BULLETIN NO. 1536

PROJECTIONS 1970

Interindustry Relationships
Potential Demand
Employment

U. S. DEPARTMENT OF LABOR, W. Willard Wirtz, Secretary - BUREAU OF LABOR STATISTICS, Arthur M. Ross, Commissioner

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PREFACE

This bulletin provides projections to 1970 of potential demand, interindustry relationships, and employment under alternative assumptions regarding rates and patterns of growth. It represents a report on a major phase of the work of the Interagency Growth Study Project.

This project was started several years ago by the U.S. Department of Labor, in cooperation with other Government agencies and private research organizations. It represents an effort to develop a more comprehensive and integrated framework than had previously been available for analyzing the implications of long-term economic growth for a number of problem areas, particularly problems of manpower utilization.

Guidance for the research program is provided by an interagency coordinating committee, consisting of representatives from the U. S. Departments of Labor and Commerce, the Bureau of the Budget, and the Council of Economic Advisers. The chairman of the committee is the representative of the Council of Economic Advisers.

The actual work on the projections is shared by a number of Government agencies, private research organizations, and universities. The central project staff is located in the Bureau of Labor Statistics (BLS).

The growth project research program uses the input-output tables prepared by the Office of Business Economics, U.S. Department of Commerce, as the basic analytical tool for the evaluation of alternative economic policies and projections. This program has been coordinated with related work on technological and manpower outlook of the Productivity and Manpower Offices of the Bureau of Labor Statistics.*

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*For further information about the related work, see: (1) Technological Trends in Major American Industries (BLS Bulletin 1474, 1966); and (2) "America's Industrial and Occupational Manpower Requirements, 1965-1975," prepared for the National Commission on Technology, Automation, and Economic Progress, by the BLS, and published in The Outlook for Technological Change and Employment, appendix volume I, February 1966, to the Commission's report, Technology and the American Economy (1966), pp. 3-187.

This bulletin was prepared in the Division of Economic Growth, under the general supervision of Jack Alterman, Director of Economic Growth Studies. Ronald E. Kutscher, with major assistance by Eva E. Jacobs, was responsible for coordinating the various elements of the projections and for direct supervision of the projections in a number of specific areas. Individual members of the staff had primary responsibility for specific areas as follows: Eva E. Jacobs and Carolyn A. Jackson, potential gross national product (GNP), 1970 and review of the productivity projections prepared by the Division of Productivity Measurement; Donald P. Eldridge, consumer expenditures; Richard P. Oliver, Federal Government defense expenditures; Myrtle G. Nelson, Federal Government nondefense expenditures; Arlene K. Shapiro, capital flow projections and producer durable equipment; Joseph C. Wakefield, construction, public and private, and State and local government expenditures; Daniel Roxon, exports and imports; William I. Karr, projections of input-output coefficients.

The projections are based also on the major research contributions of other units within the Bureau of Labor Statistics, other Government agencies, private research organizations, universities, and individuals. The contributors include various offices of the BLS (Productivity, Technology and Growth; and Manpower and Employment Statistics); U. S. Department of Commerce, Office of Business Economics; U.S. Department of Agriculture; U.S. Department of Interior, Bureau of Mines; Harvard Economic Research Project, Harvard University; National Planning Association; George Washington University; Council of State Governments; and Jack Faucett Associates (Silver Spring, Maryland).

The use of the material developed by others will be noted at the appropriate places in the bulletin. In addition to providing materials for this publication, the staff of the Office of Business Economics assisted in many aspects of the research program. Comments on an earlier draft by members of the Business and Labor Research Advisory Councils of BLS, and individuals in private research organizations, universities, and other Government agencies were helpful in the preparation of this report. However, BLS assumes responsibility for the interpretation of the data and the projections.

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INTRODUCTION

This study provides projections of industry employment requirements in 1970 under alternative assumptions about the rate and pattern of growth. The employment projections are essential to the development of estimates of occupational requirements, information that is needed to implement the U.S. Department of Labor's responsibilities in the areas of occupational guidance and longer run training programs.

The 1970 Projections

The projections contained in this report are not forecasts. They provide detailed and consistent projections of what the economy may look like in 1970. These projections are dependent on assumptions about unemployment rates, growth in productivity, the mix of consumption, investment, government expenditures, and other key economic variables. A crucial assumption underlying the projections is that the Viet Nam situation will have been resolved by 1970 and defense expenditures reduced to a more normal level.

The bulletin contains four sets of projections. The major differences among these projections result from use of alternative assumptions about unemployment (4 and 3 percent of the civilian labor force) and about the composition of final demand (i.e., consumption, investment, government expenditures for goods and services, and net exports).

The various sets of projections are designed to evaluate, among other things, the extent to which the composition of employment may be affected by alternative assumptions regarding the continuation of the unusually high rates of increase in expenditures for consumer durables and for business investment in plant and equipment during the past few years.

The basic 4- and 3-percent unemployment models assume that, by 1970, expenditures for consumer and producer durable goods will return to a pattern in line with postwar relationships. An alternative (high durables) to the basic 4-percent unemployment model assumes that the increase in expenditures for durable goods would continue at high rates. Although this rate of increase for durable goods is lower than in the preceding few years, it would still be higher than the rate that generally prevailed during the postwar period. An additional alternative (high services) to the 4-percent unemployment model assumes that, due to increased productivity of capital, capital expenditures will continue to increase, but at a lower rate than the increase in real output, with the result that capital expenditures for nonresidential plant and equipment will fall as a proportion of gross national product. It also assumes

that the anticipated increases in residential construction postulated in the basic models will be delayed somewhat and will increase only moderately by 1970. The slower increase in private domestic investment in the high services model is assumed to be offset by larger increases in consumer expenditures, primarily in consumer services, and increased State and local government expenditures for education and health functions.

The projections are developed in a series of interrelated stages in which the starting point is the projection of potential output in 1970, based on estimated growth in the labor force, alternative assumptions regarding the unemployment rate, and projections of labor productivity and hours of work.

The distribution of total employment among the various industries in the economy is, in turn, based on projections of how potential output may be distributed among the various categories and detailed components of final demand, i.e., consumption, investment, government expenditures for goods and services, and net exports. Estimates of final demand for detailed items, such as food, clothing, automobiles, medical care, machine tools, aircraft, etc., are converted into industry employment requirements through the use of an interindustry employment table. An interindustry employment table shows how much direct and indirect employment would be required in each industry to meet the demand for final goods and services, including employment in the supporting industries which provide the raw materials, parts, components, fuel, transportation and distribution services embodied in the end products and services.

An interindustry employment table is derived from an input-output table which shows the direct and indirect impact of changes in one part of the economy on the rest of the economy. The projections developed in this study use input-output tables prepared by the Office of Business Economics, U.S. Department of Commerce, as the framework for the estimates.

Although the projections developed in this study represent a major phase of the work of the Interagency Growth Study Project, they should be considered as part of a broader framework of growth studies. To put the present bulletin in perspective, it may be useful to outline some of the major elements involved in the study of the complex process of economic growth and indicate some of the areas which need additional work.

Economic Growth Studies in Perspective

The study of economic growth includes (though neither exhaustively nor exclusively) the following elements:

1. The supply side (economic potential). Potential gross national product (GNP) is defined as that GNP which could be produced by a fully employed labor force. In addition to full employment,

potential GNP depends, in the first instance, upon (a) the size of the labor force, (b) the average hours worked per year, and (c) the average output per man-hour. The growth in potential GNP, therefore, depends upon the growth in these separate components.

A number of complicated relationships is basic to each of these. For example, the rate of growth of the labor force depends not only upon the rate of growth of the working-age population, but also upon changes in labor force participation; these, in turn, are subject to a number of influences, such as the age-sex mix of the working-age population, the unemployment rate, the sectoral composition of output, sociological and institutional factors. Similarly, changes in the workweek depend upon such factors as changes in the unemployment rate and the speed of adjustment of employment to changes in output. Determination of the rate of growth of output per man-hour is perhaps the most complex of all. It depends upon (a) the change in the skills of the labor force as determined by educational achievement, manpower training, etc., (b) changes in the size and age distribution of the capital stock, (c) the rate of utilization of capacity, (d) the distribution of output among industries, (e) the state of technology, and many other factors.

2. The demand side. It is true that the growth of potential GNP is itself sufficient to determine the rate of growth in output along a full-employment path. However, it is nevertheless generally believed that there exists an interaction between actual and potential growth. It is likely that the rate of growth of potential GNP is itself retarded by persistent underutilization of productive resources. Idle resources--both manpower and plant capacity--tend to dampen the incentive to invest. Low rates of investment, in turn, retard the rate of growth of potential GNP.

3. The pattern of final demand. For any given level of national output, the following factors determine the pattern of final demand:

   a. There is first the broad distribution of final demand among the general categories of consumer expenditures for goods and services, government purchases, business investment, and net exports. This distribution, in turn, depends upon (1) the allocation of personal income between consumption and savings, (2) the profitability of investment, as determined by the state of technology, the utilization of existing capacity, rate of growth, etc., and (3) government policy. Government policy affects the above distribution through the impact of fiscal and monetary policies on

private investment and consumption decisions, and through direct government investment to fulfill social objectives and to meet defense requirements. Net exports depend on relative prices here and abroad, need for critical materials, constraints affecting the balance of payments, etc.

b. Given aggregate consumer demand, the pattern of demand for individual goods and services depends upon consumption patterns of individuals and families and the distribution of income and change in income among individuals and families, relative prices, etc.

c. The distribution of aggregate investment demand among types of equipment and buildings depends upon a host of factors such as the relative profitability of various industries; the introduction of technological developments; relative growth rates of industries; and the types of equipment and structures used by different industries.

4. The pattern of intermediate demand. Given any pattern of final demand, it is possible to derive the interindustry structure of output--including both final and intermediate goods--using the input-output tables. These tables show the sales and purchases among all the industries in the economy and can be used to show the direct and indirect impact of changes in demand in one part of the economy on the rest of the economy.

5. The impact of the pattern of final and intermediate demand. Projected changes in the interindustry structure of output, as determined by the pattern of final and intermediate demand, have a number of important implications for the growth process and for the formulation of economic policy:

a. In the first place, the rate of growth of productivity for the entire economy is affected by the changing distribution of output among sectors and industries. For example, the secular decline in the farm sector, relative to the nonfarm sector, has in the past added to the rate of growth of total private productivity because the level of output per man-hour in the farm sector is approximately half the level in the nonfarm sector. Conversely, the shift in the distribution of output from the manufacturing sector to the service sector and to government tends to lower the rate of growth of productivity.

b. The distribution of output between investment goods and consumer goods has important implications for the rate of growth of potential GNP.

c. The pattern of final and intermediate demand also has important implications for the distribution of payments to labor, property, and government, and among income groups.

d. The pattern of employment, and therefore the occupational requirements, of the future depends upon the interindustry structure of output.

6. The role of government policy in the growth process. A crucial determinant of the rate of growth of GNP and of the changing pattern of output is government policy, for these reasons:

a. The role of fiscal policy in equating aggregate supply and demand at full employment is essential to the growth process.

b. Government policies on investment significantly affect economic growth, since investment in plant and equipment is the process by which new productive capacity is brought about, and by which productivity of labor is enhanced.

c. Finally, the rate of growth of labor productivity is closely related to educational expenditures and to manpower training programs. Conversely, the form and direction which training and educational programs should take depends upon the projection of the pattern of final and intermediate demand, industry employment, and occupational patterns.

The present study is based on extensive research and analysis covering a number of areas included in the foregoing discussion. These relate primarily to the projection of potential output, the distribution of output among the major components and detailed items of final demand, and the conversion of demand into employment requirements through the use of the input-output approach. Other areas of research have been sponsored by the Interagency Growth Study Project, but are not included in this bulletin. Moreover, some of the areas have been covered only partially or not at all.

Finally, as part of the continuing program of growth studies, the projections contained in this bulletin will be revised and extended as new information, revisions in the historical data, and the results of studies sponsored by the Growth Project become available. This should also make it possible to explore the implications for the economy of a broader range of assumptions regarding rates and patterns of growth.

As part of an evolving research program, the various specialized studies of economic growth will need to be integrated into a broader and consistent framework in which additional elements are taken into

account. For example, more attention will have to be given to the relationship between:

(1) changes in technical input-output relationships and changes in labor and capital productivity and occupational patterns,

(2) the rate of investment and the rate of growth of potential GNP,

(3) changes in skills and education of the labor force and growth in labor productivity,

(4) government fiscal and monetary policies and the rate of growth of GNP and its distribution,

(5) government policies and programs and projected government and private employment, and

(6) the pattern of demand, employment, and the distribution of income among factor shares and among income groups.

SUMMARY

A major objective of this study is to develop projections of the industrial distribution of employment in 1970 under alternative assumptions regarding rates and patterns of growth.

The projections, developed in a series of interrelated stages, use the latest input-output tables prepared by the U.S. Department of Commerce as the framework for the estimates. These tables make it possible to show the direct and indirect impact of changes in demand in one part of the economy on all parts of the economy, including itself. In this study, projections of input-output relationships, along with projections of hours of work and industry productivity, are used to link detailed projections of demand for goods and services to employment requirements by industry. Thus, the projected structure of demand--the demand of individuals, business, and government, and the net demand of foreign purchasers of the products of American industry--are converted, by application of appropriate relationships, into projections of direct and indirect manpower requirements of the specific industries.

A broad range of projections can be developed, based on alternative assumptions regarding rates and patterns of growth. These preliminary efforts, however, present four sets of estimates--all based on the assumption of high levels of employment and a stable economic growth rate. The four models are (a) a 4-percent unemployment model, (b) a 3-percent unemployment model, (c) a high durables model, and (d) a high services model. The latter two are variations of the basic 4-percent unemployment model.

The 4-percent unemployment model assumes that by 1970, the economy will continue to expand sufficiently to maintain the unemployment rate at 4 percent of the civilian labor force. This means that the number of new jobs will be sufficient to accomodate the anticipated growth in the labor force and to offset gains in productivity. The 3-percent unemployment model assumes that the unemployment rate is reduced to 3 percent and maintained at that rate through 1970. It assumes further expansion in programs designed to provide training and retraining, worker experience, labor mobility, and employment in public service projects. Most of the increased employment, however, is expected to be in the private sector of the economy. The patterns of final demand in both the basic 4- and 3-percent models are similar.

The other two models (high durables and high services) assume a 4-percent unemployment rate. They are designed to evaluate the implications of alternative assumptions regarding one of the major uncertainties

in the projections of final demand--the outlook for consumer durable expenditures and private investment in plant and equipment, given their unusually high rates of increase during the past 2 years.

Projected Growth Rates and Potential GNP

Between 1965 and 1970, the labor force is expected to grow at a much more rapid pace than over most of the postwar years--almost 2 percent a year, compared with the postwar average increase of 1.3 percent. The "normal" increase in the labor force would account for 1.7 percent a year; an additional 0.2 percent a year may be anticipated because the labor force participation rates at the present time are below the trend rates.

Given the anticipated acceleration in the growth of the labor force and assuming increases in productivity of 3.2 percent a year and modest declines in hours of work, GNP would have to grow by about 4.3 percent a year between 1965 and 1970 to provide jobs for additional workers and to maintain the unemployment rate at 4 percent.

It would take a growth rate of about 4.5 percent a year for the remainder of the decade to reduce the unemployment rate to 3 percent. The 4.5-percent growth rate is lower than the 5.5-percent annual average increase during the past 2 years, but it is still much higher than the 3.7-percent annual growth rate experienced over the entire period since 1947. This rate of growth would imply an increase of almost 25 percent in the Nation's real output by 1970.

Potential GNP in 1970 would be about $835 or $845 billion (in 1965 prices),1/ depending on the unemployment assumption.

The 4.3- to 4.5-percent annual increases in GNP are averages for the remainder of the decade. Part of the increase is related to the reduction in the unemployment rate, thus the projections imply a somewhat higher growth rate until the 4- or 3-percent unemployment rate has been achieved. Once achieved, the continuing growth rate would be closer to 4 percent. This is still higher than the postwar average and provides some indication of the task involved if the national policy of maintaining full employment is to be realized. If it is assumed that the remainder of the decade will see an acceleration in the overall rate of productivity, compared with the longer run trend, even higher rates of growth required to achieve and maintain full employment are implied.

1/ $750 and $760 billion, respectively, in 1958 dollars.

Projected Industry Employment Requirements

In order to achieve an overall unemployment rate of 4 percent by 1970, total civilian employment would have to be about 81.6 million, representing an addition of about 1.5 million jobs a year for a total of 7.5 million more jobs in 1970 than in 1965.2/ A 3-percent unemployment rate for 1970 would require an addition of about 1.7 million jobs a year or a total of 8.5 million, bringing total civilian employment to 82.8 million in 1970. This represents an increase in employment of about 1.9 percent a year for a 4-percent unemployment rate, or about 2.2 percent a year for a 3-percent unemployment rate. Both the 1.9 and 2.2 rates of employment increase are substantially higher than the rates for most of the postwar period. The higher rates of increase are attributable primarily to accelerated growth in the labor force as the children born during the early post-World War II years reach working age. Adding to the increase in employment is the assumed reduction in the unemployment rate from the 4.6-percent average in 1965 to 4 or 3 percent by 1970.

Within the overall employment increases projected to 1970, the projections for individual industries show highly divergent trends for any one model, as well as variations among the alternative models. In general, service industries are expected to show higher gains in employment than goods-producing industries. This represents a continuation of the long-run postwar trends, but there are some important modifications.

Among the service industries, the highest annual rate of employment increase, about 5 percent or more, is projected for State and local government. Growth in this sector would be attributable to the continued expansion of schools, medical care, and other public services for a growing population, with some stimulus from Federal grants. In contrast, Federal Government civilian employment is projected to increase only moderately from the 1965 level.

Many of the Federal Government programs which may be expanded substantially by 1970 involve expenditures which are considered, in the national income and product accounts, as either transfers of funds to individuals and nonprofit organizations or grants to State and local governments. Examples of such programs are aid to education, training and retraining, and antipoverty programs, Medicare, and area development. From the viewpoint of demand for final goods and services, expenditures resulting from these programs appear as purchases of goods and services by consumers and State and local governments rather than as purchases

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2/ The employment estimates cover wage and salary workers on establishment payrolls, self-employed, unpaid family workers, and domestics. The estimates refer to number of jobs and are, therefore, higher than the number of persons employed as measured in labor force surveys. This is due to dual jobholding and statistical differences between the two series.

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by the Federal Government. A further caution about Federal Government projections concerns the assumption that there will be no military engagement in Viet Nam or elsewhere in 1970.

The projection of employment in personal, business, and private educational and medical services shows the next largest increase--about 2.7 to 4.2 percent a year, depending on the models used. The high rates of increase would reflect the continuing shift in demand for such services and the lower than average increases in productivity (as commonly measured) in the individual industries providing these services.

Employment in finance, insurance, and real estate is projected to continue to increase at a faster rate than the overall average and to account for a somewhat larger share of total employment in 1970 than in 1965. Under the high durable alternative, however, its share would remain about the same.

Communications and public utilities are characterized by rapid increases in productivity. The result is that, although services provided by these industries are expected to increase sharply, employment would remain at about the 1965 level and decline as a proportion of total employment.

Employment in the trade sector is dependent, to a considerable extent, on activity in the goods-producing areas. The projections of employment in trade vary, depending on the relative importance of goods production in the various models. Productivity gains in trade are lower than the average for the total private economy. Consequently, the employment increases (1.6-2.1 percent a year) would be above the rate for the private economy and about the average for total employment in the basic model. They are somewhat higher in the high durable alternative and lower in the high service model. The increase is one of the largest among the various sectors because the trade sector accounts for such a large proportion of total employment. In fact, in terms of absolute numbers, trade and two other major sectors--State and local government and services (business, professional, private educational and medical, and personal) accounted for about 45 percent of total employment in 1965. In the aggregate they would be the source of about 72 to 82 percent of the total employment increase projected.

Total transportation employment has been declining during much of the postwar period, primarily due to the reduction in railroad employment. Employment has increased within the past few years, largely in trucking and air transportation. Although productivity gains in transportation are above average, the increase in demand is projected to be sufficient to provide the basis for continued small gains in employment. The increase, however, would not be enough to arrest the continuing decline in the sector's share of total employment.

Within the goods-producing sectors, agricultural employment is projected to continue its long-term decline, both in absolute numbers and as a percentage of the total work force. The decline would be due primarily to very high rates of increase in agricultural productivity (about 5.5 percent a year), with only moderate increases in the demand for farm products. In line with the long-term shift in the composition of the agricultural work force, most of the decline is projected to be among the self-employed and unpaid family workers, with the numbers of wage and salary employees remaining relatively stable.

Mining employment, until recently, had been declining for many years. This is attributable largely to substantially better-than-average gains in productivity and relative declines in the demand for coal--one of the larger mining industries. Employment in mining is projected to continue to decline, although at a reduced rate.

Contract construction employment is projected to show the largest percentage increase of any major goods-producing industry. This would be due to projected increases in construction activity to meet rising State and local government needs, increased housing requirements, and expanding business investment in plants. In addition, productivity gains in construction (as measured conventionally) are lower than the average for the economy. The combined effect of these two factors would be a very substantial increase in construction employment by 1970.

Finally, what are the prospects for increased employment in manufacturing industries? One of the most important developments in the economy during the past 2 years has been the dramatic increase in manufacturing employment--the major source of blue-collar employment--coming after a period of decline in manufacturing employment and a modest recovery following the recession of 1961.

Recent increases in factory jobs reflect both expansion in aggregate demand and special factors affecting the character of this demand, notably the very large increases in demand for automobiles and other consumer durables and the unprecedented growth in capital investment. Expenditures for consumer and producer durables have increased, on the average, twice as fast as the increase in real output during the past few years. A return to more sustainable rates of increase in expenditures for these categories of final demand would have obvious implications for employment requirements in manufacturing industries. The range of projections of manufacturing employment in the alternative models indicates that there is some prospect for increased growth in factory jobs of about 0.5 percent a year between 1965 and 1970 even under the lowest estimate. The high durables set of projections implies an increase of about 1.2 percent a year. (The 3-percent unemployment model, roughly adjusted to reflect a high durable goods alternative, would show an even higher rate of increase--about 1.5 percent a year.)

The projected increase in manufacturing employment represents a reversal of the 1957-63 experience when manufacturing employment showed no increase over the period. It should be noted, however, that the projected rate of increase in employment in manufacturing, even at the upper end of the range of estimates, would still be substantially lower than that for the economy as a whole. The projections also represent a slowdown from the more recent gains in manufacturing employment in 1965 and early 1966. The basic models imply even smaller increases in manufacturing employment between 1965 and 1970. Under all the alternatives, manufacturing would continue to decline as a proportion of total employment, from 25.9 percent of the total in 1957, to 24.8 percent in 1965 and to 23.1-23.9 percent by 1970.

A major qualification needs to be made regarding these projections. Expansion of defense expenditures, if the Viet Nam buildup continues, will involve increased employment in defense oriented manufacturing industries and their supplying industries. The projections developed by BLS assume that by 1970, the Viet Nam conflict will have been resolved and defense expenditures reduced to a more normal level. During the period of the buildup, manufacturing employment may exceed the projected employment in a number of industries.

A resolution of the Viet Nam situation and a return to more sustainable rates of increase in the demand for durable goods would imply substantial reductions in employment in some industries, particularly defense oriented industries. This still leaves room for growth in employment for a number of industries under the high durables alternative--furniture, paper, printing and publishing, chemicals, computers, and selected metal fabricating and machinery industries. However, the projections indicate little increase or even reductions from mid-1966 levels for two of the basic industries--automobiles and steel.

Chapter I. The Framework for the Projections

By 1970, the labor force is expected to grow to about 86 million persons, or about 7.5 million more than in 1965. If the economy in 1970 will provide employment for all except 4 or 3 percent of the civilian labor force, these questions arise:

1. How might the industrial distribution of employment in 1970 differ from the present distribution?

2. To what extent do the implied growth rates of employment among the various industries represent continuation of past trends or modification of these trends?

3. More specifically, will there be a return to the experience of the 1957-63 period, when there was little or no employment increase in manufacturing and construction--the prime source of blue-collar employment?

4. To what extent are the projected results affected by different assumptions regarding continuation of the recent sharp increases in expenditures for consumer and investment durable goods?

This report attempts to provide some tentative answers to these and related questions. It does this by developing detailed projections of the demand for goods and services, under various assumptions regarding unemployment rates, potential output, and patterns of expenditures in 1970. The report then traces the impact of these expenditures on industry employment, based on interindustry (input-output) relationships projected to 1970.

The projections are developed in a series of interrelated stages in which the first two stages provide the broad framework. The remaining stages fill in the detailed components of final demand, which are then converted into industry employment.

The objective of the first stage is the projection of potential national output (real GNP) in 1970, consistent with low rates of unemployment. Estimates of potential real output are based on separate projections of the labor force, employment, hours of work, and productivity (output per man-hour).

The second stage is concerned with how the real GNP is distributed among the major categories of final demand. These categories include personal consumption expenditures, private domestic investment for plant and equipment, residential construction, net inventory change, Federal and State and local government expenditures for goods and services, and net exports.

The third stage involves the distribution of the major components of the major components of final demand into detailed items such as food, clothing, automobiles, television sets, medical care, rent, machine tools, highway construction, etc. If the detailed estimates of consumer demand, investment demand, government demand, etc., are added together industry-by-industry, we obtain the aggregate final demand for the products of each industry in 1970. For some industries (e.g., apparel, footwear, household appliances, farm machinery), the 1970 demand of final purchasers will represent the major portion of total output of the industry. For other industries (among them, primary iron and steel manufacturing, coal mining, lumber and wood products, transportation), the demand of final purchasers will constitute only a small part of total output. Such industries produce goods and services primarily for further processing and intermediate use, not for final demand. Some method is required to estimate the output of raw materials and intermediate goods and services required to satisfy the demand for end products and services.

Final demand for passenger cars, for example, implies a demand for materials such as steel, aluminum, glass, tires, upholstery, and related transportation and distributive services. Similarly, demand for apparel implies output requirements from the textile industry. The textile industry, in turn, generates demand for cotton and wool from the agricultural sector of the economy and synthetic materials from the chemicals sector.

Given sufficient information on the material and service requirements for each of the different final products, it would be possible to derive the direct and indirect output requirements implied by a given level of demand for final goods and services. The basis for such computations is provided by a study of interindustry (input-output) relationships.

There is a long history of work in the United States and in other countries on input-output tables and analyses. The results of this work are not nearly as well known as the national income and product accounts and their related analyses. For readers who are not familiar with input-output analysis, it may be useful, therefore, to indicate briefly what it is and how it may be used to bridge the gap between demand for end products and the direct and indirect industry output required to produce these products; including output at the earlier stages of production, transportation, and distribution.

The development of the input-output tool of economic analysis and the actual construction of the first input-output tables were the work of Professor Wassily Leontief of Harvard University. Recognizing the potential of using input-output tables as a tool for manpower analysis, staff of BLS, under the guidance of W. Duane Evans, worked with

Professor Leontief 3/ to develop an input-output table for 1939. This subsequently was used as a framework for analyzing patterns of industry employment, production, and industrial capacity in the post-World War II economy.

That major study, "Full Employment Patterns, 1950," prepared by W. Duane Evans, Marvin Hoffenberg, and Jerome Cornfield, was published in 1947 in the February and March issues of the Monthly Labor Review. In subsequent years, the Bureau developed a detailed input-output table for 1947.4/ Although major research in this area was sharply curtailed in 1953, the Bureau has continued to use this approach in its studies of direct and indirect employment generated by various types of construction and also in its studies of the employment impact of foreign trade.5/

In 1960, work on a new input-output table was started, based on the voluminous Censuses of Manufacturing, Mining, and Trade for the year 1958. The work on the new table was centered in the Office of Business Economics to ensure that it would be developed as part of an integrated set of GNP, national income, and input-output accounts. This effort resulted in the development of a new input-output table and revisions in the GNP and national income estimates so as to be consistent, both conceptually and statistically, with the input-output table for 1958. The results of this work were published in 1964 and 1965.6/

3/ Wassily Leontief, The Structure of the American Economy, 1919-1939 (Oxford University Press, New York), Second Edition, 1951.

4/ W. Duane Evans and Marvin Hoffenberg, "The Interindustry Relations Study for 1947," The Review of Economics and Statistics, May 1952, pp. 97-142; also, National Bureau of Economic Research, Input-Output Analysis: An Appraisal, Studies in Income and Wealth, Vol. 18 (New York, 1955).

5/ Claiborne M. Ball, "Employment Effects of Construction Expenditures," Monthly Labor Review, February 1965, pp. 154-158; also, Eva E. Jacobs and Ronald E. Kutscher, Domestic Employment Attributable to U.S. Exports, 1960 (BLS, January 1962), summarized in Monthly Labor Review, March 1962, pp. 277-279; and The Relationship Between Imports and Employment (BLS, April 1962), summarized in Monthly Labor Review, July 1962, pp. 771-773.

6/ Morris R. Goldman, Martin L. Marimont, and Beatrice N. Vaccara, "The Interindustry Structure of the United States, A Report on the 1958 Input-Output Study," Survey of Current Business, November 1964, pp. 10-29. Also, National Economics Division staff, "The Transactions Table of the 1958 Input-Output Study and Revised Direct and Total Requirements Data," Survey of Current Business, September 1965, pp. 35-56. The revised and benchmarked national income and product estimates consistent with the 1958 input-output table are described in an article by staff of the Office of Business Economics, "The National Income and Product Accounts of the United States, Revised Estimates, 1929-1964," Survey of Current Business, August 1965, pp. 6-56.

In anticipation of the new table of interindustry relationships, the Interagency Growth Study Project started work several years ago on the use of the input-output and related accounts as the framework for developing projections of the economy in considerable industry detail under alternative assumptions regarding rates and patterns of growth.

What is an input-output table and how does it provide the basis for converting estimates of final demand into impact on industry output and employment?

An input-output transactions table is like a giant checkerboard, in that every entry in the table can be read two ways. Reading across the rows shows what each industry sells to every industry in the economy, including itself, as well as to final demand, i.e., consumption investment, government expenditures, and net exports. Reading down the columns of the input-output table shows what each industry buys from every industry, including itself, in order to produce its own output. The table also shows, at the bottom of the columns, the value added 7/ by the industry. The sum of the individual purchases from other industries and itself, plus the "value added" equals the value of production. It is the information in the columns on purchases of specific materials, parts, fuels, business services, etc., which is used as the basis for deriving the input-output ratios.

An input-output transactions table, when converted into ratio form, shows, for example, how much the automobile industry must buy from the steel, aluminum, glass, textile, rubber, plastics, transportation and trade industries in order to produce a dollar's worth of output. If we are interested in determining what effect increased automobile demand would have, not only on the automobile industry but on all its supplying industries, the input-output ratios or direct "coefficient" can be used to measure the impact on all the immediate supplying industries. Each of these industries, however, has its own supplying industries. The steel industry, for example, needs coal and iron ore to make steel. The coal and iron ore industries, in turn, need fuel to run the powerful machines used in mining and repair parts for equipment. By linking all the input-output coefficients together in a consistent and integrated set of relationships, it becomes possible to trace the impact of the initial demand for automobiles on each industry back along the production process. This covers raw materials, parts, components, fuels, and transportation and distributive services which are ultimately involved in making the final product--the automobile.

7/ "Value added" consists of labor compensation, proprietors' income, profits, interest, depreciation, and indirect business taxes.

It is the table of direct and indirect interindustry relationships (table 3 of the 1958 Interindustry Study) which is used as the framework for exploring the implications of alternative assumptions regarding rates and patterns of growth on the industrial composition of employment in 1970. The concepts, special definitions, and classification system of the input-output table are described in the article on the 1958 input-output study published in the Survey of Current Business (November 1964).8/ The detailed description need not be repeated here. There are, however, a few major aspects of the input-output study which need to be mentioned so that the form and detail in which the projections are developed can be better understood.

Classification system. The 1958 input-output table classifies all productive activities in the economy into 86 industries. In addition, there are a number of categories representing final demand and one composite category representing value added. Each of the producing industries may cover a broad range of products and services. Most of the producing industries are combinations of detailed industries, as defined in the Standard Industrial Classification Manual (SIC), 1957 edition, prepared by the Bureau of the Busget. The SIC coverage of the 1958 interindustry classification system is given in table IV-1.

The detailed projections of final demand are also classified by producing industry, in order to be consistent with the classification used in the input-output table. This means, for example, that a projection of consumer demand for food is further distributed to show how much of the total will be from the farm industries (e.g., eggs from industry 1, fresh fruit and vegetables from industry 2, or bread and meat from the food processing industry, industry 14). Purchases of "shoes" are distributed between leather shoes made in industry 34 and shoes, boots, and sneakers made in industry 32, rubber and miscellaneous plastics products.

Trade. The input-output tables do not trace actual flows to and from the trade industry. If trade were shown as a buying and selling activity, the detailed connections would be between trade and the producing industries, while the consuming industries would purchase most of their inputs from a single source--trade. To show the links between producing and consuming industries, or final markets, commodities are shown as if moving directly from producer to user, bypassing trade. Therefore, the output of trade is measured only in terms of total margins; that is, operating expense plus profit.

Valuation of transactions. Input-output relationships can be expressed, in concept, in either producers' value of purchasers' value. Specifically, the inputs for making an automobile can be related to the price received by the producer or to the price paid by the purchaser. In the input-output tables, the valuation is at producers' value.

8/Morris R. Goldman, Martin L. Marimont, and Beatrice N. Vaccara, op. cit.

Under a system using producers' valuation, the individual inputs into a consuming industry are valued at producers' prices. The trade margins and transportation costs associated with all of these inputs appear as direct purchases from the trade and transportation industries, respectively. On consequence of using the producers' valuation of transactions as the basis for deriving output is that the generated output includes only requirements at earlier stages of the production process; it does not cumulate forward to cover the transportation and trade activity required to move the product of a given industry on to the next stage of production or to final demand.

In using the input-output table to convert estimates of final demand (usually stated in purchasers' value) into output requirements, additional information is needed on the margins for transportation and trade. These values can then be deducted from purchasers value to derive the appropriate producers' value. A final demand "bill of goods," therefore, consists of expenditures for specific goods and services, valued at producers' prices, plus separate purchases from the transportation and trade industries for the services involved in getting the product from producer to purchaser. Information on trade and transportation margins associated with each transaction was developed as part of the 1958 Interindustry Study. This information is used to convert the final demand expenditures for goods and services, initially estimated in purchasers' value, into producers' value.

Secondary product transfers. A final demand "bill of goods" shows the demand for end items, classified by specific groups of products or services. However, a product may be made in an industry where it represents the principal proportion of the industry's output; or it may be made as a "secondary" product in some other industry. For example, synthetic resins are made in both industry 28, plastics and synthetic materials and industry 27, chemicals and selected chemical products. In the input-output table, to avoid the problem of splitting the demand for synthetic resins between the two producing industries, the interindustry study adopts the convention of transferring the synthetic resins products produced in the chemical industry to industry 28. Thus, the latter industry meets the entire demand for synthetic resins from the total supply, wherever produced. This approach implies that the "bill of goods" in the input-output system classifies specific items of final demand by the industries producing the items as primary products. The primary industries will, in turn, generate demand for these items in the industries where they are produced as secondary products. In this way, the output generated by the demand for a product or service covers the industries where the actual production takes place, both in the "primary" industry and also in the industry where the product is a secondary product.

This approach of transferring products, wherever made, to a single industry is based on the assumption of fictitious sales to the primary producing industry. It is used in a number of areas in the input-output table. This approach permits the demand for products or services to be distributed back to the original producing industries in the proportion that they contributed to the supply.

However, in some industries where secondary production is large and considerably different from the primary output, such as automobile repair performed in automobile dealer establishments, the industries involved are redefined. To accomplish this redefinition, the secondary products and their associated inputs are taken out of the producing industries and assigned to the primary industry.

Imports. Imports used for production (intermediate goods and services) which can be substituted for domestically produced goods and services are treated in a parallel manner to secondary products. These imports are assigned to the industry producing the domestic equivalent as an addition to output and a purchase from imports. This approach results in demand for a product (for example, steel) being met in part by domestic production and in part by imports.

Imports used in production which have no domestic counterparts and imports purchased by final demand in substantially the same form in which they are imported are shown as purchased directly by the consuming industry or final market.

Consistency with base year prices. The basic input-output table is for the year 1958 and reflects the 1958 price level. In order to use the input-output relationships, the detailed projections of final demand expenditures must either be stated in 1958 prices, or the basic input-output table must be converted to the price level underlying the final demand estimates. In this study, the projections of final demand expenditures are developed in constant 1958 prices.

This does not mean that changes in relative price 9/ are ignored. For example, projected changes in relative price are used in developing the detailed estimates of consumer expenditures.

In another area, the change in relative price is implicit in projections of input-output relationships. Technological change affects input-output coefficients. Similarly, the substitution of one material for another due to relative price changes may affect input-output

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9/ Relative price change is the relationship between the change in price of a given commodity or service and the average price change of all commodities and services.

coefficients. Where past trends are used as the basis for projecting input-output relationships, the past impact of relative prices is assumed to continue.

Investment requirements. The table of direct and indirect interindustry relationships shows what each industry must produce in order to provide the materials, transportation, and distributive services ultimately embodied in the final products of the economy.

The direct and indirect inputs are limited, however, to current account of purchases of goods and services. The input-output relationships do not cover the purchases of capital goods required, directly or indirectly, for the production of final goods and services. In using the input-output relationships as the basis for converting final demand into direct and indirect industry output requirements, independent projections must be made for investment expenditures for plant and equipment required by an expanding economy. The methods used in developing the projection for this component of final demand are discussed later in this bulletin.

Employment. The basic interindustry relationships are limited to production relationships. They show what each industry must produce in order to meet the demand for final goods and services. The basic input-output ratios or coefficients do not cover employment requirements. In order to evaluate the employment implications of demand for final goods and services, the output requirements need to be converted into employment requirements. This is accomplished by applying appropriate ratios of employment per dollar of output to the derived levels of industry output. This can be done either as a separate stage in the computations or by converting the basic interindustry table into an interindustry employment table. The latter shows the employment that is required in each industry, directly or indirectly, to meet the demand for final goods and services. As in the case of output, the employment covers all the intermediate stages of production, transportation, and distribution ultimately embodied in the final good or service, as well as in the final stage itself. In this study, the projections for final demand are converted into employment requirements through the use of an interindustry employment table.

Projections. Finally, the basic input-output relationships and the ratios of employment per dollar of output reflect the relationship which existed in some base period--1958 in this instance. The objective of the study, however, is to evaluate the employment implications of final demand, projected to 1970. Consistent with this objective, the interindustry employment table has also been projected to reflect changes in input-output relationships as well as changes in unit labor requirements

by 1970. The projection of unit labor requirements in each industry is based, in turn, on the projections of labor productivity (output per man-hour) and annual hours paid.

The various stages of the projections can, therefore, be considered as falling into three main categories: (1) projections of the 1970 final demand "bill of goods," classified by input-output industry and valued in 1958 constant prices; (2) development of a 1970 interindustry employment table; and (3) the projection of 1970 industry employment, derived by multiplying the final demand bill of goods by the relationships derived from the interindustry employment table.

Balances. A distinctive feature of the approach is that the projections are developed as a series of successive approximations in which initial estimates of major aggregates and even detailed components may be modified by later stages in the computations until the various elements of the models are in balance. For example, the first set of generated employment requirements may not, in the aggregate, be consistent with the projected supply of labor, given the assumed unemployment rate. If there is a disparity between the supply of labor and the demand generated by the model, this implies that either the level of potential output needs to be modified or the elements of the projections (composition of final demand, input-output relationships, output per man-hour) leading up to the derived employment requirements need to be reviewed and modified. Either approach may require several iterations to achieve a balanced set of estimates. The projections shown in this bulletin are the final result of this process of successive approximations, using the approach of achieving a balance by modifying each of the elements.

Chapter II. Potential Output in 1970

The starting point for the projections of the industrial distribution of employment is the potential output of final goods and services in 1970. The projections are based on the assumption that between 1965 and 1970 the economy will continue to grow sufficiently to provide jobs for the expanding labor force and to maintain relatively high rates of employment. For the purpose of this study, high rates of employment are defined as being consistent with 4- and 3-percent civilian unemployment rates. Projections of potential national output have been developed, based on these alternative assumptions regarding the unemployment rate. The projection of potential output (GNP in constant dollars) involves additional projections of the labor force, annual hours per worker, and output per man-hour.

The projections of potential national output are developed in constant (1958) dollars in order to exclude the effect of a change in price. The projections of constant dollar GNP are stated in 1958 prices to be consistent with the price level of the basic input-output table and the detailed estimates of constant dollar expenditures for final goods and services, developed by the Office of Business Economics. 10/

The various elements of the projections of potential output are described below and summarized in table II-1. (See end of chapter.)

In 1965, the labor force (defined as those in the population 14 years and over at work or seeking work) was 78.4 million. By 1970, assuming a 4-percent unemployment rate, the labor force is expected to grow to about 86 million, an increase of about 7.6 million over the 5-year period. 11/ There is some evidence, however, that the labor force participation rate will respond to the unemployment rate--that more people will seek to enter the labor force at higher levels of employment. To reflect this, under the assumption of 3-percent unemployment, the labor force has been increased by an additional 400,000. 12/

The labor force is projected to increase between 1965 and 1970 at 1.9 percent a year in the 4-percent model and 2 percent a year in the 3-percent model. This may be compared with a growth in the labor force of 1.3 percent a year in the period between 1957--the last previous year in which unemployment approached 4 percent--and 1965. This increase in the rate is

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10/The GNP estimates for 1965, used in deriving potential GNP for 1970, were preliminary. The annual revisions shown in the July 1966 Survey of Current Business were not incorporated in any of the estimates, nor in any of the tables showing 1965 GNP. However, the magnitude of the annual revisions are such that it is unlikely that any of the results would be changed significantly.

11/Sophia Cooper and Denis F. Johnston, "Labor Force Projections for 1970-80," (Special Labor Force Report No. 26), Monthly Labor Review, February 1965, pp. 129-40.

12/Sophia Cooper and Denis Johnston, op. cit., p. 140.

largely the result of the entrance into the labor force of the large number of persons born in the immediate post-war period who will reach working age during 1965-70. Another reason is the higher labor force participation rates for women. Applying the assumed unemployment rates to the projected civilian labor force gives the level of employment in 1970. The size of the Armed Forces is estimated separately. The projections assume that the conflict in Viet Nam will be over by 1970, but that defense expenditures and the size of the Armed Forces will be maintained at a level somewhat above the pre-Viet Nam level.

In 1965, the labor force was below the level implied by the projections for the 1960-70 period. It is difficult to judge how much of this "shortfall" is transitory and how much of it reflects factors which would affect the trend in labor force participation rates over a longer term. Acceptance of the original labor force estimates for 1970 assumes that participation rates will return to the trend levels. On this basis, the 1.9-percent projected increase in the labor force from 1965 includes the acceleration required to make up the shortfall, in addition to the increases normally to be expected. The projected rate of growth of the labor force, excluding the shortfall, would be about 1.7 percent a year, still considerably above that of the previous rate (1.3 percent).

The detailed employment projections, which are developed later in the models, are based on data consistent with establishment reporting systems which count jobs; the data thus reflect dual jobholding. In contrast, the labor force estimates are based on household interviews which count individuals, rather than jobs. An adjustment is made to the projection of the labor force in order to make it consistent with the establishment reporting system.13/ The establishment-based estimates of employment used in the projections are those developed by the Office of Productivity, Technology and Growth, BLS, as part of its program of productivity measures.

The estimate of total employment, based on establishment reports, is derived by adding estimates of government employment, agricultural employment, self-employed, unpaid family workers, and domestics to BLS estimates of private nonfarm wage and salary employment.

The difference between the labor force estimate of total employment and that based on the adjusted establishment series reflects both statistical differences as well as differences due to dual jobholding. The

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13/ For a discussion of the differences in the labor force survey procedures and the nonfarm establishment reporting system, see the technical note in any current issue of BLS periodical, Employment and Earnings and Monthly Report on the Labor Force.

adjustment factor has varied over the historical period. In the projections developed for this bulletin, it has been assumed that the difference between the two employment estimates will remain at about the level of the average difference for the past few years.

The projections of hours of work and productivity use estimates for the postwar years which are prepared by the Office of Productivity, Technology and Growth. These are used as a statistical frame of reference, thus assuring consistency between historical data and projections of employment, hours of work, productivity and output.14/

These projections of employment, hours of work, and productivity are developed for broad sectors (i.e., government, agriculture and nonagriculture). This is done to take into account the fact that aggregate productivity may be affected by shifts in the relative importance of sectors which have different levels of productivity.

The separate projections of labor force, unemployment, employment, annual hours per job, and productivity (output per man-hour) are combined to develop the estimates of potential GNP in 1970. Derived from these are the implied growth rates between 1965 and 1970 required to achieve and then maintain the rates of unemployment at 4 and 3 percent of the civilian labor force.

Total employment, on an establishment basis, is projected to increase by 1.9 or 2.2 percent a year, depending on the unemployment assumption. The rates among the major sectors of the economy vary considerably. Federal Government employment is projected to increase only moderately--at about half the rate of increase of total employment. The moderate increase in Federal employment is consistent with the assumption regarding the end of the Viet Nam conflict by 1970. In addition, the projections of Federal Government programs developed in the final demand "bill of goods" stage imply that most of the increases in Federal Government expenditures are not for direct purchases of goods and services, including Federal employment. They are for grants to State and local governments for such programs as, aid to education, and manpower training or for transfer of funds to individuals, as under the social security programs. Federal Government employment would, therefore, be affected only moderately by the expansion of such programs as aid to education, antipoverty, and Medicare.

14/ Trends in Output per Man-Hour in the Private Economy, 1909-1958, Bulletin 1249, 1960. For the most recent information on indexes of output per man-hour, see release "Indexes of Output per Man-Hour for the Private Economy, 1947-1965," Office of Productivity, Technology and Growth, BLS, October 1966.

State and local government employment, on the other hand, is projected to continue to increase much faster than the average, as it has been doing for most of the postwar period. The projected increase in State and local government employment of 5 percent or more a year is based on a detailed study of the expected expansion in State and local government expenditures over the next 5 years. The details are discussed later in the bulletin, when describing the projection of the "bill of goods" for State and local government.

The 3-percent unemployment model allows for a somewhat higher rate of increase in State and local government employment than does the 4-percent model. This is based on the assumption that some increases in manpower training and antipoverty programs will be necessary to achieve and then maintain a 3-percent unemployment rate. Such programs would require some increase in State and local employment because of the expansion in training staff. Also, in the case of certain programs such as Neighborhood Youth Corps, trainees are considered as State and local employees.

The difference in State and local government employment between the 3- and 4-percent unemployment models represents only a third of the total difference of 1.2 million jobs between the two models. Most of the increased employment is assumed to be in the private sector of the economy.

Employment in the agricultural sector is projected on the basis of a continuation of the postwar decline in employment for this sector. The rate of decline is somewhat reduced, however.

Given the projected increase in total employment and the separate projections of Federal Government employment, State and local government employment, and farm employment, total private nonagricultural employment is derived as a residual. The projected increases for this sector are 1.9 and 2.1 percent a year over the 1957-65 period. The increased rate of employment reflects both acceleration in the growth of the labor force and reduction in the unemployment rate.

Within the total private nonagricultural sector, the projected increase in employment varies by type of employment. Self-employed and unpaid family workers, for example, are assumed to increase at half the rate of total employment, continuing the past decline in this whole class of employment relative to wage and salary employment.

The projections of annual hours per job are developed separately for each major sector.15/ Hours per person employed in the government sectors are assumed to remain the same as in 1965. Average hours in agriculture

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15/Hours used are payroll hours or hours paid, which include paid holidays, paid vacations, and paid sick leave.

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are expected to decline at about the rate for the postwar period, excluding the change for the last year or two which saw a slowing down in the decline in hours.

Hours per job for the private nonfarm sector are expected to decline at about 0.3 percent a year. The decline reflects a projection of little or no change in manufacturing hours and a continuation of declines in the nonmanufacturing sector. In the 1963-65 period, average hours increased rather than followed the trend toward reduced hours. It is assumed, however, that average hours, which in 1965 already included substantial overtime in the manufacturing sector and increases in other sectors, will revert to stability in manufacturing and to continued reductions in nonmanufacturing. The much larger labor force being projected includes, by assumption, increased part-time employment among students and women. Both groups are traditionally employed in the large nonmanufacturing sectors of trade and services, which provide most of the opportunity for part-time employment.

The trend of output per man-hour is the most difficult element to project. It reflects changes in technology, quality of the labor force, rate of capital investment, and capacity utilization. These factors in turn reflect many other elements in the economic, political, and social structure of the Nation.

For the purpose of these projections, it is assumed that the trend in output per man-hour since 1957 would continue over the next 5 years. The 1957-65 period was chosen, because 1957 was the last year in which the unemployment rate was close to 4 percent. Thus, the distortions resulting from changes in capacity utilization are minimized. The rate of growth in output per man-hour during this period was 3.2 percent a year for the private economy.16/ Productivity increases in the agricultural sector were considerably higher than the average. They are projected to continue their increase--about 5.5 percent a year--a more rapid rate than that of the nonfarm sector. The rate of change for the private nonfarm sector is projected at the past rate of 2.9 percent a year.

The separate projections of the labor force, employment, annual hours per worker, and output per man-hour yield a projected growth rate of 4.3 percent a year, under the 4-percent unemployment assumption, and 4.5 percent a year, under the 3-percent unemployment assumption. Real GNP in 1958 prices is projected to grow by 1970 to about $750 billion under the first assumption, and to almost $760 billion under the latter assumption. (In 1965 prices, potential GNP in 1970 would be about $835 or $845 billion, depending on the unemployment assumption.)

16/In accordance with the conventions in the measurement of constant dollar GNP, output per man-hour for government is assumed to be constant, i.e., it is assumed that there is no increase in the productivity of government employees.

These projected rates of increase are annual averages for the remainder of the decade. The sustainable growth rate, estimated to be about 4 percent a year by 1970, would be lower because part of the increase is related to the reduction in unemployment rate from the 4.6 average in 1965 and making up the "shortfall" in the growth in the labor force. The projected growth rates are lower than those achieved over the past few years, but are still significantly higher than the actual growth rate of 3.7 percent a year over the entire post-war period.

It should be emphasized that the projected growth rates are based on a number of assumptions. If the labor force shortfall is not made up, the growth rate would be about 0.2 percent a year lower. If the decline in average hours is eliminated or reduced, the growth rate would be higher. Finally, the growth rate would be somewhat higher or lower depending on the assumption about the trend in output per man-hour.

Table II-1. Labor Force, Employment, Annual Hours, Productivity, and Gross National Product
Actual 1957 and 1965, and Potential 1970

Item	Actual		Projected 1970		Average annual rate of change[2]		
						1965-70	
	1957	1965[1]	3 percent unemployment	4 percent unemployment	1957-65	3 percent unemployment	4 percent unemployment
Total labor force (thousands)	70,744	78,357	86,400	86,000	1.3	2.0	1.9
Unemployed	2,936	3,456	2,507	3,326	1.4	-6.2	-.7
Employed	67,808	74,901	83,893	82,674	1.3	2.3	2.0
Employment: establishment basis[3] (thousands)	71,117	77,347	86,193	84,974	1.1	2.2	1.9
Government[4]	9,756	12,003	14,718	14,301	2.6	4.2	3.6
Federal	4,531	4,560	4,795	4,790	.1	1.0	1.0
Military	2,786	2,720	2,850	2,850	-.3	.9	.9
Civilian	1,745	1,840	1,945	1,940	.7	1.1	1.1
State and local	5,225	7,443	9,923	9,511	4.5	5.9	5.0
Private	61,361	65,344	71,475	70,673	.8	1.8	1.6
Agriculture	6,222	4,585	4,080	4,080	-3.8	-2.4	-2.4
Nonagriculture	55,139	60,759	67,395	66,593	1.2	2.1	1.9
Hours of work (annual average)--private[5]	2,112	2,081	2,040	2,040	-.2	-.4	-.4
Agriculture	2,371	2,345	2,298	2,298	-.1	-.4	-.4
Nonagriculture	2,089	2,061	2,030	2,030	-.2	-.3	-.3
Total man-hours (millions)--private	129,619	135,969	145,806	144,272	.6	1.4	1.2
Agriculture	14,752	10,752	9,376	9,376	-3.8	-2.7	-2.7
Nonagriculture	114,867	125,217	136,430	134,896	1.1	1.8	1.5
GNP per man-hour (1958 dollars)--private[5]	3.15	4.07	4.76	4.75	3.2	3.2	3.2
Agriculture	1.38	2.17	2.83	2.82	5.8	5.5	5.4
Nonagriculture	3.38	4.24	4.89	4.89	2.9	2.9	2.9
Gross national product (1958 dollars)	452.5	609.0	[6]759.0	[6]750.7	3.8	4.5	4.3
Rest of the world[7]	2.1	4.5	5.0	5.0	10.0	2.1	2.1
GNP (domestic)	450.4	604.5	754.0	745.7	3.7	4.5	4.3
Government, general	41.9	50.6	60.0	59.3	2.7	3.5	3.2
Federal	21.5	21.6	22.8	22.8	.1	1.1	1.1
Military	11.1	10.9	11.4	11.4	-.2	.9	.9
Civilian	10.3	10.7	11.4	11.4	.5	1.3	1.3
State and local	20.4	29.0	37.2	36.5	4.5	5.1	4.7
Private	408.5	553.9	694.0	686.4	3.9	4.6	4.4
Agriculture	20.3	23.3	26.5	26.4	1.7	2.5	2.5
Nonagriculture	388.2	530.6	667.5	660.0	3.5	4.7	4.5

1/ Preliminary estimate.

2/ Compound interest rate based on terminal years.

3/ The total civilian employment differs from that shown in table VI-1 and table VI-3 because of differences in the treatment of government employees.

4/ For consistency with measures of government output, estimates of government employment used are those developed by the U.S. Department of Commerce, Office of Business Economics.

5/ In accordance with the conventions in the measurement of constant dollar gross national product, productivity for government is assumed constant. Since no change in average hours is projected for this sector, the change in government product is equal to the change in employment.

6/ Gross national product for 1970 shown here is as computed but has been rounded to $760 and $750 for use as control totals for the various models.

7/ Rest of the world reflects U.S. income and product originating outside the United States.

SOURCE: Historical data on gross national product are from the U.S. Department of Commerce, Office of Business Economics. All other historical data and projections are from the U.S. Department of Labor, Bureau of Labor Statistics.

Chapter III. Distribution of Potential Output Among Major Categories of Final Demand

The projections developed in this bulletin are based on the assumption that potential demand for end products and services by the various final demand claimants are exactly equal in total to the potential output of the economy in 1970. This chapter describes how the total final demand may be distributed among the major categories of consumer goods and services, private investment goods, public goods and services, and net exports.

In general, the composition of final demand is projected on the basis of a combination of assumptions and independent studies for specific final demand components. Because the assumptions are basic to an understanding of the projections, it may be useful to start with an explanation of these assumptions.

Assumptions

Some of the basic assumptions have already been mentioned. The major assumption is that the Viet Nam conflict will have been resolved by 1970 and that defense expenditures and the size of the Armed Forces will be reduced to a level somewhat higher than that which existed prior to the Viet Nam buildup. In the event of a large scale military buildup, the resulting patterns of demand and employment would, of course, be significantly different. This is especially true for several of the defense-related industries--ordnance, aircraft, and electronics and communications equipment, among others.

It is further assumed that growth in the economy will be based primarily on the expansion of consumption and investment demand and of State and local government expenditures. Federal Government direct purchases of goods and services are projected to expand only moderately.

As previously stated, it should be noted that expenditures resulting from many Federal Government programs are treated in the national income accounts, and therefore in these projections, as expenditures by consumers (Medicare), and by State and local governments (highway construction).

In general, the projections are based on the assumption of continuation of past relationships, e.g., relationships of consumer expenditures for specific items to the level and change in personal income, or extension of existing government programs to provide public services. The projections of demand are not based on a systematic analysis of national goals and what would be required to achieve these goals, e.g., achievement of minimum nutritional standards or elimination of substandard housing. However, the basic assumptions of high rates of employment

and continued economic growth underlying these projections would imply gains in the attainment of minimum standards or goals.17/

It is also assumed that maintenance of growth rates consistent with high levels of employment would be implemented by appropriate fiscal and monetary policies designed to maintain adequate aggregate demand. In addition, continuation of specialized programs to provide training and retraining, worker experience, labor mobility, and employment in public service projects would be essential. Implementation of these special programs will involve the active participation of labor, management, nonprofit organizations, and agencies of Federal, State, and local government.

It is assumed that Federal Government policy places more emphasis on expansion of specialized programs under the 3-percent unemployment model than under the 4-percent unemployment model. Expansion of these specialized programs will involve some increase in direct government employment (primarily State and local government), but most of the increase is expected to be in the private sector of the economy. Consistent with the assumption that the primary objective of the specialized programs is to facilitate employment in the private sector, the patterns of final demand in both the 4- and 3-percent unemployment models are similar. A moderately higher level of employment in State and local governments is projected for the 3-percent unemployment model.

One of the major uncertainties in the projections of final demand is the extent to which the unusually high rates of increase during the past few years for consumer durables, particularly automobiles, and for domestic private investment for plant and equipment may be expected to continue. The substantial increases in demand for durable goods account in large part for the reversal of the previous sluggish growth in manufacturing employment. In order to explore the implications of changes in this dynamic component of final demand, several alternative assumptions have been developed. The basic 4- and 3-percent unemployment models assume that by 1970, expenditures for consumer and producer durable goods will return to a pattern based on past relationships. An alternative to the basic 4-percent unemployment model (high durables) assumes that the recent sharp increase in expenditures for consumer durables and capital goods will continue, but at a more moderate rate. This rate is still above that implied by past relationships, however. An additional alternative to the 4-percent unemployment model (high services) assumes that, as a result of increased productivity of capital, capital expenditures will continue to increase, but at a lower rate than the increase in real output; therefore, capital

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17/ For research on the achievement of national goals, see: (1) Leonard Lecht, The Dollar Cost of Our National Goals, (Washington, D. C., National planning Association, 1965); and (2) the section on "Manpower Requirements to Achieve National Goals" in the 1966 Manpower Report of the President, pp. 45-47.

expenditures for plant and equipment would decline as a proportion of GNP. This alternative model also assumes that the anticipated sharp increase in residential construction, postulated in the basic models, will be delayed somewhat and will only increase moderately by 1970. The slower increase in private domestic investment in this model is assumed to be offset by larger increases in consumer expenditures, primarily in consumer services and increased State and local government expenditures.

Although the alternative projections are only applied to the basic 4-percent unemployment model in this bulletin, they can be considered as equally applicable to the basic 3-percent unemployment model.

Based on the assumptions indicated above and on the studies of a number of the final demand categories, the projections of the major components of final demand in 1970, as shown in tables III-1 to 3, are developed. These projections are as follows:

Government expenditures. By 1970, Federal Government expenditures are projected to increase about $6.5 billion (in constant 1958 prices) above the 1965 level. This implies moderate increases for nondefense programs and a leveling off of military expenditures below the 1966 level, but still somewhat higher than the 1965 level. The projection of Federal nondefense purchases of goods and services is based in part on some of the long-run projections developed by the National Planning Association in a study for the Brookings Institution.18/

Federal expenditures for goods and services are projected to increase at a slower rate than the growth in total final demand. The result is that this component will decline from about 9.4 percent of real GNP in 1965 to about 8.4 percent by 1970.

In contrast, State and local government expenditures for goods and services are projected to increase substantially faster than any other major component of final demand. This reflects the rapid growth in services, particularly in the education area, required by an expanding and continual more urban population. As a result, the relative increase in State and local government expenditures for goods and services is expected to almost offset the relative decline in Federal Government expenditures for goods and services. The increase in State and local government expenditures would be from about 9 percent in 1965 to about 10 percent in 1970. By 1970, State and local government expenditures for goods and services are projected to be substantially higher than those made by the Federal Government. The projection for State and local government expenditures is somewhat higher in the high service (low investment) model than in the other models.

18/ Gerhard Colm and Peter Wagner, Federal Budget Projections in the Perspective of Economic Growth, National Planning Association, Studies of Government Finance, (Washington, D. C., The Brookings Institution, 1965).

The estimates of State and local government expenditures are based on an evaluation of the extent to which existing programs may be modified, extended, or expanded by 1970. This is based on a detailed analysis of each function performed by State and local governments, taking account of such specific factors as the effect of anticipated increases in school enrollment on education expenditures.

The estimates of State and local government expenditures for goods and services are based on two separate but complementary approaches: one, an evaluation of functions for all State and local governments combined; the other, a much more detailed State-by-State approach. The first approach was developed by staff of the Bureau's Division of Economic Growth and the second by a special study group cosponsored by the Council of State Governments and George Washington University.19/ The projections of expenditures by these different approaches yield approximately the same results.

Investment. Gross private domestic investment consists of three items; expenditures for private residential construction, expenditures for private plant and equipment, and net change in business inventories.

In the basic projections, private residential construction is projected to increase rapidly by 1970 to provide housing for the growing number of families and to meet the large demand for replacement of old units. Housing starts (single family housing and multiunit dwellings) are projected to increase from about 1.5 million in 1965 to about 1.9 million in 1970. This is consistent with the intermediate projection of housing starts for the 1965-75 decade, developed by the Office of Business Economics, U.S. Department of Commerce.20/

Nonhousekeeping units (hotels, motels) are projected to increase even faster than housekeeping units. The rate of increase in total private residential construction is somewhat higher than for the economy as a whole. However, because housing starts have shown little growth for several years and because construction might not respond to increases in family formation until after 1970, the high service (low investment) model assumes a lower rate of increase than the basic model.

As previously indicated, the projection of private nonresidential fixed investment represents one of the most difficult areas in the entire set of projections. For several years, expenditures for this category have been increasing substantially faster than real output in the economy. By 1965, this component accounted for 10.7 percent of GNP (in 1958 prices), a somewhat higher ratio than that achieved in the capital goods boom of 1955-57. Information on expenditures for private nonresidential fixed investment during 1966 indicates that this relative increase will continue.

19/ This project was under the direction of Selma Mushkin, see Bibliography in Appendix.

20/ L. Jay Atkinson, "Long-Term Influences Affecting the Volume of New Housing Units," Survey of Current Business, November 1963, pp. 8-19.

There is considerable uncertainty, however, as to how much longer this can continue before increases in capacity exceed demand.

Since there is so much uncertainty in this area, the projection for this category has not been limited to a single estimate. Instead, three alternative assumptions have been introduced into the models to test the implications of these alternatives on the structure of demand and employment.

The basic 4- and 3-percent unemployment models assume that private nonresidential fixed investment in 1970 will account for approximately the same ratio of total final demand as in 1965--10.7 percent. The high durable goods alternative to the basic 4-percent unemployment model assumes that the relative increase in expenditures for this category will continue for most of the remainder of the decade, but at a slower rate than that of the past few years. By 1970, the ratio of private nonresidential fixed investment to output (GNP in constant prices) is projected to increase to 11.5 percent--$6.5 billion more than in the basic model.

Recent research at the Brookings Institution suggests a different alternative. Namely, that as a result of increasing efficiency in the use of capital, the proportion of output devoted to private nonresidential fixed investment may decline rather than increase.21/ In order to examine this possibility, the high service (low investment) alternative assumes that private nonresidential fixed investment will continue to increase, but at a slower rate than real output, and by 1970 will represent a smaller proportion of real GNP than in 1965. It is further assumed that this reduction will be offset by increases in consumer and State and local government expenditures, primarily for services.

By 1970, under the assumptions of this model, the proportion of GNP devoted to private nonresidential fixed investment is projected to decline to 10 percent--about $5 billion lower than in the basic model. Thus, the implications of a range of almost $12 billion in private nonresidential fixed investment is explored in these models.

The projection for this component is further distributed between construction and producer durable equipment. This is done on the assumption that the long-run increase in the proportion going to equipment will continue, but at a diminishing rate. In 1965, investment in equipment represented 67 percent of this total; by 1970, it is projected to increase to almost 70 percent, a higher ratio than at any time during the postwar years.

21/ Bert G. Hickman, Investment Demand and U.S. Economic Growth, (Washington, D. C., The Brookings Institution, 1965).

The last category of investment, the change in inventories is projected on the assumption that it will increase sufficiently to maintain the ratio to real output it achieved in 1964. The year 1964 rather than 1965 was selected as a more appropriate base because of the special factors affecting inventories during 1965. For example, steel was stockpiled in anticipation of a steel strike. Also, the ratio of inventory change to GNP in 1964 is about the same as that for the entire period 1957-65.

Net exports. The projection of net exports is based on a study by the Office of Business Economics which projects the major components of the United States balance of payments, including separate estimates of imports and exports. It is assumed that by 1970 international payments among the major regions of the world will be roughly in balance.22/ Net exports as a percentage of GNP are projected to increase from 1.0 percent in 1965 to about 1.4 percent in 1970.

Personal consumption. The largest category of final demand, consumer expenditures, is initially derived as a residual. It is then evaluated to determine whether its relationship to total final demand is reasonable from the viewpoint of the past trend in its share of output. Because the estimate of consumer expenditures is derived initially as the residual component, the share of consumer expenditures in the models varies, depending on the assumptions underlying the models.

In general, the share of consumer expenditures in the basic models is approximately the same as that during most of the period since 1957--almost 65 percent of GNP. The high durable goods alternative, which includes a larger share for investment, has a somewhat smaller ratio of consumer expenditures. Conversely, the high service (low investment) alternative has a higher proportion of GNP going to consumer expenditures. The difference between the alternatives amounts to $12 billion.

The various models make it possible to explore the implications for employment of possible changes in both the level and composition of consumer demand. The composition of consumer expenditures has already been mentioned in the earlier discussion of the alternative models. It will be discussed further in the next section which deals with the methodology used to develop the more detailed distribution of the major components of final demand.

22/ Evelyn M. Parrish, A Pattern of Balances of Payments between World Regions in 1970, Staff Working Paper in Economics and Statistics, No. 9, Office of Business Economics, U.S. Department of Commerce, September 1964 (unpublished).

Table III-1. **Gross National Product, by Major Components, Selected Years and Projected 1970**

(Billions of 1958 dollars)

Major component	Selected years[1]			Projected 1970			
				3 percent unemployment	4 percent unemployment		
	1957	1962	1965[2]	Basic model	Basic model	High[3] durables	High[4] services
Gross national product	452.5	530.0	609.0	760.0	750.0	750.0	750.0
Personal consumption expenditures	288.2	338.6	394.1	492.6	485.5	478.5	490.5
Durable goods	41.5	49.2	65.4	83.1	81.9	89.7	82.2
Nondurable goods	138.7	158.4	177.0	212.1	209.0	208.2	209.8
Services	108.0	131.1	151.6	197.4	194.5	180.6	198.5
Gross private domestic investment	68.8	79.4	96.1	118.6	117.0	124.0	110.0
Fixed investment	67.6	73.4	88.9	112.6	111.0	118.0	104.0
Nonresidential	47.4	49.7	65.0	81.3	80.0	86.5	75.1
Structures	18.2	17.9	21.2	25.3	25.0	27.0	23.6
Producers' durable equipment	29.1	31.7	43.8	56.0	55.0	59.5	51.5
Residential structures	20.2	23.8	23.9	31.3	31.0	31.5	28.9
Change in business inventories	1.2	6.0	7.2	6.0	6.0	6.0	6.0
Net exports of goods and services	6.2	4.5	6.0	10.5	10.5	10.5	10.5
Exports	26.2	30.0	37.3	45.2	45.2	45.2	45.2
Imports	19.9	25.5	31.3	34.7	34.7	34.7	34.7
Government purchases of goods and services	89.3	107.5	112.8	138.4	137.0	137.0	139.0
Federal	51.7	60.0	57.2	63.7	63.5	63.5	63.5
State and local	37.6	47.5	55.6	74.7	73.5	73.5	75.5
	Percent distribution						
Gross national product	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Personal consumption expenditures	63.7	63.9	64.7	64.8	64.7	63.8	65.4
Durable goods	9.2	9.3	10.7	10.9	10.9	12.0	11.0
Nondurable goods	30.7	29.9	29.1	27.9	27.9	27.8	28.0
Services	23.9	24.7	24.9	26.0	25.9	24.1	26.5
Gross private domestic investment	15.2	15.0	15.8	15.6	15.6	16.5	14.7
Fixed investment	14.9	13.8	14.6	14.8	14.8	15.7	13.9
Nonresidential	10.5	9.4	10.7	10.7	10.7	11.5	10.0
Structures	4.0	3.4	3.5	3.3	3.3	3.6	3.1
Producers' durable equipment	6.4	6.0	7.2	7.4	7.3	7.9	6.9
Residential structures	4.5	4.5	3.9	4.1	4.1	4.2	3.9
Change in business inventories	0.3	1.1	1.2	0.8	0.8	0.8	0.8
Net exports of goods and services	1.4	0.8	1.0	1.4	1.4	1.4	1.4
Exports	5.8	5.7	6.1	5.9	6.0	6.0	6.0
Imports	4.4	4.8	5.1	4.6	4.6	4.6	4.6
Government purchases of goods and services	19.7	20.3	18.5	18.2	18.3	18.3	18.5
Federal	11.4	11.3	9.4	8.4	8.5	8.5	8.5
State and local	8.3	9.0	9.1	9.8	9.8	9.8	10.1

1/ See table A-1 for data covering 1950-65.

2/ Preliminary estimate.

3/ The high durables model assumes continuation of above average increases in expenditures for consumer durables and fixed nonresidential investment.

4/ The high services model assumes a lower than average increase in consumer durables and fixed nonresidential investment with the difference made up by increases in consumer and State and local expenditures for medical and educational services.

NOTE: Because of rounding, sums of individual items may not equal totals or 100 percent.

SOURCE: Historical data on gross national product are from U.S. Department of Commerce, Office of Business Economics. Projections are by U.S. Department of Labor, Bureau of Labor Statistics.

Table III-2. Changes in Gross National Product, by Major Components, Selected Periods and Projected 1965-70[1/]
(Average annual rate of change)

Major component	Selected periods			Projected 1970			
	1957-65	1957-62	1962-65	3 percent unemployment	4 percent unemployment		
				Basic model	Basic model	High[2/] durables	High[3/] services
Gross national product	3.8	3.2	4.7	4.5	4.3	4.3	4.3
Personal consumption expenditures	4.0	3.3	5.2	4.6	4.3	4.0	4.5
Durable goods	5.9	3.5	9.9	4.9	4.6	6.5	4.7
Nondurable goods	3.1	2.7	3.8	3.7	3.4	3.3	3.5
Services	4.3	4.0	5.0	5.4	5.1	3.6	5.5
Gross private domestic investment	3.9	2.9	6.5	4.3	4.0	5.2	2.7
Fixed investment	3.2	1.7	6.6	4.8	4.5	5.8	3.2
Nonresidential	3.6	0.9	9.3	4.6	4.3	5.9	2.9
Structures	1.1	-0.3	5.8	3.6	3.3	5.0	2.2
Producers' durable equipment	5.1	1.7	11.4	5.0	4.7	6.3	3.1
Residential structures	2.1	3.3	0.1	5.5	5.3	5.7	3.9
Change in business inventories	23.6	38.0	6.3	-3.6	-3.6	-3.6	-3.6
Net exports of goods and services	1.5	-6.2	10.0	11.9	11.9	11.9	11.9
Exports	4.6	2.8	7.5	3.9	3.9	3.9	3.9
Imports	5.5	5.1	7.1	2.1	2.1	2.1	2.1
Government purchases of goods and services	2.9	3.8	1.6	4.2	4.0	4.0	4.3
Federal	1.3	3.0	-1.6	2.2	2.1	2.1	2.1
State and local	4.9	4.8	5.4	6.1	5.8	5.8	6.3

1/ Compound interest rates based on terminal years.

2/ See footnote 3 in table III-1 for explanation.

3/ See footnote 4 in table III-1 for explanation.

Chapter IV. Detailed Final Demand "Bill of Goods"

The objective in this phase of the work is to distribute the aggregate estimate of expenditures for each major component of potential GNP into detailed expenditures for specific goods and services. The distribution must be consistent with the industry classification system and special definitions of the input-output framework used in the models. The detailed estimates have been developed by projecting, wherever possible, the changing composition of the individual categories of goods and services for each major component of final demand. The methods vary, depending on the particular component and the availability of historical data which can be used to develop functional relationships or trends. For some of the areas, several stages are involved in the estimating procedures.

The historical data (primarily from the Office of Business Economics) used in evaluating past and prospective changes in patterns of expenditures vary from category to category in the level of detail available. In this report, these data have been used for the initial projection of the distribution of final demand. The data were then adjusted and modified to be consistent with the input-output classification system (table IV-1). The detailed projections, stated in producers' value at 1958 prices are shown in a series of tables which also include the comparable expenditures for each item as shown in the basic input-output table for 1958. In addition, in order to provide estimates of final demand in full input-output detail for a more recent year than 1958, estimates for 1962 also have been developed and included in the tables.

Before discussing demand by industry, certain industry conventions within the input-output structure should be mentioned. First, a number of industries are not industries in the usual sense. Three of the industries are synthetic or "dummy" industries. Such industries generally consist of numerous commodities or services which originate in different industries. Their use is related to a common activity for which information on consumption is generally limited to the group as a whole. In such instances, products made in different industries are channeled through a fictitious distributing industry. An example is industry 82, office supplies, which "buys" and then distributes paper clips, typewriter paper, and similar office supplies through one central source. The two other dummy industries which provide a similar function are industry 81, business travel, entertainment, and gifts; and industry 83, scrap, used and secondhand goods.

To anticipate the discussion later in the report, purchases from industries 81 and 82 do not generate employment in these industries, but in the industries which actually produce those products and services which are channeled through the two dummy industries. Industry 83, the fictitious scrap industry, is actually not used when tracing the impact of final demand in industry output and employment since this would imply that industries would generate output in order to produce scrap to sell to the scrap industry.

The treatment of government also requires some special explanation. Industries 78 and 79, Federal and State and local government enterprises respectively, cover governmental activities which are analogous to commercial activities in that they sell a product or service. Examples are the Post Office and local transportation agencies. Industry 84 covers government employment involved in general functions of Federal, State, and local government (e.g., general administration, teaching, etc.).

Industry 80, gross imports of goods and services, represents U.S. payments to foreigners for merchandise, services, and factors of production. The treatment of imports in the input-output system has been discussed in chapter I. Industry 86, households, covers the service of domestics.

Finally, there are three industries which have been modified in the present report from their treatment in the original input-output table. Industry 11, new construction, is a single industry in the input-output table. Because inputs vary considerably for different types of construction, and information is available on these input patterns by type of construction, the projections for new construction actually have been developed in considerable detail and then consolidated to a single industry to simplify the presentation in the report.

The second modified industry is industry 74, research and development. It is treated in the basic input-output table as analogous to a dummy industry which buys all research and development (R&D), wherever conducted. It then sells this package of R&D to purchasing industries. The R&D which is done on an independent commercial basis, e.g., in testing laboratories, is also included in this industry. For the purpose of this study, the R&D industry is redefined so that it is limited to independent commercial establishments. Most R&D is treated as a direct sale from the producing industry to the purchaser. For example, R&D on military aircrafts by the aircraft industry is sold directly to the Federal Government.

In the original input-output table, industry 85, rest of the world, covered U.S. income and product (including Federal Government interest receipts) originating in the rest of the world; travel receipts from foreign visitors, and personal remittances-in-kind to foreigners. The industry has been modified for this study to exclude travel receipts and personal remittances-in-kind. This adjustment affects the industry detail of the personal consumption expenditures and export sectors. These adjustments are discussed in the appropriate sections.

In general, the descriptions of methods used to develop the projections of final demand by industry for each component refer to the estimates in the basic 4- and 3-percent unemployment models. The distribution

of expenditures within each major component or subgroup under the high durable and high service alternatives is derived by applying the basic model distribution to the new level of expenditures for each component in the alternative models.

The tables at the end of this chapter show constant dollar estimates for 1958, 1962, and 1970 and also the percent distribution of the expenditures for each category of final demand. A primary concern in this study is the effect the changing composition of final demand and other factors have on the relative growth and industrial composition of employment. The discussion of the projections, therefore, emphasizes the relative change in the distribution of expenditures rather than the absolute dollar change.

Government Expenditures

The projections of government expenditures are based on analyses of factors affecting growth in the various governmental functions. Federal Government expenditures are divided, for this study, into those for defense (including space exploration) and nondefense. State and local government expenditures are analyzed with reference to these functions: education, highways, public health and sanitation, natural resources, and other categories.

Each of these functions is initially distributed into three major items--employee compensation,23/ construction, and all other purchases. Employee compensation, in constant dollars, is the same as the projected change in government employment. This is consistent with the assumption in the national income accounts of no productivity change in the government sector. The construction expenditures are further distributed by type of construction. The "other purchases" for each function are distributed into detailed requirements based on separate expenditure patterns for each function.

Federal Government. In 1962, total Federal Government expenditures for goods and services, excluding transfer payments to individuals and grants to State and local governments, amounted to $60.0 billion (1958 prices). In 1965, total expenditures had declined to $57.1 billion. By far, the greatest part of this total, about 85 percent, was used to support Federal defense and space programs (Department of Defense, National

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23/ In the input-output system of accounts, employee compensation does not include the payroll of "force accounts" government employees working on new or maintenance construction. Their payroll is included as part of the new and maintenance construction expenditures by government.

Aeronautics and Space Administration, and Atomic Energy Commission). Only about 15 percent of the expenditures were for the myriad other activities of the Federal Government.24/

Between 1965 and 1970, Federal Government purchases of goods and services are projected to increase by about $6.5 billion, to a total of about $63.5 billion. About half of the increase is projected to be due to increased expenditures for defense and space programs, the other half for the remaining programs.

A major part of the increase in nondefense expenditures is related to antipoverty and health, education, conservation, and welfare programs. This is reflected in increases for new construction and other purchases from the private sector; relatively smaller increases are due to increased employment. Nondefense expenditures are slightly higher under the 3-percent unemployment assumption than under the 4-percent unemployment model. Most of the difference is related to education and health functions.

The detailed projections of Federal Government expenditures for goods and services, classified by producing industry and converted to producers' value in 1958 prices, are shown in tables IV-2 and 3. Comparable data for 1958 and 1962 also are shown. By 1970, compensation of general government employees (industry 84), both civilian and military, would account for about 35 percent of total expenditures--about the same proportion as in 1962 but below that of 1965. New construction (industry 11) is projected to increase from almost 6 percent of the total in 1962 to over 7 percent. For the remaining purchases, the projections reflect the long-term shift from aircraft to missiles, including the replacement of existing missiles with more advanced types. The relative decline in aircraft procurement is offset in part by increased expenditures for missile and space components which are also made by the aircraft industry (industry 60). Expenditures for missiles, space and other ordnance (including anti-missile missiles) made in industry 13, ordnance and accessories, are projected to increase as a proportion of total purchases. Purchases from industry 51, computers; industry 57, electronic components; industry 59, motor vehicles; and industry 77, medical, educational, service and nonprofit organizations are all projected to increase as a proportion of the total. Purchases from the chemical industry (industry 27), a major supplier of materials to the Atomic Energy Commission, is projected to decline as a proportion of total expenditures. This results from the decline of this program relative to other Federal Government programs.

24/ These estimates of Federal Government expenditures do not include current operating expenses of government enterprises such as the Post Office which sell their services or products and are considered part of the "private" sector in the national income accounts. However, capital expenditures by government enterprises are included in general government expenditures for goods and services.

Two special aspects of the estimates of Federal expenditures should be noted. One is the previously mentioned modification of industry 74, research and development, which has been modified so that the purchases by the Federal Government of research and development are treated as a direct sale from the producing industry to the purchaser. The 1958 estimates have been modified to reflect this change. Two, in the national income accounts, food and clothing supplied to the Armed Forces are considered a supplement to the pay of military personnel. The imputed value of the food and clothing are included as part of the compensation of government employees, classified in industry 84, government industry. The compensation of government employees is included in total personal income and the food and clothing supplied to the military are considered as part of personal consumption expenditures. The direct purchases of these items, therefore, are not shown as part of the Federal Government bill of goods, but they are included in personal consumption expenditures.

State and local government. As previously indicated in chapter III, State and local government expenditures are projected to increase substantially more than Federal Government expenditures for goods and services. The State and local government expenditures, which amounted to $55.6 billion in 1965 are projected to increase to about $73.5 to $75.5 billion by 1970. The $18 to $20 billion increase in expenditures, in constant dollar terms, would be about three times as much as the increase in Federal Government expenditures for goods and services over the same period.

Expenditures for education, which accounted for almost 40 percent of all State and local government expenditures for goods and services in 1965, are projected to increase substantially over the next 5 years. This reflects the increase in enrollment at all levels of education and particularly in higher education. The increase in expenditures for higher education is due to a number of factors: (a) completion of the educational cycle as the children born during the early post-World War II years grow up and increasing numbers go on to college; (b) a higher proportion of students are expected to finish high school and enter college; and (c) a continuation of the shift in enrollment from private schools and colleges to public institutions. Public colleges and universities may be enrolling about 70 percent of all students in 1970, compared to less than 60 percent in 1960. A substantial part of the increase in higher education will be in junior or community colleges.

Elementary and secondary school enrollment is also projected to increase, but not at as rapid a rate as the enrollment in higher institutions. The estimates do attempt to take account of the impact of the Head Start Program and the Elementary and Secondary Education Act of 1965. Education expenditures are higher in the high service model by about $1.5 billion than in the basic models.

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The next largest category of expenditures, highways, accounts for almost 20 percent of State and local government expenditures. This category is projected to grow at a somewhat higher rate than in the past, as the Federal Interstate Highway Program continues through the remainder of the decade and into the early 1970's.

Expenditures for public health, hospitals, and sanitation, which account for about 9 percent of total State and local expenditures, are projected to increase at a more rapid rate, due in part, to the impact of Medicare and other Federal aid programs. Much of the recent increases in hospital and nursing home construction and operation has been in the private sector. More of this may be undertaken by the public sector during the remainder of the 1960's, however. Here, too, the high service model implies a higher level of expenditures for this function than in the basic model.

Expenditures for conservation and natural resources, including parks and recreation, are projected to continue the very rapid increases witnessed during the period since 1958. Expenditures may be further accelerated if Federal aid programs in these areas are fully implemented.

Functions such as police, fire, and other public administrative activities will increase at higher rates than in the past. Population growth and the continuing rural-urban and suburban shift in population are the primary reasons.

The projections of the various functions of State and local government, distributed into purchases by producing industry and combined into a final demand "bill of goods," are shown in tables IV-4 and 5. About 45 percent of the projected total expenditures for goods and services in 1970 is for compensation of government employees. This is a decline from the 1962 and 1965 ratios, both about 47 percent. New construction would increase somewhat from 1962, to about 29 percent of total expenditures. Maintenance construction is projected to decline to 7 percent of the total.

The remaining purchases would account for about 20 percent of the total. They are broadly distributed among a wide variety of industries, primarily food, furniture, printing and publishing, chemicals, petroleum products, motor vehicles, office supplies, and various services. These services include transportation, telephone, electricity and other utilities, trade, real estate, and business services.

The relatively high proportion of State and local government expenditures that would be accounted for by payrolls and construction (80 percent) is in sharp contrast to Federal Government expenditures for these purposes, accounting for only about 44 percent of the total.

The shift in relative importance from Federal to State and local government expenditures would result in an increasing proportion of total government expenditures for goods and services going to employee compensation and construction. A smaller share would be accounted for by direct purchases from other major producing industries in the economy. The impact of this shift is reflected in the employment projections discussed in the concluding section of the bulletin.

Investment

Residential Construction. Turning to the private domestic investment area, the projection of total residential construction is distributed into types of residential construction, such as single- and multi-family dwellings, etc. Consistent with the projection of increased new family formation during the latter part of the decade, apartment construction is projected to increase faster than single-family housing. Nonhousekeeping units (hotels, motels, etc.) will be the fastest growing element of private residential construction. Its growth over the latter part of the decade, however, will be somewhat reduced from that during the earlier years of the decade.

Plant and equipment. Investment in nonresidential plant and equipment is distributed into detailed components by a series of successive approximations in which the results of alternative approaches are brought into balance. This approach is followed because the projection of demand for different types of equipment and construction requires information on the relative rates of increase among various industries, each with different patterns of capital expenditures. The rate of growth of the steel industry may be quite different from that of the food industry, and each industry may require substantially different levels of capital expenditures and types of equipment to provide for expansion of capacity. In the initial stage of the models, however, the relative changes in industry output and their associated capital expenditures are unknown.

The procedure followed is to develop initial projections of the various types of equipment, based on past trends and information on prospective demand for some categories of equipment. These projections are modified later in the models when estimates of industry output requirements, with their implied differential growth rates, are derived. The growth rates are then used as the starting point for the derivation of equipment expenditures. The projections of equipment expenditures by purchasing industry are developed by applying the industry growth rates to estimated industry capital expenditures for equipment during the recent period. The projected equipment purchases are then converted to output requirements from capital goods producing industries through the use of a special capital flow table developed by the Division of Economic Growth, BLS. The capital flow table shows the detailed distribution of

capital purchases classified by producing and consuming industries, consistent with the new input-output table.25/ As part of the procedure, the major changes in capital input patterns are projected to 1970.

The derived projections of equipment expenditures, classified by producing industry, are then compared to the initial detailed projections of equipment expenditures. If there are substantial differences between the two, a new "bill of goods" for plant and equipment expenditures is developed. This is used as part of a revised sequence of input-output computations. The projections of capital expenditures developed in this bulletin reflect several rounds of such successive approximations.26/

A similar procedure is used in the development of projections of various types of private nonresidential construction.

The detailed "bill of goods" for fixed private domestic investment, covering private plant and equipment expenditures and residential construction is shown in tables IV-6 and 7. The equipment expenditures are classified by producing industry. The construction expenditures, although developed in some detail, are combined into an aggregate estimate for the purpose of presentation in the final demand tables. However, the detail is retained in the actual computations used to derive the requirements for various types of construction materials. The methods used are discussed in chapter V.

Producer durable equipment. As indicated in chapter III, the distribution of total plant and equipment expenditures assumes a continuation of the increase in expenditures for producer durable equipment relative to nonresidential construction. Within the equipment category, the largest share of expenditures will continue to be made up of motor vehicles (trucks and business use of automobiles). The greatest increase relative to other types of equipment would be in the projected demand for computers and office machines (industry 51), which represents a continuation of past trends. Electrical transmission and distribution equipment (industry 53), photographic equipment (industry 63), and service industry machines (industry 52) are also projected to increase relative to other categories. The relative increase in photographic

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25/ The capital flow table will be published in a separate report which will provide a detailed description of the methodology used in developing the estimates.

26/ The projections of capital expenditures are based, in part, on preliminary estimates developed by Jack Faucett Associates, Silver Spring, Md.

equipment is due in part to the growth in demand for photocopy machines. Service machine growth reflects expansion of merchandising through vending machines. Metalworking machinery, special industrial machinery, and general industry machinery (industries 47, 48, and 49) are projected, in the aggregate, to remain about the same proportion as in recent years. The modernization of railroad equipment (industry 61) is a major factor underlying the relative increase in this category of expenditures. Although increasing in absolute dollar terms, engines and turbines, (industry 43) and farm machinery (industry 44) are projected to follow the past trend and to decline as proportions of the total expenditures for equipment.

Wholesale trade (industry 69) and transportation (industry 65), representing the margin between producers' and purchasers' value are projected to increase as a proportion of total expenditures for fixed investment, because of the shift in fixed investment toward equipment and away from construction, which has no trade or transportation margin.

Nonresidential construction. The projections of nonresidential construction indicate that public utility construction and, to a lesser extent, commercial buildings (offices, stores, etc.) will be the main growth categories over the next 5 years. Within the utility group, electric utility and telephone construction are the main categories showing growth.

Industrial plant is projected to continue to be the largest single category of nonresidential construction, but its growth will not be as rapid as in the past. Other nonresidential construction is projected to increase only moderately, partly on the basis of the assumption that, for the major category, education, there will be a shift toward construction by State and local governments.

Inventory change. Change in inventories, classified by producing industry, is projected by assuming the inventory change for each industry in 1962 moved with the output change derived by the model. The projected inventory change for each industry does not represent a significant proportion of total output for the industry. For this reason, and because the method used is admittedly crude, the estimates are not shown separately; they are included in table IV-8, total private domestic investment.

Personal Consumption

By far, the largest component of final demand is personal consumption expenditures--accounting for about 65 percent of total demand. Expenditures for personal consumption are projected on the basis of over 80 consumption equations or "functions" developed for the individual items of consumption as shown in the national income and product accounts. The

consumption functions were developed by Prof. Hendrik Houthakker and Dr. Lester D. Taylor for the Harvard Economic Research Project, Harvard University.27/ The estimating equations are based on time series of constant dollar expenditures for the individual items, converted to a per capita basis, covering the historical period since 1929. The demand function for each item of expenditure is designed to describe the influence of total purchasing power (as measured by per capita personal consumption expenditure in constant dollars on all items). It also measures any other relevant variables, in particular, the price of the item. In most cases, the demand function is dynamic in the sense that it allows the effect of a change in any explanatory variable to be distributed over time. Thus, a change in income may not have its full impact on the consumption of housing services until a fairly long adjustment period has elapsed. On the other hand, a change in income may have a strong temporary effect on the purchase of a durable good. This might occur when consumers attempt to bring their inventories of that durable in line with a new level of income. Thus, an increase in income will initially have a strong impact on durables and a relatively smaller one on other goods and services.

Both of these phenomena can be captured by the same general form of estimating equation. This form is one in which per capita consumption of an item is a function of; (a) past consumption of the item, (b) the level and change in total consumption of all items, (c) past total consumption, and (d) possibly other variables. This dynamic approach gives reasonably satisfactory results when applied to data since 1929 (excluding the war years). Total consumption of all items is, by far, the most important explanatory variable. Relative prices appear in about half of the equations. In addition, one or two other variables appear in some of the equations. It is important to note that projections from this type of behavioral model do not necessarily agree with straightforward trend extrapolations.

The equations for each of the separate categories of consumer expenditures are balanced with the projected total consumer expenditures. This is accomplished by using the elasticities for each of the equations as the factor for prorating the difference between the sum of the individual consumption equation and the projected total consumer expenditures. The functions and projections derived from these equations have been reviewed and in some instances modified by the staff of the Division of Economic Growth. In addition, the projections have been adjusted for consistency with recent revisions in the historical series on personal consumption expenditures.

A final stage in the estimating procedure is the conversion of the projections from groups of products and services to the input-output industry classification system. This is done by a set of conversion factors,

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27/ Hendrik Houthakker and Lester D. Taylor, Consumer Demand in the United States, 1929-1970 (Cambridge, Mass., Harvard University Press, 1966).

developed by the Office of Business Economics as part of the input-output study.28/ When an item of personal consumption expenditures consists of a single commodity, the demand for that item represents demand from a single input-output industry. This occurs, for example, with the demand for electricity and gas which in both cases is directly transferable into demand for the output of an industry defined as "electric, gas, water and sanitary services." On the other hand, when an item is composed of a broad group of commodities, it is usually necessary to separate the demand for that category into demand from several input-output industries. To illustrate, the demand for the item "shoes and other footwear" must be distributed among demand from the leather products industry, the rubber products industry, and imported footwear.

In some instances, the factors used to distribute demand for a category have been modified to take account of the trend in the industrial composition of individual consumption items. For example, the producing industry mix of expenditures for food has been modified to reflect the trend toward more purchases of processed food and less direct purchases from the agricultural sector. In another instance, consumer demand for fuel oil and coal--both included in one consumption item--has been adjusted to reflect the increased demand from the petroleum refining industry and the decline in the demand from the coal mining industry.

In estimating personal consumption expenditures, a different treatment is used for personal remittances-in-kind to foreigners and expenditures of foreign visitors in the United States for food, lodging, entertainment, etc., from that used in the national income accounts and in the original input-output table. In the latter data, such expenditures are included in the commodity or industry detail of personal consumption expenditures. However, such expenditures are also included in exports. To avoid double counting, these remittances and foreign visitor expenditures are deducted in total from personal consumption expenditures. This lump sum deduction is shown as a negative entry in industry 85, rest of the world in the original input-output table.

In this study, this deduction is made on an individual industry basis. This treatment eliminates the need for a single negative entry in industry 85. The 1958 data have been modified to reflect this change.

The projections are developed initially in purchasers' value and then, as for all the other categories of final demand, they are converted to producers' value, based on the 1958 proportions of transportation and

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28/ Nancy W. Simon, "Personal Consumption Expenditures in the 1958 Input-Output Study," Survey of Current Business, October 1965, pp. 7-20, 28.

trade margins. The margins are aggregated and included as separate purchases from the trade and transportation industries in the final demand "bill of goods" for personal consumption. In some instances, the 1958 margins have been modified to reflect more recent information. The projections of consumer demand, classified by producing industry, are shown in tables IV-9 to 11.

In order to put the projections of personal consumption expenditures into broader historical perspective, they have been aggregated to the level of detail usually shown in the national income constant dollar table for personal consumption expenditures. The table shows consumption expenditures for three major groups--durables, nondurables, and services--and 11 subgroups. The estimates of expenditures are in purchasers' value, whereas the input-output "bill of goods" is in producers' value, with the trade margins and transportation charges shown separately. The estimates (see table IV-10) cover selected years during the postwar period and the 1970 projections.

The comments which follow are based on both the consolidated table and the more detailed "bill of goods" table for personal consumption expenditures.

During most of the postwar period, as income per capita increased, the composition of consumption expenditures has been changing. An increasing proportion of the total has been going to services, particularly housing. This is associated with a secular decline in the proportion accounted for by nondurable expenditures, e.g., food and clothing. Expenditures for durables, the most volatile element in total consumer demand, have varied, with no evidence of any long-term trend. Within the past few years, durable expenditures, particularly for automobiles, have begun to increase as a proportion of total consumption expenditures.

In general, the basic model projections show a continuation of past trends. Expenditures for services increase from 38.5 percent of total consumer demand in 1965 to about 40 percent in 1970. Durable goods increase somewhat, from 16.6 to 16.9 percent. The downward trend in nondurable goods is projected to persist, declining from about 45 percent in 1965 to 43 percent in 1970.

Within these aggregates, however, there are varying trends with important implications for differential impact on industry employment.

The decline in the proportion of nondurable expenditures is the result of the projected drop in the share of food and clothing, which more than offsets relative increases in purchases of gasoline and "other nondurables." Major components of the "other" group are drugs and cosmetics and semidurable house furnishings. These are expected to increase their share of total consumption expenditures.

The small increase in the proportion of durable expenditures also reflects the net impact of divergent trends. Automobile expenditures, although continuing to increase in absolute dollar terms, are projected to decline from the very high proportion reached in 1965. However, expenditures for furniture, household appliances, color television sets, and other consumer durables are projected to increase sufficiently to raise somewhat the share of total durables.

The services aggregate covers the most heterogeneous group of activities, including housing, transportation, medical services, laundries, and private education. The housing portion of the total, consisting of space rental values, is projected to increase. This is consistent with the increases in the home-oriented expenditures in the other expenditure classes. The small increase in the household operation portion obscures the substantial rise projected in the share of electricity, gas, and telephone, because it also includes a projected decline in the domestic service ratio. In transportation, the decline in the historical trend is expected to be reversed. Increasing air travel and certain automobile-associated costs included in services are expected to overcome the effect of declines in expenditures for other forms of transportation.

An important element of the "other services" group is composed of several types of expenditures concerned with medical care. The projections for these generally follow the pattern of large increases in constant dollar expenditures for hospital care and medical insurance in recent years. The share of personal services in total consumer demand is projected to decline, while expenditures for recreation and private education will increase.

Because of the continued shift away from goods and toward services in the basic models, trade and transportation associated with the handling of consumer goods are projected to decline somewhat, as a proportion of total consumer demand.

In interpreting the results summarized above, two considerations should be kept in mind: one, the observations refer to the changing share of individual items in total consumption expenditures--not to changes in the dollar level of expenditures; two, the differential changes reflect constant dollar estimates.

It should be noted that the projections of consumption expenditures in the basic 4- and 3-percent unemployment models are based on the estimating equations for the 82 individual items of consumption. The consumption estimates for the high durable and high service alternatives are derived by applying the consumption patterns within the three major groups--durables, nondurables, and services--developed in the basic models--to new levels of expenditures for the three groups in the alternative models. There is one modification, however. The high service model provides for more than proportionate increases in private educational and medical services.

Net Exports

The detailed projections of exports and imports of goods and services are derived by distributing into input-output industry detail the estimates made by the Office of Business Economics for seven major categories.29/

The distribution of estimates for the seven major categories into approximately 80 industries was made on the basis of 1958-65 trends and a review of the shifts in the relationship of specific imports and exports to domestic production during this period.

The estimates for intermediate imports, however, are left undistributed, because the input-output relationships contain coefficients for imports of intermediate goods. Therefore, these relationships generate their own requirements for imports. These derived import estimates are compared with the intermediate imports incorporated in the initial final demand "bill of goods." If there are major differences, import coefficients or the level of projected imports may be modified. The computations are repeated until the generated and estimated imports are in balance.

The 1970 projections of U.S. exports and imports suggest that the ratio of net exports (gross exports less gross imports) of goods and services to the gross national product would be moderately higher than those of most recent years. It would be about equal to the high ratio of 1964. Gross exports in 1970 may be expected to constitute about the same share of GNP as in 1965, while the import proportion may be lower. The anticipated greater expansion in exports than in imports is based on (a) the assumption of continued competitiveness of U.S. products in world markets, (b) the return to a relatively higher rate of growth in foreign countries than in the past few years resulting in increased imports from the United States, and (c) the continued shift in the United States toward services and away from goods, requiring less imports.

The merchandise and nonmerchandise components of the net export balance are likely to increase at about the same rate from 1965 to 1970. The net merchandise export balance may account for about two-thirds of the total balance in 1970, about the same as in 1965. The merchandise share of the overall balance, however, has moved steadily downward since 1959, and was at a low point in 1965.

The net export balance on nonmerchandise transactions stems largely from increased royalty receipts and income from investments abroad. It has accounted for an increasing proportion of the total export balance in recent years and may be expected to hold at the 1965 share in 1970--about one-third of the total.

29/ Evelyn M. Parrish, op. cit., p. 34.

Industry structure of exports. The projected industry composition of gross exports indicates that products of manufacturing industries in 1970 may be expected to account for a greater proportion of total exports. It is projected to be nearly 50 percent, compared with about 45 percent in 1962. Computers, aircraft, and communications and scientific instruments are projected to show the greatest rate of increase from 1962 to 1970. Engines and machinery, particularly metalworking machines may also bulk large in 1970 exports. Foreign sales of nondurable manufactured commodities and agricultural products and services are estimated to expand at a slower pace. Mining products are expected to consist of about the same share of total exports as in 1962.

Industry structure of imports.30/ Changes in the 1970 projected industry composition of imports of goods and services from those in 1962 generally parallel those outlined for exports. However, imports of nondurable manufactured products (except food) and durable commodities are also expected to expand significantly. Imports of agricultural products and processed food in 1970 make up a smaller portion of the total than in 1962.

Among the durable manufacturing industry sectors, imports of automobiles and other transportation equipment, steel, radios, television sets, and lumber are expected to increase their share of total imports in 1970. Advances in the nondurable sector (excluding food) are fairly widespread over a number of industries. Changes in the share of total imports for any individual industry are expected to be small.

Payments to foreign freight carriers are expected to rise sharply from 1962 to 1970. They constitute the principal change anticipated in imports of services.

Imports assigned to final demand sectors are estimated to account for a smaller share of total imports in 1970 than in 1962. The projected decline in purchases abroad by the Department of Defense, the Atomic Energy Commission (for uranium), and other Federal Government agencies more than offset the sizable expansion in personal consumption expenditures on imported goods and services, including those on foreign travel. The reduction in defense expenditures abroad assumes that there is no major military action in 1970.

30/ Imports discussed here cover both types: (a) those "directly allocated" to the consuming industry or final demand categories; and (b) "transferred" types assigned to domestic industries producing goods and services for which these imports are substitutes.

Import coefficients. The 1970 projections of input-output relationships are discussed in the following chapter. The projections for import coefficients--industry requirements for imports per dollar of output--are discussed in this section, since they are related to the analysis of 1970 imports.

The 1970 estimates of import coefficients are based on a review and analysis of past trends in the relationships of imports to domestic output. Changes from 1962 to 1970 are generally small except in a few industries. The principal coefficient changes are described below.

The projected lower import coefficient in the agricultural sector in 1970 stems from the sharp reduction in the use of foreign farm workers. Imports of fishery products are estimated to constitute an increasing portion of total supplies in 1970, but the rate of increase is expected to be somewhat less than from 1958-62.

In the mining sector, imports of iron ore are likely to be a slightly lower share of total output in 1970 than in 1962 (but much higher than in 1958) as processed low-grade domestic ore becomes available in increased quantities. The requirements of the chemical and fertilizer mineral mining industry for imported sulphur, potash, and similar materials, however, are likely to be somewhat greater in 1970 than in the recent past.

Projected increases in the relationship of imports to total output in the manufacturing area are significant in four industries--lumber, industrial leather, aircraft, and farm machinery. The higher import coefficient in lumber (including plywood) is linked to the anticipated large rise by 1970 in residential construction, which accounts for about three-fourths of total U.S. lumber consumption. Imports of lumber, continuing past trends, may be expected to constitute an increased share of total supply by 1970, as domestic requirements expand sharply.

In industrial leather, the projected continued sluggishness of domestic output led to greater reliance on imported supplies and to continued substitution of rubber, plastics, and other fabrics for leather. In addition, demand for imported specialty leather--calf, kip, goat, etc.--is expected to display further growth to 1970.

Similarly, the higher import coefficient projected for the aircraft industry in 1970 reflects a moderate increase in imports and stability in the industry's output. Exports of aircraft, however, are projected to expand rapidly. The net export balance may, therefore, be considerably higher in 1970 than in either 1958 or 1962. These foreign trade data relate primarily to civilian aircraft. However, nearly three-fifths of the output of this industry consists of military aircraft. Production

of the latter is expected to drop as military expenditures shift from aircraft to missiles. This is the primary factor behind the projected slight decline in output of this industry from 1962 to 1970. Thus, a higher import coefficient is based on imported civilian aircraft's relationship to domestic output of civilian and military aircraft.

The import coefficient for farm machinery in 1970 continues the slow upward trend evident from 1958-1962. Component parts from U.S.-owned plants in Canada and the United Kingdom may be imported in increased quantities for incorporation in final products produced domestically.

Net Export "Bill of Goods"

The "bill of goods" for net exports is shown in table IV-12. The detailed entries reflect gross exports of goods and services from each producing industry. Consistent with the treatment of imports in the input-output table, gross imports for intermediate and final demand sectors are shown only in the aggregate as a negative entry in industry 80, imports.

Supplementary estimates of purchases by the final demand sectors of imported goods and services, such as bananas and other types of food, liquor, apparel, household appliances, foreign travel, etc., are shown in the aggregate as purchases from imports in the "bill of goods" for consumption expenditures in tables IV-9 and 11. Military expenditures abroad are shown in the aggregate as purchases from imports in the distribution of Federal Government purchases, tables IV-2 and 3.

Intermediate imports of specific categories of materials, products, and services are generated by the models through the use of the import coefficients previously discussed. They are not shown separately in the tables, but are included as part of total imports. They are deducted from total exports in order to derive the net export estimate.

In this study, as previously mentioned, the detailed export estimates differ in their treatment of personal remittances-in-kind to foreigners and expenditures by foreigners in the United States, from that shown in the original 1958 input-output table. In that table, such exports are shown only in total in industry 85, rest of the world. In this study, such exports are distributed among the individual producing industries and deducted from industry 85. The original 1958 data have been revised to incorporate these modifications.

Total Final Demand

The last stage in the development of the final demand projections is the consolidation of the detailed projections for each component of final demand into a single "bill of goods" covering total final demand. The total "bill of goods" is shown in tables IV-13 and 14. The detailed final demand projections, as shown in these tables, are used along with the industry employment table to derive 1970 employment requirements.

In addition to providing an important element in the whole sequence of projections leading up to the employment estimates, the final demand estimates are useful in themselves. They provide information on the changing structure of final demand.

Analysis of changing patterns of final demand may be obscured, however, by the large amount of detail shown in the total "bill of goods" tables. In order to highlight the major changes in the composition of final demand, the detailed estimates have been aggregated into broad sector detail as shown in table IV-15. In addition, in order to provide some indication of developments since 1962 (the last year for which a detailed set of final demand estimates are available), preliminary estimates of final demand for 1965 have been developed and are also included in this table.

The summary tables include an adjustment for imports which needs to be clarified. GNP excludes the value of all imports. Final demand expenditures for various goods and services, however, implicitly include the value of all intermediate imports embodied in final products (e.g., imported iron ore used ultimately to make automobiles). They explicitly cover those imports which are directly allocated to final demand (e.g., imported shoes). In order to balance out to the total GNP, the aggregate value of all imports is shown as a negative item at the bottom of the table.

Finally, in evaluating the changes in the percentage distribution of final demand (see tables IV-14 and 15), it should be kept in mind that relatively small changes may represent substantial differences in absolute dollar terms.

Specifically, with potential final demand in 1970 equal to $750-$760 billion, an increase in an industry's share of GNP by only 1 percent, e.g., from 10 percent in 1965 to 11 percent in 1970 would add $7.5 billion more to the final demand for that industry's output than it otherwise would have been. An increase in the share of only one-tenth of 1 percent is equivalent to an extra three-quarters of a billion dollars. With this caution regarding seemingly small changes in the industrial distribution of final demand, what do the tables show?

Industrial composition of final demand. The change in the industrial composition of total final demand reflects the combined influence of two factors: (2) the change in the relative importance of consumption, investment, and the other components of final demand; and (b) the shift in the composition of expenditures within each component of final demand.

The analysis which follows, on the changing industrial composition of the total "bill of goods," takes into account both of these factors. The analysis is based primarily on the summary tables, because it provides a more recent reference point. It also highlights the major changes in the industrial distribution of final demand.

Basic models. Direct purchases by final demand categories from the agricultural and mining sectors account for a very small proportion of total final demand. Their share is projected to decline even further by 1970. The decline in the share of final demand by these two sectors is due to the relative decline in the projected exports of agricultural and mining products as a proportion of potential GNP. In addition, both sectors are affected by the continuing relative decline in direct consumer demand for the output of these sectors, particularly mining (coal).

The construction sector has been declining as a proportion of final demand in the recent past. It has been estimated in the basic models, however, that construction will increase its share of final demand, from about 11.3 percent in 1965 to about 11.7 percent in 1970. This increase in the construction sector's portion comes largely from the projected increase in demand for new construction by the public sector. Private demand is expected to have only a moderate influence in the construction industry's share.

The manufacturing share, which constituted over 38 percent of final demand in 1965, is projected to decline to slightly above 37 percent in 1970, distributed almost equally between durable and nondurable goods. The decline in the durable goods share is due largely to the relative decline in Federal Government purchases of durable goods and the relative decline in the change in durable goods inventories from the very high ratio in 1965.

Within the durable goods share of final demand, there are divergent changes in the composition of demand. (See table IV-15.) For example, the demand for office and computing machines, industry 51, and for radio, television, and communications equipment, industry 56, is estimated to increase substantially relative to other categories of durable products. The relative decline in expenditures for military aircraft is projected to more than offset the increase in civilian aircraft.

The decline in the nondurable goods share primarily represents a continuation of the long-term decline in the proportion of the consumer dollar expenditure for food and apparel.

Transportation accounts for only a small part of total final demand, about 3 percent. Its share does not change in direct proportion to the change in final demand for goods, because it is related to the transportation of persons as well as goods. In fact, the share of transportation in all the models is about the same, because of roughly offsetting changes in personal transportation and the transportation of goods.

On the other hand, activity in trade, which accounts for nearly 15 percent of total final demand, is almost entirely related to the handling of goods. In the basic model, it declines as a proportion of the total, corresponding to the reduction in the share accounted for by the demand for manufactured products.

Communications and public utilities, finance and insurance, real estate (housing), and other services are all projected to increase their share. The primary reason being an increase in consumer demand for the output of these sectors. In the aggregate, the increase in these sectors is from almost a quarter of total GNP in 1962 to more than 26 percent in 1970.

General government, which represents the constant dollar compensation of government employees (excluding Post Office, local transit operations, and other "enterprises" activities) is projected to continue to decline as a proportion of total final demand. This is consistent with the earlier projection (table II-1) that the compensation of general government employees (in constant dollars) would increase about 3.2 to 3.5 percent a year between 1965 and 1970, whereas the GNP (total final demand) is projected to increase about 4.3 to 4.5 percent a year.

Final demand imports as well as total imports are projected to decline from their relatively high proportions in 1965.

Alternative models. The alternative models do introduce variations in the sector mix of final demand, particularly in construction; durable manufacturing; trade; finance, insurance and real estate; and other services (which include personal and business services, private educational and medical services).

The high durable alternative assumes continuation, with some moderation, of the recent high rates of increase for consumer durables and investment in plant and equipment. Thus, in this model, the greatest variation from the basic 4-percent model would be in durable goods manufacturing. The difference between the models (18.4 percent for the basic model compared with 19.5 percent for the alternative) amounts to a full percentage point of final demand. This is equivalent to about $7.5 billion or an average annual rate of increase between 1965 and 1970 of 3.7 percent a year in the basic 4-percent model to 4.9 percent a year in the high durable model.

The shares of construction and trade are also increased, but proportionately less than for durable manufacturing. The increase for construction is dampened by the fact that residential construction and construction expenditures by government are kept at the same levels in the basic 4-percent and high durable models. The increase in the share for trade is also moderated since trade involves the handling of both durable and nondurable goods, even though, in this instance, the share of nondurable goods remains the same in both models.

The increases for construction, durable manufacturing, and trade in the high durable model are offset by relative declines in the share of final demand for the output of communications and public utilities, finance and insurance, real estate (primarily housing), and other services. Transportation has about the same share, resulting from offsetting changes in the transportation of goods and of persons.

The government constant dollar payroll share increases somewhat in the high service model, with all the increase in State and local government.

The high service model assumes a relative decline in investment in plant and equipment and relative increases in services. Consumer durables are assumed to maintain about the same share as in the basic model. The pattern of demand under the high service model reduces the construction and durable manufacturing proportions considerably below the high durable model. However, these proportions are only moderately below those of the basic model.

Trade is also reduced relative to the high durable model, but it remains about the same proportion as in the basic model. This is due to the fact that consumer durables are not reduced below their share in the basic model, and nondurable manufacturing maintains a stable proportion.

The major increases in services are in private medical and educational services. There are relatively smaller increases in communications and public utilities, housing, and public educational and medical services.

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Table IV-1. Industry Numbering for the 1958 Input-Output Study

Industry number and title	Related SIC codes (1957 edition)
AGRICULTURAL, FORESTRY, AND FISHERIES:	
1 Livestock and livestock products	013,part 014, 0193,part 02, part 0729
2 Other agricultural products	011,012,part 014,0192,0199, part 02
3 Forestry and fishery products	074,081,082, 084,086,091
4 Agricultural,forestry,and fishery services	071,0723,part 0729,085,098
MINING:	
5 Iron and ferroalloy ores mining	1011,106
6 Nonferrous metal ores mining	102-105,108, 109
7 Coal mining	11,12
8 Crude petroleum and natural gas	1311,1321
9 Stone and clay mining and quarrying	141,142,144, 145,148,149
10 Chemical and fertilizer mineral mining	147
CONSTRUCTION:	
11 New construction	138,part 15, part 16,part 17,part 6561
12 Maintenance and repair construction	Part 15,part 16,part 17
MANUFACTURING:	
13 Ordnance and accessories	19
14 Food and kindred products	20
15 Tobacco manufactures	21
16 Broad and narrow fabrics,yarn and thread mills.	221-224,226, 228
17 Miscellaneous textile goods and floor coverings.	227,229
18 Apparel	225,23(except 239),3992
19 Miscellaneous fabricated textile products	239
20 Lumber and wood products,except containers	24(except 244)
21 Wooden containers	244
22 Household furniture	251
23 Other furniture and fixtures	25(except 251)
24 Paper and allied products,except containers and boxes.	26(except 265)
25 Paper board containers and boxes	265
26 Printing and publishing	27
27 Chemicals and selected chemical products	281(except alumina part of 2819), 286,287,289
28 Plastics and synthetic materials	282
29 Drugs,cleaning,and toilet preparations	283,284
30 Paints and allied products	285
31 Petroleum refining and related industries	29
32 Rubber and miscellaneous plastics products	30
33 Leather tanning and industrial leather products.	311,312
34 Footwear and other leather products	31(except 311, 312)
35 Glass and glass products	321-323
36 Stone and clay products	324-329
37 Primary iron and steel manufacturing	331,332,3391, 3399
38 Primary nonferrous metals manufacturing	2819(alumina only), 333-336,3392
39 Metal containers	3411,3491
40 Heating,plumbing,and fabricated structural metal products.	343,344
41 Screw machine products,bolts,nuts,etc., and metal stampings.	345,346
42 Other fabricated metal products	342,347-349 (except 3491)
43 Engines and turbines	351
44 Farm machinery and equipment	352
45 Construction,mining,oil field machinery and equipment	3531-3533
46 Materials handling machinery and equipment	3534-3537
47 Metalworking machinery and equipment	354
48 Special industry machinery and equipment	355
49 General industrial machinery and equipment	356
50 Machine-shop products	359
51 Office,computing and accounting machines	357
52 Service industry machines	358
53 Electric transmission and distribution equipment,and electrical industrial apparatus.	361,362
54 Household appliances	363
55 Electric lighting and wiring equipment	364
56 Radio,television,and communication equipment.	365,366
57 Electronic components and accessories	367
58 Miscellaneous electrical machinery,equipment and supplies.	369
59 Motor vehicles and equipment	371
60 Aircraft and parts	372
61 Other transportation equipment	373-375,379
62 Professional,scientific,and controlling instruments and supplies.	381,382,384, 387
63 Optical,ophthalmic,and photographic equipment and supplies.	383,385,386
64 Miscellaneous manufacturing	39(except 3992)
TRANSPORTATION,COMMUNICATION,ELECTRIC, GAS,SANITARY SERVICES:	
65 Transportation and warehousing	40-42,44-47
66 Communications,except radio and television broadcasting.	481,482,489
67 Radio and television broadcasting	483
68 Electric,gas,water,and sanitary services	49
WHOLESALE AND RETAIL TRADE:	
69 Wholesale and retail trade	50(except manufacturers sales offices), 52-59,part 7399
FINANCE,INSURANCE,AND REAL ESTATE:	
70 Finance and insurance	60-64,66,67
71 Real estate and rental	65(except 6541 and part 6561)
SERVICES:	
72 Hotels and lodging places;personal and repair services,except automobile repair.	70,72,76 (except 7694 and 7699)
73 Business services	6541,73(except 7361,7391 and part 7399), 7694,7699,81, 89(except 8921)
74 Research and development	----------
75 Automobile repair and services	75
76 Amusements	78,79
77 Medical,educational services and nonprofit organizations.	0722,7361,80, 82,84,86,8921
GOVERNMENT ENTERPRISES:	
78 Federal Government enterprises	----------
79 State and local government enterprises	----------
IMPORTS:	
80 Gross imports of goods and services	----------
DUMMY INDUSTRIES:	
81 Business travel,entertainment,and gifts	----------
82 Office supplies	----------
83 Scrap, used and secondhand goods	----------
SPECIAL INDUSTRIES:	
84 Government industry	----------
85 Rest of the world	----------
86 Household industry	----------
87 Inventory valuation adjustment	----------

NOTE: The industry titles in this table are full and complete titles of the respective sectors in the 1958 Office of Business Economics input-output system and are consistent with the sectors in the Interagency Growth Project. In other tables in this report, however, some sector titles have been shortened for space and presentation purposes.

Table IV-2. Industrial Composition of Purchases by Federal Government
1958, 1962, and Projected 1970

(Millions of 1958 dollars)

Industry number and title	1958 1/	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 2/ durables	High 3/ services
1. Livestock and livestock products	-3	5	8	8	8	8
2. Other agricultural products	1,073	205	11	11	11	11
3. Forestry and fishery products	-137	-107	-250	-250	-250	-250
4. Agricultural, forestry and fishery services	45	38	71	71	71	71
5. Iron and ferroalloy ores mining	-	-	-	-	-	-
6. Nonferrous metal ores mining	192	283	200	196	196	196
7. Coal mining	-	56	45	45	45	45
8. Crude petroleum and natural gas	1	-	-	-	-	-
9. Stone and clay mining and quarrying	10	-	-	-	-	-
10. Chemical and fertilizer mineral mining	11	2	3	3	3	3
11. New construction	3,388	3,448	4,701	4,701	4,701	4,701
12. Maintenance and repair construction	1,081	1,204	1,504	1,504	1,504	1,504
13. Ordnance and accessories	3,329	3,824	4,770	4,770	4,770	4,770
14. Food and kindred products	55	269	381	372	372	372
15. Tobacco manufactures	-	-	-	-	-	-
16. Broad and narrow fabrics, yarn and thread mills	51	34	34	34	34	34
17. Miscellaneous textile goods and floor coverings	5	10	10	10	10	10
18. Apparel	41	71	104	103	103	103
19. Miscellaneous fabricated textile products	103	77	75	74	74	74
20. Lumber and wood products, except containers	-6	-6	-5	-5	-5	-5
21. Wooden containers	2	12	13	13	13	13
22. Household furniture	25	42	48	48	48	48
23. Other furniture and fixtures	26	69	83	81	81	81
24. Paper and allied products, except containers	72	54	69	67	67	67
25. Paperboard containers and boxes	5	88	27	27	27	27
26. Printing and publishing	92	176	204	202	202	202
27. Chemicals and selected chemical products	824	678	570	567	567	567
28. Plastics and synthetic materials	13	32	6	6	6	6
29. Drugs, cleaning, and toilet preparations	150	222	260	252	252	252
30. Paints and allied products	3	13	25	23	23	23
31. Petroleum refining and related industries	745	912	1,032	1,032	1,032	1,032
32. Rubber and miscellaneous plastics products	130	70	122	122	122	122
33. Leather tanning and industrial leather products	-	-	-	-	-	-
34. Footwear and other leather products	23	69	13	12	12	12
35. Glass and glass products	3	-	-	-	-	-
36. Stone and clay products	5	3	4	4	4	4
37. Primary iron and steel manufacturing	118	116	114	113	113	113
38. Primary nonferrous metals manufacturing	343	46	45	44	44	44
39. Metal containers	18	20	21	21	21	21
40. Heating, plumbing and structural metal products	17	304	324	324	324	324
41. Stampings, screw machine products and bolts	94	79	100	97	97	97
42. Other fabricated metal products	132	194	219	218	218	218
43. Engines and turbines	288	220	234	233	233	233
44. Farm machinery and equipment	17	11	12	12	12	12
45. Construction, mining and oil field machinery	84	143	128	127	127	127

See footnotes at end of table.

Table IV-2. Industrial Composition of Purchases by Federal Government
1958, 1962, and Projected 1970--Continued

(Millions of 1958 dollars)

Industry number and title	1958 1/	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 2/ durables	High 3/ services
46. Materials handling machinery and equipment	139	144	128	128	128	128
47. Metal working machinery and equipment	273	227	263	262	262	262
48. Special industry machinery and equipment	33	35	25	24	24	24
49. General industrial machinery and equipment	203	237	203	203	203	203
50. Machine shop products	44	51	38	38	38	38
51. Office, computing and accounting machines	87	212	344	344	344	344
52. Service industry machines	73	34	38	37	37	37
53. Electric industrial equipment and apparatus	351	245	240	240	240	240
54. Household appliances	171	17	19	19	19	19
55. Electric lighting and wiring equipment	89	19	20	12	12	12
56. Radio, television and communication equipment	1,770	3,190	3,772	3,771	3,771	3,771
57. Electronic components and accessories	375	524	635	635	635	635
58. Miscellaneous electrical machinery and supplies	113	62	66	65	65	65
59. Motor vehicles and equipment	490	562	831	826	826	826
60. Aircraft and parts	8,047	8,456	7,892	7,892	7,892	7,892
61. Other transportation equipment	655	943	976	974	974	974
62. Scientific and controlling instruments	658	815	767	762	762	762
63. Optical, ophthalmic and photographic equipment	168	123	140	140	140	140
64. Miscellaneous manufacturing	41	57	37	36	36	36
65. Transportation and warehousing	1,439	1,834	1,700	1,693	1,693	1,693
66. Communications; except broadcasting	169	354	431	425	425	425
67. Radio and television broadcasting	-	3	2	2	2	2
68. Electric, gas, water and sanitary services	348	486	539	535	535	535
69. Wholesale and retail trade	645	989	1,120	1,113	1,113	1,113
70. Finance and insurance	1	30	46	46	46	46
71. Real estate and rental	112	621	713	708	708	708
72. Hotels; personal and repair services, except auto	246	297	372	364	364	364
73. Business services	492	1,019	1,034	1,032	1,032	1,032
74. Research and development	372	344	390	390	390	390
75. Automobile repair and services	129	108	151	148	148	148
76. Amusements	18	40	52	52	52	52
77. Medical, educational and nonprofit organizations	654	697	1,209	1,209	1,209	1,209
78. Federal Government enterprises	56	49	62	60	60	60
79. State and local government enterprises	113	210	255	247	247	247
80. Gross imports of goods and services	2,717	2,799	2,430	2,430	2,430	2,430
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	74	111	111	109	109	109
83. Scrap, used and secondhand goods	117	196	-	-	-	-
84. Government industry	19,951	21,184	22,014	21,987	21,987	21,987
85. Rest of the world industry	-307	-895	-750	-750	-750	-750
86. Household industry	-	-	-	-	-	-
87. Inventory valuation adjustment	-	-	-	-	-	-
Total	53,594	60,010	63,650	63,500	63,500	63,500

1/ The presentation of the data on 1958 purchases by the Federal Government have been changed to conform with the treatment of research and development (1962 and 1970).

2/ The high durable model assumes continuation of above average increases in expenditures for consumer durables and fixed nonresidential investment.

3/ The high service model assumes a lower than average increase in consumer durables and fixed nonresidential investment with the difference made up by increases in consumer and State and local expenditures for medical and educational services.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-3. Industrial Composition of Purchases by Federal Government
1958, 1962, and Projected 1970

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
1. Livestock and livestock products	-.01	.01	.01	.01	.01	.01
2. Other agricultural products	2.00	.34	.02	.02	.02	.02
3. Forestry and fishery products	-.26	-.18	-.39	-.39	-.39	-.39
4. Agricultural, forestry and fishery services	.08	.06	.11	.11	.11	.11
5. Iron and ferroalloy ores mining	-	-	-	-	-	-
6. Nonferrous metal ores mining	.36	.47	.31	.31	.31	.31
7. Coal mining	-	.09	.07	.07	.07	.07
8. Crude petroleum and natural gas	-	-	-	-	-	-
9. Stone and clay mining and quarrying	.02	-	-	-	-	-
10. Chemical and fertilizer mineral mining	.02	-	-	-	-	-
11. New construction	6.32	5.75	7.39	7.40	7.40	7.40
12. Maintenance and repair construction	2.02	2.01	2.36	2.37	2.37	2.37
13. Ordnance and accessories	6.21	6.37	7.49	7.51	7.51	7.51
14. Food and kindred products	.10	.45	.60	.59	.59	.59
15. Tobacco manufactures	-	-	-	-	-	-
16. Broad and narrow fabrics, yarn and thread mills	.10	.06	.05	.05	.05	.05
17. Miscellaneous textile goods and floor coverings	.01	.02	.02	.02	.02	.02
18. Apparel	.08	.12	.16	.16	.16	.16
19. Miscellaneous fabricated textile products	.19	.13	.12	.12	.12	.12
20. Lumber and wood products, except containers	-.01	-.01	-.01	-.01	-.01	-.01
21. Wooden containers	-	.02	.02	.02	.02	.02
22. Household furniture	.05	.07	.08	.08	.08	.08
23. Other furniture and fixtures	.05	.11	.13	.13	.13	.13
24. Paper and allied products, except containers	.13	.09	.11	.11	.11	.11
25. Paperboard containers and boxes	.01	.15	.04	.04	.04	.04
26. Printing and publishing	.17	.29	.32	.32	.32	.32
27. Chemicals and selected chemical products	1.54	1.13	.90	.89	.89	.89
28. Plastics and synthetic materials	.02	.05	.01	.01	.01	.01
29. Drugs, cleaning, and toilet preparations	.28	.37	.41	.40	.40	.40
30. Paints and allied products	.01	.02	.04	.04	.04	.04
31. Petroleum refining and related industries	1.39	1.52	1.62	1.63	1.63	1.63
32. Rubber and miscellaneous plastics products	.24	.12	.19	.19	.19	.19
33. Leather tanning and industrial leather products	-	-	-	-	-	-
34. Footwear and other leather products	.04	.11	.02	.02	.02	.02
35. Glass and glass products	.01	-	-	-	-	-
36. Stone and clay products	.01	-	.01	.01	.01	.01
37. Primary iron and steel manufacturing	.22	.19	.18	.18	.18	.18
38. Primary nonferrous metals manufacturing	.64	.08	.07	.07	.07	.07
39. Metal containers	.03	.03	.03	.03	.03	.03
40. Heating, plumbing and structural metal products	.03	.51	.51	.51	.51	.51
41. Stampings, screw machine products and bolts	.18	.13	.16	.15	.15	.15
42. Other fabricated metal products	.25	.32	.34	.34	.34	.34
43. Engines and turbines	.54	.37	.37	.37	.37	.37
44. Farm machinery and equipment	.03	.02	.02	.02	.02	.02
45. Construction, mining and oil field machinery	.16	.24	.20	.20	.20	.20

See footnotes at end of table.

Table IV-3. Industrial Composition of Purchases by Federal Government
1958, 1962, and Projected 1970--Continued

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
46. Materials handling machinery and equipment	.26	.24	.20	.20	.20	.20
47. Metalworking machinery and equipment	.51	.38	.41	.41	.41	.41
48. Special industry machinery and equipment	.06	.06	.04	.04	.04	.04
49. General industrial machinery and equipment	.38	.39	.32	.32	.32	.32
50. Machine shop products	.08	.08	.06	.06	.06	.06
51. Office, computing and accounting machines	.16	.35	.54	.54	.54	.54
52. Service industry machines	.14	.06	.06	.06	.06	.06
53. Electric industrial equipment and apparatus	.65	.41	.38	.38	.38	.38
54. Household appliances	.32	.03	.03	.03	.03	.03
55. Electric lighting and wiring equipment	.17	.03	.03	.02	.02	.02
56. Radio, television and communication equipment	3.30	6.32	5.93	5.94	5.94	5.94
57. Electronic components and accessories	.70	.87	1.00	1.00	1.00	1.00
58. Miscellaneous electrical machinery and supplies	.21	.10	.10	.10	.10	.10
59. Motor vehicles and equipment	.91	.94	1.31	1.30	1.30	1.30
60. Aircraft and parts	15.01	14.09	12.40	12.43	12.43	12.43
61. Other transportation equipment	1.22	1.57	1.53	1.53	1.53	1.53
62. Scientific and controlling instruments	1.23	1.36	1.21	1.20	1.20	1.20
63. Optical, ophthalmic and photographic equipment	.31	.20	.22	.22	.22	.22
64. Miscellaneous manufacturing	.08	.09	.06	.06	.06	.06
65. Transportation and warehousing	2.69	3.06	2.67	2.67	2.67	2.67
66. Communications; except broadcasting	.32	.59	.68	.67	.67	.67
67. Radio and television broadcasting	-	-	-	-	-	-
68. Electric, gas, water and sanitary services	.65	.81	.85	.84	.84	.84
69. Wholesale and retail trade	1.20	1.65	1.76	1.75	1.75	1.75
70. Finance and insurance	-	.05	.07	.07	.07	.07
71. Real estate and rental	.21	1.03	1.12	1.11	1.11	1.11
72. Hotels; personal and repair services, except auto	.46	.49	.58	.57	.57	.57
73. Business services	.92	1.70	1.62	1.63	1.63	1.63
74. Research and development	.69	.57	.61	.61	.61	.61
75. Automobile repair and services	.24	.18	.24	.23	.23	.23
76. Amusements	.03	.07	.08	.08	.08	.08
77. Medical, educational and nonprofit organizations	1.22	1.16	1.90	1.90	1.90	1.90
78. Federal Government enterprises	.10	.08	.10	.09	.09	.09
79. State and local government enterprises	.21	.35	.40	.39	.39	.39
80. Gross imports of goods and services	5.07	4.66	3.82	3.83	3.83	3.83
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	.14	.18	.17	.17	.17	.17
83. Scrap, used and secondhand goods	.22	.33	-	-	-	-
84. Government industry	37.23	35.30	34.59	34.63	34.63	34.63
85. Rest of the world industry	-.57	-1.49	-1.18	-1.18	-1.18	-1.18
86. Household industry	-	-	-	-	-	-
87. Inventory valuation adjustment	-	-	-	-	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00

1/ See footnote 2, table IV-2.
2/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-4. Industrial Composition of Purchases by State and Local Governments 1958, 1962, and Projected 1970

(Millions of 1958 dollars)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
1. Livestock and livestock products	11	15	27	27	27	27
2. Other agricultural products	27	19	35	35	35	35
3. Forestry and fishery products	-	-	1	1	1	1
4. Agricultural, forestry and fishery services	-68	-86	-195	-195	-195	-195
5. Iron and ferroalloy ores mining	-	-	-	-	-	-
6. Nonferrous metal ores mining	-	-	-	-	-	-
7. Coal mining	61	66	118	115	115	115
8. Crude petroleum and natural gas	-	-	-	-	-	-
9. Stone and clay mining and quarrying	-12	-6	-18	-18	-18	-18
10. Chemical and fertilizer mineral mining	12	6	18	18	18	18
11. New construction	12,069	13,387	21,975	21,475	21,475	22,315
12. Maintenance and repair construction	3,339	3,871	5,000	5,000	5,000	5,000
13. Ordnance and accessories	4	7	13	13	13	13
14. Food and kindred products	272	304	578	569	569	569
15. Tobacco manufactures	-	-	1	1	1	1
16. Broad and narrow fabrics, yarn and thread mills	9	10	18	18	18	18
17. Miscellaneous textile goods and floor coverings	1	1	2	2	2	2
18. Apparel	92	116	216	212	212	212
19. Miscellaneous fabricated textile products	-	1	1	1	1	1
20. Lumber and wood products, except containers	1	1	2	1	1	1
21. Wooden containers	-	1	1	1	1	1
22. Household furniture	57	94	166	162	162	169
23. Other furniture and fixtures	126	226	342	337	337	354
24. Paper and allied products, except containers	6	4	10	10	10	10
25. Paperboard containers and boxes	-	-	-	-	-	-
26. Printing and publishing	173	204	475	467	467	501
27. Chemicals and selected chemical products	242	322	606	600	600	637
28. Plastics and synthetic materials	-	-	-	-	-	-
29. Drugs, cleaning, and toilet preparations	179	189	327	326	326	379
30. Paints and allied products	-	-	-	-	-	-
31. Petroleum refining and related industries	382	549	1,060	1,040	1,040	1,040
32. Rubber and miscellaneous plastics products	75	129	242	235	235	235
33. Leather tanning and industrial leather products	-	-	-	-	-	-
34. Footwear and other leather products	2	2	3	3	3	3
35. Glass and glass products	-	-	-	-	-	-
36. Stone and clay products	4	6	11	11	11	11
37. Primary iron and steel manufacturing	1	2	3	3	3	3
38. Primary nonferrous metals manufacturing	-	-	-	-	-	-
39. Metal containers	-	-	-	-	-	-
40. Heating, plumbing and structural metal products	-	-	-	-	-	-
41. Stampings, screw machine products and bolts	5	4	9	9	9	9
42. Other fabricated metal products	46	64	106	104	104	117
43. Engines and turbines	3	6	11	11	11	11
44. Farm machinery and equipment	17	30	43	43	43	56
45. Construction, mining and oil field machinery	21	16	40	40	40	40

See footnotes at end of table.

Table IV-4. Industrial Composition of Purchases by State and Local Governments 1958, 1962, and Projected 1970--Continued

(Millions of 1958 dollars)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
46. Materials handling machinery and equipment	50	70	107	105	105	132
47. Metalworking machinery and equipment	5	11	19	19	19	19
48. Special industry machinery and equipment	30	60	92	90	90	90
49. General industrial machinery and equipment	5	9	14	13	13	13
50. Machine shop products	35	50	76	74	74	103
51. Office, computing and accounting machines	89	214	240	234	234	371
52. Service industry machines	21	38	64	63	63	63
53. Electric industrial equipment and apparatus	5	10	18	18	18	18
54. Household appliances	1	1	2	2	2	2
55. Electric lighting and wiring equipment	8	13	18	18	18	18
56. Radio, television and communication equipment	62	56	130	128	128	128
57. Electronic components and accessories	-	-	-	-	-	-
58. Miscellaneous electrical machinery and supplies	33	48	69	68	68	94
59. Motor vehicles and equipment	438	621	1,098	1,078	1,078	1,078
60. Aircraft and parts	-	-	-	-	-	-
61. Other transportation equipment	38	79	135	135	135	135
62. Scientific and controlling instruments	86	119	202	201	201	220
63. Optical, ophthalmic and photographic equipment	15	29	38	37	37	51
64. Miscellaneous manufacturing	179	274	463	452	452	452
65. Transportation and warehousing	402	406	826	809	809	891
66. Communications; except broadcasting	190	263	493	481	481	481
67. Radio and television broadcasting	-	-	-	-	-	-
68. Electric, gas, water and sanitary services	486	473	947	921	921	921
69. Wholesale and retail trade	183	320	602	592	592	566
70. Finance and insurance	191	210	447	437	437	437
71. Real estate and rental	233	423	742	722	722	722
72. Hotels; personal and repair services, except auto	87	-17	128	127	127	127
73. Business services	555	744	1,339	1,316	1,316	1,386
74. Research and development	-	-	-	-	-	-
75. Automobile repair and services	83	134	255	249	249	249
76. Amusements	-44	-98	-79	-77	-77	-77
77. Medical, educational and nonprofit organizations	311	232	428	428	428	508
78. Federal Government enterprises	67	105	184	179	179	179
79. State and local government enterprises	6	12	21	21	21	21
80. Gross imports of goods and services	3	4	8	8	8	8
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	132	220	381	371	371	371
83. Scrap, used and secondhand goods	342	474	732	732	732	732
84. Government industry	19,078	22,299	33,214	32,772	32,772	33,300
85. Rest of the world industry	-	-	-	-	-	-
86. Household industry	-	-	-	-	-	-
87. Inventory valuation adjustment	-	-	-	-	-	-
Total	40,564	47,466	74,700	73,500	73,500	75,500

1/ See footnote 2, table IV-2.
2/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-5. Industrial Composition of Purchases by State and Local Governments
1958, 1962, and Projected 1970

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
1. Livestock and livestock products	.03	.03	.04	.04	.04	.04
2. Other agricultural products	.07	.04	.05	.05	.05	.05
3. Forestry and fishery products	-	-	--	-	-	-
4. Agricultural, forestry and fishery services	-.17	-.18	-.26	-.27	-.27	-.26
5. Iron and ferroalloy ores mining	-	-	-	-	-	-
6. Nonferrous metal ores mining	-	-	-	-	-	-
7. Coal mining	.15	.14	.16	.16	.16	.15
8. Crude petroleum and natural gas	-	-	-	-	-	-
9. Stone and clay mining and quarrying	-.03	-.01	-.02	-.02	-.02	-.02
10. Chemical and fertilizer mineral mining	.03	.01	.02	.02	.02	.02
11. New construction	29.75	28.20	29.42	29.22	29.22	29.56
12. Maintenance and repair construction	8.23	8.16	6.69	6.80	6.80	6.62
13. Ordnance and accessories	.01	.01	.02	.02	.02	.02
14. Food and kindred products	.67	.64	.77	.77	.77	.75
15. Tobacco	-	-	-	-	-	-
16. Broad and narrow fabrics, yarn and thread mills	.02	.02	.02	.02	.02	.02
17. Miscellaneous textile goods and floor coverings	-	-	-	-	-	-
18. Apparel	.23	.24	.29	.29	.29	.28
19. Miscellaneous fabricated textile products	-	-	-	-	-	-
20. Lumber and wood products, except containers	-	-	-	-	-	-
21. Wooden containers	-	-	-	-	-	-
22. Household furniture	.14	.20	.22	.22	.22	.22
23. Other furniture and fixtures	.31	.48	.46	.46	.46	.47
24. Paper and allied products, except containers	.01	.01	.01	.01	.01	.01
25. Paperboard containers and boxes	-	-	-	-	-	-
26. Printing and publishing	.43	.43	.64	.64	.64	.66
27. Chemicals and selected chemical products	.60	.68	.81	.82	.82	.84
28. Plastics and synthetic materials	-	-	-	-	-	-
29. Drugs, cleaning, and toilet preparations	.44	.40	.44	.44	.44	.50
30. Paints and allied products	-	-	-	-	-	-
31. Petroleum refining and related industries	.94	1.16	1.42	1.41	1.41	1.38
32. Rubber and miscellaneous plastics products	.18	.27	.32	.32	.32	.31
33. Leather tanning and industrial leather products	-	-	-	-	-	-
34. Footwear and other leather products	-	-	-	-	-	-
35. Glass and glass products	-	-	-	-	-	-
36. Stone and clay products	.01	.01	.01	.01	.01	.01
37. Primary iron and steel manufacturing	-	-	-	-	-	-
38. Primary nonferrous metals manufacturing	-	-	-	-	-	-
39. Metal containers	-	-	-	-	-	-
40. Heating, plumbing and structural metal products	-	-	-	-	-	-
41. Stampings, screw machine products and bolts	.01	.01	.01	.01	.01	.01
42. Other fabricated metal products	.11	.13	.14	.14	.14	.15
43. Engines and turbines	.01	.01	.01	.01	.01	.01
44. Farm machinery and equipment	.04	.06	.06	.06	.06	.07
45. Construction, mining and oil field machinery	.05	.03	.05	.05	.05	.05

See footnotes at end of table.

Table IV-5. Industrial Composition of Purchases by State and Local Governments 1958, 1962, and Projected 1970--Continued

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
46. Materials handling machinery and equipment	.12	.15	.14	.14	.14	.17
47. Metalworking machinery and equipment	.01	.02	.03	.03	.03	.03
48. Special industry machinery and equipment	.07	.13	.12	.12	.12	.12
49. General industrial machinery and equipment	.01	.02	.02	.02	.02	.02
50. Machine shop products	.09	.11	.10	.10	.10	.14
51. Office, computing and accounting machines	.22	.45	.32	.32	.32	.49
52. Service industry machines	.05	.08	.09	.09	.09	.08
53. Electric industrial equipment and apparatus	.01	.02	.02	.02	.02	.02
54. Household appliances	-	-	-	-	-	-
55. Electric lighting and wiring equipment	.02	.03	.02	.02	.02	.02
56. Radio, television and communication equipment	.15	.12	.17	.17	.17	.17
57. Electronic components and accessories	-	-	-	-	-	-
58. Miscellaneous electrical machinery and supplies	.08	.10	.09	.09	.09	.12
59. Motor vehicles and equipment	1.08	1.31	1.47	1.47	1.47	1.43
60. Aircraft and parts	-	-	-	-	-	-
61. Other transportation equipment	.09	.17	.18	.18	.18	.18
62. Scientific and controlling instruments	.21	.25	.27	.27	.27	.29
63. Optical, ophthalmic and photographic equipment	.04	.06	.05	.05	.05	.07
64. Miscellaneous manufacturing	.44	.58	.62	.61	.61	.60
65. Transportation and warehousing	.99	.86	1.11	1.10	1.10	1.18
66. Communications; except broadcasting	.47	.55	.66	.65	.65	.64
67. Radio and television broadcasting	-	-	-	-	-	-
68. Electric, gas, water and sanitary services	1.20	1.00	1.27	1.25	1.25	1.22
69. Wholesale and retail trade	.45	.67	.81	.81	.81	.75
70. Finance and insurance	.47	.44	.60	.59	.59	.58
71. Real estate and rental	.57	.89	.99	.98	.98	.96
72. Hotels; personal and repair services, except auto	.21	-.04	.17	.17	.17	.17
73. Business services	1.37	1.57	1.79	1.79	1.79	1.84
74. Research and development	-	-	-	-	-	-
75. Automobile repair and services	.02	.28	.34	.34	.34	.33
76. Amusements	-.11	-.21	-.11	-.10	-.10	-.10
77. Medical, educational and nonprofit organizations	.77	.49	.57	.58	.58	.67
78. Federal Government enterprises	.17	.22	.25	.24	.24	.24
79. State and local government enterprises	.01	.03	.03	.03	.03	.03
80. Gross imports of goods and services	.01	.01	.01	.01	.01	.01
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	.33	.46	.51	.50	.50	.49
83. Scrap, used and secondhand goods	.84	1.00	.98	1.00	1.00	.97
84. Government industry	47.03	46.98	44.46	44.59	44.59	44.11
85. Rest of the world industry	-	-	-	-	-	-
86. Household industry	-	-	-	-	-	-
87. Inventory valuation adjustment	-	-	-	-	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00

1/ See footnote 2, table IV-2.
2/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-6. Industrial Composition of Private Fixed Capital Investment
1958, 1962, and Projected 1970

(Millions of 1958 dollars)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
1. Livestock and livestock products	-	-	-	-	-	-
2. Other agricultural products	-	-	-	-	-	-
3. Forestry and fishery products	-	-	-	-	-	-
4. Agricultural, forestry and fishery services	-	-	-	-	-	-
5. Iron and ferroalloy ores mining	-	-	-	-	-	-
6. Nonferrous metal ores mining	-	-	-	-	-	-
7. Coal mining	-	-	-	-	-	-
8. Crude petroleum and natural gas	-	-	-	-	-	-
9. Stone and clay mining and quarrying	-	-	-	-	-	-
10. Chemical and fertilizer mineral mining	-	-	-	-	-	-
11. New construction	36,957	41,236	55,932	55,382	57,882	51,982
12. Maintenance and repair construction	-	-	-	-	-	-
13. Ordnance and accessories	-	-	-	-	-	-
14. Food and kindred products	-	-	-	-	-	-
15. Tobacco manufactures	-	-	-	-	-	-
16. Broad and narrow fabrics, yarn and thread mills	-	-	-	-	-	-
17. Miscellaneous textile goods and floor coverings	45	64	78	77	83	77
18. Apparel	-	-	-	-	-	-
19. Miscellaneous fabricated textile products	-	-	-	-	-	-
20. Lumber and wood products, except containers	6	6	9	9	9	8
21. Wooden containers	-	-	-	-	-	-
22. Household furniture	126	142	247	243	263	228
23. Other furniture and fixtures	798	1,020	1,647	1,620	1,742	1,516
24. Paper and allied products, except containers	-	-	-	-	-	-
25. Paperboard containers and boxes	-	-	-	-	-	-
26. Printing and publishing	-	-	-	-	-	-
27. Chemicals and selected chemical products	-	-	-	-	-	-
28. Plastics and synthetic materials	-	-	-	-	-	-
29. Drugs, cleaning, and toilet preparations	-	-	-	-	-	-
30. Paints and allied products	-	-	-	-	-	-
31. Petroleum refining and related industries	-	-	-	-	-	-
32. Rubber and miscellaneous plastics products	52	14	18	18	20	17
33. Leather tanning and industrial leather products	-	-	-	-	-	-
34. Footwear and other leather products	5	-	-	-	-	-
35. Glass and glass products	-	-	-	-	-	-
36. Stone and clay products	-	-	-	-	-	-
37. Primary iron and steel manufacturing	-	-	-	-	-	-
38. Primary nonferrous metals manufacturing	-	-	-	-	-	-
39. Metal containers	10	11	23	23	25	21
40. Heating, plumbing and structural metal products	708	560	1,036	1,019	1,098	955
41. Stampings, screw machine products and bolts	-	-	-	-	-	-
42. Other fabricated metal products	166	169	290	285	306	267
43. Engines and turbines	576	474	577	567	610	531
44. Farm machinery and equipment	1,670	1,532	2,256	2,220	2,389	2,079
45. Construction, mining and oil field machinery	1,319	1,272	2,531	2,490	2,678	2,331

See footnotes at end of table.

Table IV-6. Industrial Composition of Private Fixed Capital Investment 1958, 1962, and Projected 1970--Continued

(Millions of 1958 dollars)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
46. Materials handling machinery and equipment	352	434	699	688	740	644
47. Metalworking machinery and equipment	1,153	1,328	2,191	2,156	2,319	2,018
48. Special industry machinery and equipment	1,468	1,848	2,907	2,860	3,076	2,677
49. General industrial machinery and equipment	1,051	1,141	1,741	1,713	1,844	1,599
50. Machine shop products	-	-	-	-	-	-
51. Office, computing and accounting machines	1,016	1,430	3,743	3,683	4,500	3,448
52. Service industry machines	955	1,243	2,455	2,416	2,599	2,262
53. Electric industrial equipment and apparatus	1,617	1,918	3,371	3,317	3,569	3,106
54. Household appliances	93	101	210	207	222	194
55. Electric lighting and wiring equipment	25	39	58	57	61	54
56. Radio, television and communication equipment	1,009	1,634	2,541	2,500	2,689	2,342
57. Electronic components and accessories	27	52	92	90	97	84
58. Miscellaneous electrical machinery and supplies	83	125	223	220	237	206
59. Motor vehicles and equipment	3,575	5,917	10,115	9,870	10,480	9,242
60. Aircraft and parts	358	883	1,379	1,357	1,461	1,271
61. Other transportation equipment	1,178	1,167	2,652	2,610	2,808	2,443
62. Scientific and controlling instruments	532	704	1,156	1,137	1,224	1,065
63. Optical, ophthalmic and photographic equipment	163	252	593	583	627	546
64. Miscellaneous manufacturing	279	381	599	589	633	551
65. Transportation and warehousing	507	640	1,142	1,121	1,234	1,038
66. Communications; except broadcasting	362	469	721	709	772	664
67. Radio and television broadcasting	-	-	-	-	-	-
68. Electric, gas, water and sanitary services	-	-	-	-	-	-
69. Wholesale and retail trade	3,747	4,742	8,564	8,410	8,945	7,893
70. Finance and insurance	-	-	-	-	-	-
71. Real estate and rental	1,209	1,100	1,350	1,350	1,350	1,250
72. Hotels; personal and repair services, except auto	-	-	-	-	-	-
73. Business services	-	-	-	-	-	-
74. Research and development	-	-	-	-	-	-
75. Automobile repair and services	-	-	-	-	-	-
76. Amusements	-	-	-	-	-	-
77. Medical, educational and nonprofit organizations	-	-	-	-	-	-
78. Federal Government enterprises	-	-	-	-	-	-
79. State and local government enterprises	-	-	-	-	-	-
80. Gross imports of goods and services	16	21	36	36	33	29
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	-	-	-	-	-	-
83. Scrap, used and secondhand goods	-822	-668	-632	-632	-625	-638
84. Government industry	-	-	-	-	-	-
85. Rest of the world industry	-	-	-	-	-	-
86. Household industry	-	-	-	-	-	-
87. Inventory valuation adjustment	-	-	-	-	-	-
Total	62,392	73,399	112,550	111,000	118,000	104,000

1/ See footnote 2, table IV-2.
2/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-7. Industrial Composition of Private Fixed Capital Investment
1958, 1962, and Projected 1970

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
1. Livestock and livestock products	-	-	-	-	-	-
2. Other agricultural products	-	-	-	-	-	-
3. Forestry and fishery products	-	-	-	-	-	-
4. Agricultural, forestry and fishery services	-	-	-	-	-	-
5. Iron and ferroalloy ores mining	-	-	-	-	-	-
6. Nonferrous metal ores mining	-	-	-	-	-	-
7. Coal mining	-	-	-	-	-	-
8. Crude petroleum and natural gas	-	-	-	-	-	-
9. Stone and clay mining and quarrying	-	-	-	-	-	-
10. Chemical and fertilizer mineral mining	-	-	-	-	-	-
11. New construction	59.23	56.18	49.70	49.89	49.05	49.98
12. Maintenance and repair construction	-	-	-	-	-	-
13. Ordnance and accessories	-	-	-	-	-	-
14. Food and kindred products	-	-	-	-	-	-
15. Tobacco manufactures	-	-	-	-	-	-
16. Broad and narrow fabrics, yarn and thread mills	-	-	-	-	-	-
17. Miscellaneous textile goods and floor coverings	.07	.09	.07	.07	.07	.07
18. Apparel	-	-	-	-	-	-
19. Miscellaneous fabricated textile products	-	-	-	-	-	-
20. Lumber and wood products, except containers	.01	.01	.01	.01	.01	.01
21. Wooden containers	-	-	-	-	-	-
22. Household furniture	.20	.19	.22	.22	.22	.22
23. Other furniture and fixtures	1.28	1.39	1.46	1.46	1.48	1.46
24. Paper and allied products, except containers	-	-	-	-	-	-
25. Paperboard containers and boxes	-	-	-	-	-	-
26. Printing and publishing	-	-	-	-	-	-
27. Chemicals and selected chemical products	-	-	-	-	-	-
28. Plastics and synthetic materials	-	-	-	-	-	-
29. Drugs, cleaning, and toilet preparations	-	-	-	-	-	-
30. Paints and allied products	-	-	-	-	-	-
31. Petroleum refining and related industries	-	-	-	-	-	-
32. Rubber and miscellaneous plastics products	.08	.02	.02	.02	.02	.02
33. Leather tanning and industrial leather products	-	-	-	-	-	-
34. Footwear and other leather products	.01	-	-	-	-	-
35. Glass and glass products	-	-	-	-	-	-
36. Stone and clay products	-	-	-	-	-	-
37. Primary iron and steel manufacturing	-	-	-	-	-	-
38. Primary nonferrous metals manufacturing	-	-	-	-	-	-
39. Metal containers	.02	.01	.02	.02	.02	.02
40. Heating, plumbing and structural metal products	1.13	.76	.92	.92	.93	.92
41. Stampings, screw machine products and bolts	-	-	-	-	-	-
42. Other fabricated metal products	.27	.23	.26	.26	.26	.26
43. Engines and turbines	.92	.65	.51	.51	.52	.51
44. Farm machinery and equipment	2.68	2.09	2.00	2.00	2.02	2.00
45. Construction, mining and oil field machinery	2.11	1.73	2.25	2.24	2.27	2.24

See footnotes at end of table.

Table IV-7. Industrial Composition of Private Fixed Capital Investment 1958, 1962, and Projected 1970--Continued

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
46. Materials handling machinery and equipment	.56	.59	.62	.62	.63	.62
47. Metalworking machinery and equipment	1.85	1.81	1.95	1.94	1.97	1.94
48. Special industry machinery and equipment	2.35	2.52	2.58	2.58	2.61	2.57
49. General industrial machinery and equipment	1.68	1.55	1.55	1.54	1.56	1.54
50. Machine shop products	-	-	-	-	-	-
51. Office, computing and accounting machines	1.63	1.95	3.33	3.32	3.81	3.32
52. Service industry machines	1.53	1.69	2.18	2.18	2.20	2.18
53. Electric industrial equipment and apparatus	2.59	2.61	3.00	2.99	3.02	2.99
54. Household appliances	.15	.14	.19	.19	.19	.19
55. Electric lighting and wiring equipment	.04	.05	.05	.05	.05	.05
56. Radio, television and communication equipment	1.62	2.23	2.26	2.25	2.28	2.25
57. Electronic components and accessories	.04	.07	.08	.08	.08	.08
58. Miscellaneous electrical machinery and supplies	.13	.17	.20	.20	.20	.20
59. Motor vehicles and equipment	5.73	8.06	8.99	8.89	8.88	8.89
60. Aircraft and parts	.57	1.20	1.23	1.22	1.24	1.22
61. Other transportation equipment	1.89	1.59	2.36	2.35	2.38	2.35
62. Scientific and controlling instruments	.85	.96	1.03	1.02	1.04	1.02
63. Optical, ophthalmic and photographic equipment	.26	.34	.53	.53	.53	.53
64. Miscellaneous manufacturing	.45	.52	.53	.53	.54	.53
65. Transportation and warehousing	.81	.87	1.01	1.01	1.05	1.00
66. Communications; except broadcasting	.58	.64	.64	.64	.65	.64
67. Radio and television broadcasting	-	-	-	-	-	-
68. Electric, gas, water and sanitary services	-	-	-	-	-	-
69. Wholesale and retail trade	6.01	6.46	7.61	7.58	7.58	7.59
70. Finance and insurance	-	-	-	-	-	-
71. Real estate and rental	1.94	1.50	1.20	1.22	1.14	1.20
72. Hotels; personal and repair services	-	-	-	-	-	-
73. Business services	-	-	-	-	-	-
74. Research and development	-	-	-	-	-	-
75. Automobile repair and services	-	-	-	-	-	-
76. Amusements	-	-	-	-	-	-
77. Medical, educational and nonprofit organizations	-	-	-	-	-	-
78. Federal Government enterprises	-	-	-	-	-	-
79. State and local government enterprises	-	-	-	-	-	-
80. Gross imports of goods and services	.03	.03	.03	.03	.03	.03
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	-	-	-	-	-	-
83. Scrap, used and secondhand goods	-1.32	-.19	-.56	-.57	-.53	-.61
84. Government industry	-	-	-	-	-	-
85. Rest of the world industry	-	-	-	-	-	-
86. Household industry	-	-	-	-	-	-
87. Inventory valuation adjustment	-	-	-	-	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00

1/ See footnote 2, table IV-2.
2/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-8. Industrial Composition of Gross Private Domestic Investment
1958, 1962, and Projected 1970

(Millions of 1958 dollars)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
1. Livestock and livestock products	601	698	388	388	388	388
2. Other agricultural products	428	-144	236	236	236	236
3. Forestry and fishery products	19	16	34	34	34	34
4. Agricultural, forestry and fishery services	20	14	31	31	31	31
5. Iron and ferroalloy ores mining	-23	-5	2	2	2	2
6. Nonferrous metal ores mining	-32	4	12	12	12	12
7. Coal mining	-22	-17	25	25	25	25
8. Crude petroleum and natural gas	-40	21	34	34	34	34
9. Stone and clay mining and quarrying	4	8	17	17	17	17
10. Chemical and fertilizer mineral mining	-1	-	5	5	5	5
11. New construction	36,957	41,236	55,932	55,382	57,882	51,982
12. Maintenance and repair construction	-	-	-	-	-	-
13. Ordnance and accessories	84	-	29	29	29	29
14. Food and kindred products	248	494	463	463	463	463
15. Tobacco manufactures	-26	16	10	10	10	10
16. Broad and narrow fabrics, yarn and thread mills	-104	148	111	111	111	111
17. Miscellaneous fabricated textile products	18	137	143	142	148	142
18. Apparel	-123	629	618	618	618	618
19. Miscellaneous fabricated textile products	-1	27	19	19	19	19
20. Lumber and wood products, except containers	68	62	69	69	69	68
21. Wooden containers	-9	18	11	11	11	11
22. Household furniture	120	177	276	272	292	257
23. Other furniture and fixtures	799	1,025	1,654	1,627	1,749	1,523
24. Paper and allied products, except containers	-3	68	73	73	73	73
25. Paperboard containers and boxes	-1	30	22	22	22	22
26. Printing and publishing	11	70	78	78	78	78
27. Chemicals and selected chemical products	-24	69	65	65	65	65
28. Plastics and synthetic materials	-44	91	99	99	99	99
29. Drugs, cleaning, and toilet preparations	56	142	148	148	148	148
30. Paints and allied products	-4	2	4	4	4	4
31. Petroleum refining and related industries	-186	157	114	114	114	114
32. Rubber and miscellaneous plastics products	20	85	91	91	93	90
33. Leather tanning and industrial leather products	-3	-4	5	5	5	5
34. Footwear and other leather products	37	102	21	21	21	21
35. Glass and glass products	-5	14	12	12	12	12
36. Stone and clay products	28	32	42	42	42	42
37. Primary iron and steel manufacturing	-160	-102	100	100	100	100
38. Primary nonferrous metals manufacturing	-10	99	112	112	112	112
39. Metal containers	23	16	29	29	31	27
40. Heating, plumbing and structural metal products	639	545	1,042	1,025	1,104	961
41. Stampings, screw machine products and bolts	-67	5	13	13	13	13
42. Other fabricated metal products	118	268	392	387	408	369
43. Engines and turbines	516	524	627	617	660	581
44. Farm machinery and equipment	1,648	1,648	2,374	2,338	2,507	2,197
45. Construction, mining and oil field machinery	1,246	1,310	2,580	2,539	2,727	2,380

See footnotes at end of table.

Table IV-8. Industrial Composition of Gross Private Domestic Investment
1958, 1962, and Projected 1970--Continued

(Millions of 1958 dollars)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
46. Materials handling machinery and equipment	328	416	734	723	775	679
47. Metalworking machinery and equipment	1,022	1,402	2,277	2,242	2,405	2,104
48. Special industry machinery and equipment	1,361	1,860	2,915	2,868	3,084	2,685
49. General industrial machinery and equipment	970	1,209	1,809	1,781	1,912	1,667
50. Machine shop products	-10	39	33	33	33	33
51. Office, computing and accounting machines	1,001	1,498	3,836	3,776	4,593	3,541
52. Service industry machines	919	1,288	2,500	2,461	2,644	2,307
53. Electric industrial equipment and apparatus	1,484	1,973	3,436	3,382	3,634	3,171
54. Household appliances	29	174	296	293	308	280
55. Electric lighting and wiring equipment	-4	56	85	84	88	81
56. Radio, television and communication equipment	938	1,805	2,805	2,764	2,953	2,606
57. Electronic components and accessories	-21	202	205	203	210	197
58. Miscellaneous electrical machinery and supplies	59	150	254	251	268	237
59. Motor vehicles and equipment	3,046	6,657	10,894	10,649	11,259	10,021
60. Aircraft and parts	96	1,068	1,542	1,520	1,624	1,434
61. Other transportation equipment	1,103	1,309	2,801	2,759	2,957	2,592
62. Scientific and controlling instruments	524	776	1,225	1,206	1,293	1,134
63. Optical, ophthalmic and photographic equipment	168	267	608	598	642	561
64. Miscellaneous manufacturing	313	485	712	702	746	664
65. Transportation and warehousing	661	783	1,287	1,266	1,379	1,183
66. Communications; except broadcasting	362	469	721	709	772	664
67. Radio and television broadcasting	-	-	-	-	-	-
68. Electric, gas, water and sanitary services	-	-	-	-	-	-
69. Wholesale and retail trade	3,816	5,213	9,002	8,848	9,383	8,331
70. Finance and insurance	-	-	-	-	-	-
71. Real estate and rental	1,209	1,100	1,350	1,350	1,350	1,250
72. Hotels; personal and repair services, except auto	-	-	-	-	-	-
73. Business services	-	-	-	-	-	-
74. Research and development	-	-	-	-	-	-
75. Automobile repair and services	-	-	-	-	-	-
76. Amusements	22	15	41	41	41	41
77. Medical, educational and nonprofit organizations	-	-	-	-	-	-
78. Federal Government enterprises	-	-	-	-	-	-
79. State and local government enterprises	-	-	-	-	-	-
80. Gross imports of goods and services	24	-112	-348	-348	-351	-355
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	-	-	-	-	-	-
83. Scrap, used and secondhand goods	-1,028	-701	-632	-632	-625	-638
84. Government industry	-	-	-	-	-	-
85. Rest of the world industry	-	-	-	-	-	-
86. Household industry	-	-	-	-	-	-
87. Inventory valuation adjustment	-311	269	-	-	-	-
Total	60,901	79,403	118,550	117,000	124,000	110,000

1/ See footnote 2, table IV-2.
2/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-9. Industrial Composition of Personal Consumption Expenditures
1958, 1962, and Projected 1970

(Millions of 1958 dollars)

Industry number and title	1958 1/	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 2/ durables	High 3/ services
1. Livestock and livestock products	2,110	1,883	1,651	1,632	1,617	1,638
2. Other agricultural products	2,428	2,297	2,644	2,608	2,597	2,617
3. Forestry and fishery products	281	301	390	383	382	384
4. Agricultural, forestry and fishery services	-	-	-	-	-	-
5. Iron and ferroalloy ores mining	-	-	-	-	-	-
6. Nonferrous metal ores mining	-	-	-	-	-	-
7. Coal mining	261	186	181	179	178	180
8. Crude petroleum and natural gas	-	-	-	-	-	-
9. Stone and clay mining and quarrying	17	21	30	29	28	29
10. Chemical and fertilizer mineral mining	1	2	2	2	2	2
11. New construction	-	-	-	-	-	-
12. Maintenance and repair construction	-	-	-	-	-	-
13. Ordnance and accessories	158	201	344	341	353	342
14. Food and kindred products	45,376	50,547	64,556	63,585	63,356	63,811
15. Tobacco manufactures	4,249	4,847	6,517	6,419	6,393	6,442
16. Broad and narrow fabrics, yarn and thread mills	696	825	1,214	1,188	1,206	1,193
17. Miscellaneous textile goods and floor coverings	743	909	1,473	1,450	1,582	1,454
18. Apparel	11,033	12,719	17,789	17,521	17,462	17,583
19. Miscellaneous fabricated textile products	1,101	1,339	1,993	1,965	1,991	1,972
20. Lumber and wood products, except containers	149	174	268	263	283	264
21. Wooden containers	-	-	-	-	-	-
22. Household furniture	2,416	2,606	4,321	4,258	4,663	4,271
23. Other furniture and fixtures	129	158	264	260	285	261
24. Paper and allied products, except containers	848	1,039	1,550	1,528	1,522	1,533
25. Paperboard containers and boxes	38	45	66	65	65	65
26. Printing and publishing	2,444	2,991	4,130	4,066	4,192	4,079
27. Chemicals and selected chemical products	213	259	388	384	394	385
28. Plastics and synthetic materials	10	14	20	19	19	19
29. Drugs, cleaning, and toilet preparations	3,704	4,669	8,569	8,441	8,412	8,471
30. Paints and allied products	18	22	32	31	31	31
31. Petroleum refining and related industries	7,257	8,134	11,685	11,511	11,464	11,552
32. Rubber and miscellaneous plastics products	1,308	1,731	2,640	2,601	2,790	2,609
33. Leather tanning and industrial leather products	-	-	-	-	-	-
34. Footwear and other leather products	2,594	2,597	2,943	2,887	2,891	2,898
35. Glass and glass products	130	147	214	211	229	213
36. Stone and clay products	214	243	349	344	361	345
37. Primary iron and steel manufacturing	19	22	28	28	28	28
38. Primary nonferrous metals manufacturing	11	13	21	20	22	20
39. Metal containers	-	-	-	-	-	-
40. Heating, plumbing and structural metal products	70	84	131	131	143	132
41. Stampings, screw machine products and bolts	249	267	380	374	407	375
42. Other fabricated metal products	372	451	775	764	807	766
43. Engines and turbines	126	150	286	282	309	283
44. Farm machinery and equipment	8	11	18	17	19	17
45. Construction, mining and oil field machinery	-	-	-	-	-	-

See footnotes at end of table.

Table IV-9. Industrial Composition of Personal Consumption Expenditures
1958, 1962, and Projected--Continued

(Millions of 1958 dollars)

Industry number and title	1958 1/	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 2/ durables	High 3/ services
46. Materials handling machinery and equipment	-	-	-	-	-	-
47. Metalworking machinery and equipment	31	39	64	63	69	63
48. Special industry machinery and equipment	19	24	41	40	44	40
49. General industrial machinery and equipment	-	-	-	-	-	-
50. Machine shop products	-	-	-	-	-	-
51. Office, computing and accounting machines	58	73	126	124	136	125
52. Service industry machines	247	301	481	473	518	474
53. Electric industrial equipment and apparatus	15	18	29	28	30	28
54. Household appliances	2,371	2,853	5,372	5,288	5,782	5,305
55. Electric lighting and wiring equipment	313	388	615	605	632	607
56. Radio, television and communication equipment	1,353	1,826	4,428	4,364	4,779	4,377
57. Electronic components and accessories	149	201	405	401	439	402
58. Miscellaneous electrical machinery and supplies	260	333	551	545	587	546
59. Motor vehicles and equipment	9,198	13,222	21,095	20,780	22,753	20,843
60. Aircraft and parts	27	33	63	62	68	62
61. Other transportation equipment	725	979	1,662	1,637	1,793	1,642
62. Scientific and controlling instruments	349	496	723	713	764	716
63. Optical, ophthalmic and photographic equipment	451	612	1,093	1,077	1,149	1,080
64. Miscellaneous manufacturing	2,526	3,004	5,306	5,233	5,514	5,251
65. Transportation and warehousing	8,568	9,958	14,031	13,819	13,605	13,895
66. Communications; except broadcasting	3,908	4,918	8,555	8,428	7,823	8,502
67. Radio and television broadcasting	-	-	-	-	-	-
68. Electric, gas, water and sanitary services	8,058	10,023	15,731	15,496	14,333	15,632
69. Wholesale and retail trade	61,483	71,336	101,638	100,383	102,828	100,728
70. Finance and insurance	11,813	13,604	20,780	20,471	19,024	20,650
71. Real estate and rental	39,946	47,587	72,396	71,517	66,419	72,144
72. Hotels; personal and repair services, except auto	9,263	10,747	15,053	14,697	13,653	14,826
73. Business services	1,888	2,263	2,796	2,753	2,556	2,777
74. Research and development	-	-	-	-	-	-
75. Automobile repair and services	4,386	4,818	7,228	7,120	6,609	7,182
76. Amusements	3,186	3,501	4,678	4,609	4,277	4,648
77. Medical, educational and nonprofit organizations	20,445	23,944	36,890	36,271	33,685	38,885
78. Federal Government enterprises	632	747	1,136	1,119	1,038	1,129
79. State and local government enterprises	312	405	765	753	699	759
80. Gross imports of goods and services	3,855	5,209	7,403	7,297	7,108	7,340
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	-	-	-	-	-	-
83. Scrap, used and secondhand goods	-55	-44	3	-	10	-
84. Government industry	-	-	-	-	-	-
85. Rest of the world industry	-	-	-	-	-	-
86. Household industry	3,502	3,322	3,601	3,547	3,293	3,578
87. Inventory valuation adjustment	-	-	-	-	-	-
Total	290,069	338,641	492,600	485,500	478,500	490,500

1/ Travel receipts from foreign visitors to the United States were distributed among the individual producing industries for all years. Therefore, 1958 data differ from that presented in the 1958 input-output table, where it is shown as a single item in industry 85. A corresponding, but offsetting adjustment has also been made in net exports, as shown in table IV-12.

2/ See footnote 2, table IV-2.

3/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-10. Personal Consumption Expenditures, by Major Type, for Selected Years and Projected 1970

(Billions of 1958 dollars)

Major type	Selected years				Projected 1970			
					3 percent unemployment	4 percent unemployment		
	1950	1957	1962	1965 [1]	Basic model	Basic model	High [2] durables	High [3] services
Total personal consumption expenditures	230.5	288.2	338.6	394.1	492.6	485.5	478.5	490.5
Durable goods	34.7	41.5	49.2	65.4	83.1	81.9	89.7	82.2
Automobiles and parts	15.9	18.8	21.8	30.1	34.8	34.3	37.5	34.4
Furniture and household equipment	15.1	17.4	20.5	26.5	36.6	36.1	39.6	36.2
Other	3.7	5.3	6.8	8.8	11.7	11.5	12.6	11.6
Nondurable goods	114.0	138.7	158.4	177.0	212.1	209.0	208.2	209.8
Food and beverages	63.2	76.2	84.1	91.7	106.8	105.2	104.8	105.6
Clothing and shoes	21.8	24.4	28.4	32.8	37.9	37.3	37.2	37.5
Gasoline and oil	6.5	10.5	12.5	13.9	18.1	17.9	17.8	18.0
Other	22.5	27.5	33.4	38.6	49.3	48.6	48.4	48.7
Services	81.8	108.0	131.1	151.6	197.4	194.5	180.6	198.5
Housing	26.8	39.2	49.1	59.2	74.8	73.7	68.4	74.3
Household operation	11.7	16.7	20.4	23.3	31.2	30.7	28.5	31.0
Transportation	8.5	9.5	9.9	10.6	14.9	14.6	13.6	14.8
Other	34.8	42.5	51.7	58.4	76.5	75.5	70.1	78.4
Percent distribution								
Total personal consumption expenditures	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Durable goods	15.1	14.4	14.5	16.6	16.9	16.9	18.7	16.8
Automobiles and parts	6.9	6.5	6.4	7.6	7.1	7.1	7.8	7.0
Furniture and household equipment	6.6	6.0	6.1	6.7	7.4	7.4	8.3	7.4
Other	1.6	1.8	2.0	2.2	2.4	2.4	2.6	2.4
Nondurable goods	49.4	48.1	46.8	44.9	43.1	43.0	43.5	42.8
Food and beverages	27.4	26.4	24.8	23.3	21.7	21.7	21.9	21.5
Clothing and shoes	9.5	8.5	8.4	8.3	7.7	7.7	7.8	7.6
Gasoline and oil	2.8	3.6	3.7	3.5	3.7	3.7	3.7	3.7
Other	9.8	9.5	9.9	9.8	10.0	10.0	10.1	9.9
Services	35.5	37.5	38.7	38.5	40.1	40.1	37.7	40.5
Housing	11.6	13.6	14.5	15.0	15.2	15.2	14.3	15.1
Household operation	5.1	5.8	6.0	5.9	6.3	6.3	6.0	6.3
Transportation	3.7	3.3	2.9	2.7	3.0	3.0	2.8	3.0
Other	15.1	14.8	15.3	14.8	15.5	15.6	14.6	16.0
Average annual rate of change								
	Selected periods				Projected 1965-70 [4]			
	1950-57	1957-65	1957-62	1962-65	3 percent unemployment, Basic model	4 percent unemployment, Basic model	4 percent unemployment, High [2] durables	4 percent unemployment, High [3] services
Total personal consumption expenditures	3.2	4.0	3.3	5.2	4.6	4.3	4.0	4.5
Durable goods	2.6	5.9	3.5	9.9	4.9	4.6	6.5	4.7
Automobiles and parts	2.4	6.1	3.0	11.4	2.9	2.7	4.5	2.7
Furniture and household equipment	2.0	5.4	3.3	8.9	6.7	6.4	8.4	6.4
Other	5.3	6.6	5.1	9.0	5.8	5.5	7.5	5.7
Nondurable goods	2.8	3.1	2.7	3.8	3.7	3.4	3.3	3.5
Food and beverages	2.7	2.4	2.0	2.9	3.1	2.8	2.7	2.9
Clothing and shoes	1.6	3.8	3.1	4.9	2.9	2.6	2.5	2.7
Gasoline and oil	7.1	3.6	3.6	3.6	5.4	5.2	5.1	5.3
Other	2.9	4.3	4.0	5.0	5.0	4.7	4.6	4.8
Services	4.1	4.3	4.0	5.0	5.4	5.1	3.6	5.5
Housing	5.6	5.3	4.6	6.4	4.8	4.5	2.9	4.6
Household operation	5.2	4.3	4.1	4.5	6.0	5.7	4.1	5.9
Transportation	1.6	1.4	0.8	2.3	7.0	6.6	5.1	6.9
Other	2.9	4.1	4.0	4.1	5.5	5.3	3.7	6.1

1/ Preliminary.
2/ See footnote 2, table IV-2.
3/ See footnote 3, table IV-2.
4/ Compound interest rates based on terminal years.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Historical data on personal consumption expenditures are from U.S. Department of Commerce, Office of Business Economics. Projections are by U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-11. Industrial Composition of Personal Consumption Expenditures
1958, 1962, and Projected 1970

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
1. Livestock and livestock products	.73	.56	.34	.34	.34	.33
2. Other agricultural products	.84	.68	.55	.54	.54	.53
3. Forestry and fishery products	.10	.09	.08	.08	.08	.08
4. Agricultural, forestry and fishery services	-	-	-	-	-	-
5. Iron and ferroalloy ores mining	-	-	-	-	-	-
6. Nonferrous metal ores mining	-	-	-	-	-	-
7. Coal mining	.09	.05	.04	.04	.04	.04
8. Crude petroleum and natural gas	-	-	-	-	-	-
9. Stone and clay mining and quarrying	.01	.01	.01	.01	.01	.01
10. Chemical and fertilizer mineral mining	-	-	-	-	-	-
11. New construction	-	-	-	-	-	-
12. Maintenance and repair construction	-	-	-	-	-	-
13. Ordnance and accessories	.05	.06	.07	.07	.07	.07
14. Food and kindred products	15.64	14.93	13.11	13.10	13.24	13.01
15. Tobacco manufactures	1.46	1.43	1.32	1.32	1.34	1.31
16. Broad and narrow fabrics, yarn and thread mills	.24	.24	.25	.24	.25	.24
17. Miscellaneous textile goods and floor coverings	.26	.27	.30	.30	.33	.30
18. Apparel	3.80	3.76	3.61	3.61	3.65	3.58
19. Miscellaneous fabricated textile products	.38	.40	.40	.40	.42	.40
20. Lumber and wood products, except containers	.05	.05	.05	.05	.06	.05
21. Wooden containers	-	-	-	-	-	-
22. Household furniture	.83	.77	.88	.88	.97	.87
23. Other furniture and fixtures	.04	.05	.05	.05	.06	.05
24. Paper and allied products, except containers	.29	.31	.31	.31	.32	.31
25. Paperboard containers and boxes	.01	.01	.01	.01	.01	.01
26. Printing and publishing	.84	.88	.84	.84	.88	.83
27. Chemicals and selected chemical products	.07	.08	.08	.08	.08	.08
28. Plastics and synthetic materials	-	-	-	-	-	-
29. Drugs, cleaning, and toilet preparations	1.28	1.38	1.74	1.74	1.76	1.73
30. Paints and allied products	.01	.01	.01	.01	.01	.01
31. Petroleum refining and related industries	2.50	2.40	2.37	2.37	2.40	2.36
32. Rubber and miscellaneous plastics products	.45	.51	.54	.54	.58	.53
33. Leather tanning and industrial leather products	-	-	-	-	-	-
34. Footwear and other leather products	.89	.77	.60	.59	.60	.59
35. Glass and glass products	.04	.04	.04	.04	.05	.04
36. Stone and clay products	.07	.07	.07	.07	.08	.07
37. Primary iron and steel manufacturing	.01	.01	.01	.01	.01	.01
38. Primary nonferrous metals manufacturing	-	-	-	-	-	-
39. Metal Containers	-	-	-	-	-	-
40. Heating, plumbing and structural metal products	.02	.02	.03	.03	.03	.03
41. Stampings, screw machine products and bolts	.09	.08	.08	.08	.09	.08
42. Other fabricated metal products	.13	.13	.16	.16	.17	.16
43. Engines and turbines	.04	.04	.06	.06	.06	.06
44. Farm machinery and equipment	-	-	-	-	-	-
45. Construction, mining and oil field machinery	-	-	-	-	-	-

See footnotes at end of table.

Table IV-11. Industrial Composition of Personal Consumption Expenditures 1958, 1962, and Projected 1970--Continued

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 1/ durables	High 2/ services
46. Materials handling machinery and equipment	-	-	-	-	-	-
47. Metalworking machinery and equipment	.01	.01	.01	.01	.01	.01
48. Special industry machinery and equipment	.01	.01	.01	.01	.01	.01
49. General industrial machinery and equipment	-	-	-	-	-	-
50. Machine shop products	-	-	-	-	-	-
51. Office, computing and accounting machines	.02	.02	.03	.03	.03	.03
52. Service industry machines	.09	.09	.10	.10	.11	.10
53. Electric industrial equipment and apparatus	.01	.01	.01	.01	.01	.01
54. Household appliances	.82	.84	1.09	1.09	1.21	1.08
55. Electric lighting and wiring equipment	.11	.11	.12	.12	.13	.12
56. Radio, television and communication equipment	.47	.54	.90	.90	1.00	.89
57. Electronic components and accessories	.05	.06	.08	.08	.09	.08
58. Miscellaneous electrical machinery and supplies	.09	.10	.11	.11	.12	.11
59. Motor vehicles and equipment	3.17	3.90	4.28	4.28	4.76	4.25
60. Aircraft and parts	.01	.01	.01	.01	.01	.01
61. Other transportation equipment	.25	.29	.34	.34	.37	.33
62. Scientific and controlling instruments	.12	.15	.15	.15	.16	.15
63. Optical, ophthalmic and photographic equipment	.16	.18	.22	.22	.24	.22
64. Miscellaneous manufacturing	.87	.89	1.08	1.08	1.15	1.07
65. Transportation and warehousing	2.95	2.94	2.85	2.85	2.84	2.83
66. Communications; except broadcasting	1.35	1.45	1.74	1.74	1.63	1.73
67. Radio and television broadcasting	-	-	-	-	-	-
68. Electric, gas, water and sanitary services	2.78	2.96	3.19	3.19	3.00	3.19
69. Wholesale and retail trade	21.20	21.07	20.63	20.68	21.49	20.54
70. Finance and insurance	4.07	4.02	4.22	4.22	3.98	4.21
71. Real estate and rental	13.77	14.05	14.70	14.73	13.88	14.71
72. Hotels; personal and repair services, except auto	3.19	3.17	3.06	3.03	2.85	3.02
73. Business services	.65	.67	.57	.57	.53	.57
74. Research and development	-	-	-	-	-	-
75. Automobile repair and services	1.51	1.42	1.47	1.47	1.38	1.46
76. Amusements	1.10	1.03	.95	.95	.89	.95
77. Medical, educational and nonprofit organizations	7.05	7.07	7.49	7.47	7.04	7.93
78. Federal Government enterprises	.22	.22	.23	.23	.22	.23
79. State and local government enterprises	.11	.12	.16	.16	.15	.15
80. Gross imports of goods and services	1.33	1.54	1.50	1.50	1.49	1.50
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	-	-	-	-	-	-
83. Scrap, used and secondhand goods	.01	-.01	-	-	-	-
84. Government industry	-	-	-	-	-	-
85. Rest of the world industry	-	-	-	-	-	-
86. Household industry	1.21	.98	.73	.73	.69	.73
87. Inventory valuation adjustment	-	-	-	-	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00

1/ See footnote 2, table IV-2.
2/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-12. Industrial Composition of Net Exports[1/] 1958, 1962, and Projected 1970

(Millions of 1958 dollars)

Industry number and title	1958 [2/]	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High [3/] durables	High [4/] services
1. Livestock and livestock products	38	27	44	44	44	44
2. Other agricultural products	1,814	2,473	3,171	3,171	3,171	3,171
3. Forestry and fishery products	30	38	62	62	62	62
4. Agricultural, forestry and fishery services	3	6	10	10	10	10
5. Iron and ferroalloy ores mining	41	70	113	113	113	113
6. Nonferrous metal ores mining	4	6	14	14	14	14
7. Coal mining	332	239	370	370	370	370
8. Crude petroleum and natural gas	28	20	29	29	29	29
9. Stone and clay mining and quarrying	23	29	41	41	41	41
10. Chemical and fertilizer mineral mining	55	64	90	90	90	90
11. New construction	2	2	4	4	4	4
12. Maintenance and repair construction	-	-	-	-	-	-
13. Ordnance and accessories	17	135	264	264	264	264
14. Food and kindred products	1,681	1,900	2,371	2,371	2,371	2,371
15. Tobacco manufactures	437	480	605	605	605	605
16. Broad and narrow fabrics, yarn and thread mills	227	212	185	185	185	185
17. Miscellaneous textile goods and floor coverings	46	66	61	61	61	61
18. Apparel	273	298	342	342	342	342
19. Miscellaneous fabricated textile products	19	23	17	17	17	17
20. Lumber and wood products, except containers	110	149	284	284	284	284
21. Wooden containers	3	3	5	5	5	5
22. Household furniture	16	14	11	11	11	11
23. Other furniture and fixtures	18	13	10	10	10	10
24. Paper and allied products, except containers	262	395	598	598	598	598
25. Paperboard containers and boxes	19	23	38	38	38	38
26. Printing and publishing	94	139	193	193	193	193
27. Chemicals and selected chemical products	676	977	1,523	1,523	1,523	1,523
28. Plastics and synthetic materials	339	513	650	650	650	650
29. Drugs, cleaning, and toilet preparations	330	369	487	487	487	487
30. Paints and allied products	27	27	39	39	39	39
31. Petroleum refining and related industries	657	627	776	776	776	776
32. Rubber and miscellaneous plastics products	212	255	361	361	361	361
33. Leather tanning and industrial leather products	28	32	50	50	50	50
34. Footwear and other leather products	49	33	30	30	30	30
35. Glass and glass products	69	81	106	106	106	106
36. Stone and clay products	100	108	137	137	137	137
37. Primary iron and steel manufacturing	535	416	550	550	550	550
38. Primary nonferrous metals manufacturing	305	399	553	553	553	553
39. Metal containers	26	23	25	25	25	25
40. Heating, plumbing and structural metal products	225	251	339	339	339	339
41. Stampings, screw machine products and bolts	28	35	44	44	44	44
42. Other fabricated metal products	258	262	347	347	347	347
43. Engines and turbines	211	277	525	525	525	525
44. Farm machinery and equipment	188	228	394	394	394	394
45. Construction, mining and oil field machinery	709	872	1,322	1,322	1,322	1,322

See footnotes at end of table.

Table IV-12. Industrial Composition of Net Exports[1/] 1958, 1962, and Projected 1970--Continued

(Millions of 1958 dollars)

Industry number and title	1958 [2/]	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High [3/] durables	High [4/] services
46. Materials handling machinery and equipment	76	86	172	172	172	172
47. Metalworking machinery and equipment	331	524	976	976	976	976
48. Special industry machinery and equipment	370	555	915	915	915	915
49. General industrial machinery and equipment	275	333	672	672	672	672
50. Machine shop products	15	5	10	10	10	10
51. Office, computing and accounting machines	136	322	779	779	779	779
52. Service industry machines	135	179	342	342	342	342
53. Electric industrial equipment and apparatus	281	344	601	601	601	601
54. Household appliances	208	194	321	321	321	321
55. Electric lighting and wiring equipment	64	75	123	123	123	123
56. Radio, television and communication equipment	212	317	719	719	719	719
57. Electronic components and accessories	90	147	292	292	292	292
58. Miscellaneous electrical machinery and supplies	71	77	129	129	129	129
59. Motor vehicles and equipment	921	1,138	1,799	1,799	1,799	1,799
60. Aircraft and parts	559	1,068	1,883	1,883	1,883	1,883
61. Other transportation equipment	299	191	267	267	267	267
62. Scientific and controlling instruments	183	336	638	638	638	638
63. Optical, ophthalmic and photographic equipment	107	150	309	309	309	309
64. Miscellaneous manufacturing	125	188	250	250	250	250
65. Transportation and warehousing	2,393	2,872	4,089	4,089	4,089	4,089
66. Communications; except broadcasting	65	82	111	111	111	111
67. Radio and television broadcasting	9	20	37	37	37	37
68. Electric, gas, water and sanitary services	36	35	54	54	54	54
69. Wholesale and retail trade	1,500	1,990	2,836	2,836	2,836	2,836
70. Finance and insurance	23	28	63	63	63	63
71. Real estate and rental	271	429	580	580	580	580
72. Hotels; personal and repair services, except auto	192	202	303	303	303	303
73. Business services	249	330	425	425	425	425
74. Research and development	-	17	-	-	-	-
75. Automobile repair and services	1	1	1	1	1	1
76. Amusements	335	346	492	492	492	492
77. Medical, educational and nonprofit organizations	9	10	14	14	14	14
78. Federal Government enterprises	61	76	66	66	66	66
79. State and local government enterprises	3	-1	-	-	-	-
80. Gross imports of goods and services	-21,082	-25,474	-34,308	-34,308	-34,308	-34,308
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	-	-	-	-	-	-
83. Scrap, used and secondhand goods	250	324	510	510	510	510
84. Government industry	-	-	-	-	-	-
85. Rest of the world industry	2,867	4,420	6,842	6,842	6,842	6,842
86. Household industry	1	1	2	2	2	2
87. Inventory valuation adjustment	-	-	-	-	-	-
Total	2,206	4,545	10,499	10,499	10,499	10,499

1/ The detailed entries reflect gross exports of goods and services from each producing industry. Imports in total are shown as negative entries in these columns on row 80. Therefore, the sum of each column equals the GNP component, "net exports of goods and services" for the selected year.

2/ See footnote 1, table IV-9.

3/ See footnote 2, table IV-2.

4/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-13. Industrial Composition of Total Final Demand[1/] 1958, 1962, and Projected 1970

(Millions of 1958 dollars)

Industry number and title	1958 [2/]	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High [3/] durables	High [4/] services
1. Livestock and livestock products	2,758	2,629	2,118	2,099	2,084	2,105
2. Other agricultural products	5,770	4,850	6,097	6,061	6,050	6,070
3. Forestry and fishery products	194	249	237	230	229	231
4. Agricultural, forestry and fishery services	0	-27	-83	-83	-83	-83
5. Iron and ferroalloy ores mining	18	65	115	115	115	115
6. Nonferrous metal ores mining	163	293	226	222	222	222
7. Coal mining	631	530	739	734	733	735
8. Crude petroleum and natural gas	-11	41	63	63	63	63
9. Stone and clay mining and quarrying	41	52	70	69	68	69
10. Chemical and fertilizer mineral mining	78	74	118	118	118	118
11. New construction	52,416	58,071	82,608	81,558	84,058	78,998
12. Maintenance and repair construction	4,420	5,075	6,504	6,504	6,504	6,504
13. Ordnance and accessories	3,592	4,167	5,420	5,417	5,429	5,418
14. Food and kindred products	47,633	53,514	68,349	67,360	67,131	67,586
15. Tobacco manufactures	4,661	5,342	7,133	7,035	7,009	7,058
16. Broad and narrow fabrics, yarn and thread mills	879	1,229	1,562	1,536	1,554	1,541
17. Miscellaneous textile goods and floor coverings	813	1,124	1,689	1,665	1,803	1,669
18. Apparel	11,315	13,833	19,069	18,796	18,737	18,858
19. Miscellaneous fabricated textile products	1,221	1,466	2,105	2,076	2,102	2,083
20. Lumber and wood products, except containers	323	381	618	612	632	612
21. Wooden Containers	-4	34	30	30	30	30
22. Household furniture	2,634	2,933	4,822	4,751	5,176	4,756
23. Other furniture and fixtures	1,099	1,490	2,353	2,315	2,462	2,229
24. Paper and allied products, except containers	1,185	1,559	2,300	2,276	2,270	2,281
25. Paperboard containers and boxes	61	187	153	152	152	152
26. Printing and publishing	2,813	3,580	5,080	5,006	5,132	5,053
27. Chemicals and selected chemical products	1,931	2,309	3,152	3,139	3,149	3,177
28. Plastics and synthetic materials	319	649	775	774	774	774
29. Drugs, cleaning, and toilet preparations	4,419	5,592	9,791	9,654	9,625	9,737
30. Paints and allied products	44	64	100	97	97	97
31. Petroleum refining and related industries	8,855	10,378	14,667	14,473	14,426	14,514
32. Rubber and miscellaneous plastics products	1,744	2,270	3,456	3,410	3,601	3,417
33. Leather tanning and industrial leather products	25	28	55	55	55	55
34. Footwear and other leather products	2,704	2,803	3,010	2,953	2,957	2,964
35. Glass and glass products	196	242	332	329	347	331
36. Stone and clay products	350	392	543	538	555	539
37. Primary iron and steel manufacturing	514	453	795	794	794	794
38. Primary nonferrous metals manufacturing	650	557	731	729	731	729
39. Metal containers	68	60	75	75	77	73
40. Heating, plumbing and structural metal products	951	1,185	1,836	1,819	1,910	1,756
41. Stampings, screw machine products and bolts	310	390	546	537	570	538
42. Other fabricated metal products	927	1,239	1,839	1,820	1,884	1,817
43. Engines and turbines	1,145	1,177	1,683	1,668	1,738	1,633
44. Farm machinery and equipment	1,878	1,927	2,841	2,804	2,975	2,676
45. Construction, mining and oil field machinery	2,060	2,340	4,070	4,028	4,216	3,869

See footnotes at end of table.

Table IV-13. Industrial Composition of Total Final Demand[1/] 1958, 1962, and Projected 1970--Continued

(Millions of 1958 dollars)

Industry number and title	1958 [2/]	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High [3/] durables	High [4/] services
46. Materials handling machinery and equipment	593	717	1,141	1,128	1,180	1,111
47. Metalworking machinery and equipment	1,662	2,203	3,599	3,562	3,731	3,424
48. Special industry machinery and equipment	1,814	2,535	3,988	3,937	4,157	3,754
49. General industrial machinery and equipment	1,451	1,787	2,698	2,669	2,800	2,555
50. Machine shop products	83	145	157	155	155	184
51. Office, computing and accounting machines	1,372	2,318	5,325	5,257	6,086	5,160
52. Service industry machines	1,397	1,840	3,425	3,376	3,604	3,223
53. Electric industrial equipment and apparatus	2,136	2,589	4,324	4,269	4,523	4,058
54. Household appliances	2,780	3,238	6,010	5,923	6,432	5,927
55. Electric lighting and wiring equipment	471	550	861	842	873	841
56. Radio, television and communication equipment	4,333	7,794	11,854	11,746	12,350	11,601
57. Electronic components and accessories	593	1,074	1,537	1,531	1,576	1,526
58. Miscellaneous electrical machinery and supplies	537	670	1,069	1,058	1,117	1,071
59. Motor vehicles and equipment	14,094	22,199	35,717	35,132	37,715	34,567
60. Aircraft and parts	8,730	10,624	11,380	11,357	11,467	11,271
61. Other transportation equipment	2,820	3,500	5,841	5,772	6,126	5,610
62. Scientific and controlling instruments	1,800	2,541	3,555	3,520	3,658	3,470
63. Optical, ophthalmic and photographic equipment	909	1,180	2,188	2,161	2,277	2,141
64. Miscellaneous manufacturing	3,184	4,008	6,768	6,673	6,998	6,653
65. Transportation and warehousing	13,463	15,852	21,933	21,676	21,575	21,751
66. Communications; except broadcasting	4,694	6,086	10,311	10,154	9,612	10,183
67. Radio and television broadcasting	9	23	39	39	39	39
68. Electric, gas, water and sanitary services	8,929	11,017	17,271	17,006	15,843	17,142
69. Wholesale and retail trade	67,627	79,848	115,198	113,772	116,752	113,574
70. Finance and insurance	12,028	13,872	21,336	21,017	19,570	21,196
71. Real estate and rental	41,772	50,160	75,781	74,877	69,779	75,404
72. Hotels; personal and repair services, except auto	9,788	11,228	15,856	15,491	14,447	15,620
73. Business services	3,184	4,355	5,594	5,526	5,329	5,620
74. Research and development	372	360	390	390	390	390
75. Automobile repair and services	4,599	5,061	7,635	7,518	7,007	7,580
76. Amusements	3,516	3,805	5,184	5,117	4,785	5,156
77. Medical, educational and nonprofit organizations	21,418	24,883	38,541	37,922	35,336	40,616
78. Federal Government enterprises	817	977	1,448	1,424	1,343	1,434
79. State and local government enterprises	434	625	1,041	1,021	967	1,027
80. Gross imports of goods and services	-14,483	-17,575	-24,815	-24,921	-25,113	-24,885
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	207	331	492	480	480	480
83. Scrap, used and secondhand goods	-374	248	613	610	627	604
84. Government industry	39,029	43,483	55,228	54,759	54,759	55,287
85. Rest of the world industry	2,560	3,525	6,092	6,092	6,092	6,092
86. Household industry	3,503	3,323	3,603	3,549	3,295	3,580
87. Inventory valuation adjustment	-311	269	-	-	-	-
Total	447,344	[5/]530,062	760,000	750,000	750,000	750,000

1/ In this context, total final demand is the sum of demand from consumers, government, business, and foreign. The data are sums of tables IV-2, 4, 8, 9, and 12.

2/ The presentation of the data on 1958 purchases by the Federal Government have been changed to conform with the treatment of research and development (1962 and 1970).

3/ See footnote 2, table IV-2.

4/ See footnote 3, table IV-2.

5/ In table III-1, total final demand or GNP is shown as $530.0 while in this table, it is shown as 530,062 (530.1 rounded) which is the unrounded sum of each of the categories of final demand.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-14. Industrial Composition of Total Final Demand[1/]
1958, 1962, and Projected 1970

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 2/ durables	High 3/ services
1. Livestock and livestock products	.62	.50	.28	.28	.28	.28
2. Other agricultural products	1.29	.92	.80	.81	.81	.81
3. Forestry and fishery products	.04	.05	.03	.03	.03	.03
4. Agricultural, forestry and fishery services	-	-.01	-.01	-.01	-.01	-.01
5. Iron and ferroalloy ores mining	*	.01	.02	.02	.02	.02
6. Nonferrous metal ores mining	.04	.06	.03	.03	.03	.03
7. Coal mining	.14	.10	.10	.10	.10	.10
8. Crude petroleum and natural gas	*	.01	.01	.01	.01	.01
9. Stone and clay mining and quarrying	.01	.01	.01	.01	.01	.01
10. Chemical and fertilizer mineral mining	.02	.01	.02	.02	.02	.02
11. New construction	11.72	10.96	10.87	10.87	11.21	10.53
12. Maintenance and repair construction	.99	.96	.86	.87	.87	.87
13. Ordnance and accessories	.80	.79	.71	.72	.72	.72
14. Food and kindred products	10.65	10.10	8.99	8.98	8.95	9.01
15. Tobacco manufactures	1.04	1.01	.94	.94	.93	.94
16. Broad and narrow fabrics, yarn and thread mills	.20	.23	.21	.20	.21	.21
17. Miscellaneous textile goods and floor coverings	.18	.21	.22	.22	.24	.22
18. Apparel	2.53	2.61	2.51	2.51	2.50	2.51
19. Miscellaneous fabricated textile products	.27	.28	.28	.28	.28	.28
20. Lumber and wood products, except containers	.07	.07	.08	.08	.08	.08
21. Wooden containers	*	.01	*	*	*	*
22. Household furniture	.59	.55	.63	.63	.69	.63
23. Other furniture and fixtures	.25	.28	.31	.31	.33	.30
24. Paper and allied products, except containers	.26	.29	.30	.30	.30	.30
25. Paperboard containers and boxes	.01	.04	.02	.02	.02	.02
26. Printing and publishing	.63	.68	.67	.67	.68	.67
27. Chemicals and selected chemical products	.43	.44	.41	.42	.42	.42
28. Plastics and synthetic materials	.07	.12	.10	.10	.10	.10
29. Drugs, cleaning, and toilet preparations	.99	1.06	1.29	1.29	1.28	1.30
30. Paints and allied products	.01	.01	.01	.01	.01	.01
31. Petroleum refining and related industries	1.98	1.96	1.93	1.93	1.92	1.94
32. Rubber and miscellaneous plastics products	.39	.43	.45	.45	.48	.46
33. Leather tanning and industrial leather products	.01	.01	.01	.01	.01	.01
34. Footwear and other leather products	.60	.53	.40	.39	.39	.40
35. Glass and glass products	.04	.05	.04	.04	.05	.04
36. Stone and clay products	.08	.07	.07	.07	.07	.07
37. Primary iron and steel manufacturing	.11	.09	.10	.11	.11	.11
38. Primary nonferrous metals manufacturing	.15	.11	.10	.10	.10	.10
39. Metal containers	.02	.01	.01	.01	.01	.01
40. Heating, plumbing and structural metal products	.21	.22	.24	.24	.25	.23
41. Stampings, screw machine products and bolts	.07	.07	.07	.07	.08	.07
42. Other fabricated metal products	.21	.23	.24	.24	.25	.24
43. Engines and turbines	.26	.22	.22	.22	.23	.22
44. Farm machinery and equipment	.42	.36	.37	.37	.40	.36
45. Construction, mining and oil field machinery	.46	.44	.54	.54	.56	.52

See footnotes at end of table.

Table IV-14. Industrial Composition of Total Final Demand[1/]
1958, 1962, and Projected 1970--Continued

(Percent distribution)

Industry number and title	1958	1962	Projected 1970			
			3 percent unemployment	4 percent unemployment		
			Basic model	Basic model	High 2/ durables	High 3/ services
46. Materials handling machinery and equipment	.13	.14	.15	.15	.16	.15
47. Metalworking machinery and equipment	.37	.42	.47	.47	.50	.46
48. Special industry machinery and equipment	.41	.48	.52	.52	.55	.50
49. General industrial machinery and equipment	.32	.34	.36	.36	.37	.34
50. Machine shop products	.02	.03	.02	.02	.02	.02
51. Office, computing and accounting machines	.31	.44	.70	.70	.81	.69
52. Service industry machines	.31	.35	.45	.45	.48	.43
53. Electric industrial equipment and apparatus	.48	.49	.57	.57	.60	.54
54. Household appliances	.62	.61	.79	.79	.86	.79
55. Electric lighting and wiring equipment	.11	.10	.11	.11	.12	.11
56. Radio, television and communication equipment	.97	1.47	1.56	1.57	1.65	1.55
57. Electronic components and accessories	.13	.20	.20	.20	.21	.20
58. Miscellaneous electrical machinery and supplies	.12	.13	.14	.14	.15	.14
59. Motor vehicles and equipment	3.15	4.19	4.70	4.68	5.03	4.61
60. Aircraft and parts	1.95	2.00	1.50	1.51	1.53	1.50
61. Other transportation equipment	.63	.66	.77	.77	.82	.75
62. Scientific and controlling instruments	.40	.48	.47	.47	.49	.46
63. Optical, ophthalmic and photographic equipment	.20	.22	.29	.29	.30	.29
64. Miscellaneous manufacturing	.71	.76	.89	.89	.93	.89
65. Transportation and warehousing	3.01	2.99	2.89	2.89	2.88	2.90
66. Communications; except broadcasting	1.05	1.15	1.36	1.35	1.28	1.36
67. Radio and television broadcasting	*	*	.01	.01	.01	.01
68. Electric, gas, water and sanitary services	2.00	2.08	2.27	2.27	2.11	2.29
69. Wholesale and retail trade	15.12	15.06	15.16	15.17	15.57	15.14
70. Finance and insurance	2.69	2.62	2.81	2.80	2.61	2.83
71. Real estate and rental	9.34	9.46	9.97	9.98	9.30	10.05
72. Hotels; personal and repair services, except auto	2.19	2.12	2.09	2.07	1.93	2.08
73. Business services	.71	.82	.74	.74	.71	.75
74. Research and development	.08	.07	.05	.05	.05	.05
75. Automobile repair and services	1.03	.95	1.00	1.00	.93	1.01
76. Amusements	.79	.72	.68	.68	.64	.69
77. Medical, educational and nonprofit organizations	4.79	4.69	5.07	5.06	4.71	5.42
78. Federal Government enterprises	.18	.18	.19	.19	.18	.19
79. State and local government enterprises	.10	.12	.14	.14	.13	.14
80. Gross imports of goods and services	-3.24	-3.32	-3.27	-3.32	-3.35	-3.32
81. Business travel, entertainment and gifts	-	-	-	-	-	-
82. Office supplies	.05	.06	.06	.06	.06	.06
83. Scrap, used and secondhand goods	-.08	.05	.08	.08	.08	.08
84. Government industry	8.72	8.20	7.27	7.30	7.30	7.37
85. Rest of the world industry	.57	.67	.80	.81	.81	.81
86. Household industry	.78	.63	.47	.47	.44	.48
87. Inventory valuation adjustment	-.07	.05	-	-	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00

*Less than .01.

1/ In this context, total final demand is the sum of demand from consumers, government, business, and foreign. The data are sums of tables IV-2, 4, 8, 9, and 12.
2/ See footnote 2, table IV-2.
3/ See footnote 3, table IV-2.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Table IV-15. Industrial Composition of Total Final Demand by Major Industry Group
Selected Years and Projected 1970

(Millions of 1958 dollars)

Major industry group	Selected years			Projected 1970			
				3 percent unemployment	4 percent unemployment		
	1958	1962	1965 [1]	Basic model	Basic model	Basic [2] durables	Basic [3] services
Total	447,344	530,062	609,600	760,000	750,000	750,000	750,000
Agriculture	8,722	7,701	6,948	8,369	8,307	8,280	8,323
Mining	920	1,055	1,511	1,331	1,321	1,319	1,322
Construction [4]	56,836	63,146	68,784	88,862	88,062	90,562	85,502
Manufacturing	158,074	196,404	232,949	282,417	278,791	286,925	276,963
Durables	67,452	90,479	115,258	139,971	138,334	146,351	135,947
Nondurables	90,622	105,925	117,691	142,446	140,457	140,574	141,016
Transportation	13,463	15,852	18,122	21,933	21,676	21,575	21,751
Communications and public utilities	13,632	17,126	20,125	27,621	27,199	25,494	27,364
Trade	67,627	79,848	93,305	115,448	113,772	116,752	113,574
Finance, insurance, and real estate	53,800	64,032	76,500	97,117	95,894	89,349	96,600
Services	42,877	49,692	55,432	73,200	71,964	67,294	74,982
Government enterprises	1,251	1,602	1,770	2,489	2,445	2,310	2,461
General government [5]	39,029	43,483	46,799	55,228	54,759	54,759	55,287
Federal	19,951	21,184	20,856	22,014	21,987	21,987	21,987
State and local	19,078	22,299	25,943	38,214	32,772	32,772	33,300
Miscellaneous [6]	5,585	7,696	9,450	10,800	10,731	10,494	10,756
Final demand imports	6,795	8,186	9,024	9,920	9,814	9,622	9,850
Total imports [7]	-21,277	-25,761	-31,200	-34,735	-34,735	-34,735	-34,735
	Percent distribution						
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Agriculture	1.95	1.45	1.14	1.10	1.11	1.10	1.11
Mining	.21	.20	.25	.18	.18	.18	.18
Construction	12.71	11.91	11.28	11.69	11.74	12.07	11.40
Manufacturing	35.34	37.05	38.22	37.16	37.17	38.26	36.93
Durables	15.08	17.07	18.91	18.42	18.44	19.51	18.13
Nondurables	20.26	19.98	19.31	18.74	18.73	18.74	18.80
Transportation	3.01	2.99	2.97	2.89	2.89	2.88	2.90
Communications and public utilities	3.05	3.23	3.30	3.63	3.63	3.40	3.65
Trade	15.12	15.06	15.31	15.19	15.17	15.57	15.14
Finance, insurance, and real estate	12.03	12.08	12.55	12.78	12.79	11.91	12.88
Services	9.58	9.37	9.09	9.63	9.60	8.97	10.00
Government enterprises	.28	.30	.29	.33	.33	.31	.33
General government	8.72	8.20	7.68	7.27	7.30	7.30	7.37
Federal	4.46	4.00	3.42	2.90	2.93	2.93	2.93
State and local	4.26	4.21	4.26	4.37	4.37	4.37	4.44
Miscellaneous	1.25	1.45	1.55	1.42	1.43	1.40	1.43
Final demand imports	1.52	1.54	1.48	1.31	1.31	1.28	1.31
Total imports	-4.76	-4.86	-5.12	-4.57	-4.63	-4.63	-4.63

1/ This GNP is a preliminary revision of the GNP shown in table III-1 and table A-1. The revisions are minor and do not substantially affect the total or distribution of final demand.

2/ See footnote 2, table IV-2.

3/ See footnote 3, table IV-2.

4/ Construction includes both new and maintenance construction.

5/ Does not include compensation of government force-account construction employees which is included in construction.

6/ Includes industries 81 through 83 and industries 85 through 87.

7/ The item "total imports" is an adjustment factor to total final demand to balance to GNP.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data for 1958 are from the U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, September 1965. The year 1962 and 1970 projections are estimated by the U.S. Department of Labor, Bureau of Labor Statistics.

Chapter V. The Interindustry Employment Table

The interindustry employment table provides the means for converting the projections of final demand for goods and services into estimates of industry employment requirements.31/ The table is derived by converting the total requirements table of the basic set of input-output tables into employment terms. The interindustry employment table shows the direct and indirect employment required in each industry to produce the raw materials, parts, components, fuel, transportation, distribution, etc., embodied in the various final products and services produced by the economy.

The application of the employment conversion factors in the interindustry employment table to the projections of final demand described in the previous chapter yields the projections of industry employment requirements. Before the interindustry employment table can be used for this purpose, however, the basic 1958 input-output relationships have to be projected to 1970 to take account of changes in technology, substitution of one type of material for another, product mix, industry integration, etc. In addition, the estimates of unit labor requirements used to convert output to employment also need to be projected to 1970. The interindustry employment table used in this bulletin reflects the projection of both input-output relationships and unit labor requirements to 1970.

Input-Output Coefficients

Causes of changes in coefficients. Input-output relationships or coefficients may change for a variety of reasons. Obviously, technological change is a major factor underlying changes in coefficients, from period to period. For example, the introduction of nuclear electric power plants requires a new input--nuclear fuel. Growth of nuclear electric power reduces the relative need for other fuels such as coal and gas.

Other factors such as product mix or price changes can also cause significant changes in coefficients. Product mix problems result from the industry classification used. In dividing the U.S. economy into about 80 sectors, very large industry groups such as "food and kindred products" or "chemicals" are created. These large sectors include different commodities and services, each with its own set of input requirements. If the output of the various commodities changes at different

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31/ In concept, there should be a separate interindustry employment table for each set of final demand projections. Only the one that is used for converting the "bill of goods" in the basic 4-percent unemployment model into employment is shown. The implied differences in productivity are discussed on page 101.

rates, then the total input coefficients of the sector may also be changed. This can occur even if there are no technological changes in the producing industries. For example, plastics and rubber are both included in the "rubber and miscellaneous plastics products" sector. Since the output of plastic products is growing more rapidly than rubber products and the material and service requirements of each differ, then the sector coefficients may change for this reason alone.

Price competition can also change coefficients. Iron ore and scrap are the two basic and interchangeable sources of raw material for the steel industry. The current technological trend is toward the use of more iron ore and less scrap. However, in 1963 the use of scrap increased relative to iron ore due, in part, to the low price of scrap in that year.

Another kind of coefficient change, difficult to project, arises from the definition of an industry's output. The input-output system generally records market transactions. Many intermediate materials may not go through a market transaction. Instead, these materials may be produced and used within a single plant. If the operation of an industry changes so that more of a previously purchased "intermediate" is now manufactured intraplant, then the input-output coefficient may be affected.

Other sources of coefficient changes arise from design changes, varying levels of output requiring different mixes of materials, and mixes of several processes using different materials for manufacturing the same final product.

Most coefficients change slowly, since existing processes often use long-lived capital equipment. Even a profitable innovation, such as the basic oxygen steel furnace (BOF), takes time to become widely adopted throughout the industry. Oxygen furnaces were first introduced into the United States in 1954. In the first three quarters of 1965, they still accounted for only about 17 percent of ingot steel output. This process is spreading rapidly, however, and it is estimated that the BOF will provide over 40 percent of total ingot supply by 1970.

A variety of methods are used to estimate the 1970 coefficients. In general, the approaches include analyses of specific industries and coefficients and more general methods which cover all coefficients.

The coefficient projections used to develop the 1970 interindustry table represent a synthesis of both approaches. The projections are generally based on an evaluation of past trends in coefficients, to the extent that these can be ascertained. They are modified in a number of areas to take account of changing technology and other factors. Some of the techniques and studies used to develop 1970 coefficients are described below.

Detailed industry studies. The projections of inputs for the agricultural sector were developed by the Economic Research Service, U.S. Department of Agriculture.32/ The coefficient projections for the livestock and crop sectors were part of a broad analysis of agriculture. Inputs such as fertilizer, feed, seed, petroleum products, etc., were estimated within a framework of projected yields, acreage planted, trends in per capita food and textile consumption, etc. The broad scope of these estimates was made possible by the wealth of available data.

The study indicates that selected purchased inputs, including agricultural services, fertilizers, insecticides, lime, and seed are rising relative to output. Sectors supplying these inputs are agricultural services, chemicals, and trade. The long-term trend in agriculture toward using more purchased materials and services and fewer self-supplied inputs is expected to continue. For example, farmers increasingly are purchasing high-grade seed instead of retaining a portion of the crop for this purpose. Significant expansion has already occurred in services provided to farmers. Such services, provided both by service and trade establishments, include feed and fertilizer mixing, delivery to the farm, and distribution of fertilizer and insecticides directly on the fields and crops.

The above trends are resulting in large investments being made in fertilizer, sulphuric acid, and related plants and in the development of supporting mineral industries, such as sulphur and phosphate mining. The growth in both custom material mixing and the service requirements of farmers is resulting in a number of new establishments specializing in these activities. Such establishments are often sponsored by or are part of large manufacturers of agricultural materials, such as fertilizers.

In contrast to the agricultural sector's wealth of data on inputs, the data on intermediate inputs into the minerals sector are quite limited. In addition, the diversity of mining operations, even within a single industry, makes any given mining operation unique. As a result, the Bureau of Mines 33/ projections of input coefficients for the minerals sectors were based, to a considerable extent on the knowledge and experience of its industry specialists. This was the only way these

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32/ The work in this area was under the direct supervision of the late Robert Masucci.

33/ The projections by the Bureau of Mines were coordinated by Robert Johnson, Jr., under the direction of William Vogley, Chief Economist for that Bureau.

estimates could be developed short of an extensive survey. It should be noted here that Bureau of Mines data on output and uses of minerals were very useful in developing coefficient projections in the mineral and ore processing manufacturing industries.

Projections for other important sectors of the economy were developed by the Harvard Economic Research Project.34/ These were based on individual industry studies and across-the-board approaches. The industry studies covered the more important inputs into a number of manufacturing industries, particularly the textiles, glass, and metalworking sectors. They also covered several nonmanufacturing industries, including gas and electric utilities and transportation.35/ Summaries of technological developments in two major sectors--steel and textiles--may be useful in illustrating the approach used in these studies.

Technological change in the iron and steel sector, particularly through the introduction of new and improved types of capital equipment, often results in a different and, in net, more economical material use per unit of final product. Three major materials of steelmaking have been affected--oxygen, iron ore, and scrap.

The greater use of oxygen has contributed significantly to the improved rates of output in steelmaking. BOF, which require large quantities of oxygen, are replacing open hearth furnaces at a rapid rate. The industry has also found that the speed and efficiency of both open hearth and blast furnaces are increased by the use of oxygen. In these two stages of steelmaking, the cost of converting furnaces to the use of oxygen is relatively modest. However, a nearby source of vast quantities of oxygen is generally needed. Oxygen plants, requiring large investments, are therefore being added to the traditional steel triumvirate of coke ovens, blast furnaces, and steel mills.

In some cases, the oxygen plant is owned by the steel company, and the oxygen becomes "produced and consumed" in a single establishment. Thus, it is not included in input-output coefficients. In other cases, it is purchased or transferred from the oxygen plant operator and represents an interplant transfer. These transfers are counted in computing the coefficient. Therefore, the projected coefficient for oxygen in 1970 includes an estimate of the possible degree of integration in the production of oxygen.

34/ The work on coefficient projections at the Harvard Economic Research Project is under the direction of Dr. Anne Carter. Professor Wassily Leontief is the Director of the Harvard Economic Research Project.

35/ See the bibliography for the industries covered by the Harvard Economic Research Project program.

Continuous casting is another new process requiring sizable new investment. In this process, slabs and billets are cast directly from molten metal, eliminating the previous ingot stage which required handling and reheating prior to being rolled into slabs and billets. This bypassing of several steps in the processing of raw materials not only cuts costs, but also results in the saving of scrap formerly generated in the old process. Continuous casting, presently quite small, is growing rapidly and is expected to be significant by 1970.

Iron ore and scrap are the two basic sources of metal in the steel industry. In the last decade, the depletion of domestic high-grade ore sources has been an impetus to the development of processes for upgrading the vast quantities of available leaner grades. These new techniques result in a processed ore with a higher iron content and more optimal forms than even the old high-grade natural ore. Such processed ore commands a premium price, as it results in substantial savings of time and material in the operation of blast furnaces. However, the lean ore requires a very large capital expenditure at or near the mine, as the processing is a factory-type operation. The efficiency of processed ore is such that, by 1970, virtually all ore will be processed before being used in blast furnaces.

New developments have also had a significant influence on the scrap sector. So far, the rapidly growing basic oxygen process has been limited in the extent to which scrap can be used, while the cost of iron derived from iron ore has been reduced. On the other hand, the output of electric furnaces, which are heavy scrap users, is growing. More recently, the resurgence in the use of castings, made in large part from scrap, has bolstered the scrap market. Mounting supplies of scrap and the weakening in the market for low-grade scrap, however, has placed considerable downward pressure on scrap prices. As a result, the scrap industry has been required to improve its product by better grading and classification. There are indications that some scrap dealers may become pig iron suppliers by converting the scrap into ingot pig, especially for foundry (castings) uses. In general, it can be assumed that the industry may change, but scrap use will remain at a high level.

For many years, the steel sector has been successfully decreasing the quantity of coal (coke) used per ton of steel output. This is expected to continue as improved iron ore requires less coke and as continuous casting eliminates the "soaking" or reheating of ingots. These improvements will also help to conserve the limited supplies of high-grade coking coal.

An important aspect of these and other changes is the decreased amount of waste and scrap arising in internal operations, which means that less material and raw steel are needed per unit of final product. Ore "fines" (small ore particles), previously vulnerable to losses are rendered more usable through new processes. Larger heats (batches) in

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blast furnaces and elimination of scrap made possible by continuous casting are examples of material saving operations. On the other hand, steel products are often being upgraded or changed, with the result that losses at subsequent processing operations may be greater. For example, more intensive processing, such as finer machining, may create more scrap than previously. Net losses due to this type of change are hard to measure, and no specific estimate of such changes are included in the 1970 projections.

The textile area, studied by the Harvard Economic Research Project, includes several sectors in the input-output system. Significant trends in materials use show a continuation of the substitution of synthetics for natural fibers, substitution of noncellulosics 36/ (such as nylon) for cellulosics (rayon), and the increased use of chemicals.

Increased use of synthetics is derived by pure substitution (i.e., rayon for cotton) and by partial substitution, as in blends. Blends of natural and synthetic fiber impart the useful qualities of each fiber to the fabric. Initially, blends tend to displace natural fibers but in the longrun they may add an element of stability to the natural fiber market. That is, the natural fiber may share in the increased use of the blended fabric. Nevertheless, the continuing rapid growth in synthetics has led to 1970 coefficients which assume an increase in their relative share of the fiber market. Also, other uses, beyond those available to the natural fibers, have been found for the synthetic materials. An example is the use of nylon instead of metal for rollers and bearings.

In addition, the relatively new cellulosic fibers are themselves being displaced by noncellulosics and fiberglass. Recent improvements in the cellulosics (sometimes so different as to require a new plant) are aiding this type of fiber in its contest for a share of the market, but the newer noncellulosic fibers continue to grow rapidly. Fibers with unusual qualities are being made from other materials, such as borates and will probably be in use by 1970.

Increased use of chemicals in textiles is an outgrowth of successful efforts at imparting new and useful qualities to cloth (permanent press characteristics, dirt shedding ability, etc.). Many of these processes require some type of chemical coating or treatment of the fabric to obtain the desired result. Therefore, the chemical input into the textile sectors has been increased significantly for 1970.

General approaches. In addition to the industry studies described above, the Harvard Economic Research Project used another approach to the projection of coefficients to 1970. This involved aggregation and adjustment of the earlier and more detailed 1947 input-output table so

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36/ Cellulosics (rayon) are made from wood pulp, i.e., cellulose. The term noncellulosics refers primarily to petroleum-based fibers, such as nylon. Use of fiberglass made from glass is also growing rapidly.

as to make it consistent with the more recent 1958 input-output table. The two tables were then compared to ascertain the major changes in coefficients between 1947-58. The projections developed by the Harvard Project were based in part on the analysis of the 1947-58 coefficient changes. The 1947-58 changes were not extrapolated mechanically but were used, along with information from a wide variety of sources, to develop coefficient projections on a selective basis.

Another general approach to the analysis of aggregate coefficient changes was developed by BLS, Division of Economic Growth. It was used to ascertain the change between 1958 and 1962. This method involves several steps. First, estimates are developed of total output and final demand for each industry during a particular year--in this instance, 1962.37/ Deducting the estimate of final demand from industry output yields an estimate of actual intermediate output. In the second step, another estimate of intermediate demand is derived by applying the 1958 coefficient matrix to the actual 1962 outputs. If there have been no substantial changes in input-output coefficients since the base period (1958), application of the base year coefficients to the industry output levels for the more recent year should yield approximately the same estimate of total intermediate output as the "actual" intermediate output. If the two estimates differ, this implies that, in the aggregate, the intermediate industries using a particular industry's output have increased or decreased their use of this industry's product or service per dollar of their own output.

The method is useful in determining how coefficients have changed in the aggregate; that is, for the total intermediate use of the output of a particular industry. It does not indicate how the change may be distributed among the individual consuming industries. The coefficient changes implied by the 1962 study were compared with similar estimates derived from a 1961 input-output table being developed by the Office of Business Economics.

This comparison attempted to determine whether the derived changes in coefficients reflected a time trend. The rates of coefficient change implied by the 1962 study, modified on the basis of the 1961-62 comparison, were used as a check on the independent industry coefficient projections and also to determine whether further coefficient changes were needed. In some cases the study results justified adjustments to the independently estimated coefficients. Also, a number of previously unchanged 1958 coefficients were modified for inclusion in the 1970 input-output chart.

37/ The 1962 final demand estimates, used as part of the method to determine coefficient changes between 1958 and 1962, are the same estimates used in the previous chapter on changes in the final demand "bills of goods."

The estimates from both approaches--the individual industry analyses and the general approach--were combined to complete a coefficient matrix for 1970. Precedence was given to those coefficients derived from analysis of individual industries, with the residual coefficients determined through the more aggregative approaches. However, before inclusion in the final set of coefficient projections, the projections developed in the individual industry studies were reviewed. In a number of instances, they were modified on the basis of additional information. The final input-output coefficient projections, as in other parts of the economic growth model, were arrived at after a series of successive approximations.

1970 coefficient projections. A change in the unit requirements (coefficients) for intermediate materials and services affects both the industry in which the change takes place and the industry which produces the intermediate good or service. The projections of the input-output coefficients can, therefore, be described in terms of the change in input coefficients of the purchasing industry or from the viewpoint of the net impact on the producing industry.

The section on detailed industry studies discussed coefficient projections in which the analysis was focused on the industry as a consumer of other industry products. In this section the discussion will examine the impact of coefficient changes on industries from a different viewpoint--namely, as a seller of output to other industries.

Table V-1 summarizes the net impact of the coefficient projections on the industries producing intermediate goods and services. It shows, for example, that by 1970 the coal requirements per dollar of output of all intermediate coal-using industries (excluding final demand use of coal) is projected to be about 82 percent of the 1958 level. This is a decline of about 18 percent. This does not mean that coal output is projected to decline by this amount. The industries using coal may grow sufficiently so that their combined coal requirements may, in fact, increase. Collectively, however, their coal requirements per dollar of output are declining.

In a similar fashion column 1 of the table shows the direct effect, on the output of each industry, of the weighted change (1958-70) in unit requirements by all intermediate users of the industry's output. The second column indicates the average annual rate of change between 1958 and 1970. The third column provides information on how much of the total output of each industry is consumed by intermediate industries, as distinguished from consumer, government, investment, and net export demand.

It might be useful to summarize the major impact of the coefficient changes for selected industries. In industry 1, livestock and products, the modest decrease is due in part to the relative decline in the sale

of dairy products to food processing, per dollar of output. A contributing factor in this general change is the increased amount of processing by the food and kindred products industry.

Industry 2, other agricultural products, is comprised of all farm crops. The decline here is brought about by several factors, including reductions as inputs into food processing (industry 14), tobacco (industry 15), and textiles (industries 16 and 17). The latter involves the substitution of synthetics for cotton. This substitution is offset elsewhere in the table by the growth in the use of synthetic fibers (industry 28).

The projected growth in iron ore (industry 5) results from the increased use of this ore by the primary iron and steel manufacturing industry. This is due to the fact that the oxygen process, which is replacing the open hearth process, is limited in the quantity of scrap it can use. As a result, more pig iron is needed, and blast furnaces which use more iron ore will supply more of the raw material for steel.

The decline in the coefficient for coal mining (industry 7) results from three major contributing factors. The first of these is the declining use of coal for process heat. The second is the general decline due to the competition from other fuels, such as gas and oil. The third factor is the increasing efficiency in the use of coal. This is true for uses in processing, generation of electric energy, and steelmaking.

It was noted earlier that there are several reasons, other than a change in technology, why coefficients can change in an industry. An illustration of this can be seen in ordnance and accessories (industry 13). A part of the drastic decline projected for industry 13 is due to the expanding practice of the defense sector to buy all items of a system directly and provide them for private prime contractors as government-furnished equipment. This operates, in the input-output system, as a cutting back in intermediate transactions between the various sectors, particularly the ordnance and aircraft industries. Another example can be seen in the aircraft industry, which produces missiles as a secondary product. That is, proportionately more and more missile production is being done in the ordnance industry, where it is a primary product, than in the aircraft industry. As a result, the reduction in the fictitious sales or transfers of missiles to the ordnance industry shows up as a coefficient reduction for the output of the aircraft industry.

In the lumber and wood products sector (industry 20) the modest growth rate of the coefficient has masked the spectacular growth in the use of plywood. Other lumber products are growing more slowly.

Wooden containers (industry 21) has a very sharp decline in its coefficient. This decline is attributable to competitive inroads of other materials in providing alternative packaging or containers. Also some

industries which still use wooden containers are purchasing the raw materials and fabricating the wooden containers themselves. The net result of these two factors is the sharp drop in intermediate output relative to 1958.

The printing and publishing industry (26) is another illustration of coefficient change which is nontechnological. A large part of the output of printing and publishing is the advertising revenue of newspapers and magazines. In the input-output system, this revenue is transferred to industry 73, business services, which includes advertising. In the business services sector, other forms of advertising revenue, largely TV, are expected to grow at a very rapid rate. Since this is true, the projected advertising revenues of publications will be a lesser part of total advertising revenue in 1970 than in 1958. In this industry, the coefficient decline comes from a slower growth of newspaper and magazine advertising than that expected for TV advertising.

The chemicals industry (27) coefficient index is increasing. This is due to several factors. First, a number of basic chemicals are continuing their growth. An important example is the expansion of chemicals into the fertilizer sector.38/ Second, certain customers, such as the apparel and textile industries, are increasing their use of chemicals. As mentioned previously, this is for the treatment of materials to give them greater qualities of resistance to dirt and wrinkling. Other uses of chemicals which show rapid growth are fertilizer by the agricultural sector and oxygen by the iron and steel industry.

Petrochemicals, which are products of the petroleum industry (31), supply the primary inputs for plastics and synthetics. Petrochemicals are growing very rapidly. However, this growth is obscured by the relatively slower growth of fuel oils, which are the major products of the petroleum industry. Plastics and synthetic materials (industry 28) also show an increase which is widespread throughout most intermediate users. At the same time, it is large in relation to the coefficient changes of other industries. This change is a continuation of the expansion of plastics and synthetic materials into a wide range of manufactured items, such as textiles, containers, building materials, and a wide variety of household items.

There is a projected decline for the coefficient in industry 33, leather tanning and industrial leather products. It is related, in part, to the substitution of other materials--such as "corfam" for leather.

38/ Since fertilizer and basic organic and inorganic chemicals are both in the same sectors, this change is, in fact, an increase of the intraindustry transactions or purchases by this industry from itself.

The coefficient projections show moderate declines in the use per unit of output of primary iron and steel (industry 37) and moderate increases for primary nonferrous metals (industry 38). The increase in the nonferrous metal industry is almost entirely due to the expanded use of aluminum rather than any of the other nonferrous metals.

The decline in the coefficient index of stampings, screw machine products, and bolts (industry 41) is due partly to the increase in new and alternative fastening methods. Epoxy glues are an example of these newer developments.

Industry 51, office computing and accounting machines, shows no change in its coefficient index. This rather surprising result is due to two factors. First, much of the output goes into capital equipment and thus is not in the intermediate output. Second, receipts from leasing of business machines are a declining portion of this industry's output, since more firms are purchasing these machines directly.39/

Industry 56, radio, TV, and communication equipment, shows the largest coefficient increase of any industry. This is related to a general and widespread increase in the use of communications. With the expansion of communications equipment, an increase in the proportion of the cost of each industry's output must go for spare parts for this equipment. At the same time, and perhaps the most important, there is a very large expansion in the amount of electronic equipment--guidance, radar, and sonar--which goes into most military hardware. Closely related to this industry is sector 57, electronic components. This industry supplies the basic inputs--transistors, tunnel diodes, and capacitors--used in television sets, military equipment, and computers.

The increase for electric, gas, water, and sanitary services (industry 68) reflects the widespread expansion in the power requirements, per dollar of output, for most manufacturing and a number of nonmanufacturing industries.

Industry 75, automobile repair and services includes truck and auto leasing. The increased coefficients projected are related to the expanded use of motor vehicles, particularly trucks in business and truck and auto leasing.

Construction coefficient projections. Although the input-output table shows all new construction as a single industry (industry 11), the coefficients for this industry are a weighted average of coefficients

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39/ Leasing receipts are considered a secondary product of sector 51 and are transferred to the primary industry--in this case sector 73.

for many different types of new construction--highway, residential, etc. Information on the inputs for various types of construction was developed by the Office of Business Economics as part of its basic 1958 input-output study.40/ These estimates were based, in part, on information obtained by BLS in its studies of direct and indirect employment generated by various types of construction.41/

The coefficients for the new construction industry in the 1970 interindustry employment table are derived by combining the coefficients for each type of construction. This method takes into account the relative growth rate projected for each type of construction between 1958 and 1970. In addition, the coefficients for two major types of construction, single family housing and highway construction, have been modified to take account of changes in material requirements projected to 1970.42/

The study on single family housing indicates the increasing importance of prefabricated components. Although newer materials are being used, such materials often come from the traditional supplying industries. As a result, coefficient changes in this respect are relatively modest. An exception occurs in the use of wood, for which the decline per unit is noteworthy.

In the case of highways, the type of highway being built is unquestionably being improved. These better highways require more material per mile of road. However, the unit of highway construction is $1 million of contract cost. Changes in this unit are less than the changes would have been per mile. Further, many of the technological innovations in highway construction are laborsaving rather than material saving. As a result, drastic changes in coefficients are the exception.

Here also, the projected decline in wood use is significant. Blasting powder (from chemicals) is declining because of cheaper explosives rather than a lesser use of blasting. Steel use patterns are changing in that some of the steel now comes from the prestressed and preformed components. These components replace some of the former direct steel use by the contractor.

The input from the stone and clay manufacturing sector is increasing due to the type of road. There is an increased use of prefab cement and concrete products. Bitumens are declining slightly in the Federal

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40/ Norman Frumkin, "Construction Activity in the 1958 Input-Output Study," Survey of Current Business, May 1965, pp. 13-24.

41/ Claiborne M. Ball, "Employment Effects of Construction Expenditures," Monthly Labor Review, February 1965,pp. 154-158.

42/ Jack Faucett Associates, Projections to 1970 of Input Coefficients for Selected Construction Activities (unpublished), Silver Spring, Maryland, July 1964.

aid highway program. However, little information is available on the status of non-Federal aid roads. Therefore, the coefficient has not been changed.

Output Per Man-Hour

Method. The impact of changes in material and service coefficients on output and, therefore, employment varies from industry to industry. In some cases, as in coal mining, employment is reduced. In others, such as plastics and synthetic materials, employment is increased as a result of the substitution of new materials for older types. In contrast, long-term changes in unit labor requirements or its reciprocal, output per man-hour, have almost always resulted in reductions in manpower requirements. The 1970 interindustry employment table attempts to take account of the combined effect of both of these projected changes. The input-output coefficient changes have already been discussed. This section is concerned with the other element in the table--the projections of output per man-hour.

The projections of output per man-hour are developed initially on the basis of preliminary estimates of past trends in industry productivity. The trend during the 1957-63 period is used for the initial projection. Prior to the current period, 1957 is the last year in which unemployment was close to 4 percent and 1963 is the latest year for which comprehensive, but still preliminary, estimates of industry output are available.

Furthermore, the average annual rate of increase in total private output per man-hour for the 1957-63 period is about the same as that for the 1957-65 period. This period was used as the basis for projecting private output per man-hour to 1970 in chapter II.

The initial projections of output per man-hour for a number of industries have been reviewed and modified to take into account a variety of special factors.

The projections have been modified in most cases where the derived industry output rate is substantially higher or lower than the past rate. The historical trend in output per man-hour is, therefore, not considered consistent with the projected rate of output. For some industries, both data on employment and rough indicators of output between 1963 and 1965 imply substantial departure from the past rate of productivity. In such instances, the projections of output per man-hour have been adjusted to reflect, to some extent, the more recent changes. In a few industries, the projection based on the 1957-63 trend has been modified, because the product mix of the projected period is different from that of the past period. Industry classification problems may also distort past rates of increase in output per man-hour.

In addition, for several industries where there are indications of significant technological changes, allowances have been made for acceleration in the rate of productivity gain.

Projections--1963-70. As previously indicated in the discussion of the factors underlying the 1970 projections of potential GNP (chapter II), the average rate of increase in output per man-hour for all industries in the private sector is 3.2 percent a year. (Productivity in the government sector, consistent with the treatment in the national income constant dollar accounts, is assumed to remain unchanged.)

Within the private sector, there is a wide range of industry productivity gains around the 3.2 percent average. Agricultural productivity, at 5.5 percent a year, is projected to continue to grow at almost twice the rate of the nonfarm economy. Within the nonfarm sector, the manufacturing industries as a whole are projected to achieve a somewhat higher rate of productivity growth than the nonfarm average of 2.9 percent a year.

Some of the nondurable manufacturing industries, particularly the highly automated processing industries--chemicals, paints, petroleum refining, etc. --are projected to maintain their higher than average increases in productivity. Food processing, tobacco, and the drug, cleaning, and toilet preparations industries are other nondurable manufacturing industries projected to increase faster than the average. Industries with lower than average gains include the paperboard containers and boxes and the leather, footwear, and leather products industries. Productivity gains in remaining nondurable industries are projected at about the 3.2 percent average of the private sector.

In the durable manufacturing sector, above average increases in productivity are concentrated for the most part in selected machinery industries. These include office computing and accounting machines; service industry machines; electric transmission and distribution equipment; household appliances; radio, television and communications equipment; and miscellaneous electrical machinery and equipment. Motor vehicles and instruments are also projected at above average rates. Lower than average increases are projected for furniture; stamping and screw machine products; other fabricated metal products; farm machinery; metalworking machinery; general industry machinery and equipment; machine shop products; electric wiring and lighting equipment; and aircraft and other transportation equipment. Productivity in the remaining durable manufacturing industries are projected at about the average rates for the private sector.

In the nonmanufacturing group, higher than average increases in productivity are expected to continue in mining, transportation, public utilities, and communication. On the other hand, there are lower than average increases in trade, services, construction, and finance and real estate. It should be pointed out that there are difficult conceptual and

statistical problems involved in measuring the output of many of the industries in this latter group. The available measures for these industries may understate output and, therefore, understate productivity changes.

Output per man-hour for the economy as a whole and for each industry was assumed to be the same for all the models in the first approximation for deriving employment. Theoretically, this could prove inconsistent, since the changing importance of industries with different levels of productivity could affect the weighted averages for the total economy and require changes in the aggregate GNP. Actually, the overall impact of industry shift among the models was less than 0.1 percent a year. The aggregate was not changed, nor was total employment. The effect of industry shift, such as it was, is then implicitly reflected in slight variations in industry productivity among the various models.

Annual Hours Per Worker

To translate output per man-hour projections into output per worker requires projections of annual hours per worker. To be consistent with establishment employment as explained in chapter II, hours are defined as payroll hours per worker, including paid leave, holidays,43/ etc. Part-time employment, either by dual jobholders or part-time workers, lowers the level of average hours. An increase in the number of part-time employees results in a decline in average hours, even if the hours of full-time employees have not changed. The labor force projections imply substantial increases in workers (youths and women) who may be seeking part-time work.

Trends in average hours were projected for major industry groups and then applied to each industry within the group. The projections were made after consideration of long-term trends in average hours and changes within subperiods.

For manufacturing, stability in average hours is projected to occur after some reduction from the high levels of overtime in the 1963-65 period. Annual hours in the nonmanufacturing sector are expected to continue to decline. Hours in the trade and service industries are projected to decline faster than the average for nonmanufacturing. Lower hours in trade and services are a result of increases in part-time employment and continuation, at a reduced rate, of the secular decline in average hours of full-time employees.

43/ For a discussion of the concepts of hours paid and hours worked and their impact on the measurement of output per man-hour see, Trends in Output per Man-Hour in the Private Economy, 1909-1958 (BLS Bulletin 1249, 1960).

Average hours in construction are expected to decline at a long-term rate which is below that for the nonfarm private sector. Hours in the other nonmanufacturing industries--mining, utilities, finance, insurance,and transportation--are expected to decline only slightly, as the long-term secular reduction in hours in these areas is moderated.

Assumptions about the trend in average hours are the same in all of the models. Differences in the average hours due to industry weighting are negligible.

The Interindustry Employment Table

The 1970 interindustry employment table combines the projections of input-output coefficients with those of productivity (adjusted for changes in hours of work). These form a comprehensive and consistent set of estimates of total employment in 1970 attributable to a billion dollars of delivery to final demand by each industry in the economy. The billion dollars of sales to final demand is at producers' value, 1958 prices. Employment includes proprietors and unpaid family workers, as well as wage and salary workers. Total employment covers primary employment in the industry producing the particular product or service, and indirect employment covering employment in each of the supporting industries. These estimates refer to jobs rather than number of persons, because the employment estimates are based primarily on payroll reports from establishments.

Primary employment covers employment initially required in the industry producing the product or service. Thus, it includes the production of parts within the industry as well as the production of the final product. For example, workers employed in both the pig iron stage and the finishing stages of the steelmaking process are counted as primary employment in the steel industry. Primary employment is defined to include also some small additional employment in the initial industry, due to the "feedback" effect. For example, the additional employment in the steel industry required to produce steel for repair parts for trucks which transport materials used in the steelmaking process are considered part of primary employment.

The detailed interindustry employment table is included in the appendix to this bulletin. (See table A-3.) However a summary version

of the table (table V-2) is provided below.44/ For the summary table, the detailed industry estimates of indirect employment have been aggregated into nine major sectors. Also, the manufacturing employment estimates have been further distributed into durable and nondurable industry subgroups. As a measure of the extent to which the employment impact ramifies beyond the initial employment, the table shows the ratio of indirect to primary employment generated by a billion dollars of delivery to final demand.45/

An example from the summary table will illustrate the way the interindustry employment implications are traced for a billion dollars of delivery to final demand. In industry 22, household furniture, 115,930 jobs would be generated in 1970 by a billion dollars of delivery of the products of this industry to final demand. Of this total, there would be 66,470 jobs in the industry itself and an additional 49,460 jobs in the industries supplying the raw materials, parts, trade and transportation, and miscellaneous services, required to produce the end product. As the table shows, most of the indirect employment would be in manufacturing (lumber and wood products, fabrics, and rubber and plastics products), with employment of 27,988. There are 2,871 employed in agriculture and forestry, and additional numbers employed in the transportation, trade, and service industries. Thus, for every 100 jobs in the household furniture industry, there would be about 74 additional jobs in the various supporting industries.

44/ The consolidated 1970 interindustry employment table differs in several respects from a similar table for the year 1962, published in the Monthly Labor Review, July 1965, pp. 841-850. The earlier table was based on the original 1958 input-output coefficients, and no attempt was made to project them to a later date. However, the unit labor requirements estimates were brought forward to 1962. The delivery to final demand was stated in 1962 prices.

The 1970 table is based on projections to 1970 of both the input-output coefficient and unit labor requirements. Also, in order to be consistent with the price level used in the basic input-output table and the constant dollar estimates of final demand, the billion dollars of final demand expenditures for the output of each industry are in 1958 prices.

45/ The 1970 interindustry employment table excludes all producing industries which, in the input-output system, do not purchase products or services from other industries and would not, therefore, generate indirect employment requirements. Industries excluded are industry 80, gross imports of goods and services; industry 83, scrap, used and secondhand goods; industry 84, government industry (covers general government employment and excludes purchases); industry 85, rest of the world; and industry 86, household industry (domestics).

Analysis of the table reveals a wide range in the total employment attributable to the sales from the various industries. The figures range from about 31,000 jobs per billion dollars of sales by industry 71, real estate and rentals, to about 182,000 jobs per billion dollars of sales by industry 72, personal and repair services, excluding auto repair. This is better than a 5 to 1 range.

Variations in employment per billion dollars of output reflect not only differences in productivity, but also the particular definitions of output and employment used in this study. Productivity differences may result from the nature of the industry; capital intensive sectors, such as petroleum refining and chemicals, generate less employment per dollar than the service industries. Industries closer to the natural resource level, such as mining, will generate less indirect employment than those in the finished manufactured goods stage.

In the input-output system, imports and excise taxes are included in total output, which is part of the employment-output ratio. An industry which has relatively high proportions of either imports or excise taxes will, therefore, show lower employment per dollar of output. Another kind of definitional distinction involves the trade sector. Trade output is defined as the margin between sales and cost of goods sold. Employment per dollar of output in this industry is, therefore, much higher than it would be if measured against total sales of wholesale and retail trade.

At this point, it also bears repeating that employment in this study refers to full and part-time workers, including the self-employed. Differences in employment coefficients may be due to variations in the proportion of part-time employees. These might be equalized if employment was translated into hours.

The average employment per billion dollars of final demand in the total private economy, excluding domestics, is about 100,000 jobs. About 60 percent of the 100,000 would be in the industries producing, transporting, and distributing the final goods and services. The other 40 percent would be in the supporting industries.

Table V-1. Index of Coefficient Change, 1958-70[1/]
(1958=100)

Industry number and title	Index of coefficient change 1958-70	Average annual rate of change 1958-70	Intermediate output as percent of total output 1970 2/
1 Livestock and livestock products	96.0	-0.3	93.8
2 Other agricultural products	95.0	-0.4	79.7
3 Forestry and fishery products	97.0	-0.2	88.9
4 Agricultural,forestry,and fishery services	101.0	0.1	100.0
5 Iron and ferroalloy ores mining	114.0	1.1	95.3
6 Nonferrous metal ores mining	88.0	-1.1	89.6
7 Coal mining	82.0	-1.7	80.5
8 Crude petroleum and natural gas	93.0	-0.6	99.6
9 Stone and clay mining and quarrying	102.0	0.2	97.6
10 Chemical and fertilizer mineral mining	85.0	-1.4	86.8
11 New construction 3/	----	----	----
12 Maintenance and repair construction	80.0	-1.9	65.9
13 Ordnance and accessories	45.1	-6.5	8.7
14 Food and kindred products	101.0	0.1	28.2
15 Tobacco manufactures	95.0	-0.4	21.1
16 Broad and narrow fabrics,yarn and thread mills	99.0	-0.1	91.6
17 Miscellaneous textile goods and floor coverings	106.0	0.5	66.3
18 Apparel	98.0	-0.2	20.6
19 Miscellaneous fabricated textile products	101.0	0.1	48.0
20 Lumber and wood products,except containers	103.0	0.3	95.3
21 Wooden containers	69.0	-3.0	92.9
22 Household furniture	87.0	-1.2	15.9
23 Other furniture and fixtures	100.0	----	23.4
24 Paper and allied products,except containers	101.0	0.1	88.1
25 Paperboard containers and boxes	104.0	0.3	97.7
26 Printing and publishing	89.0	-1.0	77.1
27 Chemicals and selected chemical products	109.0	0.7	87.0
28 Plastics and synthetic materials	130.0	2.2	92.8
29 Drugs,cleaning,and toilet preparations	123.0	1.7	33.5
30 Paints and allied products	93.0	-0.6	97.1
31 Petroleum refining and related industries	98.0	-0.2	50.7
32 Rubber and miscellaneous plastics products	130.0	2.2	78.1
33 Leather tanning and industrial leather products	88.0	-1.1	94.5
34 Footwear and other leather products	100.0	----	16.1
35 Glass and glass products	99.0	-0.1	91.8
36 Stone and clay products	105.0	0.4	95.9
37 Primary iron and steel manufacturing	94.0	-0.5	97.6
38 Primary nonferrous metals manufacturing	106.0	0.5	96.2
39 Metal containers	96.0	-0.3	97.6
40 Heating,plumbing,and structural metal products	101.0	0.1	86.8
41 Stampings,screw machine products,and bolts	85.0	-1.4	91.4
42 Other fabricated metal products	100.0	----	85.0
43 Engines and turbines	88.0	-1.1	49.9
44 Farm machinery and equipment	97.0	-0.3	28.2
45 Construction,mining,and oil field machinery	102.0	0.2	30.3

See footnotes at end of table.

Table V-1. Index of Coefficient Change, 1958-70[1/]--Continued
(1958=100)

Industry number and title	Index of coefficient change 1958-70	Average annual rate of change 1958-70	Intermediate output as percent of total output 1970 2/
46 Materials handling machinery and equipment	110.0	0.8	48.5
47 Metalworking machinery and equipment	97.0	-0.2	50.2
48 Special industry machinery and equipment	91.0	-0.8	24.1
49 General industrial machinery and equipment	113.0	1.0	63.7
50 Machine shop products	112.0	0.9	94.8
51 Office,computing,and accounting machines	100.0	----	27.7
52 Service industry machines	119.0	1.5	37.0
53 Electric industrial equipment and apparatus	100.0	----	58.1
54 Household appliances	126.0	1.8	22.6
55 Electric lighting and wiring equipment	106.0	0.5	80.5
56 Radio,television,and communication equipment	166.0	4.3	33.4
57 Electronic components and accessories	117.0	1.3	79.3
58 Miscellaneous electrical machinery and equipment	105.0	0.4	66.6
59 Motor vehicles and equipment	103.0	0.2	38.0
60 Aircraft and parts	66.0	-3.5	20.6
61 Other transportation equipment	100.0	----	22.9
62 Scientific and controlling instruments	125.0	1.9	51.5
63 Optical,ophthalmic,and photographic equipment	100.0	----	37.8
64 Miscellaneous manufacturing	100.0	----	38.9
65 Transportation and warehousing	101.0	0.1	61.9
66 Communications; except broadcasting	117.0	1.3	50.0
67 Radio and television broadcasting	100.0	----	98.8
68 Electric,gas,water,and sanitary services	125.0	1.9	60.6
69 Wholesale and retail trade	93.0	-0.6	27.6
70 Finance and insurance	100.0	----	54.1
71 Real estate and rental	100.0	----	31.2
72 Hotels;personal and repair services,except auto	95.0	-0.4	20.4
73 Business services	119.0	1.5	88.8
74 Research and development	110.0	0.8	49.5
75 Automobile repair and services	120.0	1.5	46.5
76 Amusements	90.0	-0.9	37.2
77 Medical,educational and nonprofit organizations	100.0	----	5.4
78 Federal Government enterprises	84.0	-1.5	78.0
79 State and local government enterprises	98.0	-0.2	89.0
80 Gross imports of goods and services	----	----	----
81 Business travel,entertainment,and gifts	100.0	----	100.0
82 Office supplies	105.0	0.4	82.0
83 Scrap,used and secondhand goods	----	----	----
84 Government industry	----	----	----
85 Rest of the world industry	----	----	----
86 Household industry	----	----	----

1/ The index of coefficient change is the weighted average change in the use of this industry's output by intermediate users.

2/ This column shows the proportion of each industry's total output which goes to intermediate users. The remaining portion of total output would go to final demand.

3/ New construction has no coefficients inasmuch as none of its output is sold intermediate.

Table V-2. Total Employment[1/] (Primary and Indirect)[2/] Per Billion Dollars of Delivery to Final Demand, 1970
(Producers' value, 1958 prices)

Employment	Livestock and livestock products	Other agricultural products	Forestry and fishery products	Agricultural, forestry, and fishery services	Iron and ferroalloy ores mining	Nonferrous metal ores mining	Coal mining	Crude petroleum and natural gas	Stone and clay mining and quarrying
	1	2	3	4	5	6	7	8	9
Total	125,514	115,155	95,069	180,047	39,973	53,574	63,772	25,316	70,737
Primary	68,724	79,835	57,475	122,144	13,218	29,064	42,120	6,381	44,726
Indirect	56,790	35,320	37,594	57,903	26,755	24,510	21,652	18,935	26,011
	Distribution of indirect								
Industry group									
(1-4) Agricultural, forestry, and fishery services	31,187	11,259	16,162	42,078	531	393	411	726	370
(5-10) Mining	271	524	172	247	1,311	662	228	94	421
(12) Construction	1,269	1,467	549	852	996	750	565	1,195	665
(13-64) Manufacturing	8,439	7,288	6,291	5,225	8,264	9,138	9,548	4,248	11,988
(13,20-23,35-64) Durable	2,103	2,689	2,122	1,761	6,144	6,763	7,223	2,492	8,946
(14-19,24-34) Nondurable	6,336	4,599	4,169	3,464	2,120	2,375	2,325	1,756	3,042
(65) Transportation	2,539	1,723	1,528	1,442	6,737	2,898	1,286	1,998	1,981
(66-68) Communications and public utilities	693	809	667	611	991	1,470	1,047	604	1,248
(69) Trade	5,397	4,431	2,383	2,582	2,574	3,165	3,672	1,754	3,716
(70-71) Finance, insurance, and real estate	2,100	2,524	2,558	1,629	1,923	2,274	1,784	3,225	1,842
(72-79) Services and miscellaneous	4,897	5,290	7,289	3,241	3,428	3,763	3,112	5,092	3,781
Ratio of indirect to primary	.83	.44	.65	.47	2.02	.84	.51	2.97	.58

Employment	Chemical and fertilizer mineral mining	New construction	Maintenance and repair construction	Ordnance and accessories	Food and kindred products	Tobacco manufactures	Broad and narrow fabrics, yarn and thread mills	Miscellaneous textile goods and floor coverings	Apparel
	10	11	12	13	14	15	16	17	18
Total	44,713	102,694	91,527	85,894	91,686	50,424	91,928	66,761	124,795
Primary	21,582	46,719	62,716	41,861	24,571	10,896	47,044	22,405	77,606
Indirect	23,131	55,975	28,811	44,033	67,115	39,528	44,884	44,356	47,189
	Distribution of indirect								
Industry group									
(1-4) Agricultural, forestry, and fishery services	381	1,753	613	626	37,623	18,464	11,362	4,350	4,989
(5-10) Mining	1,097	1,383	842	499	316	207	478	338	245
(12) Construction	677	655	---	525	1,084	504	786	616	569
(13-64) Manufacturing	7,210	28,020	14,208	29,150	8,713	7,164	14,420	22,184	25,909
(13,20-23,35-64) Durable	4,554	23,545	10,916	24,803	4,195	1,846	2,942	2,755	2,914
(14-19,24-34) Nondurable	2,656	4,475	3,292	4,347	4,518	5,318	11,478	19,429	22,995
(65) Transportation	4,741	3,829	2,060	2,229	4,116	1,643	3,542	3,433	2,281
(66-68) Communications and public utilities	1,293	1,094	523	829	900	626	1,040	845	801
(69) Trade	2,865	8,618	6,614	4,151	5,738	2,590	5,532	5,799	5,274
(70-71) Finance, insurance and real estate	1,288	2,060	1,028	1,482	1,986	1,127	2,020	2,130	1,868
(72-79) Services and miscellaneous	3,574	8,569	2,916	4,539	6,638	7,203	5,703	4,666	5,248
Ratio of indirect to primary	1.07	1.20	.46	1.05	2.73	3.63	.95	1.98	.61

See footnotes at end of table.

Table V-2. Total Employment[1/] (Primary and Indirect)[2/] Per Billion Dollars of Delivery to Final Demand, 1970--Continued
(Producers' value, 1958 prices)

Employment	Miscellaneous fabricated textile products	Lumber and wood products, except containers	Wooden containers	Household furniture	Other furniture and fixtures	Paper and allied products, except containers	Paperboard containers and boxes	Printing and publishing	Chemicals and selected chemical products
	19	20	21	22	23	24	25	26	27
Total	111,700	109,904	141,367	115,930	96,918	70,487	81,044	100,229	56,076
Primary	47,556	69,231	77,571	66,470	52,854	32,727	36,293	65,189	23,067
Indirect	64,144	40,673	63,796	49,460	44,064	37,760	44,751	35,040	33,009
	Distribution of indirect								
Industry group									
(1-4) Agricultural, forestry, and fishery services	5,811	12,705	5,576	2,871	1,331	1,825	1,085	1,032	1,435
(5-10) Mining	333	280	333	408	551	777	457	287	1,830
(12) Construction	680	774	721	626	581	916	892	905	747
(13-64) Manufacturing	38,786	8,384	37,564	27,988	25,633	17,094	25,658	13,887	11,145
(13,20-23,35-64) Durable	4,184	3,655	34,144	16,866	19,449	9,165	5,718	3,870	5,243
(14-19,24-34) Nondurable	34,602	4,729	3,420	11,122	6,184	7,929	19,940	10,017	5,902
(65) Transportation	3,009	4,712	4,590	3,125	2,795	3,938	4,008	2,755	4,043
(66-68) Communications and public utilities	946	848	932	1,002	938	1,366	1,010	1,450	1,407
(69) Trade	6,894	5,330	6,193	6,093	5,826	4,865	5,170	3,629	4,022
(70-71) Finance, insurance, and real estate	1,990	1,895	1,896	1,670	1,555	1,613	1,730	2,193	2,121
(72-79) Services and miscellaneous	5,696	5,746	5,989	5,679	4,852	5,369	4,740	8,902	6,256
Ratio of indirect to primary	1.35	.59	.82	.74	.83	1.15	1.23	.54	1.43

	Plastics and synthetic materials	Drugs, cleaning, and toilet preparations	Paints and allied products	Petroleum refining and related industries	Rubber and miscellaneous plastics products	Leather tanning and industrial leather products	Footwear and other leather products	Glass and glass products	Stone and clay products
	28	29	30	31	32	33	34	35	36
Total	59,923	65,188	62,223	33,988	69,458	55,934	138,690	78,085	74,804
Primary	21,753	17,378	19,012	6,117	33,523	36,602	101,157	46,934	42,488
Indirect	38,170	47,810	43,211	27,871	35,935	19,332	37,533	31,151	32,316
	Distribution of indirect								
Industry group									
(1-4) Agricultural, forestry, and fishery services	966	1,687	1,479	596	1,032	536	1,016	726	634
(5-10) Mining	981	599	828	3,594	535	381	222	976	3,939
(12) Construction	935	583	722	1,056	627	323	411	596	735
(13-64) Manufacturing	18,686	18,054	21,480	6,331	18,734	7,367	21,417	13,945	9,875
(13,20-23,35-64) Durable	3,795	5,791	5,632	3,221	4,976	2,104	3,636	6,053	4,055
(14-19,24-34) Nondurable	14,881	12,263	15,848	3,110	13,758	5,263	17,781	7,892	5,820
(65) Transportation	3,796	2,762	4,000	4,125	2,943	2,154	2,072	2,739	4,550
(66-68) Communications and public utilities	1,152	1,449	1,101	1,001	960	607	752	1,340	1,438
(69) Trade	3,628	3,911	5,157	2,254	4,306	3,060	3,843	4,068	3,791
(70-71) Finance, insurance and real estate	1,903	1,996	2,080	2,686	1,621	1,319	1,631	1,667	1,902
(72-79) Services and miscellaneous	6,120	16,872	6,362	6,229	5,179	3,584	6,173	5,093	5,453
Ratio of indirect to primary	1.75	2.75	2.27	4.56	1.07	.53	.37	.66	.76

See footnotes at end of table.

Table V-2. Total Employment[1/] (Primary and Indirect)[2/] Per Billion Dollars of Delivery to Final Demand, 1970--Continued
(Producers' value, 1958 prices)

Employment	Primary iron and steel manufacturing	Primary nonferrous metals manufacturing	Metal containers	Heating, plumbing, and structural metal products	Stampings, screw machine products and bolts	Other fabricated metal products	Engines and turbines	Farm machinery and equipment	Construction, mining and oil field machinery
	37	38	39	40	41	42	43	44	45
Total	71,106	60,857	70,626	83,215	99,165	82,791	70,776	83,100	78,668
Primary	38,202	29,929	24,371	38,503	58,188	40,980	29,625	39,096	37,030
Indirect	32,904	30,928	46,255	44,712	40,977	41,811	41,151	44,004	41,638
	Distribution of indirect								
Industry group									
(1-4) Agricultural, forestry, and fishery services	434	441	424	513	562	619	461	708	494
(5-10) Mining	2,842	3,551	1,326	1,153	1,068	1,063	724	705	783
(12) Construction	1,186	606	752	689	670	636	504	572	567
(13-64) Manufacturing	10,540	11,217	27,309	26,274	23,749	24,062	25,705	26,115	24,964
(13,20-23,35-64) Durable	7,488	7,627	22,554	23,156	19,628	20,117	22,578	21,819	21,807
(14-19,24-34) Nondurable	3,052	3,590	4,755	3,118	4,121	3,945	3,127	4,296	3,157
(65) Transportation	5,022	2,903	3,839	3,158	3,003	2,893	2,406	2,615	2,693
(66-68) Communications and public utilities	1,654	1,326	1,118	1,134	1,082	1,081	844	950	981
(69) Trade	4,500	4,647	5,088	4,885	4,315	4,674	4,004	4,736	4,619
(70-71) Finance, insurance, and real estate	1,814	1,799	1,727	1,824	1,787	1,667	1,480	1,694	1,629
(72-79) Services and miscellaneous	4,908	4,437	4,677	5,086	4,739	5,114	5,027	5,904	4,905
Ratio of indirect to primary	.86	1.03	1.90	1.16	.70	1.02	1.39	1.13	1.12

Employment	Materials handling machinery and equipment	Metalworking machinery and equipment	Special industry machinery and equipment	General industrial machinery and equipment	Machine-shop products	Office, computing, and accounting machines	Service industry machines	Electric industrial equipment and apparatus	Household appliances
	46	47	48	49	50	51	52	53	54
Total	87,580	86,150	85,671	82,134	117,138	65,795	71,304	77,424	76,978
Primary	37,954	52,005	44,328	41,866	85,503	35,504	21,438	41,532	23,797
Indirect	49,626	34,145	41,343	40,268	31,635	30,291	49,866	35,892	53,181
	Distribution of indirect								
Industry group									
(1-4) Agricultural, forestry, and fishery services	625	493	640	553	444	628	677	647	657
(5-10) Mining	682	587	679	807	797	270	737	673	691
(12) Construction	595	621	580	597	724	414	665	533	606
(13-64) Manufacturing	31,298	19,667	24,574	23,062	16,647	14,816	30,156	20,517	29,125
(13,20-23,35-64) Durable	27,055	17,173	21,092	20,126	14,334	11,168	25,349	16,739	21,767
(14-19,24-34) Nondurable	4,243	2,494	3,482	2,936	2,313	3,648	4,807	3,778	7,358
(65) Transportation	2,667	1,977	2,383	2,515	2,059	1,852	2,799	2,414	2,769
(66-68) Communications and public utilities	986	1,026	1,157	1,160	1,030	736	1,011	846	1,305
(69) Trade	5,501	3,842	4,812	5,231	3,913	4,836	6,334	4,175	5,339
(70-71) Finance, insurance and real estate	1,844	1,642	1,645	1,552	1,691	1,224	1,934	1,317	1,524
(72-79) Services and miscellaneous	5,427	4,291	4,872	4,789	4,331	5,512	5,554	4,770	11,167
Ratio of indirect to primary	1.31	.66	.93	.96	.37	.85	2.33	.86	2.23

See footnotes at end of table.

Table V-2. Total Employment[1/] (Primary and Indirect)[2/] Per Billion Dollars of Delivery to Final Demand, 1970--Continued
(Producers' value, 1958 prices)

Employment	Electric lighting and wiring equipment	Radio-television, and communication equipment	Electronic components and accessories	Miscellaneous electrical machinery and equipment	Motor vehicles and equipment	Aircraft and parts	Other transportation equipment	Scientific and controlling instruments	Optical, ophthalmic, and photographic equipment
	55	56	57	58	59	60	61	62	63
Total	85,953	76,908	81,952	81,754	67,003	73,870	91,767	81,410	75,347
Primary	46,230	32,168	46,812	37,118	19,653	45,264	45,892	41,891	41,918
Indirect	39,723	44,740	35,140	44,636	47,350	28,606	45,875	39,519	33,429
	Distribution of indirect								
Industry group									
(1-4) Agricultural, forestry, and fishery services	582	719	706	615	595	349	887	1,050	565
(5-10) Mining	697	372	504	864	722	432	769	466	516
(12) Construction	516	528	550	525	796	451	597	477	457
(13-64) Manufacturing	22,096	27,612	18,430	26,663	27,106	18,284	27,352	22,502	15,056
(13,20-23,35-64) Durable	16,339	23,003	13,623	19,577	20,565	15,920	23,137	17,282	8,488
(14-19,24-34) Nondurable	5,757	4,609	4,807	7,086	6,541	2,364	4,215	5,220	6,568
(65) Transportation	2,445	2,547	2,225	2,605	3,267	1,593	3,040	2,297	2,162
(66-68) Communications and public utilities	841	775	782	966	1,063	731	965	815	885
(69) Trade	6,197	4,893	5,489	4,903	5,237	2,907	5,755	5,276	4,269
(70-71) Finance, insurance, and real estate	1,416	1,322	1,455	1,480	1,626	970	1,565	1,439	1,510
(72-79) Services and miscellaneous	4,932	5,972	4,999	6,009	6,939	2,884	4,944	5,194	8,011
Ratio of indirect to primary	.86	1.39	.75	1.20	2.41	.63	1.00	.94	.80

	Miscellaneous manufacturing	Transportation and warehousing	Communications; except broadcasting	Radio and television broadcasting	Electric, gas, water, and sanitary services	Wholesale and retail trade	Finance and insurance	Real estate and rental	Hotels; personal and repair services, except auto
	64	65	66	67	68	69	70	71	72
Total	89,890	75,989	45,745	85,764	46,150	137,074	104,377	30,992	182,177
Primary	46,857	52,493	33,552	38,862	16,876	116,010	82,724	8,024	152,615
Indirect	43,033	23,496	12,193	46,902	29,274	21,064	21,653	22,968	29,562
	Distribution of indirect								
Industry group									
(1-4) Agricultural, forestry, and fishery services	1,355	575	218	725	309	1,036	694	2,890	855
(5-10) Mining	517	313	83	96	1,900	162	115	174	250
(12) Construction	721	2,953	1,803	1,117	3,875	1,044	1,092	5,166	797
(13-64) Manufacturing	22,305	6,050	4,313	7,144	3,810	5,047	5,211	3,190	12,355
(13,20-23,35-64) Durable	10,323	3,406	2,293	3,989	2,288	2,009	1,178	1,639	6,139
(14-19,24-34) Nondurable	11,982	2,644	2,020	3,155	1,522	3,038	4,033	1,551	6,216
(65) Transportation	2,650	-----	516	1,111	2,096	1,149	1,495	833	1,496
(66-68) Communications and public utilities	993	910	244	1,956	316	1,273	1,317	530	1,102
(69) Trade	6,355	3,140	931	1,948	2,044	-----	1,656	2,104	4,285
(70-71) Finance, insurance and real estate	1,963	2,730	878	2,216	1,351	2,420	864	3,106	2,582
(72-79) Services and miscellaneous	6,174	6,825	3,207	30,588	13,572	8,933	9,206	4,976	5,844
Ratio of indirect to primary	.92	.45	.36	1.21	1.73	.18	.26	2.86	.19

See footnotes at end of table.

Table V-2. Total Employment[1/] (Primary and Indirect)[2/] Per Billion Dollars of Delivery to Final Demand, 1970--Continued
(Producers' value, 1958 prices)

Employment	Business services	Research and development	Automobile repair and services	Amusements	Medical, educational and nonprofit organizations	Federal Government enterprises	State and local government enterprises	Business travel, entertainment, and gifts	Office supplies
	73	74	75	76	77	78	79	81	82
Total	105,260	102,231	110,382	158,921	170,611	156,233	86,870	-----	-----
Primary	63,791	80,885	70,534	137,245	146,361	126,281	55,646	-----	-----
Indirect	41,469	21,346	39,848	21,676	24,250	29,952	31,224	96,130	89,967
	Distribution of indirect								
Industry group									
(1-4) Agricultural, forestry, and fishery services	669	721	546	957	1,026	2,822	345	13,544	1,277
(5-10) Mining	221	93	392	101	157	577	1,007	291	470
(12) Construction	744	342	1,440	1,993	2,187	1,028	13,085	1,738	868
(13-64) Manufacturing	21,045	7,780	17,869	5,112	7,369	6,346	5,666	17,387	69,097
(13,20-23,35-64) Durable	4,530	2,495	12,360	2,337	2,634	1,885	3,368	5,167	14,433
(14-19,24-34) Nondurable	16,515	5,285	5,509	2,775	4,735	4,461	2,298	12,220	54,664
(65) Transportation	1,634	1,359	1,827	1,096	1,296	10,307	1,668	22,227	3,044
(66-68) Communications and public utilities	4,313	544	1,294	890	1,101	887	2,125	924	1,344
(69) Trade	2,728	2,387	7,510	1,936	2,358	2,413	2,462	7,409	4,393
(70-71) Finance, insurance, and real estate	2,335	1,485	3,533	3,517	2,235	1,099	1,516	2,329	1,992
(72-79) Services and miscellaneous	7,783	6,633	5,437	6,074	6,520	4,475	3,347	30,282	7,482
Ratio of indirect to primary	.65	.26	.56	.16	.17	.24	.56	-----	-----

1/ The figures in each column show total employment directly and indirectly attributable to $1 billion of delivery to final demand by the industry named at the top. Employment shown does not include any multiplier effects from respending of income generated.

2/ Primary employment is employment required in the industry producing the product or service. This includes not only the employment initially required by this industry but any indirect employment effect from its supporting industries requirements. Indirect employment covers employment in each of the supporting industries. Employment covers wage and salary employees, self-employed and unpaid family workers.

Employment is not generated by the following industries because they do not purchase goods and services from other industries: Gross imports of goods and services (80); Scrap, used and second-hand goods (83); Rest of the world (85); Households (86); and Inventory valuation adjustment (87). There is no employment in Business travel, entertainment and gifts (81); and Office supplies (82) which are dummy sectors and serve in an input-output framework as a central distributing mechanism for items produced by various industries but with a similar distribution pattern.

NOTE: Because of rounding, sums of individual items may not equal totals.

This table represents a summary of the information shown in table A-3.

Chapter VI. Patterns of Employment, 1970

The 1970 projections of industry employment are derived by converting the final demand projections into total employment requirements through the use of the 1970 interindustry employment table. The derived industry employment estimates are initially on an input-output industry basis. They are then adjusted to be consistent with the classification system underlying the industry estimates of employment regularly compiled and published by the BLS.

One of the significant adjustments required to convert the employment estimates from the input-output classification to the standard industrial classification involves the construction industry. In the input-output system, the construction industry includes force account construction activity.46/ To derive contract construction employment consistent with BLS employment classification requires transfer of estimated force account construction employees to the industries performing the construction, i.e., transportation, oil well drilling, utilities, communications, and government.

The other transfers which affect employment to any significant extent involve the trade and service sectors. In the input-output system, these industries are defined on an activity basis so that all services performed in the trade sector are transferred to the appropriate services industry and vice versa. For example, automobile repair services performed by retail automobile dealers are classified in services rather than trade. This procedure is reversed to obtain employment in these sectors consistent with the BLS classification system. In this sense, consistency refers to industry classification and not to types of workers covered.

The regularly published industry employment estimates of the BLS are limited to nonagricultural wage and salary employees, excluding domestics. In order to cover the total work force, the BLS industry estimates of wage and salary employment for 1957 and other selected years have, therefore, been expanded to include self-employed, unpaid family workers, domestics, and agricultural workers. These estimates are included in the study to provide some historical perspective on the projected change in the industrial composition of the total work force.

The detailed industry employment projections and estimates for selected years are summarized by major sectors in tables VI-1 to 4. Full

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46/ Force account construction is work done by government and business firms using their own employees; that is, not contracted out.

detail is provided in tables VI-5 to 7.47/ In another set of tables, the projections have been adjusted to exclude the self-employed and unpaid family workers in nonagricultural industries in order to provide estimates which are directly comparable with those regularly published by BLS. These are shown, along with data for earlier years, in appendix tables A-4 and A-5.

The Changing Composition of Employment

To return to the questions raised at the very beginning of the study:

1. How might the industrial distribution of employment in 1970 differ from the distribution in 1965?

2. Do the projected patterns of employment reflect a continuation of past trends or modifications of these trends?

3. More specifically, what are the implications for the continuation of the long-term shift from goods producing to services industries?

4. To what extent are the results affected by different assumptions regarding continuation of the sharp increases in recent years for consumer and investment durable goods?

The observations which follow will try to provide some answers, based on the employment projections for major sectors of the economy. Additional detail is provided for some of the larger industries and industry groups.

47/ The total civilian employment shown in these tables differs from that included in table II-1 because of differences in the treatment of government employment. Government employment in table II-1 is based on national income measures of civilian government employment. This is done in order to assure consistency with the national income measure of government output, used in deriving total GNP. As part of the conversion of the employment projections from the input-output classification system to that used in the BLS establishment series, the government employment estimates have been adjusted to conform to a level consistent with BLS estimates. Government employment shown in the tables includes the Armed Forces.

Government employment in the summary tables includes employees of government enterprises as well as general government workers. In the detailed industry tables, employment in government enterprises is shown separately.

Employment changes since 1957. In order to put the projections into some historical perspective, it may be useful to review some of the major changes in the composition of employment since 1957 when the unemployment rate was relatively low--4.3 percent of the civilian labor force. The years that followed, however, saw a sharp slackening in the rate of economic growth and a rise in the rate of unemployment. Between 1957 and 1960, the growth rate was only 2.5 percent a year compared with almost 4 percent during the previous decade. Unemployment increased and by 1960 was at 5.6 percent. In the recession of 1961, it jumped to 6.7 percent. In the recovery years of 1962 and 1963, employment increased rapidly but not enough to reduce the unemployment rate below 5.6 percent.

Over the 6-year period, 1957-63, total employment (as measured in tables VI-1 to 7) increased by only 0.7 percent a year compared with an average annual rate of increase of 1.2 percent over the 1947-57 decade. In addition, much of the increase from 1957 to 1963 was concentrated in two sectors: State and local government and personal, business, and professional services. Trade, domestic service, Federal Government, and finance, insurance, and real estate also showed above average increases.

In contrast, employment in the other sectors either declined substantially or showed little or no increase in employment opportunities.

The agricultural work force declined by over 1.2 million during the 6-year period, almost 4 percent a year. Employment in mining, transportation, and communications and public utilities all showed substantial reductions. The largest sector, manufacturing, still had not regained the 1957 level of employment by 1963. Most of the reduction was in the durable goods industries. Contract construction employment was only slightly higher in 1963 than in 1957.

It was during this period that concern began to develop regarding the impact of technological change on the structure of employment opportunities. It was felt that acceleration of technological change had so altered the industrial and occupational requirements for manpower that there existed the very real prospect that expansion of the economy would not provide jobs for those "structurally" unemployed, particularly "blue-collar" workers with limited skills.

Economic developments since then have served to put into perspective the problems of the structurally unemployed, including those groups requiring special training and assistance to meet the changing manpower requirements of an expanding economy.

Between 1963 and 1965, due in part to the cut in personal and corporate taxes under the Revenue Act of 1964, real growth in the economy exceeded 5 percent a year. Expansion in aggregate demand, supported by active manpower training and education programs, resulted in an increase in employment of almost 3.5 million in 2 years, or 2.4 percent per year--

more than twice the long-term rate. Most of the increase in employment occurred in 1965, with the unemployment rate dropping to 4.6 percent for the year as a whole and to below 4 percent by the year's end.

State and local government, trade, and personal, business, educational, and medical services continued as major sources of increased employment. In the goods producing area, employment in agriculture continued its long-term decline, but mining stabilized at about the 1963 level. However, employment in construction and manufacturing, particularly in durable manufacturing, increased dramatically, reversing the previous trend. With both consumer and investment expenditures for durable goods increasing at twice the rate of real output for the economy, manufacturing employment expanded sufficiently to reach an alltime high and exceed the previous peak levels of World War II and the Korean conflict. Most of the gain was in durable manufacturing. This, along with the growth in construction, provided expanded employment opportunities for "blue-collar" workers, including those with limited skills. The general acceleration in employment also provided the basis for some improvements in the job situation for youths and nonwhites--groups that had been particularly affected by the sluggish growth in the past.

Employment increased sharply, particularly in manufacturing, during the latter part of 1965 and continuing into 1966. This was due to the expansion in demand resulting from Viet Nam defense expenditures, the continuing investment boom for plant and equipment, and strong consumer demand for durables.

However, the growth in demand for consumer durables and capital goods could not continue indefinitely at the unusually high rates experienced during the past few years. In addition, the Viet Nam conflict is projected to be resolved over the next few years, permitting a cutback in military expenditures.

What are the implications for the industrial distribution of employment of a return to more sustainable patterns of final demand and lower levels of defense expenditures? Within the general framework of the study, the employment projections provide some answers to this and related questions raised at the beginning of the chapter. The analysis which follows is based, in part, on computations of average annual rates of change in employment between 1965 and 1970. The conversion of the employment projections into average annual rates carries no implication regarding the timing of these changes. In fact, for some industries affected by the current expansion in expenditures for defense and for consumer and producer durable goods, employment may increase more during the early part of the 5-year period and less, or even be reduced, during the latter part of the decade.

Employment Projections--1970

As indicated in chapter II, total employment requirements over the next 5 years are projected to increase on the average about 1.9 percent a year under the 4-percent unemployment assumption and about 2.2 percent under the 3-percent unemployment assumption. Both the 1.9- and 2.2-percent rates of employment increase are substantially higher than that for most of the postwar period. The higher rates of increase are attributable primarily to the accelerated growth in the labor force. Adding to the increase in employment is the assumed reduction in the unemployment rate, from the 4.6 percent average in 1965 to 4 or 3 percent by 1970. The projected increases amount to 1.5-1.7 million jobs a year. Achievement of such increases represents a major challenge, but these increases were actually exceeded in the employment gains recorded in 1965.

Within the overall employment increases projected to 1970, the projections for individual industries show highly divergent trends for any one model, as well as variations among the alternative models. The alternative models refer to the basic 4-percent unemployment model, but the differences between the basic 4-percent model and either of the alternatives generally can be applied to the basic 3-percent unemployment model.

The largest annual rate of employment increase, about 5 percent, is projected for State and local government. Growth in this sector is attributable to the continued expansion in schools, medical care, and other public services for a growing population. Federal grants would provide additional stimulus. In contrast, Federal Government civilian employment is projected to increase only moderately from the 1965 level.

By 1970, State and local government employment would amount to about 10 million workers. This is about 12 percent of the total work force, compared with somewhat more than 10 percent in 1965. The ratio of State and local government to Federal Government employment would increase from about 3 to 1 to almost 4 to 1. Total government employment would account for about 15 percent of total employment compared with 13.5 percent in 1965.

The projection of employment in personal, business, private educational, and medical services in the basic models shows the next largest increase--almost 4 percent a year. This reflects the continued shift in demand for such services and the lower than average increases in productivity (as commonly measured) in the individual industries providing these services.

The rate of increase for these services would be lower in the high durable alternative, but it is still substantially higher than the overall average increase. By 1970, this major group of services would increase to 15.7-16.9 percent of total employment, compared with about 15 percent in 1965. For all except the high durables alternative, this represents an acceleration in the past rate of growth in employment.

Employment in finance, insurance, and real estate in the basic models is projected to increase at a faster rate than the average. It would account for 4.7 percent of the total by 1970--somewhat larger than that in 1965. Under the high durable alternative, its share would remain about the same as in 1965.

Communications and public utilities are characterized by rapid increases in productivity. Thus, although services provided by these industries are expected to increase sharply, employment would remain at about the 1965 levels and decline as a proportion of total employment--from about 2 percent in 1965 to 1.8 percent in 1970.

Employment in the trade sector is dependent to a considerable extent on activity in the goods producing areas. The projections of employment in trade vary, depending on the relative importance of goods production in the various models. Productivity gains in trade are lower than the average for the total private economy. As a consequence, the employment increases (1.6-2.1 percent a year) are above the rate for the private economy and about the average for total employment in the basic model; somewhat higher in the high durables alternative and lower in the high services model. As a result, trade is projected to remain about the same proportion of total employment, 20 percent, as in 1965. Trade accounts for such a large number of workers, over 15.1 million in 1965 compared with 18.4 in manufacturing, that the employment increase is one of the largest among the various sectors--an additional 1.3-1.7 million by 1970.

Total transportation employment has been declining during much of the postwar period, primarily due to the reduction in railroad employment. Employment has increased within the past few years, largely in trucking and air transportation. Although productivity gains in transportation are above average, projected demand is sufficient to provide the basis for continued further small gains in employment. The increase would not be enough to arrest the continuing decline in the sector's share of total employment--from 4.3 percent in 1957, to 3.7 percent in 1965, to 3.4 percent in 1970. Because transportation involves both personal transportation and transportation of goods, changes in this sector are not affected as much as those in trade, which is primarily dependent on distribution of goods. Thus, the projections of transportation employment are approximately the same for all models.

Within the goods producing sectors, agricultural employment is projected to continue its long-term decline, both in absolute numbers and as a percentage of the total work force. The decline is due primarily to very high rates of increase in agricultural productivity (about 5.5 percent a year), with only moderate increases in the demand for farm products. In line with the long-term shift in the composition of the agricultural work force, most of the decline is projected to be among the self-employed and family workers; the number of wage and salary employees would remain relatively stable.

By 1970, the agricultural work force would account for only 5 percent of total employment, compared with about 9 percent in 1957 and 6 percent in 1965. This is one of the lowest ratios of any nation in the world, and it reflects the major technological revolution that has taken place and is projected to continue in this sector of the economy. Part of the reduction in farm employment is accompanied, of course, by increases elsewhere in the economy--in the industries producing farm machinery and tractors, fertilizer, feed, petroleum products, trucks and autos, etc. Nevertheless, the shift from farm to nonfarm jobs presents major problems of transition, which may be made more difficult by developments in the manufacturing sector, to be discussed shortly.

Mining employment, until recently, had been decreasing for many years. This is attributable in large part to substantially better than average gains in productivity and relative declines in the demand for coal--one of the larger mining industries. Employment in mining is projected to continue to decline, although at a reduced pace. By 1970, total mining employment is projected to decline to about three-quarters of 1 percent of total employment, compared with somewhat less than 1 percent in 1965. The reductions would occur chiefly in coal mining and crude petroleum production.

Contract construction employment is projected to show the largest percentage increase of any major goods producing industry. This is due to projected increases in construction activity to meet rising State and local government needs, increased housing requirements, and expanding business investment in plant. However, as noted in chapter IV on final demand, the major impetus arises from the expansion in construction expenditures by State and local government, with more moderate increases accounted for by the other two categories. In addition, productivity gains in construction (as conventionally measured) are lower than the average for the economy. The combined effect of these two factors is a continuation of the very substantial rates of increase in construction employment by 1970. Construction's share of total employment would be increased from 5.4 percent of the total in 1965 to about 5.6 percent or more by 1970. The increase is reduced in the high services model and is a little higher than the average for the economy as a whole.

What are the prospects for increased employment in manufacturing industries? Here the projections differ considerably, depending on the variations among the alternatives. This is particularly true in the durable goods industries. Nondurable industries, in the aggregate, are projected to increase by about 0.7-1.0 percent a year, considerably below the average for the economy as a whole or for the total private economy. This is, however, a significant improvement over the small gains experienced during most of the postwar period, but there is some decline from the recent very high rates of increase.

The modest increase in employment in nondurable goods represents largely offsetting changes within the group as a whole. Employment in

food processing, tobacco, textiles, and petroleum is projected to decline. Employment is projected to increase in apparel, paper and paper products, paperboard and boxes, printing and publishing, chemicals, plastics and synthetics, drugs and toilet preparations, and rubber and miscellaneous products.

The explanation for the divergent projections of employment among the industries varies from industry to industry. The decline in employment projected for food processing, the largest single industry in the group, reflects moderate increases in demand with better than average increases in productivity. Demand for plastics and synthetic materials is projected to increase very rapidly, but this is largely offset by better than average increases in productivity. Average increases in the demand for petroleum products are more than offset by higher than average increases in productivity, resulting in a decline in employment requirements.

As would be expected, the estimates of employment in the durable goods area are much more affected by the various alternatives than the nondurable goods projections. In the basic models, the projected rates of employment increase for durable goods industries are approximately the same as those for nondurable manufacturing. Both are considerably below the average for the economy as a whole or for the private sector.

Here, too, the overall increase in employment reflects substantial increases for a number of industries, offset in part by reductions or very little change for a number of basic industries. Included among the latter are ordnance, lumber, steel, communications equipment (defense part), motor vehicles, and aircraft (defense part). Increases are fairly general for all the machinery industries (particularly computers), fabricated metal products, furniture and fixtures, stone, clay and glass products, nonferrous metals, the nondefense part of communications equipment (e.g., color television), electrical transmission and distribution equipment, household appliances, electronic components, civilian aircraft, railroad and other transportation equipment, instruments, and optical and photographic equipment.

In the aggregate, the basic 4-percent unemployment model indicates modest increase in employment for durable goods industries of about 0.7 percent a year between 1965 and 1970. However, the high durable alternative, with its assumption of higher than average increases in demand for consumer and producer durables, indicates a rate of increase twice as high--1.5 percent a year. This is lower than the very unusual increases from 1963-65. It is about the same as the projected rate of increase in employment for the total private economy.

The high service model, on the other hand, would lower the potential increase in durable goods manufacturing employment to only 0.4 percent a year. In absolute numbers, the difference in 1970 between the high durable and high service models is substantial; the former indicating an increase of 826,000 from 1965 to 1970, the latter an increase of only 194,000. The differences affect almost all the durable manufacturing industries, except those which are heavily dependent on defense expenditures.

For manufacturing as a whole, covering both nondurable and durable goods industries, the range of projections of manufacturing employment in the alternative models indicate that there is some prospect for increased growth in factory jobs of about 0.5 percent a year between 1965 and 1970, even under the lowest estimate. The high durable set of projections implies an increase of about 1.2 percent a year. (The 3-percent unemployment model, roughly adjusted to reflect a high durable goods alternative, would show an even higher rate of increase--about 1.5 percent a year.)

The projected increase in manufacturing employment represents a reversal of the 1957-63 experience when manufacturing employment showed no increase over the period. It should be noted, however, that the projected rate of increase in employment in manufacturing, even at the upper end of the range of estimates, would still be substantially lower than that for the economy as a whole. The projections also represent a slowdown from the more recent gains in manufacturing employment in 1965 and early 1966. The basic models imply even smaller increases in manufacturing employment between 1965 and 1970. Under all the alternatives, manufacturing would continue to decline as a proportion of total employment from 25.9 percent of the total in 1957, to 24.8 percent in 1965, and to 23.1-23.9 percent by 1970.

A major qualification needs to be made regarding these projections. Expansion of defense expenditures, if the Viet Nam buildup continues, will involve increased employment in defense oriented manufacturing industries and their supplying industries. The projections developed by BLS assume that by 1970, the Viet Nam conflict will have been resolved and defense expenditures would be reduced to a more normal level. During the period of the buildup, manufacturing employment may exceed the projected employment in a number of industries.

The military buildup since the early part of 1965, coupled with a continuation of the capital goods boom and consumer demand for durables, has resulted in greater than average increases in manufacturing employment, particularly in the durable goods industries. By mid-1966, manufacturing employment had almost reached the levels projected for 1970 under the high durable goods alternative.

A resolution of the Viet Nam situation and a return to more sustainable rates of increase in the demand for durable goods would imply substantial reductions in employment in some industries, particularly defense oriented industries--ordnance, aircraft, communication equipment and electronic components, shipbuilding, etc. This still leaves room for growth in employment for a number of industries under the high durables alternative--furniture, paper, printing and publishing, chemicals, computers, and selected metal fabricating and machinery industries. However, the projections indicate little increase or even reductions from mid-1966 levels for two of the basic industries--automobiles and steel.

The structure of employment which emerges from these projections is a continuation of the long-term shift towards the service industries. The shift is at a somewhat reduced rate, however, compared with the period 1957-63 when manufacturing employment showed no growth for a period of 6 years.

Goods producing industries declined from about 42 percent of total employment in 1957 to 37 percent in 1965. The projections indicate a further decline by 1970 for all the alternative models. By 1970, the share would be down to 34 or 35 percent of the total.

Goods related industries, i.e., trade and transportation, have been about 24 percent of total employment and are projected to remain at about the same proportion.

Service industries, including utilities and government, increased from 34 percent of the total in 1957 to 39 percent in 1965. They are projected to increase to 41 or 42 percent of the total by 1970.

The differential impact on employment of changes in final demand, input-output coefficients and productivity, varies from industry to industry; the shift towards services seems to be largely due to the lower rate of productivity gains among the major service sectors relative to goods producing industries, and partly to changes in the structure of final demand. Even in the high durables alternative, service industries are projected to increase their share of total employment.

The shift to services is also reinforced by the direction of the interindustry coefficient changes. The effect of coefficient changes on several service industries (e.g., electric, gas, water, communications, business services, and auto repair) is to increase employment. The changes are largely offsetting among the goods producing industries. However, the effect of coefficient changes on the major goods related industry, trade, is to reduce employment.

The full implications of these results for manpower policy, training programs, and occupational outlook will be explored as part of the further review of the projections and evaluation of the results. This will involve conversion of the employment projections into occupational requirements.

Table VI-1. Civilian Employment,[1/] by Major Industry Group, Selected Years and Projected 1970
(In thousands)

Major industry group	Selected years			Projected 1970			
				3 percent unemployment	4 percent unemployment		
	1957	1963	1965	Basic model	Basic model	High durables	High services
Total[2/]	68,006	70,727	74,190	82,823	81,613	81,613	81,613
Agriculture	6,222	4,946	4,585	4,080	4,080	4,080	4,080
Mining	863	671	662	624	618	622	616
Construction	3,691	3,728	3,987	4,620	4,576	4,701	4,423
Manufacturing	17,586	17,396	18,383	19,282	19,075	19,519	18,856
Durable	10,099	9,856	10,626	11,134	11,022	11,452	10,820
Nondurable	7,487	7,540	7,757	8,148	8,053	8,067	8,036
Transportation	2,888	2,654	2,721	2,799	2,770	2,781	2,760
Communications and public utilities	1,555	1,451	1,519	1,523	1,504	1,478	1,514
Trade	13,466	14,296	15,114	16,718	16,535	16,779	16,374
Finance, insurance, and real estate	2,803	3,201	3,371	3,896	3,838	3,665	3,846
Services and miscellaneous	8,873	10,503	11,198	13,598	13,405	12,802	13,783
Government	7,616	9,225	10,046	12,683	12,262	12,236	12,411
Federal	2,217	2,358	2,379	2,524	2,510	2,497	2,508
State and local	5,399	6,868	7,667	10,159	9,752	9,739	9,903
Private households	2,444	2,656	2,604	3,000	2,950	2,950	2,950
Addendum:							
Total	68,006	70,727	74,190	82,823	81,613	81,613	81,613
Government	7,616	9,225	10,046	12,683	12,262	12,236	12,411
Private	60,391	61,502	64,144	70,140	69,351	69,377	69,202
Goods producing industries	28,362	26,741	27,617	28,606	28,349	28,922	27,975
Goods related industries 3/	16,354	16,950	17,835	19,517	19,305	19,560	19,134
Service industries	15,675	17,811	18,692	22,017	21,697	20,895	22,093
	Percent distribution						
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	9.15	6.99	6.18	4.93	5.00	5.00	5.00
Mining	1.27	.95	.89	.75	.76	.76	.75
Construction	5.43	5.27	5.37	5.58	5.61	5.76	5.42
Manufacturing	25.86	24.60	24.78	23.28	23.37	23.92	23.10
Durable	14.85	13.94	14.32	13.44	13.51	14.03	13.26
Nondurable	11.01	10.66	10.46	9.84	9.87	9.88	9.85
Transportation	4.25	3.75	3.67	3.38	3.39	3.41	3.38
Communications and public utilities	2.29	2.05	2.05	1.84	1.84	1.81	1.86
Trade	19.80	20.21	20.37	20.19	20.26	20.56	20.06
Finance, insurance, and real estate	4.12	4.53	4.54	4.70	4.70	4.49	4.71
Services and miscellaneous	13.05	14.85	15.09	16.42	16.43	15.69	16.89
Government	11.20	13.04	13.54	15.31	15.02	14.99	15.21
Federal	3.26	3.33	3.21	3.05	3.08	3.06	3.08
State and local	7.94	9.71	10.33	12.27	11.95	11.93	12.13
Private households	3.59	3.76	3.51	3.62	3.61	3.61	3.61
Addendum:							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Government	11.20	13.04	13.54	15.31	15.02	14.99	15.21
Private	88.80	86.96	86.46	84.69	84.98	85.01	84.79
Goods producing industries	41.71	37.81	37.22	34.54	34.74	35.44	34.28
Goods related industries 3/	24.05	23.97	24.04	23.56	23.65	23.97	23.44
Service industries	23.05	25.18	25.19	26.58	26.59	25.60	27.07

1/ Covers wage and salary employees, self-employed, and unpaid family workers.

2/ See footnote 3, table II-1.

3/ Trade and transportation; part of the latter is for transportation of persons.

NOTE: Because of rounding, sums of individual items may not equal 100.

Table VI-2. Change in Civilian Employment,[1] by Major Industry Group, Selected Periods and Projected 1965-70

Major industry group	Selected periods			Projected 1965-70			
				3 percent unemployment	4 percent unemployment		
	1957-65	1957-63	1963-65	Basic model	Basic model	High durables	High services
	Aggregate change						
Total	6,184	2,721	3,463	8,633	7,423	7,423	7,423
Agriculture	-1,637	-1,276	-361	-505	-505	-505	-505
Mining	-201	-192	-9	-38	-44	-40	-46
Construction	296	37	259	633	589	714	436
Manufacturing	797	-190	987	899	692	1,136	473
Durable	527	-243	770	508	396	826	194
Nondurable	270	53	217	391	296	310	279
Transportation	-167	-234	67	78	49	60	39
Communications and public utilities	-36	-104	68	4	-15	-41	-5
Trade	1,648	830	818	1,604	1,421	1,665	1,260
Finance, insurance, and real estate	568	398	170	525	467	294	475
Services and miscellaneous	2,325	1,630	695	2,400	2,207	1,604	2,585
Government	2,430	1,609	821	2,637	2,216	2,190	2,365
Federal	162	141	21	145	131	118	129
State and local	2,268	1,469	799	2,492	2,085	2,072	2,236
Private households	160	212	-52	396	346	346	346
Addendum:							
Total	6,184	2,721	3,463	8,633	7,423	7,423	7,423
Government	2,430	1,609	821	2,637	2,216	2,190	2,365
Private	3,753	1,111	2,642	5,996	5,207	5,233	5,058
Goods producing industries	-745	-1,621	876	989	732	1,305	358
Goods related industries 2/	1,481	596	885	1,682	1,470	1,725	1,299
Service industries	3,017	2,136	881	3,325	3,005	2,203	3,401
	Average annual rate of change[3]						
Total	1.1	0.7	2.4	2.2	1.9	1.9	1.9
Agriculture	-3.8	-3.8	-3.8	-2.3	-2.3	-2.3	-2.3
Mining	-3.3	-4.1	-0.6	-1.2	-1.4	-1.2	-1.4
Construction	1.0	0.2	3.4	3.0	2.8	3.3	2.1
Manufacturing	0.6	-0.2	2.8	1.0	0.7	1.2	0.5
Durable	0.6	-0.4	3.9	0.9	0.7	1.5	0.4
Nondurable	0.4	0.1	1.4	1.0	0.7	0.8	0.7
Transportation	-0.8	-1.4	1.2	0.6	0.4	0.4	0.3
Communications and public utilities	-0.3	-1.2	2.3	0.1	-0.2	-0.6	-0.1
Trade	1.5	1.0	2.8	2.0	1.8	2.1	1.6
Finance, insurance, and real estate	2.3	2.2	2.6	2.9	2.6	1.7	2.7
Services and miscellaneous	3.0	2.9	3.3	4.0	3.7	2.7	4.2
Government	3.5	3.2	4.4	4.8	4.1	4.0	4.3
Federal	0.9	1.0	0.5	1.2	1.1	1.0	1.1
State and local	4.5	4.1	5.6	5.8	4.9	4.9	5.3
Private households	0.8	1.4	-1.0	2.9	2.5	2.5	2.5
Addendum:							
Total	1.1	0.7	2.4	2.2	1.9	1.9	1.9
Government	3.5	3.2	4.4	4.8	4.1	4.0	4.3
Private	0.8	0.3	2.1	1.8	1.6	1.6	1.5
Goods producing industries	-0.3	-1.0	1.6	0.7	0.5	0.9	0.3
Goods related industries 2/	1.1	0.6	2.6	1.8	1.6	1.9	1.4
Service industries	2.2	2.1	2.4	3.3	3.0	2.3	3.4

1/ Covers wage and salary employees, self-employed, and unpaid family workers.

2/ Trade and transportation; part of the latter is for transportation of persons.

3/ Compound interest rates based on terminal years.

NOTE: Because of rounding, sums of individual items may not equal totals.

Table VI-3. Civilian Employment,[1/] by ISP Industry, Selected Years and Projected 1970
(In thousands)

Industry number and title	Selected years					Projected 1970			
						3 percent unemployment	4 percent unemployment		
	1958	1962	1963	1964	1965	Basic model	Basic model	High durables	High services
Total[2/]	66,336	70,127	70,727	72,194	74,190	82,823	81,613	81,613	81,613
1,2 Agriculture	5,844	5,190	4,946	4,761	4,585	4,080	4,080	4,080	4,080
3 Forestry and fishery products	110	109	110	114	115	119	118	119	116
4 Agricultural,forestry,and fishery services	211	212	219	224	228	242	241	241	241
5 Iron and ferroalloy ores mining	38	28	28	28	30	30	30	31	29
6 Nonferrous metal ores mining	57	56	54	53	55	52	52	53	51
7 Coal mining	224	161	157	156	150	133	131	131	131
8 Crude petroleum and natural gas	350	319	310	309	302	262	260	260	261
9,10 Nonmetallic mining and quarrying	120	123	122	122	125	147	145	147	144
11,12 Construction	3,521	3,689	3,728	3,831	3,987	4,620	4,576	4,701	4,423
13 Ordnance and accessories	145	269	266	247	236	235	235	236	234
14 Food and kindred products	1,816	1,803	1,793	1,783	1,778	1,735	1,725	1,705	1,714
15 Tobacco manufactures	95	90	89	89	84	81	80	79	80
16 Broad and narrow fabrics,yarn and thread mills	609	579	569	571	579	565	558	561	558
17 Miscellaneous textile goods and floor coverings	105	105	105	107	111	101	99	104	99
18 Apparel	1,284	1,363	1,372	1,389	1,445	1,540	1,520	1,572	1,520
19 Miscellaneous fabricated textile products	127	147	151	155	162	179	176	178	177
20,21 Lumber and wood products	711	685	683	693	699	668	661	676	646
22 Household furniture	273	290	294	308	326	375	371	400	369
23 Other furniture and fixtures	107	118	118	122	127	159	157	166	152
24 Paper and allied products,except containers	400	429	430	432	436	497	491	494	490
25 Paperboard containers and boxes	165	187	190	194	202	229	226	229	226
26 Printing and publishing	948	1,004	1,010	1,024	1,053	1,228	1,213	1,217	1,215
27 Chemicals and selected chemical products	403	417	411	411	422	428	424	427	422
28 Plastics and synthetic materials	143	165	175	183	199	224	221	226	219
29 Drugs,cleaning,and toilet preparations	190	208	221	223	221	239	235	233	238
30 Paints and allied products	61	63	63	64	65	65	64	65	59
31 Petroleum refining and related industries	224	195	189	183	178	167	164	164	165
32 Rubber and miscellaneous plastics products	346	411	420	436	466	505	499	514	496
33 Leather tanning and industrial leather products	41	36	34	35	35	33	32	33	32
34 Footwear and other leather products	320	329	318	316	321	332	326	326	326
35 Glass and glass products	144	160	162	164	169	182	179	184	179
36 Stone and clay products	434	450	456	464	468	492	488	498	477
37 Primary iron and steel manufacturing	847	841	845	899	935	940	931	966	910
38 Primary nonferrous metals manufacturing	308	327	330	334	363	389	386	399	379
39 Metal containers	70	70	72	73	73	76	75	75	75
40 Heating,plumbing,and structural metal products	429	416	425	446	467	521	518	533	504
41 Stampings,screw machine products,and bolts	253	282	287	292	317	352	349	364	343
42 Other fabricated metal products	343	379	385	398	425	476	471	487	464
43 Engines and turbines	90	84	85	87	90	90	89	93	88
44 Farm machinery and equipment	116	115	123	129	138	149	147	154	141
45 Construction,mining,and oil field machinery	145	149	152	163	172	203	201	209	194
46 Materials handling machinery and equipment	61	62	66	72	77	80	79	83	78

See footnotes at end of table.

Table VI-3. Civilian Employment,[1/] by ISP Industry--Continued
Selected Years and Projected 1970
(In thousands)

Industry number and title		Selected years					Projected 1970			
		1958	1962	1963	1964	1965	3 percent unemployment, Basic model	4 percent unemployment, Basic model	4 percent unemployment, High durables	4 percent unemployment, High services
47	Metalworking machinery and equipment	246	274	283	296	314	352	349	363	339
48	Special industry machinery and equipment	164	174	175	184	193	220	217	228	209
49	General industrial machinery and equipment	210	235	240	249	264	283	280	292	271
50	Machine-shop products	156	189	191	193	205	233	231	238	230
51	Office,computing,and accounting machines	133	159	163	175	197	238	234	263	230
52	Service industry machines	90	101	102	106	111	110	109	115	105
53	Electric industrial equipment and apparatus	304	350	339	341	366	395	392	410	378
54	Household appliances	148	150	156	161	167	182	179	192	179
55	Electric lighting and wiring equipment	124	147	153	159	170	194	191	198	188
56	Radio,television,and communication equipment	400	555	549	532	568	530	523	548	516
57	Electronic components and accessories	179	266	262	265	304	325	322	333	318
58	Miscellaneous electrical machinery and equipment	97	103	99	94	101	113	112	117	112
59	Motor vehicles and equipment	604	693	742	757	852	789	778	826	763
60	Aircraft and parts	785	635	640	605	618	551	551	547	546
61	Other transportation equipment	218	219	231	248	274	324	320	336	311
62	Scientific and controlling instruments	223	249	253	254	262	281	278	285	275
63	Optical,ophthalmic,and photographic equipment	103	112	115	119	127	140	138	142	138
64	Miscellaneous manufacturing	395	418	414	424	451	487	481	496	479
65	Transportation and warehousing	2,703	2,661	2,654	2,672	2,721	2,799	2,770	2,781	2,760
66	Communications;except broadcasting	775	732	727	747	775	742	732	718	735
67	Radio and television broadcasting	89	97	101	105	110	123	121	121	121
68	Electric,gas,water,and sanitary services	622	624	623	626	634	658	651	639	658
69	Wholesale and retail trade	13,589	14,262	14,296	14,677	15,114	16,718	16,535	16,779	16,374
70	Finance and insurance	2,137	2,410	2,471	2,544	2,608	3,031	2,994	2,864	2,999
71	Real estate and rental	676	707	730	748	763	865	844	801	847
72	Hotels;personal and repair services,except auto	2,503	2,683	2,714	2,804	2,866	3,161	3,102	2,953	3,111
73,74	Business services and research and development	1,526	2,008	2,064	2,139	2,201	2,781	2,752	2,753	2,746
75	Automobile repair and services	399	480	452	466	476	535	527	507	527
76	Amusements	635	689	698	733	753	889	879	830	883
77	Medical,educational and nonprofit organizations	3,486	4,046	4,246	4,409	4,559	5,871	5,786	5,399	6,159
78	Government enterprises - Federal	See NOTE.								
79	Government enterprises - State and local	See NOTE.								
84	Government, total	7,839	8,890	9,225	9,565	10,046	12,683	12,262	12,236	12,411
	Federal	2,191	2,340	2,358	2,348	2,379	2,524	2,510	2,497	2,510
	State and local	5,648	6,550	6,868	7,248	7,667	10,159	9,752	9,739	9,901
86	Private households	2,550	2,694	2,656	2,683	2,604	3,000	2,950	2,950	2,950

1/ Covers wage and salary employees, self-employed and unpaid family workers.

2/ See footnote 3, table II-1.

NOTE: ISP=interindustry sales and purchases. ISP 78 and 79 are included in ISP 84.

Because of rounding, sums of individual items may not equal totals.

Table VI-4. Civilian Employment,[1/] by ISP Industry, Selected Years and Projected 1970
(Percent distribution)

Industry number and title	Selected Years					Projected 1970			
						3 percent unemployment	4 percent unemployment		
	1958	1962	1963	1964	1965	Basic model	Basic model	High durables	High services
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1,2 Agriculture	8.81	7.40	6.99	6.59	6.18	4.93	5.00	5.00	5.00
3 Forestry and fishery products	.17	.16	.16	.16	.16	.14	.14	.14	.14
4 Agricultural,forestry and fishery services	.32	.30	.31	.31	.31	.29	.30	.30	.30
5 Iron and ferroalloy ores mining	.06	.04	.04	.04	.04	.04	.04	.04	.04
6 Nonferrous metal ores mining	.09	.08	.08	.07	.07	.06	.06	.06	.06
7 Coal mining	.34	.23	.22	.22	.20	.16	.16	.16	.16
8 Crude petroleum and natural gas	.53	.45	.44	.43	.41	.32	.32	.32	.32
9,10 Nonmetallic mining and quarrying	.18	.18	.17	.17	.17	.18	.18	.18	.18
11,12 Construction	5.31	5.26	5.27	5.31	5.37	5.58	5.61	5.76	5.42
13 Ordnance and accessories	.22	.38	.38	.34	.32	.28	.29	.29	.29
14 Food and kindred products	2.74	2.57	2.54	2.47	2.40	2.09	2.11	2.09	2.10
15 Tobacco manufactures	.14	.13	.13	.12	.11	.10	.10	.10	.10
16 Broad and narrow fabrics,yarn and thread mills	.92	.83	.80	.79	.78	.68	.68	.69	.68
17 Miscellaneous textile goods and floor coverings	.16	.15	.15	.15	.15	.12	.12	.13	.12
18 Apparel	1.94	1.94	1.94	1.92	1.95	1.86	1.86	1.85	1.86
19 Miscellaneous fabricated textile products	.19	.21	.21	.21	.22	.22	.22	.22	.22
20,21 Lumber and wood products	1.07	.98	.97	.96	.94	.81	.81	.83	.79
22 Household furniture	.41	.41	.42	.43	.44	.45	.45	.49	.45
23 Other furniture and fixtures	.16	.17	.17	.17	.17	.19	.19	.20	.19
24 Paper and allied products,except containers	.60	.61	.61	.60	.59	.60	.60	.61	.60
25 Paperboard containers and boxes	.25	.27	.27	.27	.27	.28	.28	.28	.28
26 Printing and publishing	1.43	1.43	1.43	1.42	1.42	1.48	1.49	1.49	1.49
27 Chemicals and selected chemical products	.61	.59	.58	.57	.57	.52	.52	.52	.52
28 Plastics and synthetic materials	.22	.24	.25	.25	.27	.27	.27	.28	.27
29 Drugs,cleaning,and toilet preparations	.29	.30	.31	.31	.30	.29	.29	.29	.29
30 Paints and allied products	.09	.09	.09	.09	.09	.08	.08	.08	.07
31 Petroleum refining and related industries	.34	.28	.27	.25	.24	.20	.20	.20	.20
32 Rubber and miscellaneous plastics products	.52	.59	.59	.60	.63	.61	.61	.63	.61
33 Leather tanning and industrial leather products	.06	.05	.05	.05	.05	.04	.04	.04	.04
34 Footwear and other leather products	.48	.47	.45	.44	.43	.40	.40	.40	.40
35 Glass and glass products	.22	.23	.23	.23	.23	.22	.22	.23	.22
36 Stone and clay products	.65	.64	.64	.64	.63	.59	.60	.61	.58
37 Primary iron and steel manufacturing	1.28	1.20	1.19	1.25	1.26	1.13	1.14	1.18	1.12
38 Primary nonferrous metals manufacturing	.46	.47	.47	.46	.49	.47	.47	.49	.46
39 Metal containers	.11	.10	.10	.10	.10	.09	.09	.09	.09
40 Heating,plumbing,and structural metal products	.65	.59	.60	.62	.63	.63	.63	.65	.62
41 Stampings,screw machine products,and bolts	.38	.40	.41	.40	.43	.43	.43	.45	.42
42 Other fabricated metal products	.52	.54	.54	.55	.57	.57	.58	.60	.57
43 Engines and turbines	.14	.12	.12	.12	.12	.11	.11	.11	.11
44 Farm machinery and equipment	.17	.16	.17	.18	.19	.18	.18	.19	.17
45 Construction,mining,and oil field machinery	.22	.21	.21	.23	.23	.25	.25	.26	.24

See footnotes at end of table.

Table VI-4. Civilian Employment,[1/] by ISP Industry--Continued
Selected Years and Projected 1970
(Percent distribution)

Industry number and title	Selected years					Projected 1970			
	1958	1962	1963	1964	1965	3 percent unemployment	4 percent unemployment		
						Basic model	Basic model	High durables	High services
46 Materials handling machinery and equipment	.09	.09	.09	.10	.10	.10	.10	.10	.10
47 Metalworking machinery and equipment	.37	.39	.40	.41	.42	.43	.43	.44	.42
48 Special industry machinery and equipment	.25	.25	.25	.25	.26	.27	.27	.28	.26
49 General industrial machinery and equipment	.32	.34	.34	.34	.36	.34	.34	.36	.33
50 Machine-shop products	.24	.27	.27	.27	.28	.28	.28	.29	.28
51 Office,computing,and accounting machines	.20	.23	.23	.24	.27	.29	.29	.32	.28
52 Service industry machines	.14	.14	.14	.15	.15	.13	.13	.14	.13
53 Electric industrial equipment and apparatus	.46	.50	.48	.47	.49	.48	.48	.50	.46
54 Household appliances	.22	.21	.22	.22	.23	.22	.22	.24	.22
55 Electric lighting and wiring equipment	.19	.21	.22	.22	.23	.23	.23	.24	.23
56 Radio,television,and communication equipment	.60	.79	.78	.74	.77	.64	.64	.67	.63
57 Electronic components and accessories	.27	.38	.37	.37	.41	.39	.39	.41	.39
58 Miscellaneous electrical machinery and equipment	.15	.15	.14	.13	.14	.14	.14	.14	.14
59 Motor vehicles and equipment	.91	.99	1.05	1.05	1.15	.95	.95	1.01	.93
60 Aircraft and parts	1.18	.91	.90	.84	.83	.67	.68	.67	.67
61 Other transportation equipment	.33	.31	.33	.34	.37	.39	.39	.41	.38
62 Scientific and controlling instruments	.34	.36	.36	.35	.35	.34	.34	.35	.34
63 Optical,ophthalmic,and photographic equipment	.16	.16	.16	.16	.17	.17	.17	.17	.17
64 Miscellaneous manufacturing	.60	.60	.59	.59	.61	.59	.59	.61	.59
65 Transportation and warehousing	4.07	3.79	3.75	3.70	3.67	3.38	3.39	3.41	3.38
66 Communications;except broadcasting	1.17	1.04	1.03	1.03	1.04	.90	.90	.88	.90
67 Radio and television broadcasting	.13	.14	.14	.15	.15	.15	.15	.15	.15
68 Electric,gas,water,and sanitary services	.94	.89	.88	.87	.85	.79	.80	.78	.81
69 Wholesale and retail trade	20.49	20.34	20.21	20.33	20.37	20.19	20.26	20.56	20.06
70 Finance and insurance	3.22	3.44	3.49	3.52	3.52	3.66	3.67	3.51	3.67
71 Real estate and rental	1.02	1.01	1.03	1.04	1.03	1.04	1.03	.98	1.04
72 Hotels;personal and repair services,except auto	3.77	3.83	3.84	3.88	3.86	3.82	3.80	3.62	3.81
73,74 Business services and research and development	2.30	2.86	2.92	2.96	2.97	3.36	3.37	3.37	3.36
75 Automobile repair and services	.60	.68	.64	.65	.64	.65	.65	.62	.65
76 Amusements	.96	.98	.99	1.02	1.01	1.07	1.08	1.02	1.08
77 Medical,educational and nonprofit organizations	5.26	5.77	6.00	6.11	6.15	7.09	7.09	6.62	7.55
78 Government enterprises, Federal	See NOTE.								
79 Government enterprises, State and local	See NOTE.								
84 Government, total	11.82	12.68	13.04	13.25	13.54	15.31	15.02	14.99	15.21
Federal	3.30	3.34	3.33	3.25	3.21	3.05	3.08	3.06	3.08
State and local	8.51	9.34	9.71	10.03	10.33	12.27	11.95	11.93	12.13
86 Private households	3.84	3.84	3.76	3.72	3.51	3.62	3.61	3.61	3.61

1/ Covers wage and salary employees, self-employed and unpaid family workers.

NOTE: ISP=interindustry sales and purchases. ISP 78 and 79 are included in ISP 84.

Because of rounding, sums of individual items may not equal 100.

Table VI-5. Civilian Employment,[1/] by ISP Industry, Projected 1965-70
(Average annual rate of change)[2/]

Industry number and title		Projected 1965-70			
		3 percent unemployment	4 percent unemployment		
		Basic model	Basic model	High durables	High services
Total		2.2	1.9	1.9	1.9
1,2	Agriculture	-2.3	-2.3	-2.3	-2.3
3	Forestry and fishery products	0.7	0.5	0.7	0.2
4	Agricultural,forestry and fishery services	1.2	1.1	1.1	1.1
5	Iron and ferroalloy ores mining	---	---	0.7	-0.7
6	Nonferrous metal ores mining	-1.1	-1.1	-0.7	-1.5
7	Coal mining	-2.3	-2.7	-2.7	-2.7
8	Crude petroleum and natural gas	-2.8	-2.9	-2.9	-2.9
9,10	Nonmetallic mining and quarrying	3.3	3.0	3.3	2.9
11,12	Construction	3.0	2.8	3.3	2.1
13	Ordnance and accessories	-0.1	-0.1	---	-0.2
14	Food and kindred products	-0.5	-0.6	-0.8	-0.7
15	Tobacco manufactures	-0.7	-1.0	-1.2	-1.0
16	Broad and narrow fabrics,yarn and thread mills	-0.5	-0.7	-0.6	-0.7
17	Miscellaneous textile goods and floor coverings	-1.9	-2.2	-1.3	-2.2
18	Apparel	1.3	1.0	0.9	1.0
19	Miscellaneous fabricated textile products	2.0	1.7	1.9	1.8
20,21	Lumber and wood products	-0.9	-1.1	-0.7	-1.6
22	Household furniture	2.8	2.6	4.2	2.5
23	Other furniture and fixtures	4.6	4.3	5.5	3.7
24	Paper and allied products,except containers	2.7	2.4	2.5	2.4
25	Paperboard containers and boxes	2.5	2.3	2.5	2.3
26	Printing and publishing	3.1	2.9	2.9	2.9
27	Chemicals and selected chemical products	0.3	0.1	0.2	---
28	Plastics and synthetic materials	2.4	2.1	2.6	1.9
29	Drugs,cleaning,and toilet preparations	1.6	1.2	1.1	1.5
30	Paints and allied products	---	-0.3	---	-2.0
31	Petroleum refining and related industries	-1.3	-1.7	-1.7	-1.5
32	Rubber and miscellaneous plastics products	1.6	1.4	2.0	1.2
33	Leather tanning and industrial leather products	-1.2	-1.8	-1.2	-1.8
34	Footwear and other leather products	0.7	0.3	0.3	0.3
35	Glass and glass products	1.5	1.2	1.7	1.2
36	Stone and clay products	1.0	0.8	1.2	0.4
37	Primary iron and steel manufacturing	0.1	-0.1	0.6	-0.6
38	Primary nonferrous metals manufacturing	1.4	1.2	1.9	0.9
39	Metal containers	0.8	0.5	0.5	0.5
40	Heating,plumbing,and structural metal products	2.2	2.1	2.7	1.5
41	Stampings,screw machine products,and bolts	2.1	1.9	2.8	1.6
42	Other fabricated metal products	2.3	2.1	2.8	1.8
43	Engines and turbines	---	-0.2	0.7	-0.4
44	Farm machinery and equipment	1.6	1.3	2.2	0.4
45	Construction,mining,and oil field machinery	3.4	3.2	4.0	2.4
46	Materials handling machinery and equipment	0.8	0.5	1.5	0.3

See footnotes at end of table.

Table VI-5. Civilian Employment,[1] by ISP Industry, Projected 1965-70--Continued
(Average annual rate of change)[2]

Industry number and title		Projected 1965-70			
		3 percent unemployment	4 percent unemployment		
		Basic model	Basic model	High durables	High services
47	Metalworking machinery and equipment	2.3	2.1	2.9	1.6
48	Special industry machinery and equipment	2.7	2.4	3.4	1.6
49	General industrial machinery and equipment	1.4	1.2	2.0	0.5
50	Machine-shop products	2.6	2.4	3.0	2.3
51	Office,computing,and accounting machines	3.9	3.5	5.9	3.2
52	Service industry machines	-0.2	-0.4	0.7	-1.1
53	Electric industrial equipment and apparatus	1.5	1.4	2.3	0.7
54	Household appliances	1.7	1.4	2.8	1.4
55	Electric lighting and wiring equipment	2.7	2.4	3.1	2.0
56	Radio,television,and communication equipment	-1.4	-1.7	-0.7	-1.9
57	Electronic components and accessories	1.3	1.2	1.8	0.9
58	Miscellaneous electrical machinery and equipment	2.3	2.1	3.0	2.1
59	Motor vehicles and equipment	-1.6	-1.8	-0.6	-2.2
60	Aircraft and parts	-2.2	-2.2	-2.4	-2.4
61	Other transportation equipment	3.4	3.2	4.2	2.6
62	Scientific and controlling instruments	1.4	1.2	1.7	1.0
63	Optical,ophthalmic,and photographic equipment	2.0	1.7	2.3	1.7
64	Miscellaneous manufacturing	1.6	1.3	1.9	1.2
65	Transportation and warehousing	0.6	0.4	0.4	0.3
66	Communications;except broadcasting	-0.9	-1.1	-1.6	-1.1
67	Radio and television broadcasting	2.3	1.9	1.9	1.9
68	Electric,gas,water,and sanitary services	0.7	0.5	0.2	0.7
69	Wholesale and retail trade	2.0	1.8	2.1	1.6
70	Finance and insurance	3.0	2.8	1.9	2.8
71	Real estate and rental	2.5	2.0	1.0	2.1
72	Hotels;personal and repair services,except auto	2.0	1.6	0.6	1.6
73,74	Business services and research and development	4.8	4.6	4.6	4.5
75	Automobile repair and services	2.4	2.1	1.3	2.1
76	Amusements	3.4	3.1	2.0	3.2
77	Medical,educational and nonprofit organizations	5.2	4.9	3.4	6.2
78	Government enterprises - Federal	1.4	1.2	0.9	1.2
79	Government enterprises - State and local	3.5	3.2	2.7	3.3
84	Government - general	5.1	4.3	4.3	4.6
86	Private households	2.9	2.5	2.5	2.5

1/ Covers wage and salary employees, self-employed and unpaid family workers.

2/ Compound interest rates based on terminal years.

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Table A-1. Gross National Product, by Major Components, 1950-65
(Billions of 1958 dollars)

Major components	Selected years							
	1950	1951	1952	1953	1954	1955	1956	1957
Gross national product	355.3	383.4	395.1	412.8	407.0	438.0	446.1	452.5
Personal consumption expenditures	230.5	232.8	239.4	250.8	255.7	274.2	281.4	288.2
Gross private domestic investment	69.3	70.0	60.5	61.2	59.4	75.4	74.3	68.8
Fixed investment	61.0	59.0	57.2	60.2	61.4	69.0	69.5	67.6
Nonresidential	37.5	39.6	38.3	40.7	39.6	43.9	47.3	47.4
Structures	12.7	14.1	13.7	14.9	15.2	16.2	18.5	18.2
Producers' durable equipment	24.8	25.5	24.6	25.8	24.5	27.7	28.8	29.1
Residential structures	23.5	19.5	18.9	19.6	21.7	25.1	22.2	20.2
Change in business inventories	8.3	10.9	3.3	0.9	-2.0	6.4	4.8	1.2
Net exports of goods and services	2.7	5.3	3.0	1.1	3.0	3.2	5.0	6.2
Exports	16.3	19.3	18.2	17.8	18.8	20.9	24.2	26.2
Imports	13.6	14.1	15.2	16.7	15.8	17.7	19.1	19.9
Government purchases of goods and services	52.8	75.4	92.1	99.8	88.9	85.2	85.3	89.3
Federal	25.3	47.4	63.8	70.0	56.8	50.7	49.7	51.7
State and local	27.5	27.9	28.4	29.7	32.1	34.4	35.6	37.6
	Percent distribution							
Gross national product	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Personal consumption expenditures	64.9	60.7	60.6	60.8	62.8	62.6	63.1	63.7
Gross private domestic investment	19.5	18.3	15.3	14.8	14.6	17.2	16.7	15.2
Fixed investment	17.2	15.4	14.5	14.6	15.1	15.8	15.6	14.9
Nonresidential	10.6	10.3	9.7	9.9	9.7	10.0	10.6	10.5
Structures	3.6	3.7	3.5	3.6	3.7	3.7	4.1	4.0
Producers' durable equipment	7.0	6.7	6.2	6.3	6.0	6.3	6.5	6.4
Residential structures	6.6	5.1	4.8	4.7	5.3	5.7	5.0	4.5
Change in business inventories	2.3	2.8	0.8	0.2	-0.5	1.5	1.1	0.3
Net exports of goods and services	0.8	1.4	0.8	0.3	0.7	0.7	1.1	1.4
Exports	4.6	5.0	4.6	4.3	4.6	4.8	5.4	5.8
Imports	3.8	3.7	3.8	4.0	3.9	4.0	4.3	4.4
Government purchases of goods and services	14.8	19.7	23.3	24.2	21.8	19.5	19.1	19.7
Federal	7.1	12.4	16.2	17.0	14.0	11.6	11.1	11.4
State and local	7.7	7.3	7.2	7.2	7.9	7.9	8.0	8.3

See footnotes at end of table.

Table A-1. Gross National Product, by Major Components, 1950-65--Continued
(Billions of 1958 dollars)

Major components	Selected years							
	1958	1959	1960	1961	1962	1963	1964	1965 1/
Gross national product	447.3	475.9	487.8	497.3	530.0	550.0	577.6	609.0
Personal consumption expenditures	290.1	307.3	316.2	322.6	338.6	352.4	372.1	394.1
Gross private domestic investment	60.9	73.6	72.4	69.0	79.4	82.3	86.3	96.1
Fixed investment	62.4	68.8	68.9	67.0	73.4	76.6	81.7	88.9
Nonresidential	41.6	44.1	47.1	45.5	49.7	51.9	57.1	65.0
Structures	16.6	16.2	17.4	17.4	17.9	18.0	18.9	21.2
Producers' durable equipment	25.0	27.9	29.6	28.1	31.7	33.8	38.3	43.8
Residential structures	20.8	24.7	21.9	21.6	23.8	24.7	24.6	23.9
Change in business inventories	-1.5	4.8	3.5	2.0	6.0	5.7	4.6	7.2
Net exports of goods and services	2.2	0.3	4.3	5.1	4.5	5.6	8.5	6.0
Exports	23.1	23.8	27.3	28.0	30.0	32.2	36.5	37.3
Imports	20.9	23.5	23.0	22.9	25.5	26.5	27.9	31.3
Government purchases of goods and services	94.2	94.7	94.9	100.5	107.5	109.8	110.7	112.8
Federal	53.6	52.5	51.4	54.6	60.0	59.7	57.8	57.2
State and local	40.6	42.2	43.5	45.9	47.5	50.0	52.8	55.6
	Percent distribution							
Gross national product	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Personal consumption expenditures	64.9	64.6	64.8	64.9	63.9	64.1	64.4	64.7
Gross private domestic investment	13.6	15.5	14.8	13.9	15.0	15.0	14.9	15.8
Fixed investment	14.0	14.5	14.1	13.5	13.8	13.9	14.1	14.6
Nonresidential	9.3	9.3	9.7	9.1	9.4	9.4	9.9	10.7
Structures	3.7	3.4	3.6	3.5	3.4	3.3	3.3	3.5
Producers' durable equipment	5.6	5.9	6.1	5.7	6.0	6.1	6.6	7.2
Residential structures	4.7	5.2	4.5	4.3	4.5	4.5	4.3	3.9
Change in business inventories	-0.3	1.0	0.7	0.4	1.1	1.0	0.8	1.2
Net exports of goods and services	0.5	0.1	0.9	1.0	0.8	1.0	1.5	1.0
Exports	5.2	5.0	5.6	5.6	5.7	5.9	6.3	6.1
Imports	4.7	4.9	4.7	4.6	4.8	4.8	4.8	5.1
Government purchases of goods and services	21.1	19.9	19.5	20.2	20.3	20.0	19.2	18.5
Federal	12.0	11.0	10.5	11.0	11.3	10.9	10.0	9.4
State and local	9.1	8.9	8.9	9.2	9.0	9.1	9.1	9.1

1/ Preliminary estimate.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Historical data on gross national product are from U.S. Department of Commerce, Office of Business Economics.

Table A-2. Personal Consumption Expenditures, by Major Type, 1950-65
(Billions of 1958 dollars)

Major type	Selected years							
	1950	1951	1952	1953	1954	1955	1956	1957
Total, personal consumption expenditures	230.5	232.8	239.4	250.8	255.7	274.2	281.4	288.2
Durable goods	34.7	31.5	30.8	35.3	35.4	43.2	41.0	41.5
Automobiles and parts	15.9	13.3	12.3	16.0	15.7	21.2	17.9	18.8
Furniture and household equipment	15.1	14.3	14.4	15.0	15.3	17.1	17.9	17.4
Other	3.7	3.8	4.0	4.2	4.4	4.8	5.2	5.3
Nondurable goods	114.0	116.5	120.8	124.4	125.5	131.7	136.2	138.7
Food and beverages	63.2	64.5	66.3	68.4	69.4	72.4	74.8	76.2
Clothing and shoes	21.8	21.6	22.7	22.9	22.8	24.0	24.6	24.4
Gasoline and oil	6.5	7.2	7.8	8.5	8.8	9.6	10.1	10.5
Other	22.5	23.3	24.0	24.6	24.6	25.8	26.8	27.5
Services	81.8	84.8	87.8	91.1	94.8	99.3	104.1	108.0
Housing	26.8	28.8	30.7	32.3	33.9	35.7	37.4	39.2
Household operation	11.7	12.4	12.7	13.2	13.7	15.1	16.1	16.7
Transportation	8.5	8.8	8.7	8.9	8.7	8.9	9.4	9.5
Other	34.8	34.9	35.8	36.6	38.5	39.7	41.2	42.5
	Percent distribution							
Total, personal consumption expenditures	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Durable goods	15.1	13.5	12.8	14.1	13.8	15.8	14.6	14.4
Automobiles and parts	6.9	5.7	5.1	6.4	6.1	7.8	6.4	6.5
Furniture and household equipment	6.6	6.1	6.0	6.0	6.0	6.2	6.4	6.0
Other	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.9
Nondurable goods	49.4	50.0	50.5	49.6	49.1	48.0	48.4	48.1
Food and beverages	27.3	27.6	27.7	27.3	27.2	26.3	26.6	26.4
Clothing and shoes	9.5	9.3	9.5	9.1	8.9	8.8	8.7	8.5
Gasoline and oil	2.8	3.1	3.3	3.4	3.4	3.5	3.6	3.6
Other	9.8	10.0	10.0	9.8	9.6	9.4	9.5	9.6
Services	35.5	36.5	36.7	36.3	37.1	36.2	37.0	37.5
Housing	11.6	12.4	12.8	12.9	13.3	13.0	13.3	13.6
Household operation	5.1	5.3	5.3	5.3	5.4	5.5	5.7	5.8
Transportation	3.7	3.8	3.6	3.5	3.4	3.2	3.3	3.3
Other	15.1	15.0	15.0	14.6	15.0	14.5	14.7	14.8

See footnotes at end of table.

Table A-2. Personal Consumption Expenditures, by Major Type, 1950-65--Continued
(Billions of 1958 dollars)

Major type	Selected years							
	1958	1959	1960	1961	1962	1963	1964	1965 1/
Total, personal consumption expenditures	290.1	307.3	316.2	322.6	338.6	352.4	372.1	394.1
Durable goods	37.9	43.7	44.9	43.9	49.2	53.2	58.5	65.4
Automobiles and parts	15.4	19.0	20.0	18.4	21.8	24.1	25.6	30.1
Furniture and household equipment	17.1	18.8	18.7	19.2	20.5	22.0	24.9	26.5
Other	5.4	5.9	6.2	6.4	6.8	7.1	8.0	8.8
Nondurable goods	140.2	146.9	149.7	153.1	158.4	161.8	169.4	177.0
Food and beverages	76.4	79.7	80.9	82.3	84.1	85.3	88.3	91.7
Clothing and shoes	24.7	26.1	26.6	26.9	28.4	29.0	31.4	32.8
Gasoline and oil	11.0	11.5	11.8	12.0	12.5	13.0	13.7	13.9
Other	28.2	29.6	30.4	31.9	33.4	34.4	36.1	38.6
Services	112.0	116.8	121.6	125.6	131.1	137.3	144.2	151.6
Housing	41.1	42.9	44.9	46.6	49.1	51.9	55.0	59.2
Household operation	17.3	18.0	18.8	19.4	20.4	21.2	22.3	23.3
Transportation	9.3	9.7	10.1	9.7	9.9	10.3	10.4	10.6
Other	44.3	46.1	47.9	49.8	51.7	54.0	56.5	58.4
	Percent distribution							
Total, personal consumption expenditures	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Durable goods	13.1	14.2	14.2	13.6	14.5	15.1	15.7	16.6
Automobile and parts	5.3	6.2	6.3	5.7	6.4	6.8	6.9	7.6
Furniture and household equipment	5.9	6.1	5.9	6.0	6.1	6.3	6.7	6.7
Other	1.9	1.9	2.0	1.9	2.0	2.0	2.1	2.2
Nondurable goods	48.3	47.8	47.3	47.5	46.8	45.9	45.5	44.9
Food and beverages	26.3	25.9	25.6	25.6	24.8	24.2	23.7	23.3
Clothing and shoes	8.5	8.5	8.4	8.3	8.4	8.2	8.4	8.3
Gasoline and oil	3.8	3.8	3.7	3.7	3.7	3.7	3.7	3.5
Other	9.7	9.6	9.6	9.9	9.9	9.8	9.7	9.8
Services	38.6	38.0	38.5	38.9	38.7	39.0	38.8	38.5
Housing	14.2	14.0	14.2	14.4	14.5	14.7	14.8	15.0
Household operation	6.0	5.9	5.9	6.0	6.0	6.0	6.0	5.9
Transportation	3.2	3.1	3.2	3.0	2.9	2.9	2.8	2.7
Other	15.2	15.0	15.2	15.5	15.3	15.4	15.2	14.8

1/ Preliminary estimate.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Historical data on personal consumption expenditures are from U.S. Department of Commerce, Office of Business Economics.

TABLE A-3. TOTAL EMPLOYMENT (PRIMARY AND INDIRECT)[1] PER BILLION DOLLARS OF DELIVERY TO FINAL DEMAND, 1970[2]
(Producers' value,[3] 1958 prices)

Industry number and title	Livestock and livestock products	Other agricultural products	Forestry and fishery products	Agricultural, forestry, and fishery services	Iron and ferroalloy ores mining	Nonferrous metal ores mining	Coal mining	Crude petroleum and natural gas	Stone and clay mining and quarrying	Chemical and fertilizer mineral mining
	1	2	3	4	5	6	7	8	9	10
1. Livestock and livestock products	68,724	6,059	4,305	11,209	173	142	130	256	138	152
2. Other agricultural products	26,516	79,835	9,771	30,841	266	195	190	408	181	179
3. Forestry and fishery products	67	39	57,475	28	57	27	60	18	22	23
4. Agricultural, forestry and fishery services	4,604	5,161	2,086	122,144	35	29	31	44	29	27
5. Iron and ferroalloy ores mining	9	13	6	8	13,218	222	30	8	44	40
6. Nonferrous metal ores mining	15	25	10	14	875	29,064	45	14	41	46
7. Coal mining	60	65	34	39	280	223	42,120	43	201	157
8. Crude petroleum and natural gas	81	163	72	77	86	92	78	6,381	109	103
9. Stone and clay mining and quarrying	75	179	35	76	48	76	62	21	44,726	753
10. Chemical and fertilizer mineral mining	31	79	15	33	22	49	13	8	26	21,582
11. New construction										
12. Maintenance and repair construction	1,269	1,467	549	852	996	750	565	1,195	665	677
13. Ordnance and accessories		1			1	1	1	1	1	1
14. Food and kindred products	3,748	430	652	775	109	116	100	106	112	143
15. Tobacco manufactures	2	2	1	1	2	3	2	2	3	3
16. Broad and narrow fabrics, yarn and thread mills	79	114	133	144	51	120	92	32	70	58
17. Miscellaneous textile goods and floor coverings	47	69	222	236	23	18	36	20	42	23
18. Apparel	26	22	19	17	23	23	25	18	26	20
19. Miscellaneous fabricated textile products	77	106	32	52	19	19	15	13	18	19
20. Lumber and wood products, except containers	164	247	164	144	491	195	541	131	165	149
21. Wooden containers	125	316	45	129	11	9	8	6	13	9
22. Household furniture	5	6	10	5	9	5	8	5	5	4
23. Other furniture and fixtures	3	4	6	3	4	3	5	3	3	3
24. Paper and allied products, except containers	251	233	489	246	141	176	238	165	516	326
25. Paperboard containers and boxes	203	98	291	220	54	60	86	41	162	93
26. Printing and publishing	597	835	1,288	476	395	452	387	774	488	403
27. Chemicals and selected chemical products	704	1,775	337	744	661	861	374	225	410	910
28. Plastics and synthetic materials	85	141	121	107	96	99	138	53	171	104
29. Drugs, cleaning, and toilet preparations	69	47	21	30	25	32	20	16	34	31
30. Paints and allied products	26	32	39	18	27	25	28	30	21	21

31. Petroleum refining and related industries	137	288	128	134	126	115	107	61	159	120
32. Rubber and miscellaneous plastics products	264	377	381	248	356	245	662	189	795	369
33. Leather tanning and industrial leather products	3	3	3	2	3	2	3	2	3	2
34. Footwear and other leather products	18	27	12	14	9	9	12	9	12	11
35. Glass and glass products	129	47	41	42	35	29	37	27	39	31
36. Stone and clay products	95	152	57	78	352	615	223	83	2,964	155
37. Primary iron and steel manufacturing	229	245	168	179	1,260	2,329	1,007	229	1,364	1,034
38. Primary nonferrous metals manufacturing	93	121	69	78	201	525	393	115	183	231
39. Metal containers	131	56	31	42	15	17	13	10	15	18
40. Heating, plumbing and structural metal products	53	62	49	38	128	88	103	81	83	69
41. Stampings, screw machine products and bolts	126	75	47	57	121	133	441	81	125	123
42. Other fabricated metal products	184	200	114	342	204	242	428	271	245	187
43. Engines and turbines	14	24	29	12	68	54	58	62	56	49
44. Farm machinery and equipment	137	370	68	147	46	37	46	20	46	32
45. Construction, mining and oil field machinery	17	30	16	15	1,686	1,183	1,650	158	1,564	1,017
46. Materials handling machinery and equipment	6	9	6	5	184	30	221	8	560	242
47. Metalworking machinery and equipment	39	48	32	35	114	142	332	52	124	87
48. Special industry machinery and equipment	25	51	19	26	31	37	28	51	34	35
49. General industrial machinery and equipment	36	59	35	32	196	232	294	331	363	204
50. Machine shop products	60	70	37	40	114	126	132	51	154	105
51. Office, computing and accounting machines	29	44	69	24	21	23	20	42	25	21
52. Service industry machines	7	9	12	5	9	8	9	11	10	7
53. Electric industrial equipment and apparatus	34	46	45	27	127	273	411	230	328	285
54. Household appliances	7	9	7	5	8	8	9	8	8	7
55. Electric lighting and wiring equipment	28	28	21	18	49	59	126	27	50	31
56. Radio, television and communication equipment	28	32	30	23	104	34	35	33	35	35
57. Electronic components and accessories	22	27	24	17	57	36	39	136	39	37
58. Miscellaneous electrical machinery and equipment	46	58	17	28	40	30	29	20	29	28
59. Motor vehicles and equipment	78	73	29	40	128	67	103	47	82	89
60. Aircraft and parts	13	11	11	8	31	17	14	14	17	23
61. Other transportation equipment	31	31	601	20	177	48	267	29	51	75
62. Scientific and controlling instruments	22	20	14	14	38	48	34	26	41	36
63. Optical, ophthalmic and photographic equipment	20	28	40	16	17	19	15	26	20	18
64. Miscellaneous manufacturing	67	80	159	67	67	61	143	67	105	77
65. Transportation and warehousing	2,539	1,723	1,528	1,442	6,737	2,898	1,286	1,998	1,981	4,741
66. Communications; except broadcasting	314	326	295	341	223	226	161	169	219	219
67. Radio and television broadcasting	85	135	229	73	53	59	50	133	66	54
68. Electric, gas, water and sanitary services	294	348	143	197	715	1,185	836	302	963	1,020
69. Wholesale and retail trade	5,397	4,431	2,383	2,582	2,574	3,165	3,672	1,754	3,716	2,865
70. Finance and insurance	1,703	1,832	2,181	1,239	1,264	1,950	1,478	1,701	1,523	1,090
71. Real estate and rental	397	692	377	390	659	324	306	1,524	319	198
72. Hotels; personal and repair services, except auto	272	305	255	197	435	479	349	406	488	500
73. Business services	2,108	3,360	5,707	1,817	1,316	1,457	1,247	3,284	1,629	1,353
74. Research and development	14	25	8	12	15	20	12	6	14	17
75. Automobile repair and services	615	444	222	273	356	220	195	308	227	272
76. Amusements	104	141	189	81	96	90	76	162	93	93
77. Medical, educational and nonprofit organizations	1,146	281	240	352	221	270	273	222	254	232
78. Federal Government enterprises	376	455	518	332	414	509	462	393	454	438
79. State and local government enterprises	262	279	150	177	575	718	498	311	622	669
80. Gross imports of goods and services										
81. Business travel, entertainment and gifts										
82. Office supplies										
TOTAL	125,514	115,156	95,069	180,047	39,973	53,574	63,771	25,316	70,737	44,716

See footnotes at end of table.

TABLE A-3. TOTAL EMPLOYMENT (PRIMARY AND INDIRECT)[1] PER BILLION DOLLARS OF DELIVERY TO FINAL DEMAND, 1970[2]--Continued
(Producers' value,[3] 1958 prices)

Industry number and title	New construction	Maintenance and repair construction	Ordnance and accessories	Food and kindred products	Tobacco manufactures	Broad and narrow fabrics, yarn and thread mills	Miscellaneous textile goods and floor coverings	Apparel	Miscellaneous fabricated textile products	Lumber and wood products, except containers
	11	12	13	14	15	16	17	18	19	20
1. Livestock and livestock products	272	141	262	20,520	1,420	1,627	1,423	719	969	906
2. Other agricultural products	847	235	287	14,941	15,959	9,048	2,641	3,312	4,427	4,009
3. Forestry and fishery products	522	189	34	338	38	45	44	693	80	7,173
4. Agricultural, forestry and fishery services	112	48	43	1,824	1,047	642	242	265	335	617
5. Iron and ferroalloy ores mining	88	43	50	19	7	16	12	9	13	11
6. Nonferrous metal ores mining	123	90	239	22	17	35	27	22	28	25
7. Coal mining	170	88	93	99	54	191	130	93	128	75
8. Crude petroleum and natural gas	118	105	45	82	52	96	69	51	69	92
9. Stone and clay mining and quarrying	859	496	53	67	49	57	42	30	45	54
10. Chemical and fertilizer mineral mining	25	20	14	27	28	83	58	40	50	23
11. New construction	46,719									
12. Maintenance and repair construction	655	62,716	526	1,084	504	786	616	569	680	774
13. Ordnance and accessories	3	1	41,861	1		1	1	1	1	1
14. Food and kindred products	190	120	265	24,571	334	354	290	236	292	249
15. Tobacco manufactures	4	2	7	3	10,896	3	3	4	4	4
16. Broad and narrow fabrics, yarn and thread mills	111	56	139	129	70	47,044	9,606	15,642	21,953	119
17. Miscellaneous textile goods and floor coverings	50	26	78	44	30	702	22,405	402	2,213	73
18. Apparel	55	30	107	79	18	207	289	77,606	874	147
19. Miscellaneous fabricated textile products	34	20	25	137	37	282	338	826	47,556	42
20. Lumber and wood products, except containers	4,975	1,779	232	288	286	258	277	203	358	69,231
21. Wooden containers	45	23	65	168	164	50	24	24	32	193
22. Household furniture	336	17	71	8	4	12	156	11	197	169
23. Other furniture and fixtures	226	60	16	4	3	5	6	7	157	32
24. Paper and allied products, except containers	656	365	386	781	948	764	955	584	1,165	671
25. Paperboard containers and boxes	209	139	271	861	613	614	498	557	790	343
26. Printing and publishing	1,336	417	763	1,059	1,353	835	680	768	871	967
27. Chemicals and selected chemical products	569	545	374	601	723	2,526	1,788	1,189	1,482	647
28. Plastics and synthetic materials	237	253	308	122	715	4,094	3,544	1,867	2,377	433
29. Drugs, cleaning, and toilet preparations	51	39	47	124	62	165	101	79	115	64
30. Paints and allied products	128	716	39	37	19	64	59	37	52	158

31. Petroleum refining and related industries	199	185	67	135	88	150	107	78	105	152
32. Rubber and miscellaneous plastics products	619	363	1,416	385	291	679	1,091	466	1,944	630
33. Leather tanning and industrial leather products	6	3	9	3	4	14	15	129	37	4
34. Footwear and other leather products	21	13	46	18	13	25	65	131	328	26
35. Glass and glass products	192	286	159	626	33	217	131	97	163	132
36. Stone and clay products	3,764	1,629	387	116	63	118	127	74	110	326
37. Primary iron and steel manufacturing	2,995	1,416	1,580	591	147	256	205	178	269	306
38. Primary nonferrous metals manufacturing	1,080	807	2,279	162	114	167	138	126	167	179
39. Metal containers	27	55	21	716	63	54	40	29	37	31
40. Heating, plumbing and structural metal products	3,893	2,049	167	56	25	49	37	33	45	70
41. Stampings, screw machine products and bolts	411	231	724	256	49	86	78	67	112	235
42. Other fabricated metal products	1,168	381	866	229	169	210	201	189	296	583
43. Engines and turbines	48	21	77	18	16	15	13	11	13	19
44. Farm machinery and equipment	48	17	66	85	91	54	37	26	34	32
45. Construction, mining and oil field machinery	217	95	73	20	14	28	20	16	21	21
46. Materials handling machinery and equipment	230	36	18	7	4	11	8	6	9	34
47. Metalworking machinery and equipment	208	100	921	79	37	83	67	47	80	73
48. Special industry machinery and equipment	68	38	118	31	32	443	165	163	230	117
49. General industrial machinery and equipment	445	148	531	50	30	76	51	40	82	129
50. Machine shop products	236	116	8,276	84	37	63	57	44	81	113
51. Office, computing and accounting machines	75	23	84	46	64	39	32	35	40	32
52. Service industry machines	141	56	126	10	10	10	7	8	10	9
53. Electric industrial equipment and apparatus	578	313	1,255	51	28	71	53	46	67	60
54. Household appliances	165	131	37	11	5	9	8	10	12	10
55. Electric lighting and wiring equipment	833	407	732	51	23	48	41	29	46	108
56. Radio, television and communication equipment	117	118	1,610	37	27	43	38	38	50	39
57. Electronic components and accessories	105	73	721	31	22	36	31	33	47	34
58. Miscellaneous electrical machinery and equipment	72	44	91	40	20	24	20	16	22	39
59. Motor vehicles and equipment	96	45	195	74	29	40	42	28	43	81
60. Aircraft and parts	33	17	1,529	22	10	19	25	13	29	24
61. Other transportation equipment	104	51	235	49	23	42	39	36	39	175
62. Scientific and controlling instruments	305	111	1,223	27	15	31	28	35	205	30
63. Optical, ophthalmic and photographic equipment	48	18	74	31	41	49	40	34	41	26
64. Miscellaneous manufacturing	238	204	254	120	148	225	512	1,161	1,039	193
65. Transportation and warehousing	3,829	2,060	2,229	4,116	1,643	3,542	3,433	2,281	3,009	4,712
66. Communications; except broadcasting	410	204	407	379	227	336	327	352	374	341
67. Radio and television broadcasting	216	55	84	142	210	108	85	95	101	93
68. Electric, gas, water and sanitary services	468	264	338	379	189	596	433	354	471	414
69. Wholesale and retail trade	8,618	6,614	4,151	5,738	2,590	5,532	5,759	5,274	6,894	5,330
70. Finance and insurance	1,806	880	1,307	1,667	905	1,745	1,899	1,595	1,687	1,632
71. Real estate and rental	254	148	175	319	222	275	231	273	303	263
72. Hotels; personal and repair services, except auto	605	322	963	522	347	809	654	1,027	971	808
73. Business services	5,384	1,371	2,099	3,531	5,238	2,691	2,116	2,364	2,518	2,315
74. Research and development	26	19	27	23	19	106	71	47	60	16
75. Automobile repair and services	904	368	225	901	257	405	357	288	455	1,258
76. Amusements	219	80	152	160	177	141	119	136	149	134
77. Medical, educational and nonprofit organizations	372	204	326	614	290	423	352	412	432	347
78. Federal Government enterprises	647	319	478	518	706	676	635	687	723	454
79. State and local government enterprises	412	233	269	369	169	452	362	287	388	414
80. Gross imports of goods and services										
81. Business travel, entertainment and gifts										
82. Office supplies										
TOTAL	102,694	91,527	85,894	91,685	50,425	91,929	66,761	124,788	111,699	109,905

See footnotes at end of table.

TABLE A-3. TOTAL EMPLOYMENT (PRIMARY AND INDIRECT)[1] PER BILLION DOLLARS OF DELIVERY TO FINAL DEMAND, 1970[2]--Continued
(Producers' value,[3] 1958 prices)

Industry number and title	Wooden containers	Household furniture	Other furniture and fixtures	Paper and allied products except containers	Paperboard containers and boxes	Printing and publishing	Chemicals and selected chemical products	Plastics and synthetic materials	Drugs, cleaning, and toilet preparations	Paints and allied products
	21	22	23	24	25	26	27	28	29	30
1. Livestock and livestock products	497	564	282	409	286	366	559	384	805	676
2. Other agricultural products	1,804	1,339	539	710	443	458	645	432	717	636
3. Forestry and fishery products	2,993	808	429	604	289	147	151	93	72	81
4. Agricultural, forestry and fishery services	282	160	81	102	67	61	80	57	93	86
5. Iron and ferroalloy ores mining	50	50	117	14	12	9	98	42	28	55
6. Nonferrous metal ores mining	25	69	96	33	23	23	233	97	49	89
7. Coal mining	113	143	184	292	170	102	336	293	133	193
8. Crude petroleum and natural gas	84	59	56	110	85	52	294	179	100	150
9. Stone and clay mining and quarrying	47	61	79	248	124	68	170	96	93	129
10. Chemical and fertilizer mineral mining	14	26	19	80	43	33	699	274	96	212
11. New construction										
12. Maintenance and repair construction	721	626	581	916	892	905	747	935	583	722
13. Ordnance and accessories	1	1	3	1	2	4	1	1	2	1
14. Food and kindred products	217	423	209	366	258	338	587	398	843	743
15. Tobacco manufactures	4	4	5	4	4	8	7	4	5	6
16. Broad and narrow fabrics, yarn and thread mills	92	3,039	494	531	293	169	158	187	139	121
17. Miscellaneous textile goods and floor coverings	46	506	524	136	90	86	52	73	69	43
18. Apparel	79	102	135	104	125	41	73	80	70	75
19. Miscellaneous fabricated textile products	31	112	84	170	91	55	174	83	79	70
20. Lumber and wood products, except containers	28,848	7,697	4,057	5,706	2,696	1,297	482	487	448	394
21. Wooden containers	77,571	51	44	61	62	20	32	31	25	25
22. Household furniture	406	66,470	1,564	22	13	11	8	7	10	7
23. Other furniture and fixtures	78	411	52,854	17	10	30	5	5	6	4
24. Paper and allied products, except containers	489	788	757	32,727	14,820	7,119	843	1,710	1,362	1,059
25. Paperboard containers and boxes	272	932	981	1,337	36,293	545	426	476	1,466	671
26. Printing and publishing	853	851	738	1,494	1,398	65,189	986	902	3,327	1,079
27. Chemicals and selected chemical products	366	715	502	1,404	841	807	23,067	8,887	3,073	6,914
28. Plastics and synthetic materials	228	762	383	691	539	210	907	21,753	391	3,768
29. Drugs, cleaning, and toilet preparations	52	55	45	55	73	46	397	365	17,378	397
30. Paints and allied products	100	475	395	47	34	25	125	196	85	19,012

31. Petroleum refining and related industries	134	89	81	162	130	74	487	296	166	249
32. Rubber and miscellaneous plastics products	432	2,157	762	1,391	1,199	458	652	1,202	1,159	628
33. Leather tanning and industrial leather products	4	51	57	5	6	5	5	4	5	4
34. Footwear and other leather products	21	61	32	32	39	31	23	18	24	21
35. Glass and glass products	89	782	1,865	76	152	47	159	118	987	101
36. Stone and clay products	274	312	330	394	219	135	298	195	229	609
37. Primary iron and steel manufacturing	1,750	1,673	4,125	330	323	192	709	406	626	1,125
38. Primary nonferrous metals manufacturing	179	581	811	213	158	165	736	352	244	359
39. Metal containers	23	54	41	38	118	24	257	150	572	1,142
40. Heating, plumbing and structural metal products	83	201	586	56	51	44	62	63	48	78
41. Stampings, screw machine products and bolts	262	458	613	186	166	95	159	141	279	156
42. Other fabricated metal products	633	2,753	1,894	716	477	293	393	302	564	299
43. Engines and turbines	17	18	22	16	14	16	20	17	33	17
44. Farm machinery and equipment	23	27	51	17	13	23	20	16	54	25
45. Construction, mining and oil field machinery	27	38	62	38	26	21	90	49	35	44
46. Materials handling machinery and equipment	20	40	18	15	11	7	46	22	11	19
47. Metalworking machinery and equipment	102	221	323	120	112	64	135	147	105	122
48. Special industry machinery and equipment	227	197	75	202	256	191	527	273	158	183
49. General industrial machinery and equipment	109	120	206	96	94	52	121	99	70	91
50. Machine shop products	156	149	220	108	103	58	126	106	92	122
51. Office, computing and accounting machines	29	40	110	43	32	81	65	47	167	49
52. Service industry machines	10	18	263	10	9	12	14	11	32	11
53. Electric industrial equipment and apparatus	70	99	189	88	71	74	159	119	80	89
54. Household appliances	11	52	59	10	12	12	12	10	18	14
55. Electric lighting and wiring equipment	162	106	114	111	84	46	46	56	39	46
56. Radio, television and communication equipment	41	70	147	41	39	90	55	59	67	49
57. Electronic components and accessories	37	66	103	36	34	59	50	44	60	40
58. Miscellaneous electrical machinery and equipment	41	29	33	24	22	19	28	22	22	25
59. Motor vehicles and equipment	90	61	120	42	39	36	46	37	42	45
60. Aircraft and parts	23	24	47	22	22	48	24	22	22	24
61. Other transportation equipment	116	59	89	55	48	38	53	47	42	48
62. Scientific and controlling instruments	31	53	384	48	35	40	53	49	248	45
63. Optical, ophthalmic and photographic equipment	24	33	29	45	33	238	57	140	101	56
64. Miscellaneous manufacturing	152	372	852	162	162	288	195	155	253	168
65. Transportation and warehousing	4,590	3,125	2,795	3,938	4,008	2,755	4,043	3,796	2,762	4,000
66. Communications; except broadcasting	336	445	383	351	333	806	425	377	508	446
67. Radio and television broadcasting	80	111	85	99	80	202	112	110	534	123
68. Electric, gas, water and sanitary services	516	446	470	916	597	442	870	665	407	532
69. Wholesale and retail trade	6,193	6,093	5,826	4,865	5,170	3,629	4,022	3,628	3,911	5,157
70. Finance and insurance	1,624	1,404	1,316	1,412	1,493	1,721	1,818	1,660	1,705	1,780
71. Real estate and rental	272	266	239	201	237	472	303	243	291	300
72. Hotels; personal and repair services, except auto	1,043	928	855	646	739	1,111	830	602	765	807
73. Business services	2,003	2,766	2,121	2,464	2,005	5,025	2,785	2,754	13,340	3,070
74. Research and development	15	28	30	49	29	19	261	365	45	126
75. Automobile repair and services	1,426	545	485	453	437	390	459	371	408	503
76. Amusements	136	152	133	130	123	247	171	143	437	174
77. Medical, educational and nonprofit organizations	381	362	333	329	365	349	337	338	328	376
78. Federal Government enterprises	519	533	531	620	563	1,399	800	1,052	1,215	869
79. State and local government enterprises	466	365	364	678	479	362	613	495	334	437
80. Gross imports of goods and services										
81. Business travel, entertainment and gifts										
82. Office supplies										
TOTAL	141,367	115,930	96,918	70,487	81,044	100,228	56,675	59,922	65,189	62,224

See footnotes at end of table.

TABLE A-3. TOTAL EMPLOYMENT (PRIMARY AND INDIRECT)[1] PER BILLION DOLLARS OF DELIVERY TO FINAL DEMAND, 1970[2]--Continued
(Producers' value,[3] 1958 prices)

Industry number and title	Petroleum refining and related industries	Rubber and miscellaneous plastics products	Leather tanning and industrial leather products	Footwear and other leather products	Glass and glass products	Stone and clay products	Primary iron and steel manufacturing	Primary nonferrous metals manufacturing	Metal containers	Heating, plumbing and structural metal products
	31	32	33	34	35	36	37	38	39	40
1. Livestock and livestock products	220	336	198	257	194	219	161	160	159	187
2. Other agricultural products	313	572	214	574	293	315	200	210	194	233
3. Forestry and fishery products	25	60	91	122	192	58	39	36	36	54
4. Agricultural, forestry and fishery services	38	64	33	63	47	42	34	35	35	39
5. Iron and ferroalloy ores mining	16	22	11	9	12	35	1,057	96	399	269
6. Nonferrous metal ores mining	24	48	26	20	30	49	181	3,059	214	319
7. Coal mining	100	175	147	79	165	340	1,223	199	502	358
8. Crude petroleum and natural gas	3,228	80	56	38	70	108	132	77	82	78
9. Stone and clay mining and quarrying	194	102	60	43	657	3,312	218	87	107	111
10. Chemical and fertilizer mineral mining	32	108	81	33	42	95	31	33	22	18
11. New construction										
12. Maintenance and repair construction	1,056	627	323	411	596	735	1,186	606	752	689
13. Ordnance and accessories	1	2	1	1	1	1	1	2	2	4
14. Food and kindred products	140	240	202	178	174	206	147	147	148	177
15. Tobacco manufactures	2	4	2	4	4	4	3	3	3	4
16. Broad and narrow fabrics, yarn and thread mills	44	1,476	96	1,759	94	189	74	188	90	114
17. Miscellaneous textile goods and floor coverings	21	1,450	38	549	32	54	29	45	51	33
18. Apparel	32	249	22	479	118	29	96	81	59	121
19. Miscellaneous fabricated textile products	25	83	103	82	30	52	29	36	25	42
20. Lumber and wood products, except containers	168	395	158	945	1,764	468	305	272	284	452
21. Wooden containers	10	20	117	52	295	95	24	12	41	74
22. Household furniture	6	24	4	30	135	7	14	10	11	74
23. Other furniture and fixtures	4	13	2	6	5	5	6	5	6	99
24. Paper and allied products, except containers	354	849	335	864	1,575	1,213	335	377	582	397
25. Paperboard containers and boxes	142	515	177	651	3,233	506	123	135	546	278
26. Printing and publishing	907	943	555	1,301	778	819	691	631	846	707
27. Chemicals and selected chemical products	970	2,795	2,029	837	1,058	997	658	795	541	427
28. Plastics and synthetic materials	114	4,659	174	679	164	551	137	603	301	181
29. Drugs, cleaning, and toilet preparations	91	128	593	152	72	179	79	64	101	48
30. Paints and allied products	39	62	20	22	25	54	51	48	384	94

31. Petroleum refining and related industries	6,117	124	89	57	83	153	190	99	120	116
32. Rubber and miscellaneous plastics products	217	33,523	595	3,099	432	785	393	320	924	349
33. Leather tanning and industrial leather products	2	40	36,602	7,068	3	8	3	3	17	10
34. Footwear and other leather products	10	141	233	101,157	17	21	14	15	17	20
35. Glass and glass products	42	595	68	97	46,934	101	47	54	54	240
36. Stone and clay products	190	292	501	279	1,455	42,488	745	482	451	606
37. Primary iron and steel manufacturing	386	423	153	212	260	509	38,202	1,346	14,270	9,494
38. Primary nonferrous metals manufacturing	155	270	110	130	194	226	945	29,929	1,767	2,894
39. Metal containers	186	51	46	23	30	30	22	21	24,371	23
40. Heating, plumbing and structural metal products	73	63	21	34	54	76	206	79	298	38,503
41. Stampings, screw machine products and bolts	94	262	85	113	296	173	543	787	934	1,200
42. Other fabricated metal products	657	643	166	494	337	707	1,117	836	725	1,786
43. Engines and turbines	41	15	8	12	13	19	37	25	28	144
44. Farm machinery and equipment	20	18	8	20	21	18	86	20	44	109
45. Construction, mining and oil field machinery	98	31	19	15	42	151	248	159	112	218
46. Materials handling machinery and equipment	11	13	7	7	15	52	41	21	24	69
47. Metalworking machinery and equipment	76	121	67	63	130	143	558	642	901	611
48. Special industry machinery and equipment	52	137	56	54	58	81	104	54	67	208
49. General industrial machinery and equipment	195	103	38	44	113	92	304	324	504	778
50. Machine shop products	62	330	48	74	116	122	1,013	575	906	798
51. Office, computing and accounting machines	49	39	22	46	32	34	32	29	32	52
52. Service industry machines	11	10	5	9	13	11	15	19	18	243
53. Electric industrial equipment and apparatus	151	97	58	50	85	123	343	347	254	780
54. Household appliances	9	24	5	9	21	10	18	30	93	249
55. Electric lighting and wiring equipment	29	116	63	76	162	228	87	451	94	214
56. Radio, television and communication equipment	52	89	23	40	33	42	54	125	50	93
57. Electronic components and accessories	90	70	21	71	32	52	52	95	47	156
58. Miscellaneous electrical machinery and equipment	23	26	13	16	22	31	37	318	41	66
59. Motor vehicles and equipment	47	35	23	27	34	59	118	109	89	189
60. Aircraft and parts	21	73	12	19	15	26	30	22	100	68
61. Other transportation equipment	47	51	25	30	36	52	125	81	76	405
62. Scientific and controlling instruments	31	109	40	133	73	60	60	73	65	561
63. Optical, ophthalmic and photographic equipment	31	64	21	81	29	31	26	27	28	36
64. Miscellaneous manufacturing	103	352	90	324	132	220	125	175	139	163
65. Transportation and warehousing	4,125	2,943	2,154	2,072	2,739	4,550	5,022	2,903	3,839	3,158
66. Communications; except broadcasting	253	344	244	335	293	339	371	336	301	407
67. Radio and television broadcasting	151	103	58	137	88	94	80	77	86	92
68. Electric, gas, water and sanitary services	597	513	305	280	959	1,005	1,203	913	731	635
69. Wholesale and retail trade	2,254	4,306	3,060	3,843	4,068	3,791	4,500	4,647	5,088	4,885
70. Finance and insurance	1,786	1,390	1,200	1,425	1,480	1,675	1,575	1,606	1,524	1,613
71. Real estate and rental	900	231	119	206	187	227	235	193	203	211
72. Hotels; personal and repair services, except auto	375	733	460	955	732	714	600	578	603	772
73. Business services	3,738	2,570	1,441	3,421	2,192	2,350	1,985	1,919	2,152	2,285
74. Research and development	53	92	26	21	101	22	116	88	55	67
75. Automobile repair and services	434	300	242	266	332	627	367	313	336	463
76. Amusements	164	138	79	156	123	132	115	110	117	134
77. Medical, educational and nonprofit organizations	315	333	247	342	296	314	337	335	358	351
78. Federal Government enterprises	657	624	837	776	711	562	579	507	536	555
79. State and local government enterprises	493	389	252	236	606	732	809	587	520	459
80. Gross imports of goods and services										
81. Business travel, entertainment and gifts										
82. Office supplies										
TOTAL	33,989	69,460	55,934	138,690	78,085	74,805	71,106	60,858	70,626	83,214

See footnotes at end of table.

TABLE A-3. TOTAL EMPLOYMENT (PRIMARY AND INDIRECT)[1/] PER BILLION DOLLARS OF DELIVERY TO FINAL DEMAND, 1970[2/]--Continued
(Producers' value,[3/] 1958 prices)

Industry number and title	Stampings, screw machine products, and bolts	Other fabricated metal products	Engines and turbines	Farm machinery and equipment	Construction, mining and oil field machinery	Materials handling machinery and equipment	Metalworking machinery and equipment	Special industry machinery and equipment	General industrial machinery and equipment	Machine-shop products
	41	42	43	44	45	46	47	48	49	50
1. Livestock and livestock products	196	205	184	199	192	241	192	233	217	179
2. Other agricultural products	251	272	211	266	224	294	230	288	252	209
3. Forestry and fishery products	75	98	30	55	38	43	35	74	42	23
4. Agricultural, forestry and fishery services	40	44	36	188	40	47	36	45	42	33
5. Iron and ferroalloy ores and mining	244	239	145	170	207	162	117	127	145	111
6. Nonferrous metal ores mining	280	291	187	100	101	131	159	215	172	311
7. Coal mining	342	330	241	268	299	228	169	187	215	176
8. Crude petroleum and natural gas	81	74	57	60	65	61	55	62	58	75
9. Stone and clay mining and quarrying	101	105	82	92	97	85	76	74	204	113
10. Chemical and fertilizer mineral mining	20	24	12	15	14	15	11	14	13	11
11. New construction										
12. Maintenance and repair construction	670	636	504	572	567	595	621	580	597	724
13. Ordnance and accessories	5	3	4	14	4	3	4	9	7	2
14. Food and kindred products	183	191	179	175	186	230	178	224	212	167
15. Tobacco manufactures	4	5	5	4	5	6	5	6	6	4
16. Broad and narrow fabrics, yarn and thread mills	122	157	103	125	100	220	103	166	119	83
17. Miscellaneous textile goods and floor coverings	48	71	46	73	46	72	39	49	34	24
18. Apparel	129	128	105	107	110	121	124	127	122	137
19. Miscellaneous fabricated textile products	45	30	36	32	29	32	43	25	26	22
20. Lumber and wood products, except containers	645	864	218	461	291	320	274	626	327	152
21. Wooden containers	43	59	13	31	16	19	15	25	22	12
22. Household furniture	29	82	15	16	26	20	15	42	42	12
23. Other furniture and fixtures	16	62	9	40	10	37	8	11	20	6
24. Paper and allied products, except containers	568	494	365	341	299	368	238	352	387	215
25. Paperboard containers and boxes	468	318	294	205	144	189	113	133	183	83
26. Printing and publishing	729	866	726	895	709	812	588	723	691	563
27. Chemicals and selected chemical products	513	605	288	376	324	372	262	364	321	240
28. Plastics and synthetic materials	330	231	193	276	193	304	158	238	169	132
29. Drugs, cleaning, and toilet preparations	58	50	44	49	47	55	38	49	43	44
30. Paints and allied products	142	68	59	113	64	95	34	39	48	25

31. Petroleum refining and related industries	120	109	87	91	97	92	83	96	86	118
32. Rubber and miscellaneous plastics products	600	584	561	1,366	773	1,213	452	819	455	277
33. Leather tanning and industrial leather products	12	9	12	43	11	18	9	49	15	25
34. Footwear and other leather products	50	29	24	25	20	44	27	23	22	154
35. Glass and glass products	126	74	98	82	68	104	88	77	70	44
36. Stone and clay products	643	607	586	526	558	485	559	451	695	1,048
37. Primary iron and steel manufacturing	8,589	8,401	5,075	6,062	7,385	5,725	4,009	4,415	5,093	3,783
38. Primary nonferrous metals manufacturing	2,529	2,572	1,701	819	807	1,134	1,455	1,985	1,557	2,950
39. Metal containers	107	40	18	23	19	23	23	19	19	15
40. Heating, plumbing and structural metal products	410	450	193	241	837	683	269	576	884	171
41. Stampings, screw machine products and bolts	58,188	1,515	1,509	2,119	893	1,293	1,680	982	947	528
42. Other fabricated metal products	1,763	40,980	569	712	1,065	1,432	1,322	1,127	1,261	1,249
43. Engines and turbines	71	61	29,625	1,271	895	482	103	90	406	164
44. Farm machinery and equipment	76	77	603	39,096	783	263	93	146	131	54
45. Construction, mining and oil field machinery	98	201	1,192	556	37,030	2,002	148	378	396	194
46. Materials handling machinery and equipment	31	68	94	60	287	37,954	132	246	368	38
47. Metalworking machinery and equipment	871	1,600	1,337	1,274	1,280	1,244	52,005	1,480	1,250	1,197
48. Special industry machinery and equipment	79	168	116	184	152	265	402	44,328	350	316
49. General industrial machinery and equipment	218	606	1,636	2,775	2,956	3,701	1,809	2,927	41,866	671
50. Machine shop products	726	643	3,418	1,905	920	1,954	892	697	925	85,503
51. Office, computing and accounting machines	55	44	35	47	48	82	33	93	41	53
52. Service industry machines	65	56	29	47	53	90	81	160	263	34
53. Electric industrial equipment and apparatus	374	396	1,064	608	783	2,493	1,423	2,007	2,571	411
54. Household appliances	98	86	24	129	31	31	84	70	42	21
55. Electric lighting and wiring equipment	293	207	157	128	139	273	137	152	186	130
56. Radio, television and communication equipment	90	89	106	88	123	140	116	712	258	110
57. Electronic components and accessories	124	116	117	87	108	201	127	488	242	85
58. Miscellaneous electrical machinery and equipment	88	69	784	375	139	165	90	72	105	137
59. Motor vehicles and equipment	661	212	718	483	419	338	1,140	168	252	175
60. Aircraft and parts	58	47	269	104	73	106	158	132	418	98
61. Other transportation equipment	77	102	527	184	330	301	77	230	330	205
62. Scientific and controlling instruments	169	237	139	160	133	167	152	218	467	127
63. Optical, ophthalmic and photographic equipment	48	36	30	38	31	37	32	116	43	31
64. Miscellaneous manufacturing	353	267	175	170	145	1,442	223	165	138	111
65. Transportation and warehousing	3,003	2,893	2,406	2,615	2,693	2,667	1,977	2,383	2,515	2,059
66. Communications; except broadcasting	331	349	331	356	374	420	525	618	597	469
67. Radio and television broadcasting	83	97	88	131	96	107	80	89	88	75
68. Electric, gas, water and sanitary services	668	635	425	463	511	459	421	450	475	486
69. Wholesale and retail trade	4,315	4,674	4,004	4,736	4,619	5,501	3,842	4,812	5,231	3,913
70. Finance and insurance	1,567	1,468	1,305	1,500	1,438	1,604	1,377	1,420	1,348	1,440
71. Real estate and rental	220	199	175	194	191	240	265	225	204	251
72. Hotels; personal and repair services, except auto	802	825	748	733	779	913	819	909	874	836
73. Business services	2,071	2,422	2,190	3,274	2,392	2,674	1,989	2,225	2,204	1,874
74. Research and development	44	42	553	52	47	38	26	29	34	26
75. Automobile repair and services	339	358	256	344	330	338	268	377	319	325
76. Amusements	128	140	137	157	139	161	126	144	143	121
77. Medical, educational and nonprofit organizations	342	332	325	325	337	345	303	331	329	314
78. Federal Government enterprises	541	545	497	661	506	607	453	518	531	489
79. State and local government enterprises	472	450	321	358	375	351	307	339	355	346
80. Gross imports of goods and services										
81. Business travel, entertainment and gifts										
82. Office supplies										
TOTAL	99,165	82,791	70,776	83,099	78,665	87,580	86,148	85,672	82,135	117,138

See footnotes at end of table.

TABLE A-3. TOTAL EMPLOYMENT (PRIMARY AND INDIRECT)[1] PER BILLION DOLLARS OF DELIVERY TO FINAL DEMAND, 1970[2]--Continued
(Producers' value,[3] 1958 prices)

Industry number and title	Office, computing, and accounting machines	Service industry machines	Electric industrial equipment and apparatus	Household appliances	Electric lighting and wiring equipment	Radio, television, and communication equipment	Electronic components and accessories	Miscellaneous electrical machinery and equipment	Motor vehicles and equipment	Aircraft and parts
	51	52	53	54	55	56	57	58	59	60
1. Livestock and livestock products	268	244	266	236	224	282	285	245	201	126
2. Other agricultural products	283	305	293	310	263	325	323	290	306	162
3. Forestry and fishery products	33	77	44	63	49	63	48	36	43	36
4. Agricultural, forestry and fishery services	44	51	44	48	46	49	50	44	45	25
5. Iron and ferroalloy ores mining	34	122	93	120	97	36	49	89	151	61
6. Nonferrous metal ores mining	85	246	292	202	271	127	177	442	147	164
7. Coal mining	72	203	153	205	161	95	114	143	256	110
8. Crude petroleum and natural gas	32	61	51	56	52	40	50	56	63	38
9. Stone and clay mining and quarrying	37	83	66	85	90	55	77	96	84	49
10. Chemical and fertilizer mineral mining	10	22	18	23	26	19	37	38	21	10
11. New construction	414	665	533	606	516	528	550	525	796	451
12. Maintenance and repair construction	13	8	15	7	3	132	47	5	6	336
13. Ordnance and accessories	274	229	269	220	217	281	278	237	172	116
14. Food and kindred products	8	6	7	5	5	8	7	6	4	3
15. Tobacco manufactures	91	149	115	292	120	163	115	217	548	104
16. Broad and narrow fabrics, yarn and thread mills	42	62	41	104	58	51	38	127	252	50
17. Miscellaneous textile goods and floor coverings	103	120	117	121	123	119	143	134	115	113
18. Apparel	20	37	25	36	27	27	29	49	474	20
19. Miscellaneous fabricated textile products	223	651	325	519	379	498	335	229	341	293
20. Lumber and wood products, except containers	29	306	16	316	25	17	21	17	22	11
21. Wooden containers	49	92	49	33	22	1,207	356	29	41	68
22. Household furniture	18	53	10	33	7	15	9	7	27	113
23. Other furniture and fixtures	542	619	612	671	707	652	798	519	557	230
24. Paper and allied products, except containers	182	518	292	550	895	416	426	449	267	134
25. Paperboard containers and boxes	1,021	806	692	1,879	706	928	660	869	1,081	457
26. Printing and publishing	261	582	493	622	742	554	1,114	1,090	557	262
27. Chemicals and selected chemical products	214	330	413	486	829	465	438	685	478	184
28. Plastics and synthetic materials	29	58	39	51	50	42	46	53	66	33
29. Drugs, cleaning, and toilet preparations	40	160	93	165	135	47	46	42	150	42
30. Paints and allied products										

31. Petroleum refining and related industries	47	91	76	81	77	61	73	82	92	55
32. Rubber and miscellaneous plastics products	740	992	460	1,890	1,029	755	564	2,486	1,679	537
33. Leather tanning and industrial leather products	9	13	9	26	12	13	7	10	21	5
34. Footwear and other leather products	25	35	25	159	25	27	25	31	28	19
35. Glass and glass products	124	247	165	196	1,470	555	1,120	220	765	89
36. Stone and clay products	256	573	473	614	551	373	515	681	455	363
37. Primary iron and steel manufacturing	1,146	4,164	2,816	4,108	3,219	1,156	1,509	2,186	5,311	2,076
38. Primary nonferrous metals manufacturing	788	2,280	2,756	1,843	2,168	1,179	1,620	3,924	1,274	1,543
39. Metal containers	17	33	25	34	31	23	29	28	30	15
40. Heating, plumbing and structural metal products	53	1,096	199	756	162	91	82	92	173	101
41. Stampings, screw machine products and bolts	754	2,546	1,161	3,271	1,591	1,469	1,637	1,626	2,708	1,345
42. Other fabricated metal products	477	1,577	686	1,724	1,052	813	855	693	2,557	801
43. Engines and turbines	26	116	437	61	35	28	30	76	165	69
44. Farm machinery and equipment	20	52	39	51	35	21	18	55	95	26
45. Construction, mining and oil field machinery	30	97	113	80	65	44	66	121	98	51
46. Materials handling machinery and equipment	12	74	35	23	14	11	12	22	34	35
47. Metalworking machinery and equipment	633	527	875	693	511	461	474	1,009	1,113	1,317
48. Special industry machinery and equipment	265	185	95	71	52	59	70	69	79	63
49. General industrial machinery and equipment	423	1,027	601	720	218	172	154	995	570	738
50. Machine shop products	368	405	432	381	379	268	253	1,068	1,162	1,347
51. Office, computing and accounting machines	35,504	57	68	119	39	133	214	72	61	56
52. Service industry machines	14	21,438	26	786	37	32	14	27	89	38
53. Electric industrial equipment and apparatus	954	4,234	41,532	2,119	1,628	1,197	1,599	1,305	376	425
54. Household appliances	16	1,617	40	23,797	31	35	42	103	29	95
55. Electric lighting and wiring equipment	296	540	974	526	46,230	607	519	2,013	414	178
56. Radio, television and communication equipment	775	359	801	158	238	32,168	1,227	432	544	1,495
57. Electronic components and accessories	2,586	349	1,844	218	375	11,197	46,812	950	313	938
58. Miscellaneous electrical machinery and equipment	51	83	174	73	1,211	67	79	37,118	887	205
59. Motor vehicles and equipment	52	389	122	165	92	64	62	849	19,653	242
60. Aircraft and parts	179	189	62	53	24	220	30	53	50	45,264
61. Other transportation equipment	36	118	300	165	52	52	44	62	120	53
62. Scientific and controlling instruments	263	1,035	799	1,461	223	436	341	321	397	1,083
63. Optical, ophthalmic and photographic equipment	41	48	64	136	37	146	48	58	46	127
64. Miscellaneous manufacturing	181	222	142	254	363	225	192	180	213	185
65. Transportation and warehousing	1,852	2,799	2,414	2,769	2,445	2,547	2,225	2,605	3,267	1,593
66. Communications; except broadcasting	359	416	364	515	324	362	310	385	384	349
67. Radio and television broadcasting	121	109	81	318	94	122	81	125	162	49
68. Electric, gas, water and sanitary services	256	486	401	472	423	291	391	456	517	333
69. Wholesale and retail trade	4,836	6,334	4,175	5,339	6,197	4,893	5,489	4,903	5,237	2,907
70. Finance and insurance	1,039	1,657	1,122	1,290	1,194	1,106	1,157	1,263	1,428	823
71. Real estate and rental	185	277	195	234	222	216	298	217	198	147
72. Hotels; personal and repair services, except auto	1,014	881	1,004	894	860	1,045	1,089	526	700	385
73. Business services	3,025	2,708	2,021	7,933	2,336	3,056	2,014	3,131	4,040	1,231
74. Research and development	17	34	38	33	37	70	102	43	102	118
75. Automobile repair and services	225	399	271	337	286	265	240	305	340	168
76. Amusements	181	160	151	298	145	184	156	170	177	78
77. Medical, educational and nonprofit organizations	269	361	324	351	328	338	320	346	395	274
78. Federal Government enterprises	566	634	652	955	609	758	770	737	785	387
79. State and local government enterprises	215	377	309	366	331	256	308	351	400	243
80. Gross imports of goods and services										
81. Business travel, entertainment and gifts										
82. Office supplies										
TOTAL	65,796	71,305	77,425	76,978	85,951	76,908	81,953	81,752	67,003	73,870

See footnotes at end of table.

TABLE A-3. TOTAL EMPLOYMENT (PRIMARY AND INDIRECT)[1] PER BILLION DOLLARS OF DELIVERY TO FINAL DEMAND, 1970[2]--Continued
(Producers' value,[3] 1958 prices)

Industry number and title	Other transportation equipment	Scientific and controlling instruments	Optical, ophthalmic and photographic equipment	Miscellaneous manufacturing	Transportation and warehousing	Communications; except broadcasting	Radio and television broadcasting	Electric, gas, water, and sanitary services	Wholesale and retail trade	Finance and insurance
	61	62	63	64	65	66	67	68	69	70
1. Livestock and livestock products	233	383	213	339	201	85	302	120	359	276
2. Other agricultural products	359	553	261	700	308	105	343	143	408	356
3. Forestry and fishery products	235	46	51	231	27	14	24	23	28	21
4. Agricultural, forestry and fishery services	60	68	40	85	39	14	56	23	241	41
5. Iron and ferroalloy ores mining	160	51	26	48	10	3	4	9	5	3
6. Nonferrous metal ores mining	163	202	127	185	21	16	13	20	9	6
7. Coal mining	257	100	140	126	65	24	33	1,325	64	49
8. Crude petroleum and natural gas	69	41	55	60	166	18	24	493	53	35
9. Stone and clay mining and quarrying	98	55	110	63	43	19	18	46	26	18
10. Chemical and fertilizer mineral mining	22	17	58	35	8	3	4	7	5	4
11. New construction										
12. Maintenance and repair construction	597	477	457	721	2,953	1,803	1,117	3,875	1,044	1,092
13. Ordnance and accessories	3	151	11	3	2	4	7	1	1	1
14. Food and kindred products	208	378	203	274	169	72	233	106	328	204
15. Tobacco manufactures	5	8	4	6	2	2	7	2	5	5
16. Broad and narrow fabrics, yarn and thread mills	174	567	133	1,155	76	39	101	31	65	81
17. Miscellaneous textile goods and floor coverings	69	111	48	289	46	20	54	13	27	47
18. Apparel	139	259	97	176	29	10	22	15	56	19
19. Miscellaneous fabricated textile products	55	55	36	105	42	34	107	11	40	87
20. Lumber and wood products, except containers	2,181	318	367	1,822	196	108	157	188	195	147
21. Wooden containers	28	33	17	43	34	3	7	6	56	6
22. Household furniture	412	94	21	39	10	32	60	5	14	4
23. Other furniture and fixtures	251	215	8	58	8	3	4	5	10	4
24. Paper and allied products, except containers	394	613	1,494	1,687	221	221	473	183	446	555
25. Paperboard containers and boxes	187	470	432	1,598	70	38	128	42	158	102
26. Printing and publishing	699	769	1,295	1,271	740	1,305	1,542	555	1,264	2,427
27. Chemicals and selected chemical products	588	448	1,768	992	203	70	112	190	137	107
28. Plastics and synthetic materials	624	348	236	1,171	116	41	74	52	63	60
29. Drugs, cleaning, and toilet preparations	60	79	53	116	26	10	17	15	43	29
30. Paints and allied products	221	44	29	192	72	24	20	50	24	18

31.	Petroleum refining and related industries	105	61	86	93	300	25	33	106	73	53
32.	Rubber and miscellaneous plastics products	642	843	576	1,937	514	98	160	141	230	216
33.	Leather tanning and industrial leather products	22	41	10	269	6	2	8	2	5	3
34.	Footwear and other leather products	23	126	68	651	12	9	64	8	34	20
35.	Glass and glass products	347	295	575	338	70	31	50	32	91	27
36.	Stone and clay products	667	359	979	279	132	67	66	199	119	53
37.	Primary iron and steel manufacturing	5,599	1,660	618	1,511	310	101	131	298	144	82
38.	Primary nonferrous metals manufacturing	1,433	1,800	1,101	1,710	178	149	112	131	75	50
39.	Metal containers	31	83	31	41	20	5	11	11	18	11
40.	Heating, plumbing and structural metal products	1,968	130	43	81	126	64	45	140	82	42
41.	Stampings, screw machine products and bolts	698	1,243	439	818	106	58	99	63	73	31
42.	Other fabricated metal products	1,471	1,054	607	982	201	69	90	438	115	61
43.	Engines and turbines	877	41	24	22	81	6	12	17	16	12
44.	Farm machinery and equipment	253	38	26	35	15	8	19	11	27	18
45.	Construction, mining and oil field machinery	325	68	42	37	23	7	10	74	23	9
46.	Materials handling machinery and equipment	217	15	10	12	25	2	3	12	9	3
47.	Metalworking machinery and equipment	591	872	331	183	89	25	39	52	39	21
48.	Special industry machinery and equipment	81	127	116	85	15	8	14	15	26	14
49.	General industrial machinery and equipment	1,046	444	79	135	75	15	21	56	40	16
50.	Machine shop products	752	966	164	355	117	22	33	40	67	28
51.	Office, computing and accounting machines	36	537	96	140	31	25	59	40	72	63
52.	Service industry machines	102	63	15	22	11	5	11	8	20	9
53.	Electric industrial equipment and apparatus	1,731	1,731	657	350	109	51	78	88	46	24
54.	Household appliances	199	52	12	80	13	7	11	11	18	8
55.	Electric lighting and wiring equipment	296	306	258	221	59	33	44	47	33	17
56.	Radio, television and communication equipment	202	887	357	227	84	824	1,530	42	87	48
57.	Electronic components and accessories	172	1,990	205	225	90	322	547	35	54	32
58.	Miscellaneous electrical machinery and equipment	132	102	169	49	125	27	12	16	40	16
59.	Motor vehicles and equipment	406	402	49	79	172	15	20	39	99	32
60.	Aircraft and parts	143	398	25	39	190	9	17	11	24	9
61.	Other transportation equipment	45,892	121	60	139	453	32	21	36	25	41
62.	Scientific and controlling instruments	203	41,891	768	122	72	20	35	19	44	18
63.	Optical, ophthalmic and photographic equipment	36	283	41,918	41	20	20	82	16	52	40
64.	Miscellaneous manufacturing	248	404	208	46,857	144	116	532	86	155	181
65.	Transportation and warehousing	3,040	2,297	2,162	2,650	52,493	516	1,111	2,096	1,149	1,495
66.	Communications; except broadcasting	359	396	357	456	556	33,552	1,744	246	579	918
67.	Radio and television broadcasting	87	100	213	129	83	68	38,862	70	179	175
68.	Electric, gas, water and sanitary services	519	319	315	408	271	176	212	16,876	515	224
69.	Wholesale and retail trade	5,755	5,276	4,269	6,355	3,140	931	1,548	2,044	116,010	1,656
70.	Finance and insurance	1,368	1,215	1,269	1,681	2,344	700	1,630	1,126	1,857	82,724
71.	Real estate and rental	197	224	241	282	386	178	586	225	523	864
72.	Hotels; personal and repair services, except auto	884	1,096	748	931	289	217	726	265	902	598
73.	Business services	2,180	2,490	5,324	3,218	2,052	1,704	4,419	1,733	4,460	4,362
74.	Research and development	53	27	144	37	10	4	7	6	5	5
75.	Automobile repair and services	396	264	293	431	2,072	215	250	325	925	517
76.	Amusements	138	173	216	172	193	112	24,219	80	315	230
77.	Medical, educational and nonprofit organizations	360	329	285	343	247	183	280	229	244	1,054
78.	Federal Government enterprises	536	547	742	704	502	633	501	2,490	1,538	2,054
79.	State and local government enterprises	397	268	259	338	1,460	139	186	8,444	544	386
80.	Gross imports of goods and services										
81.	Business travel, entertainment and gifts										
82.	Office supplies										
	TOTAL	91,767	81,410	75,348	89,890	75,989	45,745	85,764	46,150	137,074	104,377

See footnotes at end of table.

TABLE A-3. TOTAL EMPLOYMENT (PRIMARY AND INDIRECT)[1/] PER BILLION DOLLARS OF DELIVERY TO FINAL DEMAND, 1970[2/]--Continued
(Producers' value,[3/] 1958 prices)

Industry number and title	Real estate and rental	Hotels; personal and repair services, except auto	Business services	Research and development	Automobile repair and services	Amusements	Medical, educational and nonprofit organizations	Federal Government enterprises	State and local government enterprises	Business travel, entertainment, and gifts	Office supplies
	71	72	73	74	75	76	77	78	79	81	82
1. Livestock and livestock products	951	284	263	303	193	415	453	1,493	108	6,662	371
2. Other agricultural products	1,747	474	317	345	277	387	485	1,145	151	5,944	558
3. Forestry and fishery products	26	41	46	30	27	22	30	41	48	257	273
4. Agricultural, forestry and fishery services	166	56	43	43	49	133	58	143	38	681	75
5. Iron and ferroalloy ores mining	7	10	8	6	36	4	6	11	13	13	20
6. Nonferrous metal ores mining	14	27	19	10	59	10	13	10	26	24	55
7. Coal mining	38	77	110	30	160	36	57	454	715	77	159
8. Crude petroleum and natural gas	53	76	45	20	56	24	42	59	130	108	70
9. Stone and clay mining and quarrying	56	43	28	17	66	23	30	37	112	52	115
10. Chemical and fertilizer mineral mining	6	17	11	10	15	4	5	6	11	17	51
11. New construction											
12. Maintenance and repair construction	5,166	797	744	342	1,440	1,993	2,187	1,028	13,085	1,738	868
13. Ordnance and accessories	1	3	2	1	2	1	3	1	1	7	3
14. Food and kindred products	125	224	228	293	143	203	420	1,716	87	7,487	334
15. Tobacco manufactures	1	5	5	8	3	6	6	3	2	238	6
16. Broad and narrow fabrics, yarn and thread mills	45	960	113	258	266	85	126	55	43	241	426
17. Miscellaneous textile goods and floor coverings	14	122	56	173	183	39	52	21	27	59	142
18. Apparel	41	612	41	90	64	18	145	18	35	198	81
19. Miscellaneous fabricated textile products	17	554	76	250	207	74	96	51	14	141	93
20. Lumber and wood products, except containers	210	265	370	188	202	149	187	158	430	273	2,461
21. Wooden containers	13	16	11	9	17	7	9	21	8	79	34
22. Household furniture	6	69	12	10	16	4	8	4	6	31	19
23. Other furniture and fixtures	7	24	9	6	10	5	8	3	14	9	31
24. Paper and allied products, except containers	149	728	1,729	669	344	284	487	534	268	533	12,512
25. Paperboard containers and boxes	44	229	191	221	178	81	158	164	59	376	905
26. Printing and publishing	621	931	13,170	897	950	1,334	1,832	1,328	860	989	36,805
27. Chemicals and selected chemical products	155	506	280	249	400	103	241	136	306	418	1,189
28. Plastics and synthetic materials	51	229	113	277	394	60	87	59	88	160	530
29. Drugs, cleaning, and toilet preparations	22	339	47	239	60	20	679	20	30	204	63
30. Paints and allied products	66	28	20	15	213	29	33	25	154	50	58

31. Petroleum refining and related industries	69	115	64	31	73	31	54	86	114	187	103
32. Rubber and miscellaneous plastics products	116	526	345	1,575	2,000	136	284	211	197	479	1,240
33. Leather tanning and industrial leather products	2	14	7	7	7	23	4	4	2	36	47
34. Footwear and other leather products	13	94	30	33	24	249	31	30	8	425	130
35. Glass and glass products	41	114	46	63	773	32	91	74	73	270	133
36. Stone and clay products	165	298	88	52	431	77	97	197	373	166	236
37. Primary iron and steel manufacturing	176	286	223	162	1,198	114	161	172	425	409	538
38. Primary nonferrous metals manufacturing	97	215	156	80	508	87	102	78	216	198	444
39. Metal containers	13	27	14	20	26	10	39	55	18	233	32
40. Heating, plumbing and structural metal products	179	55	42	43	93	71	81	45	435	87	55
41. Stampings, screw machine products and bolts	43	167	103	60	544	42	106	67	85	191	245
42. Other fabricated metal products	72	279	149	102	1,138	66	106	139	343	254	647
43. Engines and turbines	10	14	122	19	41	11	11	21	12	42	17
44. Farm machinery and equipment	21	17	225	18	30	18	16	15	11	43	23
45. Construction, mining and oil field machinery	19	17	48	11	38	10	12	27	53	21	29
46. Materials handling machinery and equipment	8	5	5	5	12	3	4	9	13	14	11
47. Metalworking machinery and equipment	48	66	98	116	273	22	39	40	48	85	109
48. Special industry machinery and equipment	17	37	54	21	39	11	21	13	18	27	179
49. General industrial machinery and equipment	31	48	61	33	151	17	27	30	52	63	82
50. Machine shop products	39	73	75	42	1,551	24	43	74	66	97	126
51. Office, computing and accounting machines	32	54	749	45	47	55	54	28	27	45	256
52. Service industry machines	15	106	100	81	24	10	10	6	15	28	14
53. Electric industrial equipment and apparatus	45	160	90	56	166	33	60	40	90	115	132
54. Household appliances	20	326	18	17	16	11	13	7	30	171	22
55. Electric lighting and wiring equipment	42	83	38	21	337	24	31	30	98	65	94
56. Radio, television and communication equipment	38	132	177	40	134	41	84	36	45	431	104
57. Electronic components and accessories	38	1,083	131	30	99	30	73	31	32	326	93
58. Miscellaneous electrical machinery and equipment	14	38	31	10	755	10	34	45	27	72	27
59. Motor vehicles and equipment	29	67	54	21	3,198	15	33	129	82	109	45
60. Aircraft and parts	10	15	22	12	23	7	14	40	10	89	41
61. Other transportation equipment	20	62	62	509	99	28	61	96	29	207	59
62. Scientific and controlling instruments	25	374	40	27	203	20	636	24	32	167	64
63. Optical, ophthalmic and photographic equipment	22	407	405	34	33	267	172	22	20	161	495
64. Miscellaneous manufacturing	73	1,137	700	531	133	1,005	188	108	131	582	7,533
65. Transportation and warehousing	833	1,496	1,634	1,359	1,827	1,096	1,296	10,307	1,668	22,227	3,044
66. Communications; except broadcasting	262	402	1,369	293	521	440	488	305	335	451	621
67. Radio and television broadcasting	96	134	2,552	144	130	173	128	80	74	120	162
68. Electric, gas, water and sanitary services	172	566	392	107	643	277	485	502	1,716	353	561
69. Wholesale and retail trade	2,104	4,285	2,728	2,387	7,510	1,936	2,358	2,413	2,462	7,409	4,393
70. Finance and insurance	3,106	2,068	1,838	1,223	3,052	2,909	1,583	880	1,290	1,950	1,626
71. Real estate and rental	8,024	514	497	262	481	608	652	219	226	379	366
72. Hotels; personal and repair services, except auto	771	152,615	1,333	847	475	614	1,356	365	465	21,036	954
73. Business services	2,176	3,337	63,791	3,602	3,229	4,299	3,181	2,001	1,856	2,996	4,032
74. Research and development	5	15	12	80,885	28	4	165	35	8	17	34
75. Automobile repair and services	297	1,057	654	150	70,534	153	360	1,284	277	1,300	410
76. Amusements	284	163	1,832	1,348	152	137,245	630	117	83	2,398	203
77. Medical, educational and nonprofit organizations	185	280	184	246	332	284	146,361	130	113	1,171	342
78. Federal Government enterprises	741	533	3,465	324	637	493	475	126,281	545	567	1,067
79. State and local government enterprises	517	459	303	117	584	227	353	543	55,646	797	440
80. Gross imports of goods and services											
81. Business travel, entertainment and gifts											
82. Office supplies											
TOTAL	30,992	182,176	105,259	102,231	110,382	158,921	170,611	156,233	86,869	96,130	89,966

1/ Primary employment is employment required in the industry producing the product or service. This includes not only the employment initially required by this industry but any indirect employment effect from its supporting industries requirements. Indirect employment covers employment in each of the supporting industries. Employment covers wage and salary employees, self-employed and unpaid family workers.

Employment is not generated by the following industries because they do not purchase goods and services from other industries: Gross imports of goods and services (80); Scrap, used and second-hand goods (83); Rest of the world (85); Household (86); and Inventory valuation adjustment (87). There is no employment in Business travel, entertainment and gifts (81); and Office supplies (82) which are dummy sectors and serve in an input-output framework as a central distributing mechanism for items produced by various industries but with a similar distribution pattern.

2/ The figures in each column show total employment directly and indirectly attributable to $1 billion of delivery to final demand by the industry named at the top. Employment shown does not include any multiplier effects from respending of income generated.

3/ Valuation of final demand is at the site of production and excludes cost of transporting and handling necessary to bring the item to the final user.

Table A-4. Wage and Salary Employment, by ISP Industry, Selected Years and Projected 1970
(In thousands)

Industry number and title	Selected years					Projected 1970			
	1958	1962	1963	1964	1965	3 percent unemployment	4 percent unemployment		
						Basic model	Basic model	High durables	High services
Total	59,762	63,398	64,208	65,600	67,621	75,823	74,673	74,673	74,673
1,2 Agriculture[1/]	5,844	5,190	4,946	4,761	4,585	4,080	4,080	4,080	4,080
3 Forestry and fishery products	61	61	63	66	68	69	68	69	67
4 Agricultural,forestry,and fishery services	118	121	126	132	136	143	143	142	143
5 Iron and ferroalloy ores mining	37	27	27	27	28	29	29	30	28
6 Nonferrous metal ores mining	56	55	53	52	55	51	51	52	50
7 Coal mining	215	152	149	148	142	124	122	122	122
8 Crude petroleum and natural gas	328	298	289	289	282	240	238	238	239
9,10 Nonmetallic mining and quarrying	115	118	117	117	120	142	140	142	139
11,12 Construction	2,777	2,902	2,963	3,056	3,211	3,700	3,663	3,753	3,535
13 Ordnance and accessories	145	269	266	247	236	235	235	236	234
14 Food and kindred products	1,773	1,762	1,752	1,746	1,738	1,693	1,683	1,664	1,673
15 Tobacco manufactures	95	90	89	89	84	81	80	79	80
16 Broad and narrow fabrics,yarn and thread mills	608	578	568	570	578	564	557	560	557
17 Miscellaneous textile goods and floor coverings	104	104	104	106	110	100	98	103	98
18 Apparel	1,256	1,337	1,346	1,363	1,419	1,514	1,494	1,487	1,495
19 Miscellaneous fabricated textile products	126	146	150	154	161	178	175	177	176
20,21 Lumber and wood products	615	590	593	603	606	578	571	583	558
22 Household furniture	260	275	279	293	311	360	356	384	354
23 Other furniture and fixtures	100	110	110	113	118	151	149	158	144
24 Paper and allied products,except containers	399	428	429	431	435	496	490	493	489
25 Paperboard containers and boxes	165	187	190	194	202	229	226	229	226
26 Printing and publishing	873	926	931	950	977	1,128	1,114	1,117	1,116
27 Chemicals and selected chemical products	401	414	408	409	419	425	421	424	419
28 Plastics and synthetic materials	143	165	175	183	199	224	221	226	219
29 Drugs,cleaning,and toilet preparations	189	207	219	221	219	237	233	231	236
30 Paints and allied products	61	63	63	64	65	65	64	65	59
31 Petroleum refining and related industries	224	195	189	183	178	167	164	164	165
32 Rubber and miscellaneous plastics products	344	408	418	434	464	503	497	512	494
33 Leather tanning and industrial leather products	41	36	34	35	35	33	32	33	32
34 Footwear and other leather products	318	325	315	314	319	329	323	323	323
35 Glass and glass products	142	158	160	162	167	180	177	182	177
36 Stone and clay products	421	435	441	450	454	477	473	483	462
37 Primary iron and steel manufacturing	846	840	844	898	934	939	930	965	909
38 Primary nonferrous metals manufacturing	307	326	329	333	362	388	385	398	378
39 Metal containers	70	70	72	73	73	76	75	75	75
40 Heating,plumbing,and structural metal products	421	407	416	435	456	512	509	524	495
41 Stampings,screw machine products,and bolts	249	278	283	288	313	348	345	360	339
42 Other fabricated metal products	336	373	379	392	419	470	465	481	458
43 Engines and turbines	90	84	85	87	90	90	89	93	88
44 Farm machinery and equipment	113	112	120	126	135	146	144	151	138
45 Construction,mining,and oil field machinery	145	149	152	163	172	203	201	209	194

See footnotes at end of table.

Table A-4. Wage and Salary Employment, by ISP Industry and Selected Years and Projected 1970--Continued
(In thousands)

Industry number and title		Selected years					Projected 1970			
		1958	1962	1963	1964	1965	3 percent unemployment	4 percent unemployment		
							Basic model	Basic model	High durables	High services
46	Materials handling machinery and equipment	61	62	66	72	77	80	79	83	78
47	Metalworking machinery and equipment	231	259	267	281	299	336	333	346	323
48	Special industry machinery and equipment	161	171	172	181	190	217	214	225	206
49	General industrial machinery and equipment	204	229	234	243	258	277	274	286	265
50	Machine-shop products	136	167	169	172	184	211	209	215	208
51	Office,computing,and accounting machines	133	159	163	175	197	238	234	263	230
52	Service industry machines	90	101	102	106	111	110	109	115	105
53	Electrical industrial equipment and apparatus	304	350	339	340	365	395	392	410	378
54	Household appliances	148	150	156	161	167	182	179	192	179
55	Electric lighting and wiring equipment	121	143	150	156	167	191	188	195	185
56	Radio,television,and communication equipment	400	555	549	532	568	530	523	548	516
57	Electronic components and accessories	179	266	262	265	304	325	322	333	318
58	Miscellaneous electrical machinery and equipment	97	103	99	94	101	113	112	117	112
59	Motor vehicles and equipment	603	692	741	755	850	788	777	825	762
60	Aircraft and parts	784	634	639	604	617	550	550	546	545
61	Other transportation equipment	217	217	229	246	272	322	318	334	309
62	Scientific and controlling instruments	221	246	250	250	258	277	274	281	271
63	Optical,ophthalmic,and photographic equipment	103	112	115	119	127	140	138	142	138
64	Miscellaneous manufacturing	369	390	387	398	424	461	455	469	453
65	Transportation and warehousing	2,506	2,472	2,470	2,486	2,530	2,600	2,573	2,580	2,563
66	Communications;except broadcasting	773	729	725	745	773	740	730	716	733
67	Radio and television broadcasting	87	95	99	103	108	121	119	119	119
68	Electric,gas,water,and sanitary services	610	610	610	614	620	645	638	626	645
69	Wholesale and retail trade	10,750	11,566	11,778	12,132	12,588	14,195	14,037	14,237	13,898
70	Finance and insurance	2,013	2,270	2,334	2,406	2,468	2,864	2,828	2,704	2,833
71	Real estate and rental	492	518	543	558	574	650	631	597	632
72	Hotels;personal and repair services,except auto	1,672	1,787	1,804	1,878	1,951	2,168	2,119	2,011	2,121
73,74	Business services and research and development	1,127	1,532	1,597	1,664	1,730	2,258	2,233	2,230	2,226
75	Automobile repair and services	257	321	288	302	314	360	354	339	354
76	Amusements	542	583	591	615	639	750	741	698	744
77	Medical,educational and nonprofit organizations	3,051	3,554	3,757	3,912	4,065	5,349	5,268	4,908	5,600
78	Government enterprises, Federal	See NOTE.								
79	Government enterprises, State and local	See NOTE.								
84	Government, total	7,839	8,890	9,225	9,595	10,046	12,683	12,262	12,236	12,411
	Federal	2,191	2,340	2,358	2,348	2,379	2,524	2,510	2,497	2,510
	State and local	5,648	6,550	6,868	7,248	7,667	10,159	9,752	9,739	9,901
86	Private households	2,550	2,694	2,656	2,683	2,604	3,000	2,950	2,950	2,950

1/ Agricultural employment includes self-employed and unpaid family workers, as well as wage and salary employees.

NOTE: ISP=interindustry sales and purchases. ISP 78 and 79 are included in ISP 84.

Because of rounding, sums of individual items may not equal totals.

Table A-5. Wage and Salary Employment, by ISP Industry, Selected Years and Projected 1970
(Percent distribution)

Industry number and title		Selected years					Projected 1970			
		1958	1962	1963	1964	1965	3 percent unemployment	4 percent unemployment		
							Basic model	Basic model	High durables	High services
Total		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1,2	Agriculture[1/]	9.78	8.19	7.70	7.26	6.78	5.38	5.46	5.46	5.46
3	Forestry and fishery products	.10	.10	.10	.10	.10	.09	.09	.09	.09
4	Agricultural,forestry,and fishery services	.20	.19	.20	.20	.20	.19	.19	.19	.19
5	Iron and ferroalloy ores mining	.06	.04	.04	.04	.04	.04	.04	.04	.04
6	Nonferrous metal ores mining	.09	.09	.08	.08	.08	.07	.07	.07	.07
7	Coal mining	.36	.24	.23	.23	.21	.16	.16	.16	.16
8	Crude petroleum and natural gas	.55	.47	.45	.44	.42	.32	.32	.32	.32
9,10	Nonmetallic mining and quarrying	.19	.19	.18	.18	.18	.19	.19	.19	.19
11,12	Construction	4.65	4.58	4.61	4.66	4.75	4.88	4.91	5.03	4.73
13	Ordnance and accessories	.24	.42	.41	.38	.35	.31	.31	.32	.31
14	Food and kindred products	2.97	2.78	2.73	2.66	2.57	2.23	2.25	2.23	2.24
15	Tobacco manufactures	.16	.14	.14	.14	.12	.11	.11	.11	.11
16	Broad and narrow fabrics,yarn and thread mills	1.02	.91	.88	.87	.85	.74	.75	.75	.75
17	Miscellaneous textile goods and floor coverings	.17	.16	.16	.16	.16	.13	.13	.14	.13
18	Apparel	2.10	2.11	2.10	2.08	2.10	2.00	2.00	1.99	2.00
19	Miscellaneous fabricated textile products	.21	.23	.23	.23	.24	.23	.23	.24	.24
20,21	Lumber and wood products	1.03	.93	.92	.92	.90	.76	.76	.78	.75
22	Household furniture	.44	.43	.43	.45	.46	.47	.48	.51	.47
23	Other furniture and fixtures	.17	.17	.17	.17	.17	.20	.20	.21	.19
24	Paper and allied products,except containers	.67	.68	.67	.66	.64	.65	.66	.66	.65
25	Paperboard containers and boxes	.28	.30	.30	.30	.30	.30	.30	.31	.30
26	Printing and publishing	1.46	1.46	1.45	1.45	1.44	1.49	1.49	1.50	1.49
27	Chemicals and selected chemical products	.67	.65	.64	.62	.62	.56	.56	.57	.56
28	Plastics and synthetic materials	.24	.26	.27	.28	.29	.30	.30	.30	.29
29	Drugs,cleaning,and toilet preparations	.32	.33	.34	.34	.32	.31	.31	.31	.32
30	Paints and allied products	.10	.10	.10	.10	.10	.09	.09	.09	.08
31	Petroleum refining and related industries	.37	.31	.29	.28	.26	.22	.22	.22	.22
32	Rubber and miscellaneous plastics products	.58	.64	.65	.66	.69	.66	.67	.69	.66
33	Leather tanning and industrial leather products	.07	.06	.05	.05	.05	.04	.04	.04	.04
34	Footwear and other leather products	.53	.51	.49	.48	.47	.43	.43	.43	.43
35	Glass and glass products	.24	.25	.25	.25	.25	.24	.24	.24	.24
36	Stone and clay products	.70	.69	.69	.69	.67	.63	.63	.65	.62
37	Primary iron and steel manufacturing	1.42	1.32	1.31	1.37	1.38	1.24	1.25	1.29	1.22
38	Primary nonferrous metals manufacturing	.51	.51	.51	.51	.54	.51	.52	.53	.51
39	Metal containers	.12	.11	.11	.11	.11	.10	.10	.10	.10
40	Heating,plumbing,and structural metal products	.70	.64	.65	.66	.67	.68	.68	.70	.66
41	Stampings,screw machine products and bolts	.42	.44	.44	.44	.46	.46	.46	.48	.45
42	Other fabricated metal products	.56	.59	.59	.60	.62	.62	.62	.64	.61
43	Engines and turbines	.15	.13	.13	.13	.13	.12	.12	.12	.12
44	Farm machinery and equipment	.19	.18	.19	.19	.20	.19	.19	.20	.18
45	Construction,mining,and oil field machinery	.24	.24	.24	.25	.25	.27	.27	.28	.26

See footnotes at end of table.

Table A-5. Wage and Salary Employment, by ISP Industry, Selected Years and Projected 1970--Continued
(Percent distribution)

Industry number and title	Selected years					Projected 1970			
						3 percent unemployment	4 percent unemployment		
	1958	1962	1963	1964	1965	Basic model	Basic model	High durables	High services
46 Materials handling machinery and equipment	.10	.10	.10	.11	.11	.11	.11	.11	.11
47 Metalworking machinery and equipment	.39	.41	.42	.43	.44	.44	.45	.46	.43
48 Special industry machinery and equipment	.27	.27	.27	.28	.28	.29	.29	.30	.28
49 General industrial machinery and equipment	.34	.36	.36	.37	.38	.37	.37	.38	.35
50 Machine-shop products	.23	.26	.26	.26	.27	.28	.28	.29	.28
51 Office,computing,and accounting machines	.22	.25	.25	.27	.29	.31	.31	.35	.31
52 Service industry machines	.15	.16	.16	.16	.16	.15	.15	.15	.14
53 Electric industrial equipment and apparatus	.51	.55	.53	.52	.54	.52	.52	.55	.51
54 Household appliances	.25	.24	.24	.25	.25	.24	.24	.26	.24
55 Electric lighting and wiring equipment	.20	.23	.23	.24	.25	.25	.25	.26	.25
56 Radio,television,and communication equipment	.67	.88	.86	.81	.84	.70	.70	.73	.69
57 Electronic components and accessories	.30	.42	.41	.40	.45	.43	.43	.45	.43
58 Miscellaneous electrical machinery and equipment	.16	.16	.15	.14	.15	.15	.15	.16	.15
59 Motor vehicles and equipment	1.01	1.09	1.15	1.15	1.26	1.04	1.04	1.10	1.02
60 Aircraft and parts	1.31	1.00	1.00	.92	.91	.73	.74	.73	.73
61 Other transportation equipment	.36	.34	.36	.38	.40	.42	.43	.45	.41
62 Scientific and controlling equipment	.37	.39	.39	.38	.38	.37	.37	.38	.36
63 Optical,ophthalmic,and photographic equipment	.17	.18	.18	.18	.19	.18	.18	.19	.18
64 Miscellaneous manufacturing	.62	.62	.60	.61	.63	.61	.61	.63	.61
65 Transportation and warehousing	4.19	3.90	3.85	3.79	3.74	3.43	3.45	3.46	3.43
66 Communications;except broadcasting	1.29	1.15	1.13	1.14	1.14	.98	.98	.96	.98
67 Radio and television broadcasting	.15	.15	.15	.16	.16	.16	.16	.16	.16
68 Electric,gas,water and sanitary services	1.02	.96	.95	.94	.92	.85	.85	.84	.86
69 Wholesale and retail trade	17.99	18.24	18.34	18.49	18.61	18.72	18.80	19.07	18.61
70 Finance and insurance	3.37	3.58	3.64	3.67	3.65	3.78	3.79	3.62	3.79
71 Real estate and rental	.82	.82	.85	.85	.85	.86	.85	.80	.85
72 Hotels;personal and repair services,except auto	2.80	2.82	2.81	2.86	2.89	2.86	2.84	2.69	2.84
73,74 Business services and research and development	1.89	2.42	2.49	2.54	2.56	2.98	2.99	2.99	2.98
75 Automobile repair and services	.43	.51	.45	.46	.46	.47	.47	.45	.47
76 Amusements	.91	.92	.92	.94	.94	.99	.99	.93	1.00
77 Medical,educational and nonprofit organizations	5.11	5.61	5.85	5.96	6.01	7.05	7.05	6.57	7.50
78 Government enterprises, Federal	See NOTE.								
79 Government enterprises, State and local	See NOTE.								
84 Government, total	13.12	14.02	14.37	14.63	14.86	16.73	16.42	16.39	16.62
Federal	3.67	3.69	3.67	3.58	3.52	3.33	3.36	3.34	3.36
State and local	9.45	10.33	10.70	11.05	11.34	13.40	13.06	13.04	13.26
86 Private households	4.27	4.25	4.14	4.09	3.85	3.96	3.95	3.95	3.95

1/ Agricultural employment includes self-employed and unpaid family workers, as well as wage and salary employees.

NOTE: ISP=interindustry sales and purchases. ISP 78 and 79 are included in ISP 84.

Because of rounding, sums of individual items may not equal totals.

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