax*, *Journal of Finance*, vol. VI (June 1951), p. 187. Goode, an acknowledged authority on the corporation income tax, rejects the idea that income taxes are shifted in the short run or long run, except by monopolistic firms not previously maximizing their profits. R. Goode, *The Corporation Income Tax* (New York: John Wiley & Sons, Inc., 1951), ch. 4. Musgrave, while concluding on theoretical grounds that the tax is not shifted, has nevertheless assumed that almost half the tax may be shifted forward in higher prices and backward in lower wages. R. A. Musgrave, J. J. Carroll, L. D. Cook, and L. Frane, *Distribution of Tax Payments by Income Groups: A Case Study for 1948*, *National Tax Journal* (March 1951), IV, No. 1, p. 16. Among those who believe the tax is shifted in the long run are D. Black, J. F. Weston, D. Bodenhorn, K. W. Poole, G. Colm, and H. M. Somers.

<sup>10</sup> While 128 firms indicated that the tax was shifted, 449 firms believed it was not shifted. *The Shifting and Effects of the Federal Corporation Income Tax*, vol. 1 (New York: National Industrial Conference Board, Inc., 1928), pp. 153-157.

<sup>11</sup> Against 58 "Yes" replies, 162 answered "No." *Effects of Taxes on Corporate Policy* (New York: National Industrial Conference Board, Inc., 1943), pp. 57-62, 90-100.

<sup>12</sup> Memorandum on the Incidence of the Income Tax, Appendix to the Report of the (Colwyn) Committee on National Debt and Taxation, 1927.

manufacturing companies over the period 1927-52, based on statistics of income data, concluded that "the level of taxation has had no discernible effect on the rate of return on investment \* \* \*," and that the " \* \* \* corporate tax had become a part of the long-run horizon of profitmaking firms."<sup>13</sup>

Although changes in the relevant factors such as turnover and profit ratios appear to be consistent with this hypothesis, the violent gyrations in production and prices over the period of the great depression and two wars greatly distort comparisons. Temporary excess-profit taxes during the latter period, as well as changes in the concept of income—especially the use of accelerated amortization during the war years—must also be taken into account. Similar computations for the same group of companies in 1954, after expiration of the excess-profits tax, showed a lower rate of return than was realized in any but the poorest income years 1932-34, 1938, and 1945, when corporation profits were greatly depressed. Convincing evidence of the shiftability of an income tax has yet to be presented.

### *Regulated industries*

While the effect of income taxes on prices of industrial goods remains unsettled, it can be said with some confidence that income taxes on public utilities are shifted forward generally in higher prices of services. Public utilities are entitled by law to a fair return on investment, and regulatory commissions are required to include income taxes in the cost to be recovered in the rates charged.<sup>14</sup> Income taxes are thereby converted to the equivalent of a sales tax on consumption of electric power, gas, water, telephone, and other services subject to effective regulation. While the same principle applies to railroad and other regulated transportation industries, the variability of their profits and imperfect nature of the regulation produce some uncertainty in the final result.

Because of the regulatory lag, utility prices may not be immediately responsive to changes in corporation income tax and, in periods of rising costs and declining net incomes, the tax rests more heavily on consumption. In periods of rising incomes, whether due to a declining price level or technological improvements, the tax cuts into the owners' equity.

In 1955 Federal corporate taxes absorbed \$980 million out of \$8,360 million operating revenues of all electric utilities.<sup>15</sup> This would indicate that Federal income taxes, on the average, account for approximately 12 percent of power and light rates. Similarly, Federal income taxes are estimated to account for about 12 percent of telephone rates.

### SALES AND EXCISE TAXES

Sales and excise taxes comprise another important category of government revenue. In fiscal 1957, total Federal, State, and local sales-tax collections amounted to about \$20 billion, or almost 20 percent of all United States tax receipts. The Federal Government accounted for \$10.5 billion of this total, and State governments \$8.3

<sup>13</sup> E. M. Lerner and E. S. Hendriksen, *Federal Taxes on Corporate Income and the Rate of Return on Investment in Manufacturing, 1927 to 1952*, National Tax Journal, IX, No. 3 (September 1956).

<sup>14</sup> *Galveston Electric Co. v. City of Galveston*, 250 U. S. 388 (1921).

<sup>15</sup> Federal Power Commission, *Statistics of Electric Utilities in the United States, 1955*.

billion. Local governments raised about \$1 billion from this source. The principal Federal and State excise taxes are summarized in table 2. In addition, 32 States levy general sales taxes ranging from 1 percent to 3 percent of retail sales.

With Federal excises on liquor at \$10.50 per 100-proof gallon, and State excises averaging over \$1.50, taxes alone may account for as much as two-thirds the retail price. Combined Federal and State taxes on cigarettes of around 11 cents a pack (8 cents Federal, 3 cents State) typically account for about one-half the price of cigarettes. The proportion of tax is somewhat lower in the case of gasoline, beer, and other heavily taxed items. The 10 percent Federal manufacturers' excise tax on automobiles is estimated to be around 6 percent of suggested retail prices; the tax averages about \$200 and amounts to approximately \$150 on lower priced models.

Conventional price theory holds that an excise or general sales tax becomes a part of the variable cost of production—similar in most respects to other variable costs—and will be reflected in the selling price as a result of the shifting process. Since a higher price can be realized only through a relative contraction in the supply of the commodity taxed, this shifting process may take time to complete, depending on such factors as competitive conditions and elasticity of supply and demand for the product.

TABLE 2.—The principal Federal and State sales taxes

	Federal rate	State tax rates	
		Typical	Range
Cigarettes .....	8 cents pk. of 20	3 cents	1 cent to 8 cents.
Distilled spirits .....	\$10.50 per gallon		
Fermented malt liquors .....	\$9 per barrel	\$1 to \$1.50	\$0.50 to \$10.
Gasoline .....	2 cents per gallon	5 cents	3 cents to 7 cents.
Admissions .....	10 percent	2 percent	1 percent to 10 percent.
Local telephone service .....	do	do	1 percent to 7 percent.
Transportation of persons .....	do		
Transportation of property .....	3 percent		
Manufacturers Excises:			
Passenger automobiles .....	10 percent	2 percent <sup>1</sup>	1 percent to 3 percent. <sup>1</sup>
Radio and television sets .....	do	do. <sup>1</sup>	Do. <sup>1</sup>
Mechanical refrigerators .....	5 percent	do. <sup>1</sup>	Do. <sup>1</sup>
Electrical and gas appliances .....	do	do. <sup>1</sup>	Do. <sup>1</sup>
Cameras, lens and films .....	10 percent	do. <sup>1</sup>	Do. <sup>1</sup>
Retailers Excise Taxes:			
Jewelry .....	do	do. <sup>1</sup>	Do. <sup>1</sup>
Luggage .....	do	do. <sup>1</sup>	Do. <sup>1</sup>
Furs .....	do	do. <sup>1</sup>	Do. <sup>1</sup>
Toilet preparations .....	do	do. <sup>1</sup>	Do. <sup>1</sup>

<sup>1</sup> Subject to State general retail sales taxes.

Firms operating under highly competitive conditions will attempt to pass along an increase in tax by restricting output. But they may not fully succeed until industry resources are diverted to other products and some firms leave the industry. Part of the tax increase may therefore be absorbed in the short run, but it may not be fully shifted for a long time.

In the case of selective excises on commodities such as cigarettes, liquor, beer, and gasoline—which make up the bulk of excise revenue—relatively few producers provide a better opportunity to recoup a tax increase through price adjustments. Since the tax is imposed uniformly there is reasonable assurance that all competitors will raise

prices by the same amount. Through such "implicit collusion" the price increase may be more or less than the amount of the tax rise, depending on industry supply conditions, elasticity of demand, and other factors.

The elasticity of demand for a product greatly influences the shiftability of a tax. The relatively inelastic demand for cigarettes, gasoline, and automobile tires facilitates price increases through limiting necessary adjustments in output. Since elasticity of demand depends largely on the existence of close substitutes, the ability to pass on a tax through higher prices also depends largely on the degree of uniformity in taxation of all consumption. The broad coverage of a general manufacturer's or retail sales tax, for example, greatly assists in shifting the tax to consumers. The fact that retail sales taxes are also stated separately facilitates their shifting.

When sales taxes are levied at any point in the distribution process below the retail level, prices may be increased by more than the amount of the tax. The application of standard markups to the tax included in the cost of goods received by wholesalers and retailers results in so-called pyramiding. While such pyramiding may be minimized in time, through the competitive process, this process is likely to be slow. At a minimum, distribution costs—and therefore prices—would tend to be raised by the carrying charges on the tax included in working capital (inventories and accounts receivable). A retail levy virtually eliminates pyramiding.

Treasury Department and other studies of excise tax increases show that prices are generally raised by an amount greater than the tax, particularly in the case of distilled spirits, beer, and tobacco. More recently a study was made of the reduction from 10 percent to 5 percent in the Federal manufacturers' excise tax on electrical and gas appliances, April 1, 1954.<sup>16</sup> This survey indicated that manufacturers' suggested retail prices are not usually changed in the exact amount of the change in tax. Despite wide differences in the policies of different firms, the listed price changes support the view that excise taxes tend to be pyramided.

Although sales taxes clearly result in higher prices of goods taxed, it is not clear that the general price level is thereby raised. While the income effect of the tax in transferring purchasing power to the Government would appear to be similar to that of a proportional income tax, there is no agreement on the general price and allocation effects of an excise tax.

The view has recently been advanced that taxes on sales do not increase the general price level.<sup>17</sup> According to this theory, an excise tax reduces the money earnings of a firm and brings about a restriction of output and reduced demand for labor and other factors of production. This reduced demand, in turn, lowers wages and the prices of other factors so as to allow the same expenditures as before to include the tax payment to the Government. There is no increase in the general price level, whether a general sales tax or specific excise tax is involved. In the case of the latter, an increase in price of the taxed commodity, made possible by restrictions on output, may be

<sup>16</sup> J. F. Due, *The Effect of the 1954 Reduction in Federal Excise Taxes Upon the List Prices of Electrical Appliances*, *National Tax Journal*, VII, No. 3 (September 1954).

<sup>17</sup> H. G. Brown, *The Incidence of a General Output or Sales Tax*, *Journal of Political Economy*, XLVII (April 1939); E. R. Rolph, *The Theory of Fiscal Economics* (Berkeley and Los Angeles: University of California Press, 1954), pp. 123-171.

offset by lower prices on other goods and services, particularly if demand for the taxed article is inelastic.

Although this conclusion is valid in theory, its usefulness depends on the validity of the assumptions made that markets are perfectly competitive and that factor supplies are perfectly elastic. Moreover, it appears to ignore the effect of the Government expenditures of the tax receipts on the demand for labor and other factors of production. To the extent demand is thereby maintained, factor prices would not fall, and a necessary condition for holding the general price level steady would be lacking.

#### PROPERTY TAXES

Property tax revenues in 1956 are estimated at \$11.8 billion, of which all but \$0.5 billion were collected by local governments. This represents about 11 percent of national tax collections.

The shiftability of taxes on property is determined largely by the nature of the property subject to tax. The extent, if any, to which the tax may result in higher prices depends in part on the elasticity of supply of the property taxed—whether land, buildings, or personal property. It also depends on the economic relationship involved in its use, whether owner occupied or leased, and whether used for business or personal purposes.

In 1957 residential properties accounted for about 40 percent of all assessed valuations in the United States; farm and acreage properties, 12 percent; and commercial, industrial, and public utility property about 29 percent. Personal property of all types accounted for about 17 percent of aggregate assessed valuations. These 1957 assessment values are summarized below.<sup>18</sup>

Type of property	Amount (billions)	Percent
All State and local assessed property.....	<sup>1</sup> \$279.4	100.0
Real property.....	232.2	83.1
Residential (nonfarm).....	(113.5)	(40.6)
Acreage and farm properties.....	(33.7)	(12.1)
Commercial and industrial (including public utilities).....	(80.6)	(28.8)
All other and unallocable.....	(4.4)	(1.6)
Personal property.....	47.2	16.9

<sup>1</sup> Includes about \$7 billion tax-exempt property.

It is not believed possible to shift a property tax on agricultural land values. The value of agricultural land is determined by its differential yield with respect to land lying on the margin of cultivation. The tax therefore falls on an economic surplus, rather than cost, and does not affect the amount of goods produced. Assuming the land is cultivated at its maximum yield, the return from its use cannot be enhanced through a restriction of output. Similar principles apply to the incidence of tax on urban land values.

Taxes on residential property tend to be paid by the occupier. In the case of owner-occupied houses there is no economic relationship by which the tax may be shifted. In the case of rental property, however, property tax increases sooner or later result in higher rentals. While

<sup>18</sup> U. S. Department of Commerce, Bureau of the Census, Property Tax Assessments in the United States (Dec. 16, 1957).

the increases may be absorbed by the owner in the short run, the supply of rental housing tends to be checked to permit a fair return on investment, after property taxes and other costs.

Similarly, taxes on business property tend to raise prices of the goods and services sold. Property taxes are a fixed cost, no different in effect from other fixed costs of business. Property tax increases would therefore tend to be absorbed by businesses in the short run, but are covered in the long run through higher prices. They are therefore similar to excise taxes in their long-range effects on prices.

#### EFFECTS OF TAXES ON COST OF LIVING AND WAGE ADJUSTMENTS

To the extent that tax changes are reflected in the general price level, they tend to have secondary effects on wages and other prices. This is particularly true of wage agreements based on escalator clauses which provide automatic pay increases for specified percentage point increases in prices. It would also be true of support prices paid farmers, based on parity with industrial prices.

Because items entering into the BLS Consumers' Price Index are heavily weighted by commodities and services subject to Federal and State and local sales and excises, changes in these tax rates are of more than ordinary concern to the economy. Virtually all of the major excises enter into the prices of consumers' goods, including liquor, beer, gasoline, tobacco, automobiles, general admissions, telephone service, and transportation. Tobacco products alone account for a weight of about 2 percent. Some idea of the importance of Federal manufacturers' and retailers excises is indicated by the 0.2 percentage point reduction in the Consumers' Price Index which accompanied the billion dollar post-Korean excise tax reduction, effective April 1, 1954.<sup>19</sup> The effect of corporation income tax changes on prices charged by regulated utilities and other industries, while indeterminable in amount, is also of some concern to the economy.

The treatment of taxes, including taxes on personal income and sales, has been one of the principal issues in the measurement of changes in the cost of living. One question relates to the propriety of including taxes in an index employed to measure living costs; the other is a question of public policy. Using an index that reflects tax changes for the escalation of wages would have the effect of shifting the burden of taxes from labor to employers and ultimately to consumers generally.

The present practice of including only sales or excise taxes was strongly supported in 1951 by the House Committee on Education and Labor, in its report on the Consumers' Price Index of the Bureau of Labor Statistics.<sup>20</sup> The committee concluded:

We do not believe that it is advisable for any one occupational group of the public to have an automatic offset for such payments (income tax). The effect of incorporating income taxes in an official index used for wage-escalation purposes would be to relieve those workers covered by the escalation from the burden of all further increases in income taxes, and would, as a result, throw a larger burden of the cost of Government upon other segments.

<sup>19</sup> BLS monthly release for April 1954. The major reductions then included taxes on admissions (\$200 million), local and long distance telephone service (\$350 million), jewelry (\$101 million), and transportation of persons (\$95 million).

<sup>20</sup> U. S. House of Representatives, hearings before a subcommittee of the Committee on Education and Labor. House Doc. 404, 82d Cong., 2d sess.

It is of interest that Sweden publishes 2 indexes, 1 including all relevant changes in taxes, and the other excluding all tax changes so far as they can be segregated from price.

#### SUMMARY

The full impact of a tax on prices can be determined only by an analysis of its income and announcement effects. All taxes have an income effect in the transfer of money income to the Government. And a tax may be shifted through a price change if it affects the terms of choice of the taxpayer with respect to the allocation of resources. The above analysis was confined to the latter process by which changes in major types of taxes may be "shifted" in higher (or lower) prices, and the implications of such shifting for the general price level.

Tax revenues of governments in the United States absorb about 25 percent of the gross national product. Of the \$105 billion collected in 1957, individual income taxes accounted for about 35 percent; corporation income taxes, about 22 percent; sales and excise taxes, 19 percent; property taxes, 11 percent; and payroll taxes, about 7 percent. The balance of 7 percent was derived from licenses, severance taxes, customs, and miscellaneous other sources.

While it is known that taxes of this magnitude have an important impact on prices and production, there is no agreement on the extent of the price effects of particular taxes. For some taxes, no price changes are likely; other types may be shifted within the short run; still others may be fully shifted only in the long run—a period long enough to alter the scale of plant.

It is generally believed that personal income taxes have negligible effects on prices. While a reduction in wages due to higher taxes may reduce worker incentives, and therefore the supply of labor, the reduction in incomes may induce greater effort in order to meet commitments and maintain living standards. Except possibly for more highly skilled and professional workers, the supply of labor is relatively inelastic, and personal income taxes have no perceptible effect on wages and salaries. However, in industries where labor is relatively strong, tax increases may lead to demands for wage rises. If successful, higher labor costs would tend to result in higher prices.

Payroll taxes on employees are akin to income taxes in their effects on the supply of labor and wages. Partly because they are related to retirement and related benefits, they are even less subject to shifting. Payroll taxes on employers, however, become a part of variable production costs and tend to be reflected in higher prices.

Many economists are inclined to the view that taxes on business income lead to long-run price increases. To this extent, the corporation income tax is a sales tax in disguise. Since corporate profits include costs of capital and management that are essential to business investment, there is some theoretical support for this view. Except in the case of regulated utilities, however, there is no clear evidence.

Prices of goods tend to be raised by the amount of excise and sales taxes. Producers may absorb part of the tax in the short run and succeed in shifting it fully only after reallocation of industry resources, including the exit of some firms. This adjustment depends

on competitive conditions and the elasticity of supply as well as demand for the product. There is substantial disagreement as to whether partial excises or a general sales tax result in an increase in the general price level.

The shiftability of property taxes depends on the nature of the property taxed and its economic relationships. While taxes on the value of land are not considered shiftable, taxes on improvements to land tend to be reflected in higher rentals or in higher prices of goods and services.

Tax induced price increases tend to have secondary effects on wages and other prices. This is particularly true when they are incorporated in the consumers' price index and reflected in higher wages based on escalator clauses in wage contracts. It is also true of farm parity prices based on the prices of industrial goods. Wage escalator provisions directly affect only a small part of American labor, but wage increases of this group tend to have a chain reaction on wages in other industries.

The tracing of price changes attributable to changes in tax rates is thus uncertain in theory and frequently indeterminable in practice. Except in the case of excise and sales taxes, there is a wide divergence in theoretical views and conclusions. And even here there is no agreement with respect to effects on the general price level.



# MONETARY POLICY AND THE STRUCTURE OF MARKETS

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The results produced by monetary policy are conditioned in important ways by the structure of the complex chain of markets by which its effects are conducted. In this paper I shall consider some significant aspects of market structure which seem to affect the performance of monetary policy. For the most part, my attention will be focused directly on financial markets, but I shall be interested almost entirely in showing how the functioning of these markets affects the markets for goods and services that lie behind the financial facade.

I shall illustrate most of my points by reference to the 1955-57 period of credit restraint. Partly, this is because the 1955-57 experience constitutes the most vigorous effort to use flexible monetary policy that we have made in many years; moreover, it is quite generally agreed that monetary policy can serve more effectively to check inflation than to stimulate recovery from a recession or depression. In any case, I think most of my analysis applies, with appropriate modification, to the use of easy money as an economic stimulant, and I shall refer briefly to that aspect of the problem in the concluding section.

## I. FINANCIAL INSTITUTIONS AND THE OVERALL EFFECTIVENESS OF MONETARY RESTRICTION

The Government securities market plays an extremely important role in the functioning of monetary policy. It is the market in which the Federal Reserve System conducts the open market operations which are its most powerful and flexible weapon of credit control. Perhaps more important, however, it is the market in which financial institutions and others affected by monetary policy conduct the compensating operations by means of which their asset portfolios are rearranged in line with changed conditions.

The importance of the Government securities market in the national economy was greatly increased as a result of the huge growth of the public debt during World War II. Government securities are held in large amounts by all classes of investors, including banks and other financial institutions. The organization of the market is very efficient and the degree of competition is great. The size of the market is so great in relation to the holdings of most of the participants that none but possibly the largest institutions can exercise any significant influence over the price of their own operations. The dealer market has been strengthened and the efficiency of the market undoubtedly increased by the practice of the Federal Reserve, initi-

ated several years ago, of confining its open market operations to short-term securities, chiefly Treasury bills.<sup>1</sup>

It has been argued that the growth of the Government securities market and the increase in its efficiency, together with the great importance of large financial institutions, have considerably strengthened the influence of the Federal Reserve by providing a sensitive medium which rapidly transmits the influence of its measures to all sectors of the economy. Moreover, large institutional investors are very sensitive to small changes in interest rates and security prices, and it is said that the Federal Reserve can rely upon this sensitivity as a means of influencing the supply of funds these institutions make available to the private sector of the economy.<sup>2</sup>

While there is doubtless some truth in these contentions, I believe the growth of the public debt and the improved efficiency of the Government securities market have also served in important ways to reduce the effectiveness of monetary policy. Transactions in Government securities provide a means by which banks, financial institutions, and other investors can rearrange their asset portfolios in such a way as to elude the Federal Reserve's attempts at control, or at least to postpone their impact for a considerable time. My argument is well illustrated by reference to the 1955-57 period of credit restraint.

Between December 1954 and September 1957, the publicly held money supply (demand deposits and currency) declined by \$1.1 billion; on a seasonally adjusted basis, it increased by \$5 billion, or 3.9 percent—at little more than 1 percent per year. Thus, the Federal Reserve succeeded in keeping the money supply under fairly tight control. But, despite the limited growth of the money supply, the net amounts of credit outstanding in various forms to the private sector of the economy increased by very large amounts. Total bank loans increased by \$27.7 billion or 32.3 percent, business loans of commercial banks by \$13.4 billion or 49.8 percent, outstanding consumer credit by \$11 billion or 34.1 percent, and nonfarm mortgage debt by \$37.6 billion or 35.6 percent.<sup>3</sup>

We are usually told that bank credit expansion adds correspondingly to the supply of money. In light of this, how was it possible for the banking system to expand its loans by roughly \$28 billion while the money supply was changing very little? Table I summarizes the chief factors affecting the money supply (checking accounts and currency) during the period December 31, 1954, to September 25, 1957. This table indicates that two major developments tended to offset the effect on the money supply of the tremendous loan expansion. One was a growth of time deposits of \$12.4 billion. To this extent, funds created by loan expansion wound up in time and savings deposits, or else existing funds were shifted to time or savings accounts, thus reducing the growth of the money supply. The growth

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<sup>1</sup>On the rationale of the "bills-only" policy as a means of strengthening the market and improving its self-sufficiency, see *United States Monetary Policy: Recent Thinking and Experience*, hearings before the Subcommittee on Economic Stabilization of the Joint Economic Committee, December 6 and 7, 1954 (Washington, 1955), especially pp. 15 ff., 257-307. See also the comments and critical remarks of the Federal Reserve Bank of New York, *ibid.*, pp. 307-331.

<sup>2</sup>See R. V. Roosa, *Interest Rates and the Central Bank*, in *Money, Trade, and Economic Growth: In Honor of John Henry Williams* (New York, 1951); also Roosa's *Federal Reserve Operations in the Money and Government Securities Markets* (Federal Reserve Bank of New York, 1956).

<sup>3</sup>About half of the growth of consumer credit occurred during 1955 when automobile sales hit an alltime high of 7.9 million units. And the growth of outstanding mortgage debt slowed down considerably in 1956.

of time deposits normally goes on continuously and absorbs relatively little in the way of bank reserves, since reserve requirements are much lower for time than for demand deposits.<sup>4</sup>

TABLE I.—*Factors affecting the money supply,<sup>1</sup> December 31, 1954, September 25, 1957*

[In billions of dollars; (+) denotes increase, (—) decrease in money supply]

Increase in bank loans.....	+27.7
Decrease in holding of United States Government obligations by commercial and savings banks.....	-14.0
Increase in time deposits.....	-12.4
Other factors, net.....	-2.4
<b>Change in money supply.....</b>	<b>-1.1</b>

<sup>1</sup> Money supply=demand deposits adjusted+currency outside banks.

Source: Federal Reserve Bulletin, December 1957, p. 1376.

The other and more interesting factor and the one I wish to emphasize was a reduction of \$14 billion in bank holdings of United States Government securities.<sup>5</sup> Banks obtained roughly half of the funds they employed in loan expansion by selling United States Government securities to nonbank investors. To the extent that they did this, of course, the money supply was not expanded because the sale of securities destroyed money which was merely recreated by the lending.

A few years ago there was much concern about the inflationary effects of monetization of public debt by the banking system. By analogy, it might seem at first glance that the 1955-57 demonetization of the debt—shifting it out of the banking system—would be anti-inflationary. Or, looking a little more carefully and observing that the bank sales of public debt were accompanied by increases in loans to the private sector, thus leaving total bank earning assets and the money supply unchanged, one might conclude that such operations would be neutral in their effects. But even this view is, I believe, quite oversimplified and incorrect. Taken by themselves, sales of Government securities by the banking system to other investors could be expected to have some restrictive effects, since they reduce the money supply and push up interest rates. Loan expansion, on the other hand, is strongly inflationary, because it creates money which in most cases is promptly used to finance income-generating expenditures. The combined operation of liquidating securities and expanding loans will be inflationary on balance unless the security sales reduce income-generating expenditures as much as the loans increase them. This is conceivable, of course—the rise of interest rates could induce contraction of expenditures and use of the funds thus released to buy the securities being offered for sale by the banks. To this extent, the active portion of the money supply is not increased—it is reduced by the security sales and increased by the lending—and the total amount

<sup>4</sup> It is interesting to note that time deposits grew with exceptional rapidity during 1957 expanding by \$5.5 billion between December 31, 1956, and September 25, 1957. (Federal Reserve Bulletin, December 1957, p. 1376.) This rapid growth is probably attributable to sharp increases in interest rates on time deposits. It is very doubtful whether this growth represents a significant increase in total saving; much of it probably reflects shifts from other forms in which accumulated savings were held, including demand deposits. To the extent that shifts did occur from demand to time deposits, the expansion power of the banks was increased due to the lower reserve requirements on time deposits.

<sup>5</sup> The security sales were most rapid in 1955 and tapered off gradually in 1956 and 1957. In part, this probably reflects a slowing down in the growth of loan demand as the expansion leveled off, especially in 1957. In addition, it appears probable that the banks gained a substantial amount of excess reserves as a result of shifts of funds from demand to time deposits in the latter year. (See footnote 4.)

of spending is little affected, although its direction may be significantly changed. I do not believe, however, that it is reasonable to expect such results. I suggest rather that the deposits extinguished by the security sales are likely to be largely idle deposits. These deposits are then recreated through lending and promptly inserted directly into the spending stream. The net result of the operation is to leave the money supply unchanged but to increase the velocity of monetary circulation by expanding the fraction of the money supply that is being actively spent at the expense of the fraction that is being held idle.<sup>6</sup>

Of course, the rise in interest rates caused by bank sales of Government securities tends to be communicated to all sectors of the capital market, and this may cause some postponement or cancellation of planned expenditures. Moreover, the rise in open market interest rates increases the cost of funds to the banks, and we may expect them to pass at least part of the increase in cost on to their customers by increasing their interest charges on loans. This, in turn, may discourage borrowing. Substantial interest rate increases did occur during the period under consideration. The probable effects of these increases will be discussed in the ensuing section of this paper.

Portfolio adjustments by nonbank financial institutions can have effects similar to those discussed above. For example, between December 1954 and September 1957, insurance companies sold \$2.4 billion of Government securities, using the proceeds to buy securities of businesses and State and local governments and real-estate mortgages. To the extent that nonbank investors bought Government securities from insurance companies using previously idle balances, such transactions served to substitute active for idle deposits and increase velocity.

One of the arguments that has been stressed in connection with monetary policy in recent years is that the fall in security prices caused by a restrictive credit policy will induce banks and other financial institutions to hold onto Government securities in order to avoid realizing capital losses instead of selling such securities and using the proceeds to make private loans or buy private securities. This is an important one of the means by which a small rise in interest rates is supposed to reduce the supply of funds available to finance private spending. Clearly this so-called "locking-in" argument was not substantiated by the behavior of banks and insurance companies during the 1955-57 period. Even if the argument has logical validity (and this is a debatable question), the effect is likely to be weak in the case of banks because they normally hold large amounts of short-term securities whose prices fluctuate little and in the case of insurance companies because it usually would take only a slight additional increase in interest rates on private debt to overcome such "locking-in" effects as might be present.<sup>7</sup>

<sup>6</sup> For an elaboration of this argument, see my article, *On the Effectiveness of Monetary Policy*, *American Economic Review*, XLVI, September 1956, pp. 588-606, especially pp. 600-604. Some other ways in which velocity may be increased during periods of credit restraint are discussed in H. P. Minsky, *Central Banking and Money Market Changes*, *Quarterly Journal of Economics*, LXXI, May 1957, pp. 171-87.

<sup>7</sup> On the "locking-in" effect, see *Influence of Credit and Monetary Measures on Economic Stability*, *Federal Reserve Bulletin*, March 1953, pp. 219-34; Smith, *op. cit.*, pp. 589-93; C. R. Whittlesey, *Monetary Policy and Economic Change*, *Review of Economics and Statistics*, XXXIX, February 1957, pp. 35-36.

Between December 1954 and September 1957, the banking system sold a large amount of Government securities, as we have seen. Valued at par, the reduction of bank holdings amounted to about \$12 billion.<sup>8</sup> Insurance companies reduced their holdings by nearly \$3 billion, non-financial corporations sold about \$3 billion, and the Federal Reserve System reduced its holdings by nearly \$2 billion in the process of limiting the growth of bank reserves. Total sales by these 4 groups thus amounted to about \$20 billion. Who bought this large volume of Government securities? The largest bloc (amounting to about \$10 billion at par value) was absorbed by the Federal Government itself, either through debt retirement or through purchase by the Treasury investment accounts. The Treasury had a cash surplus in excess of \$10 billion during the period, and this surplus was used to retire debt held by the public. It may be noted that while the cash surplus undoubtedly had important anti-inflationary effects, the use of the surplus to retire or buy up debt took some of the sting out of the restrictive monetary policy of the Federal Reserve. The remainder of the \$20 billion of Government securities sold by the groups mentioned above was absorbed by State and local government units (nearly \$3 billion); individual investors (about \$5 billion); and miscellaneous investors, including savings and loan associations, dealers and brokers, foreign accounts, corporate pension funds, and nonprofit institutions (about \$2 billion).<sup>9</sup> This shift in the ownership of Government securities, about which it would be interesting to have more detailed knowledge, appears to have played an important role in the process of mobilizing the existing supply of loanable funds, thus offsetting to a considerable extent the restrictive measures taken by the Federal Reserve.

If the argument outlined above is correct, we would expect to find that the velocity of monetary circulation increased during the period of credit restraint. Income velocity<sup>10</sup> did rise from 2.84 in the fourth quarter of 1954 to 3.26 in the third quarter of 1957, an increase of about 15 percent.<sup>11</sup> In fact, the 1955-57 inflation can be described as primarily a "velocity inflation." The Federal Reserve succeeded in keeping the money supply under quite strict control. As a result of the rising demand for money combined with the restricted supply, interest rates rose substantially. The rise in interest rates appears to have induced a more intensive utilization of the existing money supply, reflected in an increase in velocity. The transfer of Government securities from banks and other financial institutions to nonfinancial investors, discussed above, seems to have constituted an important part of the mechanism by which velocity increased. Of course, the anti-inflationary effects of the credit tightening were not entirely eliminated by these reactions, but I believe the "leakage" was very substantial. In the next section of this paper, I shall attempt to judge

<sup>8</sup> The change in book value, as indicated in table I, was \$14 billion.

<sup>9</sup> These figures are taken from the Treasury surveys of ownership of Government securities. See Federal Reserve Bulletin, December 1957, p. 1392.

<sup>10</sup> Income velocity measures the rate (number of times per year) at which money is spent on gross final output (transactions included in gross national product). It is computed by dividing the gross national product seasonally adjusted annual rate, by the seasonally adjusted money supply (demand deposits adjusted and currency outside banks). Data were taken from various issues of the Federal Reserve Bulletin.

<sup>11</sup> Federal Reserve data on deposit turnover indicate that a similar increase occurred in transactions velocity (which measures the rate of spending for all transactions rather than merely gross national product expenditures). Transactions velocity, seasonally adjusted, increased by an average of about 19 percent for all centers covered by the Federal Reserve survey between December 1954 and September 1957. Federal Reserve Bulletin, March 1955, p. 282, and December 1957, p. 1374.

the probable effects of credit restriction on the expenditures of some of the major sectors of the economy.

The reactions we have been discussing are not confined to the 1955-57 period. Throughout the postwar period changes in velocity have consistently been more important—in most cases very much more important—than changes in the money supply, during both upswings and downswings of business activity.<sup>12</sup> Moreover, the changes in velocity have systematically operated to accentuate fluctuations and to offset in part the effects of a monetary policy directed at the maintenance of stability.

## II. STRUCTURAL EFFECTS OF MONETARY POLICY

The effects of monetary policy vary from one sector of the economy to another. The effects on a particular sector depend on many things, including the financing practices that prevail in that sector, the structure of the financial markets which channel funds to the sector, the structure of the markets in which the sector sells its output and buys its factors of production, the nature of Government regulation or controls which may constrain the sector's behavior, and so on. Taking account of such factors as these, I shall consider the effects of monetary policy on various parts of the economy. My analysis will be based for the most part on the 1955-57 period of credit restraint. As a starting point, table II shows the absolute and relative changes in various components of the gross national product between the fourth quarter of 1954 and the third quarter of 1957.

TABLE II.—*Composition of gross national product,<sup>1</sup> fourth quarter 1954 and third quarter 1957*

	4th quarter 1954 (billions)	3d quarter 1957 (billions)	Change during period (billions)	Percent change during period
Gross national product.....	\$367.7	\$440.0	\$72.3	19.7
Personal consumption expenditures.....	241.2	283.6	42.4	17.6
Durable goods.....	30.4	35.0	4.6	15.1
Nondurable goods and services.....	210.7	248.6	37.9	18.0
Gross private domestic investment.....	51.9	66.5	14.6	28.1
Residential nonfarm construction.....	15.1	14.0	-1.1	-7.3
Other construction.....	14.5	19.0	4.5	31.0
Producers' durable equipment.....	21.7	30.5	8.8	40.1
Change in business inventories.....	.5	3.0	2.5	( <sup>2</sup> )
Net foreign investment.....	.3	3.2	2.9	( <sup>2</sup> )
Government purchases of goods and services.....	74.4	86.7	12.3	16.5
Federal national security.....	40.2	45.8	5.6	13.9
Other Federal, net.....	5.5	4.8	-.7	-12.7
State and local.....	28.7	36.1	7.4	25.8

<sup>1</sup> Seasonally adjusted annual rate.

<sup>2</sup> Percentage change not meaningful.

NOTE.—Detail may not add to totals due to rounding.

Source: Department of Commerce.

<sup>12</sup> Smith, op. cit., pp. 600-601. It seems especially noteworthy that in the period of inflation right after World War II, from the first quarter of 1947 to the fourth quarter of 1948, the money supply increased by less than 1 percent, while income velocity increased by 17.5 percent. Interestingly enough, this is the period during which it is often implied that the Federal Reserve policy of supporting bond prices resulted in a rampaging, uncontrolled increase in the money supply.

It is apparent from table II that the driving force of the 1955-57 boom was a large increase in expenditures on fixed capital and construction. The largest relative increases were registered by producers' durable equipment, construction other than residential nonfarm, and State and local government expenditures.<sup>13</sup> The increases in Federal national security expenditures and in net foreign investment are also large enough in absolute amount to be important. The increase in the level of expenditures in these 5 categories together amounted to about \$29 billion. The increase in personal consumption expenditures was of course even larger (\$42 billion), but it seems probable that most of this increase was generated by the increase in income itself—i. e., that it was a manifestation of the operation of the multiplier.<sup>14</sup> Of course the increases in expenditures in real terms were much smaller than those shown in table II, which are valued at current prices. It may be noted that, in general, prices rose most rapidly in the sectors—e. g., capital goods—where the increases in expenditures were greatest.

Where did restrictive monetary policy make itself felt? I shall consider its probable effects on several major categories of expenditures, beginning with residential construction.

#### *Residential construction*

Table II shows that residential nonfarm construction is the only major category of private expenditures that actually showed a decline over the period. Housing starts rose in 1955 to 1.3 million, the second highest annual level on record, and declined thereafter. Total residential housing expenditures declined less rapidly than housing starts due to rising building costs and a tendency to build more elaborate houses.

Changes in the basic nonmonetary determinants of housing demand do not seem sufficient to account for the decline. Changes in the cost and availability of mortgage funds due to the general tightening of credit probably played a major part. The main impact appears to have fallen on residential building financed by FHA-insured and VA-guaranteed mortgages, the latter having been hit especially hard. Between 1955 and 1957, the amount of nonfarm mortgage recordings of \$20,000 or less declined from \$28.5 billion to \$24.2 billion, a drop of 15 percent. During the same period, the amount of FHA-insured home mortgage loans made declined from \$3.1 billion to \$2.3 billion, a drop of 26 percent, and the amount of VA-guaranteed home mortgage loans fell from \$7.1 billion to \$3.8 billion, a decline of 46 percent.<sup>15</sup> The decline in the amount of Government-backed mortgage loans appears to have been approximately great enough to account for all of the decline in mortgage recordings, indicating that the amount of conventional mortgage loans was about the same in 1957 as in 1955. Other scattered data also indicate that this may well have been true.

The reason for the heavy impact of tightening credit on the volume of Government-supported mortgage loans is that interest rates on these loans are subject to ceilings established by law or administrative

<sup>13</sup> Change in business inventories and net foreign investment had such small values in the initial period that the large percentage changes have little meaning.

<sup>14</sup> No doubt there was a feedback effect—rising sales of both consumer goods and investment goods stimulated a further rise in investment spending.

<sup>15</sup> Federal Reserve Bulletin, February 1958, pp. 178-179.

decision.<sup>16</sup> As interest rates on competitive investments such as Government and business securities rose during 1955-57, these investments became more attractive to investors and the supply of funds was diverted away from Government-supported mortgages.<sup>17</sup> Since the problem arose from a diversion of the supply of funds, it is not surprising that measures designed to stimulate demand by reducing downpayments and extending permitted maturities under the Government programs did little to stimulate building.

Interest rates on conventional mortgages are not subject to any ceilings and are free to move in pace with other interest rates. Rates on such mortgages apparently did rise substantially during the 1955-57 period. Assuming that other terms (downpayments and maturities) were not liberalized, the fact that conventional mortgage recordings held up well suggests (although, of course, does not prove) that the demand for mortgage money—and therefore expenditures on housing—is not very interest-elastic. This is not surprising, since a moderate rise in the interest rate has quite a small effect on the monthly payment required to finance the mortgage, which is probably the main factor influencing the decision of the buyer. Furthermore, even if demand is interest-elastic, the effect of a rise in the interest rate can usually be offset by a rather slight lengthening of the maturity of the loan.

Thus, it appears that the sensitivity of residential construction to monetary policy is largely accounted for by a very special institutional factor. It might even be said that this is not really an instance of the working of general monetary policy at all but rather a result of the existence of a built-in selective credit control which automatically channels away part of the supply of funds as interest rates rise. It may be noted that, in a period of tight credit, part of the funds so channeled away may be used to finance other forms of spending, so that the reduction in aggregate spending may be less than might at first appear. The effect may be more on the pattern of expenditures than on the size of the total.<sup>18</sup>

#### *State and local government expenditures*

State and local governments are alleged to have been seriously affected by the credit restrictions of 1955-57. New construction activity by such governmental units has been steadily increasing in importance in the last few years rising from \$7.8 billion in 1954 to \$9.6 billion in 1957.<sup>19</sup> The amount of new state and local government security issues sold for cash was at an all-time high level of \$7 billion in 1954, fell quite sharply in 1955 and 1956—despite increases in con-

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<sup>16</sup> Government-backed mortgages may sell at discounts in the market so that lenders are able to earn yields higher than the nominal interest rates. But builders commonly have to absorb the discounts themselves, since Government regulations constrain them from passing the costs on to buyers.

<sup>17</sup> The interest rate ceiling for FHA-insured loans was adjusted upward to 5 percent in December 1956. Even this increase in the rate, however, failed to restore its position in the interest rate structure, and the available supply of funds continued to be small. Nevertheless, it may be noted that the decline was considerably more severe for VA-guaranteed mortgages, where no adjustment in the permitted rate was made.

<sup>18</sup> If, as I contend, most types of spending are little affected by changes in the cost and availability of funds anyway, the diversion of funds away from mortgages may do little to increase other forms of spending. In fact, I believe this is the case, which is one reason why I favor increased use of selective controls, as indicated later in this paper.

<sup>19</sup> Economic Report of the President, January 1958, p. 152.

struction expenditures—but rose to \$6.9 billion in 1957.<sup>20</sup> Actually, these figures substantially overstate the net amount of funds obtained through the capital market, since they make no allowance for the substantial amounts of old securities retired out of tax revenues by some governmental units.<sup>21</sup>

The high cost of funds unquestionably caused some borrowing by State and local governments to be canceled or postponed. A study by the Investment Bankers Association, covering the 9-month period July 1956 to March 1957, indicated that about \$0.5 billion of bonds were not sold as scheduled, but a substantial portion of these were reoffered and sold at a later date during the period.<sup>22</sup> However, this study covers only issues which reached the offering stage—no one knows the volume of issues canceled at earlier stages of the borrowing process.

It is very difficult to judge the extent to which the cancellation or postponement of bond issues results in a corresponding reduction or postponement of State and local government spending. The proceeds of some of the issues may be intended for repayment of bank loans or refunding of outstanding securities. To the extent that the proceeds are designed to finance income-generating expenditures, some of these expenditures may be financed by drawing down liquid assets or by borrowing from the banking system or other sources. Furthermore, there is a lag between the raising of funds and their expenditure, and the postponement of issues may serve mainly to shorten the length of this lag.

In order to judge with much confidence the effects of monetary restraint on State and local government spending, we would need to know a great deal more than we do now about the factors that influence the spending decisions of these governmental units, including the elements that influence voters in passing upon proposed bond issues. However, it is possible to discern some institutional features of State and local government borrowing that might give it some sensitivity to credit conditions. One such feature is the existence of legal limitations which commonly establish ceilings on the interest rates that can be paid. Such ceilings, like those on mortgage interest rates referred to earlier, result in a diversion of funds to other sectors as interest rates rise. Another feature that might account for some disproportionate effect is the fact that State and local govern-

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<sup>20</sup> Federal Reserve Bulletin, February 1958, p. 174. It may be noted that the high total for 1957 may be partly attributable to quite heavy offerings in October, November, and December, when yields were falling rather sharply after having reached a peak in September.

<sup>21</sup> Perhaps the best data available are those included in the Federal Reserve flow-of-funds accounts. In 1954 these accounts show that capital acquisitions by State and local governments amounted to \$9.2 billion. Of this amount, \$7.6 billion was financed by an excess of nonfinancial receipts over other nonfinancial expenditures. Net new issues of State and local government obligations brought in \$4.4 billion. Net accumulations of financial assets, including currency, deposits, and securities (and incorporating statistical discrepancy), amounted to \$2.9 billion. In 1955 capital acquisitions increased to \$10.1 billion. The "current surplus" increased by \$0.5 billion to \$8.1 billion. Security issues declined by \$0.7 billion to \$3.7 billion. Accumulation of financial assets (together with discrepancy) declined by \$1.2 billion to \$1.7 billion. In 1956 capital acquisitions increased further to \$11.2 billion, the "current surplus" rose to \$8.7 billion, security issues declined to \$3.4 billion, and accumulation of financial assets dropped to \$0.9 billion. Thus, during the period 1954-56, State and local governments were able to finance increasing capital expenditures while at the same time reducing their reliance on the security markets, because they increased their current tax surpluses and reduced their rate of accumulation of liquid assets. Flow-of-funds data for 1957 are not yet available. (Federal Reserve Bulletin, October 1957, pp. 1190-1192.)

<sup>22</sup> IBA Statistical Bulletin, April 1957, pp. 1-4.

ment securities are exempt from Federal income taxes. In order to market a large volume of issues in a time of credit tightness, it may be necessary to appeal to financial institutions and investors in lower tax brackets, to whom the tax exemption is less valuable than it is to the investors in high tax brackets who have traditionally been the chief investors in such issues. If this is the case, interest rates on State and local government issues may have to rise even more than interest rates on other types of securities.<sup>23</sup>

*Business investment expenditures: General*

The 1955-57 period was characterized by a rapid and steady growth of capital expenditures by the private sector of the economy. Table II indicates that expenditures on producers' durable equipment increased by nearly \$9 billion or 40 percent (seasonally adjusted annual rate) between the fourth quarter of 1954 and the third quarter of 1957, while construction expenditures other than residential nonfarm increased \$4.5 billion or 31 percent during the same period. How effective was tight money in slowing down this rapid expansion of capital goods spending? I believe (a) that there is very little direct evidence that it had much effect and (b) that there is considerable basis for the view that most private investment spending is, in general, quite insensitive to monetary policy measures.

Business expenditures for new plant and equipment on a seasonally adjusted basis increased steadily each quarter from the first quarter of 1955 to the third quarter of 1957, the net increase over this period amounting to \$12.1 billion or 47 percent.<sup>24</sup> As the supporters of monetary policy are always quick to point out, this rapid and continuous growth of private investment does not, by itself, demonstrate that credit restrictions did not have strong effects. Obviously, demand curves for capital goods were shifting outward under the impetus of the boom—this is evidenced by the fact that there was simultaneously an increase in interest rates and an increase in investment expenditures. Conceivably investment would have increased much more rapidly than it did if credit had not tightened. One cannot prove anything by reference to statistics of this kind—nevertheless I believe they are worth looking at.

Such real evidence as there is concerning the sensitivity of business investment to changing credit conditions lies elsewhere than in a consideration of the immediate statistics. In part, I believe it can be found in a consideration of the nature of investment decisions, together with the institutional framework within which such decisions are typically made. In addition, there is a considerable amount of systematic empirical evidence which has been accumulated in recent years and to which I shall refer later.

One fact, primarily institutional, which considerably weakens the effect of monetary policy on business investment is the predominance of internal financing. Depreciation allowances and retained profits have amounted to about 60 percent of total sources of corporate funds during the last 3 years. In 1955, 1956, and 1957, funds derived from these sources amounted to 99, 83, and 78 percent, respectively, of total plant and equipment outlays.<sup>25</sup> In principle, decisions to invest out

<sup>23</sup> The differential between yields on corporate bonds and yields on State and local government bonds narrowed from 0.73 percent in December 1954 to 0.55 percent in September 1957 (Federal Reserve Bulletin).

<sup>24</sup> Economic Reports of the President, January 1957 and January 1958.

<sup>25</sup> Economic Report of the President, January 1958, p. 183, table F-59.

of funds obtained internally might be influenced by interest rates if businesses weighed the expected returns from plant expansion against the returns that could be obtained from outside investments, but in fact it seems certain that such decisions are almost entirely independent of interest rates.

It is doubtful whether even investment financed from external sources is very sensitive to interest rates. It is interesting to note—although, again, such statistics by themselves do not prove anything—that the volume of new securities issued increased even more rapidly than did investment expenditures in the period under review. Net new issues of corporate securities increased from \$5.9 billion in 1954 to \$11 billion in 1957, an increase of 86 percent.<sup>26</sup> Business investment decisions involve forecasts of business conditions over the prospective life span of the investment. Such forecasts involve estimates of product demand, wage rates and raw material prices, technological changes and possible obsolescence of the equipment, changes in competitive conditions, movements of general business, and so on, often for a period extending many years into the future. Obviously such forecasts are subject to a great deal of uncertainty. In view of this uncertainty, it is difficult to believe that returns can be estimated with sufficient accuracy so that the decision to invest would be affected by a change of 1 or 2 percentage points in the corporate bond yield.<sup>27</sup> Investments so marginal that their profitability would be imperiled by such changes in interest rates would surely not have been under consideration in the first place.

Another factor that reduces the sensitivity of investment to interest rate changes is the market structure and pricing policies that prevail in many of our largest industries. These industries, such as steel, automobiles, chemicals, and so forth, are characterized by oligopolistic market structures and rather rigid administered pricing practices which in most cases result in prices below levels which fully maximize short-run profits. The existence of unexploited monopolistic profit opportunities permits such companies to raise prices to their customers in order to pass along any increased interest costs they may incur.<sup>28</sup> It might appear at first glance that when this kind of adjustment occurs, the rise in price would reduce the quantity of the firm's product that it could sell, necessitating some cutback in production—or, if consumer demand was highly inelastic so that the reduction in sales was negligible, consumer purchasing power would be diverted away from other products with anti-inflationary effect. However, we must remember that if profits are maintained at their original level (which is a reasonable assumption) aggregate income is increased by the higher interest payments. Thus, if such adjustments are made over a wide range of the economy, their mutually reinforcing effects in raising demand curves for the various products are likely to prevent any significant reduction in demand. Under such circumstances, it is possible that there might be an "interest-price spiral," similar to the much-discussed wage-price spiral—although of course, interest is

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<sup>26</sup> *Ibid.*

<sup>27</sup> For a careful development of this point, see G. L. S. Shackle, *Interest Rates and the Pace of Investment*, *Economic Journal*, LVI, March 1946, pp. 1-17; also F. A. Lutz, *The Interest Rate and Investment in a Dynamic Economy*, *American Economic Review*, XXXV, December 1954, pp. 811-830.

<sup>28</sup> This possibility is discussed in J. K. Galbraith, *Market Structure and Stabilization Policy*, *Review of Economics and Statistics*, XXXIX, May 1957, pp. 124-133.

such a small portion of total costs that the spiral would not be likely to raise prices at a very rapid pace.<sup>29</sup>

In addition to passing along the increased cost of funds obtained from external sources, firms possessing market control and unexploited monopolistic profit possibilities may raise prices, thus increasing profits, in order to have more funds available for internal financing of investment at times when external sources of funds are squeezed by tight credit. Moreover, in other cases, dividends may be reduced—or not increased as much as they might otherwise be—in order to acquire internal funds.<sup>30</sup>

I have indicated several important reasons for expecting investment expenditures to be insensitive to changes in interest rates. A number of empirical studies of the factors influencing investment have been made in recent years. These studies are predominantly of two types. One type is based upon replies by businessmen to questions addressed to them either in personal interviews or through mailed questionnaires.<sup>31</sup> The other type relies upon econometric or statistical analysis of data derived either from time series covering past periods or from a cross-section of business firms during a single period, the purpose being to isolate the factors—such as interest rates, profits, sales, liquidity, and so on—which seem to be significantly associated with investment.<sup>32</sup> Limitations of space prevent me from attempting a detailed review of the result of these studies. Suffice it to say that, with very few exceptions, the overwhelming burden of the evidence supports the arguments outlined above—that interest rates have very little effect on investment decisions. There is, in general, little evidence that investment is sensitive to interest rates and considerable evidence that it is not.

Recently, more emphasis has been placed on changes in credit availability as the means by which monetary policy makes itself felt. It is argued that when credit tightens lenders may raise their credit standards and the conditions under which they will make loans. As a result, borrowers find they are unable to obtain funds regardless of the interest rates they may be willing to pay. Doubtless there is something to this availability argument. However, its effectiveness may be questioned if institutional investors, especially the banking system, are readily able to shift the composition of their portfolios from Government securities to private loans, as they did in 1955–57.

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<sup>29</sup> As income is redistributed away from other income shares toward the interest share by this process, there may be some anti-inflationary effects if, as seems possible, the marginal propensity to spend out of interest income is less than the marginal propensities to spend out of other income shares. This seems likely to be a negligible corrective factor, however.

<sup>30</sup> Of course, the reduction in dividends would probably reduce consumption expenditures to some extent but not by enough to offset the increase in investment. The total effect would be closely analogous to the so-called balanced budget multiplier effect applicable to a simultaneous increase in Government expenditures and reduction in taxes.

<sup>31</sup> The classical example of this type of study is the famous survey (actually two surveys) made at Oxford University before World War II. (T. Wilson and P. W. S. Andrews, editors, *Oxford Studies in the Price Mechanism*, Oxford, 1951, pp. 1–74.) Although this study was conducted in England rather than the United States and is now seriously out of date, having been made during a depression period, I believe many of the individual answers contain useful insights. The results of the Oxford survey as well as other studies of the same general type are subjected to critical examination in W. H. White, *Interest Elasticity of Investment Demand—the Case From Business Attitude Surveys Re-examined*, *American Economic Review*, XLVI (September 1956), pp. 565–587. Although most of White's criticisms are valid, I believe they fail utterly to destroy the presumption created by these studies that investment is very little affected by interest rates.

<sup>32</sup> A very useful summary of empirical studies of investment is to be found in J. R. Meyer and Edwin Kuh, *The Investment Decision* (Harvard, 1957, ch. II and appendix, pp. 6–35).

The supply of funds available to the private sector seems to be quite expansible under pressure, and it is not so certain that many spenders will find credit unavailable when they need it. Moreover, some of the factors discussed above—such as the predominance and expansibility of internal sources of funds—are applicable whether monetary policy works through interest rates or through availability. Finally, it should be noted that whether credit controls work through availability or through interest rates, their effects should show up in econometric studies. At times when credit standards are raised and credit availability is reduced as a result of a policy of credit restraints, interest rates also rise. In fact, interest rates might be taken as an indicator of the degree of credit availability. This being the case, there should still be a relation between interest rates and investment expenditures, although, of course, the explanation of this relation would be different from the classical explanation based on the interest rate as a cost factor. The fact, therefore, that there is very little evidence from econometric studies of investment of any significant relation between interest rates and investment expenditures casts doubt on the availability doctrine as well as on the more orthodox arguments emphasizing interest rates.

One final possible means by which monetary policy may communicate its effects to the economy may be considered briefly. It is sometimes argued that the effects of monetary policy are mainly psychological, i. e., that it produces changes in expectations that are stabilizing in their effects. For example, even though planned investment schedules are very inelastic to interest rates taken as a cost factor for various reasons already indicated, it is still possible that credit tightening may cause a marked reduction in investment spending by causing businessmen to revise downward their sales and profit expectations. The question of the psychological effects of monetary policy has never been satisfactorily analyzed and there are many facets to it. However, my own feeling is that the psychological effects are rather more likely to be destabilizing than stabilizing under most circumstances. Strong Federal Reserve action to combat inflation is likely to be taken as one more indication that inflation is in fact a probability and is, therefore, likely to reinforce an inflation psychology with respect to expenditures. Moreover, as in the case of availability effects discussed above, psychological effects, if present to a significant degree, should be picked up by econometric studies of investment.

#### *Investment expenditures: Small business*

Although general credit controls do not seem to affect business investment very much in the aggregate, there has been some discussion recently concerning the possibility that they may discriminate against smaller businesses. I believe there are some reasons for expecting such discriminatory effects and a few bits of evidence that they may have been present in the 1955-57 period. However, we are surprisingly ignorant of the exact effects of monetary policy, and the evidence is by no means conclusive. Perhaps the study of small business financing now being conducted by the Federal Reserve System will help to clarify the situation.

Small- and medium-sized firms apparently rely even more extensively on internal financing than large businesses do. At the same time, to the extent that they do raise funds externally, they are more

dependent on the banking system than large firms are, have fewer alternative sources of funds, and seem, in general, to be more vulnerable to the effects of tight credit. To the extent that larger firms do need to use bank credit, they have access to a larger number of banks, and the competition among banks for their business strengthens their bargaining position and probably enables them to get better terms, as well as greater assurance of getting the funds they need. Moreover, large firms have access to the open market as a source of short-term funds and to the organized security markets for long-term funds. Smaller firms are limited in their ability to utilize the facilities of the capital market, because they are not well known to investors except perhaps within a limited geographical area. New firms, as well as small firms, suffer disabilities in raising funds for growth and expansion. Established and profitable enterprises are able to finance a large portion of their needs from earnings retention. New firms in their early years may not have the necessary profits to finance expansion and their lack of credit standing makes it difficult to obtain funds from external sources. It may also be noted that small firms which do not possess market control may find it much more difficult to pass on increased interest rates to their customers through price increases than is the case with larger firms possessing a semimonopolistic market position. And they may similarly find it difficult to raise prices in times of tight credit in order to obtain more funds from internal sources.<sup>33</sup>

Although data are not available on investment distributed by size of firm, the quarterly financial reports for manufacturing corporations prepared by the Federal Trade Commission and Securities and Exchange Commission provide some clues. According to these data, all manufacturing corporations showed an expansion of gross property, plant, and equipment accounts of \$34.3 billion or 28.3 percent between the fourth quarter of 1954 and the third quarter of 1957. The expansion for corporations with total assets of \$50 million and over was \$31 billion or 36.9 percent, while the expansion for corporations with total assets of less than \$50 million was \$3.4 billion or 9 percent. Thus it appears that during a time of general prosperity which should have been most favorable for the growth of small business concerns, such concerns have not been able to keep pace with larger enterprises.<sup>34</sup>

#### *Consumer installment credit*

Consumer installment credit deserves brief consideration. The effects of credit restraint are not easy to discern in this field. Outstanding consumer installment credit has been rising rapidly since World War II, and experienced an exceptional expansion during the

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<sup>33</sup> As a matter of fact, a firm that is maximizing profits to start with will obviously not be able to obtain additional funds in this way. And small firms in relatively competitive industries are likely to be forced to maximize short-run profits in order to survive.

<sup>34</sup> Federal Trade Commission and Securities and Exchange Commission, Quarterly Financial Reports for Manufacturing Corporations. It should be noted that during 1953-54 the same disparity in growth rates was present but it was very much smaller in degree. Between the third quarter of 1953 and the fourth quarter of 1954, gross property, plant, and equipment accounts for corporations with total assets in excess of \$50 million increased by 11.9 percent, while the increase for companies with assets under \$50 million was 6.1 percent. Thus, according to this measure, the larger companies expanded four times as fast as the smaller in the 1953-54 period and only twice as fast in the 1953-54 period. The shifting makeup of the size classes causes some problems, and probably understates the growth in both periods for the under-\$50-million class, since the largest concerns in this class in any period are likely to expand beyond the class limit and enter the over-\$50-million class.

1955-57 period. However, by far the largest increase occurred in 1955, the growth in 1956 and 1957 being much smaller. Most of the tapering off appears to have been due to the drop in automobile sales after 1955. This drop can scarcely be explained by credit conditions, however, since the terms on automobile loans continued to become easier after 1955. Buyers of durable goods seem generally to be quite ignorant of the finance charges they pay and insensitive to changes in these charges. There are many consumer lending institutions, including commercial banks and sales finance companies of varying sizes. By and large, these lending institutions seem to be highly skilled at obtaining the funds they need for lending to consumers, shifting nimbly from one source of funds to another as conditions change. Consumer durable goods dealers, who depend on credit to stimulate a large volume of sales, are in a position to exert some pressure on lenders to make an ample supply of credit available and to keep terms easy. By and large, consumer installment credit seems to be one of the areas least affected by general credit controls.<sup>35</sup>

### *Conclusion*

Based on the arguments outlined above, I doubt that restrictive monetary policy did more than touch the fringes of the private investment boom of 1955-57. Its effects appear to have been heavily concentrated on residential housing construction, particularly that part financed by government-supported mortgages, with perhaps some further significant effects on State and local government construction expenditures and capital outlays by smaller business concerns.

There has been some criticism of monetary policy on the ground that it did have disproportionate effects on housing and school construction. I believe this criticism is mistaken. In spite of the restrictive effects of monetary policy, total new construction activity, public and private, increased from \$39.6 billion in 1954 to \$47.2 billion in 1957, a rise of 19 percent.<sup>36</sup> As a result of this expansion of demand, the Department of Commerce composite index of construction costs increased by 13 percent between December 1954 and September 1957. If monetary policy had not restrained demand, especially in housing, there is little doubt that costs would have risen even more than they did. It would be difficult to demonstrate that this would have been in the best interests of home buyers and local government units desiring to build schools.

One could, however, argue quite cogently that the national welfare might have been better served in 1955-57 if some of the marginal demands of private investment had gone unsatisfied and if a somewhat larger fraction of the limited resources of the construction industry had been employed in building more houses and schools.<sup>37</sup>

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<sup>35</sup> See Board of Governors of the Federal Reserve System, *Consumer Installment Credit*, 6 volumes (Washington, 1957), especially pt. I, vol. I, ch. 13; pt. I, vol. II, supp. II; pt. II, vol. I, pp. 298-423. For a summary of this material, see my review article, *Consumer Installment Credit*, *American Economic Review*, XLVII, December 1957, pp. 966-984, especially pp. 973-979.

<sup>36</sup> *Economic Report of the President*, January 1958, p. 155, Table E-29.

<sup>37</sup> It could also be argued that some slowing down of the pace of investment in the later stages of the boom would have helped to maintain a better balance between the growth of the productive capacity of industry (which is augmented by investment) and the growth of effective demand, thus perhaps avoiding or at least postponing the recession which began late in 1957. On the problem of balanced growth, see my article, *Monetary-Fiscal Policy and Economic Growth*, *Quarterly Journal of Economics*, LXXI, February 1957, pp. 36-55; also Arthur Smithies, *The Control of Inflation*, *Review of Economics and Statistics*, XXXIX, August 1957, pp. 272-283.

I believe myself that this argument has a special force as applied to schools. However, I doubt whether monetary policy could have accomplished such a shift of resources with the instruments available to it.

### III. CONCLUDING COMMENTS

I have attempted to show that the functioning of monetary policy is conditioned by the structure of the markets by which its effects are conducted and by various institutional arrangements which form part of the setting in which it operates. I believe the foregoing analysis has important implications which respect to some of the major issues of stabilization policy.

#### (a) *Monetary versus fiscal policy*

The major advantage of monetary over fiscal policy lies in its superior administrative flexibility. Monetary controls can be tightened or eased or the direction of policy reversed virtually on a moment's notice. Discretionary fiscal measures, on the other hand, are, under present operating procedures, much more cumbersome to put into effect.<sup>38</sup> But this is by no means the whole story. Fiscal measures, once initiated, can usually be expected to have quite prompt and powerful effects, since they have a direct impact on the income stream. For example, a reduction of personal income tax rates or an increase in exemptions leaves taxpayers with larger disposable incomes, of which a fraction (its size depending upon the specific nature of the tax cut) is almost certain to be promptly spent on goods and services.<sup>39</sup> Monetary measures, on the other hand, do not have income effects.<sup>40</sup> Open market purchases of securities by the Federal Reserve, for example, merely change the composition of the balance sheets of the public or the banking system, substituting cash for securities. To be sure, the banks are supplied with additional reserves, thus permitting them to acquire more earning assets and expand the public's holdings of currency and deposits. However, even this operation has no important income effects—the public's balance sheet shows more currency and deposits, but this is balanced either by less nonmonetary assets or by additional liabilities to the banking system. It is only to the extent that the resulting changes in asset prices, interest rates, or credit availability cause the public to engage in more income-generating expenditures that the business situation is affected.

Thus, monetary policy works directly on the asset structure of the economy and affects the income stream only indirectly. It is, therefore, not surprising to find that its effects are often relatively weak and slow to make themselves felt. Although monetary policy is

<sup>38</sup> Automatic fiscal stabilizers are, of course, flexible in administration. But they do not come into operation until the movements they are designed to control have already begun, and they are inherently incapable of either preventing or reversing such movements. They do serve a useful purpose in mitigating fluctuations, but I do not think that, by themselves, they are likely to provide an adequate degree of stability.

<sup>39</sup> Changes in government expenditures on goods and services may be expected to have a greater effect than tax changes of equal amount, since only part of the effect of the tax changes will ordinarily fall on expenditures, the remainder being reflected in changes in saving. On the other hand, changes in transfer payments (e. g., old-age pensions) have effects similar to tax changes, but, of course, opposite in direction.

<sup>40</sup> This statement must be qualified slightly, since incomes of investors are affected by changes in interest rates and by capital gains and losses resulting from changes in security prices. But these income effects are of an altogether different order of magnitude from those produced by fiscal policy. Moreover, the change in lenders' incomes resulting from changes in interest rates is offset by an equal change in borrowers' costs.

superior to fiscal policy in administrative flexibility, the lag between action and its impact on the economy is surely much shorter for fiscal policy under most circumstances.

*(b) General versus selective controls*

It is customary to draw a sharp distinction between general or quantitative monetary controls on the one hand and selective or qualitative controls on the other. General controls seek to regulate the total supply of money or loanable funds, leaving to the market the allocation of such funds among various competing uses. Selective controls—such as consumer credit controls—are designed to interfere with the allocation of funds, without, in themselves, affecting the total supply available. Many American economists express a strong aversion to selective controls on the ground that the only legitimate function of a central bank is to control the total supply of loanable funds, but that it should not attempt to influence the allocation of funds. Selective controls, it is said, are discriminatory, whereas general controls are impersonal and do not discriminate.

There can be no doubt that general and selective controls do work differently. General controls affect the total supply of credit whereas selective controls—for example, consumer credit controls—affect particular segments of the demand for credit. As a consequence, they tend to have opposite effects on interest rates—tightening through general controls tends to raise interest rates, while tightening through selective controls tends, if anything, to reduce them. Moreover, selective controls are obviously discriminatory—they are specifically designed to affect only certain classes of borrowers. On the other hand, I believe recent experience, as indicated earlier in this paper, suggests that general credit controls also tend to discriminate. The effects of general controls on various classes of borrowers vary, depending on the extent to which they rely on internal funds for financing, the variety of sources of funds available to them, their bargaining power in dealing with lenders, the types of markets—competitive, oligopolistic, and so forth—in which they sell their products, and so on.

Of course, if the economy were highly competitive throughout—including commodity markets, factor markets, and money markets—one could argue that the differential effects of general credit controls on different types of borrowers were nondiscriminatory, because they merely reflected differences in consumer tastes, differences in the productivity of resources applied to different uses, and different evaluations of the risk and uncertainty associated with different business undertakings. It is fairly clear, however, that our economy does not fit this model, even approximately. Market imperfections exist in nearly all areas. As a matter of fact, the defenders of general monetary controls have themselves emphasized that interest rates are sticky and that the effects of monetary policy arise mainly from private credit rationing which is made possible by the existence of market imperfections.

I believe the view that selective controls are discriminatory, whereas general controls are not, is a serious oversimplification. The fact is that all controls—general and selective, monetary and fiscal—are discriminatory. Not only that, but intelligent stabilization policy makes use of the fact that they are discriminatory. If general credit controls impinge with special force on residential construction, they

would hardly be an ideal instrument to use in a situation in which the general price level was rising while residential construction was mildly depressed. On the other hand, if an inflationary situation occurs which is mainly attributable to developments in a few selected areas, stability would be most effectively restored by the use of instruments pointed specifically at those areas. An excellent example of this kind of situation is the 1929 stock market boom. At that time, the Federal Reserve did not dare use its general controls aggressively, even though it fully recognized that the situation in the stock market constituted a dangerous threat to the economy, because it felt that tight money and high interest rates might force a cutback in production and employment while having little effect on the use of credit for stock speculation. The granting to the Federal Reserve of the selective power to control margin requirements in the Securities Exchange Act of 1934 can be attributed directly to this experience.

In the 1955-57 period of inflation, I believe the Federal Reserve's effectiveness was reduced by the fact that it had to rely almost entirely on so-called general credit controls. It became quite apparent that the effects of these controls fell disproportionately upon certain groups, and this made it both economically unwise and politically inexpedient to apply credit restraint with sufficient force to bring the inflation under control. If selective controls had been available in at least certain areas, I believe monetary policy could have done a considerably more effective job. In particular, I believe it would be desirable to give the Federal Reserve more power to control lending by the banking system to the private sector. As explained earlier in this paper, it appears that the banking system contributed substantially to the 1955-57 inflation by shifting the composition of its asset portfolios from Government securities to private loans, because this shift tended to produce an increase in velocity. Control over the aggregate supply of bank reserves and hence indirectly over the money supply is not sufficient for effective monetary policy. Some controls over at least the general composition of bank portfolios seem to be necessary.

*(c) The problem of cost-push inflation*

Some, of course, contend that the inflation we have been experiencing recently is of a new variety—caused by wage increases in excess of increases in the productivity of labor and/or by autonomous upward adjustments of administered prices. It is true that money wages have increased substantially faster than the average productivity of labor in recent years. This fact alone does not, however, tell us whether autonomous wage increases pushed up prices or whether excessive aggregate demand pulled up prices with wages adjusting as a result of the resulting excess demand in the labor market, together with cost-of-living adjustments. This is a conundrum to which I do not pretend to know the answer—probably the inflation was caused partly by cost push and partly by demand pull. In any case, however, I suspect that if we could control aggregate demand more firmly and precisely than we have been doing, the problem might become considerably less serious. When demand is as plastic as it proved to be in 1955-57, it does not provide a very firm framework within which to conduct wage negotiations and arrive at price decisions. If autonomous wage and price changes are really the essence of our inflation problem, monetary-

fiscal policy is rendered virtually impotent, and solution of the problem requires some kind of direct intervention in specific wage-price decisions. Before we resort to such drastic and distasteful measures, however, I suggest that we see what can be accomplished by providing more flexible and effective control over aggregate demand.

(d) *Antirecession policy*

Monetary policy is usually said to be more effective as a means of checking inflation than as a stimulant to recovery from a recession or depression. While there is undoubtedly much truth in this assertion, I believe the potency of monetary policy in time of inflation is commonly exaggerated. In principle, monetary stringency can certainly be carried far enough to stop a rise in the price level, but the experience of 1955-57 suggests that there are serious structural problems involved and that considerable time may be required to achieve the desired results.

In general, I believe the analysis presented above applies, with directions reversed, to a recession situation, such as faces us at the time this paper is being written. The major contribution that can be expected from monetary policy is some stimulus to residential construction—in fact, I believe the measures already taken show signs of producing such a stimulus. State and local government expenditures may also be encouraged somewhat. With respect to business investment, I doubt whether monetary policy can help very much. However, the liquidity position of the banks was subjected to continuous pressure during the 1955-57 period, and some improvement of that position is certainly necessary to full recovery. The measures taken to provide added reserves to the banking system are therefore necessary and desirable. However, I believe the Federal Reserve authorities are right in proceeding with a certain amount of caution in this regard. During the 1953-54 recession, the banking system was supplied with a very large quantity of reserves—more than was really necessary for sound recovery, in my opinion. The excessively liquid condition of the banking system—especially the large holdings of short-term Government securities—proved to be a severe handicap to the Federal Reserve during the ensuing period of inflation. If the banks had been somewhat less liquid than they were at the end of 1954, it is possible that the Federal Reserve would have been more successful in restraining the expansion of bank loans in 1955-57.

In conclusion: I believe monetary policy is a potentially useful instrument for promoting balanced economic growth and stability, and I believe we should explore thoroughly the possibilities of devising additional monetary weapons—such as selective controls in some strategic areas—to broaden and strengthen the Federal Reserve's power to operate effectively under the conditions that exist today. However, efficient policy for stability and growth requires the proper coordination of monetary and fiscal policy, and I think it would also be desirable to increase the flexibility of our fiscal controls.



## GOVERNMENT POLICY TOWARD COMPETITION AND PRIVATE PRICING

Myron W. Watkins and Joel B. Dirlam, Boni, Watkins, Jason & Co., Inc.<sup>1</sup>

### INDIRECT EFFECT OF GOVERNMENTAL MEASURES ON PRICING

The subject of this paper is the influence that governmental measures of various types have on the pricing by privately owned and privately operated business units. The title is much too broad, of course, since it would encompass those measures which are designed to and usually do have a very great effect upon the general price level. We are not concerned here, however, with fiscal policy and money and banking policy or bank credit policy, all of which operate on the economy as a whole. Rather, the objective here is to examine and appraise those governmental measures that are directed toward the modification or control of price relationships. In other words, it is to review the effect of policies that help to determine the relationship of the prices for one commodity or one industry relative to those of others. The principal statute which operates in the fashion above described is the Sherman Act, but its influence is made more trenchant by amendments or supplements to that act in the Clayton Act and the Robinson-Patman Act.

### PUBLIC WELFARE MEASURES AFFECTING PRICES

By way of preliminary, it should be recognized that numerous measures other than antitrust operate, indirectly, in a similar fashion—such as those designed primarily to promote the public welfare or protect the consuming public in the purchase of particular commodities. Representative of this second group is the Pure Food, Drug, and Cosmetics Act of 1938. Another specimen of this type of legislation is the Packers and Stockyards Act of 1921 and the Meat Inspection Act of 1907. Still a third specimen of what we may call here public welfare legislation having an effect on prices is the Securities Exchange Act of 1934. In this instance the requirement of full disclosure of facts regarding the securities offered for public sale manifestly has a direct bearing on the prices that can be obtained and at which securities will be offered to the public.

In a somewhat similar fashion the Federal Trade Commission Act by prohibiting in section 5 the employment of “unfair methods of competition” in trade has the effect of making the price decisions of those who are offering commodities and services in interstate trade more realistic, one may say less fictitious. For it has been held in a great many cases that misrepresentation of goods or of their qualities or of their prices is violative of the Federal Trade Commission Act,

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<sup>1</sup>The authors wish to acknowledge the editorial assistance of Rosalind Roth.

section 5. For example, the offer of rabbit fur as Siberian mink, which is one species of unfair misrepresentation, has the tendency to afford the producers and manufacturers of genuine mink fur an opportunity to price their products at a level more in accord with the actual facts. They are protected from the competition of fraudulently represented goods. Thus they may set their prices with greater assurance that their own—genuine—products may be sold at a price conforming to their merits. Again, the offer of goods or services at an alleged radical discount from the “established price,” or “normal price,” has likewise been held actionable misrepresentation under the Federal Trade Commission Act, where the alleged markdown is a false and misleading statement.

The foregoing examples illustrate the wide scope of regulation under the prohibition of unfair methods of competition in section 5 of the Federal Trade Commission Act. But, of course, in many instances specific statutes have been adopted which have a similar effect on the marketing of particular commodities or services. Thus the Meat Inspection Act of 1907, the Naval Stores Act of 1923, the Caustic Poisons Act of 1927, and the Wool Labeling and Fur Labeling Acts of more recent years, as well as the amendment to the Pure Food and Drug Act that extended it to cosmetics in 1938, have a similar impact on prices through their interdiction of fraudulent misrepresentation and their requirement of full disclosure of contents or composition.

It should be emphasized that none of these acts is designed to fix either the minimum or the maximum price that a private business enterprise may charge for its wares. Rather, their effect on pricing is to afford protection to the honest and upright producers of the goods in question, against fraudulent imposition by unscrupulous competitors. Thus under the Wool Labeling Act the manufacturer of genuine woolen products can price them without the danger of losing trade because of the invasion of his market by those who would sell their shoddy or falsely represented products as and for what they are not.

Statutes of this kind prevent spurious goods from being marketed as the “real article.” As, of course, the only conceivable object of offering the spurious goods is ability to sell them at prices substantially below the “real article,” and thus draw trade away from the producers of the real article, the effect is to fortify the pricing of the genuine article in accordance with its merits.

It would be impossible in a short exposition such as this to catalog all the different types of representation which have been outlawed under legislation for the protection of the public welfare. Perhaps the most common type of misrepresentation that gets into the official reports of the Federal Trade Commission and of the Food and Drug Administration is that in which claims are made of the efficacy of certain drugs or medicines to cure specific diseases or overcome certain physical handicaps. Eliminating from the market these specious claims of therapeutic potency clearly tends to protect the pricing of genuine remedies and professional services.

#### THE ROLE OF ANTITRUST IN PRICING

Turning now to the principal governmental measure affecting price relationships indirectly, the significance in this respect of the anti-trust laws is primarily negative, and was originally entirely so. In

other words, its implication was to determine how prices should not be fixed rather than to lay down a rule regarding how they should be fixed. Section 1 of the Sherman Act forbade the fixing of prices collusively. For two or more firms engaged in interstate commerce to agree upon prices that they should separately charge was deemed a conspiracy in restraint of trade. That rule has become so well established that it is now generally referred to as a per se violation of the Sherman Act for several competitors to agree upon prices. The two leading cases among hundreds that have established this doctrine are the Trenton Potteries case of 1927<sup>2</sup> and so-called Socony-Vacuum case of 1940<sup>3</sup>. These cases with many others before and since have conclusively established that no matter how desperate may be the economic situation of an industry, and no matter how benevolent and public spirited may be the motives of the group agreeing upon a common method of determining prices, or of "tampering" with prices, any action of that sort is inexcusable under the law. Furthermore as the Masonite (1942)<sup>4</sup>, the Gypsum (1948)<sup>5</sup>, the Paramount (1948)<sup>6</sup>, and other post-1940 cases have established, this prohibition cannot be evaded by the use of patents (or copyrights). Thus, it is illegal for the patent holder to license several competing manufacturers to "work" a patent or to produce a patented article—or competing exhibitors to publish ("show") a copyrighted picture—and authorizes them to sell the product solely upon specified terms. To the same effect is the Interstate Circuit case of 1939<sup>7</sup>.

Like all rules this one has its exceptions—or at least nominal exceptions. Two cases which appeared to countenance such a price-fixing arrangement were the Bement case of 1902<sup>8</sup> and the General Electric case of 1926.<sup>9</sup> While the rule those cases established has not been explicitly overruled, the decisions in the Gypsum (1948) and the Line Material (1948)<sup>10</sup> cases indicate that the Supreme Court has virtually abandoned the sanctioning of the use of patents to establish uniform prices in an industry. Perhaps the best exposition of the prevailing doctrine is to be found in Justice Douglas' concurring opinion in the Line Material case. He urged that the General Electric decision be overruled. But while a majority of the Court declined to take that stand they did invalidate the industrywide control of prices through patent licensing in that case. Referring to the General Electric decision, Justice Douglas declared that it—

sustained a price-fixing provision of a license to make and vend the patented invention \* \* \*. In that manner, the Court saddled the economy with a vicious monopoly. In the first place, this form of price fixing underwrites the high-cost producer \* \* \*. It is said in reply that he, the patentee, has that monopoly anyway \* \* \*. That is true. But what he gets by the price-fixing agreement with his competitors is much more than that. He then gets not a benefit inherent in the right of exclusion but a benefit which flows from suppression of competition by combination with his competitors \* \* \*.

Price fixing in any form is perhaps the most powerful of all inducements for abandonment of competition. It offers security and stability \* \* \*. It promises

<sup>2</sup> *U. S. v. Trenton Potteries Co.*, 273 U. S. 392.

<sup>3</sup> *U. S. v. Socony-Vacuum Oil Co.*, 310 U. S. 150.

<sup>4</sup> *U. S. v. Masonite Corp.*, 316 U. S. 265.

<sup>5</sup> *U. S. v. U. S. Gypsum Co.*, 333 U. S. 364.

<sup>6</sup> *U. S. v. Paramount Pictures*, 334 U. S. 131.

<sup>7</sup> *Interstate Circuit v. U. S.*, 306 U. S. 208.

<sup>8</sup> *Bement v. National Harrow Co.*, 186 U. S. 70.

<sup>9</sup> *U. S. v. General Electric Co.*, 272 U. S. 476.

<sup>10</sup> *U. S. v. Line Material Co.*, 333 U. S. 237.

high profits. It is therefore one of the most effective devices to regiment all industries \* \* \*. The prices charged by the regimented industry are determined not by representatives of the public, as in the case of electric, water, and gas rates, but by private parties who incline to charge all the traffic will bear."<sup>11</sup>

So severe is the judicial attitude toward such price fixing through patent pooling arrangements that in the United States Pipe and Foundry case<sup>12</sup> the Department of Justice was enabled to negotiate a consent decree which required that the patents involved should be forfeited, i. e., dedicated to the public. Moreover, a similar result has been reached in a number of other cases, including the leading one on this point: *Morton Salt Co. v. Suppiger* (1942)<sup>13</sup> The United States Pipe and Foundry consent decree went even further. It required forfeiture of the leased machines in the possession of the patent licensees. To similar effect was the consent decree in the Sand Spun Patents case,<sup>14</sup> but that decree also included a provision forbidding the exaction by the patent holder from the manufacturing licensee of—

a greater per tonnage or any other per unit royalty on any quantity of pipe produced than is provided for any *smaller* quantity. [*Italic supplied.*]<sup>15</sup>

This provision is aimed, of course, not so much at price discrimination as at support of the primary objective of the patent pool, viz, to limit supply and thereby help to uphold an agreed price level.

To the foregoing brief sketch of the development and implications of the antitrust rule forbidding collusive price fixing, two apparent exceptions may be noted. First, during a limited period traders have been permitted to fix prices under special circumstances. In the Chicago Board of Trade case (1918)<sup>16</sup> the establishment by joint action of the board's members of a rule requiring prices at the conclusion of one trading session to be adhered to in all transactions occurring between the close of one session and the opening of another was upheld. Similarly, in the Investment Bankers' case<sup>17</sup> the establishment by concerted action of a price minimum during the period of distribution of a new issue of securities was sustained. These two cases represent in effect a special application of the rule of reason in this matter of price fixing. Secondly, under the abnormal economic conditions that prevailed during the great depression in the thirties, the Supreme Court was prevailed upon to give its approval to a joint selling agency organized by the producers of a substantial part of the bituminous coal mined in the Appalachian region. The result of the joint sales agency would undoubtedly have been, had the project been carried out, to establish a single or uniform price—or, at any rate, price scale—on the product. Whether this decision, reflecting as it did a quite extraordinary emergency, would be followed in normal times is at least questionable. Aside from these two exceptions the per se doctrine applies to price-fixing combinations under all circumstances.

Judged from the standpoint of business practice, this rigid prohibition of price-fixing arrangements, agreements, or combinations, might

<sup>11</sup> Commerce Clearing House, Inc., Trade Cases, 1948-49, pp. 62, 289-290.

<sup>12</sup> *U. S. v. United States Pipe and Foundry Co.*, Civil Action No. 10772, in U. S. District Court for the District of New Jersey, consent decree entered July 21, 1948.

<sup>13</sup> *Morton Salt Co. v. Suppiger*, 314 U. S. 488.

<sup>14</sup> *U. S. v. Sand Spun Patents Corp.*, District Court of New Jersey, Civil Action No. 124-49, filed July 22, 1949.

<sup>15</sup> Commerce Clearing House, Inc., Trade Cases, 1948-49, p. 63, 353.

<sup>16</sup> *Chicago Board of Trade v. U. S.*, 246 U. S. 231.

<sup>17</sup> *U. S. v. Morgan*, Civil No. 43-757, District Court of the U. S. Southern District of New York.

be considered to have had some effect in the development of pricing methods in three different directions.

In the first place, there can be little doubt that price leadership has been fostered by the growing awareness among businessmen that they cannot overtly agree upon prices without risking legal penalties. The practice of price leadership appears to be fairly widespread. It signifies merely that one of the members of an industry, usually the largest unit in the trade, will fix prices independently and other members of the industry more or less informally, but nonetheless rigorously, adhere to the prices or price schedules thus established. The existence of such leadership in the steel industry was, in effect, conceded by the testimony of President Eugene G. Grace of the Bethlehem Steel Corp. before the Temporary National Economic Committee.<sup>18</sup> Likewise, for many years the American Woolen Co. set its prices on woolen goods at the beginning of each season, and by and large those prices were followed by its competitors. This situation was explicitly recognized in trade papers for a long while and though this particular arrangement appears to have disappeared with the subsidence of the prosperity and influence of American Woolen, there is reason to believe that similar situations are not uncommon in other industries.

In the second place, product differentiation through the utilization of trademarks and trade names to distinguish products that are essentially identical has become so well recognized a business practice as by now to pass almost unnoticed. The significance of product differentiation is that it enables the producer of an allegedly unique article to charge a price that is relatively independent of—i. e., virtually exempt from the patronage pulling power of the lower—prices at which substitute articles can be purchased. The substitutes may be equally suitable for the purpose for which they, as well as the allegedly unique article, are designed and may serve the consumer equally well. But if, through advertising, the consumer can be induced to believe that the trademarked article of one producer is superior to those of the producers of substitutes, then the product thus differentiated comes to occupy, in effect, a market all by itself. In other words, the producer of the trademark and differentiated product has a monopoly, to that extent. Yet the general policy of protecting the goodwill embodied in trade names and trademarks permits this means of escape from the Sherman Act prohibition of price fixing. From the practical standpoint it may be a very effective way to divide up the market among the several producers, each with his own differentiated product being relatively freed of competition.

In the third place, the prohibition of overt price fixing by collusion, or conspiracy in restraint of trade, has no doubt contributed in some measure to the development of what may be best described as price-conventional, or tradewide-customary, formulas. The best known type of such price formulas is that embodied in a basing-point system. If all the producers of a given commodity agree to sell their product as if it were produced at a single point, as was once the case under the Pittsburgh-plus system in the steel industry, or at 1 of 3 or 4 basing points (multiple-basing-point system), the form into which the Pittsburgh-plus system eventually evolved, and buyers are required to pay the

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<sup>18</sup> Investigation of Concentration of Economic Power, hearings before the Temporary National Economic Committee, pt. 19, November 6-10, 1939, p. 10592.

freight rate by rail from the basing point to the point of delivery, it means that all the buyers—or at least all those in a given region—will be charged an identical price from whomsoever they purchase the product.

The basing-point system was finally outlawed, as an industrywide pricing convention, in the Cement Institute case. There has been much discussion regarding whether it required all manufacturers to sell their products f. o. b. point of production. It is generally recognized now that no such broad condemnation was wrought by the Cement Institute case, notwithstanding the 4-4 decision of the Supreme Court in the Clayton Mark (Triangle Conduit & Cable) case,<sup>19</sup> thereby sustaining a Commission finding and a lower court ruling that individual use of a basing-point system constitutes an unfair method of competition. What the Cement Institute case did condemn, and what the courts have consistently interpreted it as condemning, as, for example, in the Staley and the Corn Products Refining cases, was the concerted use of arbitrary and artificial basing points and the quotation of identical delivered prices, through the use, in common, of an identical "freight rate book," without affording customers the opportunity to buy f. o. b. under any circumstances. The systems that the Supreme Court has condemned have all been of a pattern that eliminated the possibility of a customer gaining any advantages, in the way of lower transportation costs, by accepting delivery, or taking delivery, at the manufacturing plant by barge or truck and paying the transportation charges themselves incurred on such alternative transport media. (Nevertheless, Mr. Homer, president of Bethlehem Steel, testified before the Senate Subcommittee on Antitrust and Monopoly in 1957 that he could quote a competitive delivered price, but that his f. o. b. mill price had to be always identical to all customers.<sup>20</sup>)

It is apparent thus that the practical implications of the rule against the use of a basing-point price formula are still indeterminate. This is even more true with regard to other formulas such as those providing for freight equalization or for the zoning of sales territory. The latter, in particular, appears still to be used widely in many industries without as yet evoking antitrust prosecution. Yet from the standpoint of theory there can be no doubt that it results in discrimination, no less damaging to some customers than that inflicted by single or multiple basing-point systems.

It was against this very evil, price discrimination, that the Robinson-Patman Act amending the Clayton Act was aimed. In many cases its prohibitions appear to have been judicially interpreted to encompass not only price discrimination but price differentiation—which may itself be a manifestation of competition, and in fact frequently is, rather than of its suppression. Furthermore, the application of the act as it has developed administratively and judicially contains a *per se* doctrine with respect to the grant of a discount to buyers, or to any intermediary firm in which the buyer may have an interest.

However, the several qualifying clauses incorporated in the statute have saved it from the more economically debilitating effects it might

<sup>19</sup> *Triangle Conduit & Cable Co. v. FTC*, 69 Sup. Ct. 491 (1949).

<sup>20</sup> "Mr. HOMER. Under the Robinson-Patman Act, we are required to quote the same price to everyone on the same same product." Administered Prices, hearings before the Subcommittee on Antitrust and Monopoly, 1957, pt. II, p. 617.

otherwise have had. And for this salutary outcome the courts, rather than the Federal Trade Commission, are primarily responsible. Foremost among the effective qualifying provisions is that exempting price differences originating in an effort to "meet competition" and designed to that end. In the *Standard Oil of Indiana* case (1951 and 1958)<sup>21</sup> the position originally taken by the Commission, if sustained, would have virtually annulled the exemption. Under judicial review the decisions in that long-drawn-out proceeding sustained the company's contention that it granted the discounts to meet specific competitive offers and rejected the Commission's allegation that the discrimination was part of an industry pattern. But, the decision raises, without resolving, other difficult questions of the effect on business price policy of antitrust. While the original FTC position would, in effect, never have permitted discrimination to meet competition, the Supreme Court will apparently allow discrimination by a giant seller to meet the nondiscriminatory lower price of a tiny competitor. Since it is apparently permitted to meet local competition on a discriminatory basis, a large company now wields a powerful weapon against small rivals who might contemplate undercutting it. It is possible, therefore, that the *Standard of Indiana* decision may lead to greater rather than less price stability.

It is not so clear that the privilege of selling at different prices to different customers because of differences in the cost of manufacture, transportation, and delivery of the products has not been limited. The problems of cost allocation are so intricate that it is virtually impossible to establish a clear justification for price differences on this basis. However, this has been accomplished in 2 or 3 cases, most notably in the *Standard Brands* case.<sup>22</sup> Likewise, the privilege of quoting different prices because of differences in the grade or quality of goods delivered has been formally preserved, but whether administrative and judicial application of this qualifying clause will narrow the limits of the privilege remains to be seen.

In estimating the practical effect of the antitrust laws, and particularly of the Robinson-Patman Act, on actual business pricing policies, it may be suggested that it would be an intriguing study and a promising source of enlightenment to businessmen as well as students and administrators if a thorough survey were made of the experience of purchasing agents. After all, these are the men who come into direct contact with the pricing policies of their suppliers. A thorough investigation of the actual impact of the Robinson-Patman Act restrictions on pricing, as observed by purchasing agents operating in a wide array of product markets—as most of them do—should prove extremely fruitful.

Much the same indefinite conclusion must be recorded with respect to the practical significance of the Robinson-Patman Act authorization for the establishment of quantity or volume discounts in absolute terms. The only area in which the Federal Trade Commission has acted to effectuate this legislative policy is the rubber tire industry. How far its administrative determination of the per-

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<sup>21</sup> *Standard Oil Co. of Indiana v. FTC*, 340 U. S. 231 (1951), and *FTC v. Standard Oil Co.*, U. S. Supreme Court, Commerce Clearing House, Inc., 1958 Trade Cases, pp. 73671-73677.

<sup>22</sup> *FTC v. Standard Brands, Inc.*, 189 F. 2d 510 (1951).

missible limits of volume discounting may be upheld by the courts it is useless to speculate. It is significant, however, that the judicial attitude evinced in the Morton Salt case (1948)<sup>23</sup> toward such a standard of pricing gives little assurance of a realistic approach to the problem. The price difference for quantity sales, even for cumulative quantity discounts, in the Morton Salt case was extremely narrow. In that instance, the Supreme Court held that a discount of 10 cents per case, or of what amounted to one-half cent per conventional package of table salt, on carload purchases compared with the prices quoted to all buyers on less than carload purchases was discriminatory and violative of the Robinson-Patman Act. On this phase of the disposition of the case Justice Jackson registered a strong dissent. As he stated—

the discount is so small in proportion to price \* \* \* that I should think it farfetched even to find it reasonably *possible* that competition would be *substantially* affected.<sup>24</sup> [Italic in original.]

He noted that—

the evidence is that less than one-tenth of 1 percent of the respondent's total salt business fails to get the benefit of this carload-lot discount—

and added—

the Court uses overtones of hostility to all quantity discounts, which I do not find in the act, but they are translated into a rule which is fatal to any discount the Commission sees fit to attack \* \* \* The law of this case, in a nutshell, is that no quantity discount is valid if the Commission chooses to say it is not.<sup>25</sup>

It would appear, thus, in summary, that pricing discretion has been rather severely, and it appears in some respects unnecessarily, limited by the administrative application and adjudication of the Robinson-Patman Act. However, it must be recognized also that the application of the act has undoubtedly had a tendency to make business concerns more cautious in differentiating prices to different buyers, whether based on differences in the quality of the product, in the relative costs of manufacture and delivery, or in the condition of the market. So far so good. It must be recognized, however, that this caution is not something entirely new and unprecedented. Prior to the enactment of the Robinson-Patman Act, it had long been recognized, both in the courts and in ordinary business transactions, that price discrimination was something more than price differentiation. Price discrimination meant an invidious, that is to say a groundless, distinction motivated by some prejudice against one buyer or in favor of another. It represented, in short, undue and unjustifiable differentiation in the treatment of various customers. It would appear sound public policy to preserve that vital distinction.

#### RELATION OF CONSENT DECREES TO PRICING

We turn now to a sphere of governmental intervention in the marketing behavior of business enterprise that is based on the antitrust laws, taken collectively, yet is not technically sanctioned by those laws, to wit, the consent decree.

<sup>23</sup> *FTC v. Morton Salt Co.*, 334 U. S. 37.

<sup>24</sup> *Commerce Clearing House, Inc.*, Trade Cases, 1948-49, pp. 62475-62476.

<sup>25</sup> *Ibid.*

The settlement of antitrust cases by consent decrees has had a prodigious growth in recent years. The license it opens up to Government officials in prescribing the rules of business conduct is extraordinarily wide. The consent decree is a device for avoiding litigation, as the name implies. Litigation costs are heavy, and if the final outcome of an antitrust case goes against the defendant or respondent, it often has an extraordinarily adverse effect upon the victim's public relations. Accordingly, there is strong motive for seeking a settlement by consent. To obtain such a settlement, concessions are made on both sides usually, but especially on the side of the defendant.

It has often been pointed out that another factor which greatly magnifies the incentive for a defendant to "settle" an antitrust case by consent is the circumstance that, while the provisions of the decree may be comparatively onerous, it enables the defendant to escape the risk of having the outcome held against him in the event of a treble damage suit by private parties subsequent to the settlement. Since the Paramount case (1948), for example, there have been literally scores of treble suits instituted against the defendants, and in a great many instances the plaintiffs have collected substantial sums from the motion-picture companies involved. The obvious explanation of this deluge of litigation is, in large part, that the ruling, adverse to the defendants, in the Paramount case was available to the treble-damage suit plaintiffs (i. e., disaffected exhibitors) as prima facie evidence of the violations of the antitrust laws they were charging. On the other hand, the fact that a company has accepted a consent decree does not expose it thereby to the risk of having the activities on which the consent decree is based used as prima facie evidence of the imposition of injury on any private party, either competitor or customer.

For both the foregoing reasons, then, the consent decree has become a very popular method of disposing of antitrust cases. There is nothing wrong with that per se. What is questionable is the utilization of this leverage that is inherent in the position of the prosecutor in such proceedings to obtain what is, in some instances, a continuous supervision of the pricing and other minute details of the defendants' business practices.

The enormous scope and wide discretion that has been assumed by the Department of Justice in framing consent decrees in late years can only be illustrated here. It is a matter that is not well understood by the public generally and certainly deserves a most exhaustive investigation and scrutiny by some disinterested professional group. Take, for instance, the decree against United Fruit Co. which was entered as late as February 4, 1958.<sup>26</sup> This decree did not stop with forbidding United to acquire additional banana importing companies and requiring it to conform to well-established rules with respect to its relations with other banana importing companies. It went far beyond these measures that are clearly appropriate to the restoration and maintenance of competition in the trade. An example of the clearly appropriate type of provision is that which forbids United "to restrict, limit, or prevent the importation of bananas into the United

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<sup>26</sup> *U. S. v. United Fruit Co.*, U. S. District Court for the Eastern District of Louisiana, Civil Action No. 4560, Commerce Clearing House, Inc., 1958 Trade Cases, pp. 73790-73801.

States.”<sup>27</sup> To this provision are added, however, several qualifying clauses. One of them stipulates that—

United may include in any contract for the purchase of bananas provisions that require the grower to follow good agricultural practices such as the maintenance of regular treatment against diseases in areas where United maintains such regular treatment on its own banana cultivations. \* \* \*<sup>28</sup>

No mention is made of what may constitute “good agricultural practices.” The controversies that might arise over the interpretation of this phrase furnish an indication of how utterly futile it is for the Government to attempt to regulate business policies, closely related though they be to the pricing of goods in the market. It would seem to suffice in such a situation to have left the basic provision as quoted above intact and advisable to avoid cluttering up the applicable “law of the case” with such detailed stipulations as may lead to endless litigation and vexation of all parties.

Perhaps the most questionable provision in the United Fruit decree prohibits United from—

engaging anywhere in the United States, directly or indirectly, in the business of ripening, processing and selling bananas \* \* \*<sup>29</sup>

It is submitted there is nothing in the antitrust laws furnishing the slightest warrant for thus limiting the vertical integration of the defendant in this case. Obviously the provision is designed merely to protect the market of independent jobbers who buy the banana imports and become consignees of shipments thereof from the American tropics. There can be no doubt that from the long-run standpoint this provision is likely to operate as a bar to the reduction of banana prices to consumers. In a country that is supposedly committed by the anti-trust laws to the policy of maintaining freedom of enterprise in trade, this sort of provision is not only anomalous, it is completely anti-theoretical.

This specific provision of the United Fruit decree is only an echo, of course, of the restrictions imposed in the most famous consent decree of all, that entered in 1920 against the 5 major meatpackers.<sup>30</sup> In that decree they were forbidden from ever entering the field of distribution of dairy and grocery products. Under what specious reasoning any such limitation on the scope of their enterprise could be sanctioned, it is impossible to understand. Of course, the practical explanation is that the wholesale grocers had a voice in framing the decree through their intercession with the Department of Justice. Their interests were “protected,” much as a tariff may, by establishment of prohibitive rates, “protect” a manufacturer from foreign competition. But how any such provision serves the public interest, it is quite impossible to understand. There was no question in that case but that the ownership and operation of private refrigerator cars which were used for the distribution of meat would enable the packers also to distribute eggs and butter and other dairy products more economically, through utilizing space therein that could not be used for meats, than might have been done by small-scale shipments in refrigerator cars of third parties or in such facilities owned and operated by the dairy or grocery companies themselves.

<sup>27</sup> Commerce Clearing House, Inc., 1958 Trade Cases, p. 73795.

<sup>28</sup> *Ibid.*, p. 73796.

<sup>29</sup> *Ibid.*, p. 73795.

<sup>30</sup> *U. S. v. Swift & Co.*, 276 U. S. 311.

Again, with respect to the dissemination of information regarding the volume of supply of bananas that may be available from the American tropics for shipment to the United States, such as crop information and shipping means availability, the United decree imposes very drastic restrictions on the opportunity of United to conduct its business economically. In fact, this particular restriction can hardly fail to have a similar effect on all others engaged in the banana trade, forcing them to operate "in the dark." For the provision in question forbids United

to receive \* \* \* or disseminate \* \* \* information \* \* \* with respect to prices to be charged in the United States, or the current supply of bananas in the United States, or the amount of expected imports of bananas into the United States, or the supply of bananas currently available in the American tropics for importation into the United States; \* \* \*<sup>31</sup>

It is true that this provision is nominally limited to the dissemination of such information to "any competitor of United." But it is submitted that, since "dissemination" means to spread abroad, or distribute widely to the public, any disclosure of information of the sorts described above would be a violation of the decree, even if the "dissemination" were in the form of an advertisement, or in the form of a response to a questionnaire sent out by a trade journal in the field. For the information thus released could hardly fail to reach one or more of United's competitors, and, thus, constitute "dissemination" thereof to them, thereby violating the decree. In sum, this provision is designed to insure that competition in the banana trade shall be shackled by ignorance. There is not the slightest justification for any such provision, either in logic or in law.

Finally though the list of such features of the United Fruit consent decree might be extended almost indefinitely, one more provision may be mentioned here. United is required, in making any contract for the use of refrigerated space on vessels of common carriers, to include a provision enabling it to cancel, either in whole or in part, the space thus contracted for, "upon reasonable notice which shall not exceed 60 days."<sup>32</sup> The provision in question was included in the decree, it is explained, so that "in the event that another banana shipper makes written request to United for the release of the said refrigerated space \* \* \* for the carriage of his bananas over the routes served by the vessel, United is ordered and directed to cancel the said contract \* \* \*."<sup>33</sup> It appears, thus, that the pricing of bananas for consumers in the United States is to be made subject to a clear subsidy in favor of any banana importer who wishes to get a "free ride," so to speak, on United's ordinary commercial contract without taking the risk of a long-term contract to provide for refrigerated cargo space.

The almost unlimited scope of these consent decrees is even more clearly indicated by the Chrysler consent decree (1948)<sup>34</sup> concerning its relations with finance companies. That decree provided meticulous, detailed regulations of the terms and conditions on which a finance company might qualify for financing the car sales by Chrysler

<sup>31</sup> Commerce Clearing House, Inc., 1958 Trade Cases, p. 73797.

<sup>32</sup> *Ibid.*, p. 73798.

<sup>33</sup> *Ibid.*

<sup>34</sup> *U. S. v. Chrysler Corp.*, District Court of Indiana, Commerce Clearing House, Inc., 1948-49 Trade Cases, pp. 62255-62268; modified in 1953 Trade Cases, pp. 68208-68220, but not in regard to the minute regulation spoken of.

dealers. It will be remembered that these finance companies were not parties to the action. They were finance companies entirely independent of Chrysler or Chrysler dealers, but their mode of doing business was minutely regulated by the decree, nonetheless. The decree stipulated that, to become entitled to the benefit of the numerous provisions of the decree assuring equality of treatment of finance companies by Chrysler Corp. and its dealers in the financing of Chrysler cars, a finance company should be required to file a statement with the Chrysler Corp. agreeing that—

in acquiring retail time sales paper, arising from sales of automobiles, from dealers of the manufacturer, wherever located—

the “registered” finance company “will conform to the following rules.”<sup>35</sup> There followed a list of 11 rules by which the “registered” finance company agreed to abide.

Among these detailed conditions imposed on “registered” finance companies was one stipulating that it would conform to “the terms of any plan or plans of financing adopted by the manufacturer. \* \* \*”<sup>36</sup> The analogy of this arrangement to the implicit price-fixing agreement among retailers through a manufacturer’s exaction of resale price maintenance agreements from his customers, which the Supreme Court condemned in the *Dr. Miles Medical Co. v. Parks* case (1912),<sup>37</sup> is evident. It is true that this Chrysler consent decree provision did sanction, as an exception, the offer of terms “more favorable to the retail purchaser than the terms so specified,” yet the exception also stipulated that the “finance charge” imposed by the registered finance dealer might be “in excess of the finance charge specified in the plan so adopted or modification thereof, \* \* \*”<sup>38</sup> provided that the equivalent credit were granted the retail purchaser on the time purchase price of the automobile.

The point is that this Chrysler consent decree, as in similar circumstances so did also the Ford decree<sup>39</sup> regarding the same antitrust issue, projected the Government into the business management field to the extent of providing for a system of “registration” of finance companies wholly apart from, and independent of, any statutory regulation of these companies by the Federal Government and, beyond this, regulated in detail the terms and conditions on which such registered finance companies might do business. The impact of such decrees on pricing of finance company and insurance company services is perfectly clear.

It is true that in this instance (the automobile finance company cases), the detailed stipulations of business practice and, in fact, of price terms were primarily designed for the protection of consumer interests. In this respect it differs from the packers consent decree and the United Fruit consent decree, both of which imposed restrictions which obviously were designed primarily for the protection of other firms which might engage in business in competition, actual or potential, with those respective defendants. From the public policy standpoint there is no more justification, in the one case

<sup>35</sup> Commerce Clearing House, Inc., 1948-49 Trade Cases, p. 62258.

<sup>36</sup> *Ibid.*, p. 62259.

<sup>37</sup> *Dr. Miles Medical Co. v. John D. Park & Sons Co.*, 220 U. S. 373.

<sup>38</sup> Commerce Clearing House, Inc., 1948-49 Trade Cases, p. 62260.

<sup>39</sup> *Ford Motor Co. v. U. S.*, Commerce Clearing House, Inc., 1953 Trade Cases, pp. 68195-68206.

than in the other, for the intrusion of the executive department in business management, particularly with respect to pricing policy, and the assumption by the courts of a responsibility for directing in minute detail the ordinary management of these private business enterprises. For one of the most serious consequences of this whole development of consent decrees is the overloading of Government agencies with functions which they were not designed to perform and which they are clearly unqualified to discharge.

This inference is confirmed by the observations of the exceptionally sagacious judge who framed the decree in the recent United Shoe Machinery case.<sup>40</sup> Judge Wyczanski in that case showed a clear comprehension of the dangers of this trend toward projecting judicial authority into the affairs of business management.

He stated :

Nor does the decree attempt to deal with that feature of United's pricing policy which discriminates between machine types. To try to extirpate such discrimination would require either an order directing a uniform rate of markup or an order subjecting each price term and each price change to judicial supervision. Neither course would be sound. Some price discrimination, if not too rigid, is inevitable [rigid, meaning what? vicious?]. Some may be justified as resting on patent monopolies. Some price discrimination is economically desirable, if it promotes competition in a market where several multiproduct firms compete. [Does price discrimination in this sentence mean discrimination between products? And not between customers?] And while price discrimination has been an evidence of United's monopoly power \* \* \* its eradication cannot be accomplished without turning United into a public utility, and the court into a public utility commission, or requiring United to observe a general injunction of non-discrimination between different products—an injunction which would be contrary to sound theory, which would require the use of practices not followed in any business known to the court, and which could not be enforced.<sup>41</sup>

Then, after decreeing United must offer choice of sale or lease of machines, the judge continued :

The Government goes one step further and asks the court to require defendant to make its sales terms more attractive to customers than any lease terms it offers. \* \* \* If this court were to direct United to make its sales terms more favorable than lease terms, and to keep that discrimination effective every time that new terms were set, \* \* \* and every time that money rates changed in the financial world, this court would be creating administrative problems which would require its continuous judicial supervision. To avoid [these] difficulties \* \* \* it seems to the court sufficient to direct defendant, *if it offers any machine type for lease* [italic supplied], to set such terms for leasing that machine as do not make it substantially more advantageous for a shoe factory to lease rather than to buy a machine. Admittedly there is in this direction some flexibility. But defendant if forewarned \* \* \* the court after the entry of this decree may modify it. Thus the decree invokes a precedent not of Draco, but of Damocles. \* \* \*<sup>42</sup>

It will be observed that despite the clear recognition of the insuperable difficulties of administering business price relationships from a judicial bench—an indication of Judge Wyczanski's awareness of the limitations of his own wisdom and of the burdens imposed on a judge by his proper judicial role—nevertheless the judge assumed, in deference to the current trend, that he had to make some such provision covering the relationship of lease and sale terms. Accordingly, he stipulated that leasing terms must not be "substantially more advantageous" than sales terms. It will be left to him to decide by what

<sup>40</sup> *U. S. v. United Shoe Machinery Corp.*, 110 F. Supp. 295 (1953).

<sup>41</sup> *Commerce Clearing House, Inc.*, 1953 Trade Cases, p. 68192.

<sup>42</sup> *Ibid.*, p. 68193.

standard compliance with this provision will be determined. Indeed, one may question whether it is more convenient and less hazardous to do business under a Damocletian sword than subject to the rigor of a Draconian regulation—particularly if the Draconian regulation is applicable solely to a single firm among several doing business in a given field.

Nevertheless it is reassuring to find at least one judge who is conscious of the magnitude of the undertaking to regulate in detail the pricing policies of competitors in a free-enterprise system. Of course, this United Shoe Machinery decree was not a consent decree. But the International Business Machines consent decree included provisions requiring that the “sale price \* \* \* shall have a commercially reasonable relationship to the lease charges \* \* \*,” and also required IBM to offer to sell parts and subassemblies at reasonable and non-discriminatory prices.<sup>43</sup> The judges who presided when the consent decrees we have referred to above were filed were not responsible for the terms those decrees embodied. Responsibility for the terms of consent decrees rests solely in the executive department, specifically in the Attorney General’s office. It would be reassuring if those who negotiate these consent decrees for the Government were at least as conscious of the economic significance of the limitations they were imposing upon the defendants as was Judge Wyczanski in the United Shoe Machinery case. Thus, the Ohio Crankshaft Co. is obligated to harden crankshafts for all comers, on a per piece, term, or quantity basis “at such prices as may be lawfully established.”<sup>44</sup> Just how did the Government intend to supervise, and just what limits did it intend to set to, “lawfully established prices”?

The A. & P. decree, likewise, imposed certain standards on the company’s retail pricing which, to be properly enforced, would require constant supervision of thousands of prices and hundreds of officials.<sup>45</sup>

Perhaps it is in the patent cases that this issue most frequently arises and is most cavalierly dealt with. Patent consent decree “boiler plate” consists of provisions for the charging of a nondiscriminatory, reasonable royalty, and for appeal to the court, with notice to the Attorney General, if the defendant and its licensees are unable to agree upon terms.<sup>46</sup> There never seems to have been seriously considered the consequences of disputes between licensors and licensees. What constitutes a “reasonable royalty” for the exercise of a license under a patent is assuredly a most difficult matter to determine. It may be suggested that, where reasonable grounds exist for opening the patent to the use of “all comers,” the privilege should be royalty free. At least this would relieve the courts, and the Antitrust Division, too, of a burden for handling which, as we have contended, they are not fitted, either by training or experience.

Many provisions of consent decrees, as well as of decrees in adjudicated cases, which do not directly fix prices or affect pricing policy do

<sup>43</sup> *U. S. v. International Business Machines Corp.*, Commerce Clearing House, Inc., 1956 Trade Cases, p. 71123.

<sup>44</sup> *U. S. v. Ohio Crankshaft Co.*, Commerce Clearing House, Inc., 1956 Trade Cases, pp. 71445–71448.

<sup>45</sup> *U. S. v. N. Y. Great Atlantic and Pacific Tea Co.*, 1954 Trade Cases, pp. 69110–69115.

<sup>46</sup> See, e. g., among others, *U. S. v. IBM*, 1956 Trade Cases, p. 71127 XI (d) (2); *U. S. v. International Cigar Machinery Corp.*, 1956 Trade Cases, p. 71828, IV (d) (2); *U. S. v. Michigan Tool Co.*, 1956 Trade Cases, pp. 71304–71310; *U. S. v. Western Electric Co., Inc.*, 1956 Trade Cases, p. 71139; X; *U. S. v. Logan Co.*, 1956 Trade Cases, pp. 71634–71638; *U. S. v. General Railway Signal Co. et al.*, 1955 Trade Cases, pp. 70218–70224.

so indirectly by one or another of many different paths. For example, the terms of a decree may subsidize competitors as, in effect, was done in the United Fruit case. Again, by depriving defendants of the opportunity to compete in particular fields or to expand their business in specified directions, they operate to restrict supply in those fields. Hence the effect is to boost the price, or at least the long-run effect is to make the price higher than consumers would otherwise be required to pay. Certainly there can be little excuse for thus acting under the aegis of antitrust laws which are supposed to protect the public interest by fostering competition in the market.

#### CONCLUSION

In the foregoing review we have attempted to emphasize those aspects of antitrust adjudication and, in particular, of consent decrees entered without adjudication, that are most open to criticism. Of course, the major end of these decrees should never be overlooked. Their objective, which is the objective also of the decrees resulting from adversary proceedings, is to restore and foster competition. It is not to penalize the defendants. The penalties are prescribed by Congress and there is little excuse for administrative or judicial extension of those penalties. Although the provisions and the impact on industrial practice of mandatory decrees are somewhat less likely to involve price directives, or detailed instructions to managers, they have, nevertheless, too often imposed operating straitjackets upon management. The Alcoa decree, for example, included provisions under which the company was "enjoined and restrained from selling aluminum ingot for the fabrication of aluminum sheet or aluminum alloy sheet at higher than fair prices, if the fabricator of such sheet is thereby prevented from fabricating and selling aluminum sheet or aluminum alloy at a reasonable profit, provided that such fabricator is efficient, well equipped, and otherwise able to fabricate and sell such sheet on a fully competitive basis; and further enjoined and restrained from selling aluminum sheet and aluminum alloy sheet, both coiled and flat, at prices below its selling prices for aluminum ingot, plus the cost of manufacturing and selling such sheet."<sup>47</sup>

If the primary end constantly held in view by those engaged in enforcing the antitrust laws is vitalizing competition in the market, there will certainly be henceforth a radical revision of the standards governing the terms which are appropriate for inclusion in both consent and adverse antitrust decrees. We must face the realities. If enforced, these decrees calling for interference in the pricing process appear to be as inconsistent with the basic assumptions of the free market portion of our economy as they are with the administrative procedures evolved for the regulated sector. In the interest of efficient administration, and even more important, preservation of competition, it would seem the courts would be better advised to accept, and the Antitrust Division to insist upon, divestiture rather than elaborate control of pricing.

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<sup>47</sup> *U. S. v. Aluminum Company of America, et al.*, judgment on mandate against Aluminum Company of America, et al., U. S. District Court for the Southern District of New York, Equity 85-73, p. 18. (April 23, 1946.)



## THE EFFECT OF GOVERNMENT SPENDING PROGRAMS ON PRIVATE PRICE FORMATION

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The Government can exert an important impact on private price formation through its spending programs. As a major buyer of privately produced goods, it sets or strongly influences prices. As a seller of the goods it produces or buys, the Government affects the costs or prices of and demand for privately produced goods. Also, acting as a promoter, the Government reduces business costs and increases business demand by subsidizing private production, lending or otherwise making funds available, furnishing facilities, and aiding in the development of new products and new demands.

It is the purpose of this paper to analyze the various mechanisms through which governmental spending programs may affect the costs of business firms, the demand for their goods and services, and the prices they charge. It is not intended to compare the effectiveness or desirability of these mechanisms or to describe their operation in great detail. This study is focused on currently operating programs of the Federal Government.

### THE GOVERNMENT AS BUYER

The Federal Government has become by far the largest single purchaser of the goods and services produced by the private economy. In the calendar year 1956, 7 percent of the consolidated net sales of business firms were made to the Federal Government.<sup>1</sup> During periods of national emergencies, the percentage has been significantly higher.

As a result, changes in the aggregate of Government expenditures can affect the general price level of the economy. During a situation of relatively full employment, an increase in Government procurement would tend to raise prices, as a result of Government agencies bidding against private firms and individuals for existing resources. Similarly, Government transfer and other payments would tend to increase inflationary pressures under such circumstances by strengthening private demand.

However, a rise in total Government spending would ordinarily be expected to have little effect on prices when sufficient idle resources are available to meet the new Government demand. The major expansive effect would be on the output of the economy.

The precise effects of an increase in Government spending on prices and production would depend on the nature of the new Government disbursements, the composition of competing demands, the structure of the industries affected, and the impact on private expectations.

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<sup>1</sup> Survey of Current Business, July 1957, pp. 13-14.

Often, the mere knowledge that the Government is going to increase its spending significantly can set off a wave of private purchasing and an inflationary spiral well in advance of the actual governmental disbursements.<sup>2</sup>

The experience immediately after the outbreak of the Korean conflict serves as a case in point. Expectations that sharply expanded defense spending would bring higher prices and shortages led to immediate forward buying. The larger volume of consumer buying contributed to increased demand all along the line. Distributors' orders mounted as they attempted to maintain or build up stocks. Manufacturers' orders for raw and semifinished materials also rose substantially.

As a result, wholesale and retail prices rose sharply during the first few months of the conflict. However, total Federal expenditures remained relatively stable during the period and the rate of military orders placed did not rise significantly until the following year.

The price effects of a reduction in total Government spending would be analogous to those accompanying an increase in public outlays. During a period of relatively full employment, such a decline would tend to reduce general price levels or to dampen the tendencies for further increases, without much effect on total production. Under circumstances of less than full employment, a decline in Government expenditures could cause a reduction in total productive activity.

The aggregate approach, however, does not adequately convey the impact of Government purchasing on specific industries and firms. The following section of this report attempts to indicate such effects resulting from the operations of a number of individual Government programs.

In some instances, the Government has chosen to set the price at which it will buy specific commodities. In other circumstances, it influences the price because of its strong market position. In many cases, the Government buys on the open market and exercises no important influence on private pricing practices.

#### *Government-determined prices*

The monetary metals are prime examples of commodities which the Government will buy at a set price. The Treasury buys (and sells) gold at the fixed price of \$35 an ounce minus (or plus) a handling charge of one-fourth of 1 percent. As a result, the price of gold in the United States, and in the world market generally, fluctuates within the narrow range of \$34.9125 to \$35.0875 an ounce.

The Treasury buys newly mined silver from domestic producers at the fixed price of 90½ cents an ounce. However, it is not generally prepared to buy from foreign producers at that price and it sells silver at a price that may vary from the statutory buying price. Consequently, the market price of silver may be either above or below 90½ cents an ounce. In effect, the Treasury buying and selling policies establish a floor under the price of domestic output but have no such influence on foreign production or on accumulated stocks, nor do they determine a ceiling on the price of silver.

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<sup>2</sup> For a treatment of the timing of the economic impact of Government spending, see the writer's paper on *The Federal Government Spending Process* in Joint Economic Committee, *Federal Expenditure Policy for Economic Growth and Stability*, Washington, Government Printing Office, 1957, pp. 493-506.

Other important instances in which the Government determines prices of private output are also found in the raw-material field. These include both agricultural and mineral products, discussed below.

The Department of Agriculture, under the farm price-support program, supports the prices of a number of agricultural commodities. The so-called basic commodities—corn, cotton, peanuts, rice, tobacco, and wheat—are currently supported at between 75 and 90 percent of parity, depending on the Agriculture Department's estimate of the relationship of anticipated supply to anticipated demand. The support level progressively drops as the estimate of supply rises above expected demand (see table 1). In the case of tobacco, the support price drops below 90 only when marketing quotas are not in effect and have not been disapproved.<sup>3</sup>

TABLE 1.—*Determination of the level of price supports*

The level of support shall be not less than the following percentage of the parity price	If the supply percentage <sup>1</sup> as of the beginning of the marketing year is—			
	For tobacco, corn, wheat, and rice—		For cotton and peanuts—	
	Over	Not over	Over	Not over
90.....		102		108
89.....	102	104	108	110
88.....	104	106	110	112
87.....	106	108	112	114
86.....	108	110	114	116
85.....	110	112	116	118
84.....	112	114	118	120
83.....	114	116	120	122
82.....	116	118	122	124
81.....	118	120	124	125
80.....	120	122	125	126
79.....	122	124	126	127
78.....	124	126	127	128
77.....	126	128	128	129
76.....	128	130	129	130
75.....	130		130	

<sup>1</sup> The supply percentage for any commodity is the percentage which the estimated total supply is of the normal supply as of the beginning of the marketing year. The total supply is, generally speaking, the carryover at the beginning of the marketing year, plus the estimated production of the commodity in the United States during the calendar year in which the marketing year begins, and the estimated imports into the United States during the marketing year. The normal supply in the case of basic commodities is, generally speaking, the estimated domestic consumption, plus estimated exports, plus an allowance for carryover.

Source: U. S. Department of Agriculture, Price Programs, Agriculture Information Bulletin No. 135, Washington, Government Printing Office, 1957, p. 13.

The support of farm prices is provided through loans, purchase agreements, and purchases. Each of these devices provides price support at exactly the same level. As the loans are of a nonrecourse type, many analysts view them as merely a preliminary step to the eventual Government purchase of the commodities, rather than purely credit transactions. When the market value is less than the amount loaned, the borrower may choose not to repay the loan; he may surrender the product at the end of the loan period and be free from any obligation to pay the difference between the amount advanced and the market value of the product. Thus the loan is, in effect, a purchase commitment which establishes a price floor for the commodity.

<sup>3</sup> U. S. Department of Agriculture, Price Programs, Washington, Government Printing Office, 1957, p. 4.

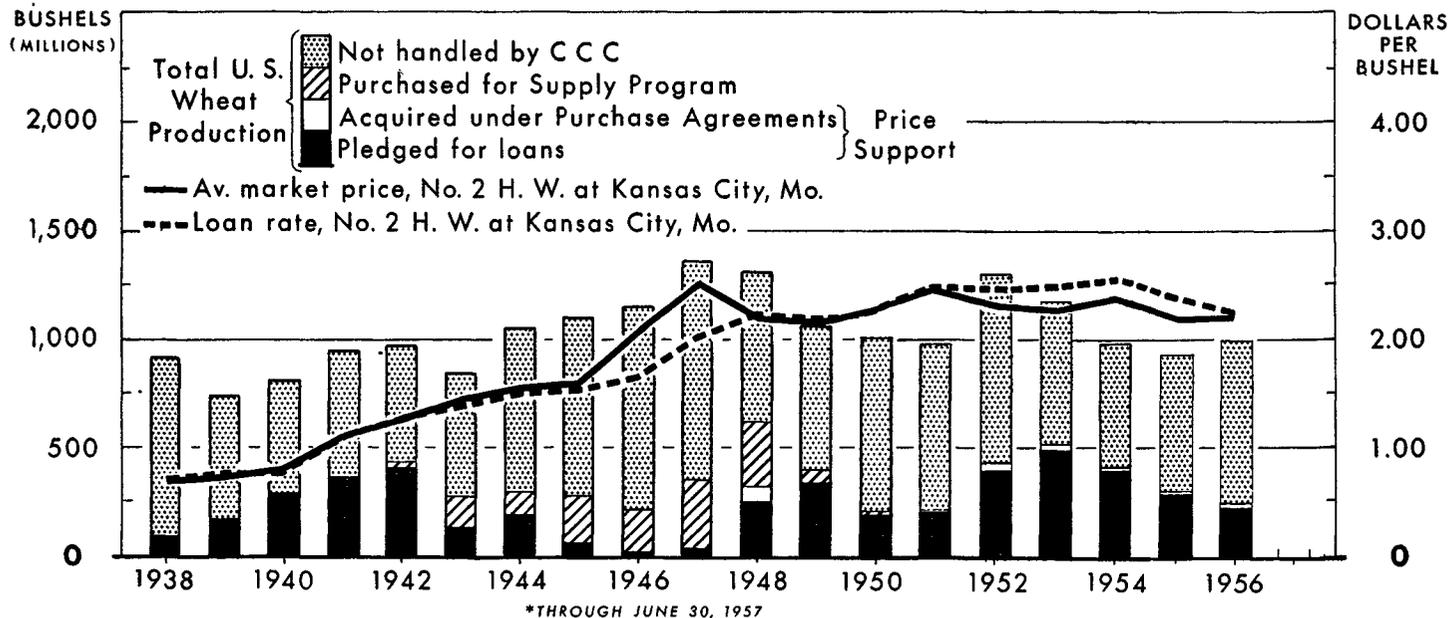
The essential difference between a loan and a direct purchase is that, in the former case, the farmer retains the opportunity to sell his commodities commercially if the market price is more favorable to him than the support price. A purchase agreement, on the other hand, provides a convenient form of price insurance for the producer who does not have an immediate need for cash or who is not able to meet the loan storage requirements.

Loans and purchases by the Government support prices in two major ways: (1) By providing farmers with a cash return at the support level, and (2) by strengthening market prices of the commodity through withdrawal of supplies from the market.

These programs also tend to adjust for seasonal factors in marketing. Farmers are ordinarily inclined to market their crops at harvest time, which sometimes makes for market gluts and lower prices. By giving farmers an opportunity to hold their crops without risk for later marketing, the price-support programs tend to spread marketing over the season, thereby reducing the magnitude of price fluctuations.

The farm price support program is a Government spending program with accompanying regulatory features. Farmers desiring to participate in price-support arrangements must abide by the acreage allotments and marketing quotas which are in effect for the commodity. When significant numbers of farmers do not participate in the program, the prices of supported commodities may fall below the support level. Figure 1 shows, for a typical commodity, the extent to which the actual price may be above or below the support level and the proportion of annual production which has been placed under price support.

FIGURE 1  
**WHEAT**  
**QUANTITY PLEDGED FOR CCC LOANS OR PURCHASED BY**  
**CCC BY CROP YEARS RELATED TO TOTAL U. S. PRODUCTION,**  
**AND COMPARISON OF AVERAGE MARKET PRICE**  
**AND LOAN RATE, 1938 TO DATE\***



Source : U. S. Department of Agriculture.

\*THROUGH JUNE 30, 1957

Price guaranties probably tend to expand agricultural output, particularly of supported items. They permit farmers to plan ahead with greater certainty and may result in increased long-term investment in agriculture. It is apparent that the price-support program has not contributed to any increase in the demand for farm products. To the extent that price elasticity exists, it would be expected that the program lessens demand; where prices would decline in the absence of the program, price-support payments prevent the rise in demand which would accompany the price reduction.

Under the Defense Production Act and related legislation, the Government supports the prices of a number of minerals as a means of encouraging domestic development. The Government has entered into contracts with mineral producers to purchase all or part of the entire output from a new source of supply at a specified price for a specified period of time. Generally, the producer has the option to sell his material on the open market (if he can obtain a price equal to or higher than the guaranteed price). However, the Government may call for certain quantities during the contract period. Aluminum, copper, nickel, fluorspar, molybdenum, titanium, and zinc purchase programs have operated in this manner.

In order to increase domestic production of such minerals as beryl, mica, mercury, and manganese, the Government has established fixed incentive prices available to all domestic producers.

Titanium furnishes an extreme example of the impact of Government procurement and related assistance on the price level and the very development of an industrial commodity. Government contracts with titanium producers generally provide that the Government will underwrite a market at guaranteed prices for the entire production of each contractor.

In addition to executing commitment-to-purchase contracts, the Government has advanced funds to contractors to finance the construction of titanium facilities and has underwritten the cost of research designed to improve production, reduce unit costs, and improve utilization of the material. The General Services Administration, the Federal agency administering the defense materials program, has stated that titanium "probably could not have been developed except with Government assistance."<sup>4</sup>

The Atomic Energy Commission has established "guaranteed fair" prices for various nuclear materials. Its price-guaranty policies for uranium anticipate a transition from a Government-controlled to a commercial market. The Commission has announced that it will terminate its guaranteed purchase price for uranium ore after March 31, 1962. Thereafter, until December 31, 1966, it will provide a guaranteed market for uranium concentrates produced commercially from domestic ore. A concentrate price will be guaranteed rather than an ore price since a concentrate is the primary product desired by private industry.<sup>5</sup>

Purchase programs of the AEC are thus a means of fostering private industrial capacity by creating a base load justifying plant

<sup>4</sup> U. S. Congress, Joint Committee on Defense Production, Progress Report No. 38, Washington, Government Printing Office, 1957, p. 35.

<sup>5</sup> U. S. Atomic Energy Commission, Twenty-third Semiannual Report, Washington, Government Printing Office, 1953, p. 433.

capacity and development effort which the embryonic atomic energy industry might not support alone.

*Government-influenced prices*

For a number of industries, the Federal Government is such a large customer that it may exercise an important influence on the price at which the firms sell. Military procurement of weapons is a striking case in point. In 1955, over 95 percent of the total sales of the 12 largest airframe manufacturers were to the Federal Government. Three-fourths of the firms reported that at least 99 percent of their sales were made to the Government.<sup>6</sup> As Professor Miller has stated:

. . . the services' purchase policy will inevitably be the principal determinant of the price and profit policies of such industries . . . market experience cannot serve as a guide.<sup>7</sup>

Of necessity, the competition within the aircraft industry is primarily related to design. By the nature of military requirements, there is maximum pressure upon the armed services to obtain the most advanced weapons. After mission requirements have been established for major weapon systems, engineering-design proposals are requested from qualified contractors. Such proposals are evaluated in terms of excellence of design, demonstrated production ability (including both quality and schedule attainment), costs, and other pertinent factors. For any given competition, different weights may be assigned to each factor, depending upon the urgency of the procurement and mission requirements.

Thus, military contracts are negotiated primarily with selected suppliers rather than awarded through public advertisement of bids. During the fiscal years 1951-55, military prime contracts with business firms for work in the United States totaled \$126.8 billion. Of this amount, contracts totaling \$111.3 billion were awarded on a negotiated basis.<sup>8</sup>

Military procurement officers can award a number of types of contracts to private business firms: cost with no fee, cost with fixed fee, incentive fixed price, and firm fixed price.

Under a "cost, no fee" contract, the contractor provides supplies or services at actual cost with no fee or profit. Such contractors are typically educational and related nonprofit institutions performing research.

Cost-plus-fixed-fee contracts are generally utilized on initial contracts, where experience in the production of the articles contracted for is limited and on contracts for research and development work by commercial establishments.

Under incentive contracts, target costs and profits are established at the inception of the contract or at specified times during the initial stages of performance. Upon completion of the work, the sales price to the Government is reduced by a stated percentage of any reduction in the target cost. The remainder of the cost reduction accrues to the

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<sup>6</sup> U. S. House of Representatives, Committee on Armed Services, Aircraft Production Costs and Profits, hearings before the Subcommittee for Special Investigations, Washington, Government Printing Office, 1956, p. 2725.

<sup>7</sup> John Perry Miller, Military Procurement in Peacetime, Harvard Business Review, summer 1947, p. 457.

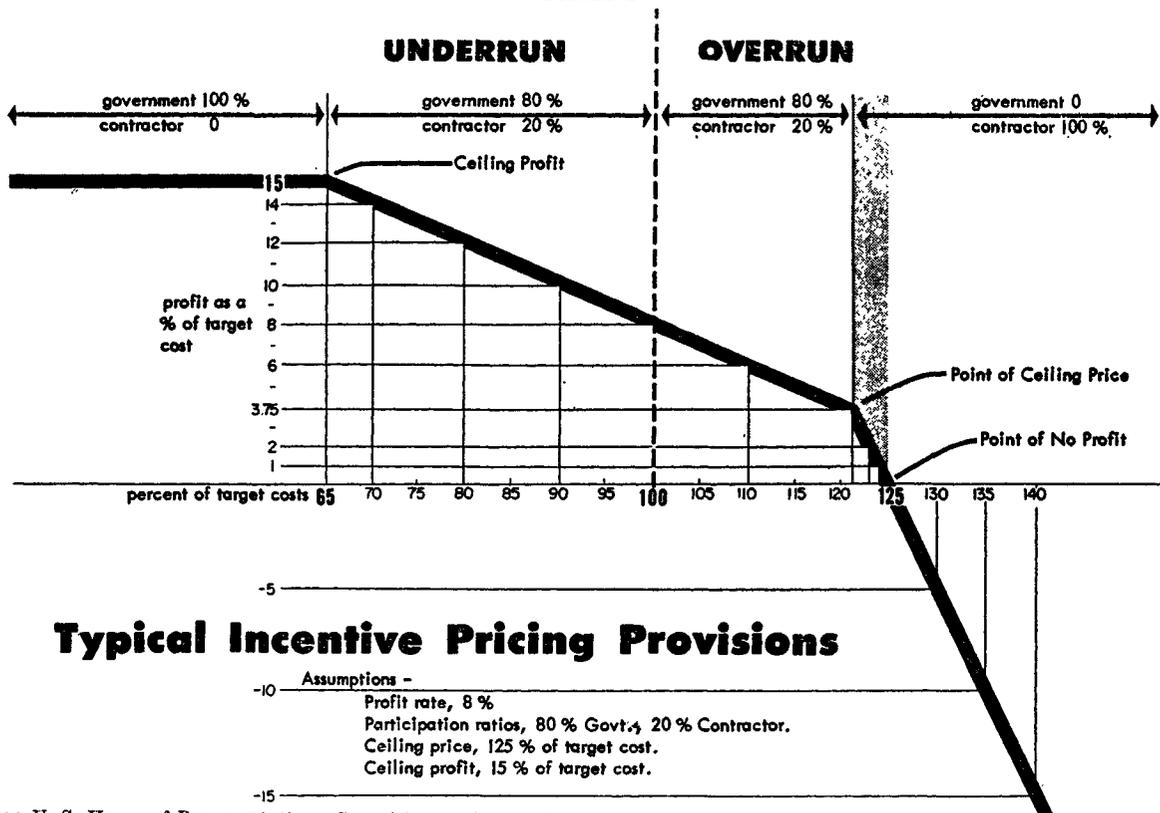
<sup>8</sup> U. S. Senate, Select Committee on Small Business, Government Procurement, 1956, Washington, Government Printing Office, 1956, p. 247.

contractor. If actual costs exceed target costs, a stated percentage of the excess is borne by the contractor and the remainder by the Government. Predetermined ceilings are also set on the final contract price and on the contractor's profit. Chart 2 shows the operation of an incentive contract.

Under the firm-fixed-price contract, supplies are furnished at a specified firm price with no provision for adjustment. An example is the procurement of a follow-on order of aircraft in which experience has been gained to the point where an acceptable firm price could be determined.

The initial prime contractor, having already accomplished basic engineering and tooling, has a substantial advantage in pricing follow-on procurement. Likewise, after producing an initial quantity, he can take advantage of the savings possible from quantity production. These advantages are so great as to preclude the possibility of meaningful competition for follow-on quantities.

FIGURE 2



Source : U. S. House of Representatives, Committee on Armed Services, hearings on air

The Government uses the "learning" or "improvement" curve as a test to analyze the reasonableness of follow-on production costs. Hence, aircraft manufacturers generally use the curve in forecasting costs for contract proposals. The "learning curve" is a method of determining the decreasing man-hours required to perform any repetitive operation as the operation continues. According to learning curve theory, the time required to do a job will decrease each time that job is repeated; the amount of decrease will decline by a given ratio.

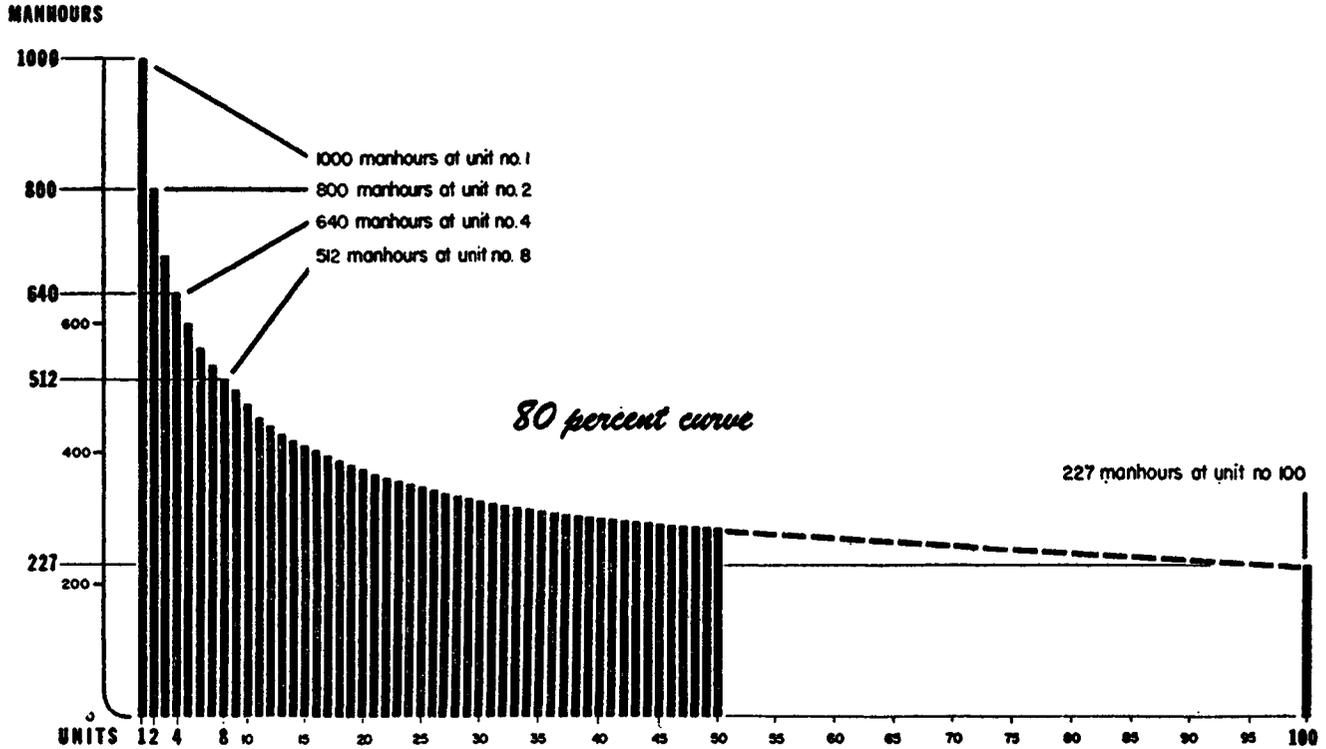
For example, on an 80-percent learning curve, if 10 hours are required for the first unit, the second will require 8 hours, the fourth 6.4, and so forth. Chart 2 shows a hypothetical learning curve. The 80-percent ratio is based on the experience of the aircraft industry during World War II.

The program of stockpiling strategic and critical materials is another instance of the Government buying a significant share of an industry's output and, oftentimes, affecting the general sales price of the commodity. For example, the stockpile takes all strategic mica produced in the United States today and will continue to do so until December 1962. Under this program, the Government has also acquired substantial amounts of 75 other materials. One observer contends that contracts for the stockpile have sometimes been above the market price to encourage greater output and, in some cases, have tended to raise the general price level of the minerals involved.<sup>9</sup>

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<sup>9</sup> Robert L. Hubbell, *Hidden Subsidies in the Federal Budget*, *National Tax Journal*, September 1957, p. 223.

FIGURE 3  
**'LEARNING' or 'IMPROVEMENT' CURVE**



Source: U. S. House of Representatives, Committee on Armed Services, hearings on Aircraft Production Costs and Profits, 1956, p. 1766.

During times when the materials being stockpiled are in short supply in the private economy, the Government has permitted scheduled deliveries to be diverted to private customers, thus reducing the pressures for price increases. Similar adjustments have been made in purchases under the Defense Production Act.

During the first 6 months of 1957, about 3 million pounds of molybdenum were diverted to industry because of tight world market conditions. The extent to which similar diversions (and outright sales) could be made in the future may be seen from the fact that 62 other materials in the stockpile are equal to or in excess of current "priority level" objectives. Items in this category include aluminum, asbestos, cobalt, copper, fluorspar, lead, manganese, mercury, nickel, natural rubber, tin, tungsten, and zinc.<sup>10</sup>

It should be noted that for many types of standard industrial products the Government seldom buys a sufficient quantity to make it a dominant factor in the market. In one of the most comprehensive studies of Federal purchases of nonmilitary goods, Dickson Reck concluded that such sales to the Government also have little influence on the prices quoted to other customers.<sup>11</sup>

Private firms often pursue a policy of selling commercial products to the Government at comparatively low prices during slack periods and bidding at high prices at other times. The Government is looked upon as a special buyer who does not become a "steady" customer. Government contracts do not establish precedents for the prices which other buyers consider to be "fair". A low bid for one contract followed by a higher bid for another would not prejudice the supplier's relations with the Government.

The cost of selling standard items to the Federal Government may be relatively lower than to other customers because the sealed bid practice involves a minimum of sales effort and advertising. Furthermore, no credit risk is involved in such sales.

#### *Government-induced standards*

As an important employer of labor, the Government determines the wage rates and working conditions of a sizable part of the labor force. In specific industries, the Government is a major factor, while in others it is quite minor. Table 2 shows that, in 1940, government employees (State and local as well as Federal) constituted over one-third of all shipbuilding workers, two-thirds of education workers, but only 1 percent of those engaged in manufacturing and less than one-third of 1 percent of those in agriculture. In many industries, the percentage of workers employed by governmental units probably has risen in the intervening period.

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<sup>10</sup> Office of Defense Mobilization, *Stockpile Report to the Congress, January-June 1957*, Washington, Government Printing Office, 1957, pp. 2, 9.

<sup>11</sup> Dickson Reck, *Government Purchasing and Competition*, Berkeley and Los Angeles, University of California Press, 1954, p. 181.

TABLE 2.—*Industrial distribution of Government employment, 1940*

[Government workers as percent of total workers in the industry]

<i>Industry</i>	<i>Percent</i>
Agriculture-----	0.3
Forestry and fishery-----	22.0
Mining-----	0.4
Construction-----	16.7
Manufacturing-----	1.1
Printing and publishing-----	(1.0)
Iron and steel products-----	(3.2)
Ship and boatbuilding-----	(36.2)
Apparel and accessories-----	(2.4)
Other-----	(0.1)
Transportation, communication, and utilities-----	5.2
Street, railway, and buslines-----	(7.6)
Water transportation-----	(5.6)
Utilities-----	(23.9)
Other-----	(0.5)
Wholesale and retail trade-----	.2
Banking and other financial-----	3.0
Insurance and real estate-----	.3
Business and personal services-----	.1
Amusement and recreation-----	2.4
Professional and related-----	43.7
Education services-----	(78.2)
Medical and other health-----	(21.4)
Charitable and related-----	(4.1)
Other-----	(0.3)
Government-----	100.0
Other-----	3.1
<b>Total-----</b>	<b>8.5</b>

Source: Solomon Fabricant, *The Trend of Government Activity in the United States Since 1900*, New York, National Bureau of Economic Research, 1952, pp. 174-175.

The Federal Government, at times, has tended to set standards in the labor market. For example, its role in establishing an 8-hour day for its employees tended to make the Government a model employer during the 19th century.

The Government also sets certain labor standards for the work on the contracts it lets. The Walsh-Healey Act requires that every Federal supply contract in excess of \$10,000 include stipulations calling for (1) the payment of no less than prevailing minimum wages "for persons employed on similar work or in the particular or similar industries or groups of industries currently operating in the locality," as determined by the Secretary of Labor, (2) overtime pay at the rate of time and one-half for hours worked in excess of 8 a day or 40 a week, (3) restrictions on child labor and convict labor, and (4) minimum safety and health standards.

#### THE GOVERNMENT AS SELLER

Through changes in the volume of goods and services it sells to the public, the Government can affect the aggregate level of prices. For example, sales of commodities from Government stockpiles during a period of shortages can dampen or prevent price rises. Conversely, the Government can support the general price level during a period of surpluses by halting or reducing the level of its sales of commodities to the public.

In a more specific way, the Government may affect the cost of business firms, the prices they charge, and the demand for their output by its own pricing policies on the items it sells. In addition, intragovernmental sales reduce the Government's demand for private production.

*Government sales to the public*

Under a large number of programs, the Federal Government produces or buys goods for sale to private purchasers. For some of these programs, the Government establishes unilaterally the prices at which it sells and, hence, determines the cost of these items to private industry. To the extent that these Government prices are below comparable commercial rates, an element of subsidy is involved and private sales may be diminished and the allocation of resources may be influenced.

Sales to the public of materials and services which the Government itself produces are many and diversified. Some of the better known include materials provided by the Atomic Energy Commission, power from the Interior Department projects, publications of the Government Printing Office, and mail delivery by the post office. In other cases, the Government may sell commodities which it has previously purchased from private firms, such as mineral and agricultural commodities.

The post office is, of course, a Government monopoly where the price is set unilaterally by the seller. Rates are determined by the Congress as a matter of public policy, rather than in direct relation to cost or other market factors. An exception exists in the case of parcel post, which is the one major element of postal service that is competitive with private enterprise. In this area, the post office rates are subject to the approval of the Interstate Commerce Commission, as is true for the competing commercial trucking companies.

The Government Printing Office is one of the major publishers in the United States, printing and distributing over 100 million books, pamphlets, and other publications a year. The literary output ranges from the perennial best sellers on infant and child care to works on American history and geography, language instruction, home economics, recreational activity, and scientific studies.

The prices of GPO publications generally cover variable or incremental costs only, such as ink and paper, plus a markup. Fixed costs (preparation of copy and setting up of type) are borne by the agency originating the document.

As an adjunct of its surveying activities, the Federal Government is a major mapmaker. The Geological Survey, the Coast and Geodetic Survey, and many other agencies prepare various types of maps and charts which are used by the general public, by scientific and professional personnel, and by private mapmaking establishments. In this area, also, the prices charged do not cover the full cost of preparation. The charges made by Government agencies are usually limited to incremental costs. The allocation of joint costs between governmental and private users would, of course, be a difficult task.

Some governmental sales activities are designed to make the results of research and development available to the public. Radioisotopes are sold by the Atomic Energy Commission to private business firms. These radioactive byproducts of atomic energy activities are used in the cigarette, oil, paper, and other industries, primarily as density, thickness, and related gages. The annual reduction in business costs arising from the use of radioisotopes has been estimated to be between \$296 million and \$486 million a year and to be rising steadily.<sup>12</sup>

In addition to affecting the costs of the private purchasers of goods and services from the Government, governmental pricing policies may influence the pricing policies of private firms producing the same or similar goods and services. Such an effect is provided by the operations of the Tennessee Valley Authority.

A former chairman of the TVA has pointed out that a short time after TVA announced low rates for the power it sold, the neighboring private utilities of the Southeast followed suit by making large reductions in their own rates. Use of electricity in the area increased significantly.<sup>13</sup> The geographic relationship between power prices in the Tennessee Valley region and other regions in the United States is shown in figure 4.

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<sup>12</sup> U. S. Congress, Joint Committee on Atomic Energy, hearings on Development, Growth, and State of the Atomic Energy Industry, Washington, Government Printing Office, 1957, p. 78.

<sup>13</sup> David E. Lillenthal, *TVA: Democracy on the March*, New York, Harper & Bros., 1944, p. 22.



There has been considerable controversy over whether TVA's power rates involve an element of subsidy, inasmuch as part of its facilities can be charged off to flood control. When governmental production is supported by tax revenues, there may occur, in addition to any displacement or curtailment of private enterprise, an increase in business costs resulting from taxation to cover the subsidy.

Federal power programs also involve an element of choice among prospective buyers. Preference clauses on Federal power projects require that States, counties, municipalities, and cooperative organizations be given first choice. As a result, the bulk of federally produced power available to non-Federal users is purchased by publicly owned power systems.

Moreover, under its "sole-supplier" clause, TVA requires all of its regular utility customers to take their entire supply from its facilities. Such requirements prevent the distributors from constructing generating facilities of their own. As a result, only two small privately owned utilities distribute TVA power; the bulk is handled by 149 local public agencies.<sup>14</sup>

An important but indirect effect on private costs may occur when the Government markets public debt securities. The Federal debt comprises such a substantial portion of the total debt of the economy that the interest rates paid by the Treasury affect the cost of private borrowing. However, the market influences the rates at which Treasury securities are sold. This is a relationship which is more closely affected through monetary policy than through fiscal policy.

*Governmental provision of goods and services for Government use*

The Government itself produces much of the goods and services that it requires for its own operations. To the extent that these requirements could be met from private sources, the demand for private production is reduced.

A recent inventory of commercial-industrial activities which the Federal Government conducts to provide goods and services for its own use indicates the wide variety of such operations. It was reported that 19,321 installations were being operated with capital assets estimated at \$2,990 million and 266,000 employees. (See table 3.) No data were reported on the value of production at these installations.

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<sup>14</sup> Budget of the U. S. Government for the fiscal year ending June 30, 1958, Washington, Government Printing Office, 1957, p. 88.

TABLE 3.—Commercial—Industrial activities of the Federal Government, fiscal years 1954–55

Type	Number of installations	Capital assets	Number of employees
<b>Agriculture, forestry, and fisheries:</b>			
Farms.....	82	\$8,950,077	489
Forestry and other.....	35	2,353,954	295
Subtotal.....	117	11,304,031	784
<b>Mining.....</b>			
Contract construction.....	11	2,369,561	34
Manufacturing:	981	160,249,555	22,888
Ordnance and accessories.....	36	657,795,846	46,447
Food and kindred products.....	195	4,848,457	592
Textile mill products.....	3	4,490,967	815
Lumber and wood products.....	85	9,760,859	3,866
Chemicals and allied products.....	42	24,391,649	547
Primary metal industries.....	21	13,200,198	536
Fabricated metal products.....	24	19,420,537	1,131
Machinery (including electrical).....	21	10,260,571	861
Transportation equipment.....	24	1,528,771,429	118,543
Miscellaneous.....	211	19,244,883	5,220
Subtotal.....	662	2,292,185,396	178,558
<b>Transportation, communications, and other utilities:</b>			
Trucking and warehousing.....	4,753	308,043,018	5,511
Water transportation.....	49	9,470,424	273
Transportation by air.....	154	3,354,592	137
Telecommunications.....	714	20,661,748	713
Utilities and sanitary services.....	366	24,824,360	602
Miscellaneous.....	25	1,740,496	84
Subtotal.....	6,061	368,094,638	7,320
<b>Wholesale and retail trade.....</b>			
Finance, insurance, and real estate.....	311	20,029,032	1,406
Service:	328	10,523,169	1,230
Personal service.....	309	34,322,437	4,697
Miscellaneous business service.....	8,932	21,544,668	32,344
Automobile repair.....	498	13,643,356	4,154
Miscellaneous repair.....	216	18,165,934	4,339
Radio and television.....	14	16,527,899	143
Medical and other health.....	52	4,007,062	403
Education.....	43	2,231,729	175
Miscellaneous.....	691	14,911,268	8,020
Subtotal.....	10,850	125,354,353	54,275
Total <sup>1</sup> .....	19,321	2,990,109,735	266,521

<sup>1</sup> Includes 357 military installations valued at \$2,229,454,160, employing 169,677 personnel.

Source: U. S. Bureau of the Budget, An Inventory of Certain Commercial-Industrial Activities of the Government, Washington, 1956, tables II and IV.

The bulk of investment in such Government installations is in 357 military units. Navy shipyards account for more than \$1.5 billion of the assets reported and for 113,000 of the civilian employees shown. The manufacturing of ordnance and accessories, largely by the Army, accounts for over \$650 million of the capital assets and for more than 45,000 civilian employees.

The next largest category in terms of capital assets and employees and the largest in terms of number of installations is transportation, communication, and other public utilities. The major item in this category is grain storage bins for the Commodity Credit Corporation. The General Services Administration also has a large investment in storage facilities, primarily for the stockpiling of strategic and critical materials.

Other major types of civilian production carried on by the Federal Government include construction by the Corps of Engineers and TVA, custodial work performed at post offices and other Government buildings, Veterans Administration laundries, radio broadcasting

facilities of the United States Information Agency, helium plants of the Bureau of Mines, shipyards of the Coast Guard, and work of the Federal Prison Industries, Inc.

It is difficult to determine the extent to which goods and services produced by these Government enterprises would be made available by private industry at the times and locations and of the types required. From time to time, representatives of private industry have claimed that adequate private facilities do exist. One such example was furnished in the field of transportation:

Privately owned common carriers have observed that there is a tendency on the part of \* \* \* the Federal Government to purchase transportation equipment to move their own goods and personnel instead of using the services of presently available privately owned for-hire carriers.<sup>15</sup>

#### THE GOVERNMENT AS PROMOTER

In addition to affecting private price formation directly through its market actions as buyer and seller, the Federal Government can exert an important influence through other programs. Governmental expenditures for subsidies, loans, facilities for use by business firms, and developmental purposes all can reduce costs of business firms, increase the demand for their output, or otherwise affect their price policies.

#### *Subsidies and related payments*

Some of the types of Government spending programs discussed above may involve elements of subsidy to business firms and agricultural units. These include governmental purchases of commodities at higher than market prices and sales at lower than commercial rates. In contrast, this section covers governmental transactions which are neither purchases nor sales but which are designed to influence private production, investment, and price decisions. Federal subsidy programs include payments to marginal high-cost producers to obtain increased production as well as across-the-board payments to all producers of the subsidized commodity.

A major category of Federal subsidies is in the form of payments to farmers for following a prescribed course of action, often one which they would not pursue in the absence of the Government payments. The agricultural conservation program (ACP), the disposal of surplus agricultural products, the Sugar Act program, the wheat-agreement program, and the soil bank are representative programs in this category.

Under the ACP, the Agriculture Department pays a cooperating farmer a portion of the cost of various types of conservation practices. A major part of the funds has been spent for materials and practices that raise current production, such as fertilizers and cover crops. Some of the payments also cover reforestation, reseeding of depleted ranges, and building storage dams and reservoirs. To the extent that the participating farmers would not engage in conservation practices in the absence of these payments, the ACP program affects investment and production patterns of agriculture.

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<sup>15</sup>Transportation Association of America, *Sound Transportation for the National Welfare*, Chicago, 1953, p. 71.

The Agriculture Department encourages the export of wheat by paying exporters the difference between the selling prices prevailing under the International Wheat Agreement and the domestic market price of wheat. The Commodity Credit Corporation announces daily rates of export payments. Knowing the payment rate, American exporters can sell within the agreement-price range to importers in countries with an open-agreement quota.

The Sugar Act program is another instance of Government spending being utilized to effectuate regulatory activity. Payments are made to producers who abide by the marketing allotments established for sugar beets and sugarcane. Qualifying farmers must also pay wage rates no less than those determined by the Secretary of Agriculture to be fair and reasonable and must abide by restrictions on the use of child labor.

The program for the disposal of surplus agriculture commodities is devoted principally to perishable farm products not receiving direct price support. Subsidy payments are utilized to encourage the sale of these surplus commodities. Export subsidies are paid to cover the difference between the domestic prices and lower world prices. Diversion payments enable processors to purchase surplus commodities on the domestic market, direct them to byproducts and new uses, and sell them at lower prices comparable to those of competing products.

Under the soil bank program, farmers are paid to reduce certain types of agricultural production. Farmers who enter into contracts with the Agriculture Department for removing cropland from production and establishing long-range conservation practices receive payments for instituting the practice and annual payments for the duration of the contract. Farmers who reduce their acreages of the basic commodities below acreage allotments are compensated under the acreage reserve program.

Another area of private production subsidized by Federal payments is mining. Under the Defense Production Act, the Federal Government made subsidy payments to producers of aluminum, copper, and zinc. Copper and zinc subsidies were paid to keep in production those marginal mines which would have gone out of production as a result of increased costs and fixed ceiling prices. Subsidy contracts were terminated on removal of copper and zinc from price regulation in 1953. The aluminum subsidies covered the high cost of supplying power to the marginal facilities reactivated during the mobilization period.

Governmental subsidies are also paid to private firms in the transportation field. The Federal Maritime Board encourages the maintenance and development of the American merchant marine by subsidizing domestic ship construction and ship operation. Construction and operating-differential subsidies are paid to cover the differences in the relative costs of building and operating ships in the United States and in foreign countries.

The Civil Aeronautics Board fixes rates for the transportation of airmail to promote the development of air transportation, the postal service, and the national defense. To the extent of the carriers' needs, some of these rates include an element of subsidy. Since 1953, the subsidy has been charged directly to the CAB, rather than to postal funds.

All of the domestic trunk lines and certain international routes are currently operated without benefit of subsidy. Local service, heli-

copter, and territorial operations, however, are still receiving subsidy. Historically, these subsidies have had a key role in establishing the commercial airline industry.

### *Loans and loan guaranties*

The Government may affect business costs and the allocation of resources through its credit programs. Where Federal credit is provided to business firms at less than commercial rates, the interest expense of the recipients is reduced. To the extent that the Government provides credit to firms which would otherwise be unable to obtain credit, the recipients may be enabled to undertake various investment or operating activities they would otherwise have to forego.

The Rural Electrification Administration has been lending to cooperatives at 2 percent, a rate considerably below commercial rates for money of comparable term. In reducing the cost of loanable funds, the REA thus encourages investment in agriculture. The Farmers Home Administration makes loans to farmers who otherwise would be unable to obtain credit. By law, emergency crop and feed loans by the FHA are limited to marginal borrowers—farmers “who cannot obtain loans from any other source.”

In contrast, the Farm Credit System was organized to set standards for interest rates, terms, and credit services for farmers generally. The Federal land banks, one of the constituent agencies, introduced long-term amortized loans to farmers on a nationwide basis. This did away with frequent, costly, and uncertain renewals which had characterized most farm mortgage lending previously. At times, the land banks have led the field in adjusting interest rates downward. One observer claims that long-term interest rates to farmers are at least one-half of 1 percent lower than would be the case in the absence of the land banks.<sup>16</sup>

Federal credit programs have also been important in the residential housing area. Primary emphasis, however, has been placed on guaranties of private loans rather than on direct lending of Federal funds. Although it can be more liberal with guaranties than with direct loans, the Government has more control over the timing and volume of direct lending than over guaranteed private lending.

For example, in a situation of tightness in the money market, the Federal Government can liberalize the conditions under which it will guarantee private loans but it cannot compel private lenders to lend funds for specific purposes or to specific borrowers. In contrast, under such economic conditions, the Government can increase the volume of its own lending for the same purposes. Within the limits of available lending authority, it would be the prospective eligible borrowers rather than lenders who determine the volume of lending operations in such cases.

However, programs of Federal guaranties of private lending can have important leverage effects on the economy beyond the direct influence on the flow of funds. The guaranties of residential mortgages by the Veterans Administration and the insurance of residential mortgages by the Federal Housing Administration have had such effects.

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<sup>16</sup> Murray R. Benedict, *Can We Solve the Farm Problem?* New York, Twentieth Century Fund, 1955, p. 152.

These programs have stimulated the construction industry, increasing the willingness of builders to undertake construction by reducing the equity required to invest in projects and by raising their expectations as to the salability of the final product. These programs also have increased the willingness of lenders to invest in mortgages and thus to supply investment funds and have helped to increase the demand for housing loans. Federal housing credit programs may thus be interpreted as efforts to raise the proportion of resources devoted to housing construction above the level that would be obtained from the interplay of market forces.

In expanding the demand for housing, these programs often resulted in increases in prices of building materials and existing houses. Possibly more important has been the effect of these governmental credit aids on the nature of the mortgage instrument. As the Government has assumed much of the risk involved, short-term, nonamortized first mortgages have given way to relatively long-term mortgages with high loan-to-value ratios and regular amortization payments.

Federal guaranty programs can also be accompanied by regulatory aspects. VA loan guaranties, for instance, are only made in those cases where the purchase price does not exceed the value of the property as fixed by the approved appraiser. Thus, the guaranty activity has had a direct effect on the pricing of a substantial portion of the output of the housing industry.

For some specialized housing programs, primary emphasis has been given to direct lending. The Housing and Home Finance Agency provides loans at  $2\frac{3}{4}$  percent to colleges for the construction of dormitories and related facilities. The ready availability of Federal funds undoubtedly has encouraged this form of construction. However, the low interest rate virtually has eliminated all private investors from the college housing field, an area where private funds had been available to the larger educational institutions.

Most Government loan programs to private businesses have been noncompetitive with commercial lenders. The Small Business Administration makes no loans unless the financial assistance applied for is not otherwise available on reasonable terms. No direct loan may be made if participation with a bank is available; no immediate participation loan may be made if a deferred participation loan is available.

#### *Provision of facilities*

The Federal Government provides and maintains a considerable array of facilities which are used by private business firms at nominal or no charge. The largest of these programs are in the transportation field.

No tolls or other charges are made for the use of domestic waterways improved and maintained at Government expense. As a result, the rates charged by common and contract carriers using these facilities do not reflect the entire cost involved.<sup>17</sup> In some instances, water transportation appears to be less expensive than other forms of transportation. This tends to place it at a competitive advantage and to result in an allocation of traffic that is not based on real differences in transportation costs.

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<sup>17</sup>The TVA estimated that, in 1955, freight charges to shippers would have been \$20 million higher if the Tennessee River had not been improved for navigation. Budget for the Fiscal Year Ending June 30, 1959, Washington, Government Printing Office, 1958, p. 187.

Government expenditure making available new transportation routes may affect the movement of traffic, even though charges levied reimburse the original Government outlays. The St. Lawrence seaway currently under construction is expected to have a considerable impact on the transportation of grain, despite the requirement for tolls to cover costs. A recent study at the School of Business of the University of Indiana estimates that by the 1960's the Great Lakes ports may obtain 50 percent of the grain business now going to Atlantic ports and 30 percent of that going to gulf ports.<sup>18</sup>

The Federal-aid highway program, operated on a grant basis to State governments, is another example of Government expenditures for transportation facilities for private business and other uses. It is open to question whether the Federal excises on gasoline and related products paid by the specific types of users cover the cost incurred on the behalf of each group, such as truckers.

It is clear, however, that improved transportation facilities result in savings to business from reductions in time of haul and in the operating costs of vehicles. Moreover, new transportation facilities open areas formerly inaccessible or not readily accessible, increasing property values and industrial development.

Typically, one of the first effects of highway construction is an increase in adjacent property values. The value of some typical areas adjacent to the New York Thruway rose from \$700 an acre before construction to \$6,000 an acre after construction. Plants representing a total investment of \$150 million were erected adjacent to the thruway even before the highway was finished.<sup>19</sup>

In the case of air transportation, the Federal Government maintains airways at no charge to the user. The Civil Aeronautics Administration operates air traffic control centers, airport control towers, domestic and international aeronautical communications stations, and various other aids to air navigation.

The Federal Government has also provided facilities to private businesses engaged in production on Government contracts. The bulk of the production facilities of the airframe industry, for example, is furnished by the Government. This Government investment has a number of effects. It enables the private firms to engage in a much larger volume of production than would be possible without the Government-provided facilities. In turn, the prices charged the Government for production at facilities it provides are lower than would be the case if they were to cover the amortization of an equivalent amount of private investment.

#### *Research and assistance*

By developing new products, sources, and demands the Government can reduce costs or increase production of private business firms. Such governmental programs of research and assistance are numerous.

The Department of Commerce and the Small Business Administration offer many services to businessmen. These aids include scientific information, arranging for free use of Government-owned patents, assistance in developing new products, counsel on how to expand mar-

<sup>18</sup> Reported in *Business Week*, April 6, 1957, p. 190.

<sup>19</sup> National Highway Users Conference, *Adjacent Property Owners Benefit From Controlled Access Highways*, Washington, 1956, pp. 1-2.

kets, advice on efficient methods of management, and information about Federal procurement and surplus disposal plans.

The Department of Agriculture conducts a variety of education, demonstration, and technical assistance activities designed to reduce farm costs and improve farm methods. Strip cropping, which was relatively unknown before the 1930's, is now spread widely over some of the dry-land farming areas that are subject to wind erosion. Terracing and contour farming have been introduced into some hilly areas where they are appropriate for conservation. Cover crops and crop rotations are used more widely.

Although military research and development programs are not undertaken because of their civilian applications, many of the results have been used commercially. New or improved civilian products resulting from these programs include the following: high data capacity machine records systems (Minicard); dry photographic processes (Kalfax, Electrofax); anti-motion-sickness drugs; advanced electronic components such as magnetrons, silicon transistors; thin-flat television display tubes; mechanical smoke generators for crop protection from frost; radiation preservation of food; jet and turboprop aircraft engines.<sup>20</sup>

In a broader sense, the developing atomic energy industry can be said to be a result of military research and development. The Atomic Energy Commission has made available to private industry much of the basic information required for the peaceful application of nuclear power. In addition to support through purchase and sales programs, the Commission has provided fundamental cost and technological data for corporate planning.

Some Government spending is designed to affect specific private demands. An extreme case is furnished by the outlays of the United States Savings Bond Division in the Treasury Department, whose sole aim is to encourage the purchase of United States savings bonds. To the extent that this program is effective, it influences private decisions on both consumption and investment.

#### CONCLUSION

This paper attempts to indicate the vast array of mechanisms through which Government spending and related programs can influence private price formation. The above survey shows that a great many Government programs, directly and indirectly, intentionally and unintentionally, affect the price levels of the economy.

As a purchaser of goods and services, the Federal Government can affect price levels in such varied ways as the following:

1. It can establish a floor under the prices of specific commodities by guaranteeing a market at the support price.
2. It can strongly influence the prices of many commodities through its dominant position as the major customer.
3. It can affect the labor costs of business firms by setting wage and other working standards in its contracts and through its position as a major employer of many types of skills and professions.

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<sup>20</sup> U. S. House of Representatives, Committee on Appropriations, hearings on Department of Defense Appropriations for 1958, Washington, Government Printing Office, 1957, p. 388.

4. Under conditions of relatively full employment, it can cause general price increases through bidding against business firms and consumers for available goods and services or even through "announcing" that it intends to increase its volume of purchasing. Similarly, the Federal Government can affect price levels through its position as a seller of goods and services.

1. It can set the price at which it sells specific commodities, often thus establishing a ceiling on their prices. When combined with purchase programs, the Government thus can determine the prices for these items charged by all sellers.

2. When it is in a monopoly position, the Government, of course, can set the price unilaterally and, hence, determine the cost to private firms.

3. It can sell to certain classes of buyers at less than market prices, thus reducing their costs compared to buyers who obtain the items from commercial sources.

4. It can produce and sell goods and services for internal government use, thus reducing markets for private business firms.

The Federal Government through its expenditure programs, can affect private price policies in other ways:

1. It can lend funds at lower than commercial rates, thus reducing the interest costs of the recipients.

2. It can lend to recipients who otherwise would be unable to obtain funds, thus enabling them to engage in various investment and production programs.

3. It can subsidize the private production or sale of goods and services which private firms would not otherwise produce or could not afford to sell at the subsidized price.

4. It can provide facilities to private firms to enable them to engage in production. These facilities may not be provided commercially or only at higher rates.

5. It can make available to business firms the result of the research it conducts and it may provide other information and assistance to reduce costs and increase efficiency.

6. It can encourage the public to purchase certain types of goods and services, thereby altering the structure of demand.

In some basic sectors of the economy, notably agriculture and mining, Government programs often exercise a decisive influence on prices. In contrast, Government spending programs exercise insignificant impact on retail and wholesale trade.

In other sectors, such as manufacturing, Government programs have varied impacts on prices. In the aircraft and shipbuilding segments, the Government is a major factor; however, neither Government purchases nor sales are an important factor in the manufacture of food, apparel, furniture, and related programs. Similarly, while Government programs have an important influence on the demand for medical and educational services, they have little impact on other service areas, such as personal services, repair services, and business services.

A number of implications for public policy purposes can be drawn from the review of the effect of Government spending programs on private price formation.

For example, exceptions may be desirable in any general policy to reduce Government spending during an inflationary period. Certain programs, such as subsidies to permit private sales below cost or to increase needed production, may contribute to a reduction in price levels. It might be preferable to maintain or even to increase such programs in the face of a general reduction in Government spending.

Such a period might also be appropriate for reviewing the prices charged for Government-produced goods and services. Particularly in view of the cost increases which are likely to be occurring, price increases might be needed to cover costs. Such increases in charges would be similar to tax increases in their anti-inflationary effect.

Conversely, during a recessionary period, it might be desirable to reduce Government programs which curtail demand by maintaining private prices artificially high. The Government funds thus made available could be channeled instead into programs which increase private demands. Moreover, scheduled increases in prices of Government-produced goods and services might be postponed during such a period.

During either inflationary or deflationary periods, it may be desirable to adjust nonexpenditure programs, such as loan guaranties and other assistance, in a similar manner as direct expenditure programs for economic policy purposes.

If any single conclusion emerges, it is that the price effects of the Government's combined role as buyer, seller, and promoter need to be considered in formulating Government programs designed to promote economic growth and stability.

## THE INFLUENCE OF THE ANTITRUST LAWS AND RELATED GOVERNMENTAL POLICIES ON PRICES

Simon N. Whitney, Federal Trade Commission <sup>1</sup>

The effect of the antitrust laws on prices cannot be isolated statistically, since it has usually been obscured by the greater impact of supply, demand, and other forces. This may be illustrated by reviewing a few of the significant antitrust suits of the past: first those dealing with "trusts," and then anticonspiracy cases.

### RELATION OF ANTITRUST DISSOLUTIONS TO PRICES

The first important antitrust victories outside the railroad field, and still perhaps the most famous of all, were the orders to dissolve the old Standard Oil Company of New Jersey and the American Tobacco Co., approved by the Supreme Court in May 1911.<sup>2</sup>

Price information is scanty for that period, but Census of Manufactures data can be of some help.

Economic logic tells us that the oil trust before 1911, with its control of 80 percent of the country's refinery operations, must have had the power to exert a depressing influence on the price of crude oil and to squeeze out a monopoly price on refined products. This power should naturally have been reflected in a wide margin between the two prices, a margin which one would expect the dissolution of the trust into 34 parts, in 1911, to narrow. But the available figures do not confirm this expectation. The refinery margin, instead of narrowing, widened from 15.9 in 1909 to 17.9 percent in 1914—a span of years in which the same ratio for all manufacturing declined from 40.9 to 40.1 percent.

#### *Petroleum refining figures, Census of Manufactures*

	1909	1914
Value shipped.....	\$236,998,000	\$396,361,000
Value added by manufacture.....	\$37,725,000	\$71,096,000
Ratio to value shipped (percent).....	15.9	17.9

The Federal Trade Commission pointed out a little later that the dissolution was not fully effective even in 1915, since the various Standard Oil units had not yet begun to compete in each other's territories.<sup>3</sup>

<sup>1</sup> The opinions expressed herein are those of the writer and not necessarily those of the Commission or its Bureau of Economics.

<sup>2</sup> *Standard Oil Co. of N. J. v. U. S.*, 221 U. S. 1 (1911); *U. S. v. American Tobacco Co.*, 221 U. S. 106 (1911).

<sup>3</sup> Report on the Price of Gasoline in 1915, 1917, pp. 159-160.

This point is controlling as to competition in refined product markets, though it is less relevant to competition in the purchase of crude oil. But, as the "successor companies" began to compete, the refinery margin did not narrow. In 1919, a year in which the value-added ratio for all manufacturing was down to 39.6 percent, it was up in petroleum refining to 23.6 percent. In succeeding censuses it never went back to either the 1909 or the 1914 level again.

The foregoing does not disprove the view that the Government's antitrust victory deprived Standard Oil of considerable monopoly power. It proves only that other forces bearing on prices—for example, discovery and eventual exhaustion of new oil fields, replacement of kerosene by gasoline as the principal product after the arrival of the motor car, improving technology, and the great increase in wage levels during World War I—had a more decisive impact. The consequence of Standard Oil's loss of monopoly power cannot, therefore, be traced in the price record. As a matter of fact, Standard's domination was already being whittled away when the dissolution occurred. Its share of total refinery output was drifting downward and large integrated rivals were emerging. It appears that the antitrust case, while of great significance in restoring competition, was merely one out of several forces working in that direction.

The dissolution of the old American Tobacco Co. into 16 units at the end of 1911 was at once followed by active sales rivalry, including increased expenditures on advertising, on the part of the newly created companies. In 1913 one of the trust's former subsidiaries, which had not made cigarettes at all until 1912, introduced a domestic-blend brand, the Camel, whose rapid success compelled the other companies to turn from Turkish-flavored to domestic cigarettes. Camels were put on sale at 10 cents per package of 20 as against the existing price of 15 cents for Fatimas, the most popular Turkish-flavored brand.<sup>4</sup>

This price reduction was probably a real consequence of antitrust enforcement. It seems reasonable to assume, even if it cannot be proved, that except for the trust dissolution a new lower priced cigarette would not have been put out at this time.

The Census of Manufactures, evidently including tax collections in value added, give the following value-added ratios for all tobacco manufactures.

1909-----	57.5
1914-----	57.7
1919-----	52.3

A possible reason for the drop in 1919 was the growing importance of cigarettes, a mass-produced article carrying a lower margin, in the product mix.

Many writers have argued or taken for granted that the tobacco and oil decrees did little to increase competition. A full analysis of industry developments down to the present day, however, makes it hard to resist the conclusion that they represent real antitrust achievements of the first magnitude—whatever may have been their effect on prices.

<sup>4</sup> Some less popular brands were already selling at 5 cents for 10 cigarettes. See Richard B. Tennant, *The American Cigarette Industry*, Yale University Press, New Haven, 1950, p. 70.

Another dissolution case almost simultaneous with these two was the splitting of E. I. du Pont de Nemours & Co. into three parts as a result of a circuit court decision in June 1911. At the end of 1912 a new Hercules Powder Co. and Atlas Powder Co. each took over about a quarter of du Pont's black powder and dynamite plants. Du Pont's share of total capacity dropped from something over 50 percent in each of these products to something over 30 percent. Presumably this dissolution of a firm which owned over half the plants and actually three-quarters of the output of dynamite (for black powder became obsolete within a very few years after the dissolution), made for greater competition. But the competition which ensued was in service, in selling and in "reciprocity" with customers rather than in price.<sup>5</sup>

Using the same type of census comparison as for oil and tobacco, we find the following percentage manufacturing margins for explosives:

1909-----	43.1
1914-----	38.1
1919-----	50.0

If anything, the companies were more competitive as they drew away from their pre-1913 associations, but the margin was widening nevertheless.

Although antitrust dissolutions seemed suddenly to be coming into their own in 1911, there have been few examples since that time. Some of the big concerns, especially United States Steel Corporation and American Can Co., escaped dissolution after court battles. The share of their markets held by these concerns nevertheless declined as a result of competitive forces. Other industrial giants, including Corn Products Refinancing Co. and International Harvester Co., escaped with minor divestitures of property, but they too gave ground to rivals in the open market. A typical structure developed in American manufacturing industry: a number of large competitors of which one was necessarily the largest but not so much larger as to be able to dominate the rest, and a fringe of smaller companies. By the 1920's there appeared to be few concerns so close to a monopoly position as to offer an opening for an antitrust dissolution suit.

The most obvious of the few really dominant corporations was Aluminum Company of America. It was often pointed to as the only clear example of 100 percent industrial monopoly. The Government brought its antitrust suit in 1937; in 1941 Reynolds Metals Co. became the first competitor; in 1945 the Government won its long suit in the Second Circuit Court of Appeals; <sup>6</sup> and in 1946 Permanente Metals Co., later renamed Kaiser Aluminum and Chemical Co., entered the business by taking over wartime surplus plants. The only one of these events to which the price of aluminum showed a reaction was the entry of Reynolds. The price continued on its downward course, as markets expanded and costs declined, until 1942, and since World War II it has steadily advanced under the same inflationary pressures as other wholesale prices.

<sup>5</sup> Edward W. Proctor, *Antitrust Policy and the Industrial Explosives Industry*, unpublished doctoral thesis, Harvard University, Cambridge, 1951, especially pp. 313, 468, 491.

<sup>6</sup> *U. S. v. Aluminum Company of America*, 148 F. 2d 416 (2d Cir. 1945).

*Primary aluminum prices*<sup>1</sup>

[Cents per pound]			
1929-----	24.3	1942-47-----	15.0
1930-----	23.8	1948-----	15.5
1931-33-----	23.3	1949-----	17.0
1934-----	22.2	1950-----	17.6
1935-----	19.5	1951-----	19.0
1936-----	19.0	1952-----	19.4
1937-----	19.8	1953-----	20.9
1938-39-----	20.0	1954-----	21.8
1940-----	18.8	1955-----	23.7
1941-----	16.5	1956-----	24.0

<sup>1</sup> American Metal Market, Metal Statistics, 1957, p. 623.

In summary, the dissolution of large corporations has been rare in antitrust history and, where it has occurred, the effects on price have been veiled by other more direct factors. At least in the case of tobacco, however, there is some evidence to support the general principle that lessening the degree of monopoly tends to reduce prices. It should be noticed, as a possible offset, that, if an efficient consolidation which passed on the advantages of its low costs to consumers were dissolved, it would operate to raise rather than to lower prices—at least until increased competition began to exert a salutary influence. An example is not easy to name, but certain suits in the past which were later compromised or dropped by the Government might perhaps have had this effect.

## ANTITRUST SUITS AGAINST AGREEMENTS AND CONSPIRACIES

The second major group of antitrust prosecutions which might affect prices has consisted of those aimed against conspiracies and agreements among independent companies. Successful suits of this kind might naturally be expected to bring prices down. This is obvious when price-fixing plans as such are attacked. It follows indirectly for plans to divide markets or limit production, since the presence of more competitors in an industry or of more output on the market may be expected to increase price competition.

Once again, it is almost impossible to find the effects of these suits on actual quoted prices. Some of the most significant court victories were against industries for which reliable price records are not available. These include, among others, the trade association cases in hardwood lumber and linseed oil in the early 1920's and the landmark Trenton Potteries decision of 1927.<sup>7</sup>

Three famous conspiracy suits against large industries for which price records are available can be reviewed. The first was filed against the midwestern gasoline-buying plan of the 1930's, under which certain integrated refining companies purchased the output of new, weakly established refiners to keep it from being dumped on the spot market. The purpose was to protect both the weak refiners and, through supporting the price structure, the strong ones as well. This plan was launched under National Recovery Administration auspices in 1934; but in 1936, the NRA having expired, it was prosecuted as a conspiracy under the Sherman Act. In 1937 several integrated companies and a number of their officers were convicted on charges

<sup>7</sup> *American Column & Lumber Co. v. U. S.*, 257 U. S. 377 (1921); *U. S. v. American Linseed Oil Co.*, 262 U. S. 371 (1923); *U. S. v. Trenton Potteries Co.*, 273 U. S. 392 (1927).

of restraining trade, and the largest total amount of fines in antitrust history was imposed. The circuit court of appeals reversed the verdict in 1939, but the Supreme Court reinstated it in 1940.<sup>8</sup>

The year in which some results should have been observable was 1936, when the participants were indicted and the program was abandoned. The refinery wholesale price of gasoline in Oklahoma, in cents per gallon, moved as follows:<sup>9</sup>

1935-----	5.8	1938-----	5.0
1936-----	5.9	1939-----	4.8
1937-----	5.8	1940-----	4.6

Thus 1936 and 1937 showed no decline from the 1935 level, even though the abolition of the support buying program must have tended to make for lower prices. This event was followed by the disappearance altogether of a number of the weak refiners whose markets had been supported,<sup>10</sup> a development which presumably decreased the total supply and strengthened prices.

Crude oil prices, which went up from 1935 to 1937, then down to 1940, were a much more obvious determinant of gasoline prices. The refinery margin, measured in percentages by census data in the same way as before, was as follows:

1935-----	19.6
1937-----	18.9
1939-----	21.4

These figures do not clearly support the view that abandonment of the attempt to maintain gasoline prices resulted in a reduction of the refiner's margin.

The second suit worthy of mention was the Sherman Act indictment in 1941 of the half dozen largest cigarette manufacturers and two leaf tobacco exporters. This resulted in their conviction in 1941, with the verdict being affirmed by the circuit court in 1944 and by the Supreme Court in 1946.<sup>11</sup> The defendants, of which only the three largest stood trial while the rest agreed to accept the verdict, were found guilty of conspiracy to restrain trade and of monopolizing—through exclusion of competitors, through cooperation in purchase of leaf tobacco, and through price actions which were called exploitative at one time and cutthroat at another but collusive throughout.

There is a possibility that this second American Tobacco case had an effect upon price. In the years after World War II observers noticed that the big cigarette companies were slower to raise prices as costs increased than they had been in the past. This might have been because, remembering how a simultaneous price increase in 1931 had been charged against them at the trial, they resolved upon moderation. A more cogent memory might have been that of the criticism made at the trial of the price cutting with which they had met the growth of economy-brand (10-cent) cigarettes in 1933. It may have seemed wiser to the big companies to discourage entry and expansion of such competitors rather than to offer them an "umbrella"

<sup>8</sup> *U. S. v. Socony-Vacuum Oil Co.*, 310 U. S. 150 (1940).

<sup>9</sup> Survey of Current Business.

<sup>10</sup> John G. McLean and Robert Wm. Haigh, *The Growth of Integrated Oil Companies*, Graduate School of Business Administration, Harvard University, Boston, 1954, p. 598.

<sup>11</sup> *U. S. v. American Tobacco Co.*, 328 U. S. 781 (1946).

of high prices, and then have to cut prices afterward with ensuing public criticism. Perhaps as a consequence of this price moderation, the profit ratios of the big companies declined, and at the same time they increased their share of the total cigarette market. It can be argued that the price moderation and increased share of sales were cause and effect, and that both resulted from the antitrust decision.<sup>12</sup>

There is, on the other hand, a real possibility that cigarette price actions after OPA price ceilings expired in 1946 were dictated solely by commercial considerations, and that, if prices were not raised further, it was merely because the makers did not think customers would pay more. This is understood to be the claim of the companies themselves, and if it is true the decision had no price effects at all. Certainly no decree of any kind followed. The defendants paid their fines, for doing things which they proceeded to do thereafter as they had before—e. g., advertising so heavily that smaller companies had a hard time getting into the market, charging identical prices for standard cigarettes, and using substantially similar buying practices. They did revise certain actions of a quite minor character.<sup>13</sup>

The third of these well-known Government victories was the Supreme Court decision in April 1948, condemning conspiracy in the cement industry, through the use of the basing point system of pricing. This concluded a case begun by the Federal Trade Commission in 1937.<sup>14</sup> In June 1948 the Court refused a review, and in July, United States Steel Corp. announced a new pricing system both for itself in steel and for its wholly owned subsidiary, largest in its industry, Universal Atlas Cement Co. This policy was intended to avoid any suspicion that a basing point system still existed, by going over completely to f. o. b. mill pricing. Most producers in steel and at least some in cement followed this example and stopped absorbing freight on sales to buyers located nearer to competing producers, requiring instead that such customers pay the full freight on products shipped to them. At the same time f. o. b. mill prices on steel were raised above their previous level. This may have been a coincidence, or it may have been an overdue measure (from the point of view of the steel companies) which this seemed a good occasion to carry through.

In other words, if this famous decision affected prices, it was by way of an increase rather than a decrease, at least in delivered prices to those customers who had been receiving the benefits of freight absorption. This result is not really surprising, when one bears in mind that the basing-point system, now outlawed, had been in part a method by which a mill could get its product into territories closer to its competitors by reducing the transportation charge to customers there. Fortunately, many customers, at least in steel, were able to switch from distant to nearby suppliers, so that crosshauling was eliminated, while delivered prices stayed about the same. A few customers could even have had their delivered prices reduced, if they

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<sup>12</sup> Tennant, *The American Cigarette Industry*, pp. 386-387; William H. Nicholls, *Price Policies in the Cigarette Industry*, Vanderbilt University Press, Nashville, 1951, p. 169.

<sup>13</sup> Warren C. Baum, *Workable Competition in the Cigarette Industry*, unpublished doctoral thesis, Harvard University, Cambridge, 1949, pp. 341-344, mentions, for example, refusal of tobacco men to appear at gatherings where their competitors would be present and "more important," abandonment of all mention of resale prices by salesmen in talking with jobbers and retailers.

<sup>14</sup> *U. S. v. Cement Institute*, 333 U. S. 683 (1948).

had previously paid "phantom freight" to nearby mills and these mills did not add the amount to their f. o. b. mill quotations.

Whatever the effects on steel and cement prices, they were not due to antitrust enforcement alone, and perhaps not even in major part. Other forces were already working in the same direction. One was the big rise in freight rates since 1940 which made it more unprofitable than before to ship cement or steel long distances and absorb part of the customer's transportation bill. Another was monetary inflation and the rise in wages and the whole price level, which were bound sooner or later, except as rising productivity compensated for part of the wage increase, to pull up the prices of cement and steel—still lagging in 1948 compared to the general average. Finally, there was enough demand for these products in 1948 to make mills glad of an excuse to limit the number of their customers, confining their trade to those who, whether because they were geographically close or for other reasons, offered the best profit prospect. Later on, when demand receded, freight absorption again became common in steel and cement.

Of these conspiracy victories of the Government, perhaps the 3 best known in antitrust history, we have found that the first, in gasoline, destroyed a floor that the companies had placed under prices (but may also have reduced supply), though the results do not appear statistically; that the second, in cigarettes, may (or may not) have caused the companies to price their products more moderately; and that the third, in cement, perhaps contributed to an actual increase in delivered prices to some customers, although abolition of a rigid pricing system should work for lower relative prices in the end. With such confusing results, it may be best to fall back on what logic tells us of the probable effects of antitrust legislation.

#### PRESUMED GENERAL EFFECT OF THE ANTITRUST LAWS ON PRICES

Whatever the statistical difficulties in connecting prices with antitrust enforcement, it may be taken for granted that the mere existence of the laws and the threat of prosecution do have real price effects. But it is not much easier to define the effects than to measure them.

At least one writer has already discussed this issue. He sees price influence as potentially arising from two sources: (1) the antitrust laws may deter companies with strong "market power" from exploiting it fully, and (2) they may prevent companies from achieving or keeping such power. He concludes that the laws probably do have the first effect, and, although he cites no examples, the second American Tobacco case may possibly support his view. He believes, however, that the laws have not achieved the second effect, that of forestalling market power. He adds that there are "far more potent" means of restricting market power in the shape of "the advent of new firms and the development of substitute products." Finally, he remarks that the laws "were originally passed partly to restrain businessmen from charging monopolistic prices," but that this aim "sometimes seems to have been ignored."<sup>15</sup>

These reflections may be too pessimistic. The market power that exists in American industry today is in most cases far short of

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<sup>15</sup> Alfred R. Oxenfeldt, *Industrial Pricing and Market Practices*, Prentice Hall, New York, 1951, p. 417.

“monopoly” power. Further, this power might and probably would be much greater if it were not for the antitrust laws. These laws serve as a real barrier both against achieving dominance over any given industry (otherwise than by efficiency in production and marketing) and against agreements fixing prices. In view of the natural decline of certain big concerns despite their escape from antitrust dissolution, it can be argued that the antiagreement function of the antitrust laws is more important than the antimonopoly function.

Undoubtedly prices are sometimes set by secret agreements even now, but this must occur far less often than would be the case without any legal prohibition. Collusion might, if permitted, occur more frequently in times of depression than in those of boom, because it is during depressions that there is the most temptation to cut prices and hence the most stimulation to price-fixing agreements. There is little need for an agreement when market forces are tending to push prices up in any event, though in fact such times have not been entirely immune to agreement and though some agreements have carried through depression and prosperity alike.

Even the outlawing of agreements during depressions is not as effective in practice as might be expected, since in those industries which have only a few important companies the self-interest of each is a strong force working against price cutting. When each knows that its price cuts will threaten to take a significant slice of the market away from every large competitor and thus force immediate retaliation, it seems hardly worthwhile to make the cuts in the first place.

Nevertheless, the net effect of outlawing collusion must logically be to prevent occasional price-fixing schemes during periods of price pressure, schemes which might sometimes have been effective when the ordinary self-restraint of “oligopoly” would not have sufficed. Prices may, therefore, drop more quickly during business depressions than they would without the antitrust laws, and this may well be their chief single influence on prices.

We have not yet spoken of section 2 (a) of the Clayton Act as amended by the Robinson-Patman Act, forbidding price discrimination which tends to reduce competition (except as justified by lower costs or as required to meet a competitive price). Some writers have asserted that this provision prevents price cutting. The argument is that a discount given to a large buyer becomes known to others and increases the pressure for price cuts to them, with the eventual result of causing the whole price structure, presumably a monopolistic one, to break down. It should be noted that the lessened price competition is offset, in the minds of those of the Act’s defenders who believe it does have this effect, by the Robinson-Patman Act’s influence in achieving the “worthy social objective” of protecting small buyers against unearned discounts given to their large competitors.<sup>16</sup>

Other writers taking a more favorable view of the act generally, declare that a seller who has given a discount to a large buyer will be less able and ready to cut his price to other buyers, and may perhaps charge them correspondingly more. There is little factual evidence to show which of these opposing views is correct. The first is

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<sup>16</sup> *Ibid.*, p. 422. Another writer who has argued that price discriminations may break down a rigid price structure is M. A. Adelman in *Effective Competition and the Antitrust Laws*, 61 *Harvard Law Review* 1289, 1300 (September 1948).

attacked in an article based on the evidence in a well-known anti-trust suit of the 1940's, which argues that one of the biggest of all buyers did little to break down rigid price patterns:

The record of the case discloses a few significant examples of A & P's buying policy exerting any influence on prices of groceries supplied under seriously monopolistic conditions.<sup>37</sup>

In summary, the major potential effects of the antitrust laws on prices arise from their prohibition of (1) monopoly, (2) price and market agreements, and (3) price discrimination. The first two prohibitions in all probability work on net balance in the direction of reducing prices, if one may assume that monopolies have the power and perhaps the desire, while participants in agreements have the desire and perhaps the power, to raise prices or hold them up. By way of exception, some consolidations which have been attacked and some agreements which have been outlawed may (surely not often) have worked to keep prices down instead of up. The third prohibition, as we have just seen, is mixed and uncertain. We can say that it has served to protect small buyers against discrimination, but not that it has definitely affected the level of industrial prices in one way or another.

We conclude that on net balance the antitrust laws tend to make for greater price flexibility. This is quite logical, since the laws require competitive prices, and since competitive prices are likely to be flexible. The argument that the antitrust laws do have this effect may be further supported by the fact that broad governmental and cooperative plans to raise prices—in coal, in oil, in retailing through the fair trade laws, and so forth—have usually necessitated antitrust exemptions. There is near-unanimity among economists that the protection of competition by law is one of the strongest pillars of the successful American economy.

#### ALTERNATIVE APPROACHES OF GOVERNMENT TO THE PROBLEM OF PRICE-SETTING

##### *Reinterpretation of the antitrust laws*

Antitrust policy can go no further under present interpretations than to require that prices be set by companies individually. For example, price leadership cannot be attacked under the law today if it does not involve outright agreement. It is argued by one school of thought, however, that a reinterpretation to make all oligopoly situations illegal and thus to break up as many large firms as possible into smaller units would increase the extent of price competition.

If dissolution does have such an effect, it is likely to be moderate at best. Dissolving certain of the big corporations would not increase the number of competitors so much as it would the number of geographically isolated units, thus creating regional, in place of national, oligopolies. Or the units of big corporations which it separated might have been producing different and noncompeting articles. The modest number of additional direct competitors created by such a dissolution policy might not, therefore, be sufficient to turn

<sup>37</sup> Joel B. Dirlam and Alfred E. Kahn, *Antitrust Law and the Big Buyer: Another Look at the A & P Case*, *Journal of Political Economy*, vol. 60, April 1952, p. 128.

quiescent into active price competition. There are various reasons why addition of even a few firms to the number in an industry may stimulate price cutting,<sup>18</sup> but industries, with a Big Eight (such as steel and farm machinery) have not always been more competitive in price than those with a Big Four (meat packing, tires, or aluminum).

More important as an argument against such an experiment in dissolution is that it would in many cases raise the cost of the product by reducing the scale of company operations, and work against consumers' ultimate interests by reducing expenditures for research and development. The rate of profit of some giant concerns is enough higher than that of smaller competitors to make it a reasonable inference that their size gives operating advantages, even if the benefits are not being offered to consumers in lower prices but merely in plans for enlarged output and new products in the future. Granted that in many instances smaller firms are more efficient, and that the presence of a myriad of business firms has social values quite apart from questions of efficiency, a dissolution program to stimulate price competition would be anachronistic. It would be incompatible with either the progressive large-scale technology or the international economic competition which are so important today.

There are at least two other ways through which the Federal Government might take a more active role in regulating individual prices: direct regulation and publicity. No comment will be made here on the related field of Government price-support measures, as in agriculture, or on broad monetary or fiscal prices designed to influence the price level rather than individual prices.

#### *Direct price regulation*

I am not aware of any recent legislative proposals for direct price regulation, and most comment has been to the effect that it should be considered only as a last resort.<sup>19</sup> In recent discussion (since the disappearance of the National Industrial Recovery Administration), price regulation has been viewed more as an anti-inflationary than as an antirecessionary step. In the matter of preventing prices from rising during a boom, there is at least some experience, that of OPA and OPS. In using regulation to induce a salutary drop in prices during a recession, there is very little history. Perhaps we may draw on the experience in Government regulation of public utilities, but the approach here has been through valuation of a company's investment and other methods of ratesetting which assume a legalized monopoly situation in the regulated industry.

#### *Publicity: economic studies*

Publicity designed to influence prices might take the form of economic studies or monographs by informed Government agencies, either aimed specifically to show whether given prices were out of line or covering certain industry situations and incidentally bringing out the facts as to prevailing prices and their implications. The regular Departments such as Interior and Commerce usually stay away from price discussions on principle. Such price studies as have been issued

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<sup>18</sup> George W. Stocking and Myron W. Watkins, *Monopoly and Free Enterprise*, Twentieth Century Fund, New York, 1951, p. 112.

<sup>19</sup> Compare *Administered Prices*, hearings before Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, U. S. Senate, 85th Cong., 1st sess., pursuant to S. Res. 57, pt. I, 1957, pp. 3, 50, 85, 143.

from Washington have generally been prepared by the Federal Trade Commission, by special bodies like the United States Coal Commission which reported in 1923 or the Temporary National Economic Committee of 1938-41, or by congressional committees.

It would be interesting to see a survey of the nature and effects of all such studies published since the Bureau of Corporations was set up in 1903, but for the purposes of this paper one example will have to suffice. In June 1938 the Federal Trade Commission issued a massive report which, among other conclusions, emphasized that prices of farm machinery had advanced to levels above those of 1929 while farm prices were still depressed.<sup>20</sup> In its next report on farm equipment it was able to point to price cuts by the industry in November 1938, which by the end of 1941 had saved farmers \$40 million.<sup>21</sup>

Such reports could serve, and undoubtedly have already served, a useful function, but they could also be injurious if they were badly done. They would have to be prepared in the most objective fashion, taking account of all factors which bear on, and ought to bear on, prices. Their authors would need a detailed knowledge of the industry being studied, a real understanding of the economy as a whole, and a sound and unbiased judgment—qualities not easy to find combined together in one student or group of students. Nevertheless, more such scholarly studies are needed.

#### *Publicity: Hearings and official statements*

Publicity can also be brought to bear on prices through "jawbone control," as Price Administrator Leon Henderson had to practice it in 1940 and 1941 before his powers were fully implemented by law. Prices had to be "talked down" or talked out of going up. In peacetime this method is occasionally tried, for lack of any other means, by congressional committees or by prominent members of the executive branch. Congressional committees are not, as all will agree, efficiently set up to do a continuing job in an area like this. Those who have suggested a regularized process of moral influence (a more dignified term than jawbone control) have spoken of industries being required to justify their price increases before some unspecified Government agency, which would have no power except that of publicity.<sup>22</sup>

Such an agency could no doubt easily be set up, but the criteria by which to determine whether a price increase is justified would be more difficult to state. A broad concept like that of a "just price" is not operationally usable in a complex economy, whether or not it was so in the Middle Ages. If we adopt "cost" as the criterion, we shall be abandoning an essential feature of our traditional, and presumably successful, profit-and-loss economic system. The same problem of criteria would beset the authors of monographs, but in written studies it is easier to bring out all the factors which have a bearing on the prices under review.

To justify the proposed procedure, regardless of the price criteria chosen, we need to see much more proof of bad price performance than

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<sup>20</sup> Federal Trade Commission, Report on the Agricultural Implement and Machinery Industry, H. Doc. No. 702, 75th Cong., 3d sess., 1938, pp. 1037-1038.

<sup>21</sup> Report of the Federal Trade Commission on Manufacture and Distribution of Farm Implements, 1948, p. 1.

<sup>22</sup> Administered Prices, Senate Judiciary Hearings, pt. I, pp. 50, 52, 102.

has been published as yet. The principle of freedom in pricing has too many intangible values to sacrifice without the most compelling evidence.

It is even possible that moral influence might have certain bad effects on prices, which would offset in part the good effects. Judging by experience, it will be used mostly to discourage price increases, but the issue of price increases usually arises during boom periods. There is less attempt to influence prices by publicity when they are sliding down. Prices which have not been advanced in a boom are in a better position to resist later downturns. The individual prices subjected to moral influence might thus become more rigid than they would be otherwise. This is not suggested as probable, but only as a possibility. It would be analogous to the wartime price ceilings which turned into price floors.

#### PRICE FLEXIBILITY VERSUS STABILITY

Good arguments have been made in favor of price stability, and counterarguments in favor of greater flexibility. The words "stability" and "flexibility" both sound reassuring, whereas inflexibility and instability are other ways of expressing the same thoughts which are less attractive. No one has ever made an absolutely convincing case for either proposition. But it seems logical that if total demand fails to increase or actually declines, a price reduction will eventually lift the level of sales, and that allowing prices to fluctuate may thus stabilize buying and reduce the fluctuations in employment. The year 1958 appears to call for price cuts to restore the volume of buying.

The same principle applies to a period when much new productive capacity has been built—a situation which is also present in 1958. If those who added this capacity planned it rightly, it should yield a profit when operating at its optimum rate and at the prices necessary to dispose of its output. These prices would often be below the level prevailing when the capacity was planned, since the supply of the goods would now be greater, and this ought to have been foreseen. If costs of either construction or production had increased unexpectedly, or demand had dropped, the prices necessary to move the goods might prove to be unprofitable. It is still preferable, nevertheless, to set quotations that will keep the new capacity occupied than to let it lie wastefully idle. The only proviso is that the prices must cover variable costs.

If business is to be encouraged to cut prices at appropriate times, it must be allowed to increase them at the opposite times—i. e., when demand is high compared to capacity in the particular industry, or when total demand is increasing in the economy at large. The increases would not necessarily have to equal the reductions. There could be a long-term downward trend in the prices of those industrial products which are still expanding their markets and improving their production processes—always provided that wages or other factor costs do not respond to rising productivity in such a way as to absorb its entire benefits.

What has been said does not mean that the ideal of price flexibility can be embraced without misgivings. On the contrary, it is said in recognition of, and in spite of, the virtues of stability which would have to be sacrificed—ability of the purchaser to foresee his dollar

costs, discouragement to unnecessary speculation, and many more. Empirical studies of the effects of flexible and stable prices have been few, and in the absence of convincing facts the hypothesis that prices should respond to changes in supply and demand seems the more natural one to accept.

#### OBSTACLES TO PRICE FLEXIBILITY

If we want more price flexibility, we shall need to combat real institutional, psychological, and market obstacles to it, some of which may prove too deep seated to eliminate. Three will be discussed here.

##### *Cost rigidity*

Perhaps the most important obstacle is rigidity of costs. Only if such costs as wage rates, other employment costs, taxes, and transportation rates (which in turn depend heavily on labor costs) can be made more flexible will it be practical to make selling prices themselves more flexible.

This can be simply illustrated by noticing what would happen if prices in one much-discussed case, the iron and steel industry, were cut without any reduction in costs. This industry probably had a profit before income taxes in 1957 equal to about 15 cents per dollar of sales.<sup>23</sup>

Let us assume a price reduction of 10 percent. In most commodities, this should be large enough to have some effect on demand, although it could hardly restore 1957 sales of steel. If 1958 costs and volume remained equal to 1957—in other words, if the 10-percent cut did restore 1957 sales—the price cut would wipe out two-thirds of the industry's net profit and of its income tax payments to the Treasury. Nor would there be any saving as a result of cheap iron and steel scrap, which is often mentioned to justify appeals for a price cut in steel itself. If volume of output recovers, scrap will no longer be cheap.

Such a price cut would have drastic effects on dividends, the credit standing of the companies, investment in new facilities and even replacements, and on business confidence itself. If, as is almost certain, it failed to restore 1957 volume, the situation would be much worse and the producers would quickly run out of cash.

If, however, all costs and profits could be cut equally, such a price reduction or a greater one would become feasible. Only one participant, the United States Treasury, can "afford" to take a cut in its portion—on the theory of not trying to balance the budget in a recessionary period—but there is no reason for all participants not to share equally.

If all prices are in balance with each other and reflect the varying demand and supply of each commodity or factor of production in the market, there is an equilibrium under which each individual or group should be able to buy the goods or services offered by others. Sales of any which are overpriced are likely to stall, with the consequence of less than full employment. If this is true for wheat or automobiles, it is true for labor. If it applies to wages of, say, \$10 an hour when labor productivity is \$2, it applies also, if less disastrously so,

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<sup>23</sup> Based on 14.2 percent estimate for 1956 as shown in *ibid.*, pt. 4, 1958, p. 1466, and on the upward trend in most steel company reports which appeared in February 1958.

to wages of \$2.25. Any drive by unions for higher wages during a recession is a threat to recovery quite similar to any attempt by industry to raise prices at such a time. It is only less great a threat insofar as some, though certainly not most, employers might be able to borrow from the banks to pay the wage increases, or pay for them out of idle funds, without either advancing selling prices or reducing expenditure plans.

It follows from this that public pronouncements against wage increases during a recession are fully as important as such pronouncements in favor of price decreases. Wage advances, in fact, will prevent such price decreases. The administration, if it would undertake this educational task in a vigorous and unambiguous manner, might actually influence the demands of unions, the resistance of employers, and the recommendations of mediators. This would require explaining the obvious fact, which, however, was deliberately deemphasized in the trade union movement as far back as the early career of Samuel Gompers, that a higher wage rate will increase the worker's purchasing power only if he keeps his job and works as many hours as before. It would require pointing out that in the United States most employment grows out of the profit motive of employers, and that this motive will necessarily suffer from any further squeeze on an already declining rate of earnings unless it is clear that volume of sales will increase.

The argument for a general wage increase in recessions rests on the proposition—whose truth must be conceded—that the recipients will spend the money sooner and faster than employers (corporate or individual) would. Among the subsidiary propositions are that this will increase total sales by employers, that higher sales will bring down overhead costs per unit and may even stimulate plant expansion, that the very prospect of rising sales will cause producers to build up inventories, that under a national easy-money policy the banks will be able and willing to finance the costs and expenditures called for by these developments, and that even if investment spending is slightly lower it will be more than offset by the rise in consumption spending.<sup>24</sup>

There is more than one weak link in this chain of argument. If the logic is sound, why did business react downward sharply within a few months of the big wage increases achieved by the National Recovery Administration in the summer of 1933 and by the newly established Committee for Industrial Organization in the winter of 1936-37? Will the expected reduction in overhead costs per unit offset the increase in labor costs plus the interest (low though it may be) owed on the funds borrowed to pay the higher wages? Why will employers be so optimistic when the prospective rise in sales is to be made possible by higher wages paid out of their own pockets from funds intended either for immediate use or as reserves? Will this rise in costs make business firms look like good risks to banks? If the one undisputed merit of the plan is that it increases immediate spending on consumer goods, how do we know that the workers' higher "pro-

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<sup>24</sup> A recent careful statement of this argument is that of Arthur Butler, *Wages, Prices, and Employment*, in *Current Economic Comment*, Bureau of Economic and Business Research, College of Commerce and Business Administration, University of Illinois, Urbana, vol. 20, February 1958, pp. 3-16. The argument is cast in Keynesian terms, but it should be mentioned that John Maynard Keynes himself was distinctly opposed to raising wages in recessions—see the *General Theory of Employment, Interest, and Money*, Harcourt, Brace, New York, 1936, p. 265. He was equally opposed to price cutting, having a liking for stable wages, and rising prices to make it possible to pay the wages and yet earn a profit. *Ibid.*, p. 264.

pensity to consume" compared to employers will add enough to spending for food and other consumption goods to offset the possible decline in investment spending for products of the more deeply depressed building and equipment industries? Finally, cannot consumer spending be stimulated by some means which does not simultaneously increase costs of production?

Whether or not a general wage increase has virtues as a recession remedy, it will block the remedy we are discussing, price cuts. Its champions are, in fact, reconciled to prices advancing, on the ground that this will encourage employers to produce in the face of the higher labor costs which caused the higher prices. They are equally reconciled to price staying the same, since this will insure that the additional consumer spending will call forth a larger output of goods.<sup>25</sup> Whichever we get of these two alternatives, but both allegedly beneficial results, we will not get price reductions.

### *Cost-plus pricing*

A widely held philosophy, which sways many businessmen as well as consumers, is that prices should always be set to cover costs, including normal profits. The businessmen insist that prices should be at least that high, the consumers that they shall be that high and no higher. Unit costs, however, may actually increase during depressions because the overhead cannot be spread over as large a volume, thus seeming to call for higher prices when demand is going down. Quite apart from recession, a burst of new investment spending in the economy will force the expanding companies to set aside larger sums for depreciation. This is natural and inevitable, but when depreciation charges are set very high as a result of conservative accounting practice, the prices which are in turn set high to cover the charges (under the full-cost pricing doctrine) may discourage the buying needed to keep the new plant busy. In March 1958 the rising charges to depreciation as a result of "soaring costs of the vast post-war program of expansion and modernization" were noted.<sup>26</sup>

One of the most fundamental propositions in price economics is that the right price is the one which equalizes demand and supply and clears the market. But clearing the market through reduction of supply seems to be the preference of the industry spokesmen whom the *Journal of Commerce* and *Wall Street Journal* were quoting occasionally in February and March 1958 as opposing any reduction in their own industries' profit margins. Fortunately, from the point of view of those who favor price flexibility, a good deal of quiet price cutting was in fact occurring at the same time.

This does not, of course, imply that when costs are sharply raised by factors beyond the control of a business firm, it should ignore the increase and offer itself as a sacrificial victim for the general welfare. What we can properly ask is that business adopt the philosophy of taking less than average margin of profit when demand will not respond to full-cost pricing—to be offset of course by a higher than average return in good times.

One important consideration bearing on price cutting is that it will bring losses to some competitors before others. In other words, the

<sup>25</sup> Butler, *Wages, Prices, and Employment*, p. 13.

<sup>26</sup> First National City Bank of New York, monthly letter, March 1958, p. 28. Compare Keynes, *The General Theory of Employment, Interest, and Money*, p. 100.

cost price of one firm will not cover the costs of all. General Motors, for example, has consistently earned the highest margin of profit on sales of any automobile company; and Ford Motor Co., since World War II, the second highest return. Severe price cutting in cars might put Chrysler in the marginal position that American Motors and Studebaker-Packard hold now, and put these two companies out of business entirely.

The same situation is found in many other industries, although the difference in profit margins is usually far less. Thus, in steel, the largest producers have, recently at least, been making a higher return on sales than the industry as a whole. United States Steel earned in 1956 16.0 cents before taxes on each dollar of sales, while the industry earned 14.2 cents; and in 1957 United States Steel's earnings increased by 20 percent, while 41 iron and steel companies increased theirs by only 4 percent.<sup>27</sup>

A 10 percent price cut by United States Steel might put some of its smaller competitors—not, of course, its largest rivals, some of whose profit ratios are as high or higher—in real difficulties.

To the argument that there is nothing wrong with driving inefficient companies out of business, the reply can be made that inability to weather severe price cutting during a general recession is not necessarily a proof of long-run inefficiency, though it may well indicate inadequate financial strength in the light of present-day competitive conditions. When demand comes back, the facilities of some of the companies driven out now may be needed again. The process of disappearance and reappearance may waste skills and experience, even when the plant itself is merely shut down and later reopened under new management. Unless a depression is due to sheer overcapacity in relation to long-run demand—an interpretation that few will apply in 1958—it is wasteful to reduce such overcapacity by cutthroat price competition. Abandonment of the full-cost pricing philosophy as a permanent rule of action (or shibboleth) need not imply such cutthroat competition. We can probably risk the casualties that will follow from moderate price cutting made simultaneously with other recovery measures.

#### *Nonresponse of demand to price reductions*

Very important is the fear that demand will not respond to price cuts. This may be treated under three general subheadings.

First, the psychology is frequently met among buyers that price cuts imply a lack of quality in the product. This should not be serious in a general recession, when any price cut could reasonably be attributed to the overall decline in demand. Some firms can also cope with it by putting out new, low-priced models while keeping the previous, higher priced models on the market for those still able and willing to pay their price.

Second, with some commodities there is evidence that price cuts do little to stimulate purchasing. The proof that demand for steel is inelastic with respect to price, as presented in the study prepared for the Temporary National Economic Committee by the United

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<sup>27</sup> First National City Bank of New York, monthly letter, March 1958, p. 28. United States Steel has not earned a higher return on its assets, which are larger in comparison with sales than the industry average; but it is the margin on sales that determines the severity of the impact of a price cut.

States Steel Corp., under the direction of Theodore O. Yntema,<sup>28</sup> has been generally accepted. The same principles, in particular the one that demand for steel is "derived" from the demand for other goods rather than independently determined, apply to capital goods generally. Any plea to cut prices of capital goods in order to stimulate buying must take full account of this consideration and must, therefore, be tied in with measures to stimulate recovery in the demand for consumer goods. Otherwise the results may prove feeble, or worse.

Although demand for consumer goods is more price-elastic than that for capital goods, even here there are many commodities which may respond poorly to price reductions. This is especially true of durable goods. Thus, several studies of automobiles—and the same is true for housing—have shown that price is but one of the factors determining demand.<sup>29</sup> There is even some current evidence of failure of high prices to discourage consumers, as in the relative success in early 1958 of the Chevrolet "Impala" series as compared to the lower-priced series of the same car.

But there is also evidence encouraging to the theory of consumer goods price flexibility. An example is the boom in appliance sales in February 1958, when General Electric and Sunbeam Corp. abandoned fair trading. Some other less sensational instances of successful price cutting have been reported. In automobiles themselves, an open and publicized 10-percent reduction in prices would probably revive general buying interest in a way that the private bonuses by manufacturers to dealers and discounts by dealers to consumers are not doing. Here, and in construction, another area in which prices have been rising faster than the average, a price reduction could have a real influence even if—or, better stated, just because—all other factors are unchanged.

How far demand for consumer goods will respond to a price cut depends on many factors, such as the size of the public's stocks of the product on hand. Nevertheless, for the average commodity and in the average situation, some response is natural and may be expected sooner or later.

Third, there is a widespread belief that holding the price line is a good way to preserve confidence. That there is truth in this position cannot be denied, and it has been supported by eminent authorities—J. M. Keynes and Sumner H. Slichter, to name only two. When people learn that a given industry is beginning to cut prices they may react by thinking, "Things must be worse than we had realized; let's wait to buy until they begin to look better, or at least until the price decline is over." So demand dries up until buyers think "rock bottom" has been reached.

This is a real problem, but as times goes on the remedy of holding the price line while demand keeps sliding off looks more and more like taking refuge in illusions rather than facing facts. The best protection against this drying up of demand when prices are cut is to make the reductions so drastic as to give buyers confidence that the bottom has in fact been reached. They must also be coordinated in time with other antirecession measures if they are to revive the willingness to purchase rather than merely break confidence further.

<sup>28</sup> Temporary National Economic Committee Hearings, pt. 26, 1940, pp. 13913-13942.

<sup>29</sup> The first such study was by Charles F. Roos and Victor von Szeliski, *Factors Governing Changes in Automobile Demand in the Dynamics of Automobile Demand*, General Motors Corp., New York, 1939.

## PRICES ONLY ONE PART OF A BALANCED RECOVERY PROGRAM

In February and March 1958, public attention seemed to be entirely directed to Keynesian remedies for the recession, and adjustment of prices to the changed volume and directions of demand was being ignored. Perhaps this is because the obstacles to price cuts which we have reviewed, and especially the rigid and rising wage level (including automatic escalator clauses tied to the cost of living and to productivity), have made price cuts seem impossible. If this remains our attitude, recovery will be longer delayed. Price adjustments have played an essential role in stimulating recovery from past depressions and should help to do so again.

But the seller cannot do the whole job. The buyer must meet him halfway. We must have a recovery of business and consumer confidence to bring back into the market buyers for whom the real trouble is not prices they cannot afford to pay but faith in the future that they lack. The less we get in the way of price adjustments, the more confidence will be required; and the less of both, the more Federal spending or tax cutting. But public spending takes a long time to start and is slow in stopping, while in the absence of confidence funds spared by the tax collector may be used to pay debts and build up bank balances. Moreover, until we learn to build up a Treasury surplus in time of prosperity, Federal deficits during depressions will spell long-run inflation. It could save much waste and effort if cost and price adjustments (along with introduction of new products, and any other methods by which business can stimulate buying) play their full part in a complete, well-balanced and well-timed recovery program.

It is regrettable that economists have been able to compile so little reliable and convincing information on the merits and demerits in practice of the policies of price stability and price flexibility, so that one's choice between these policies and among their possible variants must be determined almost by hunch. More broadly, it is discouraging that there is still so much disagreement among economists on appropriate cyclical policies, and so little success in getting across to public opinion the points on which economists do agree. The most practical ways of controlling the spiral of prices and wages, evening out credit expansion and contraction, and accumulating a surplus in prosperous periods are still not known, or if any of them are known to some, these do not include many of those who would have the duty of putting them into practice.

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VIII  
FORMULATING PUBLIC POLICIES FOR ECONOMIC  
STABILITY AND GROWTH

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VIII. *Formulating public policies for economic stability and growth*

- A. What are the merits and limitations of the alternative policies for promoting economic stability and growth?
  1. Monetary and debt-management policies with their various subclassifications?
  2. Fiscal policy, including taxes and expenditures?
  3. Direct controls giving consideration to their peacetime acceptance and selectivity?
- B. What criteria can be used to determine the optimum combination of the various types of policies?

## AN ECONOMIC POLICY FOR ECONOMIC GROWTH AND STABILITY

O. H. Brownlee, University of Minnesota

I shall present my beliefs with respect to the general outlines of economic policies which will best promote economic stability and at the same time will permit the amount and composition of capital investment (including that in factors giving rise to technological improvement) to be determined in somewhat the same manner as are other resource-allocation decisions in a free economy. I shall not rationalize adequately my assertions by presenting a detailed picture of how I believe the economy operates, since the earlier presentations before the committee have been devoted to this subject. Furthermore, my prescriptions are suited to a fairly wide variety of diagnoses.

My proposals are not original and have been drawn from numerous sources. Briefly stated, they are as follows:

(1) There should not be direct control of product prices, wages, or interest rates. Direct controls make it impossible to obtain information that otherwise would be available with respect to peoples' preferences for various goods and services and their willingness to sacrifice current consumption for potential future consumption. Such information is vital for determining how much growth should take place and for achieving any given amount of growth at minimum cost.

(2) The primary stabilizing mechanism should be a "stabilizing budget" such as has been proposed by the Committee for Economic Development and by Professor Milton Friedman.<sup>1</sup> The schedules of Government payments to the public and receipts from the public should be established so that these two quantities are equal at a desired level of gross national product and so that receipts exceed payments for values of gross national product above the desired level whereas payments exceed receipts for values of gross national product below the desired level. An excess of payments over receipts should lead to an increase in the amount of money in the hands of the public as a result of monetary issue to fill the deficit. Symmetrically, an excess of receipts over payments should lead to a decrease in the quantity of money in the hands of the public. These automatic changes in the money supply can act as a stabilizer in that they will tend to push the level of gross national product toward the predetermined desired value. This desired value will move upward through time as a result of economic growth, and the payments and receipts schedules must be revised periodically in accordance with this growth.

It should be noted that if such a proposal were to be put into practice, an independent monetary policy designed to influence the overall

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<sup>1</sup> Taxes and the Budget: A Program for Prosperity in a Free Economy, a statement on national policy by the Research and Policy Committee of the Committee for Economic Development, November 1947, and Milton Friedman, A Monetary and Fiscal Framework for Economic Stability, *American Economic Review*, XXXVIII (June 1948), pp. 245-264.

level of spending could not be pursued. For example, if the monetary authority were to purchase securities in order to increase the money supply during a period in which gross national product was at or above the desired level, this money automatically would be withdrawn by the Treasury. The monetary authority might possibly influence the rate of interest and hence the rate of growth, but not the current aggregate money income level.

(3) The amount of Government investment should be such that its marginal rate of return is the same as that of private investment. I am aware that this statement is largely an exhortation to "do good" without specifying how marginal rates of return on Government investment should be computed and that I cannot, for lack of both time and competence, deal adequately with this problem. However, it is my contention that regardless of the procedures employed in determining rates of return on governmental investment, an improvement over existing procedures would result from following my proposal.<sup>2</sup> In particular, it would avoid wide variations in Government expenditure for capital investment as a stabilization device. It is uneconomic to expand and contract expenditures on such items as roads, schools, and dams simply because total expenditure is temporarily below or above desired levels.

To finance governmental investment, the Government should sell securities to the public paying interest rates such as are necessary to clear the market. Expansions in Government investment will thus compete more directly with private investment and will be judged more upon their effects upon economic growth—the criterion most applicable for making such decisions. In effect, the Government will be trading securities for goods and services to be used for investment purposes as does a business when it issues bonds or stocks to finance expansion.

(4) Government provision of current goods and services which are essentially in the nature of consumer goods and services should be at a level such that the marginal values of these goods and services are the same as those of privately produced goods and services. This statement also is another exhortation to "do good," but it can be made into a more definite criterion for action if markets for such goods and services are more widely employed or if market conditions are more widely simulated in making such expenditure decisions.

In effect, I am proposing that Government establish a capital budget, the level of which would be determined by expected returns from Government investment in comparison with private investment. This budget is not to be used for stabilization purposes, although it will, in general, exert some stabilizing influence. Expenditures on capital items will be financed by long-term Government debt. Payments and receipts in the current budget will balance at a desired level of gross national product, receipts consisting of tax collections and payments consisting of expenditures for Government consumption plus transfer payments plus debt repayment. Monetary policy would no longer be concerned with economic stability.

In the sections that follow I shall elaborate upon these proposals and indicate how they will contribute to stability and growth.

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<sup>2</sup> See Arnold C. Harberger, *The Interest Rate in Cost-Benefit Analysis, Federal Expenditure Policy for Economic Growth and Stability*, Joint Economic Committee, Congress of the United States, 85th Cong., 1st sess.

## THE ABSENCE OF DIRECT CONTROLS

Most economists profess a belief in the efficiency of a free market as a device for allocating goods and services among various potential producers and for allocating productive resources among various alternative users. Consequently, I may be whipping a dead horse in accenting the absence of direct controls upon prices, wages, and interest rates as a part of a proposed policy for growth and stability. However, since talk of administered prices, the need of wage controls if we are to have both a stable price level and full employment, and qualitative controls upon borrowing to prevent inflation still persists, I hope that I am justified in devoting a few words to my reasons for not employing direct controls.

I have mentioned, in summarizing my proposals, the importance of the information provided by the price system. Such information shows those goods whose output should be expanded, where labor is most productive and the areas of investment in which investors expect to make the greatest returns. If upper limits are placed upon prices and these upper limits are effective, there are shortages of all of the goods and services whose prices are limited. There is no easy way of determining the relative importance of the various shortages. Furthermore, some other criteria—such as “first come, first served” or “friends and relatives served first”—must be worked to ration available supplies. I must confess that I have never fully understood the significance of the term “administered price.” It is true that some producers may pursue a price policy, i. e., they may choose to establish a price at which they will sell their product. However, if they make such a choice, they cannot also choose the quantity to be sold. A monopolist who chooses to maintain price unchanged and let only the quantity sold contract during a period of declining demand is not acting in his own self-interest—if profit maximization is his objective.

Monopoly imposes a cost upon the entire economy—through less production of monopoly-produced and more of competitively produced goods and services than is optimal. If monopoly is important in our economy, the source of monopoly power should be uprooted through assuring freedom of entry into any line of production to those who can obtain the required resources. Price control is not the answer.

Many statements have been made during the past decade about the incompatibility of arbitrarily determined money wage levels, full employment, and a stable general level of prices. These statements are true. One cannot have money wages rising more rapidly than the productivity of labor without having either a rise in the price level or less than full employment. In my estimation, however, the price level has determined money wages rather than money wages having determined the price level. In the event that my belief is incorrect, the cure, again, is not wage controls but the establishment of conditions whereby entry into trade unions is without restrictions.

Frequently interest rates have been viewed in a different light from prices, and some persons unwilling to accept price and wage controls have advocated controls on interest rates with the objective of increasing or diminishing demand for particular types of capital goods. The same kinds of objections that were raised to direct controls on

the prices of individual goods and services or wage rates apply also to qualitative controls on interest rates. They can lead to a distortion in the price pattern of capital assets and to overinvestment in certain types of capital assets and underinvestment in others. Thus, whatever capital formation takes place is not of the best composition.

The objection is not that prices or wages should be uncontrolled in a general sense. Economic stability implies stability in the general level of prices and a rising level of real wages. But, broad controls—those over a general price index or a representative interest rate—rather than specific controls are urged. Relative prices, wages, and interest rates should be free to adjust to changes in supply and demand conditions if currently available resources are to be efficiently utilized and the growth that is to occur is at rates desired by the society.

#### THE STABILIZING BUDGET

As potential stabilizing devices, changes in Government expenditure, changes in net tax collections (tax collections minus transfer payments) and the purchase or sale of securities by an agency of the Government (such as the Federal Reserve Bank) have been advocated by economists. Any of these devices or any combination of them could be instrumental in establishing some given equilibrium level of total spending in the economy. For example, a tax reduction, an increase in Government spending or the purchase of securities from the public could raise the equilibrium level of gross national product. However, even though they may be equally effective in influencing this equilibrium level, they need not bring about the desired adjustment with equal speeds nor will their effects upon economic growth be the same.

Relatively little is known about the speeds at which the desired eventual adjustments might be reached as a result of the various fiscal or monetary changes that could be made. Some recent investigations indicate that substantial amounts of time have elapsed between the peaks in the rate of increase in the supply of money and the peaks in the general level of economic activity during a period dating from soon after the Civil War to the present. Such evidence suggests that the lags between changes in the quantity of money brought about by open-market operations and changes in the general level of economic activity have been on the average a little more than a year. No comparable direct evidence is available with respect to tax changes and changes in Government expenditure, but one investigator claims that there has been no noticeable lag between changes in income and changes in consumer expenditure.<sup>3</sup> Tax collections directly affect disposable income, and Government expenditure for goods and services—unless it changes only inventories—increases wage payments and profits, both of which are income components. It is my guess that fiscal changes have speedier effects than do monetary ones, particularly insofar as monetary changes first influence the level of investment—business plant and equipment, housing, and some consumer durable goods.

<sup>3</sup> Lloyd A. Metzler, *Three Lags in the Circular Flow of Income*, included in Lloyd A. Metzler et al., *Income, Employment, and Public Policy*, New York: W. W. Norton & Co., Inc., 1948.

Variation in net tax collections (taxes minus transfer payments) rather than in Government expenditure for goods and services has been chosen as a means for damping fluctuations in gross national product because it is believed that the resulting resource allocation would be superior. If one could diagnose accurately the reason for an increase or decrease in aggregate demand for goods and services, a combination of a change in Government expenditure and in taxation might be still better than a change in net tax collections alone. However, it usually is difficult to determine the structure of the change in demand until some time after it has taken place. Furthermore, if it can be ascertained that a long term shift such as a decline in demand for private investment and consumption relative to Government investment has occurred, an upward adjustment in Government spending can be made.

*The stabilizing budget and economic growth*

Because net tax collections are directly related to gross national product, a fall in gross national product is accompanied by a decline in net tax collections. With Government expenditure constant, and assuming that a balanced budget existed initially, a deficit occurs. This is filled by monetary issue. A rise in consumption expenditure as well as private investment occurs. In general, one would expect the interest rate to fall. The deficit is of course wiped out as soon as gross national product returns to the value from which it fell initially. And, if a change in preferences accounted for the initial decline in aggregate demand, the structure of gross national product will be changed in accordance with these preferences.

Suppose that there is a decline in the willingness to undertake private investment—as apparently has occurred during the current recession. This is reflected in less willingness to borrow for plant and equipment purchases and a decline in the rate of interest. The impact of the stabilizing budget is to push gross national product toward a value equal to the initial one but in which consumption relative to investment is larger. And, if Government investment is guided by interest rates in the private sector, an upward adjustment in this category of investment also would be warranted at the earliest periodic budgetary review. The decline in private investment denoted (1) an increase in the desire for present rather than future goods, that is a decline in the desired rate of capital accumulation and economic growth, and (2) a desire for less private investment relative to Government investment. And, a move toward fulfillment of these desires has been made as a result of the stabilizing budget.

Economic growth, defined in many different ways, depends upon the rate and composition of capital accumulation and improvements that take place in technology. The very high rate of capital formation in Russia during recent years has been, in part, responsible for what appears to be a relatively rapid economic growth in that country, just as low rates of capital formation in Egypt, India, and some Latin American countries relative to the fairly high rates of population increase have meant low rates of increase in per capita income. However, a given amount of capital can be used in different ways, some of which will lead to larger amounts of output than others, so that

the composition of net capital formation as well as its absolute amount is important. The construction of plant and equipment in certain Latin American countries for the manufacture of items in which these countries have no comparative advantage in international trade has resulted in less rapid growth than would have been possible had the capital been used in other ways. Using production techniques which permit more of a given product to be produced from a given amount of resources—such as has occurred in agriculture from the use of hybrid seeds and meat animals—obviously increases per capita output. Just how important capital formation has been relative to technological improvement in accounting for economic growth in any country is difficult to determine. Generally the use of a new technique requires a different machine or other capital item than previously was used and hence also requires additional capital. Our procedures for valuing capital do not permit us to separate accurately the contribution of the discovery from that of the capital. Furthermore, the development of improved technology might be considered as capital formation, particularly insofar as it is the result of research requiring investment in training and equipment. Investing in research is an economic problem comparable to that of investing in machines or drilling for petroleum, so that one need not separate technological improvement, as a kind of capital formation, from the other varieties.

A country could channel a very large proportion of its current income into investment in plant and equipment and research—as the Russians apparently have been doing—and its potential productive capacity would grow more rapidly than if the proportion of its current income invested in this way were small. However, a larger growth rate obtained in this way is not necessarily better than a smaller one. A larger proportion of income used currently to expand productive capacity and improve technology means that more consumption could take place in the future but less in the present.

Just as one would compare what people are willing to give up of one commodity for another with what they have to give up in solving the problem of how much of each to produce, one can compare what people are willing to give up of goods and services in the present for goods and services in the future with what they have to give up in deciding how much of current income should be sunk into plant, equipment, and research. Those who trade current for future consumption—the “lenders” or “savers”—whether they be persons building up savings deposits, their holdings of equities in corporations, or persons using their own labor and materials to make additions to their houses—are willing to save more of a given income at higher rates of return than at lower ones. Those who use resources currently for production in the future—the “borrowers”—whether they be persons building houses, school boards constructing schools, “wild-catters” drilling wells that may or may not produce petroleum, or corporation presidents deciding whether to expand research activities—are willing to use more of current income for these investment purposes at lower rates of interest than at higher ones.

The amount of capital formation that will be such that what investors are willing to invest is equal to what savers are willing to save depends upon the amount of government expenditures. But the amount that should take place is not arbitrary—if the amount of government expenditure is determined in accordance with the criteria

suggested as a part of this policy package. One would expect it to vary over time. Once productive capacity has been built up so that excess capacity exists or would exist if the previous rate of accumulation were maintained, continued accumulation at the previous rate would be uneconomic. Similarly, if productive capacity has been destroyed or kept from growing—by a war, for example—a rapid buildup generally would be desired. Achieving variation in the desired rate of capital accumulation as expressed in the market is compatible with the stabilizing budget.

*How much stability can we have?*

If a stabilization program such as has been outlined here were to be put into effect, how much stability could be achieved? A precise answer to this question probably cannot be supplied, since the nature of the source of fluctuations affects the amount of variation that will occur. However, I believe that the amount of stability would be greater than that which has been experienced during the past decade which—with the exception of the period July 1950 to March 1951—has been one of the most stable in our history.

During the past decade our fiscal system has contained a considerable degree of built-in flexibility. For example, current net tax collections have been rather closely geared to current income payments. In the private sector, stock dividends have varied much less than corporate profits. However, built-in flexibility in the fiscal system and a stabilizing budget are not the same things. Under built-in flexibility, a deficit or surplus need not be treated in the same manner as in a stabilizing budget. There are not the provisions for changing the money supply as have been proposed here. Those persons who contend that we have had an adequate test of automatic stabilization procedures are incorrect, for such a procedure is not a part of our current policy.

Furthermore, the Government itself probably has been a source of instability. There have been fairly substantial variations in expenditures, at a given level of income, not matched by variations in receipts and not designed for stabilization purposes. Open market operations may have contributed to instability, because of the time lags in their effects. Budget policy—while an improvement over that of 30 years ago—still is not pointed toward achievement of a balance at a desired level of gross national product. In fact, data regarding the prospective receipts and expenditures of the Federal Government have been extremely difficult to interpret so that one does not know at what income level the budget would balance.

The introduction of forces that automatically push the income level back toward its equilibrium value (as does the stabilizing budget) rather than merely reduce the change in the equilibrium value (as does built-in flexibility), making the budget balance at a predetermined income level and elimination of open market operations as an instrument of stabilization policy would lead to greater stability than we have had.

#### GOVERNMENT INVESTMENT

The role of Government investment as a factor in economic growth already has been stressed in this paper. If Government investment is at a level such that its marginal rate of return exceeds that of private investment, there is too little Government investment in the bundle

comprising the total of capital formation. Similarly, if the marginal rate of return on Government investment is less than that on private investment, there is too much Government capital formation relative to private capital formation. I am aware that there are many ways of estimating rates of return on governmental and that each may yield a different answer. However, as a beginning, whatever the procedure employed to estimate returns, an investment should not be made unless these returns are at least as large as would be obtained if one, for example, purchased a bundle of stocks selected at random.

The fact that Government may be able to borrow at more favorable terms than private borrowers should have little to do with the determination of investment policy. The differential between rates at which Government may borrow and those at which private businesses may obtain funds do not reflect lenders' estimates of the productivities of the investments. They result from lenders' knowledge that Government does not have to rely on earnings to repay loans.

In general, Government investment should grow as national income grows, because of productivity considerations. However, like private investment, the growth rate need not be a constant. From a given set of prospective governmental investments with their corresponding expected rates of return, more should be undertaken at lower rates of interest than at higher ones. A fall in the productivity of private investment should lead to a rise in Government investment. Thus, although Government investment should not be considered as a stabilization device, it would tend to vary inversely with private investment in situations where private investment opportunities varied. Similarly, if there were shifts in governmental investment opportunities and Government borrowed from the public to finance its investment, private investment would increase in response to a fall in Government investment. Some additional stability could result from a policy designed to influence growth.

#### SUMMARY

I have attempted to sketch the bare outlines of a package of proposals which I believe should form the backbone of Government action for economic stability and growth. To obtain at least cost a growth rate which is desired by the population, the level of Government expenditure for goods and services should be determined by productivity criteria rather than by its effect upon economic stability. Fluctuations in economic activity should be damped by means of a stabilizing budget. How much stability this would bring cannot be estimated accurately but would exceed what we have had during the past decade.

The kind of stabilization action proposed is largely automatic. If accurate forecasts could be made, discretionary action could achieve greater stability. However, until greater forecasting accuracy than has been thus far demonstrated is achieved, discretionary action is unlikely to achieve the degree of stability that can be provided by the programs proposed here.

## THE COORDINATION OF PRICE, WAGE, FISCAL, AND MONETARY POLICIES IN NORWAY, SWEDEN, AND THE UNITED STATES

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In recent years it has become increasingly clear that there has developed a great need for the coordination or integration of private and public economic policies. Since 1945 both the Government and private economic groups have found it necessary to develop a variety of policies to meet a large number of economic problems, prominent among which are the problems of full employment, price stability, and sustained growth. Especially since the close of the Second World War has there been a growing feeling that economic policies should be coordinated at some top national level. In 1950 the Council of Economic Advisers, when discussing price, wage, and tax policies, pointed out that "none of these policies can proceed successfully in splendid isolation. There must be some top point at which they are all reconciled and synthesized." Again in 1955 under the Eisenhower administration the Council called attention to the overriding need for an integration of economic policies. Since 1946 we have made considerable progress under the Employment Act in setting up new institutional arrangements for the coordination of economic policies. The Council of Economic Advisers, the Joint Economic Committee, and the Advisory Board on Economic Growth and Stability are representative of these new developments which point in the direction of an overall consideration of economic policy. More recently the occasional meetings of the President, his special economic adviser, the Secretary of the Treasury, the Chairman of the Board of Governors of the Federal Reserve System, and the Chairman of the Council of Economic Advisers indicate a further interest in the integration of private and public economic policies for growth and stability. But as yet we have made only a start in this direction. We still have the situation where at times the Government moves in one direction, while organized labor and businessmen go off in a different direction as happened in 1957 when the Government stiffened monetary controls with the aim of reducing inflationary pressures, but prices and wages continued to move upward. The paramount need of today is for a more effective coordination of private and public economic policies to the end that economic stability and sustained growth may be achieved. An analysis of the experience of the Scandinavian countries in coping with the problem of economic policy coordination since 1945 not only throws some much-needed light on this complex problem, but also indicates possible lines of further development in the coordination of economic policies which may be worthy of consideration with respect to similar problems in the United States.

The economies of Denmark, Norway, and Sweden are today substantially different from what they were in the early postwar years.

From 1946 to 1949 the problem of coordinating private and public economic policies was made difficult by the large shortages and frequent bottlenecks of the reconversion period. Strong economic pressures reappeared during the Korean war, but since 1953 the Scandinavian countries have returned to a more normal, peacetime pattern. Supplies are now abundant, and markets offer a wide variety of goods. The internal economic situation in these countries is substantially the same as that found in the United States today. They are faced with similar economic problems such as the securing of full employment, adequate growth, and price stability. The run of events in the Scandinavian countries since 1945 has been accompanied by a gradual reduction of direct economic controls. At present wages are determined by free collective bargaining, most prices are free from direct controls, and fiscal and monetary measures parallel those adopted in the United States. The only significant difference is that the Scandinavian countries continue to maintain limited import and export controls, and also continue to regulate the amount of building activity. As these countries have moved from direct to indirect controls, the coordination of economic policies has been increasingly secured through consultation and negotiation between the government and the nation's major economic groups within the framework of the annual national economic budget.

#### THE BASIS OF ECONOMIC POLICY COORDINATION IN NORWAY AND SWEDEN

When one considers the coordination of economic policies in its broadest aspects, he has in mind primarily the coordination of fiscal, monetary, price, and wage policies. Today in all advanced countries efforts are being made to achieve sustained and adequate economic growth without inflation by constructing appropriate policies along these four lines. Since the government is primarily responsible for fiscal and monetary policies, while private business (including agriculture) and organized labor are in large part responsible for price and wage policies, there is a clear need to bring together these various sources of economic power which lie behind all major economic policy determinations. In the Scandinavian countries such a development has made considerable progress since 1945. In these countries it has been found that the government's control over fiscal and monetary policies is not enough to assure economic stability and adequate growth. The ability of business and labor to influence prices and wages somewhat independently of the government has been met with a special program for integrating all the nation's basic economic policies.

The method by means of which the governments in the Scandinavian countries coordinate public and private economic policies is the "budgetary" method, a method which involves the use of the national economic budget. This budget shows each country's total output in the coming year or longer period and its distribution among private consumers, private business investors, and the various levels of government. In Norway and Sweden national economic budgets have been annually published since 1947 as a basic guide for the coordination of private and public economic policies. These economic budgets are not the basis of any economic blueprints for the rigorous planning of economic activities. On the contrary they reveal only broad

economic relationships among total production, consumption, and investment which are consistent with the goal of sustained economic growth. The Norwegian and Swedish national economic budgets are, in essence, projections not of rigid output quotas but of feasible and flexible national economic goals or objectives, which together constitute a general economic framework within which fiscal, monetary, price, and wage policies may be worked out and effectively coordinated in the national interest.

Recent Norwegian experience provides a good illustration of how the national economic budget may be used as the starting point for the integration of private and public economic policies. Other Scandinavian countries follow the Norwegian practices in this connection with relatively unimportant variations. The Norwegian national economic budget statistics presented below show the total supply of final goods and services available for domestic use in Norway in 1956, the projected total output for 1957, and the actual total output achieved in that year. Total supply in 1956, which was \$4.04 billion, was projected to increase to \$4.14 billion or by 2.5 percent in 1957. Measured in constant prices, the total supply of goods and services actually achieved in 1957 was \$4.16 billion or 3 percent more than in 1956.

*Norway's total internal supply of goods and services and its distribution, 1956 (actual) and 1957 (projected and actual)*

	1956 (actual)	1957 (projected)	1957 (actual)
	I	II	III
Total supply (in billions of 1956 dollars).....	\$4.04	\$4.14	\$4.16
Components of total supply (in percent):			
Defense.....	3.2	3.2	3.2
Public consumption.....	7.0	7.1	7.2
Private consumption.....	55.3	55.5	53.2
Public investment.....	7.6	7.8	8.6
Private investment.....	26.9	26.4	27.8
Total.....	100.0	100.0	100.0

Especially important is the distribution of Norway's total domestic supply of goods and services among various public and private consumption and investment uses. Column I shows the actual division of the 1956 total domestic supply, column II shows the projected or estimated division for 1957, while column III reveals the actual distribution made in 1957. The actual distribution in 1957, as the output statistics reveal, very closely follows the distribution projected for that year, the only variation being that private consumption did not reach the projected level of 55.5 percent of total supply, while public and private investment together exceeded the projected or planned level of 34.2 percent of total supply. Private consumption was 2.3 percentage points less than intended or projected, while actual public and private investment were larger than projected by approximately the same amount. Since there is a great need for private and public investment in Norway, the tendency since 1945 has been to weight the annual programs, when carrying them out in practice, in favor of investment rather than private consumption.

The Norwegian projections of total output and its various uses are annually presented to the Norwegian Parliament for its consideration, as is also done in Sweden. After it has been submitted in this manner, the national economic budget is published and then becomes a general guide for economic policy formulation and economic policy coordination. Government, business, agricultural, and labor leaders use this budget as a point of reference in their deliberations about economic policies and proposed economic measures. During the year, monthly reviews are made by the Government of how closely actual economic developments are following the projections laid down in the annual national economic budget. Where sizable deviations between the annual projections and actual developments show up, appropriate changes in private and public economic policies are made. In the first postwar decade Norway and Sweden were very successful in achieving the desired division of total output between various investment and consumption uses. As a consequence of this development the balance between investment and consumption, or between the power to produce and the power to consume, has been well maintained. This balance has been secured by coordinating effectively price, wage, tax, monetary, and related private and public economic policies. Economic growth has been well sustained in the Scandinavian countries since the close of World War II. The only major difficulty that has been encountered has been that of preventing the development of inflation in the postwar high-pressure economies of the Scandinavian countries.

#### SCANDINAVIAN PRICE POLICY SINCE 1953

In the years immediately following World War II prices in the Scandinavian countries were subject to comprehensive direct controls. However, as soon as productive capacity was enlarged and bottlenecks were eliminated, these direct price controls were gradually abolished. Since the Korean war comprehensive, direct price controls have been largely eliminated until today these controls apply only to a few food products and scarce imports. In general, the price systems of the Scandinavian countries may now be described as free price systems. For most products, businessmen are free to set their own prices, subject to the limitation, however, that the Government may, in the case of a particular commodity or service, question the reasonableness of its price. In this situation investigation may lead to a price adjustment which is believed to be in the national interest, after negotiations have been carried on between the Government and the producer of the goods or service.

Since Norway has led the other Scandinavian countries in recent years in working out a national price policy for a peacetime, full-employment economy, special attention will be given here to its price regulation experience which has been substantially duplicated in the other Scandinavian countries. In 1949, Norway began to liquidate its program of overall direct price controls which had been established during the war, and which had been carried over into the postwar period. In 1953, the Norwegian Parliament enacted a comprehensive law for the control and regulation of prices, profits, and business practices. The aim of this new price law is to get away from the old-style overall direct price controls and to replace them, where necessary, with a more flexible, selective system of price regulation. The general pur-

pose of the new national price policy is to abolish price regulation except in those individual cases where it is found to be necessary to preserve the national interest. This means that under the new price policy businessmen are free to determine their own prices with the Government intervening only when it feels that a particular price is not at a reasonable level. The Norwegian Government is especially concerned with the prices set by trade associations in the small-scale industries and by large business organizations such as the power, wood-product, chemical, and local utility enterprises. The 1953 price act permits the Government to require a reduction in prices where it is found that prices are unreasonable. What a reasonable price is is a matter to be settled by consultation between the price authority (the Price Directorate) and the firm or industry which is involved. Prices are held to be reasonable (1) if they do not contribute unnecessarily to a rise in the cost of living, (2) if they provide adequate rewards for risk taking, and (3) if they contribute satisfactorily to the supply of internal company funds which are available for modernizing and expanding plant and equipment. The procedure is for the price-regulating authorities to examine the price structure of each industry to see how it meets the above-mentioned standards.

With regard to their effect on the general price level and hence the cost of living, a firm's or industry's prices must not be raised where increases in production costs can be absorbed through greater efficiencies in production. Increased profits are to be secured not through price increases, but through reductions in per unit costs of production obtained by improving the methods of production where this is possible. Price increases are permitted, however, where higher costs of labor or raw materials are not offset by greater efficiencies in production. This is frequently the case in agriculture where the prices of milk and milk products are directly tied to wage rates. Where higher wage rates cannot be absorbed by businessmen or farmers, they are passed on in the form of higher prices without objection on the part of the price-regulating authorities.

Norwegian price policy recognizes that prices and profits are intimately associated, and that the regulation of prices cannot be effectively separated from the regulation of profits. The Price Control Act of 1953 takes account of this fact by giving the Government the power to regulate profits as well as prices where such regulation is held to be in the general interest. Under Norwegian price policy reasonable prices should provide reasonable profits. What constitutes a reasonable profit on a company's net worth or invested capital is a matter which is determined by negotiation with the business involved. Firms may justify their prices and profit margins on the grounds (1) that they are needed to attract venture capital, or (2) that they are required to provide a supply of internal company funds in the form of retained earnings or profits for capital expansion purposes. The price directorate has not attempted to work out any general criteria by means of which the reasonableness of profits might be indicated. Instead, the price-regulating authorities have preferred to proceed in a more pragmatic manner, and to examine each price-profit case in terms of the special circumstances surrounding the firm or industry which is under investigation. Price increases which go beyond the levels needed to provide profits as an attraction to new external capital or for internal

investment purposes are held to be unreasonable, and are not approved by the price-regulating authorities.

It should be noted that price, profit, and investment policies are also related to the broad investment goals which are set forth in the annual national economic budget. As has already been explained, Norway and Sweden annually publish private investment goals which are determined by the projected rate of economic expansion. Steps must also be taken to be certain that enough internal and external funds are made available to individual business enterprises to finance the projected annual private investment total set forth in the annual economic budget. One of the sources of these investment funds is the retained profits of private business enterprises. Prices in general must therefore be high enough to permit the accumulation of retained profits which, when added to other funds obtained from depreciation funds, bank loans, and bond issues, will prove to be sufficient to finance the desired total annual amount of private business investment in plant, equipment, and inventories as projected in the annual national economic budget. For example, in Norway the projected 1957 private investment goal was 26.4 percent of the projected total internal supply of goods and services valued at \$4.14 billion. The total private investment goal for 1957 was, therefore, \$1.1 billion of plant, equipment, and inventories. It was necessary in that year to make certain that private investment funds arising from retained profits, depreciation funds, bank loans, and other sources would be sufficient to finance the projected private investment goal of \$1.1 billion. Since in the Scandinavian countries much private investment is financed from internal company sources, such as depreciation funds and retained profits, it is essential that prices be high enough to permit the accumulation of the desired retained profits. However, it is the duty of the price control authorities to see to it that profit levels do not exceed the level which is appropriate to the investment needs of each industry, and of all industries taken together.

The Norwegian Price Act of 1953 also permits the Government to limit the amount of dividends which are paid out by business enterprises. Currently, companies cannot pay more than 6 percent on their share capital, unless they receive special permission from the price-regulating authorities to pay higher dividends. The purpose of the dividend limitation is to have businesses use their earnings for capital expansion purposes rather than to have them pay out their earnings very largely as dividends to stockholders. This limitation on dividends reduces consumption and enlarges private investment in accordance with the consumption-investment goals set forth in the annual national economic budget. Where there is a need to attract outside funds and risks are high, higher dividends may be permitted by the price-regulating authorities. In fiscal 1955-56, for example, the average dividend for those companies exempted from the 6-percent dividend limitation was 11 percent on their share capital.

#### THE COORDINATION OF WAGE AND PRIVATE CONSUMPTION POLICIES IN NORWAY AND SWEDEN

Wage determination in the Scandinavian countries is conducted on a basis of free collective bargaining between employers and trade unions, with the Government refraining from direct intervention in

the wage-negotiation process. This process, though free from governmental interference, is highly centralized but on a private basis. Confederations of employers and of trade unions assume responsibility for the overall guidance of negotiations looking forward to changes in wage rates. This guidance takes the form of endeavoring to keep average hourly wage-rate increases close to improvements in national productivity and to increases in the cost of living which result from higher import prices. The Government in Norway and Sweden provides the general economic framework within which this free collective bargaining takes place. This framework is the annual national economic budget, which indicates the total private consumption goal for the coming year. Since approximately 65 percent of this consumption goal is annually taken up by wage incomes, national private consumption policy and wage policy must be closely integrated.

Since 1953 Norwegian and Swedish national private consumption policy has projected about the same annual increase in total private consumption as in total national production. Both have been projected to increase at an average annual rate of approximately 3 percent. The confederations of employers and of trade unions have used this growth criterion as a general guide in their negotiations for wage rate increases, and in doing so they have endeavored to keep changes in total wage income close to changes in total national output. However, they have not been entirely successful in achieving this objective, because of what is described as the "wage slide." In the high-pressure, postwar economies of Norway and Sweden where the unemployment rate has been extremely low, individual employers have secured workers by paying hourly wage rates above the negotiated wage rates approved by the employers' and trade unions' confederations. The resulting "wage slide" or "wage glide" has created excessive wage incomes, which have added to the economy's inflationary pressures. In recent years about one-half of the increase in wage rates in Norway and Sweden has been attributed to wage negotiations, while the other half has resulted from "wage sliding." As a consequence of these developments, wage rates and wage incomes have increased more rapidly than was called for by the Government's private consumption policy. Excessive increases in wage incomes, if they had not somehow been successfully offset, would have upset the consumption-investment balances projected in the Norwegian and Swedish annual national economic budgets. Too much of the nation's total production would have been diverted to private consumption, and too little to private and public investment.

The problem of adjusting wage incomes to the desired private consumption level has been successfully met in Norway and Sweden by making the necessary tax adjustments where changes in wage rates and wage incomes have not been in line with the private consumption goals laid out in the annual national economic budgets. By increasing sales and other taxes the Government has reduced the buying power of wage earners and other income-earning groups to a level where no more private consumption than that projected in the annual national economic budgets has taken place. In other words, inflationary increases in wage incomes have been successfully sterilized through appropriate fiscal adjustments.

The Norwegian and Swedish statistics of private consumption and gross national product for the years 1953-57, which are found below,

show that both Norway and Sweden have kept total private consumption within the limits set by national consumption policy in spite of excessive annual increases in wage incomes. In Norway where gross national product increased at an average annual rate of 3.5 percent in the years 1953-57, private consumption increased at an average annual rate of 2.8 percent. In Sweden similar trends in the growth of private consumption and total output have occurred. In both countries wage, tax, and consumption policies have been effectively coordinated.

*Annual increases (percent) in total private consumption and gross national product in Norway and Sweden, 1953-57*

Year	Norway		Sweden	
	Total private consumption	Gross national product	Total private consumption	Gross national product
1953.....	1.4	2.0	2.4	3.7
1954.....	4.6	5.2	4.3	4.6
1955.....	2.6	2.9	3.4	4.2
1956.....	2.7	4.3	2.4	2.6
1957.....	2.8	2.9	12.0	13.0
Average annual increase.....	2.8	3.5	2.9	3.6

<sup>1</sup> Projected for 1957.

Although excessive increases in wage incomes have not been allowed to upset the consumption-investment balance of either the Norwegian or the Swedish economy, excessive hourly wage rate increases have created an inflationary wage-cost push in both countries. The increases in hourly and piece-rate wage costs resulting from the wage slide have been to some extent passed on by businessmen to consumers in the form of higher retail prices. Although some of the wage-cost push has been offset by increases in subsidies on food products, there has nevertheless occurred a considerable rise in the general price level in all the Scandinavian countries since 1953. This inflation, however, has been sufficiently curbed to prevent Scandinavian prices from rising more rapidly than prices in other countries. Consequently, the exports of the Scandinavian countries have continued to be competitively priced in international markets in spite of internal inflation.

#### INVESTMENT POLICY AND STABLE GROWTH IN NORWAY AND SWEDEN

One of the main economic objectives in postwar Norway and Sweden has been to maintain a level of investment which would sustain economic growth at a rate of around 3 percent a year. The securing of this goal has involved making annual projections of the needed amounts of both private and public investment. These investment goals have been constructed through the cooperative efforts of various government departments and private industrial, agricultural, and export organizations. In Norway each major industry has its own industrial council which supplies the government with information about the industry's future investment requirements. In the closing months of each year a survey is made of the anticipated private and public investment for the coming year, which at the first step usually exceeds the total amount of investment determined

by the government to be necessary for sustained economic growth at the desired level. This projected investment total indicates not only the total of private and public investment, but also the projected requirements for each industry and each line of public activity. This projection of total private and public investment for the coming year is made within the limits set by the national economic budget. Domestic private and public investment, when added to private and public consumption, must not exceed the total supply of goods and services available for domestic use. It is therefore the obligation of the government to balance total private and public investment demands and the portion of total national production which is to be made available for investment purposes during the coming year. In Norway the projected annual private investment goal since 1950 has been approximately 28 percent of gross national product, while in Sweden this annual goal has been about 18 percent of gross national product.

Various economic measures are used in Norway and Sweden to help in achieving the annual private investment goals. Investment goals, although set for each line of economic activity, are not determined on an individual quota basis for each firm or enterprise. The goal set for each industry, as made public in the published annual national economic budget, provides a general framework for the guidance of the governmental authorities concerned with limiting private investment, the banks which extend credit to the industry, and the trade association or other business organization which represents the business enterprises in the industry. Control over the flow of private investment in agriculture, domestic industry, and the export trades is exercised in a number of ways. The building licensing system enables the government to control the flow of private investment into industrial plant and residential housing. Investment in equipment is regulated to some extent through the control of imports of machinery and other types of equipment. The commercial and savings banks, building and loan associations, and insurance companies, following the general directives laid down by the central bank in accordance with government policy, control the flow of private investment into plant, equipment, and inventories by making adjustments in the supplies of short-term and long-term credits. The flow of private investment is also influenced by changes in the tax laws which stimulate or restrict private investment activities as circumstances require. During the year the government's national budget office and other governmental departments analyze the effectiveness of these various measures for adjusting the flow of private investment in accordance with the annual investment goals set forth in the annual national economic budget. Any trends away from the projected investment goals are soon uncovered, and measures are then taken to alter these trends to meet the requirements of the national investment policy. Although annual investment goals have not always been reached in each industry, total annual investment objectives have been very closely approximated in the first postwar decade.

*Private investment goals and actual private investment in Norway and Sweden, 1953-57*

Year	Norway		Sweden	
	Projected private investment as percent of gross national product	Actual private investment as percent of gross national product	Projected private investment as percent of gross national product	Actual private investment as percent of gross national product
1953.....	25.1	26.8	17.0	15.8
1954.....	26.1	27.4	16.1	16.5
1955.....	27.0	28.2	17.3	17.7
1956.....	26.8	27.7	18.3	18.5
1957.....	26.4	27.8	17.7	18.4
5-year average.....	26.3	27.6	17.3	17.4

The statistics for private investment (gross domestic private investment in plant, equipment and inventories) in Norway and Sweden for the years 1953 to 1957, which are given below, show that in these countries the projected annual private investment goals or objectives have been very closely met. In these years the annual projected total private investment goal in Norway has averaged 26.2 percent of gross national product, whereas actual annual total private investment has averaged 27.7 percent of total output. As the statistics reveal, there were no significant variations in any year between the projected private investment goal and the actual amount of private investment made in both Norway and Sweden.

Success in achieving their annual private and public investment goals has enabled both Norway and Sweden to maintain a highly stable rate of economic growth. Since 1950 gross national product has increased on the average about 3.8 percent a year in Norway, while in Sweden the average annual rate of growth has been approximately 3 percent. The statistics for industrial production in Norway, Sweden, and the United States, which are presented below, show that industrial production, especially in Norway, has had a much more steady and more rapid growth than in the United States. Whereas industrial production suffered sizable decreases in the United States in 1949 and 1953, no similar declines were recorded for either Norway or Sweden. In the period 1953-56 industrial production increased 22 percent in Norway, 14 percent in Sweden, and 7 percent in the United States. In both Norway and Sweden national investment policy in the postwar years has resulted in a highly regular growth of both private investment and industrial production.

*Industrial production in Norway, Sweden, and the United States, 1947-56*

[Index: 1953=100]

Year	Norway	Sweden	United States
1947.....	63	84	75
1948.....	70	90	78
1949.....	78	93	72
1950.....	87	97	84
1951.....	94	101	90
1952.....	95	99	93
1953.....	100	100	100
1954.....	109	104	93
1955.....	117	111	104
1956.....	122	114	107

THE ROLE OF NORWEGIAN AND SWEDISH FISCAL AND MONETARY POLICIES  
IN ECONOMIC POLICY COORDINATION

In the Scandinavian countries, as in all other western nations, fiscal and monetary policies have a crucial role to play in securing stable economic growth. What is unique about Norwegian and Swedish fiscal and monetary policies is that they are closely integrated with well-established national price and wage policies within the framework of the annual and longer-term national economic budgets. The general result of this coordination of economic policy has been to reduce the pressures placed on the nation's fiscal and monetary policies. In the United States, the United Kingdom, and other western nations outside of Scandinavia where there are no well-developed price and wage policies in operation, the government is in the difficult position of trying to secure full employment, adequate growth, and stable prices through the use of fiscal and monetary policies which are supplemented with governmental pleas for the exercise of restraint on the part of labor and business in raising prices and wages. These pleas for wage and price restraint all too frequently fall on deaf ears, as has happened in the United States and the United Kingdom in recent years. In Norway and Sweden the attack on the problems of a high-pressure or full-employment economy is made in a more coordinated fashion on the price, wage, tax, and monetary fronts.

Fiscal policy in Norway and Sweden has two main purposes: (1) To provide the government with enough revenue to purchase the goods and services which are necessary to meet the public consumption and investment goals projected in the annual national economic budget, and (2) to aid in adjusting the flows of personal and business incomes so that together they will not exceed the share of the nation's total output which should be absorbed or taken up by these private incomes, according to the estimates of the annual national economic budget. The use of fiscal policy to provide the government with enough revenue to purchase its projected share of gross national product raises no special issues in Norway and Sweden. A more significant problem is the use of fiscal policy as an aid in coping with the difficulties that crop up in the working out of price and wage policies. If business profits or workers' wage incomes are excessive in the sense that they lead to more private investment or private consumption than is justified by the projections of the national economic budget, the government adjusts the tax system in order to reduce personal and company income flows to the desired level. Excessive demands coming from private business for investment goods are also reduced through restrictions on the supply of short-term and long-term credit. As the economies of the Scandinavian countries have moved away from direct controls in recent years, more reliance has come to be placed upon tax and monetary adjustments to balance total supply and total demand, and to secure the projected distribution of gross national product. Since 1950 controls in the form of building licensing and import restrictions have become increasingly less important in the effort to reduce the inflationary pressures of the post-war high-pressure economies of Norway and Sweden.

Fiscal and monetary policies in Norway and Sweden thus have an important balancing or corrective role in addition to the tradi-

tional functions of providing adequate governmental revenues and adjusting the nation's money and credit supplies to the needs of the expanding economy. Since both organized labor and business in these countries have considerable freedom of action in their respective fields, it is not to be expected that price and wage policies would at all times be easily or smoothly coordinated with fiscal and monetary policies. In the relatively free and dynamic Scandinavian economies it is the final responsibility of the Government to correct any deficiencies in wage and price policies by means of appropriate changes in fiscal and monetary policies. For example, in both Norway and Sweden when private investment in 1956 and 1957 tended to exceed the investment goals set forth in the annual national economic budgets, and, therefore, tended to add to the economy's inflationary pressures, a credit freeze was applied to all financial institutions. Total credit extensions in 1956 and 1957 were restricted to the maximum limits reached in late 1955. Since the existing coordination of private and public economic policies was not proving to be effective enough in curbing inflationary developments at that time, this coordination was supplemented by the adoption of more restrictive general credit controls.

#### CONCLUSIONS REGARDING ECONOMIC POLICY COORDINATION IN NORWAY AND SWEDEN

The success of economic policy coordination in Norway and Sweden can be attributed to the presence in these countries of three important arrangements. First, a quantitative basis for the guidance of economic policy coordination is provided by the national economic budgets that are annually published in Norway and Sweden. These budgets, which are the end product of much deliberation on the part of both public and private interests, provide the necessary quantitative standards for the guidance of economic policy integration. Second, policy coordination is extensive enough to include all significant policies. It is not limited to public economic policies, but instead spreads out to include private economic policies as well. Much of the effectiveness of Scandinavian economic policy coordination derives from the broad scope of the integrative efforts which encompass price, wage, fiscal, and monetary policies. And, thirdly, Scandinavian economic policy coordination is based on an extensive program of consultation and negotiation among public and private political and economic groups. Economic policy integration is not a matter of Government fiat or edict. Instead, it is in the final analysis a matter of negotiation and consultation among various public and private interests which have an adequate appreciation of the national interest. It is these three accomplishments in the field of policy coordination which have enabled the negotiational democracies of Scandinavia to make considerable progress in coordinating public and private policies with the aim of securing stable economic growth and full employment. The two main problems with which Scandinavian economic policy coordination has yet to cope successfully are domestic inflation and the disruptive impact of international economic developments.

## ECONOMIC POLICY COORDINATION IN THE UNITED STATES

Economic policy coordination in the United States has been largely limited to the integration of fiscal and monetary policies. Wage and price policies, which are mainly the concerns of private economic groups, have for the most part been left outside the framework of governmental policy integration. The Government has been well aware of the importance of price and wage policies, especially since 1945, and has recommended various wage and price adjustments in accordance with the fluctuations in the state of the economy. However, nothing like a national wage or price policy has yet emerged from this approach to price and wage problems.

It appears that future progress in the coordination of private and public economic policies in the United States depends to a large extent upon a more extensive use of annual national economic budgets. Since 1945 interest in these budgets has become fairly widespread in this country. The Council of Economic Advisers has used these budgets internally since 1946. The Joint Economic Committee has increased public understanding of the national economic budget with its publication of annual and longer-term budgets. The Department of Commerce published a 3-year national economic budget in its postwar study on markets after the defense expansion. However, up to now these economic budgets have not been effectively used as a basis for economic policy coordination. The Government does not officially publish an annual national economic budget. It does little to acquaint the public and the Nation's major economic groups with those broad production, investment, and consumption goals, expressed in quantitative terms, which would lead to sustained and adequate economic growth. What is needed as a first step is an annually published national economic budget for sustained growth, which would be prepared by the Council of Economic Advisers or some other governmental body whose principal concern is the integration of private and public economic policies.

The second step toward a more successful coordination of economic policies would require the tying of economic policies to the quantitative goals set forth in the annual national economic budget. This would mean that price and wage policies, as well as fiscal and monetary policies, should be worked out with regard to the growth objectives projected in the annual economic budget. Price policy would be basically a matter of relating prices and profits to the needed amount of private investment, while wage policy would have as its major concern the adjustment of consumer buying power to the desired level of private consumption.

The third step needed to approach a more satisfactory integration of economic policies in the United States involves greater reliance on negotiation and consultation between the Government and major economic groups, and less reliance on manipulation of the economy by the Treasury and the Federal Reserve System via fiscal and monetary policy adjustments. In our complicated and intricate 20th century economy these manipulations by central banks and Treasury offices, which originated very largely in the 19th century, are no longer as effective as they once were in maintaining the economy's growth and

balance. While still very useful, fiscal and monetary manipulations of the economy need to be supplemented now by negotiations and consultations between the Government and the Nation's major economic interests, which are related to the quantitative criteria supplied by the annual national economic budget. It now appears that it would be through experimentation in this direction that a more successful coordination of private and public economic policies might be achieved.

It is not to be expected, nor is it to be desired, that we should follow the Scandinavian pattern of economic policy coordination in any detailed manner. The special political and economic circumstances of the United States will necessarily imprint themselves on any program for the integrating of economic policies. Nevertheless, since the major economic problem of the Scandinavian countries, namely, how to achieve full employment and sustained growth without inflation, is also the main economic problem in the United States, a study of the postwar progress in coordinating economic policies in the Scandinavian countries may offer significant suggestions as to how further progress may be made along this line in this country.

## THE OPTIMAL MIX OF STABILIZATION POLICIES

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It is the function of stabilization policy to maintain a high level of resource utilization, especially the full employment of labor, and to provide for a stable level of prices or value of money. The achievement of these objectives is related closely to economic growth. A high level of investment is needed to maintain full employment; but a high level of investment raises economic capacity, and this requires that an ever-growing demand be forthcoming to take the rising full-employment output of the market. The economy, lest it is to collapse, must keep growing. Economic growth, therefore, is essential to the maintenance of full employment and price level stability.

But growth is more than a means to full employment and a stable price level. It is also a policy objective in its own right. If the appropriate policies are pursued, full employment and price level stability may be compatible with a wide variety of growth rates, and the choice of policy measures by which full employment and price level stability are secured may have considerable bearing on the resulting rate of growth.<sup>1</sup> Thus, public policy is confronted with the further problem of selecting the appropriate rate of growth. While the objectives of full employment and price level stability are readily agreed upon, the choice of an optimal rate of growth is a difficult matter.

Public policy must intervene when the economy fails to provide for full employment or price level stability, and when the prevailing rate of growth falls short of (or conceivably exceeds) the optimal rate. There are many reasons why conditions of unemployment or inflation may arise, and the appropriate choice of stabilization policies differs, depending on the underlying causes of instability. Without attempting to explore these causes, I shall merely distinguish between two types of situations:

1. In the first group I include all those instances where a departure from the objectives of full employment and price level stability is caused by a deficiency or an excess in the aggregate level of demand. Costs and prices are assumed to follow the level of demand, at least in the upward direction, but they do not make for an initial change. In this case, the remedy to deflation or inflation must be found in restoring demand to the proper level. Aggregate demand is deficient if planned saving at the full employment level of income exceeds investment plus Government deficit, and vice versa for an excess in demand. This is the situation to which most of the traditional discussion of stabilization, both fiscal and monetary, addresses itself.

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<sup>1</sup> In connection with this entire topic, see the discussion of similar problems in secs. I, II, and V of *Federal Tax Policy for Economic Growth and Stability*, Joint Committee on the Economic Report, November 9, 1955.

2. In the second group I include those instances where instability originates not from the demand but from the sellers' side of the market. This is the more recent case of "push inflation," and the currently experienced phenomenon of recession with price rise. Here the remedy points to direct action in the sellers' market, be it on prices and/or wages.

As we look at various situations of instability, we find that the Government may choose between a number of remedial measures, including various fiscal, monetary, and direct control devices. The purpose of this paper is to examine the considerations which should underlie this choice between alternative approaches. We shall find that the answer does not lie in considerations of stabilization policy alone, but that it depends also upon the effects of various measures on the allocation of resources, the distribution of income and the rate of growth. Stabilization policy, therefore, cannot be dealt with in isolation and divorced from other objectives of public policy.

#### I. STABILIZING THE LEVEL OF DEMAND

We begin with conditions of potential deflation or inflation, caused by a deficiency or excess in the level of aggregate demand, with costs and prices a passive factor in the picture. The problem here is one of raising or restricting the level of demand, and for this purpose various fiscal or monetary devices may be used. For the time being, I shall look at the matter from a short-run point of view, so that effects of investment upon capacity may be disregarded. Such effects and the resulting problem of growth are taken up in the next section.

##### *Alternative fiscal measures*

Consider first the choice between various fiscal approaches to stabilization. In particular, consider (a) the choice between adjustments in the level of goods and service expenditures of Government, and adjustments in the level of tax rates; and (b) the choice between adjustments in the general level of tax rates and adjustments in the structure of the tax system.

*Expenditure adjustment versus tax adjustment.*—The earlier thinking in compensatory finance was concerned primarily with depression and ran in terms of deficit spending. That is to say, the remedy was seen in an increase in the goods and services expenditures of Government, be it in the form of public works or other outlays. In recent years writers have emphasized the possibility of reducing tax rates, thus raising disposable income and thereby the level of private expenditures. In comparing these two approaches, a number of considerations arise.

To begin with, we may compare the amounts of tax reduction and expenditure increase which are required to obtain a given leverage on income. If we disregard possible incentive effects of changes in tax rates on investment, it may be shown easily that per dollar of change, an increase in goods and service expenditures of Government is more effective than decrease in tax yield.<sup>2</sup> This is the case because the initial increase in the demand for goods and services is a full dollar in

<sup>2</sup> The case of increase in transfer payments is similar in principle to that of tax reduction. However, transfer recipients, if unemployed, are likely to spend the entire amount of transfer. Therefore, dollar payments will be as effective in leverage as goods and services expenditures of Government.

the first case, whereas part of the tax reduction may be lost in the second, as consumers increase saving as well as spending. In both cases, the initial gain in spending is subject to a multiplier effect. Since the multiplicand is less in the second case, the total effect will be less as well. Thus it appears that antidepression policy by tax reduction requires a larger deficit than antidepression policy by expenditure increase. If it was our objective to minimize deficit, this would be a reason for choosing the expenditure approach. By the same logic, anti-inflation policy would rely on tax increase, as this would require a larger surplus and hence permit greater debt reduction.

Most economists agree that this is not the proper basis of choice. Changes in the level of public debt have some significance because they affect the state of liquidity, but they are not that important a factor. Turning now to a set of practical considerations, the choice between tax and expenditure changes may be made to hinge on such factors as the speed with which they can be introduced, the speed with which they become effective in changing the level of demand after they are introduced, the rate at which action in any one direction may be reversed, and so forth. I shall not consider these points in detail, except to note that introduction or abandonment of public-works projects is not a highly flexible matter. For this reason, public-works policy is more applicable in a situation where expansionary or restrictive action is required on a sustained basis. This basic difficulty does not apply to changes in tax rates which, in principle at least, may be introduced and discontinued promptly, as economic conditions require. The difficulty here is one of speeding up the legislative and administrative machinery by which such changes are made.

In this connection I should like to repeat my recent suggestion to the Ways and Means Committee that Congress, in its annual concern with revenue legislation, deal with two types of measures.<sup>3</sup> The first would be the traditional task of providing for an equitable tax structure, and for setting tax rates so as to provide the yield called for in view of expenditure requirements and the likely economic outlook for the coming year. In addition, Congress would authorize the President to apply changes in tax rates or exemptions within prescribed limits and forms, provided that such changes are necessary to meet his responsibilities under the Employment Act. Thus, the President may be authorized to raise or lower income tax exemptions by \$100, or to raise or lower the first bracket rate by 2 percentage points. Such a policy would add greatly to the President's ability to meet his responsibilities under the Employment Act, and I am confident that the arrangement could be made without weakening congressional control over tax policy.

Leaving aside these matters of flexibility, there is a further and perhaps more basic consideration pertaining to the choice between adjusting public expenditures and tax rates. This is the question whether the change in expenditures should be in the form of public expenditures for public purposes, or private expenditure for private purposes. It is a sound principle that we should not undertake public expenditures and provide public services merely to raise employment;

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<sup>3</sup> Hearings on Tax Revision, Committee on Ways and Means, United States Congress, January 9, 1958.

and that we should not curtail public expenditures and public services merely to check inflation. Putting the matter more positively, we should decide in any given situation how much resources we wish to devote to supplying public services, and how much we wish to devote to supplying private services; and we should then provide for full employment and price level stability without interference with this requirement of efficient resource use.

This principle leaves room for some degree of countercyclical fluctuation in the level of public expenditures, but it suggests that the main burden should be borne by the tax adjustment.<sup>4</sup> Once this principle is accepted, public services must always be justified on their own merits, never in terms of a make-work project. Similarly, a curtailment of public services must be justified on its own merits, not merely as a means to check inflation. While expenditure adjustments may be in order within certain limits, and to meet special situations such as localized unemployment, it is most important to understand that compensatory adjustments can be made without interfering with an efficient allocation of resources between public and private uses. Lest my position be misinterpreted, let me hasten to add that my personal preferences speak in favor of a liberal allocation of resources to public use, but this is not the issue here. The issue is that such allocation as is made should be made on its own merits; it should not be swollen as an anti-deflation or shrunk as an anti-inflation device.

*Change in tax level versus change in tax structure.*—I now turn to a second choice in fiscal policy, referring this time to various types of tax adjustment. The question here is whether tax adjustments to check deflation or inflation should be essentially through a change in the general level of tax rates, while leaving the tax structure more or less unchanged; or whether they should be selective.

The selective approach is frequently justified by the argument that we should change those taxes which give us the greatest possible leverage effect per dollar of yield change.<sup>5</sup> Thus it is argued that tax reduction to check depression should be concentrated at the lower end of the income scale, it being assumed that investment cannot be stimulated anyhow, and that the consumption response of low-income groups will be stronger than that of high-income groups. Similarly, it is argued that a tax increase to check inflation should again be concentrated at the lower end, since investment is needed to secure additional capacity and consumption is checked more effectively by taxing low incomes. This gives us a tax structure, the progressivity of which fluctuates in a counter-cyclical manner. Other results might be obtained if other objectives are set. However this may be, such is not the correct view of tax adjustments.

My reasoning is similar to the case of expenditure policy. The use of fiscal policy for compensatory purposes is important and essential, but it can and should be performed without interference with other and no less important objectives of budget policy. The other objective, in the present case, is that of equity in taxation. Equity is a complex

<sup>4</sup> Under conditions of potential depression, people devote a smaller part of their resources to capital formation than under conditions of potential boom. Therefore, they will devote more to other uses, including those of a public and private sort. Such may be expected to be the case, even though a full employment level of income is provided for by tax and transfer policy. See P. A. Samuelson in *Tax Policy for Economic Growth and Stability*, op. cit.

<sup>5</sup> See my paper in *Tax Policy for Economic Growth and Stability*, op. cit.

subject, which cannot be dealt with here. As I see it, there are two aspects to the equity problem. First, taxes ought to be distributed so that people pay for public services in accordance with their desire to have such services performed and their ability to pay for them. Second, taxes (along with transfer payments) have the function of securing adjustments in the distribution of income. This is the primary reason why most people agree that the tax structure should be progressive. However one feels about equality or inequality, people should be permitted to form their views as to what constitutes a desirable distribution of income and a fair distribution of the tax bill independent of the need for anti-inflationary or antideflationary action. If a certain degree of progression is held desirable, then we should not be forced to deviate from it for compensatory reasons; and quite similar considerations apply to what I like to think of as the principle of "horizontal equity," the rule that people in equal positions should pay equal amounts of tax.

We thus arrive at the basic principle, that compensatory adjustments should be in the level rather than the structure of the tax system. Let me note here the current discussion with regard to tax reduction. If taxes are to be reduced at the lower end of the income scale, I would prefer this reduction to be made by way of splitting the first bracket and cutting the rate on the initial \$1,000 rather than by way of raising exemptions. I feel this way because, from the longer run point of view, it is more equitable to tax the lower income groups by way of income taxes rather than by way of sales taxes. Due to the effects of exemptions, the former are highly progressive at the lower end of the scale, whereas the latter are highly regressive.

As before, there are certain exceptions to the general rule. Selective tax adjustments may be desirable where the deficiency in demand is not general but originates in a particular point in the income flow, such as the hoarding of retained earnings as a cause of depression. Where such is the case, differential taxation of retained earnings may be desirable, even though it may not be justifiable on equity grounds. Or, differential adjustments, such as a reduction of excises in a recession, may be desirable on grounds of equity as well as economic policy. Students of taxation are not entitled to demand that the tax tool be left alone so that the tax structure remain beautiful, thus falling in line with the overly devoted librarian who does not wish his books to be used. At the same time, students of taxation are justified in applying the equity test to proposed tax changes, and in supporting inequitable changes on where the underlying policy objectives are of overriding importance and cannot be met as effectively by other means.

#### *Monetary versus fiscal measures*

It remains to consider the balance between fiscal and monetary policy. While this has to be discussed primarily in the longer run context, some comments may be made with regard to its shorter run aspects.

While there can be little question regarding the potential effectiveness of fiscal policy in meeting a recession or depression, this is not the case with monetary policy. Federal Reserve policies to ease credit—be it in the form of open-market purchases or reduction in reserve requirements—will be effective only if borrowers are inclined to avail themselves of this credit at eased terms. If they are not inclined to do so, easing credit is like pushing on a string, and with little or no

effect on the actual level of demand. If conditions are sufficiently depressed, such will tend to be the case. Here the choice between fiscal and monetary approaches will be decided by the much superior effectiveness of the former. But this applies to the case of a severe depression only. In a moderate recession, a policy of monetary ease may not be without effectiveness, and may present an alternative to—or at least, render import support to—the fiscal approach. Monetary policy fares better when it comes to restriction. If sufficiently aggressive, monetary restriction will check demand inflation. At a time when people wish to use funds to excess, a reduction in the available supply of funds is not likely to be offset wholly by an increased use of remaining funds. There is now a pull on the string, and by pulling back, monetary policy has a better chance to be effective.

Also, it must be noted that the monetary approach has the advantage of flexibility in policy initiation. Open-market policies may be varied on a day-to-day basis and thus retain greater short-run flexibility than could be provided by even my proposal for flexible tax adjustments. At the same time, we have tended to exaggerate the flexibility of monetary policy. As money is eased or tightened, it takes time for the changed conditions in the money market to transmit themselves, and borrowers may be affected with considerable delay. Relatively little is known about this, but recent experience suggests that monetary policy is not as flexible in its final impact on the credit market as it is in policy initiation.

There is still much debate among economists regarding the precise mechanism by which restrictive monetary policy is effective, and regarding the degree of effectiveness which will be associated with a given rise in interest rates. The voluminous hearings and documents on monetary policy which have been forthcoming in recent years have shed little light on these basic questions. Proponents of a new monetary doctrine have argued that emphasis should be shifted from the reaction of borrowers to the reaction of lenders, and that relatively slight measures of restriction may have substantial effects on the willingness of lenders to part with funds. As a result of changes in market structure, so they hold, the supply of available funds to borrowers may be restricted sharply, and this may be the case even though there is but a slight increase in the cost of funds. Critics of the new doctrine have pointed out, and I believe with good reason, that not all the structural changes in the market have been favorable to monetary policy; that the so-called locked-in effect, which is said to restrain the lender, is not easily reconciled with intelligent lender behavior; and that a policy of restricting credit availability without raising the cost of credit involves an increasing degree of imperfection in the credit market, a phenomenon which is hardly compatible with the traditional claim that one of the merits of monetary policy may be found in its alleged neutrality in the market place.

However this may be, the potential effectiveness of monetary restriction cannot be denied. The more interesting question, to my mind, is how this restriction operates. By and large, monetary restriction works by restricting capital formation. Fiscal restriction may be designed to work in this direction, but it may also be aimed at restricting current consumption. Clearly, fiscal restriction is more flexible in this respect, as will be noted again when considering the longer

run aspects of growth. Moreover, monetary restriction may have a quite different impact as between types of capital formation than does fiscal restriction. The impact of monetary restriction falls with particular emphasis upon investments which must be financed by borrowing in the market, and upon investments which have a long payoff period so that interest constitutes a substantial part of the total cost. It falls severely upon borrowers who, for some reason or another, are inflexible in adjusting the rate of return which they can pay on their debts.

For these and other reasons, we find that monetary restriction falls severely upon capital formation by municipal governments. Similarly, there seems good ground for suspecting—although this remains to be verified by the current investigation of the Federal Reserve into this matter—that monetary restriction falls particularly severely upon the weaker competitor and small enterprise. More basically, there is the question whether the kind of credit curtailment that results from the preferences of the lender, leads to the proper allocation of the restricted credit resources. Clearly, the answer to this question is the more negative, the more weight one wishes to place on the new monetary theory and its emphasis on credit rationing.

In all, the traditional view of monetary policy as benign and neutral in its impact on markets, appears to have been based on lack of information regarding discriminatory effects, rather than on positive evidence to the contrary. There is no a priori argument on these grounds in favor of monetary as against fiscal policy. The same applies with regard to the problem of incidence. When it is decided to raise or lower taxes—be it for budgetary or compensatory reasons—there arises (and properly so) the question of who is going to pay the bill. Where taxes are raised to check inflation, this would seem to be a crucial question, since the main reason for checking inflation is to avoid its inequities. No such question is raised when the problem is one of monetary restriction. Yet, there is a problem of incidence, interpreting this term to mean effects on income distribution, in monetary no less than in fiscal policy.

This question may be pointed up by comparing the distributional effects of restriction by monetary action with those of restriction by a proportional income tax. Will monetary policy fall on the progressive or on the regressive side of the latter? There is no ready answer to this question. The problem involves not only such redistribution as may result from increased tax payments and interest payments on public debt, but one must consider as well the distributional effects of increased interest payments in the private sector of the economy. Finally, a change in the rate of interest has repercussions on the yield of equity capital and, in its longer run effects, on the rate of growth and hence on the distribution of the national income between wage and capital earnings. While the distributional effects of these long run changes defy prediction, it appears that the short run changes are on the regressive side of the proportional income tax. Moreover, the comparison with a proportional income tax may not be the proper one. More precisely, we should compare the incidence of monetary policy with that of such marginal change in the tax structure as will be made in lieu of monetary restriction. If this marginal change is progressive, the preceding result is strengthened, and monetary re-

striction tends to be more favorable to higher incomes than fiscal restriction. If the marginal tax adjustment is regressive, the result may be reversed.

All this is highly speculative and presents an almost entirely new area for investigation. However, it suggests that monetary policy is no more neutral, on a priori grounds than is fiscal policy, and that monetary policy, alas, may not be as different from tax policy as we have been accustomed to think.

#### *Discretionary policy versus built-in flexibility*

Before turning to the problem of growth, a word should be added regarding the choice between discretionary action and reliance on built-in flexibility. There has been much said in recent years about the virtues of built-in flexibility and the fact, or hypothesis, that the built-in flexibility of our system has been increased so greatly as to make our economy pretty much depression proof.

Now it is true that the existence of a large budget adds a core of stable (public) expenditures, expenditures which are not sensitive to changes in income. Also, it is true that a high rate of taxation such as goes with the large budget, plus transfer programs, cushions the changes in disposable income which result with a given change in national income. All this is to the good, at least as long as the economy is at a high level of activity to begin with. At the same time, I think it important not to overestimate the effectiveness of built-in flexibility. Such estimates as have been made suggest that it will be of some help, but that it will fall far short of what needs be done to maintain stability if a serious disturbance should arise. Dreaming about the beauties of built-in flexibility, therefore, must not lead us to neglect the more realistic task of perfecting our tools of discretionary action, tools which most likely will have to remain our primary reliance. It is precisely this line of thought which leads me to urge a provision for flexibility in tax policy, thereby giving us in tax policy some degree of freedom for prompt discretionary action, such as has been available traditionally in monetary policy.

## II. STABILIZING THE LEVEL OF COSTS

We now turn to our second type of disturbance, where instability results from the cost and price side of the market. Suppose we begin with a situation of full employment and price-level stability. Now some powerful group in the economy decides that it wishes to have its income raised, without there being a corresponding gain in productivity. This may take the form of unions insisting on higher money wage rates which will be transmitted in turn into higher prices; of producers insisting on a higher profit margin, or of accentuating increases in wage costs by adding a percentage markup; or of farmers insisting on an increase in their respective share. For these or other reasons, wages may be raised without a gain in productivity and prices may be increased with an initial gain in demand.

#### *The dilemma*

Confronted with this situation, the Government finds itself in a dilemma. If a full employment output is to be maintained at the higher level of prices, money incomes must be permitted to rise accord-

ingly. This requires expansionary fiscal or monetary measures of the type described in the preceding section. But if this is done, the very policy which maintains full employment also serves to verify the rise in prices. What is worse, it demonstrates to various parties in the economy that an increase in earnings (money earnings, in any case) can be obtained without endangering the level of employment, thus inviting a new round of increases, and so forth. In the process of upward adjustment, rentiers get squeezed out; as a result, other groups which have gained may come to be satisfied with their winnings, and stop further pressures on prices and costs. But we cannot be sure of this. It is equally possible, or indeed more likely, that appetites will be whetted. In this case, the push will continue, and the maintenance of full employment will be accompanied by a continued and perhaps increasingly rapid price rise.

If the Government chooses price-level stability as its first objective, it will refuse to provide the increase in money income which is needed to maintain full employment at the increased level of prices. In this case, unemployment will result, which in turn may discourage the insistence on further increases in costs and prices. Or the Government may go further and insist on a reduction in money income, hoping thereby to reduce costs and prices to their old level. If it turns out that costs and prices are sticky in the downward direction, this will result in an even greater degree of unemployment.

Under such conditions, controls over the level of demand can serve no longer to obtain the twofold objective of full employment and price level stability. This holds equally for both general monetary and general fiscal devices. Another solution must be found.

### *Solutions*

To begin with, there is the possibility of discarding one or the other stabilization objective. Thus, full employment may be maintained, together with rising prices. How troublesome this would be, depends upon the rate of price increase that would result. Economists have argued for a long time that some moderate rate of price advance may be a wholesome thing. It provides for a bullish economic climate, gives everyone a feeling of rising incomes and well-being, and permits union leaders to demonstrate success in raising money wage rates. However, even a slow rate of price advance adds up to a great deal over a lifetime, and resulting inequities may be substantial. I have little confidence in the proposition that these will disappear as everyone will learn to adjust himself to the rising prices. Therefore, I am hesitant to accept this solution.

The other possibility is to insist on price level stability, while letting employment drop to whatever level it may. This approach is not only absurdly inefficient and unjust, but it is altogether unrealistic. Sustained unemployment is incompatible with social stability in our society. Nor do I have much sympathy for a qualified version of this argument—that we should have just enough unemployment to introduce the necessary discipline into wage-price behavior. For one thing, I am not certain that the degree of discipline will be increased by “some” administered unemployment; for another, I doubt whether unemployment will accrue to just those sectors of the economy which are most in need of disciplining. To my mind, these either-or solu-

tions must both be discarded. We must find a way in which the economy can be made to function adequately on both objectives.

The economist's natural answer is that we should establish market conditions in which no groups are in a position to exert autonomous pressures on wages and prices. The problem will vanish if only sufficiently competitive conditions are established in both factor and product markets. If we consider the industries which are of primary concern in this connection, we find that firms tend to be larger than is needed on grounds of efficiency; and no matter how furious competition may be in fins and headlights, price competition leaves much to be desired. Surely, price competition might be improved by increasing the number of firms. If this was done, producers would be more hesitant to grant wage increases in excess of productivity gains, wage increases which in the present setting afford a nice opportunity and excuse for corresponding (or more than corresponding) mark-ups in profits. Something might be done in this direction, but vigorous action seems unlikely.

Moreover, even if it was taken, there remains the union side of the picture. Simple changes in union structure are not the solution. A reduction in the size and increase in the number of unions, all of which would operate on an industrywide basis, may lead to interunion competition for the highest wage demand, rather than to a more moderate policy. This is suggested by foreign experience. A breakup of unions so as to limit any one union to any one company might do the job of curtailing wage demands, but unions would be pretty much wrecked in the process. Neither of these solutions is acceptable. Thinking in the other direction, it may be argued that union leadership will be more statesmanlike if unions are made bigger, but this also poses the danger of greater power and possible abuse. This solution, therefore, must be excluded as well.

Since there is no simple solution in terms of changing union structure, other restraints are called for. Union power, as an originating factor in cost-push inflation, is exaggerated by the fact the parties with whom the effective bargain occurs—namely, consumers and other wage earners—are absent from the bargaining table. These other parties might be introduced through adherence to certain rules of the game, e. g., that wage increases should be limited to productivity gains, that price increases should be forbidden as long as there is excess capacity, that prices should be reduced where there is unemployment, and so forth.

Such an approach would accept the present division of monopoly gains between capital and labor as the base from which to make future adjustments, which is a dubious point of departure; and there is the further question whether such rules can be administered short of a national wage-price policy, a step which most people hope can be avoided. A more moderate proposal is to submit wage-price decisions in key industries (note that I say wage-price decisions, because I do not see how the one group can be called upon to submit to control without the other) to a public board, including consumer representation. As proposed by various people, the opinions of such a board would be advisory rather than mandatory; yet, the publicity involved would encourage both parties to seek vindication before the court of public opinion. The public in turn would be supplied with an impartial view

and be spared its present fate of being bombarded by two sets of data, apparently proving the precisely opposite point.

Whatever the precise solution, it is evident that the problem of cost-push inflation is quite a different animal, and requires quite different treatment from that called for in dealing with our old and more pliant friends of demand inflation or deflation. Whereas the latter may be approached by more or less general fiscal and monetary controls, the former requires structural intervention into the functioning, or better, nonfunctioning, of the market. Such intervention might be accomplished conceivably by fiscal devices, such as taxes on excess profits and on wage gains in excess of productivity; but even where this is done, the fiscal tool merely serves as a means of wage or price control. The problem of stabilization policy in this case is inherently one of market structure.

### III. STABILIZATION POLICY AND GROWTH

I now turn to my final topic, the relationship of stabilization policy to economic growth. As noted at the outset, we are here concerned with two aspects of this problem. To begin with, growth has an important bearing on the maintenance of full employment and price-level stability, and different approaches thereto give rise to different rates of growth. Beyond this, there remains the more difficult question as to what particular rate of growth we should aim to accomplish.

#### *Effects of stabilization on growth*

Suppose we are in a situation where the level of demand is inadequate to purchase the full employment output at the given capacity of the economy. As shown before, measures must be taken to raise demand to the appropriate level. This may be done by increasing expenditures on current consumption, or by raising capital formation. From a quite short run point of view, the result will be the same in both cases; but it will differ in the longer run. In the former case, the economy's capacity will be unaffected; in the latter case, it will be increased. If capacity is increased, future output at full employment (including labor and capital) will be increased accordingly. The economy will grow at a faster rate, and a higher level of expenditures will be needed in the future to maintain full employment. Precisely the same holds for the case of restrictive measures. Curtailment in consumption or capital formation both serve to reduce current demand, and to prevent a current rise in prices. At the same time, the latter will result in a lower level of capacity, a slower rate of growth, and a lower level of required expenditures for the future. A stabilization policy aimed at encouraging growth must thus meet several tasks. It must see to it that a large share of the economy's resources must flow into capital formation, and it must do its best to stimulate technological progress. At the same time, it must assure that there is sufficient demand to take the product off the market when the new capital is put to work in producing final output.

All this involves public expenditure no less than revenue policies. Expenditures on education may be more important than any other factor in this connection, including that of tax policy. Public expenditures on research and development, similarly, are of crucial importance. Indeed, economic growth would be a dreary affair if it had

to rely on increasing the capital stock only. The crucial factor in economic growth, in the setting of our economy at least, is technological progress. It is this progress which permits us to grow at a rapid rate and with relatively little cost in "waiting"; and it is this progress which offers the inducement for a high rate of private investment. Sad though it may be, public outlays for research, made in conjunction with military objectives, have been the greatest contributor to economic growth in our age, and chances are that they will continue to play this role. There is every reason, for peaceful purposes as well, to pursue such expenditure policies.

Turning now to the revenue side, it is evident that a tax policy aimed at maximum economic growth would avoid restraints on capital formation and would not interfere with inducement to innovation. Subsidies might be given to investment and restraints on expenditures would be placed on consumption, especially current consumption. This would require a tax structure which goes easy on progression and, if carried to its logical conclusion, more or less exempts investment income and/or income which is invested. By the same token, it suggests a combination of easy money with tax restraint, the reason being that the restrictive effect of monetary policy is primarily on capital formation.<sup>6</sup> Some devices such as accelerated depreciation may accomplish these tax objectives with less damage to equity than others, such as the exemption of investment income. Nevertheless, it appears that a tax structure designed to maximize growth tends to be one which runs counter to widely accepted notions of equity and distributional adjustment in tax policy. This appears to be a situation where we cannot have the best of all worlds all at once: a policy designed to maximize growth may require a degree of inequality in income distribution which is unacceptable on other grounds. Techniques might be considered which could soften this conflict, such as tax incentives to investment which are limited to investors with small incomes, but this could not be done readily on a large scale.

However this may be, a tax policy to encourage investment cannot be successful unless the basic market conditions are such as to render investment profitable. Such at least is the case if we disregard the possibility of taxes on hoarding or investment subsidies. These market conditions will not be favorable unless there is sufficient demand to take the product off the market. In other words, tax restraints upon consumption must be sufficiently light to permit this demand to be forthcoming. Or, as may well be the case, a deficit may be required to assure the necessary demand. A fiscal policy aimed at a rapid rate of growth, to be successful, may require a higher degree of public deficit than one which is satisfied with a lesser rate of growth. This point should be emphasized, because we have become accustomed to think of the deficit as a means of maintaining full employment in an otherwise stagnant economy. Such is not necessarily the case. It may also be a means of maintaining a rapid rate of stable growth.

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<sup>6</sup> The argument is clear-cut where effects on plant and equipment expenditures are concerned. The case of mortgage credit and other credit for the purchase of durable consumer goods is less clear-cut. Such expenditures constitute capital formation in that they add to stock of available goods, but they do not add to productive capacity as does expenditure on plant. In terms of the Domar-type growth model, they are not included in the investment expenditure to which a sigma is attached.

*The optimal rate of growth*

There remains the basic question of what constitutes the optimal rate of growth in the economy. In the present setting, this may be answered more or less easily by reference to Russia: Whatever we do, the Russian rate of growth is likely to exceed ours, simply because they are at a much earlier stage of the game; therefore, if we want to maintain our relative advantage, we had better grow as fast as we can. Moreover, the potential scope for aid to development in other parts of the world is almost unlimited; and the faster we grow, the more we can help others to grow as well.<sup>7</sup> This approach has considerable merit, but it leaves open the question of what the answer would be in a somewhat happier world, where a greater freedom of choice was permitted. And even in the present setting, we cannot determine the desirable rate of growth without considering the changes in our social and economic institutions which might be required in order to accelerate growth beyond certain limitations.

Conceivably, we could operate an economy in which such enormous subsidies were paid to investment incomes that capital formation would absorb well nigh all the economy's resources. Such a system is conceivable, but it would be absurd, since the ultimate objective of economic activity is consumption. The basic question of growth policy—apart from the more or less technical considerations of stability—is simply this: By how much should society postpone present consumption so that more can be had in the future, and what is the rate at which future consumption may be substituted for present consumption? Investment in innovation raises this rate, and may provide for increased future consumption (including leisure) with little cost in present consumption. Growth by increased capital formation with existing techniques is a more costly process, especially if the postponement of consumption extends from one generation to another. The decision to undertake this cost should be made by the consumer; or, if the market cannot give the answer, it should be decided upon through the political process, along with the determination of other social wants.

In making this decision, the social implications of various rates of growth cannot be disregarded. It seems likely to me that a higher rate of growth tends to require a higher degree of income inequality. To be sure, as the rate of growth is increased, those who lose in relative position may still gain in absolute terms; and such being the case, they may have little reason to complain. Moreover, a higher rate of growth tends to imply a higher degree of social mobility, and this may be more important than the state of distribution at any one time. For instance, many people will agree that one of the most important steps in the solution of our race problem is that of raising the absolute economic standard of the Negro population. Still, these distributional implications of various rates of growth cannot be overlooked, and it is easy to see that higher growth is more attractive to those who stand to gain in relative as well as in absolute terms.

However this may be, the problem of economic growth goes much beyond that of stabilization. Stabilization policy can do with a number of different growth rates, so that the choice among these rates must be made on other and not only economic grounds.

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<sup>7</sup> By "help," I do not mean out-compete in world markets, but supply long-term loans and technical aid, while lowering tariffs.



## PRICE POLICY AND ECONOMIC GROWTH AND STABILITY

Arthur Smithies, Harvard University

The main difficulty with price policy is that, while some degree of price stability is agreed to be desirable, this objective must be reconciled with other objectives, particularly stable employment and continued economic growth.

If the fiscal and monetary authorities were merely charged with the responsibility for keeping the price level stable, there is no question but that they could succeed. Any degree of inflation can be stopped by a sufficient application of credit restrictions or budget surpluses; the difficulty is that such measures, if applied after inflation is already underway, are likely to produce unemployment or slow down economic growth if they are carried far enough to prevent inflation.

This in fact is one of the sources of our present difficulties. While some degree of recession at about the present time was in the cards in any event, the efforts of the monetary authorities to correct the inflationary tendencies that appeared in 1955 and 1956 have contributed to the severity of the present depression. In fact it seems to me doubtful, after this experience, whether a comparable degree of monetary restriction will be tolerated in the future.

The root of the difficulty is that monetary restriction under modern conditions does not bring about a reduction of money-wages and other costs. The theory of monetary policy was evolved at a time when both money-wages and prices were believed to be flexible in a downward direction. Consequently it was believed that monetary restriction would reduce prices and wages but not output and employment. It is doubtful whether these conditions ever prevailed to the required extent; it seems very evident today that price deflation, or even the halting of price increases, cannot be accomplished by general restrictive measures, except at the cost of some unemployment.

Some prices, however, are flexible in the downward direction. In fact, those interested in the prices of agricultural products or minerals may regard flexibility as too mild a word for what can happen. Price declines in these areas give rise to demands for price supports; and if price stability is the only objective of policy, price support measures provide a direct and effective mechanism for achieving that end. But the argument against these measures is that if applied too rigidly they interfere seriously with the allocative processes of the market economy. They prevent the transfer of resources from areas of declining demand to those where demand is increasing, and result in the accumulation of embarrassing surpluses. While some measures to prevent extreme fluctuation in materials' prices can improve the allocation of resources, extreme use of them represents a serious interference with another major objective of economic policy: the effective working of the market economy.

I conclude therefore that a satisfactory price policy must be conceived in conjunction with other objectives and that the attainment of those objectives may place restrictions on the price objectives that are feasible. As a minimum for the United States, price policy must be conceived in conjunction with the objectives of reasonably full employment and continued economic growth. The attainment of these two latter objectives would, or should, greatly reduce the need for additional efforts to avoid price deflation. Other countries have a more complex problem. In addition to full employment, they must struggle with the problem of keeping their balances-of-payments in equilibrium. As experience since the war has shown, this combination of objectives may face some countries with a well-nigh impossible task.

I now address myself to two specific questions: First, what price behavior is consistent with full employment and continued economic growth, and second, to what extent can those objectives be fully realized in a context of acceptable price behavior?

In line with what was said above, a price policy that requires reductions in money-wage rates can be rejected as infeasible. General money-wage reductions can only be accomplished, if at all under the impact of severe unemployment. Consequently, price policy must at least admit of a stable rate of money wages. But to permit the labor market to work effectively, price policy must probably also allow for continually rising money wages. Since reductions of wages are difficult and painful to accomplish in any area, the transfer of labor to growing industries and new occupations is normally accomplished by offers of increased money wages. In a growing and changing economy, a rising average of money wages is therefore to be expected.

The price policy that is consistent with these wage requirements depends on the rate at which the productivity of labor is increasing. Productivity may increase rapidly enough to allow some decline in prices, but as a practical matter this seems hardly likely. My own conclusion is that any degree of generally falling prices can be ruled out on grounds of practicality, and the lower limit of feasible price behavior is a stable price level. This conclusion, incidentally, is not impugned by the fact that periods of prosperity have occasionally been associated with falling prices. In such past periods the wage situation was entirely different from what it is today.

Having ruled out a falling price level, the question now arises whether a rising price level is helpful or inimical to full employment and continued economic growth. In this connection we need not consider the question of extreme inflation of the type that followed World War I and World War II in Europe. Without the dislocation and destruction of productive capacity that can result from a war, I have much doubt whether hyperinflation is possible in the United States. We are concerned with inflations of an order of magnitude no greater than we have experienced since World War II.

It is difficult to see how the price increases of the postwar period have in any way interfered with the effective economic operation of the United States. While a theorist may be able to argue that inflation has produced less than perfect allocation of resources, the practical evidence does not indicate where such distortions, if any, have occurred. Rather the expectation of rising prices, while it was

allowed to continue, seems to have contributed to the general spirit of optimism that characterized most of the postwar period.

I do not mean to imply that I regard the postwar price increases as desirable. On the contrary, they have produced tensions and difficulties. But these tensions and difficulties are social rather than economic, and objections to such increases in the future should be raised on noneconomic grounds. By "social" I do not mean unimportant. In fact the inflation that occurred up through 1956 has caused hardship and tension, and this degree of inflation should be avoided in the future.

Some economists have argued that a rising price level is a necessary condition for continued economic growth. I do not believe this to be true, even though rising prices produce favorable expectations and afford enterprise progressive relief from debt. I believe that full employment and continued growth can be achieved in the context of price stability.

I now turn to the second question posed above: Are continued growth and, in particular, full employment, consistent with price stability or an acceptable small rate of price increase?

If we mean by full employment that the Government guarantees that in all circumstances unemployment will be held to very low levels, and by growth that every year the national product will be greater than that of the preceding year, these objectives may not be consistent with price stability. The stage would then be set for a continuing wage-price spiral of the kind we have been expecting in recent years. There would be little incentive for trade unions to be moderate in their wage demands and equally little incentive for employers to resist those demands. Unions need have no fear that their actions will produce serious unemployment for their membership, and employers would rest assured that even if they granted the wage increase, total demand would increase sufficiently for them to pass on increases in the form of higher prices. Under these conditions employers would simply be sacrificing the prospect of higher profits if they undertook the cost of a strike.

Full employment and continued growth in the literal sense of those words are therefore likely to produce a rate of increase of the price level that is unacceptable. In those circumstances the authorities may temporarily abandon their employment and growth objectives—as they virtually did in the fall of 1957. Or they may attempt to suppress the price increase by direct controls. Neither of these courses of action is desirable.

For an acceptable price policy to be possible, some degree of uncertainty concerning the course of employment and economic growth appears to be necessary. There is likely to be a vast amount of difference between an economy that is on an upward trend but subject to short-run uncertainty, and one that knows it is on a smooth upward curve. In the latter event, while creeping inflation may not become a gallop, it may become an uncomfortable jog trot. To put this conclusion in practical terms, I believe the uncertainty represented by recessions on the scale of those that occurred in 1949 and 1953 are virtually unavoidable if a satisfactory compromise among policy objectives is to be achieved.

On the other hand, a recession on the scale of the present one should and can be avoided by the use of suitable policy measures.

A large part of the problem of price stability requires action in particular sectors of the economy. In 1929, for instance, there was very little sign of general inflation, but stock prices were wildly inflated. In 1937 there were speculative increases in the price of materials in the midst of general unemployment. Both these specific movements were countered by general measures of restriction: In 1929 it was general monetary restriction, and in 1937 the Federal budget was brought into balance for a brief period. In both instances, the reaction to the general measures of restriction was violent. Although I cannot prove it, I believe the depression of 1929 and also that of 1938 would have been less violent had selective rather than general control measures been used.

A large part of our present trouble results from the boom year in automobiles in 1955. The combination of new models, easy consumer credit, and new era psychology seemed to generate characteristic boom conditions which led not only the automobile industry but the rest of the country to believe that prosperity was assured forever. Had selective controls over consumer credit been available at that time, and had the Government possessed the resolution to use them, the present recession might well have been more on the order of the 1953 one than it is.

The essence of the problem of price stability is to exercise control in the particular areas concerned while not impeding continued growth and high employment elsewhere. Recessions should be allowed to occur in particular industries or sectors, but their devastating secondary consequences should be avoided.

These results could conceivably be achieved if the Government could freely use its general controls over credit conditions, expenditure and taxation in the proper combination. It could, for instance, attempt to cure speculation by general credit controls but at the same time to keep demand flourishing by expenditure increases or tax reductions. But we are very far from being able to achieve such a closely coordinated use of monetary and fiscal measures as this course of action implies. Again referring to current experience, a fairly serious depression is required to stir the Government into energetic fiscal action. Consequently, I believe that selective credit controls are needed if price policy is to be reconciled with an upward trend in economic growth, interrupted only by mild recessions. The price difficulty can be attacked at its source and at the same time the credit policies appropriate for economic growth and full employment can be pursued elsewhere.

The three areas where selective controls are both needed and possible are stock exchange credit, housing credit, and consumer credit. Controls over margin requirements in the stock exchange are already actively employed. The mechanism for housing credit control already exists, and selective controls in this area have been employed in recent years, although this has occurred through inadvertance rather than by design. The remaining area has been the subject of great controversy. The types of control attempted in wartime have led to defeatist attitudes about the feasibility of consumer credit control as a permanent instrument of policy. The availability of the instrument is so important, however, that its feasibility should be reconsidered. Either through the control of financial institutions, or

through new techniques of controlling consumer credit directly, satisfactory methods of control can, I believe, be evolved.

I have indicated that we have by no means made full use of monetary and fiscal controls in attempting to reconcile price stability with full employment and economic growth. More timely, more skillful and more selective use of those controls can achieve better results than we have achieved hitherto, and may produce a satisfactory compromise.

There is, however, the possibility that monetary and fiscal measures will not be sufficient. The issue will then have to be faced whether a socially disturbing rate of price increase should be tolerated or whether direct measures are to be taken that will increase competition in the labor and product markets with the object of modifying wage demands and stiffening employer resistance to them. If the difficulties of this course of action are borne in mind, those of establishing adequate monetary and fiscal controls may not seem so formidable.



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**GENERAL SUMMARY**

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## A THIRD APPROACH TO THE ANALYSIS AND CONTROL OF INFLATION

Gardner Ackley,<sup>1</sup> University of Michigan

### PRICE LEVEL AND PRICE STRUCTURE

As many contributors to this compendium have no doubt stressed, the "problem" of prices has a dual aspect: Structure and level. By their internal structure—the relationship of each price to all others—prices (including wage rates) influence the allocation of productive activity, and the distribution of income, among products or industries, among various geographical regions, and among the various types of suppliers of productive services. In the analysis of these problems, the concern is always with relative prices—wage rates and other cost prices relative to selling prices; price of product A compared to prices of products B, C, and D; wage rates in city W versus those in cities X, Y, and Z; the prices that determine consumer incomes compared with the prices that consumers must pay; the prices of capital goods relative to those of end products; and so on.

This problem of price structure can at least conceptually be separated from that of price level. For the level can change without the structure changing, and the structure can alter leaving the average level in some sense unchanged.<sup>2</sup>

I intend to focus my discussion primarily on the aspect of price level and—since that is our real problem—on the avoidance of inflation. The basic approach that I shall develop is full of implications about the functioning of relative prices in their roles as allocators of resources; but I shall not attempt to develop these implications here.

Economists have come to distinguish two general kinds of inflation. They are really only pure or ideal types. But we often imply that these polar types actually occur in nearly pure form in the real world; indeed, one gets the impression that all actual inflations are either of the one kind or the other. These two kinds are usually called demand inflation on the one hand, and cost inflation on the other.<sup>3</sup>

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<sup>1</sup>The author is deeply indebted to a number of friends, whose comments on an earlier draft of this paper led to many improvements both of content and exposition. Included were his Michigan colleagues, Profs. Richard Musgrave, Shorey Peterson, George Katona, G. W. Woodworth, and Harvey Brazier; and his former colleagues in the Office of Price Stabilization, Messrs. Saul Nelson and Franz B. Wolf. Professor Musgrave and Dr. Wolf were especially helpful. My appreciation to all of these men implies nothing as to their acceptance or rejection of the ideas here set forth.

<sup>2</sup>Actually the separation of level and structure is not this easy. For example: (1) given existing economic institutions, some prices are necessarily fixed by contract; thus all prices cannot change together, so that inflation necessarily alters relative prices, redistributing both income and wealth, with further repercussions on the pressure of inflation; (2) under many circumstances, a force which operates initially to change relative prices may set off a general inflation (e. g., an excess demand for a particular kind of labor may generate wage increases which then spread to other kinds of labor and produce generalized upward price movement). However, for purposes of the present paper, which necessarily paints with a broad brush, such considerations are ignored.

<sup>3</sup>Prof. A. P. Lerner uses the terms "buyers' inflation" and "sellers' inflation" to distinguish them.

I intend to review briefly the more-or-less accepted analyses of these two types of inflation. But I shall then indicate why I find the distinction both unrealistic and, to some extent, even logically invalid. I shall suggest a third analysis which, although it incorporates elements from the first two, provides what I think is a superior framework for the analysis of the problem of inflation and its solution.

#### DEMAND INFLATION

Demand inflation occurs when—for whatever reason—the demand for goods and services in general exceeds the available supply. This case involves the assumption that individual prices, including wage rates, tend to rise in direct and immediate response (and only in response) to an excess of market demand over supply. An excess demand for a few individual commodities or types of labor or in a few localities does not produce inflation. For there may be excess supply some place else and prices may be falling. So long as the excess demand is specific and localized, individual prices or wages may rise. Presumably, however, they will not often rise very fast or very far, and never without limit, because their rise will tend to cause buyers of the product or users of the service to shift to another directly or indirectly competitive product or service, the price of which has not risen, or may even be falling. And the increased rewards obtainable in the production or sale of the commodity in short supply will cause resources to be diverted into its production from production of other products. Both the diversion of patronage away from the product and the diversion of resources into it tend to eliminate the excess demand and limit the rise in price.

Only when there is a generalized excess demand does inflation threaten; for then there are not stable-priced substitutes to attract away the excess demands for individual products as their prices rise; and there are no idle resources to be attracted away from other uses, eliminating the deficiencies of supply.

Demand inflation arises when the demand for goods-in-general—that is, the demands for most particular goods and services—exceeds the supply of goods-in-general—that is, the supplies of most particular goods and services, “when all productive resources are fully employed.”

This view of the nature of inflation is not confined to any one school of economists—for example, the “Keynesians.” The older-fashioned quantity theory approach, which emphasizes the role of the quantity of money, equally visualizes inflation as proceeding from excess demand. The quantity theory view merely stresses a close connection between the quantity of money and the demand for goods in general. I prefer not to emphasize this connection—I believe that the relationship of money to total demand for goods is more tenuous, or, at best, slower in manifesting itself, than do some of my colleagues; I stress other connections as being more important, or at least more strategic. But these differences do not really matter for my argument here.

What I am concerned with here is not the reason for the excess demand, but rather that this kind of inflation proceeds from the free-market response of individual prices and wages to supply and demand considerations. In particular, it is assumed that most or all individual prices and wages are freely flexible, and respond by rising when and only when demand exceeds supply.

One may accept this view without its counterpart. The counterpart is, of course, that wages and prices respond directly and immediately by falling whenever supply exceeds demand. This would mean that generalized excess supply could never exist except in the presence of general and rapid deflation. Since this is so contrary to experience, we may often describe the behavior at least of wage rates as inflexible downward—i. e., stable when supply exceeds demand—but quick to rise in the reverse situation. A decline in the demand for goods-in-general need not always create an excess supply of goods; production may be cut back as fast as demand declines, creating only an excess supply of labor. Unemployment of labor, however, probably does not produce very rapid or appreciable decline of wage rates.

#### CONTROL OF DEMAND INFLATION

If we have demand inflation, the remedy is to reduce demand so that it no longer exceeds supply. This can be done by monetary policy, if and to the extent that the supply of money directly influences the demand for goods; or it can be done by fiscal policy; reduced Government purchasing reduces demand directly, and tax increases reduce it indirectly by reducing consumer or business after-tax incomes. It is not so easy as it sometimes sounds, because time is required to make any of these measures effective. This requires that we either guess as to the strength of future demand, or else make things as automatic and prompt as possible by arranging for the appropriate monetary or fiscal action to be tied automatically to some price index. But despite the difficulties, demand inflation can, at least conceptually, be simply handled—just reduce demand until the excess disappears.

This approach reserves for a minor qualification the circumstance that there are numerous "frictions" and "immobilities." These mean that the general price level may begin to rise sharply from excess demand while there still exists some margin of unemployment. An excess demand for many or most goods (and thus for the resources that produce them) can exist side by side with pockets of idle workers, or plants with excess capacity. This will be the case to the extent that moderately rising wages where there are labor scarcities fail immediately to pull unemployed workers away from the localities and occupations where there are surpluses of labor; and also to the extent that only a large rise in the prices of the scarce goods can divert enough demand toward the areas of excess supply to utilize fully their idle productive capacity. Thus, even in wartime unemployment never fell below about 600,000, despite intense inflationary pressure. We cannot aim at absolutely full employment, or even 98 percent employment, unless we are willing to accept considerable inflation. By increasing the mobility of labor (and other resources), perhaps we can raise the demand inflation point from, say, 96 percent of full employment to 98 percent; but 100 percent is impossible.

But we shall not dwell on the frictional problem here. We only recognize that it slightly complicates the demand inflation picture. Aside from this, the demand inflation analysis sees the price level rising whenever total demand exceeds the full-employment capacity of the economy, stable when demand is just sufficient for full employment, and either stable or falling if total demand is short of full

employment output. It sees control of inflation as involving the limitation of demand through monetary and fiscal policy.

#### COST INFLATION

Cost inflation has almost invariably been described as stemming from labor-union pressure on wage rates. It is wage-cost inflation. This analysis recognizes that wage rates in the modern economy are not strictly market-determined prices. They do not adjust quickly and freely and automatically to whatever level may be necessary to "clear" the labor market. They are administered prices, and, as such, do not rise only when the demand for labor exceeds the supply. This recognition carries one step further the concession made to realism when we assume that, although wages and prices rise in response to excess demand, they do not fall whenever there exists any unemployment. I shall argue at a later point that this wage-cost inflation analysis is still lopsided, and thus misleading, by recognizing that wage rates are administered prices but failing to recognize that most prices for goods and services are also administered. (I use the term "administered prices" in a completely neutral sense: they are not necessarily bad or good, high or low, collusive or competitive; they are merely prices that are set by a seller, or buyer, and maintained unchanged for a considerable period, rather than being determined like prices of wheat or cotton or General Motors shares by continuous bid and offer.) But first we will review the usual analysis of wage-cost inflation.

We now recognize that rising wage rates are not exclusively the product of an excess demand for labor. We see that collective bargaining produces wage rates that rise even when there is no excess demand for labor—perhaps even an excess supply. Wage rates tied to the cost of living fall in this category, as do wages which automatically rise in reflection of some presumed (or even measured) rise in productivity. Wage rates which rise because employers can afford to pay them are in this group, or which rise because employers want their workers to be happy. Wage rates which rise to preserve parity with wages elsewhere or for other kinds of labor are also in this class, as well as wage rates that rise simply because organized workers are able by successful strike or threat of strike, to compel employers to pay the higher rates. The crucial difference from the previous case is that here rising wages are not, for each and every type of labor and in each and every labor market or even in the typical cases, confined to the situation in which there is an actual, experienced market scarcity of labor, which forces employers to compete for workers by bidding wages upward.

Suppose that employers generally should agree to or be forced to raise wage rates even when there was no scarcity of labor. If the rise exceeds the slow improvement or productivity, this raises employers' costs of production and, on normal assumptions, would reduce their willingness to supply goods at the previously prevailing price level. A reduction of supply would not be accompanied by an equivalent reduction of demand, and prices for products would thus rise. Unless and until prices rose in the same proportion as wage rates there would exist a tendency for the supply of goods to fall short

of demand, thus causing the price rise to continue until the previous ratio of wages to prices was restored.<sup>4</sup>

In fact, we know that what is more likely to happen is that such wage increases will lead employers directly to post higher price tags, rather than first to reduce their supply and let the market bid prices up. But even if prices of goods rise only in response to an actual excess of demand over supply, one can reach the conclusion (based on the assumptions summarized in the footnote to the preceding paragraph) that prices would be bid up in the proportion that wage rates rose.

This is spontaneous inflation. It requires no excess demand; it can even occur when there is some or perhaps considerable unemployment. It arises because wages increase even with no excess demand for labor.

Now there are two objections often made to this argument. One is that wages cannot and will not rise unless there is a genuine excess demand for labor—that the labor market really behaves like the purely competitive market of economic theory—that the demand inflation case is the only case. This view argues that labor gets wage increases only when there exists a true scarcity of labor. I do not believe that most employers would accept this observation and neither would most unions; nor can I agree that it is a correct description of wage determination. To be sure labor does get wage increases when there is a labor scarcity—larger increases than when there is no scarcity; but wage increases also occur for classes of labor for which there is no excess demand, and perhaps even when there are no classes of labor in excess demand.

The second objection is that any rise in the general level of wages and prices, unless it is accompanied by at least a proportional expansion of the money supply,<sup>5</sup> will reduce the total demand for goods. This reduction in demand will create unemployment, and the development of unemployment will quickly put an end to inflationary wage hikes. There is merit in this objection, but, in my judgment, not much. In the first place, I do not think that the reduction in demand accompanying a moderate inflation of the price level will be very great, even if the money supply does not expand.<sup>6</sup> Second, even if there is a reduction of demand which creates unemployment, the level of unemployment sufficient to eliminate inflationary wage increases is probably fairly high. Thus, even if inflation should even-

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<sup>4</sup>In the above paragraph I have summarized, without explanation, a fairly complex theoretical argument. Briefly set forth, the usual treatment assumes that (a) employers determine prices and outputs in a way which continually maximizes short-period profits; and (b) the "marginal revenue product" of labor declines for each firm as employment and output increase. These assumptions mean that if wage rates are raised, employers will not offer the previous volume of employment (producing the previous volume of output) unless or until prices rise in equal proportion, restoring the previous "real wage." The conclusion that demand for total output will fall by less than output, and thus assure the necessary rise in prices, assumes (a) that the "marginal propensity to consume" is (in "real" terms) less than unit, and (b) that any change in current wages and prices revises investors' expectations of future wages and prices in the same degree (i. e., the "elasticity of expectations" is unity). It, however, ignores (see fourth paragraph following) the possible effect on aggregate demand—presumably via interest rates—of a failure of the quantity of money to expand proportionately. As indicated, I think this is a matter of secondary importance.

<sup>5</sup>Or an increase in Government deficits.

<sup>6</sup>Some argue that the monetary authorities will necessarily have to "ratify" the inflation by increasing the money supply; or even that the "necessary" increase in money will come more or less automatically. Since I do not consider the change in money supply of much short-run importance (there was no change, for example, from 1955 to 1957), I prefer not to stress this aspect. Of course, there are limits to the increase in "velocity" that occurs if prices rise and output does not fall while money supply is constant. But they are likely to be reached or to have their effects at a point in time sufficiently remote from the wage increase as to be for all practical purposes an independent event.

tually curb itself, it would have to proceed rather far before the curb would work. We probably would find both the extent of the inflation and the degree of the necessary unemployment socially intolerable.

#### CONTROL OF WAGE COST INFLATION

It is commonly agreed that this kind of inflation is much more difficult to control by traditional monetary or fiscal means than demand inflation. For to avoid it, aggregate demand must be kept or pushed low enough, and sufficient unemployment created, that unions will not seek or else employers will refuse to grant—strike or no strike—wage increases in excess of productivity increases. This may mean a very considerable body of unemployment. Even if it does not, it may require a sacrifice of the rate of economic growth that we want. For, in this view, fiscal and monetary measures can control inflation only by putting pressure on the employer, in order that he may in turn put pressure on the union. Employers' profits are thus caught between the upper millstone of a restrictive monetary or fiscal policy, operating to reduce aggregate demand, and the lower millstone of upward wage pressure. Profits must be squeezed until employers are able and willing to squeeze the inflation out of wage demands. This may be disastrous for investment and thus for growth.

Recognition of these difficulties is why some businessmen appear to have decided that they would prefer a little inflation. Others have concluded that control of upward wage pressure must come not from fiscal or monetary policy, but from a direct attack on the strength of unions, through new labor legislation. Personally, I do not believe that proposed changes in labor laws (short of abolition of collective bargaining) would have much effect on upward wage pressures: right-to-work laws may only make unions more aggressive in seeking wage increases; prohibition of industry-wide bargaining may weaken employers as much or more than unions; and so on. However, I shall not pursue this point.

#### THE TWO TYPES OF INFLATION CANNOT BE DISTINGUISHED IN PRACTICE

Economists have talked so much about these two kinds of inflation in recent years that it seems to me strange that they have not been able to say more about what has been happening. In particular, I would like to know to what extent the inflation in the United States since the war has been demand inflation and to what extent, if any, it has been wage-cost inflation. I find very little discussion and no agreement on this question. Take it year by year. We can probably agree to throw the price increases between 1945 and 1947 and between 1950 and 1951 into the demand inflation category, although I assert that it is very hard to prove this to be the case. These 3 years account for about five-eighths of the total inflation of 56 percent in the cost of living over the period 1945-57. What about the other years of smaller price increase: 1948, 1952, 1953, 1956, and 1957? Why is there debate about these years? Why is it hard to prove that even in 1946, 1947, and 1951 the rise in prices was demand-induced?

Let us see how we should expect wages and prices to behave in a year of demand inflation and how this behavior would differ in a year of cost inflation. In the demand inflation case, presumably it is an

excess demand in the product markets that pulls or bids prices upward. The increased profitability of production in turn creates an excess demand in the labor market which bids or pulls wage rates upward. The fact that wages are set by collective bargaining rather than in a hypothetical free competitive market does not, of course, mean that wages cannot rise through an excess demand for labor.<sup>7</sup> In any case, in demand inflation, excess product demand pulls up goods prices, creating excess labor demand which pulls up wages.

In the wage-cost inflation case it is turned around. Wage rates rise without excess demand, which creates an actual or potential shortage of supply of goods (at the old price level). This shortage bids up prices (or would bid them up if sellers didn't automatically advance them).

The reason why it is difficult to distinguish the two cases in practice is that neither prices nor wages are set in a way that permits us to make the theoretical distinctions we require. Given the way wages are actually determined we find it difficult to answer the question: Would this much of a rise in wages have occurred even if wages had been set by an auction method? Nor, given the way most prices are actually set, can we answer the question: Would prices have risen as they did—i. e., would they have been bid up by excess demand—even if wages had not risen?

The fact is that most prices are not set by impersonal supply and demand forces any more than wage rates are. For some farm products and raw materials, prices do respond directly and almost daily to demand and supply considerations. Prices rise when demand exceeds supply, and only when it does, and fall in the reverse case. But for most manufactured goods and for almost all goods and services at the retail level, prices rise and fall not in direct reflection of impersonal supply and demand forces, but instead in response to some person's decision, applying some rule or formula or using his informed judgment as to the best way to behave in the current situation.

The general price level rose in 1956 and 1957. This general rise consisted of increases in millions of individual prices, which more than offset reductions in a few prices and stability in many others. Was the rise in most of these prices in response to an excess of demand over supply? How do we know? How could we ever find out? The very concept—clear enough in the economics textbooks—is almost impossible to apply in most markets.

Among others, prices of steel and of automobiles rose. Were these particular increases the result of excess demand? That is, had the price of steel not been revised upward by a deliberate policy decision, would the market have bid prices up? And would it have been by the particular number of dollars a ton that actually occurred? To ask the question in this form is to show that it is not fully answerable. We can perhaps look for some indicators of the presence of excess demand in each of the postwar years—as revealed, for example, in order backlogs. However, we would need to know not only whether there were order backlogs (there are probably always some), but how general they were, how extensive, and for how long they were expected to last. With this information, and knowledge of the extent

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<sup>7</sup> It may be, however, as some have suggested, that in highly demand-inflationary situations the institution of collective bargaining actually slows up the increase in wage rates.

to which productive capacity was currently employed, we might be able to determine that some of the price increases that have occurred in steel since the war were probably in response to excess demand; others clearly occurred with no excess of demand over supply; regarding still other instances, it would be impossible to reach a judgment. In hardly any case could we guess whether the particular price increase that did occur was of a magnitude approximating what would have occurred in a market in which price adjusted automatically to supply and demand.

In some ways the steel case is a relatively easy one, for the concept of "capacity" may have fairly definite meaning in steel. But consider automobiles. Not only does the output of each make of automobile often move independently of other makes, but what does "capacity" mean for any single make? With how many assembly lines operating, at what speed, for how many shifts, and for how many months (prospectively) of the year?<sup>8</sup> The concepts required by the contrast of demand and wage cost inflation are no easier to apply to most other manufactured products—appliances, clothing, processed foods, chemicals, rubber products, and so forth.

We simply find it extremely difficult to say that, in 1957, prices would have gone up even if wages hadn't, and this pulled wages up; or, on the contrary, prices would not have gone up if wages hadn't—the wage inflation forced prices up. It is not only that we cannot say that one or the other was true of most markets; it is even very hard to say which was the case in any single market.

But it is worse than this. It is not merely that we cannot tell what is the case in a particular time and place. The distinction itself tends to break down when we bring the real-world processes of price and wage setting into our consideration. What does it mean any longer to say that in 1951 we had demand inflation because wages rose no more than they would have been bid up in an auction-type labor market (given the rises in goods prices that were occurring), when the rises in goods prices that were occurring were predicated in most instances, through markup formulas or the exercise of "good business judgment," on the simultaneous and expected rise in wage rates? Or what does it mean to say that in 1957 we had cost inflation because prices rose no more than they would have been expected to rise in response to demand-supply forces, given the rise in wage costs that occurred in 1957, when this very rise in wage costs was at least in part tied (through cost-of-living clauses or the cost-of-living principle in wage negotiation) to the rise in prices that was occurring or was expected to occur in 1957?

In short, the dichotomy between demand and cost inflation appears to break down in application. The principal reason why it breaks down is that neither in the labor market nor in most commodity markets are wages or prices set in automatic response to supply-demand forces, rising when and only when there is an immediate current excess of demand over supply. Perhaps this breakdown should not

<sup>8</sup> It is well known that the concept of a "supply curve" has no meaning under oligopoly conditions. However, even if we measure "supply" by a curve of average or marginal costs, we could give clear meaning to an assessment of the presence of excess demand only if the cost curve were rectangular, or nearly so: flat up to some limit of output where it rises vertically, or at least with a sharp discontinuity. I do not know how to conceptualize the supply curve for automobiles. But even the marginal cost curve (of each make) is surely not rectangular, and we cannot merely compare demand with "capacity."

surprise us. It would not surprise the housewife. On the contrary, she would be astonished to be told that two distinctly different kinds of inflation had been alternately operating on her budget during the postwar period. The only difference she observes is that in some years prices have risen faster than in others. Would it not be more reasonable for us to look for an analysis of inflation which does not require the assumption that two different kinds of things have been happening to prices in the postwar period?

In such an analysis aggregate demand must play an important role. I certainly do not wish to argue that aggregate demand has no relevance to inflation; this would be absurd. I merely say that the concept is not useful—not operational—in the form in which it is usually presented. We can perhaps meaningfully compare two states of aggregate demand. Within limits, we can decide that demand was probably greater in one year than another. But can we meaningfully—that is, operationally—compare demand with supply? As will be seen below, my treatment, in effect, makes demand inflation a matter of degree, not of kind.

The usual wage-cost inflation analysis has the advantage that it recognizes, realistically, that wages are administered prices; but, unrealistically, it assumes at least tacitly either that prices of goods and services are market-determined rather than administered, or that this makes no difference. I believe it necessary to recognize explicitly that prices as well as wages are “administered.” My second criticism of the usual wage-cost inflation analysis is that it ignores the fact that not only do prices follow wages but that wages also follow prices. Today’s wage increase may seem to require tomorrow’s price increase. But, to labor, today’s wage increase was an important measure required by yesterday’s increase in the cost of living. We are talking about the behavior of wages and prices during periods of inflation. This means a rising cost of living. We certainly cannot forget rising prices in discussing rising wage rates.

Is there any alternative theoretical analysis which provides a better insight into the nature of the inflationary process and the policies necessary to control it? There is a third such analysis, usually—and I think mistakenly—condemned by economists as unsound.

#### MARKUP INFLATION

I shall present a very simplified version of what I call the “markup” analysis of inflation, indicate the criticisms made of this approach and why I think that they are mistaken, then elaborate the analysis slightly. Finally, I shall consider its implications for economic policy.

Suppose that all business firms have the practice of pricing the goods and services which they sell on the basis of some standard markup over their costs of materials and labor. For the moment, assume constant efficiency or productivity. Suppose, further, that labor seeks and is able to get wage increases to match any increase in the level of consumer prices. In effect labor, too, then prices its services on the basis of a fixed markup over its cost of living.

Now it is easy to see that this model can generate either a stable, a rising, or a falling price level, depending on the markups which business and labor respectively employ. The markup pattern by business

may be such that a wage level of \$2 an hour yields a price index of 100, which was just the index level which led workers to demand a wage level of \$2. But this need not be the case. Suppose that a wage level of \$2 leads to a price index of 104, and that a price index of 104 leads workers to seek and to get a wage of \$2.08, which in turn requires a price index of 108.2, a wage level of \$2.164, and so on. Clearly an endless upward spiral of wages and prices would ensue so long as these bases for setting wages and prices prevailed. If the markup on one or both sides is a percentage markup, the inflation will proceed faster than if one or both of the markups is fixed in dollars and cents. Further, depending on the magnitudes of the two markups, the spiral may eventually taper off into stability (in the absence of a new push) or may have no termination. These are matters of detail, dear to the heart of a mathematical model builder, but of no great relevance here. The important fact is that, if each participant prices on the basis of a markup over the prices he pays, we can have a spiraling process of very considerable magnitude and duration.

This spiral works within the business sector as well as between business as a whole and labor. Most sales by the "average" business firm are made to another business firm. If one firm raises its prices in order to preserve its desired markup, this raises the costs of other firms, which in turn raise their prices, increasing the costs of still other firms (including perhaps the initial firm), in an endless chain. Some of the sales of some of these firms are also made to consumers. This raises the cost of living and, by causing wage costs also to rise, intensifies the spiral. Nevertheless, it should be noted that the dollar value of sales between business firms is much greater than the dollar value of sales of labor to firms. Even if wage rates were stable, we could have a considerable round of markup inflation entirely within the business sector, if the markups applied by firms were such as to produce it.

Now it is also clear that even if the markups applied by business and by labor were such as to produce an inflationary spiral, a gradual improvement of efficiency and productivity might eventually bring the spiral to a halt. For a rise in efficiency means that a rise in wage rates or prices of purchased materials produces a smaller rise in labor and materials costs. Thus markup patterns which were initially inconsistent with stable prices can become consistent with stability through the growth of productivity.

But this happy result would, of course, be lost, if the several parties to the game each tried to appropriate the gains of rising productivity, through expansion of their markups. Indeed, if the desired shares of the productivity gain add up to 100 percent—or, as they easily might, to more than 100 percent—of the gains of productivity increase, the spiral might still go on indefinitely. And this effort to expand the markups to appropriate some of the gains of rising productivity is just what we observe. Labor seeks not merely to maintain a constant "real wage," but to achieve a rising standard of living; business, too, would like to enjoy some of the benefits of the increasing productivity which, one must agree, arise primarily from business investment and managerial skill and ingenuity. (One time-honored way in which this occurs is through the application of customary markups to "standard" costs, using current wages rates and materials prices. Unless the "standards" are revised to reflect the rising pro-

ductivity, this appropriates the entire productivity gain to management.)

Now our model is dreadfully oversimplified. But we can expand it without changing greatly the conclusions. For example, we can add an agricultural sector. However, if we have agricultural prices supported at some percentage of parity, this only adds to the inflationary race, particularly because our parity index assumes that farmers should receive 100 percent of the gains that occur in agricultural productivity. There should also be added a free-market sector, in which prices respond freely to supply-and-demand forces, a sector largely identified with raw materials. Imports and exports get into the picture, too. These greatly complicate the analysis and succeed primarily in obscuring rather than altering the primary engine of inflation. This engine is the struggle between labor and business to preserve levels of return and to achieve gains in return that cannot be accommodated out of the total national income. It is as if the two parties were demanding shares of the national income that added up to more than 100 percent of the total national income. The attempt of each to get his desired "fair share" produces only an indefinite inflationary spiral.

There is no evidence that either labor or business wants inflation as such; indeed each deplures it. The goal of business in setting prices is not to get higher prices; it is to obtain what it considers a "fair" markup over costs; if costs went down, so would prices. When businessmen raise prices, they often do it apologetically, explaining that they are no more than reflecting the rise that has occurred in their costs—or even showing that their price increase falls short of the increase in their costs (as did both President Curtice, of General Motors, and Vice President Yntema, of Ford, in recent testimony). The implication is clear that the passing along to buyers of cost increases (or decreases), i. e., the preservation of a markup, is taken as the normal and obvious standard by which the propriety of a price change should be judged.

Nor does labor seek inflation. What it wants is a standard of living protected against erosion from higher prices, and increasing gradually to reflect labor's "fair share" of the gains of rising productivity.

One thing that appeals to me about the markup hypothesis is that it places the emphasis where unions and businessmen place it, not on the level of prices, per se, nor on supply and demand, but on the preservation of "fair" relationships between buying prices (including the cost-of-living), and selling prices (including wage rates).

#### OBJECTIONS TO THE MARKUP ANALYSIS

The hypothesis that most prices are set by markup over cost is often rejected as meaningless by economists. This may be the superficial form that pricing takes, they agree; nevertheless, the markups used are not just any numbers that come into the sellers' minds. The markups employed merely reflect the operation of more fundamental supply and demand forces, and change as these forces change. If sellers in a given field try to use markups that are too high, they will find themselves unable to sell what they expected to be able to sell

at the prices they are charging; inventories will pile up; prices (and thus markups) will be adjusted downward.

If the analysis is of prices in their aspect of structure—in connection with problems of resource allocation and income distribution—this objection has real merit, and the markup hypothesis may not be useful, even as a starting point. But the objection is not equally relevant to an analysis of the inflationary process. If sellers typically set prices by applying customary markups to their costs, then in an inflationary setting of generally rising costs, relative prices and markups need not change appreciably as the price level rises. And even if they do change, some markups are as likely to be revised upward as others are downward. As a description of the way in which price levels change, the markup hypothesis is neither meaningless nor far from the truth; it is certainly a more realistic and useful hypothesis than the assumption that prices adjust immediately and directly to a “clear-the-market” level set by supply and demand.

Nevertheless, the fact is that markups do vary, and their variation is significant. If our interest is in price structure we are concerned (in effect) with variations in relative markups—how markups fall in those fields in which supply tends to exceed demand and rise where demand tends to exceed supply. But this concentration on relative markups has led us to neglect consideration of the general average or level of markups. It is my hypothesis that this is precisely where total demand becomes relevant to an analysis of the price level. I suggest that it is a useful hypothesis that the average level of markups employed by business firms rises as total demand increases and falls as demand declines.<sup>9</sup>

The second related hypothesis I make is that the “markup” which unions (and employers) apply to the cost-of-living in setting wage rates also tends to rise and fall as the volume of unemployment falls and rises.

This modification of the markup analysis of inflation makes it, I think, a more fruitful tool. It shows why inflation may occur, even with some slack in the economy; but it also indicates why inflationary difficulties become more intense as total demand increases. It provides, I think, a framework which embraces elements both of the demand and of the cost analyses.

Too much of our thinking about inflation has concentrated on how it starts rather than with how it proceeds. Inflation might start from an initial “autonomous” increase either in business or labor markups. Or it might start from an increase in aggregate demand which first and most directly affected some of the flexible, market-determined

<sup>9</sup> A reader of a draft of this paper commented that this is just another way of saying that prices rise in response to excess demand. I do not think so. The question is not whether prices rise but when and by how much they rise and how this amount is determined. If prices are completely market-determined, varying daily or hourly to clear the market, then I agree that the excess demand theory answers our questions. But if this is not the case, we can talk meaningfully about the extent and pace and mechanics of inflation only by taking account of the particular ways in which prices are set. To say that prices rise “in response to” excess demand doesn’t help much unless we know how far or how fast or how often they rise. My thesis is that the best simple and general description is to say that they rise when costs rise, usually not before; that the price rise tends to be about equal to the rise in costs at “moderate” levels of demand, somewhat greater (but not “much greater”) when demand is at a higher level, somewhat (but not much) less when demand is lower.

prices. But, however it starts, the process involves both demand and markup elements.<sup>10</sup>

A fuller elaboration of our simple model should take account of additional elements, including particularly the role of expectations, both as to demand and as to cost, and by consumers as well as businessmen. However, I would insist that one principal relevance of expectations—except perhaps in hyper-inflations—is with respect to the cost base to which business markups are applied, or the rising cost of living assumed in wage negotiations. When demand is moderate, markups may be applied to historical, experienced costs. As demand increases and the pace of price rise accelerates, there is an increasing tendency to project rising labor and material prices into the future and to apply markups to these. Workers assume that the cost of living will rise, and try to anticipate it in their wage settlements. This is one reason, perhaps the principal one, why markups (over actual cost) rise with increases in aggregate demand.<sup>11</sup>

The other principal relevance of expectations is with respect to the impact of price expectations on inventory behavior, both of consumers and firms, and upon the timing of investment decisions. Expectations have, of course, great importance for the movement of the relatively few demand-determined prices—the raw-materials prices which can (and often have) doubled or trebled in a few weeks of frantic trading.

Price expectations depend partly on recent price movements; but they can also be generated by news (of war, shortages, tax changes, etc.).

In summary, the advantage that I see in the markup analysis of inflation is that it focuses attention where attention belongs—on the wage policies of trade unions and the pricing policies of business firms, both of which can best be understood in terms of reaction to cost changes. The concept of prices that are set by impersonal supply and demand forces, to clear the market, rising in sensitive response to an excess of demand, and only under such conditions, is both operationally almost meaningless and completely unrealistic. It is just as use-

<sup>10</sup> Dr. Franz B. Wolf, who kindly read a draft of this paper, makes the following comment, which I find so lucid that I cannot refrain from quoting it in full: "It probably can be shown that the apparent justification of classifying some periods of inflation one way and some the other is due not so much to differences in the process of inflation but to differences in the reaction of public policy. Under war conditions, fiscal, credit, and monetary policy is ineffective but markup control is enforced in greater degree against both business and labor; consequently, markup inflation is slowed down sharply and demand inflation proceeds under the surface and we speak of the period as one of demand inflation. In recent years, credit and monetary policy (and, to a lesser extent, fiscal policy) has curbed the demand inflation process but has been ineffective in curbing markup inflation; so we speak of the latter. In reality, under both conditions the entire process has continued, as the aspect which has remained unaffected by public policy has impaired the effect of public policy even on that aspect toward which it was directed.

"This may make it a little more difficult to distinguish between price control (which, *inter alia*, curbs increases in markups) and the remedy to be developed for the peacetime inflation process with its emphasis on markup inflation. But it should still be possible to make the distinction clear and to show that under all conditions (1) monetary and credit and fiscal policy can only combat that aspect which is now described as demand inflation, (2) demand inflation and markup inflation are in reality merely two aspects of an integrated process, and (3) the one aspect which is allowed to proceed will make the control of the other ineffective."

<sup>11</sup> An additional reason why markups expand with aggregate demand is that the extent of discounts from and "shading" of quoted prices decreases with improving business conditions. At retail, this takes the form of fewer special "sales" at "markdown" prices. I am convinced that the initial markups applied by sellers in computing their announced prices vary little between conditions of moderate prosperity and boom. The principal difference in realized markups occurs through the greater tendency for projection of cost increases during boom periods and through the greater prevalence of "sales" and special deals when demand slackens.

less and unrealistic as the assumption that wage rates are so determined. The existence of many "layers" of sales and resales within the business sector also seems to me to make it useful to focus attention on costs, and the pyramiding of costs.

#### CONTROL OF MARKUP INFLATION

In the light of the markup analysis, the tools of monetary and fiscal policy obviously can have some effect on inflation. A reduction of total demand for goods will tend to reduce the general level of markups which sellers apply to their costs; as a reduced total demand for goods is translated into reduced employment, the wage demands of trade unions tend to be scaled somewhat downward—or, if not the demands, the wage increases for which they are willing ultimately to settle.

But it is also clear that there is no neat relationship between full employment and inflation. Inflation may be a troublesome problem even (as in 1956 and 1957) with no general pressure on the labor supply; inflation may even survive in weakened form (as perhaps in 1958) in a period when there is considerable slack in the economy.

In view of this unhappy state of affairs, is there nothing that can be done to avoid a gradual upward creep of the price level—a creep that becomes uncomfortably rapid whenever the economy is sustaining vigorous growth and full utilization of its potential, and which stops only when the economy performs badly in these other respects?

To answer this question, we need to remind ourselves why it is that the process of wage and price determination seems to be inconsistent with price stability, at least at full employment. The mere fact that both business and labor set their prices on the basis of a markup over costs, with an effort to capture some part of the gains of rising productivity, does not inevitably mean inflation. It means inflation only if the markups are inconsistent—if one or both of the markups is too high.

#### WHOSE MARKUP IS TOO HIGH?

The usual cost inflation analysis necessarily places the blame solely and squarely on labor. Inflation occurs when labor makes inflationary wage claims. The markup analysis qualifies this conclusion, by pointing out that it is the combination, the interaction, of wage claims and business pricing policies that may produce inflation.

It is not hard to see why labor is usually given the sole blame for inflation. First, in the usual cost inflation analysis, prices (but not wages) are assumed to be set by impersonal supply and demand forces. This leaves no one to blame (except labor) if prices rise. We see wages set in a conflict situation—by bargaining between workers (the inflationists) and employers (who are fighting for price stability). Prices, on the other hand, are traditionally set by unilateral determination. Both buyers and sellers formally participate in setting wage rates; only sellers in setting most other prices. We tend to see conflict only in a formal context of conflict. Second, most analyses of wage cost inflation gloss over the relation of the cost of living to wage demands. This is like asserting that the chicken necessarily comes before the egg. Thus, Vice President Yntema of Ford, in his recent testimony before the Senate Monopoly Subcom-

mittee, talked about the wage increases in 1956 and 1957 which raised the costs of Ford cars, and forced price increases. But had Ford prices not increased (and prices charged by most other manufacturers similarly situated) wage rates would have increased very much less, because the cost-of-living escalator would not have operated.

Although labor gets most of the blame for inflation, labor stubbornly refuses to take the villain's role. Its wage demands are reasonable, Walter Reuther insists, and consistent with price stability, if only the cost of living were controlled, and if business did not insist on exorbitant profit demands.

The markup analysis of inflation requires us at least to face labor's question. We can no longer hide behind "supply and demand" as the determinant of all prices except the price of labor. We have inflation if the markups are inconsistent, but is only labor's markup too high?

I do not know the answer. I do not even know how one should judge whether business markups are too high. We would have a standard for this judgment if all industries were organized like the pure and perfect competition of our economics textbook. But they are not so organized, and I doubt that we would be satisfied if they were. For the markups which purely competitive sellers are able to apply to their costs would provide profit margins probably quite insufficient for the massive reinvestment of earnings which is so important to our economic growth, and the vast expenditures on research and development which are crucial to our economic progress.

But merely because we have no easy standard to judge their propriety, and merely because business margins serve an economic function related to growth and progress (as well as provide the income of the owning and managerial classes), we need not assume that whatever business markups may happen to be are necessarily correct and above examination. It seems to me that, a priori, it may be as sound to claim that business markups may be "too high" as to claim that wage demands may be excessive, as sound to blame business as labor for inflation.

What needs to be recognized is that it is the attempted or desired markups by labor and business which are "too high," individually or in combination. The actually realized markups can never be inconsistent. The two interest groups can lay claims that add up to more than 100 percent of the national income; but they can never receive more than 100 percent. It is inflation which chisels away the excess. To say that social policy should find a better way of chopping these inconsistent claims down to size is not to say that either group must necessarily take a smaller share of the national income than it is in fact getting.

#### WHAT WE CAN DO

The problem of inflation may very well be our No. 1 domestic economic problem in the years ahead. Thus I believe that the Joint Economic Committee can perform a great public service, through its present study, and otherwise, in contributing to the public understanding of the nature and seriousness of the problem. But mere understanding will not be enough. I have a feeling that some business and labor leaders realize, even better than many economists

seem to do, what the real problem is. But they feel—and are—quite powerless to do anything about it. Even if all of the participants in the processes of wages and price setting fully understood the problem, it is not clear that there would be much that any of them, in their private capacities, could do. Public action seems to me to be required.

I do not have, nor do I think anyone has, sufficient knowledge or imagination to suggest what final form this action should take. Certainly wage and price controls of the wartime variety would be completely out of place. Yet at the other extreme mere talk is not enough, either.

It is clear that the public has a stake in the wage-setting and price-setting decisions that are responsible for inflation. All of us (and some groups in particular) are innocent bystanders who are getting hurt by the contestants in a game of musical chairs that no one does or can permanently win.

The public stake in these wage and price decisions does not get expressed unless someone expresses it. But vague exhortations, appealing for "restraint" in wage and price determination, such as have been frequently made by Presidents Truman and Eisenhower (most recently in the 1958 Economic Report), and by leading officials of their administrations, seem to me almost worse than useless. Do we not need some machinery by which the public stake in these private decisions can be more sharply defined and brought to bear in specific terms upon the concrete issues which arise?

Perhaps one approach might be for the Congress to establish a permanent Wage and Price Commission, charged with the responsibility of (a) formulating general standards for noninflationary wage and price decisions; (b) collecting the information necessary to apply these standards to particular strategic proposed increases of wages and prices; and (c) making public its findings. I would supply the Commission with the power of subpoena, an adequate economic staff, and the authority, even, to require temporary postponement of specific wage and price increases pending the Commission's study. I do not see the Commission as having any authority to establish legal maximum wages or prices, but merely that of expressing in as concrete terms as possible its dispassionate and documented judgments as to what the general objective of price stability might seem to require in the settlement of specific issues.

The idea is not new; it has been proposed many times in the past. Walter Reuther recently proposed a price commission—which would have investigatory powers concerning strategic price increases. This is as one sided as the view which fastens all blame for inflation on organized labor. Mr. Reuther might be somewhat less enthusiastic about a commission which could furnish the public with an impartial analysis of the inflationary results of the kind of wage increases which his own union has in the past demanded, and today—even in the face of large unemployment among his members—continues to demand.

I do not mean to single out Mr. Reuther as the inflationary villain any more than I accept his designation of the General Motors Corp. for that role. I only say that the public stake in price stability requires that we go beyond name calling, finger pointing, and vague appeals.

## STANDARDS FOR WAGES AND PRICES

The great task for the Wage and Price Commission would be to work toward the formulation of appropriate standards for the public appraisal of wage claims and markup practices. I do not think that any of us should have any illusion that this would be easy, or that the questions raised do not go to the very heart of the economic process. Wartime price and wage control standards would be almost totally irrelevant.

Prof. A. P. Lerner has proposed an agency empowered to set compulsory ceilings, at least on strategic wages and prices. Although I reject this approach, my Commission would have to consider seriously his proposed wage and price standards. With respect to wages he would allow rates to advance by an amount equal to the assumed productivity increment—2 or 3 percent per year. But wage rates of individual groups of workers could advance by more than this where the unemployment percentage of that group was half of the average percentage for the economy as a whole, while no increase at all would be permitted for groups whose unemployment percentage was twice the national average. With respect to prices, increases would be permitted for industries operating at capacity, regardless of the level of profits; price decreases would be required for industries operating considerably below capacity (again, regardless of profits or losses). For cases between these limits, prices could not be raised.

Enforcement of these proposed standards would require incredibly complex determinations of the appropriate units (on the labor side, is the unit an industry, a firm, an area, a type of skill? on the price side, is the unit a firm, a product, an industry, or a regional segment?). Price and wage control experience in particular suggests the impossibility of either the product or the industry concept as a regulatory framework. But I have more fundamental objections. First, the concept of "capacity" is not an operational one, at least in most industries. I do not believe that it can be given even rough measurement. Second, the standard ignores materials costs which in some industries comprise 50, 60, or even 90 percent of the price. These may rise for many reasons (increases in suppliers' prices permitted under the capacity rule, raw materials increases—clearly not subject to Lerner's control scheme, import prices, and so forth). Prices must at some point be allowed to rise to reflect materials cost, even if the industry is not at capacity. Similarly, an industry in which productivity increases by less than the national average would experience rising labor costs, which could not be ignored. Finally, I believe that Lerner dodges the fundamental question, which is the determination of appropriate "shares" for labor and capital. For example, in a prosperous, full-employment economy, many industries would be operating at or near capacity. Why should we assume that the proposed rule would produce as many price rollbacks as increases? If prices generally rose (and profits, too), could or should we ask labor to absorb increases in the cost of living?

I believe that Professor Lerner's suggested standards might serve as a starting point for the proposed Commission's work. But they are not the final answer. An attempt at their use in establishing

compulsory ceilings would be beyond the competence of any administrative staff. This is one (but not the only) reason why I prefer the less drastic approach of an agency with only investigatory powers. I would foresee the Commission proceeding from the relatively obvious cases toward the more difficult, closer cases, evolving and refining its standards and procedures in the process. But it would avoid as the plague any effort to become an agency of mediation or compromise.

The difficulties in the way of a solution to the problem of inflation are clearly enormous. But if we mean business about price stability and full employment, it seems to me that it is high time to begin to explore our way, in some new directions, toward a solution.

# MAINTAINING PROSPERITY WITHOUT INFLATION— OBJECTIVES, PROBLEMS, AND POLICIES

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## 1. INTRODUCTION

My assignment is to present a broad view of the relationship of prices to economic stability and growth. This is a realm of economic study shot through by formidable theoretical issues, and greatly wanting in firm knowledge based on thorough empirical research. Perforce, I must paint my vision of reality in an impressionistic style. I shall endeavor to indicate the nature of major problems that lie in this field, and the general lines of public policies that will advance us toward the goal of the Employment Act of 1946.

It may assist the reader if, at the outset, I set forth some hypotheses about the relation of price behavior to steady economic growth which I shall examine and defend in the following pages:

1. Stability of the price level is an objective of the Employment Act parallel to full employment and full production in its importance for public policy.

2. A stable price level promotes real economic growth in the long run. Inflation, creeping or otherwise, has the effect of reducing the average annual gain in the real output of a competitive, free market economy.

3. Full employment and a stable price level are compatible economic objectives, provided that competition is pervasive, prices are flexible and resources are mobile within the economy.

4. Creeping inflation of 2 or 3 percent a year appears to be a recent phenomenon arising from a complex of causes and calling for a broad program of economic reform.

5. A program to reduce or eradicate the causes of creeping inflation involves actions desirable on other grounds, including the need to increase the efficiency of the United States economy and to strengthen our diplomatic position in the world.

## 2. THE EMPLOYMENT ACT AND PRICE STABILITY

The Employment Act does not make any explicit reference to individual prices or price levels. The widespread fears of postwar unemployment that prevailed at the time it was written dominated congressional and public discussion of economic goals to the exclusion of all else. More than one student of the act has concluded that it has an inflationary bias. By calling upon the Federal Government to bring forth an economic program that will yield "maximum" production, employment, and purchasing power, they say the Employment Act virtually directs government to embark upon large expenditure programs and a strongly expansionary monetary policy.

A more careful reading of the act, however, refutes this first impression, and indicates that Congress thought in terms of achieving economic goals within the framework of a reasonably stable price level. It used the adjective "maximum" loosely as a synonym for "full." This is made clear by considering the qualifying language of the act. It requires the Federal Government—

to use all practicable means \* \* \* consistent with its needs and obligations and other essential considerations of national policy \* \* \* to coordinate and utilize all its plans, functions and resources for the purpose of creating and maintaining \* \* \* in a manner calculated to foster and promote free competitive enterprise and the general welfare \* \* \* conditions under which there will be afforded useful employment opportunities \* \* \*.

The act directs government to do all it can to maintain maximum employment and production, but to do so by means that are "consistent with its needs and obligations and other essential considerations of national policy." Some of the other needs and obligations of the United States economy, in addition to full employment, are those of maintaining a currency of dependable value, of protecting the rights of the States, and of preserving the economic freedoms of people. In short, the Employment Act does not direct the Federal Government to seek full employment at any cost. Its economic actions are constrained by the requirement that they be consistent with a stable price level and economic freedom, among other things.

The act also specifies that government must act in a manner "calculated to foster and promote free, competitive enterprise." In seeking "maximum" employment and production, government must first of all foster and promote the expansion of the private sector of the economy rather than enlarge its own sphere of operations. This, too, constitutes an implicit injunction against deliberately inflationary monetary fiscal policies.

Although a reasonably stable price level is an implicit objective of the Employment Act of 1946, there is much to be said for making this goal explicit by amendment to the act. A clear and definite requirement that Federal economic policies shall promote a stable price level as well as full employment would give these goals a parallel significance. It would continuously call the attention of Congress and Federal officials to the need for examining the implications of their actions for the price level as well as for the level of employment. Had the Employment Act contained such an injunction from the beginning, it appears probable that the basically inflationary policy of Federal Reserve support of the market prices of United States Government securities would have been discontinued long before March of 1951, and that the postwar rise of price levels would have been less extensive.

One possible objection to making a stable price level an explicit goal of the Employment Act is that it might appear to shift the burden, necessarily borne by labor unions, business firms, and private economic groups, to act in noninflationary ways. This objection could be met, however, by so phrasing the amendment as to recognize the role of private as well as governmental action in achieving price-level stability, and to place responsibility clearly upon all relevant agencies.

A more serious objection to such an amendment is that it might be

used by pressure groups as an excuse for advancing all kinds of governmental price fixing and price-supporting schemes, on the ground that "price stability" is an avowed aim of national economic policy. It would be necessary to deal with this contingency by distinguishing clearly in the amendment between stability of the price level, on the one hand, and stability of particular prices or groups of prices, on the other hand. National economic policy under the Employment Act obviously must be framed only with reference to the behavior of an average of all prices in a properly constructed price index. In a free-market economy, divergent price movements within a stable average are necessary in order to move productive resources out of employments in which supply is relatively excessive into employments in which supply is relatively deficient. We can never hope for a stable price level, if the only way individual prices can move is up. It would be trite to make so obvious an observation, were it not that even professional economists have sometimes fallen into the error of tacitly assuming that the Employment Act calls for stability in all sections of the price level as well as in the average of all prices. How often have we seen the assertion, for example, that the Consumer Price Index really was not stable during 1952-55, because farm and food prices were declining, and only this prevented the price index from rising.

*Broad relationships between output, prices, productivity, and wage rates in the postwar period.*

Before probing more deeply into the relationship between price behavior and economic growth, it is well to have in mind the broad facts regarding basic economic magnitudes during the postwar period 1946-58. Because of important institutional changes in the United States economy, such as the recent growth of industrywide collective bargaining, the leveling up of consumer incomes and wealth, and the emergence of heavily progressive income taxation, little is gained by going back before World War II to study these relationships. The problem of inflation, at least in the form in which it currently presents itself, is essentially a postwar phenomenon.

The accompanying table sets forth gross national production (calculated in 1957 prices), the consumers' price index, output per man-hour for the private economy, and average gross hourly earnings in manufacturing during each calendar year of the period 1946-57. From the basic magnitudes, the amounts and the percentages of annual change in each series have been computed.

Over the 11 calendar years that have elapsed since 1946, real output has risen from about \$301 billion to nearly \$434 billion (figured in 1957 prices) for a gain of 44 percent. The consumers price index (on a 1947-49 base) has risen from 83.4 to 120, a rise of 43.9 percent. Output per man-hour in the private economy over the 10 years since 1947 has gone up about 47 percent, while average gross hourly earnings in manufacturing over the 11 years since 1946 have risen 90.6 percent. In short, a gratifying record of growth in real output and productivity since World War II has been marred by a serious shrinkage in the purchasing power of the dollar and an inflation of the cost of living.

*Annual changes in real output, consumers prices, productivity, wage rates, and corporate profits after taxes since World War II*

## PART 1: REAL OUTPUT AND CONSUMERS' PRICES

Calendar year	GNP (1957 prices) <sup>1</sup>			CPI (1947-49=100) <sup>2</sup>		
	Amount (billions)	Annual change (billions)	Percentage change	Annual average	Annual change	Percentage change
1946.....	\$301.1			83.4		
1947.....	300.5	+\$0.6	+0.2	95.5	+12.1	+14.5
1948.....	314.0	+13.5	+4.5	102.8	+7.3	+7.6
1949.....	313.3	- .7	- .2	101.8	-1.0	-1.0
1950.....	341.6	+28.3	+9.0	102.8	+1.0	+1.0
1951.....	367.6	+26.0	+7.9	111.0	+8.2	+8.0
1952.....	381.1	+13.5	+3.7	113.5	+2.5	+2.3
1953.....	397.0	+15.9	+4.2	114.5	+1.0	+ .8
1954.....	389.7	-7.3	-1.8	114.8	+ .3	+ .2
1955.....	417.4	+27.7	+7.1	114.5	- .3	- .3
1956.....	430.3	+12.9	+3.1	116.2	+1.7	+1.5
1957.....	433.9	+3.6	+ .8	120.0	+3.8	+3.2
11-year change.....		+132.8	+44.1		+36.6	+43.9

## PART 2: PRODUCTIVITY AND WAGE RATES

Calendar year	Output per man-hour for the private economy (1947=100) <sup>3</sup>			Average gross hourly earnings in manufacturing <sup>4</sup>		
	Annual index	Annual change	Percentage change	Cents per hour	Annual change	Percentage change
1946.....				\$1.086		
1947.....	100.0			1.237	\$.151	13.7
1948.....	104.9	+4.9	+4.9	1.350	.113	9.1
1949.....	107.0	+2.1	+2.0	1.401	.051	3.8
1950.....	115.6	+1.4	+1.3	1.465	.064	4.5
1951.....	118.1	+2.5	+2.2	1.590	.125	8.5
1952.....	121.7	+3.6	+3.1	1.670	.08	5.0
1953.....	126.2	+4.5	+3.7	1.770	.10	6.0
1954.....	129.0	+2.8	+2.2	1.81	.04	2.3
1955.....	133.5	+4.5	+3.5	1.88	.07	4.4
1956.....	134.6	+ .9	+ .7	1.98	.10	5.3
1957.....	137.0	+2.4	+1.8	2.07	.09	4.5
11-year change.....		37.0	37.0		.984	90.6

PART 3: CORPORATE PROFITS AFTER TAXES <sup>5</sup>

Calendar year	Corporate profits after taxes		Percentage change
	Amount (billions)	Change (billions)	
1946.....	\$13.4		
1947.....	18.2	+\$4.8	+35.8
1948.....	20.3	+2.1	+11.5
1949.....	15.8	-4.5	-22.2
1950.....	22.1	+6.3	+39.9
1951.....	18.7	-3.4	-15.4
1952.....	16.1	-2.6	-13.9
1953.....	18.7	+ .6	+3.7
1954.....	16.0	- .7	-4.2
1955.....	21.0	+5.0	+31.3
1956.....	21.0	.0	0
1957.....	20.6	- .4	-1.9
11-year change.....		+7.2	+53.7

<sup>1</sup> Economic Report of the President, January 1958, p. 118.<sup>2</sup> Ibid., p. 161.<sup>3</sup> Ibid., p. 108.<sup>4</sup> Ibid., p. 143.<sup>5</sup> Ibid., p. 179.

Source: Economic Report of the President to Congress for January 1958.

Over the postwar period 1946-57 a 90 percent increase in hourly wage rates exceeded the sum of a 37 percent increase in output per man-hour and a 44 percent increase in the consumers price index. This points to two conclusions. First, an excessive increase in wage costs was the dominant factor in the postwar inflation of the cost of living. Secondly, some part of rising wage incomes has been accompanied by a shrinkage of business profit margins as well as by a rising cost of living. A fundamental question is: How long can such tendencies continue without sapping the underlying forces of growth of the United States economy?

An examination of the absolute amounts and percentage changes in these series from year to year throws some light upon important questions, such as the extent and duration of "creeping" inflation, the degree to which increases in real output have been correlated with increases in productivity or in consumer prices, and the extent to which wage-rate increases have had inflationary consequences. A careful correlation analysis of all these factors, utilizing monthly or quarterly data where available, should be conducted, experimenting with various timelags. Our simple observation of annual changes does suggest the following interesting findings.

First, there has been no clear relationship between annual gains in real output and annual increases in the Consumer Price Index. Thus, 1947 was marked by the largest percentage increase in consumer prices over the preceding year (14.5 percent), but was accompanied by an increase of only 0.2 percent in physical output. The year 1950 was marked by the largest percentage gain in real output over the preceding year (9.0 percent), and was accompanied by only a 1 percent increase in the Consumer Price Index. On the other hand, 1951 was a year of unusual increase in both consumers prices and in physical production. While the record is inconclusive in revealing any price-output relationship, it certainly lends no support to those who contend that inflation promotes increases in real output.

Secondly, during the 4 calendar years 1952-55, which included a brief business recession during 1954, the United States economy enjoyed an increase in real output of nearly 14 percent accompanied by a lift in the Consumer Price Index of only about 3 percent. This experience suggests that a satisfactory annual average rate of growth of the economy—though not an absolutely steady rate—is possible with only nominal changes in the cost of living.

Thirdly, the movement of the Consumer Price Index since World War II has not been one of steady ascent (i. e. inflationary "creep"), but rather has been one of sharp spurts during 1947 and 1948, following the removal of wartime controls of prices, wages, and other factors, and during 1951 in the Korean conflict, interspersed with years of only nominal rise or actual decline. Nearly three-quarters of the total postwar lift in the Consumer Price Index occurred during 1947, 1948, and 1951.

Fourthly, the most unsatisfactory segment of the postwar record of price and output changes occurred during 1957, when a gain of less than 1 percent in real output was accompanied by an increase of more than 3 percent in the consumer price level. It is notable that this year was also marked by a subnormal increase of 1.8 percent in output per man-hour, accompanied by a 4.5 percent annual increase in wage rates. This performance, which needs much more detailed

analysis, suggests that the phenomenon of "creeping" inflation initiated by the pressure of excessive wage costs may be of quite recent origin.

*The accuracy of the Consumer Price Index*

Some part of the rise in Consumer Price Index during recent years, and its failure to decline much if at all during periods of business recession, may result from the fact that it suffers from inherent defects as a current measure of the movement of the level of consumer prices. The concept of the index is that of an average of prices of the coterie of goods and services included in the "market basket" purchased month by month by American families in the middle-income brackets in urban centers. A crucial difficulty of this concept arises from the fact that the quality of American family living standards continues to rise. Over time the typical family tends to select for its "market basket" goods and services of greater quality and complexity, which, of course, cost more than the simpler commodities and services they replace. For example, it is understood that the Bureau of Labor Statistics includes the price of a Chevrolet automobile in the "market basket." Up to several years ago, the model whose price entered the index was not equipped with an automatic transmission. Later, as the automatic transmission became more or less "standard" equipment, the price of a car so equipped was put into the index. Without adequate correction, this could cause an immediate jump of several tenths of a percentage point in the index. Clearly, this would not be a rise in the price level. A careful investigation should be made to determine whether the Consumer Price Index has a "built-in" inflationary bias, and if so, how important it has been in the past, and how it can be eliminated in the future.

Another aspect of the CPI which needs investigation is the methods of pricing the "market basket" of goods and services included in the index. The Bureau of Labor Statistics endeavors to "shop" for actual price data rather than rely upon "standard" or advertised prices. Yet in an economy where so large a fraction of consumer income is spent on durable goods involving the use of installment credit, traded-in merchandise and consumer-service agreements, there is a serious question whether the changing conditions of markets are reflected in the index promptly and accurately. The methods of collecting price data may minimize actual price increases in phases of expansion, and minimize or ignore actual price declines in phases of business recession.

Another material circumstance that appears to elude the grasp of the CPI is the changing buying habits of people during successive phases of the business cycle. In time of recession, housewives—and their husbands—become sharper "shoppers." They tend to avoid the scarce or relatively high-priced items in the normal "market basket," and to bargain more shrewdly for the items they purchase. In time of boom, their outlook is more confident, and the opposite kind of behavior become dominant. Thus, a mere pricing of the same "market basket," no matter how accurately it is done, probably fails to reveal changes that occur in the true "cost of living." Some correction for this phenomenon may be in order.

Because the monthly movement of the Consumer Price Index has acquired enormous significance in the public mind, and apparently

forms one criterion for momentous decisions in Congress and the executive branch of Government, it is vitally important that this criterion of economic policy be as accurate as possible, and that the errors of estimation which it inevitably contains be more widely known. It would be a cruel travesty, indeed, if an upward movement of one- or two-tenths of a point in the Consumer Price Index which is either misleading or statistically meaningless were made the occasion for prolonging a restrictive monetary policy, at a time when the economy urgently required easier credit conditions.

*The case for creeping inflation*

The hypothesis that a reasonably stable consumers price level is compatible with a reasonably steady and satisfactory rate of growth in real output of the United States economy is widely challenged. Indeed, there are many who believe not only that full employment and a dollar of stable purchasing power are incompatible aims of public policy, but that it is undesirable to seek both of these objectives. Some prominent economists have argued that a strong and steady physical growth of the United States economy cannot occur without a "creeping" inflation of the price level of 2 or 3 percent a year. Unemployment and stunted growth are, they assert, the inescapable and unnecessary cost of trying to maintain a dollar of dependable buying power. Members of what might be called the "inflationist school" assert that creeping inflation has positive virtues in facilitating the kind of cost-price adjustments that promote maximum output and full employment; and that an annual rise of 2-3-4 percent in the Consumer Price Index should be an accepted aim of public policy. Adherents of what might be labeled the "defeatist school" hold that creeping inflation is an evil, but is less evil than the major alternatives of unemployment or direct economic controls. Slow inflation must be accepted as the concomitant of a policy to maintain prosperity, because it produces no seriously adverse result, it confers important benefits and, in any event, it is not feasible to prevent it.<sup>1</sup>

A fairly extreme position has been taken by Prof. Alvin H. Hansen, who recently wrote:

It is not probable that we can achieve in the next 20 years anything like the goals of which we are capable, without some moderate increases in wholesale and consumer prices.<sup>2</sup>

Hansen espouses the proposition that, so long as the annual percentage increase in the real output of the economy exceeds the percentage rise in the price level, there is no cause for concern about price behavior. Assuming that an average annual rate of growth in real output of 3½ percent can be maintained, this definition of the extent of desirable creeping inflation implies that we need not worry about doubling the price level every 20 years.

Fundamentally, the case for creeping inflation must rest upon the proposition that a general upward movement of prices is necessary in order to evoke the full output of which the economy is capable, and that a gradual rise in the price level does not have any harmful side-effects which will become a drag upon economic progress in the

<sup>1</sup> See my articles in the *Harvard Business Review* for May-June 1957 and January-February 1958; also the article *On the Side of Inflation*, by Prof. Sumner H. Slichter in *Harvard Business Review* for September-October 1957.

<sup>2</sup> Alvin H. Hansen, *The American Economy* (New York: McGraw-Hill, 1957), p. 45.

long run. So far as this writer is aware, no one has made a convincing affirmative proof of the merits of creeping inflation. There has been no persuasive demonstration, founded on solid empirical research, that a steady ascent of the price level is a causal force augmenting the growth of real output in the long run.

Argumentation in favor of creeping price inflation is of a negative type. It consists mainly of observations about difficulties in maintaining a stable price level, and of points minimizing the adverse consequences of inflation. The principal components of the negative argument most frequently include the following:

First, the damage done to the real wealth and income of those living on pensions or comparatively inflexible salaries is greatly reduced by their ownership of equities in homes or common stocks; and it should be rendered negligible by a wider use of these media for the investments of savings instead of savings accounts, savings bonds, or other fixed-dollar media.

Second, people can and should be protected against the adverse consequences of shrinkage in the purchasing power of the dollar by adjusting fixed dollar payments due in the future to changes in the purchasing power of the dollar. In short, wider use of the so-called escalator clause is advocated.

Third, the pressure arising from the recent tendency of wage costs per unit to increase faster than productivity of labor in industry spurs businessmen on to greater efficiency.

Fourth, members of labor unions have acquired a stronger faith in democratic institutions and give greater support to a private enterprise competitive economy as a result of their ability, under collective bargaining, to raise wages faster than the growth in the productivity of labor.

Fifth, a restrictive monetary policy cannot prevent a moderate amount of wage-cost and price inflation each year because, if it were imposed rigorously for a long enough time, it would create intolerable unemployment.

Sixth, Federal taxation and expenditure policies also cannot, to an important degree, mitigate inflationary pressures, because politicians will not tolerate high enough Federal taxes in the face of a budgetary surplus generated during a business boom to remove the inflationary pull of demand on the price level.

Those who regard creeping inflation as an inescapable cost of prosperity in our kind of an economy, if not, indeed, as a causal force in producing prosperity, deny that an economic policy which either accepts or fosters the gradual rise in the price level will ever result in an accelerating price increase, and in a rapid or run-away inflation. So long as Federal monetary-fiscal policy maintains firm control of the supply of money, an economy like that of the United States with a strongly progressive tax system will avoid runaway inflation with all of the dire consequences that it is generally admitted to produce.

#### *The case against creeping inflation*

Despite the support of creeping inflation by some politicians, special interest groups, and professional economists, there are many thoughtful students of the United States economy who believe—as does the present writer—that creeping inflation is, in the end, a drag upon economic progress and that it is both desirable and feasible to prevent

it from occurring in the future, despite the manifest difficulties of doing so.<sup>3</sup>

The case against inflation, creeping or running, is fundamentally a moral case. Inflation transfers real wealth and income arbitrarily from those who hold dollar claims against society to those who owe dollars and own real things. This makes for a feeling of injustice and mistrust of our political and economic institutions, and weakens the fabric of a democratic society. With keen insight the philosopher and theologian Dr. Reinhold Niebuhr has written :

Generally speaking, the result of a creeping inflation is to sacrifice the cultural interests of the community to the technically important interests, and to sacrifice unorganized individuals to organized power. Thus a problem of justice is created which is more difficult of solution because it is not as vivid as the injustices of the unorganized industrial workers of the 19th century who needed only organization and collective power to better their lot.<sup>4</sup>

The fundamental immorality of the inflationary process is the same as that of a completely arbitrary tax which strikes regressively at the economically and politically weak or helpless groups. As this writer has pointed out, while only a minority of the population are pensioners at any given time, nearly all of us become pensioners at some time and are exposed to the deprivations of a depreciating dollar.

The assertion that the wealth or income of everyone can and should be protected either by the purchase of equities or by putting them on "escalators" is not borne out by the facts. Millions of families of modest means lack the information or the financial reserves to invest in equity securities, even as shareholders in mutual funds. Savings deposits, bonds, and endowment insurance should continue to be their major media of saving. If these people of limited means lose confidence in the future purchasing power of dollar assets, their practical alternative is not to buy common stocks but to stop saving. This would lower the rate of savings and capital formation, and slow down the growth of our economy.

A policy of inflation-with-escalation confronts crucial difficulties. In the first place, the principle of escalation cannot be applied universally, as a practical matter, and grave injustice continues to be done to those left unprotected. More important, by cultivating the illusion of individual protection against the real wastes of inflation, escalation tends to make people indifferent to the need for curbing it, and thereby accelerates the inflationary process. For example, while American life-insurance companies may be wise, as a matter of business policy, to offer variable annuities to the public, it is perfectly clear that this move would in some measure diminish public pressure in favor of stable money.

However immoral it may be, a policy of accepting or fostering limited inflation probably does little economic damage so long as the public is unaware of its existence. It appears naive to believe, however, that such unawareness can continue in the United States or any other advanced country for very long. A steady inflation comes to have accumulative influence upon people's expectations and therefore upon their behavior. If consistently and successfully pursued, a

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<sup>3</sup> See, for example, the contributions of Profs. J. M. Clark, Gottfried Haberler, Lionel Robbins, Paul Samuelson, and of Messrs. Clarence B. Randall and George W. Terborgh in *Problems of United States Economic Development*, vol. 1 (New York: Committee for Economic Development, 1958).

<sup>4</sup> *Ibid.*, p. 118.

policy of limited inflation seems bound to affect public conduct in ways that retard the growth of real output in the long run. It would reduce savings among those for whom fixed dollar assets are the only practicable media of saving. There is a good deal of evidence that persistent inflation comes to worsen investment decisions. The example of France, where much wealth is exported, hoarded in gold and foreign currencies, or placed in low-yielding real estate, suggests that curious distortions in the use of capital result from generally held expectations of inflation. It tends to foster inefficient management, and to prolong the tenure of mediocre managers, because inflation widens dollar profit margins even while it may be narrowing "real" margins. It tends to retard desirable regional and industrial shifts in resources, because the adverse effect upon profits of worsening uses of resources are not as sharply reflected in business financial statements in an inflationary regime. All of these consequences of creeping inflation tend to slow down real economic progress, whether or not the inflation accelerates its pace and leads to ultimate financial collapse and reconstruction.

Admittedly, it is difficult to point to organized evidence of the adverse consequences of creeping inflation. They are matters which deserve the attention of economic research workers to a far greater extent. Careful, empirical analyses of the economic consequences of prolonged inflation in such countries as France, Chile, and Brazil should be made to supplement what we already know about the effects of the "hyperinflations" in Central Europe after World War I.

Americans have not yet experienced enough continuous inflation to have acquired a general expectation of a persistent future rise in the price level. Hence, there has not yet been more than a partial public shifting of preference to equity securities. It would be hard to prove that there has been a general letdown of managerial efficiency or labor productivity as a result of such creeping inflation as has been experienced so far. But we have learned all too well in recent years that it is the expectations of the public that shape their behavior, and expectations rest mainly on past experience. If creeping inflation should in the future become a generally accepted policy of Government as well as public expectation, the political pressure progressively to relax monetary-fiscal restraints would become irresistible, and the acceleration of the rise in the price level would be unavoidable. The fact that persistent inflation has not accelerated in dominantly agricultural economies such as that of France or in some relatively undeveloped economies with a low literacy rate does not mean that it would not accelerate in a highly industrialized and literate nation like the United States. The factors that either promote or retard the transformation of a process of creeping inflation into one of accelerating inflation require careful study by economists.

Studies have been made of the transfers of dollar values among various classes of debtors and creditors during an inflationary process. Among other things, these studies show that any group of the population is not purely a debtor, or a creditor, but is a mixture of both in its relations to the rest of the economy. It is tempting to conclude from such studies that inflation really does not result in important damage in the end, because gains come close to offsetting losses for the group. Such a conclusion would be clearly meaningless in measuring the extent of the moral and economic damage of inflation, because

these are individual matters rather than group matters. Individual B's gain in no wise offsets individual A's loss.

*The character of recent price inflation*

It has become fashionable to characterize recent price behavior as something distinct and new. It is said that the United States is now witnessing an inflation resulting from "administered" prices and wages which result in an upward inching of the Consumer Price Index even in the face of a decrease in the money supply and a rise in unemployment. This condition is contrasted with inflationary phases of the past, when the precipitating factor is said to have been either a rapid increase in the quantity of money, or, given an ample money supply outstanding, a shift in the liquidity preferences of the public away from money and toward goods and services. The heart of the current difficulty is said to be the economic power of national labor unions, who are able to compel businesses to assent to inflationary wage agreements calling for increases in wage rates far outstripping gains in productivity.

Undoubtedly, institutional changes in the United States economy have altered in some respects the behavior of prices. To some extent they have changed the character of the problem of economic stabilization. Yet, it is likely that these changes are commonly exaggerated. The distinction between the "new" inflation and the "old" has been too sharply drawn. A "cost-push" impetus to a general rise in the price level cannot go very far without "demand-pull" influences, supported by Federal monetary-fiscal measures to make more money available to the public to pay higher wages and prices. (There are definite limits to financing an inflationary spiral through a rising velocity of usage of money.) Restrictive monetary and fiscal policies can and do help to keep wage increases within the limits set by gains in productivity, via their influence upon the collective bargaining process. When businessmen expect government to pursue inflationary policies, they are confident of their ability to pass on higher wage costs in higher prices, without loss of sales volume. They tend to become "soft" bargainers and to make inflationary wage agreements. But if businessmen believe that Federal fiscal-monetary authorities are determined to maintain a stable price level, they become "tougher" bargainers and wage agreements are less likely to have inflationary effects upon prices. This has been true in the past, and there is no reason to believe that institutional changes have been so rapid as to render it inapplicable now.

In our American democracy, public opinion plays a dominant role in economic affairs. Up to recent times, there was too limited an understanding of the causes of wage-price inflation to support powerful public opposition to the process.

The economic literacy of the American people, including that of managers and labor leaders, is now rising rapidly. There is a growing understanding on all sides of the dangers of inflationary wage agreements. This, of itself, should form an increasing deterrent to inflationary wage agreements, when those who make them know they must confront adverse public opinion.

This writer finds little in the industrial economics and practices of the United States economy to support the notion that "administered" prices play a significant role in recent inflationary trends. One of the

more important changes in American business policy, especially among manufacturers of durable consumer goods, has been to carry on competition to a greater extent in the design and improvement of products and to a lesser degree in price adjustment. "Product" competition has replaced "price" competition to a considerable degree in automobiles and numerous other consumer durables. This has not, of itself, made the United States economy any less "competitive" in a fundamental sense, nor has it introduced any inflationary bias into the price level. It may—for reasons already set forth—have introduced an inflationary bias into the Consumer Price Index used to measure changes in price levels. The trend toward product competition has complicated the task of the price index administrator, rather than the task of the monetary or fiscal policymaker.

#### *Public policies to prevent creeping inflation*

In the opinion of this writer, recent inflation in the United States arises from a complex of causes and calls for remedial action on a number of fronts. There is no single cause, for which a satisfactory panacea may be prescribed. Broadly speaking, the United States can best avoid either inflation or unemployment by operating a free economy in which enterprise is open, competition is vigorous and pervasive, resources are mobile in time, space, and usage, and the Federal Government energetically discharges its responsibilities under the Employment Act of 1946. In general, these responsibilities are to do all within its power to assure an adequate but not excessive total monetary demand for the product of a fully employed economy, primarily through the use of flexible monetary, expenditure, taxing, direct lending, and loan insuring policies and actions. The economic decisions of millions of households, business enterprises, and State and local governments in a free economy can collectively produce from time to time either a deficiency or a redundancy of aggregate demand. Therefore the Federal Government must continuously watch the course of the economy, and be prepared to change its own policies and programs in ways which will counteract, and not enhance, either inflationary or deflationary movements of the private sector. Flexibility must be the key to its policies; timeliness must be the essence of its actions.

The primary causes of recent inflation can be summarized briefly under a number of headings, as follows:

First, inadequacies in the coverage and in the timing and power of monetary and fiscal controls, which have permitted the price level to rise unnecessarily during the later expansion phases of business cycles.

Second, various governmental price-raising and price-supporting programs which have tended to increase or to prevent a reduction in the prices of individual commodities and services, and which have retarded the movement of manpower and capital into more efficient employments.

Third, tariffs, import quotas, and other impediments to trade between the United States and foreign countries which have sheltered inefficient domestic producers from foreign competition, have restricted the foreign markets of efficient United States producers, and have prevented the movement of manpower and capital into their relatively most productive employments.

Fourth, various monopoly powers possessed by labor unions, business corporations, and other private economic groups which have tended

to restrict output, to dampen advances in productivity, and to maintain or raise wage rates and prices above competitive levels.

Fifth, a public opinion which was inadequately informed regarding the causal forces producing a rising price level and the adverse consequences of dollar depreciation. The public was therefore insufficiently aroused to censure those responsible for inflation, and to demand necessary reforms in public and private economic policies.

A program to prevent inflation in the future, without creating unnecessary unemployment, must tackle all of these causal forces. The point should be emphasized that prevention of inflation entails the taking of actions which are thoroughly desirable on other grounds, and which should be undertaken even though they had no effect upon the price level. The point can be put in even a broader context. A true anti-inflationary public policy is one that will promote the overall efficiency of the United States economy, its flexibility, and its trading and investing relationships with other parts of the free world. It is, in short, a policy that will immensely strengthen the political influence of the United States throughout the world, by binding our country in a growing network of efficient trading and investing relationships with all countries outside of the Soviet orbit.

An anti-inflationary public policy for the future should include the following major elements:

First, the sharpening of our instruments of monetary and fiscal control to make them of broader and more equitable application, and to make all elements of the financial structure sensitively responsive to flexible monetary policies.

Second, the extension of competition throughout the economy. This involves not only vigorous enforcement of our antimonopoly laws but the extension of these laws to cover labor unions, cooperatives, and other presently exempted activities, so that the entire range of private economic activity may be brought under the scrutiny of the courts. This should increase productivity by helping to eliminate "featherbedding." It should help to reduce excessive monopoly powers, which result in rigid wages and prices, immobile resources and unemployment.

Third, the gradual withdrawal of Government from various price-fixing and price-supporting programs, whether in agriculture or in metals or other commodities. Such programs have the effect of preventing those necessary movements of resources into more productive employments, and that flexibility of pricing which is essential if the price system is to function as a resource allocating device.

Fourth, reduction in tariffs, import quotas, and other restrictions upon international trade, which have also operated to prevent necessary price adjustments and to foster the growth and persistence of inflationary forces in the United States economy.

It is unnecessary here to go beyond this brief outline of an anti-inflationary policy. The essential point is to recognize the relevance of numerous reforms in United States economic policy to the problem of creeping inflation. Only when this recognition becomes general can we hope to invoke broad public sympathy for, and support of, economic policies which will yield immense values for our national security and increase the trustworthiness of the United States dollar at home and abroad.



# PRICE LEVEL STABILITY AND ECONOMIC POLICY

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## I. GOALS OF STABILIZATION POLICY

The assignment given me is the sweeping one of presenting a unified view of the whole subject of this compendium. In seeking to carry it out, I shall be in constant danger of being superficial or dogmatic. However, despite these dangers I shall try to keep to a broad conception of my task.

It should be kept in mind as we proceed that discussions of policy such as this one inevitably involve the expression of social values as well as the interpretation and analysis of fact, and that it is only in the latter area that the economist can make any claim to expertness.

Two proximate goals of economic stabilization policy are now widely accepted by economists, by political leaders, and by the public. The first is a high level of employment, both for its own sake and for its contribution to rapid economic growth. The second is price stability, and, in particular, the avoidance of inflation. Americans also generally agree that these goals are to be sought in a free economy—that either some inflation or some avoidable unemployment is preferable to the kind of central economic planning that regimented the economic life of individuals, firms, and organizations.

The goal of high levels of employment is, of course, set forth in the Employment Act of 1946. The maintenance of a reasonably stable level of prices is ultimately a duty of the Congress under article 1, section 8 of the Constitution, which provides that Congress shall have the power “to coin money and regulate the value thereof.” To the authors of the Constitution, the words “regulate the value thereof” undoubtedly meant to set the metallic content of our coinage. Today, however, the value of the dollar largely determines the value of precious metals, rather than the reverse, and the purchasing power of the United States dollar makes it the closest thing to a universal monetary standard in the world. To regulate the value of our money under present conditions must mean to regulate the general level of prices.

There has recently been discussion of making price-level stability an additional explicit goal of the Employment Act of 1946. Such an amendment to the Employment Act would be valuable in giving concrete recognition to an aim that is widely agreed on. The value of the change would lie largely in its influence on public attitudes rather than in any practical effect on policy, since Congress, the Federal Reserve System, and the Council of Economic Advisers already keep the aim of stable prices in mind when formulating policy. However, the mere acceptance of the two goals of high levels of employment and stable prices does not tell us what to do when these goals conflict.

## II. ARE FULL EMPLOYMENT AND PRICE STABILITY COMPATIBLE?

A great deal has been written about whether the goals of reasonably full employment and price stability are compatible. It has long been clear that on some definitions of these terms, they are not. If, for example, we were to define full employment as a state in which the number of unfilled job vacancies always exceeded the number of unemployed workers, or if in statistical terms we were to define full employment as having less than 2 percent of the labor force unemployed, then price stability would be inconsistent with full employment so defined. The condition envisaged is one in which the demand for labor and for products would always exceed the supply at prevailing wages and prices, and therefore wages and prices would continuously be bid up in the market.

However, in the immediate postwar period it seemed to a number of economists, myself included, that there were ways of defining reasonably full employment that were both meaningful and noninflationary. This view was based in part on the belief that when employment declined, prices would also decline. Policies designed to restore satisfactory levels of employment would then serve merely to restore prices to their former level. If the expansionary policies were halted when the price decline had been reversed, the new level of employment would be an acceptable one. Price stability seemed to be consistent with unemployment in most years of, say, 4 percent of the labor force on present official definitions, with occasional lapses to perhaps 6 percent unemployment, against which prompt antirecessionary action could safely be taken.

The events of the last 5 years pose serious difficulties for this view. On the one hand, prices have tended to rise when unemployment was not unusually low by the standards of the immediate postwar years. On the other hand, price indexes have fallen only very late and very little in recessions. In the first 7 months of the present recession they have, indeed, continued to rise. If prices rise in prosperous years and hold steady in recessions, the long-term trend can only be upward.

Two years ago the Economic Report of the President spoke of "the narrow road that separates recessions from inflation." It now seems to some that the road has altogether disappeared and we are left stranded upon the side of the mountain. This precarious position is believed to be the result of a new kind of inflation, arising not from excess demand but from the structure of the supply side of the market. It is called "wage inflation," "administered-price inflation," "cost-push inflation," or "sellers' inflation," the choice among these terms depending largely on whether unions, business, or both are held responsible for it. Against this new kind of inflation, the old remedies are held to be unavailing, or to be effective only if so severe as to be worse than the disease.

Indeed, it has even been argued that we can now suffer from inflation and depression at the same time. Such a situation would seem to call for new and drastic action.

There can be little doubt that in recent years there has been a change in the relation between price indexes and the level of employment, and that this change poses important problems. But before setting forth rashly, we should make certain that the perils alleged to con-

front us are really as grave as they seem. We should also examine the relative risks of climbing the slope of inflation and descending the slope of recession.

### III. THE RELATIVE COSTS OF RECESSION AND INFLATION

No one can question that both inflation and recession have real and serious costs. However, part of our present dissatisfaction with the economy arises not because the economy has changed, but because our standards have changed. It is clear that our tolerance of the costs of inflation and recession is rapidly diminishing and that as a result of improved statistics we have a heightened awareness of the state of the economy. Price increases or declines in employment that might have passed almost unnoticed 30 years ago become the occasion for grave concern and even alarm. For example, we hear talk of the "inflation of 1956-57," although the rise in the Consumer Price Index over these years was only 6.1 percent, and this rise followed 3 years of price stability.

Within limits, this new concern is a fine thing. As our economy grows and as our understanding of economics increases, we can and should demand better performance of the economic system. If our demands become too extreme, however, we may undertake policies that destabilize the economy rather than stabilize it. To use an analogy, it is fine to have both central heating and air conditioning in our homes, but if we set the thermostats so that the furnace goes on when the temperature falls to 70° and the air conditioning goes on when it rises to 71, we will have tremendous fuel and power bills and despite them not very stable temperatures.

The costs of inflation and of recession can be divided into two parts. First, there are costs in losses of output. Second, there are distortions in the distribution of income.

In loss of output, the costs of recession are clear and indisputable. They can be seen in terms of unemployed workers and idle factories, and measured as declines in the gross national product. The output costs of moderate inflation—and all peacetime inflations in our history have been moderate—are more conjectural. It is said that inflation causes poor allocation of resources and diminished incentives to save, thus ultimately reducing the rate of growth of the economy. To some extent, these arguments are by analogy from very rapid inflations, including hyperinflations. Although there may be losses of output from moderate inflation, it seems obvious to me that the losses from even a mild recession must be very much larger.

In terms of income distribution, both recession and inflation cause distortions. These can be deplored regardless of how one believes income should be distributed, simply on the ground that arrangements to distribute income in certain ways should not be set aside by events that the parties to such arrangements did not anticipate. The principal losers from inflation, as almost everyone now knows, are creditors and fixed-income receivers, including pensioners and civil servants. The principal losers from recession are the unemployed, stockholders, and proprietors of unincorporated businesses. The income losses to the unemployed in recessions must surely be sharper than the losses imposed on fixed-income receivers by historical peacetime inflations. However, in recent recessions they have not lasted

long. One can also argue that many of the victims of inflation are concentrated at the very bottom of the distribution of income by size and thus have the least ability to sustain losses.

It is sometimes said that the danger of inflation is now greater than the danger of recession. I cannot agree with this view if it is interpreted as meaning that peacetime inflation as we have known it in the past is the worse evil when it occurs. But the statement can sensibly be interpreted to mean that inflation is the more likely evil because political incentives all lead the Government to err in this direction. Few Members of Congress would dispute that it is more popular to vote for tax cuts than for tax increases, for expenditures than against them, and for low interest rates than for high ones.

Yet if we are really forced to choose between inflation and recession, the bias toward inflation may be the right one. By this I emphatically do not mean that inflation is either inevitable or desirable. But until we have learned to avoid both inflation and recession at once, I feel that unemployment in excess of 6 percent of the labor force requires vigorous expansionary policies even though price indexes are rising. The added output resulting from choosing an inflationary rather than a recessionary bias can be used in part to compensate the groups that lose from inflation—for example, by providing higher levels of old age insurance benefits.

I also agree with Dr. G. L. Bach that if our economy seems likely to have an inflationary bias, governments should not urge individuals to become vulnerable to it nor prevent them from protecting themselves against it. This argues, for example, that one ought not exhort the public to buy United States savings bonds, nor prevent by law the sale of variable annuities.<sup>1</sup>

So long as there appears to be a conflict between high employment and stable prices, there will be a great premium on devising policies to combat each phase of the business cycle that will not aggravate the opposite phase. There will also be a great premium on making certain that our economic indicators mean what they seem to say, and it is to this last point that I turn next.

#### IV. THE RELIABILITY OF PRICE STATISTICS FOR POLICY FORMATION

Economic stabilization policy is now formulated with one eye on the unemployment statistics and the other on the price indexes. If we are to steer a true course, it is essential that these instruments be as good as we can make them. When they point in opposite directions, we find hesitation and conflict in the formation of policy.

The events of the late summer and early autumn of 1957 illustrate this situation. Despite signs of declining output and employment, Federal Reserve Board policy was still restrictive. The rediscount rate was raised early in August and member bank borrowings from the Reserve banks remained much larger than excess reserves. In explaining Reserve Board policy during this period, Chairman Martin has emphasized the continuation of inflationary trends, and in particular the new high reached by the Consumer Price Index as late

<sup>1</sup> See G. L. Bach, *Inflation: A Study in Economics, Ethics, and Politics* (Providence, R. I., Brown University Press, 1958), pp. 85 ff. Some, though not all, of the views in this section of this paper I hold in common with Bach, and for all of these his explanation is more complete than mine.

as November.<sup>2</sup> On the other hand, the Chairman of the Council of Economic Advisers has expressed the view that "sternly restrictive" monetary policy continued after the economy had turned down, and he seems to attribute this to heavy reliance on the Consumer Price Index as a guide to policy. For his own part he stated, "When I was informed of the increase in the Consumer Price Index [for November] \* \* \* my feelings toward the Consumer Price Index as a guide to economic policy, and those feelings have never been very warm, took a sharp turn in the direction of disenchantment."<sup>3</sup>

In defense of the Consumer Price Index it must be said that it has been vastly improved in recent years, and is probably the best index of its kind in the world. It is an invaluable series compiled by able people. One must nevertheless be concerned whether it is adequate for the kind of use that is now being made of it, both in the formation of public policy and in the so-called escalator clauses of private wage agreements.

Whenever we want to improve a price index, our first thought is to increase the sample of items or localities covered. While there may be some particular parts of the index where this would be desirable, my main concern is in other directions. The chief problems, I feel, are to improve the accuracy of the index in measuring month-to-month price changes, and to estimate and correct as far as possible any biases in its trend.

The upward movement of the Consumer Price Index from October 1957 to January 1958 was strongly influenced by two circumstances that affected the index, at least in the short run, more than they should have. The first was the rise in the prices of new automobiles, the second was the rise in the prices of fresh fruits and vegetables as a result of bad weather. The rise in new-car prices from October to November is reported as the difference between the price of the new model and the October price of the previous year's model, taking account of dealer discounts. Thus the reported change from October to November is not the rise from year to year in the price of new models when introduced. This reported movement is too large because it fails to take into account the obsolescence of the previous year's model during the year.

The rise in fruit and vegetable prices had too large an effect on the index for a more general reason. The weights for the index in all months are annual expenditure weights, and do not take into account month-to-month changes in the expenditures on seasonal items. The result is that erratic changes in prices of items that are out of season have too much effect on the index. It would seem to be worth while to develop a system of monthly weights that would correct this defect and make the timing of changes in the index more sensitive to the business cycle.

The problem of long-run bias is a much more important one. When there is improvement in the quality of items included in the index of a kind that cannot be eliminated by statistical adjustment, the index has an upward bias; similarly, there is a downward bias when quality deteriorates. This is clearly stated in the appendix on

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<sup>2</sup> United States Congress, Joint Economic Committee, hearings on the January 1958 Economic Report of the President, 85th Cong., 2d sess., 1958. Statement of William McChesney Martin, Jr., pp. 385 and 389-390.

<sup>3</sup> *Ibid.*, testimony of Raymond J. Saulnier, pp. 23 and 28-29.

the Consumer Price Index in the Economic Report of the President, January 1958 (p. 101). However, the matter is left at this point. Since it is certainly true that over the long run the quality of most products and services is improving, I think we can be reasonably certain that the index has a long-run upward bias. Of course, the index is unlikely to rise for long if there is a decline in the true price level. However, it is quite possible for the index to rise too much and too long when the true price level is rising, and to fall too little and for too short a time when the true price level is falling. Over a period of years, this bias can have a large cumulative effect.

What we really want to measure is not so much the price of what we purchase as the price of the services these purchases provide. If an automobile tire lasts twice as many miles as it used to, the price per mile may have fallen even if the price per tire goes up. If one can be cured of pneumonia by spending 1 week in the hospital instead of 2, the cost of getting well has fallen, although the price per day of a hospital room may be rising. To some extent, precision in specifying commodities may work against us in such situations. If orlon provides services equal or superior to those of wool at lower cost, the price of sweaters, for example, is falling. But if we treat wool sweaters and orlon sweaters as different commodities, this "price decline" will never be reflected in the index.

Closely related to the problem of quality change is the problem of completely new products. The price of new products typically falls rapidly relative to other prices when the product is first introduced. Later the price may stabilize or rise. The trend of price indexes will be influenced by the time when such new products are first included in the index. Typically such products have been introduced into the Consumer Price Index only after they have been in use for a considerable period, and this may contribute to an upward bias of the index.

The purpose of raising these technical issues is to suggest that we may be paying a high price in terms of restrictive monetary or fiscal policy to keep price indexes from rising when the true level of prices is really stable or declining. It is certainly not inconceivable that the true level of prices is now lower than it was 5 years ago. If there is such a bias, it would be far cheaper to devote resources to improving the indexes than to suffer unnecessary unemployment.

What is needed, in my judgment, is to give the Bureau of Labor Statistics funds not so much for the expansion of current data collection as for more fundamental research into the possible ways of improving price indexes and testing their long-term movement against evidence not incorporated in them. This will require additional personnel at high levels of training and ability. It may also require freedom to contract for the services of outside groups. Moreover, we must remember that the main purposes of Government statistics are to guide public policy and to further scientific inquiry. Business and labor groups that use price indexes in private agreements have every right to present their views on methodology, but these views must not be controlling.

Much could also be said about the Wholesale Price Index along similar lines, but I have already dwelt too long on such matters.

## V. THE RELIABILITY OF UNEMPLOYMENT STATISTICS FOR POLICY FORMATION

The official unemployment statistics seem to me to be free of serious bias. The Census Bureau's current population survey has been greatly improved in coverage in recent years and the sampling error has been reduced. The concept of unemployment has been improved by including temporary layoffs in the unemployed. The various major series on the labor market—total unemployment, insured unemployment, employment in nonagricultural establishments, average weekly hours, and labor turnover—cannot be completely reconciled, but all tell a consistent story. Figures on partial unemployment are now available each month, and can be added to the figures on total unemployment if desired. Those who like the concept of full-time equivalent unemployment should realize, however, that this measure of unemployment is higher than the ordinary one by a larger amount in prosperous years than in recession years. The resulting unemployment percentages, though at a higher level, are, therefore, less sensitive to economic contractions than the figures ordinarily used.

On the whole, it does not seem probable that the unemployment statistics have been seriously misused in policy formation. There are, of course, ways in which they could be improved, but such improvement is unlikely to affect our decisions.

## VI. PRIVATE PRICE POLICY

Let me now return from the byways of statistics to the main issues at hand. We have seen earlier that the need to choose between inflation and recession is often blamed on "sellers' inflation" or its variants, and that this malady is thought to arise from the unwise policies or unhampered strength of business firms and labor unions. Frequently, advice is given to these private groups on how to conduct their affairs in the public interest. Thus the Economic Report of the President, January 1957, said:

Business in its pricing policies should avoid unnecessary price increases, especially at a time like the present when demand in so many areas presses hard on short supplies.

A year later, the economic report advised business management against "price increases that are unwarranted by costs."

This seems to me to be bad advice both from the point of view of business and from the point of view of the economy as a whole. Perhaps it is fortunate that such advice is seldom heeded. The difficulty with the position underlying the advice is that for the sake of stability of the general price level it urges stability of particular prices, which should be flexible if our economic system is to work efficiently. Individual prices must be free to change not only in response to changes in cost but also in response to changes in demand. To determine prices from costs alone is to reduce pricing to the "just-price" concept of medieval economics, or to make all industries behave like regulated public utilities. The present plight of our railroads suggests the ultimate result of this course.

When the demand for a commodity rises in an area of the economy where resources are being fully used, an increase in prices relative to

costs serves three important functions. First, it allocates the commodity to the most important uses until the supply can be increased. Second, it induces some people to postpone their purchases or to use substitute commodities. Finally, it encourages present producers to expand their output and encourages new producers to enter the market. This will ultimately eliminate excess profits and perhaps will lower costs where they fall as the volume of output increases. Efforts to induce "price restraint" should therefore be confined to parts of the economy that have excess capacity.

All of this, of course, can be learned in any good textbook on elementary economics. When I mention it in public discussion, however, I find myself accused of being an "old fuddy-duddy." It is felt that such things were relevant in 18th century Scotland, but should now be relegated to the classroom while practical men adjust to the realities of the 20th century. It is, indeed, said in a nation whose rapid progress owes so much to the free market to find this vital contemporary force regarded as an academic fiction. There are, to be sure, serious impediments to the operation of free markets in our economy. But the task of policy should be to reduce them, not to reinforce them. Public policy should create an environment in which private pricing decisions made in terms of self-interest will be consistent with stable general price level.

According to one popular view, inflation is caused by large corporations or oligopolies that administer prices. My colleague Martin J. Bailey has argued elsewhere in this compendium that so-called administered prices are not as rigid as they seem, a view with which I agree. To the extent that they are rigid, their role in inflation seems to me to be widely misunderstood. Administered prices do not rise faster than competitive prices. On the contrary, they rise more slowly, and at times of very strong demand they may be held below the levels that would clear the market, creating waiting lists and grey markets. When administered prices do rise, they are likely to catch up with the parade in large jumps that attract more attention than the inconspicuous upward creeping of competitive prices.

The difficulties arise because administered prices, having once reached a high level, are much slower than competitive prices to recede from it when demand falls. This undoubtedly contributes to the failure of price indexes to fall in recessions. Larger and prompter price declines when demand falls would probably serve to maintain output and employment in recessions. They might also serve to moderate inflationary pressures in times of high demand, for once they could be anticipated, they would encourage the postponement of purchases when prices rise.

The proposals for dealing with administered prices advanced by many distinguished economists run in terms of some kind of government price regulation in peacetime, including the application of public-utility-type regulation to all highly concentrated industries, or requiring such industries to give advance notice of price changes. If I am right in believing that the principal trouble with administered prices is that they are too rigid, then such proposals would make matters worse rather than better.

The prevailing view seems to be that rigid prices are inevitable in an economy of large-scale enterprises, and that it is useless to seek to

do anything about them. But we have seldom tried to do much about them, and indeed in many areas Government policy requires or sustains rigid, administered prices. If the Congress is concerned about price rigidity, there are many things it could do to make our economy more flexible and responsive to demand. It could, for example, withdraw the power of the Interstate Commerce Commission to set minimum rates for transportation, so that carriers who believe it profitable to lower rates would be free to do so. There is a tragic irony in having a Federal agency set minimum prices in the name of promoting competition. Congress could also remove the Federal support of resale price maintenance so that retailers would be free to cut prices of branded products when they believe it in their interest to do so. It could reduce or better yet completely eliminate tariffs on steel, automobiles, chemicals, and other products of highly concentrated industries. Surely our automobile, steel, and chemical industries are efficient enough not to need artificial protection. Such a move would serve to check excessive price increases by encouraging foreign competition when domestic prices are raised. I do not mean to endorse tariffs on products of competitive or inefficient industries, but tariff reform must be gradual, and the concentrated industries are a good place to begin.

Congress could remove the power of States to set quotas on the production of petroleum going into interstate commerce; such quotas must be more important than any collusive action among petroleum companies in sustaining petroleum prices when demand is declining. Finally, Congress could eliminate the price supports that hold the prices of some farm products, such as wheat, far above reasonable levels. Although I believe that we need some kind of Federal program to help agriculture, I can see no defense for the particular form this program now takes.

There is also much that could be done to strengthen competition. The tax laws could be revised to remove the incentives for profitable corporations to buy out corporations with deductible losses. Estate tax laws could be revised to make unnecessary the sale of family-owned enterprises to meet estate tax liabilities. The patent laws could be reviewed to see whether they are fostering monopoly. Note that I have not yet mentioned the antitrust laws. I believe that the antitrust laws should be strengthened and enforced, and that there may be cases in which the breaking up of large corporations is sound public policy. But it is ridiculous to contend that large-scale trust-busting is the only way in which administered prices could be made more flexible. If the Government is to condemn private enterprise for using rigid prices, it should itself cease being the greatest single source of price rigidity in the economy.

One point should be made clear about the relevance of all these measures to inflation. Tariffs can serve as an example. The value of lowering tariffs is not the fall that this would cause in the domestic prices of some imported commodities. The effect of this fall on the general price level could be largely offset by rises in the prices of commodities we export as a result of the increased foreign demand for them. The effects of changes in particular prices on the price level can never be determined by a mechanical recomputing of the price indexes; chains of economic causation must be traced through.

The contribution of tariff cuts to preventing inflation would be that they would increase the possibility of using imports to break bottlenecks in our economy and to check excessive price increases, so that prices of particular goods in short supply would be slower to rise when the economy as a whole was not operating at capacity. This would permit a higher level of employment to be consistent with price stability.

#### VII. PRIVATE WAGE POLICY

The view that administered prices cause inflation is widely held by trade-union leaders; the view that union wage pressures cause inflation is just as widely held by businessmen. These views are simply variants of the same theory. The wage-push variant holds that union power pushes up wages and that this in turn raises labor costs and hence prices. The monetary authorities, committed to full employment, are then forced to expand the money supply to make it possible to sell the old output at the new price level. If the monetary authorities do not expand the money supply, the wage and price increases will cause a recession.

So long as the role of the monetary authority in this process is not neglected, there is no logical fallacy in the theory. But there has been little systematic marshalling of evidence to show that this process has actually taken place. For the most part, the view is based on casual observation.

Those who have sought to examine the statistical evidence with care can testify that it is often extremely difficult to tell a price pushed up by costs from one pulled up by demand, or a wage raised by union power from one raised by a labor shortage. Before we make any drastic changes in our delicately balanced system of labor law, much more such careful examination of evidence is needed. The early findings certainly do not all point in one direction. In particular, the evidence suggests that the price rises of 1956 and 1957 were largest for services, where unionization is weak, and for finished producer goods, where the investment boom could have caused an old-fashioned demand inflation. Consumer durables, produced in concentrated, unionized industries, are cheaper now than they were in 1952.

Turning to wages, we have a large body of evidence that collectively-bargained wages, like administered prices, lag during rapid inflations and therefore can hardly be a cause of them. The role of collective bargaining in periods of gradually rising prices requires much further study. It is interesting to note that since 1951 the earnings of white-collar workers in large cities have risen more than the earnings of production workers in manufacturing in these cities. The white-collar workers are almost entirely unorganized, while the production workers are heavily organized.

In support of the wage-push view it is often pointed out that unit labor costs (in money terms) have risen faster than average productivity. But in a period of inflation this observation is a truism. It does not help us tell whether wages pushed up prices or demand pulled up wages.

The Economic Report of the President, January 1958 states that—

**The leadership of labor must recognize that wage increases that go beyond overall productivity gains are inconsistent with stable prices.**

Like the report's advice to business, this advice seems to me to be useless in making specific decisions. It would be fine if on the average wage increases equaled the rise in overall productivity in the economy as a whole, but there is no presumption that any particular wage increase must or should. Where labor is scarce or initial wages are inequitably low, wage increases should be larger than average productivity gains. Where labor is in persistent surplus, wages should increase little or not at all. Free labor markets and free collective bargaining seem to produce such adjustments, and I seriously doubt whether any kind of wage regulation could do as well.

Unions have a particularly good record of reasonableness in wage demands in such industries as textiles and clothing where the demand for labor has been consistently weak. The adjustment of union wage policy to temporary declines in demand in industries much affected by the business cycle leaves more to be desired. Just as price cuts in recessions could make a contribution to stabilizing employment, so could the foregoing of wage increases, including those negotiated earlier under long-term agreements. That unions do not agree with this is perhaps the result of their acceptance of the "purchasing-power" theory of wages. As J. M. Keynes pointed out, classical economics erred in urging wage cuts in recessions. Wage cuts reduce purchasing power as much as they reduce costs, and thus may not contribute to recovery. But in advocating wage increases the unions make the opposite error. Wage increases can raise costs as much as they raise spending, and thus contribute nothing to raising output and employment. Thus union economics is not Keynesian economics; it is classical economics stood on its head.

There are undoubtedly places in the economy where unions have the power to set wages that are clearly excessive, and such power should be checked by law. But the unions with such power do not seem to be the new industrial unions whose advent is said to have changed our economic system so greatly. Rather they are for the most part the old craft unions in such industries as the building trades and the railroads.

#### VIII. MONETARY AND FISCAL POLICY

Earlier in this paper I mentioned that the difficulty of achieving reasonably full employment with stable prices requires great care in the choice of countercyclical policies. The proper policies should take effect promptly and their effects should end promptly, so that antirecession measures do not linger into the recovery and raise prices, and anti-inflationary measures do not linger into recessions and deepen them. From this point of view, the best countercyclical measures are the built-in fiscal stabilizers, whose effects are modified automatically as conditions change. Unfortunately, we have tended to take these built-in stabilizers too much for granted.

One of the most important of these stabilizers is unemployment insurance. Through the erosion of real benefit levels by inflation, our unemployment insurance system has been allowed to fall into a shocking state of neglect. There is now wide agreement on the need to improve the system, both in the interests of the unemployed and in the interests of the economy. But we are unfortunately in the position of the man who refused to fix the leaks in the roof until it

rained. What is needed is not merely emergency Federal supplementation of unemployment insurance, but a permanent improvement of the system. The States have been urged by the President for several years to improve benefit levels, and relatively little has been accomplished, perhaps because of interstate competition for industry. Average weekly benefit levels are still in the neighborhood of \$30, little more than a third of usual earnings. In my opinion, we need Federal benefit standards that would require the States to pay the great majority of unemployed workers half their regular earnings. The lengthening of the maximum duration of benefits, at least during recessions, is also highly desirable. However, the costs of extended duration should not be charged against the payroll taxes of particular employers. We should also extend the unemployment insurance system to most of the employees not now covered by it.

It has not been widely noticed that just as real benefit standards in unemployment insurance have been eroded by inflation, real eligibility standards have also been eroded where they are expressed in dollar amounts. As a result workers sometimes qualify for benefits on the basis of a few weeks' work. By paying benefits to those loosely attached to the labor force, the insurance system may pay out too much in good years as well as too little in bad years, further reducing its countercyclical effect.

Our system of Federal taxes is another major built-in stabilizer whose stabilizing effects could be strengthened. For example, we should work toward a system that relies less on excise taxes, since they are less sensitive to changes in economic activity than are income taxes. (They are also bad taxes on other grounds.) The system of withholding taxes at the source, which has contributed so much to the cyclical flexibility of personal income tax collections from wages and salaries, should be extended to dividends and interest payments beyond small amounts. This would permit both more built-in flexibility and the prompter effectiveness of changes in rates. It would incidentally capture a lot of revenue now lost through tax evasion, and thus permit cuts in the tax rates of honest taxpayers.

We may some day be able to rely entirely on built-in stabilizers and monetary policy to achieve economic stability, but this does not yet seem possible. Given the present structure of taxes and expenditures, countercyclical changes in tax rates are still sometimes necessary. Thus a major tax cut clearly seems necessary now (March 1958). Two points should be made about changes in tax rates. First, countercyclical changes in tax rates, especially in the highly complex personal income tax, cannot be made the occasion for tax reform without creating controversy that will delay changes in rates beyond the time of greatest need. The difficult issues of tax reform must be considered carefully and slowly, while countercyclical changes in rates must be prompt. Second, the countercyclical effectiveness of changes in income tax rates does not depend heavily on whose taxes are changed. The disposable income created by a tax cut in any income bracket will almost all be spent rather than hoarded. That is, it will be used either for consumption or for investment, and from the point of view of stability it does not much matter which. Recognition of these two points would go a long way toward achieving agreement on some kind of simple standby program for counter-

cyclical changes in tax rates, such as equal percentages changes for all taxpayers, which could be put into action without long debate.

If built-in stabilizers are the best countercyclical weapon, in terms of the conflict between price-stability and high employment, surely undertaking new public works is the worst. In the short business cycles of the postwar period, public works authorized during recessions would not get underway until the recession was over, when their increased volume would serve to contribute to inflation. Attempts to curtail public works during investment booms might take effect just in time to intensify the next recession. This does not mean that we do not need more schools, hospitals, or urban renewal projects. It does mean that such projects should be undertaken on their merits regardless of the phase of the cycle, and the cyclical variation in the Federal budget should come, except for social insurance, largely on the tax side.

To some extent, it may be true that monetary policy shares the defects of public works. Private investment in plant and equipment, like public investment, is planned long ahead. Thus while monetary policy can be changed quickly, it may take effect slowly. This does not mean that monetary policy has no role to play in combatting recession and inflation. Variations in the short-term rate of interest can help to minimize inventory cycles, and influence the extension of consumer credit and other short-term credit.

If I am correct in thinking that monetary policy is least useful in controlling fixed investment, this supports the Federal Reserve's "bills only" doctrine, which tends to make short-term rates fall more than usual relative to long-term rates in recessions, and to make them rise more during recoveries. The policy is thus justified not on technical grounds, nor, as is sometimes argued, because it is neutral with respect to the term structure of interest rates (which it is not), but precisely because it departs from neutrality in the right way.

Insofar as monetary policy is designed to influence fixed investment, the events of the last few years suggest that we have relied on it too heavily. Raising interest rates from 1955 to 1957 may have done rather little to curtail investment then underway, and a good deal to curtail investment planned for 1958. Similarly, if lower long-term rates encouraged the undertaking of new projects in 1954, these projects may actually have been constructed just when the economy was again experiencing inflationary pressures. Greater reliance on fiscal policy would have spread countercyclical pressures more evenly through the economy instead of concentrating them on the long-lived investments where interest costs are most important and planning periods are longest. Thus I suggest that the critics of tight money in 1956 and 1957 were partially right if—and only if—they would have been willing to use higher taxes and lower Government expenditures in its place.

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This paper, in its effort to unify the discussion of price-level stability and its relation to full employment, has touched lightly on a variety of issues. It offers many opinions, with little room for the facts and reasoning needed to back them up. It will thus satisfy no one, least of all myself. However, if it serves to stimulate the re-examination of issues on which stereotyped views are developing, I shall be content.



## A GENERAL VIEW OF THE INFLATION PROBLEM

Herbert Stein,<sup>1</sup> Committee for Economic Development

I suppose there is general agreement that inflation is a bad thing. There is disagreement about how bad it is, and about the particular nature of the evil, and especially about whether this evil is a necessary and worthwhile price to pay for certain desirable objectives. But people don't go around saying that in and of itself inflation is a good thing.

The evil of inflation results mainly, perhaps entirely, from its being uncertain. One can conceive of an inflation that is not uncertain. The Government could announce and adopt as its policy that the general level of prices should rise  $x$  percent a year—that the value of money should fall by  $x$  percent a year. Probably it could carry out such a policy, within a tolerable margin of error, so that people would come to expect a steady rise in the price level, would base their actions on that expectation and would not be disappointed. There might be nothing at all wrong with such a situation. But this is not the kind of inflation we have had, or are likely to have or the kind that anyone is proposing. The process of adjusting all contracts, including credit contracts and wage contracts, to a certainly foreseeable inflation would be difficult and expensive. Different people would adjust to it at different rates, and many would be hurt in the process.

So what we are talking about is an inflation that is uncertain, at least as to its rate. We are talking about creating or tolerating a risk in almost all economic transactions that is not inherent in the economic system. We know that this loads the dice against certain classes of the society—classes on fixed or relatively fixed incomes and owners of fixed-dollar assets. One can argue that this also loads the dice in favor of certain groups in the economy in a way that contributes to economic growth. For example, we used to think that, since wages lagged, inflation raised profits which were largely saved and added to the funds available for investment. The wage lag is no longer so apparent as it once was, but it illustrates the point.

In my opinion it is not necessary to argue whether the gains from inflation—in terms of economic dynamism—are worth its cost. These gains, insofar as they are real, are achieved by fooling people—by leading some people to think that the value of money will be something different than it actually will be, and something different than we actually intend it to be. Even if this did have certain economic advantages, fooling people is simply not a legitimate basis for public policy. We cannot expect that everyone will accurately anticipate the consequences of public policy. But it is immoral to adopt a public policy—such as a policy of tolerating or creating inflation—when it can only achieve the advantages sought if people are fooled by it.

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<sup>1</sup> The views expressed are the author's and not necessarily those of the Committee for Economic Development.

Because this moral problem is involved, the maintenance of general price stability comes as close to being an imperative of economic policy, in my mind, as anything can be.

Everyone knows, in a general way, how inflation can be prevented. There is some degree of restraint of demand that will keep prices from rising on the average. I don't think that people who emphasize the importance of rising costs as a cause of inflation are denying this. They are saying that restraint of demand sufficient to prevent inflation will have undesirable consequences. This is a major point to which I return below. There is also agreement that means exist for restraining demand in any desired degree—not precisely in the amount and time desired, since certain lags and errors are inevitable, but well enough to prevent large and persistent inflation. The means are monetary policy and Federal budget policy. Questions can be raised about these means—about the best combination of them, about possible undesirable byproducts of their use, and about ways of improving them. But these questions do not run to the basic adequacy of the instruments.

If we know how to prevent inflation, and have the means to do so, what is the problem? As I see it, there are three main problems:

1. The possibility that under conditions of high employment labor costs and prices will rise, so that, while inflation can still be prevented by restraint of demand it can only be prevented by restraining demand enough to cause "substantial" or "unnecessary" unemployment.

2. The possibility that fluctuations of demand, even if there is no upward trend, will result in an upward trend of prices, because prices tend to rise when demand rises and do not fall when demand falls. This might be considered an aspect of the immediately preceding point.

3. The political problem of getting agreement on the particular method of restraining demand even if there is agreement on the desirability of restraining demand in general. Demand cannot be restrained "in general," although some methods of restraining demand are more general than others. Different people have interests for or against the use of particular methods, and failure to agree may lead to an impasse where nothing can be done.

I shall discuss each of these problems in turn.

#### THE WAGE-PRICE PUSH

There has been much talk in recent years about the "new" inflation. What I suppose is the fundamental discovery of the "new" inflationists is that prices and wage rates go up when somebody raises them. But I can hardly regard this as a "new" explanation of inflation. It is probably the oldest, most primitive and most naive explanation.

The fact is that most sellers, whether of food or of labor, would always like to raise their prices (or wage rates). But it is also a fact that they do not always raise them, and never raise them without limit. The whole attempt of economics has been to discover the conditions that determine whether prices do or do not rise, and the amounts by which they rise, given the fact that sellers would generally like higher prices.

One of the conditions that economics has found to be most important is the state of demand. Even though sellers would like to

raise prices they are limited in doing so by the thought that if they do they will lose sales and earn less income than they would if they charged a lower price. But when demand rises they can raise prices without losing sales, so this inhibition is relaxed and they "decide" to raise prices. There is no conflict between the view that prices rise because somebody raises them and the view that somebody decides to raise them because demand is high or rising.

The "new inflationists" have not found a qualitatively different kind of inflation, independent of the state of demand. What is interesting and needs consideration in the new inflation argument is the assertion that the quantitative relation between demand and inflation is different than we previously thought. We always knew that if total demand exceeded the value, at stable prices, of the output that could be produced at full 100 percent employment of the labor force, prices would rise. We also knew that prices would rise if demand were as large as the output that could be produced by employment of 99 percent of the labor force. But we thought that prices, on the average, would not rise if demand were only as large as the output that could be produced by, say, 96 percent of the labor force.

Now many economists are asserting that the critical point is not 96 percent but something lower. They believe that if demand is sufficient to keep 96 percent of the labor force employed, prices will rise. I am not aware that anyone who thinks this has yet specified at what level of employment prices would not rise, but they do not seem to be denying that there is some such level.

The possibility that this assertion is correct cannot be ruled out on a priori grounds. The difference between 96 percent and 94 percent or 92 percent as the rate of employment at which prices would be stable is not a matter of principle but a matter of fact. A difference of principle is sometimes implied on the basis that inability to raise employment above 96 percent without inflation is due to "frictions" whereas inability to raise employment to 96 percent without inflation is due to adverse price or wage behavior. Unemployment up to 4 percent is believed to be frictional and in some sense "physically" necessary whereas unemployment above 4 percent is not. However, I do not believe that this distinction is valid. Frictional unemployment is an economic phenomenon, at least in large part. How much frictional unemployment is necessary depends upon the responsiveness and flexibility of wage rates and prices. Therefore, in my opinion, 5 percent unemployment is not qualitatively different from 4 percent, although it is obviously more serious because it is bigger.

As I have said, whether prices would rise, on the average, if demand were only sufficient to keep 96 percent of the labor force employed is a matter of fact. And the facts are quite unclear. The relevant experience in American history is the postwar inflation. This inflation came in three surges. In the first two of these, 1945 to 1948 and 1950-51, demand was clearly excessive, rose very rapidly and was strong enough to bring unemployment below 4 percent. In the third episode, 1955-57, we had a very rapid cyclical expansion of demand. Productivity increased at less than the normal rate. Moreover, the rise of wage rates, and possibly also of prices, reflected the ideas of what was normal and possible built up during the earlier postwar years.

In short, we have no experience of a sustained period of demand just sufficient to maintain 96 percent employment, and are unable to conclude from evidence what would happen in such a period. Also, the reasons advanced for believing that prices would rise under such conditions are not convincing to me. The most usual reasons are the strength of unions and the commitment to high (full?) employment. But we should remember that only about one-third of all workers are organized in unions, not all of which are strong. Even a "strong" union may be responsive, in its wage demands, to the existence or danger of unemployment. And while it is usually said that the wages of unorganized workers will follow the lead of the organized, I have seen no explanation of this other than a high demand for labor generally. Moreover, the commitment to high employment is not, even on paper, a commitment about employment of particular persons in particular occupations or particular industries. It does not, for the individuals or organizations that make wage decisions, eliminate the possibility that they may price themselves out of the market.

I am not trying to prove that prices will not rise if we maintain steady 96 percent employment. What I am trying to suggest is that we don't know. This may seem a weak conclusion, but in fact it is a very important one. One thing it means, of course, is that we should try to find out. But if we are realistic we must recognize that we are not likely to find out very quickly. Policy will have to be made for some time to come in the presence of substantial ignorance. We should not commit ourselves to radical and irreversible measures on the assumption that we know something we don't. I would regard acceptance of inflation as public policy, or price and wage controls, as such radical and irreversible measures. Once we embark upon either of these courses we will never know whether we could have gotten along without them.

Prudent policy, in the face of our ignorance, would be to keep demand from rising too fast and see what happens. This would be the best test of the validity of the new inflation argument.

It is commonly assumed that if we cannot have, say, 96 percent employment without inflation we can have it with inflation. But this is by no means obvious, and for the long run seems to me rather doubtful. The problem may be illustrated by a simple case. Suppose the cause of the inflation-employment dilemma is that when we have 96 percent employment labor demands and gets 5 percent per annum wage increases but productivity rises only 3 percent per annum. In these conditions prices have to rise. But whether the price rise succeeds in making 96 percent employment possible depends on whether labor is demanding a 5-percent increase in its real wage or only a 5-percent increase in its money wage. The price rise cannot give a 5-percent increase in real wages if productivity is rising only 3 percent. If labor is bargaining for real wages, unemployment will have to be high enough to hold real wage demands (meaning not what labor asks for but what it will accept as a condition for working) to the amount that productivity will support. In the long run it seems to me reasonable to regard labor as bargaining for real incomes.

I use labor in this example only for simplicity and not to suggest that "the problem," if there is one, is necessarily or exclusively a problem of labor. The problem is the combined return that all the

factors of production demand as a condition for supplying resources to production.

#### THE "RATCHET" PROBLEM

There is concern, which seems to me well founded, that fluctuations of demand will leave behind a residue of persistent inflation. This has been called the ratchet problem. Prices rise in a cyclical expansion of demand and do not decline in subsequent contractions.

This is not a new problem. Prices characteristically did not decline in moderate contractions in the past. What is new is that we will try, properly and I believe successfully, to keep all contractions moderate. So we will not have the deep depressions that did bring prices down.

The most promising approach to a solution of this problem, as I see it, is to keep ourselves in a position to moderate the rate expansion of demand in cyclical recoveries. We tend to get a rapid upward surge of demand that exceeds the pace at which real output can recover and that puts pressure on labor markets. This is partly the result of tardiness in reversing the measures that were taken to halt the previous recession. For example, with the aid of hindsight we can now see that monetary restraint should have been more promptly and rigorously applied after the economy began to recover in 1954. An even more important difficulty arises from the possible use, as antirecession measures, of instruments that are difficult to reverse in recoveries. This is notably true of antirecession public works and other expenditure programs. This is one of the main reasons for primary reliance upon tax reduction for combating recessions, and a powerful reason for making all possible advance provision for terminating the tax reduction when recovery is well underway.

#### THE POLITICAL PROBLEM

Any proposal for combating inflation by restraint of demand encounters a serious political difficulty. (Other attacks upon the problem encounter even more serious difficulties, but I am not discussing them here.) The difficulty is that restraint of demand does not fall as the gentle rain from heaven. It comes from a visible source, it affects different people differently, and the people most affected are not going to like it. Every group in the economy, while avowing its desire to prevent inflation, will resist those restraints of demand—whether high taxes, curtailed Government expenditure, or tight money—that impinge most upon it. And we may be unable to get agreement on an adequate program of restraint.

There is basically no solution to this problem except understanding produced through education and leadership. Amending the Employment Act to include price stability as an objective would help to promote understanding. Anything that can be done to insulate the Federal Reserve from pressures is helpful. But in the end there is no substitute for public discussion led by informed and respected people who are willing to tell themselves and the public the truth.



## RELATIONSHIP OF PRICES TO ECONOMIC STABILITY AND GROWTH: A STATEMENT OF THE PROBLEM

Robert C. Turner, Indiana University

In the broadest language, the problem implied in the title may be stated as follows:

1. Vigorous economic growth, closely approximating at all times our potentialities for growth, is a desirable objective of public policy;
2. A high degree of stability in the general price level is also desirable;
3. Is it possible to achieve both of these objectives at the same time, or are contemporary and prospective circumstances such that we must sacrifice in some measure one objective if we are fully to achieve the other? If the latter is so, what is the optimum balance between such conflicting objectives and how may it be achieved?

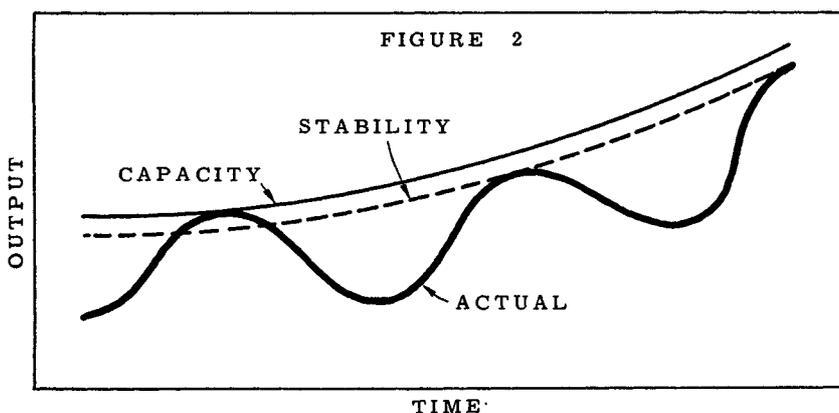
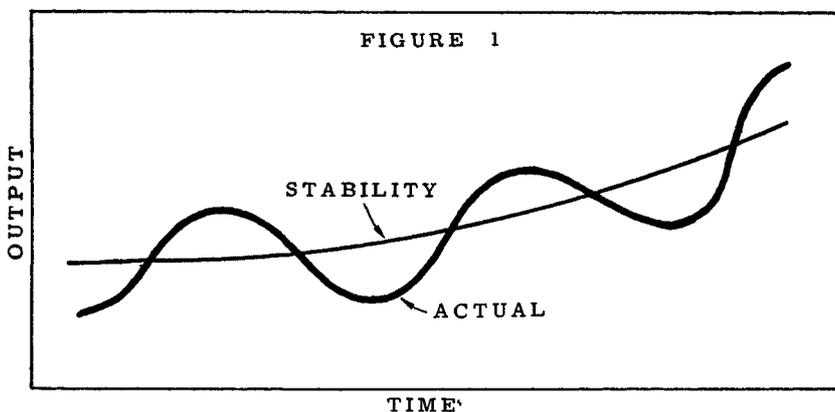
### THE OBJECTIVE OF ECONOMIC STABILITY

Economic stability<sup>1</sup> is not a static concept, as the word "stability" might imply. It can be defined only in terms of relationship to a growth potential pattern. It is the achieving of a level of output which bears a more or less fixed relationship to the Nation's growth potential. Conceptually, stability could be achieved at any level of output in relation to output potentials. When "stability" is used as a policy objective, however, we clearly mean a high level. How high? My answer would be that it should be as high a proportion of our output potential as possible and still be reasonably consistent with the continuous achieving of that objective.

The reader is warned that, if he accepts this definition of the objective of economic stability, he is making quite a conceptual break with the past. A generation ago, stability was generally conceived somewhat as illustrated in figure 1. It consisted of averaging out the peaks and the valleys of business activity at a happy mean. Our definition, however, is illustrated in figure 2. It means a level of activity very close to full employment, capacity levels. Furthermore, it is a constantly rising goal, as a growing labor force and increasing productivity multiply our output potential. Most of the deviations from the stability objective are on the downside. Only infrequently, under conditions of unusual pressure, do we exceed the objective.

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<sup>1</sup> The term "economic stability" is variously used in economic literature. To some, it means only stability of production and employment. Others add to that the concept of price level stability. I assume from the assigned title, "The Relationship of Prices to Economic Stability \* \* \*" that the former definition is intended here. Moreover, as I will bring out presently, the two types of stability are by no means perfectly correlated. It is well, therefore, to keep the two concepts separate and distinct.



Another matter of definition. I am using the term "inflation" in its simplest and usual sense as simply a rise in the average level of prices with no indication, implied or otherwise, as to the cause of that rise. And the term "inflationary forces" means any combination of circumstances which leads to a rise in the price level. The phrase is sometimes defined in terms of a relationship of the money supply to the volume of transactions, or of the flow of income to the physical volume of goods offered for sale. Such definitions may be useful in certain situations, but they involve an implicit assumption as to causality, even perhaps of unique causality, which is open to question and in any event narrows the area of analysis. I prefer to treat causation explicitly as a separate matter.

As to "which prices?" it really does not matter much as long as the products covered are end products and the coverage is large. The Consumer Price Index of the Bureau of Labor Statistics is generally adequate. The GNP price deflator is better for annual data, but the fact that it is not presently available on a monthly or weekly basis limits its usefulness.

Although I have defined the term "inflation" to mean any increase in prices, let's narrow the definition a bit to exclude: (a) insignificant

increases in prices—an “inflation” of 2 or perhaps even 10 percent a decade would be inconsequential in comparison with other factors of change in the economy or in a person’s life; and (b) a runaway inflation such as that experienced in Germany in the early 1920’s. “Hyperinflation” is the usual term for this type of inflation. In other words, inflation means price increases of roughly the order of magnitude experienced in the United States in 1939–48, 1950–51, and 1956–58.

The question of the relationship of “prices” to economic stability resolves itself into two lines of inquiry. The first pertains to the effects of interrelationships of individual prices, or of categories of prices, upon economic stability. In the main, I propose to omit discussion of this facet of the problem and to use my allotted space to discuss the second aspect which concerns effects in the general price level on economic stability.

As we look back over the historical record, in this country and in other capitalist countries, we see that, in general, fluctuations in the price level and in business activity have been positively correlated. It is instructive to look at this record carefully and to break it into time periods when the price level has generally been: (a) falling; (b) approximately constant; (c) rising.

Since the Civil War, when modern corporate capitalism may be said to have come into being, there have been two periods of definitely declining prices. The first was a prolonged one, from 1865 to 1896. Wholesale prices declined, with relatively few interruptions, by over 60 percent during this period. This period also witnessed the long, severe depression of the 1870’s, a lesser depression in the 1880’s, and another severe one in the 1890’s. It was a period when rapid population increase and industrialization did bring economic growth, to be sure, but that growth was frequently interrupted by severe cyclical downturns and recovery from the downturns was slow and often incomplete. It was a period characterized by constant and bitter complaint on the part of farmers and labor and by an exaggeration in inequalities in the distribution of income.

The second period of markedly declining prices was a short but pronounced one, from the late 1920’s to the mid-1930’s. There is no need to chronicle here the havoc of that experience.

Even though real incomes may not decline in a period of declining prices, the decline in money incomes which is so likely to accompany a decline in prices reduces confidence in the future and undermines speculative attitudes. Declining prices shift incomes from debtors to creditors, but debtors (including corporate debtors) are our heavy spenders. If the decline is severe or protracted, it can seriously reduce the liquidity or even impair the solvency of financial institutions whose obligations are payable in dollars and, even before this occurs, banks and other lending institutions may, from precautionary motives, curtail their lending activity. The conclusion seems inescapable that marked and protracted declines in prices are not compatible with economic stability.

Since the Civil War there have also been two periods of steadily rising prices. The first began in 1896 and continued until the beginning of World War I.<sup>2</sup> Wholesale prices rose about 50 percent during

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<sup>2</sup> The sharp rise during World War I and the equally sharp but not as deep post-World War I collapse are considered to be unique, war-related events.

these two decades. This was a period of generally booming business conditions. It has been called the Golden Age of Agriculture. There were cyclical swings in business activity but they were mild and recovery was rapid and complete. Even the financial crash of 1907-08, which might well have triggered a major depression, proved to be a short-lived affair, though the pall which this nasty "recession" cast over the land is still remembered by an older generation.

The second period of steadily rising prices extended from the mid-1930's to early 1951. A substantial part of this rise was war-related, but the upward swing began well before the war began and continued well after its end. This also was a period, at first of incomplete but substantial recovery from the deep troughs of depression, followed by 15 years of booming economic activity almost unmarred by business decline.

Although the cause-effect relationship is undoubtedly 2-way, these 2 historical intervals seem to suggest that rising prices are conducive to economic stability as here defined. The reasons are, of course, the converse of those just mentioned regarding falling prices. Rising prices raise money income which, spurious as it may be, has an exhilarating effect. Business ventures of a speculative character are, dollarwise, more likely to be successful. Business ventures of a marginal character may temporarily appear to be profitable because of inventory profits and thus will, for a time, serve as employment (and income) creating mechanisms. Income is shifted to debtors who, for a time at least, will spend freely. Lending institutions find the collateral (assets or incomes) behind their dollar loans increasing in value and hence are likely to lend more freely.

There have been two rather brief periods when prices have been approximately stable. During the 1920's, average prices moved sideways or slightly downward. After the sharp, postwar crash of 1920, business activity generally boomed except for relatively mild and brief recessions in 1924 and 1927. Agriculture, however, was not prosperous during the 1920's. And the boom was "a rich man's boom," the majority of industrial workers receiving, in higher wages, only a fraction of the gains of labor productivity. Moreover, the extraordinary collapse in business activity beginning in 1929 detracts from the persuasiveness of the suggestion that stable prices provide a climate salubrious to economic health.

The second period of level prices lasted from mid-1951 to late 1955. During this interval, the near stability in the overall price index concealed downward movements in farm product prices (net farm income declined during this period) and upward movements in non-agricultural prices. Furthermore, these were special, temporary circumstances to explain this lull in inflation,<sup>3</sup> including the fact that certain prices, notably of internationally traded commodities, had shot up sharply in the preceding, post-Korea months. The subsequent level movement in the overall price index reflected a readjustment toward pre-Korea relationships. Indeed, it is significant that, in spite of the downward reactions of these out-of-line prices, the overall average did not decline.

On the whole, during this period of statistical stability in the overall price indexes, business activity was good and the one recession in

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<sup>3</sup> See John P. Lewis, *The Lull That Came to Stay*, *Journal of Political Economy*, February 1955.

the period, that of 1953-54, was very mild. Because of the peculiar character of both this period and the 1920's, however, the evidence regarding the relationship between prices and economic stability during level prices is not entirely conclusive.

The past 2 years or so give evidence of some new sort of pattern which does not conform precisely to historical precedents. Prices have turned upward again. The increase has been slow and gradual, but it has been persistent and substantial. In 1956, business activity was good, but it fell short of the growth which the long-run averages would lead us to expect. Early in 1957 business activity definitely leveled out and by early autumn a decline was underway which by now has assumed startling proportions. In spite of this inadequate growth, followed by leveling off, followed by sharp decline, prices have continued their upward creep.

This recent development, and indeed the rather persistent, upward creep of nonagricultural prices throughout the past 20 years, requires explanation.

Only part of the answer lies in the traditional "excess demand" type of analysis. The inflationary movements of the war and early postwar years (i. e., until 1948) had their origins in an expansion in demand (created primarily by bank-credit-financed deficit spending, first by the Federal Government, later by State and local governments, private business, and consumers) faster than output could be expanded. Except for the inflation of the immediate post-Korea period, however, price increases in the nonagricultural sector of the economy since 1948 clearly cannot be explained solely by "too much money chasing too few goods." Capacity, on the whole, has been ample. With a few minor exceptions, shortages have ceased to exist; indeed sellers have had to resort to rather elaborate promotional techniques to dispose of their wares. Since 1953, unemployment has averaged roughly a million persons higher than the 1951-53 average, which in turn was probably above the frictional minimum.

An important part of the answer lies in some significant changes which have occurred in the price- and wage-making process in the past two decades.

The first of these changes is the development of strong, quasi-monopolistic positions of bargaining power at several levels of the economic structure. The most obvious is labor unions, which have increased in membership and organized strength from a position of relative impotence in the mid-1930's to one of dominance in the labor market today. Unions not only hold power; by the nature of their existence they are dedicated to the proposition that they must use that power to obtain ever-increasing benefits for their members. Moreover, even in industries which are not heavily unionized, wages are subject to sympathetic reactions to wage rates in unionized industries if employers are to hold their labor forces. It is not necessary to have 100 percent unionization for unions to exert a powerful influence in wage making.

But quasi-monopoly is not confined to unions. It exists to an important degree in many if not most major, nonagricultural industries. It is a debatable question whether or not industrial concentration has increased significantly in the past 20 years. What apparently has happened is that high-order concentration (1 or 2 dominant firms) has

diminished, but low-order concentration (4 to 10 dominant firms) has increased. But whether or not concentration has increased, the significant point is this: 20 or more years ago much of the exploitative power of cryptomonopoly could be exerted downward on workers. Now, with labor unionized, most of it must be exerted upward on consumers.

Second, in both industries which are not characterized by quasi-monopoly as well as those that are, sellers are becoming increasingly cost oriented rather than demand oriented. A seller who is demand oriented adjusts his prices as necessary to maintain volume in a fluctuating market. Or in a purely competitive market, the seller has no control over prices; he sells his output at whatever price the market determines.

But a cost-oriented seller sets prices to yield a certain markup on cost. If costs rise, he raises prices accordingly. He may attempt to maintain demand by increased advertising or other promotional efforts. But prices are adjusted to cost; volume is the fluctuating variable.

The origins of increasing cost orientation are legion. They include widespread adoption of cost accounting systems in business—a relatively unknown science in pre-NRA days. They include the gradual, continued growth in the corporate form of business organization with its more systematic and less flexible pricing practices. They include the so-called fair-trade laws and minimum-markup laws and “suggested list prices” in lines of business where formal “fair trading” is not practiced. They include the ubiquity of trade association activity; rare is the business firm of any size that is not a member of one or more trade associations in which relationships between costs and prices are quite freely (and legally) discussed. They include the use of “parity” in Government support of agricultural prices. They include cost-of-living provisions in labor contracts and cost escalator clauses in commercial contracts. But most important, they include that intangible but very real change in business behavior away from price competition to nonprice competition. Price competition is no longer respectable. The seller who chisels on the conventional (or suggested) markup is considered to be unethical. Competition is by no means dead, but it is taking other more genteel forms than price competition.

This is not to say that, in the absence of price competition, prices have been exorbitantly high. On the contrary, the record of business profits in the postwar years suggest that, on the whole, they have been reasonable. The reason for this is that the convention against price competition works two ways. Prices are not cut to attract sales when demand shrinks, but neither are they inevitably raised to exploit every upsurge in demand. Prices are not closely tied to demand; to an important and increasing degree, they are tied to costs.

(It is entirely possible that a contributing reason for this attitude lies in two facts. First, with the shift in power from “Wall Street” (i. e., business) to “Washington” (i. e., democratic government), the businessmen of a generation ago who were largely indifferent to public opinion have been superseded by a new generation of socially conscious, public-relations-wise executives. Second, these businessmen

generally have been on the defensive to explain their repeated price advances over the past two decades. It is not good public relations to explain price increases in terms of market demands—charging what the traffic will bear. So, alternatively, they have defended the advances in terms of cost increases, and in due time have come to believe in, even be controlled by, their own arguments.)

These changes in the price- and wage-making process have set the stage for what has come to be called “cost-push inflation.” Increases in prices and wages in the early stages, or indeed at any stage of the production process, tend to be passed through to the final consumer. In fact, they are more than passed through; they are escalated by conventional and fairly rigid percentage markups. And in a few instances, producer-sellers who are not satisfied with their level of profits or who wish to facilitate internal financing of plant expansion by increasing the cash flow into the company may use cost increases as an excuse for more-than-proportionate increases in selling prices.

The term “cost-push,” however, is an unfortunate one in that it focuses attention solely on the cost side. It fails to recognize that every cost to one man is income to another. An increase in wages is an increase in costs to the employer, but it is increase in income to the worker. An increase in the price of steel is a cost increase to the automobile manufacturer, but it is income to the steel company. It is sometimes contended that a cost-induced price increase cannot be sustained unless it is matched by a price decrease elsewhere because otherwise the market would not clear. This argument may be valid as applied to the individual firm or industry acting alone. But as applied to an entire economy in which cost-induced price increases are fairly prevalent—and this is a point widely missed by writers on this subject—if there is no effective monetary restraint on the autonomous creation of money income, and if such increments in income are promptly spent, a cost-push inflation creates its own demand. A much better phrase to describe the process, if I may borrow a term from the electronics industry, is “push-pull” inflation.

This is why, it seems to me, it is futile to quibble about whether, in the postwar decade, wage increases have caused the increase in the cost of living, or increases in the cost of living have caused wage increases. Real wages have increased about in proportion to productivity increases, as indeed they must if there is no change in the share of output going to the other factors of production. The causation between wages and the cost of living is of the push-pull variety. Higher wages (in excess of productivity increases) have increased incomes which increased demand for goods and services which increased prices of goods and services which justified the wage increase. One is chicken and one is egg, and it doesn't matter much which is which.

But we introduced two big “ifs” a moment ago. First, we assumed that recipients of this incremental income must be willing to spend the increments in money income. If they are scared off by rising prices or for any other reason, and decrease their spending rate, higher prices may result chiefly in a decrease in the level of output and employment. Prices would be higher, nevertheless.

Second, we assumed that there was no effective monetary restraint on the money-income creating process. For cost-induced price increases to generate their own demand, the effective money supply must expand as necessary to carry the larger dollar volume of transactions

which the increase in prices will generate. Lacking such an expansion, expenditures somewhere must be curtailed and either production and employment must decline, or prices must come down again.

Suppose, for example, that the Federal Reserve used its monetary control powers to prevent an expansion in the money supply. It cannot control velocity—in fact, the Federal Reserve's efforts to contain an expansion in  $M$  have been partially offset by an increase in  $V$ . But obviously  $V$  cannot go up indefinitely, and the Federal Reserve can compensate for an increase in  $V$  by an even tighter control of  $M$ . If it really wants to, it can prevent an expansion in the total volume of transactions ( $M \times V$ ). What happens in these circumstances? First, prices could stubbornly stay up or even continue to rise, and production and employment come down. Or second, prices could be forced down.

During the early postwar years, until 1951 in fact, there was no real restraint on the money supply, and from 1951 until early 1953 it was mild. During this interval, push-pull inflation resulted chiefly in an increase in prices. In 1953 tight curbs were imposed on bank reserves, and production and employment promptly turned downward. But prices did not. Later in the year and again in 1954 the curbs were eased and, after a lag, both (nonagricultural) prices and production turned upward. In late 1954 the monetary restraints were reimposed, at first gingerly, later with increasing vigor. For a while increases in velocity offset the restraints on the supply of money, but by early 1957, chiefly because of the gradual decline in corporate liquidity, this escape mechanism was exhausted. Subsequently, the forces of push-pull inflation continued to exert pressure, but the money-income creating mechanism was really restrained. At the same time, there occurred an apparent downward shift in the average propensity to consume, especially as regards consumer durable goods. Something had to give. It is significant that the factor to give was, not prices, but production and employment.

The reason for this is not hard to find. The volume of money does not affect prices directly, but only through the lending and spending process. If a shortage of reserves causes banks to curtail their loans and raise their interest charges, and other interest rates also rise in response to this shortage of reserve money, some prospective borrowers are going to be squeezed out. Borrowing less, they spend less. Aggregate demand drops. Sales drop. But do prices drop? Not necessarily. They probably will in highly competitive, demand-oriented lines of business, but in cost-oriented businesses, prices will go down only if something happens to those costs.

The biggest element of costs is wages. What it might take in the way of a restriction of the effective money supply to cause wage rates to drop, or even to stop rising is a matter of conjecture. The strength of unions being what it is, it might well take a decline in demand sufficient to disemploy several million workers before unions would be scared into hibernation. Or, to look at the other side of the bargaining table, it might take a considerable drop in effective demand and employment with its corresponding squeeze on profits to stiffen employer bargaining in basic industries to the point where managements would resolutely resist further increases in wages, or even insist on cuts in wages, at the possible expense of strikes and other labor difficulties.

Thus it may be that the historical relationship between prices and economic stability has taken a new twist. Downward price swings are still not conducive to economic stability; of that there can be little doubt. And upward swings in prices seem to be conducive to economic stability. But they do not assure economic stability and recent experience seems to suggest that significant declines in business activity can occur in the face of rising prices—perhaps even that stable prices may be impossible to achieve except at the expense of economic instability. And the reason for this lies in the disassociation of the price-making process from the employment- and production-creating process. Prices, to an economically significant though not complete extent, are related, not to demand, but to costs. And the price-(cost) setting process has been shifted from the competitive marketplace to the conference table, whether it be the conference table where labor and management negotiate a wage agreement or the conference table of the large business firm where administered prices are set.

The case for push-pull inflation should not be overstated. There is still a substantial complement of competitive, demand-oriented price setting. And obviously if sufficient monetary pressure is applied, or if recession deepens into depression, prices and wages must ultimately respond to declining demand. But the point at which they respond may be well below that level envisaged in the term "economic stability."

#### THE OBJECTIVE OF STABLE ECONOMIC GROWTH

In theory, economic growth should probably be measured in some abstract unit of satisfaction of economic wants or of human well-being. This is an extraordinarily difficult thing to do, however, and economists have therefore long been in the habit of operating under the assumption that there is a close correlation between the Nation's output of goods and services and the well-being of its people. Psychologists and others may question the validity of this assumption, particularly when comparisons are made over long spans of time or between nations of markedly different cultures. Still, for the intertemporal comparisons of only a decade or two within a single nation, if there is no radical change in the composition of the product of the economy (e. g., war goods versus peace goods, capital goods versus consumer goods), it is probably safe to assume that the more we have of valuable good and services, the better off we are. To most economists, therefore, economic growth means simply an expansion in the total output of goods and services.

A host of circumstances are conducive to economic growth. Among them are:

(a) A general, cultural bias toward growth, i. e., a widespread conviction, verging on a moral judgment, that increasing size, power, scale of operations, etc., is "good" for its own sake;<sup>4</sup>

(b) Vigorous but not excessive competition such that producers are under pressure to improve quality, design, etc., to install the most efficient equipment, and to adopt the best marketing methods;

(c) Intensive and extensive technological research and development which yield new and better products with which to entice the

<sup>4</sup>The contrast between American attitudes and those of certain (not all) European countries in this respect is significant.

customer, and increased productivity through better methods of producing goods and services;

- (d) A climate of confidence in the political and economic future;
- (e) Relatively profitable current and prospective operations;
- (f) Vigorous population increase, with further increases apparently predictable;
- (g) An absence of restrictionist practices, in business and in government, which impede growth;
- (h) An adequate volume of saving (personal, business or governmental, voluntary or involuntary) and of capital formation, together with appropriate financial mechanisms to channel funds from suppliers to users;
- (i) A high and rising real, effective demand for goods and services.

The relevant problem at hand is the effects of changes (or of no change) in the general price level upon these inducements to growth. Other papers in this symposium will no doubt provide definitive answers to this problem. But some of the considerations involved can be identified here.

Of the circumstances conducive to growth noted above, the most pertinent in a strictly economic sense are the last two: An adequate volume of saving and capital formation, and a high and rising level of real, effective demand. I will focus chiefly upon these two, touching only incidentally upon the others. Our problem is how shifts in the price level affect these inducements to economic growth.

It is customary to study the phenomenon of growth as strictly a long-run process. The fundamental determinants of our capacity for growth are the size of the labor force, hours worked, and the productivity of the labor force. The first is determined largely by the long-run effects of birth rates and death rates. The second is determined by conventional attitudes toward work, which change only gradually, and to a minor degree by laws regulating hours of work. Productivity is determined by a host of institutional factors and, most importantly, by the existing state of technology and the stock of capital. Both of these are subject only to gradual change, partly from non-economic causes.

Looking at growth from this point of view, the conclusion is logically reached that the effects of inflation and deflation upon growth are asymmetrical. Persistent and long-continued deflation, as contrasted with stable prices, is likely to interfere with and slow down the process of growth. Deflationary forces serve as a drag on employment and income generation. They may, if severe, interfere with the volume of saving. By reducing the real demand for consumer goods and services, they tend to make investment in new plant and equipment look less attractive and thus inhibit the growth in labor productivity which capital formation makes possible. This is not to say that deflation would necessarily have these effects, nor that if it does growth is stopped. Rather it is to say that there is a tendency, under chronic deflationary conditions, for economic growth to be somewhat less than it would otherwise be.

But inflation, it is argued, will not necessarily have the reverse effects. The reason lies in the limitation imposed upon growth by the available labor supply and by the presumably fixed productivity of labor. Inflation increases money incomes, but it can increase real

incomes only up to the point of full employment of resources. The income pull on growth therefore stops at that point.

As regards capital formation, it is argued that our stock of capital must grow in a balanced relation to total demand, i. e., to real income. Any capital formation in excess of that amount will soon prove to be redundant and thus will not contribute to growth.

The effect of inflation on the saving rate is admittedly ambiguous. It is sometimes argued that inflation shifts income from low income groups to high income groups, and the saving rate therefore tends to be increased. This is a questionable assumption; most studies indicate that there is relatively little difference between the marginal propensities to consume of low and high income groups. And even assuming that this may have been the effect in certain inflationary periods in the more distant past, the experience of the past two decades, since labor became so strongly organized, suggests that, if anything, the opposite tendency may have prevailed. In any event, the increase in pension funds, hospitalization programs, life insurance and the like among low-income groups would mitigate the influence. It is also argued, to the opposite effect, that inflation, if it is predictable, would discourage voluntary saving in liquid form because the purchasing power of dollar assets could be expected to diminish. Under conditions of hyperinflation, this consequence undoubtedly ensues. But under conditions of more gradual inflation, which is not predictable except with benefit of hindsight, it is doubtful if any decline in the saving rate occurs. Certainly the experience of the past two decades, and of 1956-57 in particular, would lead to this conclusion. Moreover, even if voluntary saving should decline, it is possible that the decline may be compensated for by an increase in voluntary saving which is the unpleasant but inevitable after effect of inflation-stimulated installment buying. All in all, the evidence does not indicate that, as a long-run proposition, inflation has enough of an effect on the saving rate, one way or the other, to influence significantly the growth process.

Looking at the matter strictly as a long-run problem, the conclusion is reached that, whereas deflation may serve as a drag on long-run growth, inflation does not accelerate it. This conclusion does not necessarily follow, however, when we recognize that growth is the product, not only of these long-run factors, but also of short-run and presumably temporary factors. In a sense, growth is simply a series of interconnected short runs. It occurs, not in an even, smooth progression, but in a series of jerks and spurts, the character of which is determined largely by short-run influences. And it does not occur automatically, simply as the inexorable result of these underlying factors. The long-run forces may not have a chance to exert their proper effect unless, in the immediate short run, the appropriate people make the necessary decisions and take the necessary actions to make growth a reality.

Even the fundamental factors of growth are not independent of short-run economic influences. An increasing population means more mouths to feed and bodies to clothe, and hence a tendency toward increased demand. But this increase in demand does not become effective unless somehow incomes are increased (or the saving rate is reduced). Increasing population means, in due time, an increase in the size of the labor force. But in the contemporary United States economy (or any other economy, for that matter), a larger labor force

does not automatically mean more productive employment, and, therefore, more output. Increased production ensues only when someone sees a market for new and larger output and takes actions requisite to production, including hiring workers (or employing himself in productive activity), adding plant and equipment, stepping up marketing activities, etc.

Moreover, the size of the labor force is not entirely independent of the inflationary or deflationary forces themselves. A significant fraction of our labor force is composed of marginal workers who shift in and out of our labor force in response to a variety of motivations, including family needs for income and job availabilities. Thus, many housewives are not in the labor market until their husbands lose their jobs, whereupon they look for work. Or, in other circumstances, housewives, youngsters, or oldsters may not be particularly interested in employment, but under the pressure of readily available job opportunities and attractive money wage rates may decide to go to work. They are "seeking work" only when the job is seeking them. Later on, if the demand for their services subsides, they become, not "unemployed workers," but persons who have voluntarily withdrawn from the labor force. The size of the labor force, therefore, responds not only to population movements, but also to economic conditions themselves.<sup>5</sup> Moreover, as is well known, average hours worked per worker are responsive to changes in the level of business activity, rising in boom times and declining in recession. Man-hour input (employment  $\times$  hours) is thus doubly sensitive. Response of this character may persist for months or even several years—long enough to have a significant impact on the growth process.

Second, labor productivity<sup>6</sup> is not independent of economic conditions. Technological research and invention, the major determinant of labor productivity, is cycle sensitive. Research is costly and the amount of research which can be done is determined in part by the flow of income to individuals and organizations engaged in research. Illogical as it may seem, many business firms consider their research budgets to be expendable when sales drop. But more important, technological research and invention do not result in increased productivity and output until the new product or process is put to use. Some new products or processes may be introduced under conditions of economic adversity as a means of meeting competition or cutting costs. But others, particularly those which require sizable capital outlays or promotional expenditures, are more likely to be introduced only when the market seems ready to accept new and expanded output. On the whole, innovation—as distinct from invention—occurs only when short-run considerations are favorable.

Efficiency in the utilization of labor is also influenced by short-run factors. Two contrary theses in this respect are sometimes advanced. One is that periods of deflation have the effect, through induced fear of unemployment and loss of income, of spurring workers on to greater efforts and hence higher productivity. In time of boom, profits are

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<sup>5</sup> This is an area where greater statistical detail and further research are needed. The Census Bureau tabulations, although far superior to what they were 2 decades ago, still provide very little information on the labor force of a qualitative character.

<sup>6</sup> The term "labor productivity" is here used in the usual sense as the ratio of output to man-hour input. Increases in labor productivity thus include, not only increases in output which are attributable to the quality of labor per se, but those which result from changes in all other factors of production, notably capital.

relatively easy, managements become lax in their cost-cutting and efficiency-promoting activities generally, marginal or submarginal workers are employed, and workers change jobs often thus reducing their productivity. The other thesis is that deflation and unemployment lead to stretch-out-the-work tactics, whereas booming business with large backlogs of orders and impatient customers inspires management to organize and direct their labor forces with maximum efficiency. Capital equipment is used more efficiently in times of high business activity, and this is reflected in higher "labor productivity" as here defined. Workers find it easy to shift from low to high productivity industries when the demand for labor is high. Top managers, supervisory, and other nonproduction workers are typically not laid off as quickly or in as high a proportion in a recession in business activity, nor, conversely, are their numbers increased proportionately when business expands. Their per capita contribution to overall productivity is consequently higher when short-run business conditions are good.

Although both tendencies in respect to productivity are no doubt operative in particular situations at one time or another, for the United States economy as a whole the weight of historical evidence seems to be generally on the side of the latter. Labor productivity is positively correlated with fluctuations in business activity.

Thus long-run growth is the product of the interaction of short-run and long-run factors. To some extent, growth may occur when short-run forces are unfavorable. But in the main, the forces which produce a vigorous upswing in the current volume of business activity are the same forces which generate long-run growth. Inflation, to the extent that it stimulates a high level of business activity, also tends to stimulate long-run growth.

Moreover, once an expansion in output is generated by strictly temporary, short-run inflationary factors, the growth process creates the conditions to sustain itself. Marginal workers may decide to withdraw from the labor force, but youngsters just coming into the labor force take their places and find jobs to take. An expanded labor force, if short-run conditions permit full employment, generates the income to create the demand for their output. Productivity increases, from more and better capital, from better techniques of production, from better attitudes toward work, are seldom lost once they are achieved. Output per man-hour sometimes fails to increase as much as long-run considerations would suggest, but rarely does it actually decline.

Thus, long-run growth is inseparable from short-run fluctuation. This is particularly true if these short-run factors persist, as they often do, for months or even years and thus provide an important, perhaps strategic stimulus to the very forces which make long-run growth possible.

The fact that long-run growth is strongly affected by short-run fluctuation forces us to reexamine the relationship between price-level shifts and growth in the light of the conclusions reached in the first half of this paper regarding economic stability. If it is true that our economy has changed its character enough that a gradual upward movement in the price level is a necessary condition of relatively prosperous short-run business activity, this is a fact of

great importance to economic growth. It would mean that efforts to restrain inflation by measures focusing on demand would not only create unemployment; they would inhibit the process of growth itself. Or conversely, we would conclude that inflation, in some uncertain degree, has become a necessary prerequisite to growth.

This is a distressing conclusion, at least to those who accept the premise in our opening paragraph to the effect that price stability is socially desirable. It is distressing because, while economic stability is a desirable objective, economic growth in today's world of international conflict is an imperative. The evidence is not conclusive, but it is strongly suggestive, that this growth cannot be reconciled with price stability.

## APPENDIX

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In connection with this study of The Relationship of Prices to Economic Stability and Growth, it is possible that use may be made of tables which were contained in the staff materials, Productivity, Prices, and Incomes, published by the committee last July. Therefore, the staff, with the assistance of the Bureau of Labor Statistics, United States Department of Labor, has prepared a group of supplementary tables which include the most recent data and revisions in data.

Because of the large number of tables contained in Productivity, Prices, and Incomes, and the amount of time which would be involved if all tables were revised, only tables for which revised data are not readily available in current publications are included in this appendix. Each supplementary table is numbered to correspond with the table it revises.

For other tables, revised and preliminary figures may be found in such publications as Economic Indicators, Survey of Current Business, etc.

TABLE 1.—*Indexes of output: Real gross national product, industrial production, and farm output, 1953-57*

[1947-49=100]

Period	Real gross national product <sup>1</sup>	Industrial production					Farm output
		Total	Manufactures			Minerals	
			Total	Durable	Nondurable		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
1953.....	127.5	134	136	153	118	116	108
1954.....	126.0	125	127	137	116	111	108
1955.....	134.9	139	140	155	126	122	112
1956.....	138.8	143	144	159	129	129	<sup>2</sup> 113
1957.....	140.1	143	145	160	130	128	<sup>2</sup> 113
Seasonally adjusted							
1956—November.....	( <sup>3</sup> )	146	147	165	129	130	( <sup>3</sup> )
December.....	( <sup>3</sup> )	147	149	167	130	130	( <sup>3</sup> )
1957—January.....	( <sup>3</sup> )	145	147	163	130	131	( <sup>3</sup> )
February.....	( <sup>3</sup> )	146	147	164	131	132	( <sup>3</sup> )
March.....	( <sup>3</sup> )	145	147	163	131	132	( <sup>3</sup> )
April.....	( <sup>3</sup> )	144	145	160	130	131	( <sup>3</sup> )
May.....	( <sup>3</sup> )	144	145	160	131	130	( <sup>3</sup> )
June.....	( <sup>3</sup> )	145	147	163	131	127	( <sup>3</sup> )
July.....	( <sup>3</sup> )	145	147	162	131	128	( <sup>3</sup> )
August.....	( <sup>3</sup> )	145	147	163	132	129	( <sup>3</sup> )
September.....	( <sup>3</sup> )	144	146	160	131	129	( <sup>3</sup> )
October.....	( <sup>3</sup> )	142	143	156	130	127	( <sup>3</sup> )
November.....	( <sup>3</sup> )	139	141	154	128	123	( <sup>3</sup> )
December.....	( <sup>3</sup> )	135	137	146	127	122	( <sup>3</sup> )
1958—January.....	( <sup>3</sup> )	133	134	143	126	121	( <sup>3</sup> )
February.....	( <sup>3</sup> )	130	131	137	125	119	( <sup>3</sup> )
March <sup>2</sup> .....	( <sup>3</sup> )	128	129	135	124	113	-----

<sup>1</sup> Index of real gross national product in 1947 dollars.<sup>2</sup> Preliminary.<sup>3</sup> Not available.

Sources: Col. (1)—Department of Commerce, Office of Business Economics.

Cols. (2) through (6)—Board of Governors of the Federal Reserve System.

Col. (7)—Department of Agriculture. Index of net production which could be made available for use during year. 1957 estimate is based on December 1957 Crop Report and other releases of Agricultural Estimates Division, Agricultural Marketing Service.

TABLE 3.—*Indexes of output per man-hour, 1951-57*

[1947-49=100]

Year	All manufacturing	Agriculture	Mining	Railroad transportation based on revenue traffic
	(1)	(2)	(3)	(4)
1950.....	111.8	112	106.5	112.0
1951.....	111.6	113	( <sup>1</sup> )	118.3
1952.....	115.3	120	( <sup>1</sup> )	118.9
1953.....	119.7	123	( <sup>1</sup> )	119.7
1954.....	125.6	127	( <sup>1</sup> )	125.7
1955.....	130.0	132	( <sup>1</sup> )	139.1
1956.....	133.2	136	( <sup>1</sup> )	145.6
1957.....	135.4	<sup>2</sup> 141	( <sup>1</sup> )	<sup>2</sup> 146.3

<sup>1</sup> Not available.<sup>2</sup> Preliminary.

Source:

Col. (1)—From table 54.

Col. (2)—Department of Agriculture.

Cols. (3) and (4)—Bureau of Labor Statistics, Department of Labor.

TABLE 3A.—*Indexes of output per man-hour for the private economy, 1948-57*

[1947=100]

Year	Based on man-hours paid <sup>1</sup>					Based on man-hours worked <sup>2</sup>		
	Total	Agriculture <sup>3</sup>	Nonagricultural industries			Total	Agriculture <sup>3</sup>	Nonagricultural industries
			Total	Manufacturing <sup>4</sup>	Non-manufacturing			
1948.....	104.9	123.4	102.5	102.5	102.8	104.2	123.7	101.7
1949.....	107.0	114.7	106.0	104.7	107.2	105.4	113.8	104.2
1950.....	115.6	131.8	112.7	113.1	112.8	114.5	131.4	111.5
1951.....	118.1	129.8	114.9	114.6	115.1	118.8	129.0	115.7
1952.....	121.7	138.7	117.5	116.4	118.1	123.2	138.0	119.2
1953.....	126.2	153.6	120.4	120.3	120.2	127.8	152.7	122.2
1954.....	129.0	167.1	122.4	123.7	121.9	131.5	166.3	125.1
1955.....	133.5	169.7	126.8	130.9	124.7	136.3	168.9	129.8
1956.....	134.6	175.8	127.1	131.4	125.1	137.9	175.0	130.6
1957 <sup>5</sup> .....	137.0	183.8	128.6	132.4	127.1	140.9	183.4	132.6

<sup>1</sup> "Man-hours paid" were derived from Bureau of Labor Statistics figures for the nonagricultural component and Bureau of the Census information for the agricultural component. They include the hours of unpaid family workers in addition to wage and salaried workers and the self-employed. They cover paid holidays, vacations, and sick leave.

<sup>2</sup> "Man-hours worked" were derived from data of the Bureau of the Census, Department of Commerce. Like "man-hours paid," they include the hours of all persons, whether employees or employers. They incorporate adjustments designed to eliminate holidays, vacations, and sick leave.

<sup>3</sup> Differs in concept from Department of Agriculture's productivity series based on requirements of equivalent adult man-hours.

<sup>4</sup> Derived from a Bureau of Labor Statistics index of net output for 1947-53 extended with the aid of Office of Business Economics data.

<sup>5</sup> Preliminary, subject to revision.

NOTE.—The indexes in this table were computed by Department of Labor, Bureau of Labor Statistics, from estimates of real product and man-hours. The real product estimates, referring to 1947 prices, are based primarily on national product statistics of the Department of Commerce, Office of Business Economics.

Source: Economic Report of the President, January 1958, p. 108. Computed by Department of Labor (see note above).

TABLE 9.—*Percentage distribution of national income by industrial origin, 1953-57*

[Percent]

Year	National income	Government and Government enterprises	Agriculture, forestry and fisheries	Rest of the world	Private non-agricultural industries
1953.....	100	11.7	5.8	0.5	82.0
1954.....	100	12.0	5.6	.6	81.8
1955.....	100	11.6	5.0	.6	82.8
1956.....	100	11.7	4.7	.6	83.0
1957.....	100	11.9	4.7	.7	82.7

Year	Income originating in—								
	Private non-agricultural industries	Mining	Contract construction	Manufacturing	Wholesale and retail trade	Finance, insurance and real estate	Transportation	Communications and public utilities	Services
1953.....	100	2.2	6.1	38.9	20.4	10.6	6.4	4.0	11.5
1954.....	100	2.0	6.3	36.8	20.9	11.5	5.9	4.4	12.1
1955.....	100	2.0	6.2	38.2	20.4	10.9	5.9	4.3	12.1
1956.....	100	2.1	6.2	37.9	20.3	10.8	5.9	4.4	12.5
1957.....	100	2.1	6.1	37.2	20.5	10.9	5.8	4.5	12.8

NOTE.—Detail may not add to totals because of rounding.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957 and February 1958.

TABLE 10.—National income by distributive shares, 1953-57

[Billions of dollars]

Year	Total national income	Compensation of employees	Proprietors' and rental income	Corporate profits and inventory valuation adjustment					Net interest	Addendum: Gross national product
				Total	Profits before tax		Inventory valuation adjustment			
					Total	Profits tax liability		Profits after tax		
1953.....	302.1	208.1	49.3	36.0	37.0	20.3	16.7	-1.0	8.7	363.2
1954.....	299.0	206.8	49.1	33.1	33.5	17.4	16.0	-.3	9.8	361.2
1955.....	324.1	223.1	49.4	40.7	42.5	21.5	21.0	-1.7	10.5	391.7
1956.....	343.6	241.4	49.0	40.4	43.0	22.0	21.0	-2.6	11.9	414.7
1957.....	358.0	254.4	51.2	39.5	41.0	21.0	20.0	-1.5	12.8	434.4
Seasonally adjusted quarterly totals at annual rates										
1953—4th quarter....	295.7	207.6	49.1	29.8	29.7	16.3	13.4	.2	9.2	357.5
1954—1st quarter....	296.5	205.7	49.3	32.0	32.2	16.8	15.4	-.2	9.5	358.1
2d quarter.....	297.0	205.7	48.4	33.2	33.4	17.4	16.0	-.2	9.6	358.7
3d quarter.....	298.2	206.0	49.8	32.4	32.7	17.0	15.7	-.3	9.9	360.0
4th quarter.....	304.0	209.7	49.1	35.0	35.5	18.5	17.0	-.5	10.2	367.7
1955—1st quarter....	311.4	214.0	48.7	38.2	39.4	20.0	19.5	-1.2	10.5	379.0
2d quarter.....	321.5	221.3	49.6	39.9	40.7	20.6	20.1	-.9	10.7	387.7
3d quarter.....	328.3	226.1	49.6	41.6	43.6	22.1	21.5	-2.0	11.0	397.0
4th quarter.....	334.9	230.8	49.6	43.2	46.1	23.4	22.7	-2.9	11.3	402.8
1956—1st quarter....	335.8	234.5	49.3	40.5	43.3	22.1	21.2	-2.8	11.5	405.2
2d quarter.....	340.6	240.0	49.7	39.1	42.4	21.6	20.7	-3.2	11.7	410.8
3d quarter.....	344.5	242.7	50.0	39.8	40.8	20.8	19.9	-1.0	12.0	416.7
4th quarter.....	353.3	247.9	50.7	42.4	45.6	23.3	22.3	-3.2	12.3	426.0
1957—1st quarter....	356.6	251.1	50.9	41.2	43.9	22.4	21.5	-2.7	12.5	429.9
2d quarter.....	358.5	254.0	51.2	40.7	42.0	21.4	20.5	-1.3	12.7	435.5
3d quarter.....	362.6	257.0	51.7	40.9	41.8	21.3	20.4	-.9	13.0	440.0
4th quarter.....	(*)	255.3	51.3	(*)	(*)	(*)	(*)	(*)	13.3	432.6

See footnotes, p. 689.

TABLE 10.—National income by distributive shares, 1953-57—Continued

[Billions of dollars]

Year	Total national income	Compensation of employees	Proprietors' and rental income <sup>1</sup>	Corporate profits and inventory valuation adjustment				Net interest	Addendum: Gross national product
				Total	Profits before tax		Inventory valuation adjustment		
					Total	Profits tax liability			
Percent distribution									
1953.....	100.0	68.9	16.3	11.9	12.2	6.7	5.5	-3	2.9
1954.....	100.0	69.2	16.4	11.1	11.2	5.8	5.4	-1	3.3
1955.....	100.0	68.8	15.2	12.6	13.1	6.6	6.5	-5	3.2
1956.....	100.0	70.2	14.5	11.8	12.5	6.4	6.1	-8	3.5
1957.....	100.0	71.1	14.3	11.0	11.5	5.9	5.6	-4	3.6
1953—4th quarter.....	100.0	70.2	16.6	10.1	10.0	5.5	4.5	-1	3.1
1954—1st quarter.....	100.0	69.3	16.7	10.8	10.9	5.7	5.2	-1	3.2
2d quarter.....	100.0	69.2	16.3	11.2	11.2	5.9	5.4	-1	3.2
3d quarter.....	100.0	69.1	16.7	10.9	11.0	5.7	5.3	-1	3.3
4th quarter.....	100.0	69.0	16.2	11.5	11.7	6.1	5.6	-2	3.4
1955—1st quarter.....	100.0	68.7	15.6	12.3	12.7	6.4	6.3	-4	3.4
2d quarter.....	100.0	68.8	15.4	12.4	12.7	6.4	6.3	-3	3.3
3d quarter.....	100.0	68.9	15.1	12.7	13.3	6.7	6.5	-6	3.4
4th quarter.....	100.0	68.9	14.8	12.9	13.8	7.0	6.8	-9	3.4
1956—1st quarter.....	100.0	69.8	14.7	12.1	12.9	6.6	6.3	-8	3.4
2d quarter.....	100.0	70.5	14.6	11.5	12.4	6.3	6.1	-9	3.4
3d quarter.....	100.0	70.4	14.5	11.6	11.8	6.0	5.8	-3	3.5
4th quarter.....	100.0	70.2	14.4	12.0	12.9	6.6	6.3	-9	3.5
1957—1st quarter.....	100.0	70.6	14.3	11.6	12.3	6.3	6.0	-8	3.5
2d quarter.....	100.0	70.9	14.3	11.4	11.7	6.0	5.7	-4	3.5
3d quarter.....	100.0	70.9	14.3	11.3	11.5	5.9	5.6	-2	3.6
4th quarter <sup>2</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----

<sup>1</sup> Includes noncorporate inventory valuation adjustment.<sup>2</sup> Preliminary.<sup>3</sup> Not available.

NOTE.—Detail may not add to totals because of rounding.

NOTE.—These estimates are based through 1954 on profits reported on Federal income tax returns (figures for later years are preliminary extrapolations) and conform in most respects to the accounting principles embodied in the tax laws. Certain exceptions to this conformity should be noted, however. The estimates do not reflect capital gains and losses, depletion charges, or dividend income from other United States corporations; and before-tax profits are gross of State as well as Federal income taxes. Mutual life-insurance companies and other mutual institutions are excluded. The tax return data are adjusted systematically to exclude from the national totals dividends and branch profits accruing to foreigners from production in the United States, and to include corresponding items accruing to United States residents from production abroad. The former are included in the values shown for individual domestic industries, and are offset in the all-industry total by netting them against the inflows from abroad in deriving the series for the rest-of-the-world industry. All these international flows are measured net of taxes. In measuring total national income, the corporate profits item is further adjusted to exclude inventory gains and losses arising under the business accounting practice of charging inventories at prices other than current replacement cost.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957 and February 1958.

TABLE 11.—Income originating in United States corporate business, by distributive shares, 1953-56

Year	Total income originating	Compensation of employees	Net interest	Corporate profits and inventory valuation adjustment				
				Total	Profits before tax			Inventory valuation adjustment
					Total	Profits tax liability	Profits after tax	
Billions of dollars								
1953.....	165.7	130.0	0.8	34.9	35.9	20.3	15.6	-1.0
1954.....	160.4	127.5	1.1	31.7	32.0	17.4	14.6	-.3
1955.....	178.6	133.3	1.1	39.2	40.9	21.5	19.4	-1.7
1956.....	189.7	149.9	1.1	38.7	41.2	22.0	19.3	-2.6
Percent distribution								
1953.....	100.0	78.5	0.5	21.1	21.7	12.3	9.4	-0.6
1954.....	100.0	79.5	.7	19.8	20.0	10.8	9.1	-.2
1955.....	100.0	77.4	.6	21.9	22.9	12.0	10.9	-.1
1956.....	100.0	79.0	.6	20.4	21.7	11.6	10.2	-1.4

NOTE.—Detail may not add to totals because of rounding.

Source: Department of Commerce, Office of Business Economics.

TABLE 21.—Corporate profits in the United States, 1953-57

[Billions of dollars]

Period	Corporate profits before Federal and State income and excess profits taxes	Tax liability	Corporate profits after Federal and State income and excess profits taxes		
			Total	Net corporate dividend payments	Undistributed corporate profits
1953.....	37.0	20.3	16.7	9.3	7.4
1954.....	33.5	17.4	16.0	9.9	6.1
1955.....	42.5	21.5	21.0	11.0	9.9
1956.....	43.0	22.0	21.0	11.9	9.2
1957 <sup>1</sup> .....	41.0	21.0	20.0	12.1	8.0
Seasonally adjusted at annual rates					
1953—4th quarter.....	29.7	16.3	13.4	9.5	3.9
1954—1st quarter.....	32.2	16.8	15.4	9.6	5.8
2d quarter.....	35.4	17.4	16.0	9.7	6.3
3d quarter.....	32.7	17.0	15.7	9.8	5.9
4th quarter.....	35.5	18.5	17.0	10.1	6.9
1955—1st quarter.....	39.4	20.0	19.5	10.2	9.3
2d quarter.....	40.7	20.6	20.1	10.4	9.7
3d quarter.....	43.6	22.1	21.5	10.8	10.7
4th quarter.....	46.1	23.4	22.7	12.0	10.7
1956—1st quarter.....	43.3	22.1	21.2	11.7	9.5
2d quarter.....	42.4	21.6	20.7	12.0	8.7
3d quarter.....	40.8	20.8	19.9	12.1	7.8
4th quarter.....	45.6	23.3	22.3	11.5	10.8
1957—1st quarter.....	43.9	22.4	21.5	12.4	9.1
2d quarter.....	42.0	21.4	20.5	12.5	8.0
3d quarter.....	41.8	21.3	20.4	12.6	7.8
4th quarter.....	.....	.....	.....	11.7	.....

<sup>1</sup> Preliminary estimate.

NOTE.—Detail will not necessarily add to totals because of rounding.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957, Economic Indicators (prepared for the Joint Economic Committee by the Council of Economic Advisers), April 1958.

TABLE 22.—*Leading corporations in all industries and in manufacturing: Indexes of return on net worth and margin on sales, 1955-57*

[1947-49=100]

Year	Leading corporations <sup>1</sup>			
	All industries		Manufacturing	
	Return on net worth <sup>2</sup>	Margin on sales <sup>2</sup>	Return on net worth <sup>2</sup>	Margin on sales <sup>2</sup>
1955.....	98.6	98.6	89.7	94.0
1956.....	92.0	91.3	88.4	84.2
1957.....	83.0	88.4	82.3	82.7

<sup>1</sup> As selected by First National City Bank of New York.<sup>2</sup> Indexes derived from year-to-year percent changes computed from data for identical firms for each successive pairs of years from table 23 following.

Source: Computed from First National City Bank data as shown in table 23.

TABLE 23.—*Leading corporations in all industries and in manufacturing: Profits after taxes, net worth, return on net worth, and margin on sales, 1955-57*

[Dollar figures in millions]

Year	Leading corporations <sup>1</sup>									
	All					Manufacturing				
	Number	Profits after taxes <sup>2</sup>	Net worth, Jan. 1 <sup>3</sup>	Return on net worth	Margin on sales <sup>4</sup>	Number	Profits after taxes <sup>2</sup>	Net worth, Jan. 1 <sup>3</sup>	Return on net worth	Margin on sales <sup>4</sup>
1955.....	3,400	\$18,396	\$153,729	Percent	Percent	1,765	\$12,373	\$82,599	Percent	Percent
	3,485	18,506	155,047	12.0	6.8	1,843	12,503	83,677	15.0	6.7
1956.....	3,485	19,169	169,594	11.9	6.3	1,843	12,724	91,659	14.9	6.0
	3,521	19,347	170,883	11.3	6.3	1,835	12,793	92,394	13.8	5.9
1957.....	3,521	19,560	184,803	10.6	6.1	1,835	12,903	100,545	12.8	5.9

<sup>1</sup> As selected by First National City Bank of New York.<sup>2</sup> Profits after taxes are shown as reported to stockholders, after depreciation, interest, taxes, and other charges and reserves, but before dividends. They are not comparable with totals given elsewhere in this appendix for all private corporations, which are based chiefly on tax return data adjusted to exclude dividends received by the companies, capital gains, etc. (See general note on Department of Commerce estimates of corporate profits appended to table 10.)<sup>3</sup> Book net assets are the excess of total balance sheet assets over liabilities.<sup>4</sup> Margin on sales are computed for all selected companies publishing sales or gross income figures. Since 1948 about 90 percent of these companies, excluding the finance group, have published these data.

Source: First National City Bank of New York, Monthly Letter, April issues, 1956-58.

TABLE 24.—*Profits before and after tax of large manufacturing and public utility corporations,<sup>1</sup> as tabulated by the Federal Reserve Board, 1954-57*

[Millions of dollars]

Period	Profits		Period	Profits	
	Before tax <sup>2</sup>	After tax		Before tax <sup>2</sup>	After tax
1954.....	11,251	6,166	1956—1st quarter.....	3,904	2,008
1955.....	15,177	8,040	2d quarter.....	3,796	2,039
1956.....	14,407	7,760	3d quarter.....	2,025	1,604
1954—4th quarter.....	3,026	1,811	4th quarter.....	3,782	2,108
1955—1st quarter.....	3,659	1,886	1957—1st quarter.....	4,116	2,169
2d quarter.....	3,984	2,088	2d quarter.....	3,823	2,043
3d quarter.....	3,638	1,907	3d quarter.....	3,315	1,819
4th quarter.....	3,896	2,157	4th quarter <sup>3</sup> .....	3,485	1,991

<sup>1</sup> Companies are those included in the Federal Reserve Board tabulations of sales, profits, and dividends of large corporations. Profits shown here have been compiled from reports to stockholders or to Federal regulatory agencies. They are not comparable with the totals given elsewhere in the appendix for all private corporations, which are based chiefly on tax return data adjusted to exclude dividends received by the companies, capital gains, etc. (See general note on Department of Commerce estimates of corporate profits, table 10 above.)

<sup>2</sup> Profits before tax refer to income after all charges and before Federal income taxes and dividends.

<sup>3</sup> Preliminary.

Source: Board of Governors of the Federal Reserve System.

TABLE 25.—*Dividends and undistributed corporate profits as percentages of corporate profits after tax, 1953-57*

[Percent]

Period	Net dividend payments	Undistributed corporate profits	Period	Net dividend payments	Undistributed corporate profits
1953.....	55.6	44.4	1955—1st quarter.....	52.3	47.7
1954.....	61.9	38.1	2d quarter.....	51.7	48.3
1955.....	52.7	47.3	3d quarter.....	50.2	49.8
1956.....	56.4	43.6	4th quarter.....	52.9	47.1
1957 <sup>1</sup> .....	60.0	40.0	1956—1st quarter.....	55.2	44.8
1953—4th quarter.....	70.9	29.1	2d quarter.....	58.0	42.0
1954—1st quarter.....	62.3	37.7	3d quarter.....	60.8	39.2
2d quarter.....	60.6	39.4	4th quarter.....	51.6	48.4
3d quarter.....	62.4	37.6	1957—1st quarter.....	57.7	42.3
4th quarter.....	59.4	40.6	2d quarter.....	61.0	39.0
			3d quarter.....	61.8	38.2

<sup>1</sup> Preliminary.

Source: Computed from data in table 21, above.

TABLE 31.—*Income originating in manufacturing, by distributive shares, 1953-56*

Year	Total national income (1)	Compensation of employees (2)	Corporate profits before tax			Proprietors' income, net interest, and inventory valuation adjustment (6)
			Total (3)	Corporate tax liability (4)	Corporate profits after tax (5)	
Millions of dollars						
1953.....	96,351	74,701	21,218	12,325	8,893	432
1954.....	89,978	70,960	18,418	9,774	8,644	600
1955.....	102,374	77,775	24,788	12,928	11,860	-189
1956.....	108,075	83,725	24,611	13,093	11,518	-261
Percentage distribution						
1953.....	100.0	77.5	22.0	12.8	9.2	0.4
1954.....	100.0	78.9	20.5	10.9	9.6	.7
1955.....	100.0	76.0	24.2	12.6	11.6	-.2
1956.....	100.0	77.5	22.8	12.1	10.7	-.2

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957.

Note: Detail may not add to totals because of rounding.

TABLE 42.—*Implicit price deflators for gross national product by major segments, 1953-57*

[1947=100]

	1953	1954	1955	1956	1957
Gross national product.....	119.0	119.9	121.3	124.9	129.6
Personal consumption expenditures.....	116.8	117.7	118.1	120.1	124.0
Durable goods.....	111.7	109.0	110.7	111.3	115.0
Nondurable goods.....	112.9	113.4	112.5	113.9	117.6
Services.....	125.0	128.1	130.1	133.2	137.5
Gross private domestic investment.....					
New construction.....	130.1	129.7	132.2	138.0	142.9
Residential nonfarm.....	127.4	125.9	129.0	133.1	135.1
Other.....	132.4	133.4	135.6	142.4	149.4
Producers' durable equipment.....	127.8	128.1	130.9	139.6	147.3
Change in business inventories.....					
Net foreign investment.....					
Government purchases of goods and services.....	121.2	125.2	129.7	136.3	142.4
Federal.....	116.3	119.2	123.6	129.9	135.3
State and local.....	134.6	137.3	140.3	146.6	153.7
Gross government product.....	128.9	134.1	142.3	150.2	158.1
Other gross product.....	118.1	118.6	119.7	122.9	127.4

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957 and February 1958.

TABLE 43.—*Indexes of earnings and wage rates in manufacturing, agriculture, and Government, 1954-57*

[1947-49=100]

Year	All manufacturing		Agriculture composite wage rate	Government
	Average hourly	Average weekly		
	(1)	(2)		
1954.....	136.1	135.6	117.3	127.5
1955.....	141.4	144.4	119.9	135.3
1956.....	149.0	150.9	125.2	142.8
1957.....	155.8	155.4	129.3	150.3

Sources: Col. (1)—From table 44 converted to an index by the staff of the Joint Economic Committee.  
 Col. (2)—From table 45 converted to an index by the staff of the Joint Economic Committee.  
 Col. (3)—From table 46 with the base of the index shifted from 1910-14 to 1947-49=100.  
 Col. (4)—Price deflator for Government gross product (table 42), which consists of compensation of general Government employees, data for 1929-55 computed by the Office of Business Economics, Department of Commerce, converted from 1947=100 to 1947-49=100.

TABLE 47.—*Money and interest rates, common stock dividend yields and earnings-price ratios, 1955-57*

[Percent per annum]

Period	Prime commercial paper (4 to 6 months)	Bond yields (107 issues)			Common stocks (174 issues)					
					Dividend yields			Earnings-price ratios		
		Industrials	Public utilities	Railroads	Industrials	Public utilities	Railroads	Industrials	Public utilities	Railroads
1955.....	2.18	3.19	3.22	3.34	3.93	4.50	4.88	8.04	6.52	12.12
1956.....	3.31	3.50	3.54	3.65	3.89	4.68	5.51	6.93	6.75	11.64
1957 <sup>1</sup> .....	3.81	4.12	4.18	4.32	4.13	4.92	6.86	7.09	6.80	11.39
1956—March.....	3.00	3.24	3.27	3.37	3.68	4.52	5.02	6.90	6.36	8.19
June.....	3.38	3.39	3.44	3.56	3.82	4.68	5.35	6.95	6.70	12.32
September.....	3.50	3.68	3.73	3.83	4.04	4.79	5.93	6.00	6.92	12.03
December.....	3.63	3.95	3.93	4.08	3.90	4.84	6.01	7.60	6.84	14.66
1957—March.....	3.63	3.90	3.95	4.04	4.16	4.85	6.47	7.82	6.74	10.01
June.....	3.79	4.14	4.06	4.26	3.79	4.96	6.31	6.99	6.76	10.40
September.....	4.00	4.31	4.45	4.56	4.27	5.12	7.34	6.70	7.03	12.50
December <sup>1</sup> .....	3.81	4.11	4.29	4.53	4.58	4.89	8.31	7.40	6.80	15.67
1958—February <sup>1</sup> .....	2.63	3.86	3.87	4.29	4.49	4.62	7.06	(?)	(?)	(?)

<sup>1</sup> Preliminary.<sup>2</sup> Not available.

Sources: Prime commercial paper, Board of Governors of the Federal Reserve System. Bond yields and earnings and price data for common stocks, Moody's Investors Service. Earnings-price ratios calculated by staff, Joint Economic Committee, from Moody's data.

TABLE 48.—*Price-cost relations as illustrated by national income and product data, 1953-57*

[1947=100]

Year	Gross national product deflator	Compensation of employees per unit	Property income or cost per unit			Other costs per unit	Net taxes per unit
			Total	Capital consumption allowances	All other		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1953.....	119.0	122.9	111.1	142.7	104.6	125.7	140.9
1954.....	119.9	123.8	113.1	157.9	103.8	122.4	129.4
1955.....	121.3	124.6	115.6	161.1	106.2	123.7	136.8
1956.....	124.9	131.1	115.7	169.7	104.5	122.9	142.0
1957.....	129.6	136.9	118.1	182.0	104.9	130.0	145.2

Sources: Col. (1). Office of Business Economics, Department of Commerce.

Col. (2). Computed by dividing total compensation of employees by gross national product in constant 1947 dollars; data from the Office of Business Economics.

Col. (3). Combination of cols. (4) and (5).

Col. (4). Capital consumption allowances in current dollars divided by gross national product in constant 1947 dollars; data from the Office of Business Economics.

Col. (5). Computed by subtracting compensation of employees from national income and dividing the result by gross national product in constant 1947 dollars; data from the Office of Business Economics.

Col. (6). Computed by dividing all other costs included in gross national product but not accounted for directly in col. (2) through col. (5), by gross national product in constant 1947 dollars. This consists of: subsidies minus current surplus of Government enterprises, indirect business tax and nontax liability, business transfer, payments, and statistical discrepancy.

Col. (7). Net taxes consist of total Government receipts (including Federal, State, and local governments) as estimated by the National Income Division of the Office of Business Economics, minus the following items, which represent transfers back to the incomes of individuals or businesses: subsidies minus current surplus of Government enterprises, net interest paid by Government, and Government transfer payments.

Col. (7) is computed by dividing the resultant estimate of net taxes by gross national product in constant 1947 dollars.

TABLE 50 (revised).—Comparison of indexes of labor and nonlabor payments, prices, real earnings and productivity <sup>1</sup> for the private nonfarm sector of the economy, 1947-1957

[1947=100]

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957 <sup>2</sup>
Comparison of the nonfarm labor and nonlabor payments and prices:										
1. Employee compensation per dollar of real product.....	106.0	105.0	104.9	112.9	117.0	120.6	121.7	121.9	128.1	133.0
2. Wages and salaries per dollar of real product.....	106.2	105.0	104.0	111.6	115.7	119.1	119.8	119.9	125.8	130.6
3. Nonlabor payments per dollar of real product.....	107.4	112.1	114.8	121.0	120.8	121.3	123.2	126.4	126.2	129.9
4. Implicit price change of nonfarm sector.....	106.6	108.1	109.3	116.4	118.6	120.9	122.4	123.9	127.2	131.6
Comparison of nonfarm real earnings and productivity:										
5. Average hourly compensation in constant purchasing power.....	101.0	105.2	110.1	110.8	114.7	119.4	123.1	127.7	132.8	135.2
6. Average hourly wages and salaries in constant purchasing power.....	101.3	105.2	109.2	109.6	113.4	118.0	121.2	125.6	130.5	132.8
7. Real product per man-hour—all persons—nonfarm sector.....	102.5	106.0	112.7	114.9	117.5	120.4	122.4	126.8	127.1	128.6
8. Real product per man-hour—all persons—total private sector.....	104.9	107.0	115.6	118.1	121.7	126.2	129.0	133.5	134.6	137.0
Underlying data:										
9. Total nonfarm product (current dollars).....	110.9	111.7	124.7	141.7	149.6	159.2	158.2	173.3	184.1	193.0
10. Total nonfarm real product (1947 constant prices).....	104.0	103.3	114.1	121.7	126.1	131.7	129.3	139.9	144.7	146.6
11. Employees compensation (current dollars).....	110.2	108.5	119.7	137.4	147.6	158.8	157.3	170.5	185.3	195.0
12. Wages and salaries (current dollars).....	110.5	108.5	118.7	135.8	145.9	156.9	154.9	167.8	182.1	191.4
13. Nonlabor payments (current dollars).....	111.7	115.8	131.0	147.3	152.3	159.7	159.3	176.8	182.6	190.4
14. Man-hours of employees.....	101.4	96.8	101.0	106.7	108.3	111.0	106.3	111.4	114.7	114.7
15. Consumer Price Index.....	107.6	106.6	107.6	116.2	118.8	119.8	120.2	119.9	121.7	125.7
16. Average hourly compensation.....	108.7	112.1	118.5	128.8	136.3	143.1	148.0	153.1	161.6	170.0
17. Average hourly wages and salaries.....	109.0	112.1	117.5	127.3	134.7	141.4	145.7	150.6	158.8	166.9

<sup>1</sup> Indexes of productivity for the total private economy are also included.

<sup>2</sup> Preliminary.

Line 1. Line 11 divided by line 10.

Line 2. Line 12 divided by line 10.

Line 3. Line 13 divided by line 10.

Line 4. Line 9 divided by line 10.

Line 5. Line 16 divided by line 15.

Line 6. Line 17 divided by line 15.

Lines 7 and 8. Economic Report of the President, 1958, table E-1, p. 108.

Line 9. Economic Report of the President, 1958, table F-3, p. 120. Gross private nonfarm product in current price. Source: U. S. Department of Commerce and Council of Economic Advisers.

Line 10. Derived by subtracting agriculture product in 1947 dollars from total private product in 1947 dollars. Source: U. S. Department of Commerce, Survey of Current Business, National Income Supplement, 1954, national income numbers July 1956, and July 1957—table 40, and June 1957 and November 1957 numbers, table 9. The 1957 figure for agriculture product from Council of Economic Advisers.

Line 11. Data for 1947-55 from U. S. Department of Commerce Survey of Current Business, National Income Supplement, 1954, national income numbers July 1956 and July 1957, table 14. Derived by subtracting compensation of farm and general Government employees from total compensation. Includes employer's contributions to social security, private insurance and pension funds, compensation for injuries, and a few other minor items of income in addition to wages and salaries. The 1957 figure is a BLS estimate.

Line 12. Same source as line 11, table 15. Wages and salaries include paid vacations, holidays, sick leave, and other paid time off.

Line 13. Derived by subtracting employee compensation from total nonfarm gross private product. Includes corporate profits, capital consumption allowances, indirect taxes, net interest, income of unincorporated enterprises, net rental income and miscellaneous payments (including statistical discrepancy).

Line 14. Covers the hours of all private nonfarm employees, including those employed by government enterprises. The man-hour estimates do not include the hours of proprietors and unpaid family workers. The employee man-hours are estimated by the Bureau of Labor Statistics from the published series on employment and average weekly hours, supplemented by the use of national income and unpublished census labor force data for those areas not covered by the BLS series.

Line 15. Economic Report of the President, 1958, table F-38, p. 160, converted to 1947=100. Source: Bureau of Labor Statistics.

Line 16. Line 11 divided by line 14.

Line 17. Line 12 divided by line 14.

Source: U. S. Department of Labor, Bureau of Labor Statistics.

NOTE.—For some qualifications and limitations on the measure shown in this table, see the appendix to Productivity, Prices and Incomes, Joint Economic Committee, 1957. In addition, it should be noted that the measure of output per man-hour for the total private economy is affected by shifts between the farm and nonfarm sectors as well as shifts within these sectors, whereas nonfarm earnings are affected by shifts within the nonfarm sector only.

**TABLE 51.—All manufacturing: Indexes of wholesale prices of finished goods, unit value added, total compensation of all employees and production-worker payrolls per unit of output, 1952–57**

[1947–49=100]

Year	Wholesale prices of finished goods	Unit value added	Total compensation of all employees per unit of output	Payrolls per unit of output based on	
				Production-worker payrolls <sup>1</sup>	
				BLS	Census
	(1)	(2)	(3)	(4)	(5)
1952.....	111.5	114.8	116.1	109.3	(?)
1953.....	110.4	114.5	118.3	111.3	(?)
1954.....	110.7	116.0	120.4	108.4	(?)
1955.....	110.9	119.7	119.6	109.2	(?)
1956.....	114.0	123.2	125.3	112.1	(?)
1957.....	118.1	125.5	129.3	112.2	(?)

<sup>1</sup> Does not include wages and salaries of nonproduction workers. Production-worker payrolls include paid vacation, paid holidays, and sick leave and paid overtime but do not include other labor costs such as legally required payments by employers to old-age and survivors insurance and unemployment compensation, employer contributions to health and insurance plans, supplementary unemployment benefits and pension plans.

Payrolls per unit of output are determined by output per man-hour and average hourly earnings. The measure can be derived either as the ratio of total payrolls and production or payrolls per man-hour (average hourly earnings) and output per man-hour. If average hourly earnings are increasing, payrolls per unit will increase unless offset by proportionate increases in productivity. In interpreting estimates of payrolls per unit of output, it should be noted that the measures as usually constructed are affected by shifts between products with different levels of labor cost per unit.

Payrolls, and therefore payrolls per unit, include paid vacation, holidays, sick leave, and overtime. Where the ratio of payrolls per unit of output is derived by dividing payrolls per hour by output per hour, a question is often raised as to whether hours worked or hours paid should be used in computing the ratios. The answer is that for this purpose either concept can be used as long as the same hours measure used in deriving the payrolls per hour ratio is also used in deriving the output per hour ratio. This is true because the hours estimates in both ratios, if they are consistent with each other, cancel out leaving payrolls divided by production.

Payrolls per unit do not show the proportion of total value which is distributed to labor nor what is happening to other costs. To analyze changes in total production costs it is necessary to have additional data on changes in material costs, profits, taxes, overhead costs, and prices, as well as fringe benefit labor costs such as employer payments to pension plans, to social security and other non-wage-or-salary labor costs.

<sup>2</sup> Not available after 1947.

Sources: Col. (1)—Bureau of Labor Statistics, economic sector index of finished goods (code 3000); 1947–55, linked at 1947 to former wholesale price index of manufactured products, table D-5, p. 118, 1950 edition Handbook of Labor Statistics.

Col. (2)—Computed from table 53 by dividing col. (2) by col. (1).

Col. (3)—Computed from table 53 by dividing col. (3) by col. (1).

Col. (4)—Computed from table 53 by dividing col. (4) by col. (1).

Col. (5)—See table 54, col. 6.

TABLE 52.—All manufacturing: Monthly indexes of production, production-worker payrolls, production-worker payrolls per unit of output and prices of finished goods, December 1954–February 1958

[1947–49=100]

Period	Production (1)	Payrolls (2)	Production-worker payrolls per unit of output <sup>1</sup>		Wholesale prices of finished goods (5)
			Monthly (3)	12-month moving average (4)	
1954—July.....	116	131.9	113.7	108.7	111.1
August.....	125	134.8	107.8	108.3	111.1
September.....	127	138.0	108.7	108.1	110.6
October.....	132	139.1	105.4	107.8	110.2
November.....	132	142.2	107.7	107.7	110.6
December.....	129	143.1	110.9	107.6	110.2
1955—January.....	133	141.4	106.3	107.6	110.6
February.....	136	144.3	106.1	107.8	110.8
March.....	140	146.5	104.6	107.9	110.2
April.....	140	146.7	104.8	108.1	110.6
May.....	140	150.1	107.2	108.3	110.2
June.....	141	152.1	107.9	108.6	110.6
July.....	132	151.0	114.4	108.9	110.5
August.....	140	154.6	110.4	109.2	110.9
September.....	144	158.6	110.1	109.5	111.5
October.....	150	161.2	107.5	109.8	111.3
November.....	148	164.0	110.8	110.1	111.6
December.....	143	164.0	114.7	110.4	111.5
1956—January.....	144	159.3	110.6	110.6	111.8
February.....	146	158.1	108.3	110.8	112.0
March.....	145	158.2	109.1	111.0	112.3
April.....	146	158.5	108.6	111.3	112.7
May.....	142	156.4	110.1	111.5	113.6
June.....	142	158.5	111.6	111.7	114.0
July.....	129	150.5	116.7	111.9	114.0
August.....	143	161.5	112.9	112.1	114.1
September.....	148	166.7	112.6	112.2	115.3
October.....	153	169.0	110.5	112.3	115.6
November.....	149	168.2	112.9	112.5	116.2
December.....	146	171.4	117.4	112.6	116.2
1957—January.....	146	165.5	113.4	112.7	116.7
February.....	149	165.0	110.7	112.7	117.0
March.....	150	164.3	109.5	112.7	116.9
April.....	146	161.5	110.6	112.7	117.4
May.....	144	161.0	111.8	112.6	117.4
June.....	146	163.8	112.2	112.6	117.6
July.....	136	160.5	118.0	111.6	118.5
August.....	146	164.7	112.8	<sup>2</sup> 112.3	118.6
September.....	147	164.7	112.0	-----	118.8
October.....	147	162.6	110.6	-----	119.0
November.....	143	160.9	112.5	-----	119.6
December.....	135	157.4	116.6	-----	119.9
1958—January.....	134	149.3	<sup>3</sup> 111.4	-----	120.4
February.....	133	<sup>2</sup> 145.1	<sup>2</sup> 109.4	-----	<sup>2</sup> 120.2
March.....	<sup>2</sup> 131	<sup>2</sup> 143.3	<sup>2</sup> 109.4	-----	-----

<sup>1</sup> See note 1, table 51.<sup>2</sup> Preliminary.

Sources: Col. (1)—Federal Reserve index of industrial production for manufactures without seasonal adjustment.

Col. (2)—Bureau of Labor Statistics production-worker payroll index in manufacturing.

Col. (3)—Computed by dividing col. (2) by col. (1).

Col. (4)—Computed from col. (3).

Col. (5)—Bureau of Labor Statistics wholesale price index for finished goods.

**TABLE 53.—All manufacturing: Indexes of production, value added, compensation of employees, and production-worker payrolls, 1952-57**

[1947-49=100]

Year	Production	Value added	Total compensation of employees	Production-worker payrolls	Year	Production	Value added	Total compensation of employees	Production-worker payrolls
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
1952.....	125	143.5	145.1	136.6	1955.....	140	167.6	167.5	152.9
1953.....	136	155.7	160.9	151.4	1956.....	144	177.4	180.4	161.4
1954.....	127	147.3	152.9	137.7	1957.....	145	182.0	187.5	162.7

<sup>1</sup> Preliminary based on estimates staff, Joint Economic Committee.

Sources: Col. (1).—Board of Governors of the Federal Reserve System.

Col. (2).—Consists of national income originating in manufacturing plus depreciation changes incurred in manufacturing put on an index basis with 1947-49=100 from the Office of Business Economics, Department of Commerce.

Col. (3).—Office of Business Economics, Department of Commerce; consists of wages and salaries of all employees plus other labor income.

Col. (4).—Department of Labor, Bureau of Labor Statistics, Employment and Earnings.

**TABLE 54.—All manufacturing: Indexes of production, employment, productivity, payrolls, and production worker payrolls per unit of output, 1954-57**

[1947-49=100]

Year	Production	Production workers	Man-hours	Output per man-hour	Payrolls	Production worker payrolls per unit of output <sup>1</sup>
	(1)	(2)	(3)	(4)	(5)	(6)
1954.....	127.0	101.8	101.1	125.6	137.7	108.4
1955.....	140.0	105.6	107.7	130.0	152.9	109.2
1956.....	144.0	106.7	108.1	133.2	161.4	112.1
1957.....	145.0	104.5	107.1	135.4	162.7	112.2

<sup>1</sup> See note 1 to table 51.

Source: Col. (1)—Federal Reserve Board.

Col. (2, 3, 5)—Department of Labor, Bureau of Labor Statistics.

Col. (4)—Col. (1)÷col. (3).

Col. (6)—Col. (5)÷col. (1).

**TABLE 57.—All manufacturing: Indexes of output per man-hour and real average hourly earnings, 1954-57**

[1947-49=100]

Year	All manufacturing		Ratio of real average hourly earnings to output per man-hour
	Output per man-hour	Real average hourly earnings	
	(1)	(2)	(3)
1954.....	125.6	118.6	94.4
1955.....	130.0	124.0	95.4
1956.....	133.2	128.9	96.8
1957.....	135.4	126.4	93.4

Source: Col. 1—Table 54, col. 4.

Col. 2—Payrolls (table 54, col. 5) divided by man-hours (table 54, col. 3) adjusted to constant prices by dividing this result by the consumer price index (table 41, col. 1).

Col. 3—Col. 2 divided by Col. 1.

**TABLE 62.—Manufacturing of food and kindred products: Indexes of production, unit value and unit costs, 1953–56**

[1947–49=100]

Year	Production (1)	Income originating per unit (2)	Compensation of employees per unit (3)	All other income originating per unit			
				Total <sup>1</sup> (4)	Corporate profits before tax (5)	Corporate tax liability (6)	Corporate profits after tax (7)
1953.....	107	117	125	97	95	128	72
1954.....	106	117	130	87	91	120	70
1955.....	109	124	132	105	(?)	(?)	(?)
1956.....	113	123	136	91	(?)	(?)	(?)

<sup>1</sup> The total of all other income originating is derived by deducting compensation of employees from income originating. It therefore includes in addition to the corporate tax liability and corporate profits after taxes, which are used in deriving cols. (5) and (6), the following items: corporate inventory valuation adjustment; income of unincorporated enterprises and inventory valuation adjustment; and net interest.

<sup>2</sup> Not available.

Source: Production index, col. (1) is from the Board of Governors of the Federal Reserve System. Other columns derived from table 63 in a manner discussed in the text of Productivity, Prices, and Incomes.

**TABLE 63.—Income originating in manufacturing of food and kindred products, by distributive shares, 1953–56**

[Millions of dollars]

Year	Total income originating (1)	Compensation of employees (2)	Corporate profits			Proprietors' income, net interest, and inven- tory valuation adjustment (6)
			Total (3)	Corporate tax liability (4)	Corporate profits after tax (5)	
1953.....	7,919	6,028	1,650	935	724	232
1954.....	7,856	6,170	1,574	867	707	112
1955.....	8,546	6,461	(1)	(1)	(1)	(1)
1956.....	8,751	6,880	(1)	(1)	(1)	(1)

<sup>1</sup> Not available.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957.

TABLE 65.—*Net profits after taxes as percentage of stockholders' equity and as percentage of sales, leading food companies, 1954-56*

Year	Food processing companies <sup>1</sup>							5 whole-sale food distributors	8 retail food chains	
	8 baking companies	7 grains mill products companies	11 meat-packers	5 canning companies	10 dairy products companies	10 miscellaneous food companies	51 companies combined			
	Profits as percentage of stockholders' equity <sup>2</sup>									
1954.....	11.3	12.4	2.7	7.8	12.1	9.9	8.8	7.5	10.9	
1955.....	11.4	12.4	6.5	10.1	12.0	10.4	10.1	6.7	10.7	
1956.....	11.4	11.7	6.9	8.2	12.2	11.2	10.2	7.6	12.8	
	Profits as percentage of sales									
1954.....	3.4	2.9	.3	2.8	2.6	3.8	1.8	1.0	1.0	
1955.....	3.4	3.1	.8	3.6	2.6	4.0	2.2	.9	1.0	
1956.....	3.2	2.9	.8	2.9	2.6	4.1	2.2	1.0	1.1	

<sup>1</sup> Includes sugar and corn refining companies, processors of vegetable oils, and companies manufacturing a wide variety of packaged foods.

<sup>2</sup> Ratio of net profits to average of stockholders' equity at the beginning and end of the year. Stockholders' equity is excess of total balance sheet assets over liabilities.

Source: Compiled by the Department of Agriculture from financial statements reported in Moody's Industrials.

TABLE 67.—*Average annual percentage rates of net income after taxes to net worth of leading food manufacturing corporations for the years 1955-57*

[Percent]

Year	Baking	Dairy products	Meat packing	Sugar	Other food products	Soft drinks	Brewing	Distilling
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1955.....	12.0	12.1	6.8	5.5	11.8	14.3	8.7	6.5
1956.....	12.2	12.4	7.6	6.6	11.7	14.3	7.7	6.9
1957.....	12.6	12.1	4.3	8.9	11.3	14.2	7.2	7.3

NOTE.—Net income is taken as reported, after depreciation, interest, taxes, and other charges and reserves, but before dividends. Net worth includes book value of outstanding preferred and common stock and surplus account at beginning of each year and is based upon balance sheet book values of assets, which may differ widely from present-day values. The percentage rates indicate general earnings trends, but are not strictly comparable over a period of years because of (1) variation in number of available corporate reports included in the different annual tabulations upon which this summary is based, and (2) certain changes in industrial classification during the period.

Source: The First National City Bank of New York.

TABLE 68.—*Food and kindred products: Sales, profits, and dividends, 1954-57*<sup>1</sup>

[Dollar amounts in millions]

Period	Sales	Profits before tax <sup>2</sup>	Profits after tax	Dividends	Profits as percent of sales		Dividends as percent of profits after tax
					Before tax	After tax	
1954.....	\$5,476	\$462	\$224	\$156	8.4	4.1	69.6
1955.....	5,833	499	244	160	8.6	4.2	65.6
1956.....	6,300	561	275	166	8.9	4.4	60.4
1954—4th quarter.....	1,435	110	57	46	7.7	4.0	80.7
1955—1st quarter.....	1,378	99	46	36	7.2	3.3	78.3
2d quarter.....	1,469	132	63	36	9.0	4.3	57.1
3d quarter.....	1,491	140	68	39	9.4	4.6	57.4
4th quarter.....	1,495	128	66	50	8.6	4.4	75.8
1956—1st quarter.....	1,530	126	58	37	8.2	3.8	63.8
2d quarter.....	1,569	149	71	38	9.5	4.5	53.5
3d quarter.....	1,561	141	71	41	9.0	4.5	57.7
4th quarter.....	1,640	145	74	50	8.8	4.5	67.6
1957—1st quarter.....	1,618	133	63	39	8.2	3.9	61.9
2d quarter.....	1,642	154	75	40	9.4	4.6	53.3
3d quarter.....	1,669	158	77	41	9.5	4.6	53.2
4th quarter.....	1,691	157	79	54	9.3	4.7	68.4

<sup>1</sup> Companies are those included in the Federal Reserve Board tabulations of sales, profits, and dividends of 28 large corporations in the food and kindred products industry. Profits shown here have been compiled from reports to stockholders or to Federal regulatory agencies. They are not comparable with the totals given elsewhere in the appendix for all private corporations, which are based chiefly on tax return data adjusted to exclude dividends received by the companies, capital gains, etc. (See general note on Department of Commerce estimates of corporate profits, table 10 above.)

<sup>2</sup> Profits before tax refer to income after all charges and before Federal income taxes and dividends.

Source: Federal Reserve Bulletin, February 1958.

TABLE 111.—*Canning and preserving: Indexes of production, payrolls, and production-worker payrolls per unit of output, 1948-57*

[1939=100]

Year	Production	Payrolls	Production-worker payrolls per unit of output <sup>1</sup>	Year	Production	Payrolls	Production-worker payrolls per unit of output <sup>1</sup>
	(1)	(2)	(3)		(1)	(2)	(3)
1948.....	158.0	328.6	208.0	1953.....	199.9	404.5	202.4
1949.....	163.3	317.9	194.7	1954.....	201.8	391.4	194.0
1950.....	174.7	338.2	193.6	1955.....	210.8	407.4	193.3
1951.....	198.2	380.7	192.1	1956.....	236.0	454.9	192.8
1952.....	190.5	377.1	198.0	1957.....	(2)	424.2	(2)

<sup>1</sup> See note 1 to table 51.

<sup>2</sup> Not available.

Source: Col. (1)—From table 112.

Col. (2)—From table 112 and Bureau of Labor Statistics figure on average hourly earnings.

Col. (3)—Col. (2) ÷ col. (1).

TABLE 112.—*Canning and preserving: Indexes of production, man-hours, output per man-hour, man-hours per unit, earnings, and prices, 1948-57*

Year	Production <sup>1</sup>	Man-hours <sup>1</sup>	Output per man-hour <sup>1</sup>	Man-hours per unit <sup>1</sup>	Average hourly earnings <sup>1</sup>	Price indexes			
						Wholesale <sup>2</sup>		Retail	
						3a	3b	4a	4b
						(1)	(2)	(3)	(4)
1939=100					1939=100	1947-49=100	1939=100		
(6)	(7)	(8)	(9)						
1948.....	158.0	137.8	114.7	87.2	\$1.116	201.4	115.4	171.2	418.7
1949.....	163.3	131.9	123.8	80.8	1.128	200.2	103.8	165.7	432.2
1950.....	174.7	132.9	131.5	76.1	1.191	200.8	97.1	158.2	383.2
1951.....	198.2	140.3	141.3	70.8	1.27	212.3	120.7	179.7	499.2
1952.....	190.5	133.7	142.5	70.2	1.32	211.3	104.4	177.5	451.8
1953.....	199.9	139.2	143.6	69.6	1.36	210.7	100.2	180.9	428.3
1954.....	201.8	129.9	155.4	64.4	1.41	210.3	100.4	179.2	422.1
1955.....	210.8	130.6	161.4	62.0	1.46	212.3	110.9	179.2	453.1
1956.....	236.0	135.6	174.0	57.5	1.57	217.1	120.0	185.7	492.2
1957.....	( <sup>2</sup> )	121.8	( <sup>2</sup> )	( <sup>2</sup> )	1.63	209.1	120.0	183.0	510.2

<sup>1</sup> Standard industrial classification industry 203.

<sup>2</sup> Not available.

<sup>3</sup> Component of BLS Wholesale Price Index (3a: 02-4; 3b: 02-26-01).

<sup>4</sup> Component of BLS Consumer Price Index (4a: Canned fruits and vegetables; 4b: Pink salmon).

Source: Cols. (1) and (2)—1948 BLS unpublished data; 1949-57 Statistical Abstract, compiled by BLS.

Col. (3)—col. (1) ÷ col. (2).

Col. (4)—col. (2) ÷ col. (1).

Cols. (5)-(9)—BLS, Department of Labor.

TABLE 121.—*Flour: Indexes of production, payrolls, and production-worker payrolls, per unit of output, 1953-56*

[1939=100]

Year	Production	Payrolls	Production-worker payrolls per unit of output <sup>1</sup>
	(1)	(2)	(3)
1953.....	98.4	287.0	291.7
1954.....	98.1	267.6	272.8
1955.....	99.8	273.6	274.1
1956.....	100.6	274.7	273.1

<sup>1</sup> See note 1 to table 51.

Source: Col. (1)—From table 122.

Col. (2)—Annual Survey of Manufactures and Advance Report, Census of Manufactures 1954, compiled by BLS.

Col. (3)—Col. (2) ÷ col. (1).

**TABLE 122.—Flour: Indexes of production, man-hours, output per man-hour, man-hours per unit, earnings and prices, 1953-56**

Year	Production <sup>1</sup>	Man-hours <sup>1</sup>	Output per man-hour <sup>1</sup>	Man-hours per unit <sup>1</sup>	Average hourly earnings <sup>1</sup>	Price indexes	
						Wholesale <sup>2</sup>	Retail <sup>3</sup>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	1939=100					1939=100	
1953.....	98.4	107.7	91.4	109.5	\$1.70	251.1	236.5
1954.....	98.1	94.5	103.8	96.3	1.77	272.8	240.8
1955.....	99.8	92.4	108.0	92.6	1.86	263.9	241.9
1956.....	100.6	89.6	112.3	89.1	1.93	252.4	241.7

<sup>1</sup> Standard industrial classification industry code 2041.<sup>2</sup> Component of BLS Wholesale Price Index, 02-12-02.<sup>3</sup> Component of BLS Consumer Price Index, flour wheat, 5 pounds.

Source: Cols. (1) and (2)—Statistical abstract compiled by BLS.

Col. (3)—Col. (1) ÷ Col. (2).

Col. (4)—Col. (2) ÷ Col. (1).

Cols. (5)-(7)—BLS, Department of Labor.

**TABLE 126.—Confectionery: Indexes of production, payrolls, and production-worker payrolls per unit of output, 1954-56**

[1939=100]

Year	Production	Payrolls	Production-worker payrolls per unit of output <sup>1</sup>
	(1)	(2)	(3)
1954.....	163.7	327.0	199.8
1955.....	171.2	333.4	194.7
1956.....	179.4	354.1	197.4

<sup>1</sup> See note 1 to table 51.

Source: Col. (1)—From table 127. Col. (2)—From Census, Annual Survey of Manufacturers compiled by BLS.

Col. (3)—Col. (2) ÷ col. (1).

**TABLE 127.—Confectionery: Indexes of production, man-hours, output per man-hour, man-hours per unit, earnings, and prices, 1954-56**

Year	Production <sup>1</sup>	Man-hours <sup>1</sup>	Output per man-hour <sup>1</sup>	Man-hours per unit <sup>1</sup>	Average hourly earnings <sup>3</sup>	Price indexes	
						Wholesale candy <sup>3</sup>	Retail candy <sup>4</sup>
	(1)	(2)	(3)	(4)	(5)	1947-49=100	December 1952=100
	1939=100						
1954.....	163.7	112.8	145.1	68.9	\$1.37	118.1	105.4
1955.....	171.2	111.5	153.5	65.1	1.41	119.3	112.6
1956.....	179.4	112.1	160.0	62.5	1.50	115.6	100.0

<sup>1</sup> Standard industrial classification industry 2071.<sup>2</sup> Industry code 2071.<sup>3</sup> Code 02-50-32, component of BLS Wholesale Price Index.<sup>4</sup> Code F-570.0, component of BLS Consumer Price Index.

Source: Cols. (1) and (2)—Statistical Abstract compiled by BLS.

Col. (3)—col. (1) ÷ col. (2).

Col. (4)—col. (2) ÷ col. (1).

Cols. (5)-(7)—BLS Department of Labor.

**TABLE 128.—Malt liquors: Indexes of production, payrolls, and production-worker payrolls per unit of output, 1947-56**

[1939=100]

Year	Production	Payrolls	Production-worker payrolls per unit of output <sup>1</sup>	Year	Production	Payrolls	Production-worker payrolls per unit of output <sup>1</sup>
	(1)		(3)		(1)		(3)
1947-----	178.0	239.8	134.7	1952-----	181.4	296.4	163.4
1948-----	172.1	( <sup>2</sup> )	( <sup>2</sup> )	1953-----	186.2	335.0	179.9
1949-----	174.1	242.0	139.0	1954-----	180.0	298.3	165.7
1950-----	174.6	250.0	143.4	1955-----	183.7	311.3	169.5
1951-----	179.1	277.4	154.9	1956-----	184.6	321.1	173.9

<sup>1</sup> See note 1 to table 51.<sup>2</sup> Not available.

Source: Production index from table 129. Payroll index 1947-51 from table 129, col. 2, and Bureau of Labor Statistics figures on average hourly earnings; for later years from Bureau of the Census Annual Survey of Manufactures. Col. 3—Col. 2÷col. 1.

**TABLE 129.—Malt liquors: Indexes of production, man-hours, output per man-hour, man-hours per unit, earnings, and prices, 1939-56**

Year	Production <sup>1</sup>	Man-hour's <sup>1</sup>	Output per man-hour <sup>1</sup>	Man-hours per unit <sup>1</sup>	Average hourly earnings <sup>1</sup>	Price indexes	
						Wholesale <sup>2</sup>	Retail <sup>3</sup>
						(6)	(7)
	1939=100					1947-49=100	Dec. 1952=100
1939-----	100.0	100.0	100.0	100.0	\$0.926	-----	-----
1940-----	98.4	96.0	102.5	97.6	.945	-----	-----
1941-----	119.0	103.3	109.4	91.4	.973	-----	-----
1942-----	128.6	115.1	111.7	89.5	1.023	-----	-----
1943-----	143.6	133.5	107.6	93.0	1.066	-----	-----
1944-----	163.5	144.5	113.1	88.4	1.130	-----	-----
1945-----	169.4	142.1	119.2	83.9	1.173	-----	-----
1946-----	161.3	133.3	121.0	82.6	1.286	-----	-----
1947-----	178.0	152.2	117.0	85.5	1.459	95.7	-----
1948-----	172.1	( <sup>4</sup> )	-----	-----	1.581	101.8	-----
1949-----	174.1	128.2	135.8	73.6	1.690	102.5	-----
1950-----	174.6	126.3	138.2	72.3	1.787	104.2	-----
1951-----	179.1	130.0	137.8	72.6	1.92	110.0	-----
1952-----	181.4	128.2	141.5	70.7	2.00	116.9	100.0
1953-----	186.2	132.3	140.7	71.1	2.19	119.7	101.0
1954-----	180.0	113.5	158.6	63.1	2.32	124.8	104.8
1955-----	183.7	112.8	162.9	61.4	2.44	124.7	103.9
1956-----	184.6	110.8	166.6	60.0	2.59	126.5	105.5

<sup>1</sup> Standard industrial classification industry 2082.<sup>2</sup> Component of wholesale price index, code 14-41.<sup>3</sup> Component of Consumer Price Index.<sup>4</sup> Not available.

Sources: Col. (1) and (2)—1939 through 1950, Productivity Trends in Selected Industries Indexes through 1950, Bulletin No. 1046. 1951, Handbook of Labor Statistics, 1951 supplement. 1952 through 1956, Statistical Abstract, compiled by Bureau of Labor Statistics.

Col. (3)—Col. (1)÷col.(2).

Col. (4)—Col. (2)÷col. (1).

Col. (5)-(7)—Bureau of Labor Statistics, Department of Labor.

**TABLE 136.—Metal manufacturing industries: Indexes of production, unit value, and unit costs, 1953–56**

[1947–49=100]

Year	Production (1)	Income originating per unit (2)	Compensa- tion of employees per unit (3)	All other income originating per unit <sup>1</sup>			
				Total (4)	Corporate profits before tax (5)	Corporate tax liability (6)	Corporate profits after tax (7)
1953.....	160	115.8	117.5	109.8	102.6	155.0	66.1
1954.....	142	117.3	121.2	103.7	93.7	126.9	70.5
1955.....	161	119.3	119.0	120.1	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
1956.....	166	122.5	125.5	111.8	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )

<sup>1</sup> The total of all other national income is derived by deducting compensation of employees from national income. It therefore includes in addition to the corporate tax liability and corporate profits after taxes, which are used in deriving cols. (6) and (7), the following items: corporate inventory valuation adjustment; income of unincorporated enterprises and inventory valuation adjustment; and net interest.

<sup>2</sup> Not available.

Source: Col. (1)—Board of Governors of the Federal Reserve System. Other columns derived from table 137.

**TABLE 137.—Income originating in metal manufacturing industries, by distributive shares, 1953–56**

[Millions of dollars]

Year	Total income originating (1)	Compensa- tion of employees (2)	Corporate profits before tax			Proprietors' income, net interest, and inventory valuation adjustments (6)
			Total (3)	Corporate tax liability (4)	Corporate profits after tax (5)	
1953.....	51,574	40,755	11,201	6,956	4,245	-382
1954.....	46,391	37,313	9,074	5,054	4,020	-165
1955.....	53,455	41,538	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
1956.....	56,614	45,180	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Not available.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957.

**TABLE 141.—Income originating in metals, metal products, and miscellaneous, by distributive shares, 1929–55**

[Millions of dollars]

Year	Total income originating (1)	Compensa- tion of employees (2)	Corporate profits before tax			Proprietors' income, net interest, and inventory valuation adjustments (6)
			Total (3)	Corporate tax liability (4)	Corporate profits after tax (5)	
1953.....	20,763	16,614	4,092	2,386	1,706	57
1954.....	18,392	15,131	3,179	1,735	1,444	82
1955.....	21,697	17,115	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
1956.....	23,454	18,454	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Not available.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957.

TABLE 143.—*Primary metals and products: Sales, profits, and dividends, 1954-57*<sup>1</sup>

[Dollar amounts in millions]

Period	Sales	Profits before taxes <sup>2</sup>	Profits after taxes	Dividends	Profits as percent of sales		Dividends as percent of profits after taxes
					Before taxes	After taxes	
1954.....	\$11,522	\$1,357	\$705	\$407	11.8	6.1	55.7
1955.....	14,952	2,377	1,195	522	15.9	3.5	43.7
1956.....	16,062	2,366	1,233	606	14.7	7.7	49.1
1954—4th quarter.....	2,874	400	231	125	13.9	8.0	54.1
1955—1st quarter.....	3,306	488	241	114	14.8	7.3	47.3
2d quarter.....	3,864	632	313	108	16.4	8.1	34.5
3d quarter.....	3,753	584	293	118	15.6	7.8	40.3
4th quarter.....	4,030	674	348	182	16.7	8.6	52.3
1956—1st quarter.....	4,209	690	346	141	16.4	8.2	40.8
2d quarter.....	4,415	712	363	137	16.1	8.2	37.7
3d quarter.....	3,098	267	145	140	8.7	4.7	96.6
4th quarter.....	4,340	697	378	188	16.1	8.7	49.7
1957—1st quarter.....	4,272	678	344	157	9.3	8.1	45.6
2d quarter.....	4,270	652	327	157	15.3	7.7	48.0
3d quarter.....	3,856	512	264	153	13.3	6.8	59.8
4th quarter.....	3,675	473	260	179	12.9	7.1	68.8

<sup>1</sup> Companies are those included in the Federal Reserve Board tabulations of sales profits, and dividends of 39 large corporations in the primary metals and products industry. Profits shown here have been compiled from reports to stockholders or to Federal regulatory agencies. They are not comparable with the totals given elsewhere in the appendix for all private corporations, which are based chiefly on tax return data adjusted to exclude dividends received by the companies, capital gains, etc. (See general note on Department of Commerce estimates of corporate profits, table 10 above.)

<sup>2</sup> Profits before taxes refer to income after all charges and before Federal income taxes and dividends.

Source: Board of Governors of the Federal Reserve System.

TABLE 144.—*Blast furnaces, steelworks, and rolling mills: Indexes of weighted production, man-hours of production workers, output per production-worker man-hour, production-worker payrolls, and production-worker payrolls per unit of output, 1952-57*

[1947-49=100]

Year	Weighted production	Man-hours of production workers	Output per production-worker man-hour	Production-worker payrolls	Production-worker payrolls per unit of output <sup>1</sup>
1952.....	113.4	97.8	116.0	125.4	110.6
1953.....	133.4	114.0	117.0	158.7	119.0
1954.....	107.0	93.8	114.1	133.0	124.3
1955.....	141.2	111.0	127.2	169.5	120.0
1956.....	139.1	108.6	128.1	176.3	126.7
1957 <sup>2</sup> .....	134.0	105.8	126.7	182.0	135.8

<sup>1</sup> See note 1 to table 51.

<sup>2</sup> 1957 estimates by the Bureau of Labor Statistics are preliminary.

Source: Man-hours per Unit of Output in the Basic Steel Industry, 1939-55, Bulletin No. 1200, Department of Labor, Bureau of Labor Statistics, 1956. Payrolls for the period since 1939 are derived from man-hours in col. (2) and BLS figures on average hourly earnings.

**TABLE 146.—Basic steel industry: Indexes of output per production-worker man-hour and real average hourly earnings of production workers, 1952–57**

[1947–49=100]

Year	Output per production worker man-hour	Real average hourly earnings of production workers	Ratio of real average hourly earnings to output per man-hour for production workers	Year	Output per production worker man-hour	Real average hourly earnings of production workers	Ratio of real average hourly earnings to output per man-hour for production workers
	(1)	(2)	(3)		(1)	(2)	(3)
1952.....	116.0	113.0	97.4	1955.....	127.2	133.3	104.8
1953.....	117.0	121.7	104.0	1956.....	128.1	139.7	109.1
1954.....	114.1	123.6	108.3	1957 <sup>1</sup> .....	126.7	143.1	112.9

<sup>1</sup> Preliminary.

Source: Col. 1—Table 144, col. (3).

Col. 2—Payrolls (table 144, col. 4) adjusted to constant prices by dividing by consumer price index (table 41, col. 1); reduced to hourly basis by dividing by man-hours of production workers (table 144, col. 2).

**TABLE 150.—Primary smelting and refining of copper, lead, and zinc: Indexes of production, payrolls, and production-worker payrolls per unit of output, 1940–56**

[1939=100]

Year	Production	Payrolls	Production-worker payrolls per unit of output <sup>1</sup>	Year	Production	Payrolls	Production-worker payrolls per unit of output <sup>1</sup>
	(1)	(2)	(3)		(1)	(2)	(3)
1940.....	127.1	119.5	94.0	1949.....	113.6	241.8	212.9
1941.....	139.4	153.0	109.8	1950.....	132.9	258.7	194.7
1942.....	146.0	179.3	122.8	1951.....	131.4	277.7	211.3
1943.....	146.8	204.5	139.3	1952.....	130.7	298.7	228.5
1944.....	134.3	196.8	146.5	1953.....	137.9	320.7	232.6
1945.....	114.8	184.6	160.8	1954.....	126.8	284.7	224.5
1946.....	93.9	174.2	185.5	1955.....	145.1	317.0	218.5
1947.....	127.8	241.1	188.7	1956.....	157.0	365.5	232.8
1948.....	123.3	( <sup>2</sup> )	( <sup>2</sup> )				

<sup>1</sup> See note 1 to table 51.<sup>2</sup> Not available.

Source: Col. (1)—From table 151.

Col. (2)—From col. (2) in table 151 and BLS figures for average hourly earnings. 1949 to date is linked by using 1947 and 1954 census data and Annual Survey of Manufactures census data.

Col. (3)—Col. (2) ÷ col. (1).

TABLE 151.—Primary smelting and refining of copper, lead, and zinc: Indexes of productivity and wholesale prices, 1939–56

[1939=100]

Years	Production <sup>1</sup>	Man-hours <sup>1</sup>	Output per man-hour <sup>1</sup>	Man-hours per unit <sup>1</sup>	Average hourly earnings <sup>2</sup>	Wholesale price indexes		
						Copper ingot electrolytic <sup>3</sup>	Lead pig common grade <sup>4</sup>	Zinc slab prime western <sup>5</sup>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1939.....	100.0	100.0	100.0	100.0	-----	53.2	31.5	43.3
1940.....	127.1	115.4	110.1	90.8	-----	54.8	32.3	53.1
1941.....	139.4	131.3	106.2	94.2	-----	57.0	36.2	62.1
1942.....	146.0	134.8	108.3	92.3	-----	57.0	40.5	68.3
1943.....	146.8	139.7	105.1	95.2	-----	57.0	40.6	68.4
1944.....	134.3	129.0	104.1	96.1	-----	57.0	40.6	68.3
1945.....	114.8	118.6	96.8	103.3	-----	57.0	40.6	68.3
1946.....	93.9	102.7	91.4	109.4	-----	67.0	51.0	72.2
1947.....	127.8	126.5	101.0	99.0	\$1.257	101.2	91.6	86.9
1948.....	123.3	(6)	(6)	(6)	* 1.397	106.1	112.6	111.7
1949.....	113.6	109.5	103.7	96.4	1.471	92.7	95.8	101.4
1950.....	132.9	112.2	108.4	84.4	1.525	102.7	82.9	115.2
1951.....	131.4	108.1	121.6	82.3	1.68	116.5	109.2	148.0
1952.....	130.7	107.8	121.2	82.5	1.79	116.5	102.0	135.0
1953.....	137.9	111.6	123.6	80.9	1.91	137.9	84.3	91.3
1954.....	126.8	97.3	130.3	76.7	1.92	142.3	87.9	88.4
1955.....	145.1	103.7	139.9	71.5	2.01	177.4	94.4	100.9
1956.....	157.0	111.8	140.4	71.2	2.14	198.8	99.9	110.5

<sup>1</sup> Standard industrial classification 3331-2-3.<sup>2</sup> Industry 3331-33.<sup>3</sup> Wholesale Price Index 10-22-06.<sup>4</sup> Wholesale Price Index 10-22-11.<sup>5</sup> Wholesale Price Index 10-22-31.<sup>6</sup> Not available.

Source: Col. (1) is a revised BLS series using value-added weights from the 1939-57 Census Indexes of Production.

Col. (2)—From unpublished BLS data 1939-47. 1947 to date from the 1947 and 1954 Census of Manufacturers and Annual Surveys of Manufacturers.

Col. (3)—Col. (1)÷col. (2).

Col. (4)—Col. (2)+col. (1).

Col. (5)-(8)—BLS, Department of Labor.

TABLE 161.—Income originating in machinery, except electrical, distributive shares, 1953-56

[Millions of dollars]

Year	Total income originating	Compensation of employees	Corporate profits before tax			Proprietors' income, net interest, and inventory valuation adjustments
			Total	Corporate tax liability	Corporate profits after tax	
	(1)	(2)	(3)	(4)	(5)	(6)
1953.....	10,580	8,596	2,092	1,297	795	-108
1954.....	9,585	7,829	1,730	970	760	26
1955.....	10,351	8,381	(1)	(1)	(1)	(1)
1956.....	12,143	9,670	(1)	(1)	(1)	(1)

<sup>1</sup> Not available.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957.

TABLE 163.—*Machinery sales, profits, and dividends, 1939-56*<sup>1</sup>

[Dollar amounts in millions]

Period	Sales	Profits before taxes <sup>2</sup>	Profits after taxes	Dividends	Profits as percent of sales		Dividends as percent of profits after taxes
					Before taxes	After taxes	
1954.....	\$7,745	\$914	\$465	\$263	11.8	6.0	56.6
1955.....	8,477	912	465	281	10.8	5.5	60.4
1956.....	9,798	943	460	321	9.6	4.7	69.8
1954—4th quarter.....	2,037	193	114	89	9.5	5.6	78.1
1955—1st quarter.....	2,018	234	114	67	11.6	5.6	58.8
2d quarter.....	2,127	259	127	66	12.2	6.0	52.0
3d quarter.....	2,095	224	111	67	10.7	5.3	60.4
4th quarter.....	2,237	194	114	81	8.7	5.1	71.1
1956—1st quarter.....	2,167	200	76	78	9.2	3.5	102.6
2d quarter.....	2,463	267	139	78	10.8	5.6	56.1
3d quarter.....	2,422	233	125	79	9.6	5.2	63.2
4th quarter.....	2,746	243	120	87	8.8	4.4	72.5
1957—1st quarter.....	2,624	296	142	79	11.3	5.4	55.6
2d quarter.....	2,750	305	148	81	11.1	5.4	54.7
3d quarter.....	2,669	273	135	82	10.2	5.1	60.3
4th quarter.....	2,871	306	152	86	10.7	5.3	56.6

<sup>1</sup> Companies are those included in the Federal Reserve Board tabulations of sales, profits, and dividends of 27 large corporations in the machinery industry. Profits shown here have been compiled from reports to stockholders or to Federal regulatory agencies. They are not comparable with the totals given elsewhere in the appendix for all private corporations, which are based chiefly on tax return data adjusted to exclude dividends received by the companies, capital gains, etc. (See general note on Department of Commerce estimates of corporate profits, table 10 above.)

<sup>2</sup> Profits before taxes refer to income after all charges and before Federal income taxes and dividends.

Source: Board of Governors of the Federal Reserve System.

TABLE 178.—*Income originating in electrical machinery, by distributive shares, 1953-56*

[Millions of dollars]

Year	Total income originating	Compensation of employees	Corporate profits			Proprietors' income, net interest, and inventory valuation adjustments
			Total	Corporate tax liability	Corporate profits after tax	
	(1)	(2)	(3)	(4)	(5)	(6)
1953.....	6,936	5,463	1,559	992	567	-86
1954.....	6,253	5,021	1,249	695	554	-17
1955.....	6,622	5,495	(1)	(1)	(1)	(1)
1956.....	7,446	6,165	(1)	(1)	(1)	(1)

<sup>1</sup> Not available.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957.

TABLE 185.—*Income originating in transportation equipment, except automobiles, by distributive shares, 1953-56*

[Millions of dollars]

Year	Total income originating (1)	Compensation of employees (2)	Corporate profits			Proprietors' income, net interest, and inventory valuation adjustments (6)
			Total (3)	Corporate tax liability (4)	Corporate profits after tax (5)	
1953.....	5,743	5,076	805	534	271	-138
1954.....	5,773	4,922	868	465	403	-21
1955.....	5,781	5,062	(1)	(1)	(1)	(1)
1956.....	6,551	5,870	(1)	(1)	(1)	(1)

<sup>1</sup> Not available.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957

TABLE 187.—*Income originating in automobiles and automobile equipment, by distributive shares, 1953-56*

Millions of dollars]

Year	Total income originating	Compensation of employees	Corporate profits			Proprietors' income, net interest, and inventory valuation adjustments
			Total	Corporate tax liability	Corporate profits after tax	
1953.....	7,552	5,006	2,653	1,747	906	-107
1954.....	6,338	4,410	2,048	1,189	859	-70
1955.....	8,964	5,485	(1)	(1)	(1)	(1)
1956.....	7,020	5,021	(1)	(1)	(1)	(1)

<sup>1</sup> Not available.

Source: Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957.

TABLE 190.—*Automobile and equipment industry:<sup>1</sup> Sales, profits, and dividends, 1954-57*

[Dollar figures in millions]

Period	Sales	Profits before taxes <sup>2</sup>	Profits after taxes	Dividends	Profits as percent of sales		Dividends as percent of profits after taxes
					Before taxes	After taxes	
1954.....	\$14,137	\$1,789	\$863	\$536	12.7	6.1	62.1
1955.....	18,826	3,023	1,394	693	16.1	7.4	49.7
1956.....	16,336	1,940	898	656	11.9	5.5	73.4
1954-4th quarter.....	3,850	510	261	198	13.2	6.8	75.9
1955-1st quarter.....	4,791	825	369	109	17.2	7.7	29.5
2nd quarter.....	5,101	894	418	114	17.5	8.2	27.3
3rd quarter.....	4,246	589	261	161	13.9	6.2	61.7
4th quarter.....	4,688	714	346	309	15.2	7.4	89.3
1956-1st quarter.....	4,578	689	320	162	15.0	7.0	50.6
2nd quarter.....	4,195	509	242	164	12.1	5.8	67.8
3rd quarter.....	3,347	272	118	164	8.1	3.5	139.0
4th quarter.....	4,215	470	214	166	11.2	5.1	77.6
1957-1st quarter.....	4,993	713	337	167	14.3	6.7	49.6
2nd quarter.....	4,522	603	292	166	13.3	6.5	56.8
3rd quarter.....	3,689	291	151	164	7.9	4.1	107.9
4th quarter.....	4,277	506	279	173	11.8	6.5	62.0

<sup>1</sup> Companies are those included in the Federal Reserve Board tabulations of sales, profits, and dividends of 15 large corporations in the automobile and equipment industry. Profits shown here have been compiled from reports to stockholders or to Federal regulatory agencies. They are not comparable with the totals given elsewhere in the appendix for all private corporations, which are based chiefly on tax return data adjusted to exclude dividends received by the companies, capital gains, etc. (See general note on Department of Commerce estimates of corporate profits, table 10, above.)

<sup>2</sup> Profits before taxes refer to income after all charges and before Federal income taxes and dividends.

Source: Board of Governors of the Federal Reserve System, Federal Reserve Bulletin, February 1958.

