

CHAPTER 1

Free Markets, Stability, and Economic Growth

THE FOUR DECADES SINCE WORLD WAR II stand out as a period of remarkable growth for the developed market economies. More people in more countries increased their standard of living than in any other era. Real gross national product (GNP) per capita in each of the major industrialized nations has grown significantly faster since 1948 than before World War II. This success is based in part on reliance by the United States and the other nations on private incentives and free markets, with governments attempting to provide both a stable macroeconomic framework and a stable world political environment. The result has been strong economic growth and large improvements in social conditions for the United States and other nations.

In the United States real income per capita and real reproducible tangible wealth per capita more than doubled between 1948 and 1987. These gains were widespread, with real family income more than doubling for both those at the highest and the lowest fifth of the income distribution. The poverty rate dropped from 30.2 percent in 1950 to 13.5 percent in 1987 (8.5 percent if noncash benefits are included). Most of the drop occurred before the rapid rise in transfer programs. Life expectancy rose from 67 to 75 years. Increases in wealth, pensions, and insurance allowed more people to enjoy these extra years; the labor force participation rate of those 65 and over fell from 27.0 to 11.1 percent. The average workweek fell from 42.8 to 38.7 hours. The percentage of the population with private health insurance increased from 51 in 1950 to 77 in 1985. Most measures of environmental pollution also showed improvement; parts per metric ton of suspended particulates in the air fell from 24.5 million in 1950 to 7.3 million in 1985.

The current expansion represents a continuation—after the stagflation of the 1970s and early 1980s—of this extraordinary postwar record of sustained growth. During this recordbreaking peacetime expansion the trend toward higher unemployment and inflation that characterized stagflation has been reversed. (A discussion of the accomplishments of the current expansion appears in Chapter 7.) The

success of the current expansion rests upon a philosophy that has served the United States well in the past: the private sector is inherently stable and is the fundamental source of economic growth. Government's appropriate role is to foster the inherent dynamism of the private sector. It can do so by improving private incentives and providing a framework for economic and political stability, basic public infrastructure, and a social safety net and by promoting open and flexible markets.

As this chapter and this *Report* demonstrate, during the postwar era and throughout the 20th century, when government has confined itself to this role, strong increases in standards of living have been recorded. In contrast, when government has departed from its appropriate role, incentives have become distorted and the United States and other countries have recorded poorer economic performances.

The other chapters of this *Report* expand on these themes in various areas of policy that have contributed to the sustained growth during the postwar period. The chapters address the contributions of fiscal policy (Chapter 2), international trade and finance (Chapters 3 and 4), regulation (Chapter 5), and science and technology (Chapter 6) to the outstanding economic performance in the postwar period and especially in the 1980s.

Lessons from Past Policy: The Employment Act of 1946 arose out of the policy mistakes of the Great Depression. The act was amended in 1978 as a result of dissatisfaction with increasing unemployment and inflation. The act charges the Federal Government with promoting maximum employment, production, and purchasing power, with "maximum reliance on the resources and ingenuity of the private sector." How best to achieve these goals has been the central question that economic policymakers have addressed during the postwar period. Government can make, and has made, two major mistakes in promoting these goals. Policy can be so passive that it is procyclical, exacerbating cyclical downturns. By contrast, policy can be so active that it increases instability and uncertainty.

The Great Depression provides a critical example of the first mistake. Throughout the decline, the Federal Reserve failed to function as the supplier of liquidity. The money supply contracted along with the economy, contributing to the economic collapse: employment, production, and real incomes plummeted.

The 1970s provide an example of the second mistake, with policy misperceiving short-term events for lasting changes. Stop-go policies, which employed monetary and fiscal policy to react to the oil crisis and other transitory shocks, resulted in higher unemployment and higher inflation. High and variable inflation, interacting with the Tax Code, reduced incentives, productivity, and real income growth. De-

spite the positive aims of the policies, problems of information, lags, and uncertain response caused the stabilization policies to be destabilizing. Policy fell short of the goals of the Employment Act: unemployment rose while productivity growth and real family income stagnated.

Policy in this Administration: The goal of this Administration has been to reinvigorate the private sector by limiting the size of the Federal Government, improving incentives through tax cuts, improving market flexibility through deregulation, avoiding new structural rigidities, and encouraging noninflationary monetary policy. As a result the economy has rebounded from the stagflation of the 1970s. Inflation and unemployment are down and productivity and real family income are up. The social safety net has been maintained and reforms have been introduced to help the disadvantaged become self-sufficient and escape the dependency trap of poverty.

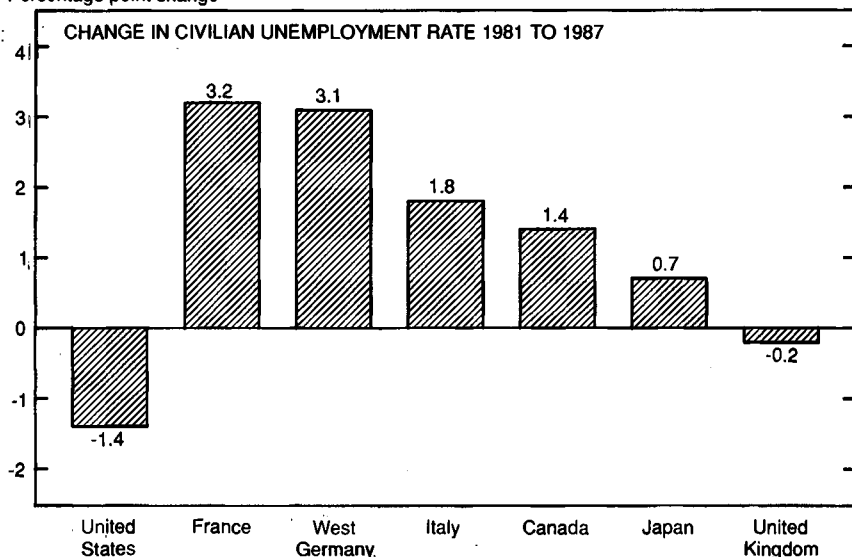
Economic performance during the current expansion is particularly impressive relative to that of the major U.S. trading partners, particularly the nations of Europe. These countries have also achieved lower inflation but have had little success in reducing unemployment, which traditionally has been much lower than U.S. unemployment (Chart 1-1). The United States in the 1980s has reestablished itself as the role model for economic policy and sparked a worldwide tax revolution, with all seven of the major industrialized nations (G-7) that have participated in the recent economic summits reducing their marginal tax rates.

Policy in the Future: It is said that the past is prologue. This chapter endeavors to identify the common threads that underlie the more, as well as the less, successful periods in 20th century U.S. economic history, paying particular attention to the postwar period and the critical role of stable policy, taxes, and inflation on private incentives, investment, productivity, and standards of living. It looks at the importance of free trade, highlighting the protectionist actions during the 1920s and early 1930s that contributed to the depression of 1933. The chapter looks at the postwar distribution of income, examining the relative contribution of economic growth to improvements in the standard of living. The discussion also identifies some groups whose postwar experiences have been somewhat better or somewhat worse than the average. The role of policy in this period is examined.

This review of U.S. economic history suggests that the more successful periods were grounded in a reliance on private markets, a commitment to free trade and the reduction of trade barriers, the development of institutions to provide stability in domestic and international financial markets, strong private investment supplemented by

Chart 1-1 Change in Unemployment Rates in the Seven Summit Countries

Percentage point change



Note.—Data for West Germany and Italy adjusted for discontinuities.
Source: Department of Labor.

government investments in basic infrastructure, and changes in tax laws and regulations to improve private incentives.

Looking to the future, the U.S. economy should continue to rely on the strength of private markets while promoting a framework for domestic and international stability. Work remains on achieving non-inflationary economic growth, lowering trade barriers, avoiding isolationism and protectionism, and improving incentives for business investment. The deregulatory effort should also move forward, and mandated benefits and other new laws and regulations that reduce market flexibility should be avoided. Finally, the budget deficit must be reduced by slowing Federal Government spending and focusing spending on investments in infrastructure and on providing basic public services.

THE PRE-WAR YEARS

The pre-war years offer two examples of the growth potential of private markets when provided with what, for early U.S. economic

history, could be described as relative stability. They also contain one strong example of the effect of instability in government policy.

The period from 1900 to 1913 was one of vigorous economic growth in the United States. Moderate growth in the supply of gold sustained expectations of long-term price and economic stability. Despite bank runs and financial "panics," which were recurring problems that plagued the U.S. economic system prior to World War II, money growth was adequate to support growth and trade without deflation. Strong growth in trade and abundant opportunities for expansion buoyed business expectations and encouraged investment. The United States enjoyed particularly robust growth, exploiting its natural resources, embarking on large private and public investments, obtaining advantages from trade and high rates of immigration, and achieving economies of scale from its large and growing market. Real GNP grew at a 3.9 percent annual rate and real GNP per capita grew at a 2.0 percent annual rate (Table 1-1), well above the long-term trend for the United States.

TABLE 1-1.—*Growth Rates in Real GNP/GDP, Selected Periods, 1900-88*

[Average annual percent per year]

Period	United States	Japan	West Germany ¹	United Kingdom	France	Italy	Canada
Real GNP/GDP							
1900 to 1913.....	3.9	2.5	3.0	1.5	1.7	2.8	5.5
1920 to 1929.....	4.3	3.4	4.9	1.9	4.9	3.0	4.0
1930 to 1938.....	.4	6.3	4.4	2.2	-1	2.3	.3
1948 to 1973.....	3.7	9.1	7.0	3.0	5.3	5.7	5.1
1973 to 1981.....	2.1	3.7	1.9	.7	2.6	2.6	3.8
1981 to 1988.....	3.0	3.8	1.8	2.9	1.8	2.3	3.1
1900 to 1938.....	2.3	3.5	2.4	1.3	1.1	2.0	2.8
1948 to 1988.....	3.3	7.1	5.0	2.6	4.1	4.4	4.5
1900 to 1988.....	3.1	4.2	2.9	1.8	2.4	2.9	4.0
Real GNP/GDP per capita							
1900 to 1913.....	2.0	1.2	1.6	0.7	1.5	2.2	2.6
1920 to 1929.....	2.7	2.0	4.2	1.4	4.3	2.1	2.2
1930 to 1938.....	-3	4.8	3.8	1.8	-2	1.5	-8
1948 to 1973.....	2.2	7.8	5.7	2.6	4.3	5.0	2.8
1973 to 1981.....	1.1	2.7	2.0	.7	2.1	2.2	2.5
1981 to 1988.....	2.0	3.2	1.9	2.7	1.3	2.0	2.2
1900 to 1938.....	.9	2.2	1.9	.9	.9	1.2	.8
1948 to 1988.....	1.9	5.9	4.2	2.2	3.3	3.9	2.7
1900 to 1988.....	1.7	3.0	2.7	1.5	2.0	2.2	2.1

¹ Pre-war estimates for West Germany are adjusted for territorial change.

Sources: 1988, estimates derived by Council of Economic Advisers; for the United States, 1900-87, Department of Commerce (Bureau of Economic Analysis); for other countries, 1900-50, A. Maddison, *Phases of Capitalist Development*, and 1950-87, unpublished data from Department of Labor (Bureau of Labor Statistics).

In 1913 U.S. capital per worker, GNP per capita, and productivity were higher than in the other major industrialized nations; average real output per person hour in the other six major industrialized nations of the world was 57 percent of U.S. productivity. Between 1900 and 1913 U.S. real GNP growth was higher than in the other major

industrialized nations except Canada, which shared the high investment rates and other attributes that benefited the United States (Table 1-1).

Improvements in economic conditions in the United States also had a large effect on social conditions. Higher real incomes were accompanied by better nutrition, better housing, better education, improved working conditions, increased numbers of health providers, and increased use of medical services for a large proportion of the population. Public health investments supplemented these improvements. Between 1900 and 1913 the death rate fell nearly 20 percent, from 17.2 to 13.8 per thousand. By 1986 the rate was down to 8.7 per thousand.

After a relatively severe recession following World War I, growth resumed in the 1920s. Money supply growth held at a relatively steady noninflationary rate—prices declined at a gradual 2.1 percent annual rate—and some observers have described the period as the high tide of the Federal Reserve System. Major reductions in tax rates improved private incentives and encouraged growth and investment during this period.

Between 1920 and 1929, the net stock of business capital increased more than 20 percent, while the net stock of government and institutional capital increased more than 50 percent. Real GNP grew at a 4.3 percent annual rate and real GNP per capita increased at a 2.7 percent annual rate, significantly above long-term trend growth for real GNP and GNP per capita. During this period death rates dropped another 8.5 percent, for a total drop of 31 percent since 1900.

Despite the relatively good domestic performance in the 1920s, problems began to arise on the international front. Britain's relative decline left a gap in trade and monetary policy that remained unfilled. The United States was reluctant to take over this role from the United Kingdom and entered a period of isolationism. With no clear worldwide framework replacing the pre-1914 arrangements, each nation pursued its narrow self-interest, particularly in the 1930s.

The Allies did little to aid the defeated central powers to recover from World War I. Their requirements for heavy war reparations contributed to hyperinflation in Germany.

Trade relations also suffered from isolationism during this period. In 1922 the Congress passed the Fordney-McCumber Act, raising already high tariff barriers. The tariff rate on dutiable imports rose from an average of 16.4 percent in 1920 to 44.7 percent by 1930. The Smoot-Hawley Act of 1930 raised tariffs even higher and ushered in an era characterized by beggar-thy-neighbor policies; by 1932 the tariff rate on dutiable imports reached 59.1 percent. Other coun-

tries retaliated and some moved toward autarky; still others formed rival trading blocs. Global protectionism sparked by U.S. actions contributed significantly to the severity of the Great Depression.

By 1931 the United Kingdom had abandoned the gold standard. During the rest of the decade other countries, including the United States, followed. Exchange rates were not permitted to fluctuate freely, nor were they fixed to gold or other commodities. Countries used devaluation and exchange-rate market intervention to improve their relative positions.

Paralleling and contributing to these failures in international economic policy were failures in domestic monetary and fiscal policy. Appropriate monetary policy could have reduced the severity of the Great Depression and shortened its duration. Instead, as the economy contracted, the Federal Reserve clung to a policy that resulted in a falling money supply. Money moved in a procyclical manner providing only sufficient liquidity for the much reduced needs of trade and doing little to stem the collapse of banks that further reduced the money supply and economic activity. Between 1929 and 1933 the money supply contracted by nearly one-third and prices dropped by one-fifth.

During the 1930s fiscal actions also erred, reacting to the temporary fall in revenues resulting from the contraction. In 1932, with unemployment at 23.6 percent, the Revenue Act of 1932 introduced the largest peacetime tax increase enacted up to that time in U.S. history.

The effect of these policies was staggering. Real investment plummeted and the net business capital stock declined by 9 percent between 1929 and 1933. Over the same period real GNP and real per capita GNP fell by more than 30 percent. Unemployment increased from 3.2 to 24.9 percent. Trade collapsed as real exports declined 46 percent and real imports by 35 percent.

Although the most important policy events of the Great Depression were protective tariffs and the failure of monetary policy, bank runs contributed to the severity and duration of the 1930's decline, as they had in several earlier periods. As a consequence, the Congress established institutions to mitigate the effect of recessions and reduce their severity. Among these were unemployment insurance and the Federal Deposit Insurance Corporation (FDIC) in 1933. The FDIC provided assurance that the Federal Government would guarantee a fixed amount of individuals' deposits. The insurance system later developed serious flaws and encouraged excessive risk-taking by banks. At the time, however, it provided a crude solution for bank failures that had characteristically occurred during recessions in the United States.

THE EARLY POSTWAR PERIOD: THE UNITED STATES TAKES THE LEAD IN TRADE, STABILITY, AND GROWTH

The 1950s and 1960s brought a period of stability, trade expansion, and economic growth that stands in marked contrast to the violently destabilizing policies and protectionism of the 1930s. The destruction in Europe and Japan during World War II left the United States as the clear political and economic leader of the world, with a higher capital stock and GNP per capita than the other major nations of the world. From this position of leadership, the United States worked toward a stable, free-market framework of domestic and international rules and institutions.

Between the postwar cyclical peaks of 1948 and 1973, real GNP in the United States grew at a 3.7 percent annual rate while in the other six summit nations it grew at an average 5.9 percent annual rate. Growth in the United States and other countries was strong relative to historical growth. The U.S. early postwar growth rate of 3.7 percent is significantly above both the long-term trend 1900-88 growth rate of 3.1 percent or the pre-war 1900-38 rate of 2.3 percent. Investment was strong and wealth per capita, as measured by the net stock of reproducible fixed capital in 1982 dollars, rose at a 2.4 percent annual rate. Productivity grew at a 2.9 percent annual rate and the civilian unemployment rate averaged 4.8 percent.

In contrast to the deflation of the interwar period, a moderate trend toward inflation appeared in the developed nations in the postwar period. In the United States the average annual rate of inflation as measured by the change in the GNP implicit price deflator between 1948 and 1973 was 3.0 percent.

SOURCES OF ECONOMIC GROWTH: 1948-73

A Large and Growing Capital Stock: World War II devastated the economies of Japan and Europe. Their capital stocks were greatly reduced as was their labor force. The United States, which had higher investment rates than other nations throughout most of the 1900s, had continued to invest and its capital stock continued to grow during the war, although at a reduced rate, and emerged from World War II with an even larger capital stock in absolute size and relative to other countries. By 1950 the U.S. gross stock of nonresidential capital per worker was larger than that of other major industrialized nations, and their average capital to labor ratio was less than one-half the U.S. capital to labor ratio (Table 1-2). Partly as a result, U.S. GDP per capita was also more than twice the average for the other six major industrial nations.

The United States was the world's technological leader. Its technology was generally the best-practice technology available. Produc-

TABLE 1-2.—*Real Capital Stock per Worker and GDP per Capita Relative to the United States, Selected Years, 1913–87*

[United States = 100]

Year	United States	Japan	West Germany ¹	United Kingdom	France	Italy	Canada
Real gross nonresidential fixed capital stock per worker							
1913.....	100.0	9.0	60.0	60.8	49.3	24.0	(²)
1950.....	100.0	15.5	50.8	49.8	56.0	33.3	88.1
1973.....	100.0	46.9	88.4	58.6	78.2	55.6	98.4
1984.....	100.0	90.0	111.0	65.0	101.0	(³)	(³)
Real gross domestic product per capita ⁴							
1913.....	100.0	23.4	59.5	85.4	62.4	50.0	81.3
1950.....	100.0	16.1	36.1	60.5	42.8	33.7	70.3
1973.....	100.0	59.2	68.3	66.2	66.9	61.3	84.1
1981.....	100.0	67.6	73.7	64.6	73.0	67.2	94.6
1987.....	100.0	71.8	72.6	67.0	69.8	66.8	94.8

¹ Pre-war estimates for West Germany are adjusted for territorial change.

² Not available.

³ Latest data available are for 1978: Italy, 63.1, and Canada, 104.8.

⁴ Based on purchasing power parity exchange rates.

Sources: Capital stock per worker: A. Maddison, *Phases of Capitalist Development* and "Growth and Slowdown in Advanced Capitalist Economies," *Journal of Economic Literature* (June 1987); GDP per capita: Department of Labor (Bureau of Labor Statistics).

tivity per man-hour of the other six major industrialized nations of the world averaged 43 percent of U.S. productivity in 1950. Before the war in 1938, the average productivity for the other nations had been 57 percent of U.S. productivity.

Improved transportation, lower tariffs, and U.S. economic aid and technological assistance through programs such as the Marshall Plan helped the war-ravaged nations to bridge the technology and productivity gap. With these changes, literate and trained labor forces, and U.S. assistance, the other nations were able to raise their productivity by increasing their rate of investment in new plant and equipment embodying U.S. technology. Although this investment did require the development of adaptive technologies to modify U.S. technologies to their own special needs, it was a much less expensive, less risky, and less time-consuming process than developing their own new technologies.

The availability of this U.S. technology in combination with low capital-labor ratios produced high returns to new capital investment abroad. Between 1950 and 1973 capital per man-hour by the next six largest industrialized nations grew over one and one-half times as fast as U.S. investment, and their productivity grew twice as fast. Prior to World War II, U.S. investment rates had been higher than those for most other industrial nations and U.S. productivity growth from 1900 to 1950 was roughly 50 percent higher than the average for the other major industrialized nations.

No parallel rapid acceleration occurred in U.S. productivity growth during the first 20 years of the postwar period. As the technological leader, U.S. productivity growth had been relatively steady during the

1900s. U.S. firms generally used best-practice technology and since there was no backlog of technology to exploit, increases in productivity were largely restricted to the rate of new technological innovation.

Relatively good rates of business investment between 1948 and 1973, however, resulted in the net stock of business fixed capital growing at a 3.9 percent annual rate and net capital per worker at a 2.4 percent rate. Faster growth occurred in the early part of the period and slower growth after 1966: net private capital per worker grew at a 2.5 percent annual rate between 1948 and 1966, and slowed to 2.1 percent between 1966 and 1973.

These increases in private business capital were supplemented by increased government investment in physical and human capital infrastructure. Work began on the Federal Interstate Highway System in 1956 and spending on it peaked in the mid-1960s. Between 1948 and 1973, the stock of educational structures also grew rapidly in response to the increase in the school-age population. Investments in sewer systems and water supply facilities responded to increasing urbanization, and investments in public airports responded to increased air travel. Between 1948 and 1973 the net stock of real nonmilitary government capital grew at a 4.0 percent annual rate, with investment peaking in the mid-1960s.

Paralleling these trends in investment, productivity grew at a 3.3 percent rate between 1948 and 1966 and at a 2.1 percent rate between 1966 and 1973. Over the entire period U.S. productivity rose at a solid 2.9 percent annual rate.

The United States also led in the first 25 postwar years in developing human capital. The Nation's educational attainment levels were above those of the other six summit nations, although the educational advantage of the United States over other nations appears to have been smaller than its productivity and technological advantage. Between 1948 and 1973 the percentage of the U.S. population over 17 years of age with high school degrees increased from 52.9 to 74.3 percent, with the largest increases occurring between 1948 and the mid-1960s.

Trade Policies: As part of its commitment to freer markets and more open trade, the United States pushed for rules under the General Agreement on Tariffs and Trade (GATT) to provide a framework for multinational negotiations and the gradual reduction of tariff barriers. At first, GATT was extremely successful because its members accounted for 80 percent of world trade. Tariff barriers in the major industrialized countries and the less developed countries fell dramatically. In the United States the average *ad valorem* tariff fell from an average rate of 59.1 percent on dutiable imports in 1932, after the disastrous Smoot-Hawley Act, to 13.1 percent in 1950, and dropped

further to 5.2 percent by 1987. (Chapter 4 discusses tariffs and international trade policy in more detail.)

The United States also did much to help other industrialized nations redevelop their economies and to help the less developed nations grow. In contrast to the reparations imposed following World War I, the United States, through the Marshall Plan, helped the European nations to increase production, restore internal financial stability, and achieve the benefits of scale economies and efficiencies that come from specialization and competition. Later the United States also supported the development of the European Community (Common Market) to continue the movement toward a larger and more efficient market in Europe.

During the postwar occupation the United States helped Japan to reorganize its government and redevelop its economy. Throughout the postwar period the United States also did much through direct aid and through various organizations to improve the position of the developing nations in Latin America, Africa, and in the Middle and Far East.

Accompanying these trade development policies were lower costs of transport and a faster flow of technological know-how from the United States to other nations. The result was an explosion of trade and growth.

Financial Stability: Paralleling the development of GATT and the reduction of tariff barriers was the development of a new monetary standard to facilitate exchange and financial stability. With the problems associated with the collapse of the gold standard on their minds, financial officials of the Allied Powers met at Bretton Woods, New Hampshire, in 1944 to plan the creation of the International Monetary Fund (IMF). They agreed on an international system of pegged but adjustable exchange rates that attempted to balance the need for stable fixed exchange rates with the desire to accord a higher priority to domestic stability.

Through the IMF, loans were made available to countries with temporary balance of payments problems. Surplus countries lent to deficit countries to avoid the need for contraction in deficit countries and the concomitant reduction in trade and demand for the rest of the world. Countries that chose to keep policy consistent with that of the United States could achieve both stable exchange rates and low inflation by pegging their currency to the U.S. dollar. Countries with persistent problems were expected to adjust their exchange rates.

In the early years of the system, good U.S. economic growth and moderate U.S. monetary growth allowed the U.S. dollar to serve as an international currency, providing a more stable payment system than in the interwar years to finance expanding trade opportunities.

Under the new dollar-gold exchange standard the United States maintained convertibility of the dollar at \$35 an ounce with other central banks. Other nations fixed their currencies to the dollar, thus providing international convertibility of major currencies by the late 1950s.

This system was not perfect but it worked well for a time. Flaws began to be evident in the 1960s. The system had no method for distinguishing between permanent and temporary balance of payments imbalances, and as a result could not prevent several “crises” with disruptive changes in currency values. More importantly, increases in U.S. monetary growth during the 1960s put pressure on other countries to buy dollars, increasing their own money supply, to prevent their exchange rates from appreciating. This spread inflation to other countries. Inflation and excessive monetary growth raised doubts about the U.S. ability to maintain convertibility. Other countries were reluctant to revalue their currencies upward against the dollar and used trade and capital controls to limit capital flows and reduce balance of payments pressures.

The Bretton Woods Agreement of exchange rates collapsed in 1971, and by 1973 had been replaced by the flexible exchange-rate system that exists today. The lesson from this experience is that a monetary system based on pegged but adjustable exchange rates cannot work without all participants following compatible policies to achieve common rates of inflation.

Relative Stability in Macroeconomic Policy: During this period the United States established policies dedicated to maintaining full employment and avoiding the procyclical swings in fiscal and monetary positions that had contributed to the severity of the previous business cycles. Although the period was not free from policy errors, from today’s perspective the result—whether intended or unintended—was relatively steady moderate growth in money until the mid-1960s, and fiscal integrity in taxes and spending.

Prior to the postwar period severe depressions had occurred in 1867, 1873, 1893, 1907, 1920, and 1929 according to the chronology developed by the National Bureau of Economic Research. Including recessions as well as depressions, the length of the average contraction between 1854 and 1945 was 21 months, with a contraction occurring on average once every 4 years. During the postwar period the length of the average contraction has been halved to 11 months with a contraction occurring on average once every 5 years.

Contractions have also become less severe. In contrast to the 25 percent unemployment rate in 1933, the highest unemployment rate during the postwar period has been 10.8 percent. The human costs associated with postwar unemployment were also lower than in earli-

er periods. Whereas in earlier periods the unemployed person was usually the head of the household, in the postwar period many of the unemployed were likely to be secondary wage earners or teenagers working part time. Also, in earlier periods no unemployment insurance system softened the impact of temporary layoffs.

Between 1900 and 1938 real GNP grew at a 2.3 percent annual rate and real GNP per capita grew at a 0.9 percent annual rate. Between 1948 and 1973, without the large losses associated with the depression, real GNP grew at a 3.7 percent annual rate, and, despite the baby boom, real GNP per capita grew at a 2.2 percent annual rate.

Part of the improvement in growth and reduction in cyclical instability was the result of the introduction of built-in stabilizers and other institutional changes, but a part was attributable to improvements in monetary policy. The Federal Reserve did not repeat the dramatic contraction of the money supply of the 1930s. Instead, policy tended to err in the opposite direction, producing inflation.

In the period during and immediately following World War II, the Federal Reserve tried to peg long-term Treasury bond rates so as to keep Treasury debt-service costs low. After an increase in inflation at the start of the Korean war the policy was abandoned in 1951. It was followed first by a period of controlling net free reserves, and later by a period of targeting short-term interest rates.

In the 1960s monetary policy shifted. The focus on interest rate control interacted with changes in aggregate demand to produce faster growth in the money supply and higher inflation. Growth in M2 (a measure of the money stock) increased from 5.3 percent between 1951 and 1960 to 8.1 percent between 1961 and 1973. Money growth also became more volatile, particularly in the latter half of the 1960s, and the variance of M2 growth increased from 1.6 percentage points in the 1950s to 6.7 percentage points between 1960 and 1973.

The Kennedy-Johnson Administrations responded to increased inflation by setting up an informal system of price and wage control. Guideposts attempted to put a lid on prices and hold wage increases to the average rate of productivity growth. The plan was based on the conjecture that inflation could be controlled by preventing certain sectors, such as steel, from setting the pace for large wage and price increases in other industries. The guideposts ultimately failed when increases in money and aggregate demand caused a broad-based increase in prices. The clear lesson was that inflation responds to maintained money growth, and control of prices and wages by means of jawboning is of little benefit.

The Administrations of the 1960s also introduced an era of increased emphasis on discretionary fiscal policy. Confidence in short-

term stabilizing fiscal mechanisms was high. Policymakers believed that more active use of short-run discretionary policies could have avoided, or significantly tamed, even the moderate cycles of the 1940s and 1950s. They intended to lower unemployment and raise real GNP growth without setting off higher inflation. An interim 4 percent unemployment target was set as the full employment rate that would not set off "demand-pull" inflation.

The first major discretionary fiscal move introduced explicitly to push the economy toward full employment was the Revenue Act of 1964. This act cut marginal tax rates from a high of 91 percent to 70 percent and lowered other rates as well. The act, along with Vietnam war spending and monetary stimulus, did indeed lower the unemployment rate, which dropped from 5.2 percent in 1964 to 3.5 percent in 1969.

These expansionary policies would have had a larger immediate effect on inflation had it not been for the fixed exchange-rate system. The Johnson Administration increased social spending and spending for the Vietnam war. From the viewpoint of many nations the United States was financing the Vietnam war with faster money growth. Under the Bretton Woods system, other countries were buying dollars and increasing their own money supplies to prevent their currencies from rising in value against the dollar. Many nations charged that the United States was exporting its inflation. (Chapter 3 discusses the breakdown of the Bretton Woods system in more detail.)

The initial effects of stimulative monetary and fiscal actions during the period were positive; the longer term negative consequences had yet to materialize. Along with the long expansion and low but rising inflation came a reduction in the magnitude and frequency of fluctuations, which was a significant spur to entrepreneurial expectations and investment plans. The threat of deflation appeared to be gone, replaced by a moderate upward drift in prices.

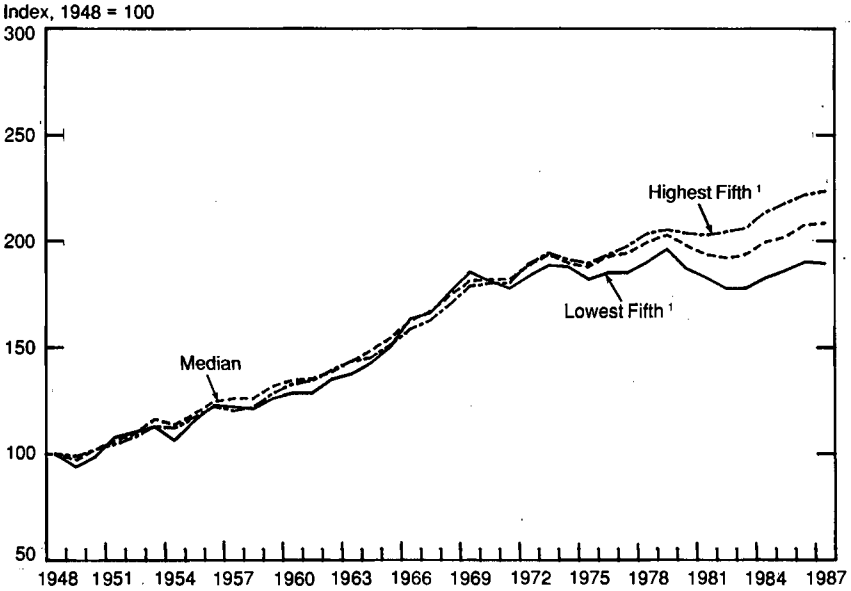
Buoyant business expectations and high real returns to new investments helped net nonresidential fixed investment to reach a postwar high in the mid-1960s, before inflation began to accelerate. Investment overseas grew even faster, as countries worked to increase their capital stock and to take advantage of U.S. technology embodied in new investments.

SOCIAL PERFORMANCE

Standards of living improved dramatically in the early postwar period. Between 1948 and 1973 real disposable income per capita grew at a 2.4 percent annual rate and real median family income grew at a 3.1 percent annual rate. These gains were evenly distributed, with real family income growing at a 2.9 percent annual rate for

families at the lowest fifth of the income distribution and at a 3.1 percent rate for those at the highest fifth (Chart 1-2).

Chart 1-2 Real Family Income Relative to 1948 Levels



¹The highest fifth refers to real family income at the 80th percentile while the lowest fifth refers to real family income at the 20th percentile.

Note.—Fixed-weighted price index for personal consumption expenditures used as deflator.

Source: Department of Commerce.

Among unrelated individuals, which include the elderly living alone, the same pattern was repeated, with all groups—with one exception—showing similar gains. The exception was that for unrelated individuals, the lowest fifth of the income distribution showed larger gains than other groups. Also, as a group, unrelated individuals did better than families, with their real median income growing at a 3.5 percent annual rate between 1948 and 1973.

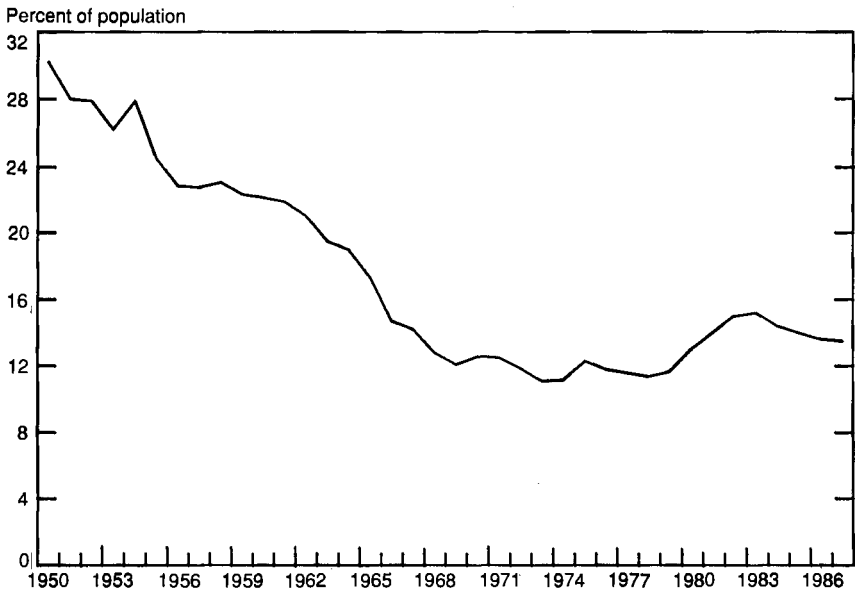
The poverty rate dropped from 30.2 percent in 1950 to 19.5 percent in 1963. Despite this progress, a feeling persisted that more needed to be done for the disadvantaged. Twenty-five years ago, in addressing the problem of poverty in America, the Council of Economic Advisers outlined a plan to eliminate poverty. The plan called for increased social insurance programs to support the elderly, disabled, and unemployed. For others, the plan emphasized the development of skills that would lead to self-sufficiency. Help for the non-aged and nondisabled poor was viewed as an investment in the

future, involving improvements in education, health, and community rehabilitation. The objective was to deal with the long-term causes rather than short-term symptoms of poverty, in hopes of bringing an end to the dole. The idea, according to President Kennedy, was “to give a hand, not a handout.”

The war on poverty began in 1964, but the largest dollar increases in real public aid expenditures came between 1966 and 1973. Real expenditures increased from \$14.4 billion in 1963 to \$22.3 billion in 1967, but rose to \$56.3 billion by 1973. Real spending for old-age, survivors, and disability insurance programs followed a similar pattern. Although the antipoverty programs clearly helped some groups, especially the elderly, their net effect is difficult to assess because the programs occurred during a period of low unemployment and relatively good growth in real income. Also, the largest declines in the poverty rate occurred before the largest increases in transfer expenditures. The poverty rate for persons fell from 30.2 percent in 1950 to 14.2 percent in 1967, but fell only another 3.1 percentage points, to 11.1 percent by 1973, with over half of the decline occurring between 1967 and 1968 (Chart 1-3). While changes in the composition of the population also affected the poverty rate in the late 1960s, the decline was disappointing in light of the large increase in antipoverty funding.

Chart 1-3

Poverty Rate, All Persons



Source: Department of Commerce.

THE SEVENTIES: INSTABILITY, INFLATION, AND STAGNATION

After more than 25 years of stability, growth, and low inflation following World War II, the U.S. economy ran into trouble in the late 1960s and 1970s. A series of shocks to the economy combined with destabilizing monetary and fiscal policies produced a period that has been characterized as stagflation: high, variable inflation and rising unemployment. Aggravating these problems were disincentives to private investment introduced by the tax system, increased regulation, and reductions in government investment.

The 1970s stand in stark contrast to the 1950s and 1960s. Between 1973 and 1981 the rate of inflation was nearly three times as high as between 1948 and 1973, averaging more than 8 percent and reaching 9.7 percent (four quarter change) at the business cycle peak in 1981. Until 1981 each successive peak exhibited higher inflation and higher unemployment. Higher inflation was not buying lower unemployment, and the unemployment rate reached 7.4 percent at the business cycle peak in 1981 (Chart 1-4). Productivity growth plunged to a scant 0.6 percent per year between 1973 and 1981. Manufacturing's productivity performance was better than overall productivity, but it, too, slowed to a 1.3 percent annual rate of increase.

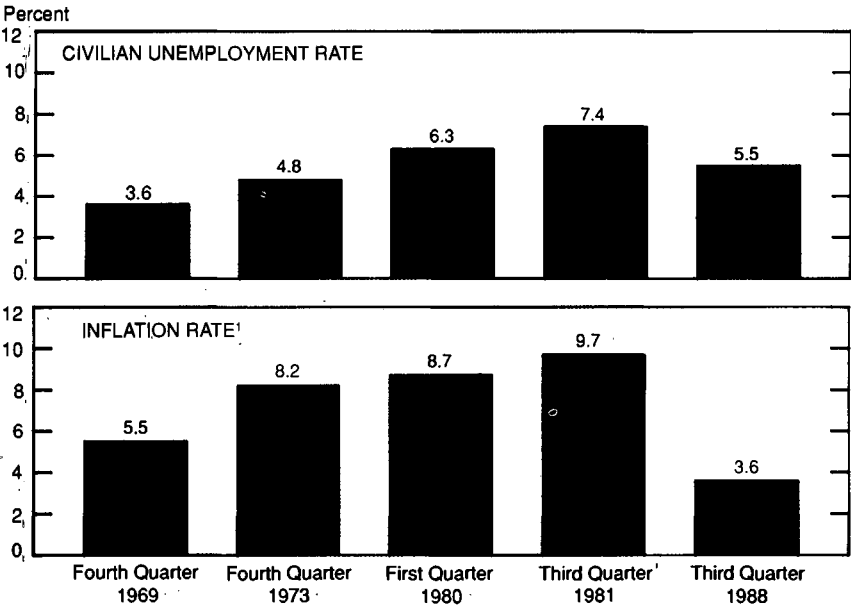
The net result was a stagnation in standards of living. Growth in real GNP per capita was cut to one-half the 1948-73 rate, to a 1.1 percent annual rate between 1973 and 1981. Real median family income showed no growth, despite the growth in the proportion of two-earner families. A real differential began to show up in the 1970s, however, with the lowest groups in the distribution of income faring the worst. The poverty rate increased from 11.1 in 1973 to 14.0 in 1981.

DESTABILIZING MACROECONOMIC POLICIES

The United States entered the 1970s with rising inflation, a recession, and the collapse of the exchange-rate system. These problems, inherited from the 1960s, were compounded by two supply-related changes in the 1970s: sharp increases in energy prices and rapid labor force growth that injected large numbers of inexperienced workers into labor markets.

Chart 1-4

Unemployment Rate and Inflation Rate at Business Cycle Peaks, and Current Rates



¹Four-quarter percent change in GNP implicit price deflator.
 Note.—Data are seasonally adjusted.
 Business cycle peaks as determined by National Bureau of Economic Research.
 Sources: Department of Commerce and Department of Labor, except as noted.

Exacerbating the effects of these exogenous factors were short-term policy responses. Prominent among these policy responses was the mismanagement of mounting inflation and the energy shocks. Instead of pursuing the medium-term goal of gradually reducing the growth rate of the money supply from the rapid pace of the 1960s, policymakers focused on successive short-term responses to the inflation and unemployment problems.

Price Controls: In 1971 wage and price controls were introduced, beginning with a 90-day freeze on prices and progressing to weaker controls in later phases of the program. The freeze at first slowed the measured rate of inflation by suppressing the rise, but in doing so it may have encouraged a resumption of monetary stimulus. Between 1971 and 1972, M2 increased at an annual rate of 13 percent. The freeze also distorted relative prices and reduced efficiency.

When the oil “crisis” hit in 1973, the Nixon Administration imposed controls on the price of energy production. The result, howev-

er, was distortions in relative prices and gas lines. Perhaps most damaging was policymakers' failure to recognize that the oil price rise was a one-time increase in the price level, or, depending on monetary policy, a change in relative prices, not a permanent change in inflation. Consequently, policymakers did not confront the fundamental causes of the underlying increase in inflation—rapid monetary growth. Although periodic swings in money growth answered swings in inflation, average money growth remained high.

Discretionary Policies: The attempt to use fiscal and monetary policies to smooth the economy produced the pattern of successively higher peaks in inflation at each business cycle peak (Chart 1-4). Higher inflation rates did not produce the reduction in unemployment rates suggested by the Phillips curve tradeoff. (For a discussion of the Phillips curve tradeoff between inflation and unemployment, see Chapter 2 of the 1988 *Economic Report of the President*.) The stop-go pattern had already shown up in the 1960s. In the mid-1960s, there was an acceleration of monetary stimulus, accompanied by fiscal stimulus in the form of the 1964 tax cut, and Vietnam war and Great Society spending. In the latter part of the 1960s, rising inflation led to the 1968 tax surcharge and to the monetary contraction in 1969 that preceded the 1969-70 recession. This pattern became more destabilizing and more volatile in the 1970s, with government responding to short-term fluctuations, first stepping on the accelerator to stimulate the economy and reduce unemployment and later stepping on the brakes to slow inflation.

Information and Lags: Fine-tuning proved to be more harmful than helpful because of the inherent difficulties in forecasting business cycle turning points, the long and variable lags in policymaking, the lag between action and its effect on the economy, and the difficulty of distinguishing between permanent and transitory changes.

The first problem confronting discretionary policy was, and continues to be, information. Discerning trends in preliminary data is difficult. With hindsight, peaks and trends are easy to spot. Identifying trends as they occur is more difficult because there are large random components in the data, many changes in monthly data are not statistically significant, and initial data are often revised substantially. These difficulties and the time it takes to collect and disseminate the data make early recognition of trends even more difficult. For example, an analyst using business cycle rules for identifying significant trends in the leading index of economic indicators would not have been able to identify in advance either the 1974-75 or the 1981-82 downturns, the two most severe downturns of the postwar period.

These problems, in obtaining reliable information promptly, present large difficulties when combined with lags in policy. Fiscal

policy takes time to enact, and after enactment often requires 3 to 6 months to take effect. Fiscal policies reach their peak effect on average between 9 and 18 months, with wide variation around the average reflecting in part variations in anticipations and information about the change. Monetary policy has a short administrative lag, but its effect is usually not felt for between 6 to 9 months, and its peak effect may occur as many as 36 months later. Further complicating discretionary policy is the variability of these lags, with the length of the lag partly depending on anticipations—whether the action will be taken and the form it will take. Greater certainty about the action tends to shorten the lag and more uncertainty tends to lengthen it.

Given these lags and the fact that the average postwar contraction lasts only 11 months, to be effective, discretionary policy requires accurate forecasts of turning points at least four quarters ahead. Unfortunately, the record in the 1970s and 1980s indicates that neither Federal Government nor private forecasters has been able to forecast on average whether the economy will be in boom or recession four quarters ahead. The errors in their forecast tend to be largest at turning points, and even on average the range of real GNP growth suggested by the forecasts' standard errors bracket a range from more than twice the mean rate of real GNP growth to negative real GNP growth.

Much of the error in these forecasts involves problems in estimating the course of policy. Some estimates indicate that as much as one-half of the error of forecasts relate to unexpected changes in monetary policy. Much of the rest of the error results from random shocks, such as changes in oil prices or in labor force and productivity, and random fluctuations in decisions of governments and private citizens at home and abroad.

Stop-Go in the 1970s: The record of the 1970s graphically illustrates the problem with lags and the destabilizing nature of discretionary policy. Including one-time energy price increases, during 1973 the measured rate of inflation nearly doubled. To reduce the underlying rate of inflation in 1973 and 1974, monetary growth had to be reduced, but the sharp spike in prices related to the transitory energy-related change in relative prices caused the monetary authorities to overreact. Instead of reducing gradually, they cut the growth in M2 by more than one-half, from 13.3 percent between 1971 and 1972 to 6.2 between 1973 and 1974. While the one-time oil price change had a role in the severity of the ensuing recession—by reducing real incomes—monetary policy accentuated the effect. The 1974-75 recession was the deepest downturn that had occurred to that point during the postwar period. Inflation dropped from 8.2 percent at the pre-recession peak to a low of 5.7 percent following the recession,

but unemployment climbed to 9.0 percent. Also, although part of the reduction was attributable to a fall in the underlying inflation rate, much of the drop was traceable to the absence of additional oil price increases.

The 1974-75 recession and higher unemployment prompted a tax cut in 1975 and accelerated monetary growth. The progress in reducing the underlying inflation rate that had been so expensively gained was lost. Between 1975 and 1977, M2 growth averaged 12.3 percent.

The Tax Reduction Act of 1975 was a one-time tax cut designed to stimulate aggregate demand and fight the recession. Unfortunately, it was passed in March 1975, which was the recession trough, and the tax cut probably had its initial effect well after the expansion had begun, and its peak effect at a point well into the expansion, when inflation pressures were already starting to build. The monetary expansion also began in early 1975, with its initial effect probably occurring even further into the expansion and its peak effect as late as 1978, when inflation was approaching 8 percent.

Later in the 1970s a large increase in oil prices combined with the inflationary stimulus of past monetary growth to produce rates of price increases of 7.3 percent in 1978 and 8.9 percent in 1979. The Federal Reserve again shifted policy. In 1978 it started to tighten monetary policy and by 1979 was committed to reduce inflation. A significant slowing in monetary stimulus began.

The periods of rapid monetary growth in the 1970s had a particularly strong effect because of continued increases in velocity (the ratio of nominal GNP to the money supply). Higher inflation and higher interest rates during the 1970s kept velocity rising. From 1973 to 1981 the velocity of M1 (a narrower definition of money than M2) increased from 5.3 to 7.2. The behavior of the velocity of M2 was influenced by Regulation Q, which fixed interest ceilings on commercial bank deposits, and was more cyclical, tracking changes in short-term interest rates, the opportunity cost of holding idle money balances. The velocity of M2 also rose, however, increasing from 1.6 in 1973 to a peak of nearly 1.8 in 1981.

THE PRODUCTIVITY SLOWDOWN

Many analyses of the productivity slowdown focus on three exogenous factors that affected the United States in the 1970s: rapid increases in energy prices, rapid labor force growth, and the shift in demand away from goods and toward services.

The Energy Shock: Because the first oil shock occurred in 1973 and coincided with the worldwide productivity slowdown and stagflation, it appeared to explain both phenomena. The increase in oil prices raised the price level and measured rate of inflation, lowered real

output, raised unemployment, and lowered real incomes. The rapid increase in energy prices also reduced the optimal use of the existing capital stock, which was designed for low energy prices. Resources that might otherwise have been devoted to producing and purchasing new laborsaving capital equipment and structures were diverted to purchasing new energy-saving equipment and structures.

Some studies in the 1970s attributed a significant share of the decline in productivity to the sharp increase in energy prices; more recent analysis suggests a smaller effect because energy did not constitute a large enough share of total production costs to cause a prolonged decline in productivity.

Although it does not completely explain continuing stagflation, the effect of the energy price increase in some energy-intensive sectors, particularly in manufacturing, may have been significant. Higher energy prices combined with other pressures to cause an even greater reduction in the optimal use of the capital stock in these sectors. Some authors have suggested that a gradual change in energy prices might not have had a significant effect on the productivity of the capital stock because of energy's small relative contribution to total costs, but that the large sudden increase in energy prices presented serious adjustment problems.

Higher energy prices may also have had a large indirect effect on the economy. To the extent that the sudden rise in energy prices helped to contribute to the stop-go policies of the 1970s, it may also have contributed significantly to the period's stagflation.

Rapid Labor Force Growth: The growth rate of the civilian labor force in the United States increased from 1.2 percent between 1948 and 1966, to 2.4 percent between 1966 and 1973, and increased further to 2.5 percent between 1973 and 1981. These increases resulted from the maturing baby-boom generation and increasing labor force participation by women. The acceleration in growth shifted the composition of the work force to younger and less experienced workers, which tended to slow productivity growth. In 1966, 39 percent of the labor force were under the age of 35. By 1973 younger workers accounted for 47 percent of employment, and by 1981 they peaked at 51 percent.

This rapid labor force growth also added to the need for an increased rate of capital formation. The increase in labor required an even larger increase in investment to maintain the existing ratio of capital to labor and output per unit of labor. Unfortunately, coinciding with the rise in labor force participation was a slowing of the rate of capital formation.

The increase in labor force growth may have begun to assert its effect in the mid-1960s, when productivity growth dropped from a

rate of 3.3 percent between 1948 and 1966 to 2.1 percent between 1966 and 1973. Between 1973 and 1981, however, productivity growth dropped sharply to a rate of 0.6 percent, even though labor force growth was not much faster during this period than between 1966 and 1973. A more important factor was probably the slowdown in capital accumulation, which contributed to the slowdown in the growth rate of the net capital stock per worker. The productivity literature also suggests a relatively small effect on productivity from rapid growth in the number of young workers between 1973 and 1981.

Shifts in the Composition of Demand: Throughout U.S. history shifts in the composition of demand have affected productivity and economic growth. Flexibility in labor markets allows resources to move into expanding sectors. In the past, increases in agricultural productivity freed resources from farming to be used in the expanding nonfarm sectors. The shift raised average productivity as resources left agriculture—a sector with a relatively low level of output per man-hour—to other sectors with higher output per man-hour.

During the 1970s manufacturing productivity increased, although at a slower rate than in the 1950s and 1960s, which allowed manufacturing's share of GNP to remain roughly constant despite an increase in the share of the labor force employed in the expanding services-producing sector. This shift facilitated the employment and training of a large number of young, inexperienced workers.

In contrast to the net boost that the shift out of agriculture gave to average productivity, the shift to service industries lowered measured productivity growth because the faster growing components of the service sector had lower measured levels of productivity. Estimates of the effect of the shift in the composition of output vary widely, but it may have reduced overall measured productivity growth by as much as one-fourth. It is difficult to assess the true effect because part of the difference in productivity across sectors may be the product of problems in measuring output and productivity in the service industries.

In addition to these three exogenous factors, two other factors affected the productivity slowdown that were subject to Federal Government control: inflation and regulation.

Inflation: One of the most important changes in the U.S. economy that accompanied the U.S. productivity slowdown was rising inflation. Although analysts have carried out a large number of studies on the productivity slowdown, they seldom discuss or measure the direct effects of inflation—particularly variable inflation—on productivity. Yet the rise and variability of inflation after 1973 clearly paralleled the productivity slowdown. The potential impact of inflation is especially

important because, as the past 8 years have demonstrated once again, inflation is clearly subject to Federal Government control through monetary policy. In contrast, rapid labor force growth and the energy crisis are largely beyond the reach of government policies.

The effect of inflation in the United States in the 1970s and early 1980s, however, was not just to redistribute income. Inflation was high and variable, rising from 4.4 percent during 1972 to 10.1 percent during 1974, dropping to 5.7 percent in 1976, and rising again to 8.9 percent by 1979. Within a structure of unindexed taxes and contracts, high and variable inflation had real effects and pulled down measured productivity in a number of ways.

Noise and Relative Prices: During the 1970s high and variable changes in the rate of inflation were accompanied by a significant increase in the variability of relative input prices, as measured by the producer price index for intermediate goods. Not only did relative prices change more frequently, but also relative price changes did not appear to be lasting. For many goods, adjusting prices costs something, and sellers adjust prices infrequently. The result may be that during a period of high and variable inflation, relative prices may for a time be more a function of the pattern of past changes than a reflection of current or future resource cost.

Relative price volatility was important because many price contracts were not indexed for inflation and because changes in resources used in production processes can be costly. When decisions are based on relative price changes that reflect statistical noise and random adjustments rather than on changes in real costs, these rigidities can cause significant inefficiencies in resource allocation and reduce measured output per unit of input.

Even without rigidities, volatility in relative prices imposes two other types of costs. The first is the cost to sellers of adjusting prices, while the second is the cost to buyers and managers of having to learn new information and integrate it into decisionmaking.

Managerial Efficiency: In addition to its effect on resource allocation in the choice of input combinations, inflation had another significant effect on managerial efficiency in the 1970s. Operating decisions about productivity had a smaller impact than inflation on reported profits and rates of return; and managers had an incentive to allocate more time to the latter and less to the former. With input prices and wages rising at 10 percent or more, managers could save more by buying early or trying to win a wage concession than by trying to improve productivity by a percentage point or two.

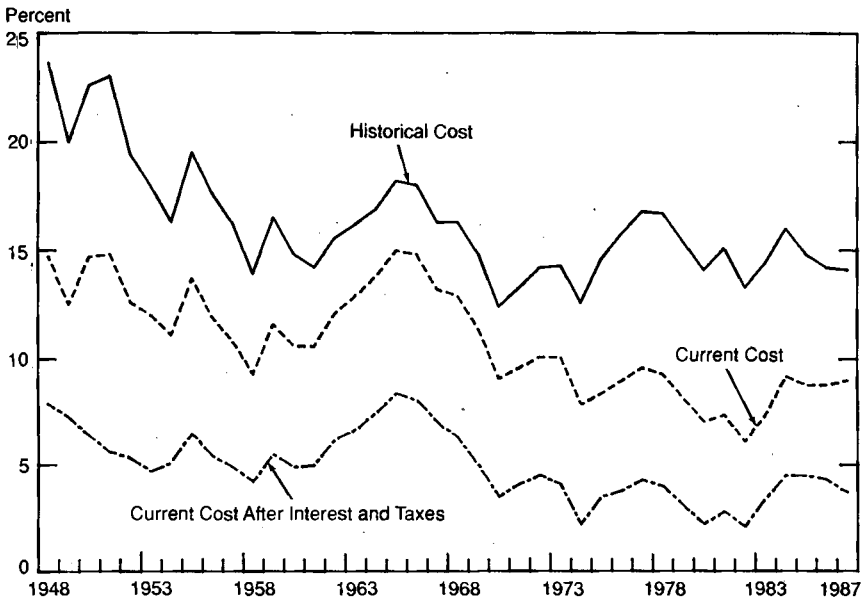
These labor and material pressures were reflected in the behavior of inventories. Expectations of rising prices and low real interest rates gave managers an incentive to carry more inventories, raising

the inventory input for a given level of output and raising inventory profits. In contrast to today's just-in-time inventory systems, in the 1970s inventory-to-sales ratios reached their highest postwar levels.

The relationship of inflation to incentives is graphically illustrated by its distorting effect on reported profits. Inventory profits came to account for a rising share of reported profits. Inflation also understated the replacement cost of capital assets, which further increased book profits. Reinforcing these effects on profits, inflation caused the value of a firm's capital assets to be understated. The result of all these effects was to cause accounting—or historical cost—rates of return reported to stockholders and upper management to diverge sharply from real rates of return, with nominal rates of return trending upward slightly while real rates trended down (Chart 1-5).

Chart 1-5

Alternative Rates of Return on Capital Investment



Source: Unpublished data from Department of Commerce.

In the 1960s real operating profits from production accounted for up to 82 percent of accounting rates of return for U.S. nonfinancial corporations; inventory profits and the understatement of capital costs and assets resulting from the effects of inflation-induced profits accounted for the other 18 percent. Rising inflation in the 1970s increased the importance of inflation, and by the early 1980s, inflation accounted for as much as 54 percent of accounting rates of return

and real operating profits from production accounted for only 46 percent. The effect of inflation on returns after taxes and interest payments was even more dramatic. By the early 1980s, inflation's share reached 72 percent of accounting rates of return after taxes and interest payments and real operating profits 28 percent.

In addition to the incentive and time problems related to inflation, managers had the added burden of burgeoning government regulations and of trying to forecast the effect of the stop-go economic policies. Under these uncertain conditions, at the margin, managers were likely to spend more of their time on purchasing and planning decisions—as well as on complying with new regulations—than on basic operating decisions. Training personnel, attending to plant maintenance, or working on improvements in work processes may have received less attention as a result of the increased demands resulting from inflation and regulation and the lower relative returns to time devoted to these activities.

Investment Incentives and Investment Trends: In addition to the distorting effect on accounting profits and rates of return, inflation raised effective tax rates on capital investment. Real after-tax rates of return fell, lowering investment incentives. Inflation eroded effective corporate profits by reducing the value of depreciation allowances and measured materials costs, thereby raising effective tax rates on capital that were based on nominal profits. Partly offsetting these effects was the deductibility of nominal interest payments. On average, however, the net effect was an increase in effective tax rates that accompanied the decline in real operating rates of return.

While uncertainty continues among economists as to how much the interaction of inflation and taxes increased effective tax rates and reduced real returns, and how much the rise in effective tax rates reduced the rate of capital formation, it is likely that higher effective tax rates had a significant role in reducing the rate of capital formation. One frequently cited estimate suggests that the interaction of inflation and taxes reduced net investment by as much as one-third.

The effect of inflation and taxes had another distorting effect on nonresidential investment. During the 1970s and early 1980s, inflation and the Tax Code gave large incentives to investment in residential housing while it lowered the net returns to investments in financial markets. Taxation of capital gains that reflect inflation rather than real increases in value also reduce incentives to save and invest. Partly as a result, housing values soared and stock values stagnated while the replacement cost of plant and equipment rose. As might be expected, lowering the stock market value of firms relative to the cost of new plant and equipment raised the firms' cost of capital and lowered the incentive to invest in new capital.

Slower capital formation lowered U.S. productivity in three ways: by failing to keep up with rapid labor force growth during this period, the growth rate of capital per worker slowed dramatically; by slowing down the rate of adoption of new technologies embodied in new plant and equipment, the growth rate of capital productivity was reduced; and the slowing of the rate of adoption of new technologies may have reduced the learning by doing that accompanies new investments and feeds back into the rate of technological change. (Science and technology are discussed in Chapter 6.)

Although considerable controversy surrounds the relative importance of the slowdown in capital formation, most studies have found that slower capital formation had a significant and substantial influence. The range of estimates is wide, with most of the estimates of slower capital formation ranging between 20 and 50 percent of the slowdown. And perhaps most important, in contrast to the rapid growth in labor force or the energy crises, government policies—either through their effect on taxes or inflation—have an important effect on incentives that influence the rate of capital formation.

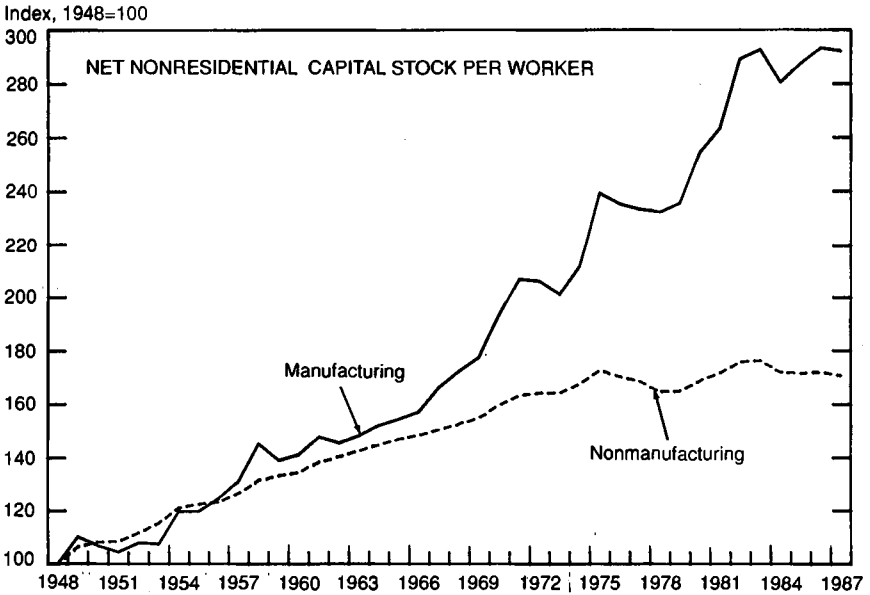
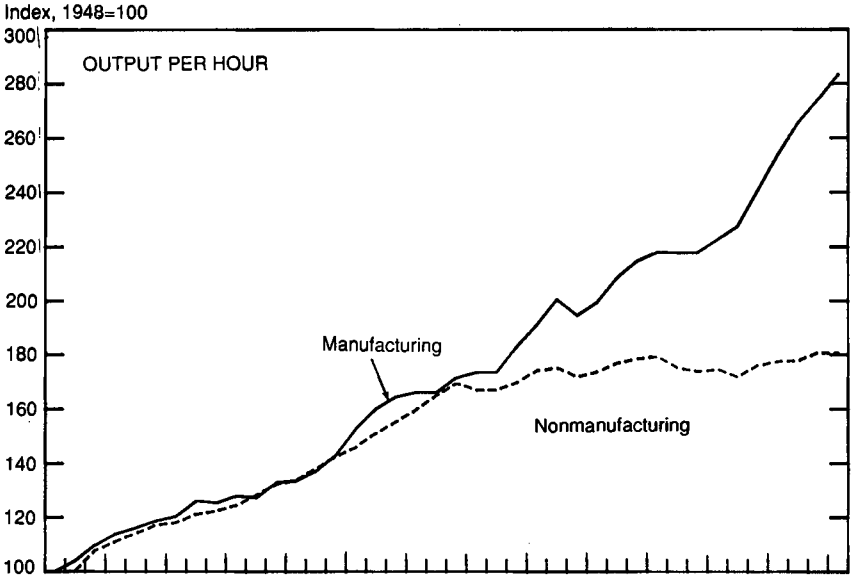
Although some slowing of the rate of capital formation occurred after 1966, the drop in the 1970s was dramatic. The rate of growth in the private real net nonresidential capital stock per worker dropped from 2.2 percent between 1966 and 1973 to 1.4 percent between 1973 and 1981. The trend across industries was not even. Capital formation in manufacturing showed significant growth in the 1970s. Net capital stock per hour worked rose at a 3.4 percent annual rate between 1973 and 1981, while growth in capital per worker in nonmanufacturing slowed between 1973 and 1981, to a 0.7 percent annual rate (Chart 1-6). Partly as a result of the continued growth in capital formation, manufacturing productivity growth did not suffer as much of a slowdown as did productivity in other sectors.

All these factors notwithstanding, one of the most important effects of inflation on private investment incentives was the result of stop-go policies that produced higher inflation and unemployment. Instability reduced incentives to investment, making entrepreneurs more cautious, more concerned about downside risks, and less willing to undertake new investments and projects.

Paralleling the decline in private capital formation was a continued decline in government capital formation as government direct transfers and insurance programs rose. After peaking at 4.1 percent of GNP in the mid-1960s, the ratio of government nonmilitary investment to GNP declined throughout the 1970s, falling to 2.1 percent by 1981. This decline in nonmilitary investment paralleled a decline in military investment, which allowed U.S. defense capability to run down.

Chart 1-6

Output per Hour and Capital Stock per Worker, Manufacturing and Nonmanufacturing



Sources: Output per hour, unpublished data from Department of Labor; capital stock per worker, Council of Economic Advisers; based on data from Department of Commerce.

Incentives to Entrepreneurial and Other Labor Effort: Just as businesses and investors experienced inflation-induced bracket creep, entrepreneurs and workers also saw bracket creep reduce their returns to extra effort. One-earner families of four with twice the median income—who were more likely to be entrepreneurs and professionals—saw their marginal tax rates increase from 28 to 43 percent, while their real income stagnated. Proprietors' income declined from 10.6 percent of personal income in 1973 to 7.6 percent in 1981.

Wage and salary workers also saw their marginal tax rates rise as their real incomes stagnated. Between 1973 and 1981 nominal median family income for a one-earner family of four increased 92 percent, while the family's real income was little changed and its marginal Federal income tax rates rose from 19 to 24 percent. The impact on married women and other secondary workers was particularly severe, as they faced declining real wages and high marginal tax rates on their labor effort.

Measurement Problems: One of the most difficult problems in measuring productivity is separating pure price changes from changes in product price that reflect changes in the characteristics or quality of a product. The difficulty of making this separation is increased when either prices change rapidly or technology changes rapidly. During the 1970s rapid increases in prices increased the complexity of measuring relative versus pure price changes. There was also the added difficulty of distinguishing permanent versus temporary price changes.

In constructing price indexes, producers are asked to estimate the cost of product improvements, and these costs are used to adjust the product's price index so as not to overstate pure price change. If the quality change is costless or the cost is difficult to identify, however, the price index will not capture the improvement and any price increase will be shown as a pure price increase rather than as an increase in output. This problem is especially acute in industries where there is no physical output and where changes in quality are hard to measure or even observe. Interestingly, the decline in productivity growth in nongoods-producing sectors, such as finance, insurance, and real estate, transportation services, and other services, was much more pronounced than in manufacturing.

Rapid and variable increases in input prices during the 1970s probably made the estimation of the cost of improvements more difficult than during the 1960s. As a result, some overestimation of inflation, which resulted in an underestimate of real output growth may have occurred during this period.

Added to the problem of separating relative from pure price changes was the expanding underground economy. Increasing tax-

ation of inflation gains through bracket creep gave extra stimulus to the underground economy. Higher effective tax rates may help to explain the productivity declines in construction and services where there are significant numbers of sole proprietorships and underreporting of receipts is most likely.

Understatement attributable to the underground economy is more likely to show up as an understatement of receipts and income data than as an understatement of employment. As a result, if the statistical agencies did not adequately adjust for increases in the understatement of noncorporate income during the 1970s, they may have permitted a downward bias to enter the productivity estimates.

Regulation and the Productivity Slowdown: In addition to its impact on management efficiency, regulation reduces productivity by increasing capital and labor inputs without an increase in measured output. For example, environmental health and safety regulations in certain industries required new capital equipment designed to reduce pollution and produce environmental and health benefits but not measured output. Studies of these added capital and labor costs to industry estimate that, although government regulations improved the environment, they reduced measured productivity by about 15 percent between 1973 and 1981.

As the costs of these regulations became evident, policymakers began to reconsider the costs and benefits of environmental, safety, and other regulations. Questions were raised about the impact of regulations on costs and productivity of even the oldest of regulated industries. Entry and pricing restrictions in these areas resulted in inefficiencies that raised prices and reduced the quality of services. In recognition of these costs beginning in the 1970s, deregulation began in air transportation, trucking, and railroads as well as in other areas. (Regulation is discussed in Chapter 5.)

SOCIAL PERFORMANCE

The failure to reduce poverty in the 1970s was a source of social frustration. Part of the poverty problem appeared to be related to the stop-go policies that affected all families. The poverty rate had reached an all-time low of 11.1 percent in 1973, but the 1974-75 recession raised the rate to 12.3 percent. Economic expansion and a reduction in inflation seemed to improve the poverty rate, but shortly thereafter inflation began to rise and the economy moved in 1980 into a mini-recession. The poverty rate rose from 11.4 percent in 1978 to 14.0 percent in 1981 (Chart 1-3).

Part of the poverty problem was probably related to measurement issues because the official poverty statistics are based on the consumer price index, which in the 1970s and early 1980s overstated

housing costs and inflation. The poverty statistics also exclude non-cash income, a growing component of means-tested benefits. The net effect of these factors was probably to overstate the rise in poverty that occurred between 1973 and 1981.

Another part of the poverty problem appears to have been related to diminishing returns to economic growth. During the 1950s and 1960s increases in median income were accompanied by large reductions in poverty. When median income was lower, a significant proportion of the population was near the poverty income level. As median income rose, a large number of persons were lifted from poverty. By the 1970s, however, the poverty threshold was located in the long flat tail of the lower end of the income distribution, and further shifts in the location of the distribution lifted fewer people from poverty.

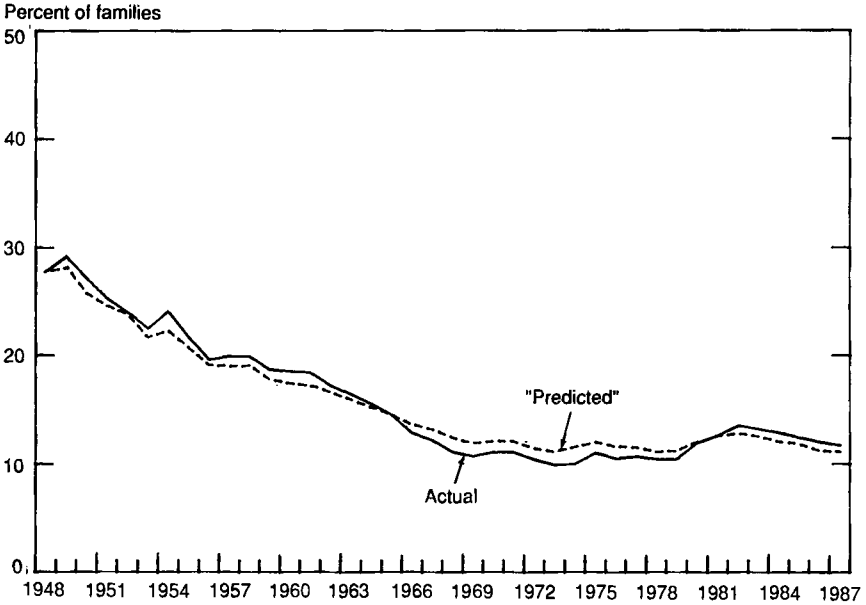
Interestingly, if a fixed distribution of income, such as the 1948 distribution, is used with growth in median income to "predict" the percentage of the population that would have been at low-income levels, it produces a "predicted path" that tracks the actual path quite well (Chart 1-7). Thus, despite the fact that large sums were being redistributed to reduce poverty, the distribution of income was little changed, and the low-income population appears to have been moving along a path that would have been predicted by economic conditions alone. The persistence of large numbers of low-income families and the rise in poverty rates may help to explain why at the time there was a nagging feeling that the effort to invest in people and "to give a hand, not a handout," was failing.

Real spending on public aid increased from \$56.3 billion, measured in 1982 dollars, in 1973 to more than \$87.1 billion in 1981. The programs did benefit some groups. Unrelated individuals and the elderly showed improvement and, despite the poor economic performance over this period, the poverty rate for unrelated individuals fell from 25.6 percent in 1973 to 23.4 percent in 1981 and for those over 65 from 16.3 percent to 15.3 percent.

For other groups a disturbing trend suggested that increased transfers were influencing behavior and fostering dependency. The proportion of births to unmarried women was rising and showed an alarming increase among the most disadvantaged groups. By 1981 more than one-half of all black births were to unmarried women, and for those aged 15 to 24 nearly 70 percent were to unmarried mothers. This development was particularly disturbing because families with the poorest economic outlook were increasing, suggesting that poverty was increasingly becoming a long-run condition for these families. The proportion of the poverty population accounted for by female-headed families grew dramatically, while those headed by a

Chart 1-7

Actual and "Predicted" Proportion of Families
With Income Below \$10,000 in 1987 Dollars



Note.—Consumer price index for urban consumers used as deflator.
Sources: Department of Commerce and Council of Economic Advisers.

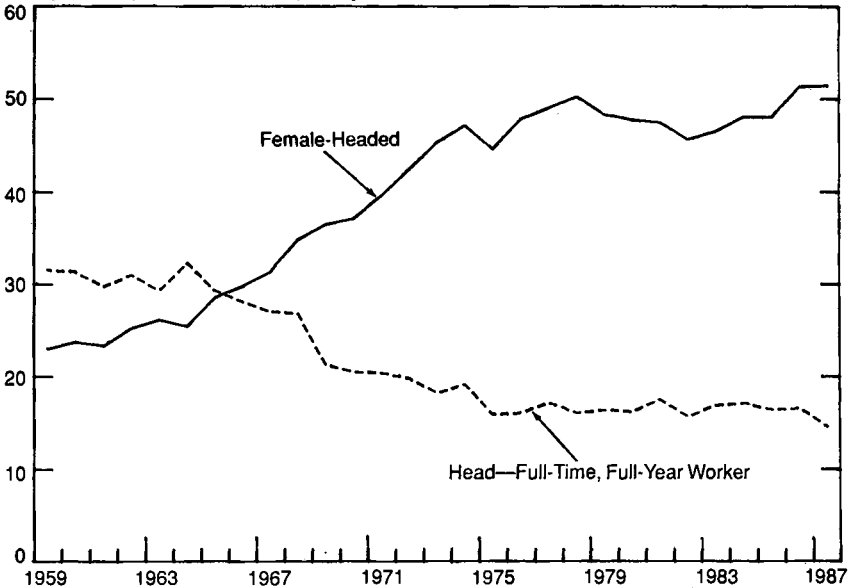
full-time worker declined. The proportion of families in poverty headed by women rose from 23 percent in 1959 to 35 percent in 1968, and rose further to 48 percent by 1981, while those with a full-time, full-year worker as head of the household fell from 31 percent to 27 percent between 1959 and 1968 and to 18 percent by 1981 (Chart 1-8).

An increasing proportion of these families also was headed by women with little or no work experience. With child care responsibilities and expenses and no work experience, job prospects were poor for these women and labor force participation correspondingly low. In 1981 more than 50 percent of black and Hispanic female-headed households were in poverty. Among these poor households only 34 percent of the women worked and only 7 percent worked a full-time, year-round job.

Chart 1-8

Composition of Families in Poverty

As a percentage of all families in poverty



Source: Department of Commerce.

THE EIGHTIES: LOWER INFLATION, IMPROVED INCENTIVES, AND IMPROVED PERFORMANCE

This Administration replaced the stop-go interventionist policies of the 1970s with a different view of the role of the Federal Government and of incentives. This view was based on lessons from U.S. economic history: the best performances have been recorded when government has provided stability and relied on the dynamism of the private sector.

The Administration emphasized that government often does best when it improves incentives and encourages private market solutions. The Administration sought to take government back to the basics, delivering the essential services and ensuring the stability that the private sector requires and allowing markets to work, often by providing a framework that gives incentives to private individuals to seek solutions. Desiring not to repeat the failures of short-term discretionary policy in the 1970s, the Administration abandoned discretionary fiscal policy. In its place the Administration has used fiscal policy as a tool for restoring incentives and efficiency, both in the private sector

and in the government and giving incentives for the private sector to plan for the future. The Administration has continued the drive for deregulation and has put forward new proposals to reduce rigidity. It has encouraged the monetary authorities to pursue the goal of non-inflationary growth. Finally, the Administration has continued work on lowering barriers to trade, trying to avoid protectionism and encouraging trade. The private markets have responded well to these improved incentives, and the flexibility of U.S. markets has allowed the United States—in contrast with the nations of Europe—to enjoy lower inflation and lower unemployment.

Like the 1970s the 1980s were a difficult period for the economies of the world. The move to slower monetary growth reduced inflation rates in the major industrialized nations, but it caused one of the most severe downturns of the postwar period. Partly as a result of inflexibility in their labor markets, many countries have not yet fully recovered from the downturn. Unemployment has remained high. Less developed countries have been plagued by the “debt crisis,” slow growth, and the need to earn foreign currency. In many nations, including the United States, the sharp drop in oil prices beginning in 1985 hit sectors of their economy hard. Low aggregate demand in Europe and in the less developed countries and rapid export-led growth in the Pacific rim resulted in increased competition in import and export markets.

Despite these difficulties the U.S. economy recorded a dramatic reversal from the record of the 1970s. The 1981–82 recession, which was one of the most severe downturns of the U.S. postwar period, slowed growth in the early 1980s, but a vigorous recovery resulted in strong U.S. economic growth in the 1980s.

Since 1981 real GNP has risen at a 3.0 percent annual rate, a significant improvement over the 2.1 percent annual rate between 1973 and 1981. Real GNP per capita has risen at a 2.0 percent annual rate, compared with a 1.1 percent annual rate between 1973 and 1981, and is slightly above the 1.7 percent growth trend for the 1990s. This record compares favorably with the record for the other major industrialized nations during the 1980s.

Perhaps the most important characteristic of the 1980s is that during the past 8 years the cyclical pattern of higher inflation and interest rates has been broken. Inflation has been cut to nearly one-third of its 1980 rate, short-term interest rates are about one-half their peak 1981 levels, and long-term interest rates have declined substantially.

Largely because of labor market flexibility and improved incentives, lower inflation in the United States did not result in higher unemployment, and strong gains in employment and reductions in un-

employment followed the 1981-82 recession. Nonfarm jobs have increased by nearly 19 million since the recession trough of November 1982, for a net total of 16 million jobs since July 1981. Civilian unemployment has been cut by one-half, from 10.8 to 5.4 percent, with gains for all major demographic groups. This employment record is in sharp contrast to that in Western Europe where unemployment in 1987 was 10.7 percent, just below the postwar record high.

Although overall productivity growth has not achieved the growth seen between 1948 and 1973, improvement has been significant. Since 1981 private business sector productivity has grown at a 1.7 percent annual rate, more than double the 1973-81 rate. Manufacturing productivity has grown at a 4.1 percent rate since 1981, roughly one and one-half times the postwar average and more than three times the rate of 1973-81. Manufacturing remains strong; the United States is not deindustrializing. Manufacturing production is up 43 percent during this expansion, and 29 percent since the mid-1981 peak. Manufacturing's share of total output, around 22 percent, is essentially the same as its peak levels during the past 25 years. Strong productivity growth has allowed manufacturing to maintain its share of total output despite a declining employment share.

The two nagging problems for the U.S. economy in the 1980s were the budget and trade deficits. The growth in the trade deficit in the 1980s reflected several interrelated developments, including the strength of the U.S. economy and U.S. domestic demand relative to other countries, the debt crisis in less developed countries, the attractiveness of investment in the United States, and the high value of the dollar. Since 1985 the dollar has come down in value and U.S. domestic demand growth has slowed while other countries' domestic demand has accelerated. The improvement in the trade balance has been substantial as both the real and nominal trade deficit have fallen sharply from their peaks in 1986 and 1987, respectively. (The trade deficit and other trade issues are discussed in Chapters 3 and 4.)

The Federal budget deficit is a more serious problem and, although the current U.S. debt burden relative to GNP is comparable with the burden in the 1950s and early 1960s and to that of many of the other G-7 summit nations, it is still large. The increase in the deficit in the 1980s was largely the result of spending increases rather than tax cuts. Tax changes in the 1980s brought Federal taxes as a share of GNP close to its historical average, while spending continued its upward trend. Real progress has been made in reducing spending and the deficit since fiscal 1985, and the deficit as a share of GNP has declined from 5.3 to 3.2 percent of GNP; however, Federal dissaving continues to exacerbate the U.S. savings investment

imbalance and continued progress on reducing the deficit is important. (The budget deficit is discussed in Chapter 2.)

SOURCES OF THE IMPROVEMENT IN OUTPUT, INFLATION, AND PRODUCTIVITY PERFORMANCE

Increased Stability in Macroeconomic Policy: In contrast with the use of spending and taxes in attempts to control aggregate demand in the 1970s, in the 1980s the focus has been on longer term issues concerning the appropriate sphere of government action. Examples of issues that were addressed on the spending side were the mix of government spending between Federal, State, and local levels and the appropriate role of transfer programs. On the tax side, the issues concerned the effects of bracket creep and the effect of taxes on incentives.

Beginning in 1979 the Federal Reserve undertook to control one measure of the quantity of reserves rather than a short-term interest rate. This task was not easy, however, in part due to disinflation and changes in financial markets and in part due to the Federal Reserve's control procedures, particularly the use of lagged reserve accounting that has since been modified and depository institution borrowing from the Federal Reserve discount window.

Deregulation, the creation of new deposit instruments, and the general increase in the pace of financial innovation caused many changes in financial markets. Significant shifts occurred across different deposit instruments, and the management of monetary policy became more difficult.

Despite these problems, between the late 1970s and 1980, M2 growth fell from a high of 13.7 to around 8.0 percent, with an average growth of 8.5 percent since 1978. This decline in monetary growth was reinforced by a decline in velocity. After peaking at 1.7 in 1981, M2 velocity fell at an average of 1.4 percent a year between 1981 and 1987.

The shift to slower money growth was not painless and the 1981-82 recession was the second most severe recession of the postwar period, perhaps partly because the Federal Reserve's past behavior encouraged the expectation that monetary ease and higher inflation would follow soon after monetary restriction. Despite the difficulties, slower monetary growth and less volatility paid large rewards. The rate of inflation fell from 9.7 percent in 1981 to the 3.5 percent range, and unlike periods in the past, it has stayed in that range. Contrary to the fears of many, it will stay in that range and gradually drift down if the monetary authorities remain committed to reducing the rate of inflation to achieve price stability. Monetary policy will contribute to stable growth if the monetary authorities focus on the

medium-term prospects, moving toward the goal of noninflationary growth and avoiding the past errors of overreacting to short-term shocks to the economy.

Investment Incentives: Three major factors have operated on investment incentives since 1981: tax reform, lower inflation, and increased stability in the macroeconomic outlook.

Tax Policy: The Economic Recovery Tax Act of 1981 (ERTA) arose out of concern for the effect of inflation on incentives. It was designed to address the eroding effect of bracket creep on incentives to produce, save, and invest. On the personal tax side, lower marginal tax rates, lower capital gains tax rates, and indexation removed many of the effects of bracket creep and inflation on incentives to save and invest. As it turned out, the effect on aggregate saving was more than offset by a 26 percent increase in household net worth between 1981 and 1988 and high consumption expenditures by baby-boomers who were at the peak of their spending for consumer durables, child care, and education. Although these are investment expenditures that yield returns in later years, they are the types of saving and investment that are excluded from the definitions used by national income accountants, and therefore reduce recorded saving and investment.

On the business tax side, ERTA accelerated depreciation allowances, increased the investment tax credit for certain assets, and improved other business tax incentives. Changes in the tax law and lower inflation resulted in effective tax rates for some assets that were low and for some types of equipment were negative. Some investment incentives were reduced under the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), but the net effect was that effective tax rates were significantly reduced by ERTA, even after adjustments by TEFRA. The net result was to increase investment relative to GNP. By lowering marginal personal tax rates and capital gains rates, ERTA and TEFRA also improved the investment returns for entrepreneurs. One estimate suggests that ERTA and TEFRA raised investment by at least 20 percent between 1982 and 1984, with a smaller net effect between 1985 and 1987. The two acts also reduced the differences in effective tax rates across assets and industries. Most estimates indicate that ERTA and TEFRA improved resource allocation and the efficiency of the capital stock.

The Tax Reform Act of 1986 (TRA) was a comprehensive reform directed toward further reductions in marginal tax rates, reducing distortions, and broadening the tax base. The act substantially evens the cost of capital across assets. Overall the reduction in marginal tax rates and removal of many tax preferences will help to ensure that investment and financial decisions are based on economic rather than tax-motivated grounds.

The long-term effect of the TRA on capital efficiency is expected to be significant. The act did increase the effective tax rate on capital at a given inflation rate, but, relative to the early 1980s, this effect was more than offset by lower inflation.

Lower Inflation: Lower inflation had several effects on investment incentives. It reduced the variability of relative prices, allowing decisionmakers to more accurately anticipate future relative prices, thereby allowing them to allocate resources more efficiently, especially those involving fixed dollar commitments for the future. The variance in relative prices for non-energy goods, as measured by the producer price index, dropped 39 percent between 1973–81 and 1981–87.

With relative prices more accurately reflecting future resource costs, investment decisionmaking was improved. Costly investments in machinery and equipment that in the 1970s were made inefficient by subsequent and unexpected changes in relative prices were avoided. The reduction in volatility lengthened the expected useful lives of assets and enhanced decisionmakers' incentives to concentrate on long-run investment planning rather than short-run strategies.

Lower inflation in conjunction with reduced regulation also gave managers the incentive to concentrate on basic management decisions rather than on purchasing and paperwork responsibilities. The reduction in inflation sharply reduced inventory profits and brought book value depreciation closer to real replacement cost depreciation. Lower inflation brought asset values and depreciation in line with replacement cost slowly, through new investments and through the depreciation and scrapping of the old capital stock. Nonetheless, by 1987 real operating profits accounted for 64 percent of accounting rates of return and the inflation share fell to 36 percent, versus 46 and 54 percent, respectively, in the early 1980s.

Similarly, lower inflation significantly reduced effective tax rates on capital investment. For new investments, low expected inflation caused book value depreciation to be closer to replacement cost depreciation, and inventory costs to be closer to replacement cost. As a result, the inflation tax on new investments was significantly reduced. Although there is considerable controversy regarding the effect of inflation on effective tax rates, according to one model, the reduction of inflation from 13.5 to 4.0 percent would have reduced the effective tax on new capital investments by one-third, even without any change in tax laws. Also with inflation in the 4 percent range, despite increases in effective tax rates as a result of TRA, the effective tax rate on new plant and equipment investments in 1988, at 41 percent, is still 10 percentage points lower than in 1980. Reducing inflation

and achieving price stability, therefore, are as important as tax laws in keeping effective tax rates from rising.

Business Confidence: One of the more important factors explaining the improvement in U.S. growth and productivity may be the increase in stability that occurred during this expansion. Reduced volatility of inflation and interest rates since the early 1980s and the absence of a contraction for 6 years has significantly improved business confidence, raising investment.

These improvements in stability and business confidence are important because most studies of the determinants of investment have found sales expectations to be more important than tax or relative price effects in determining investment spending.

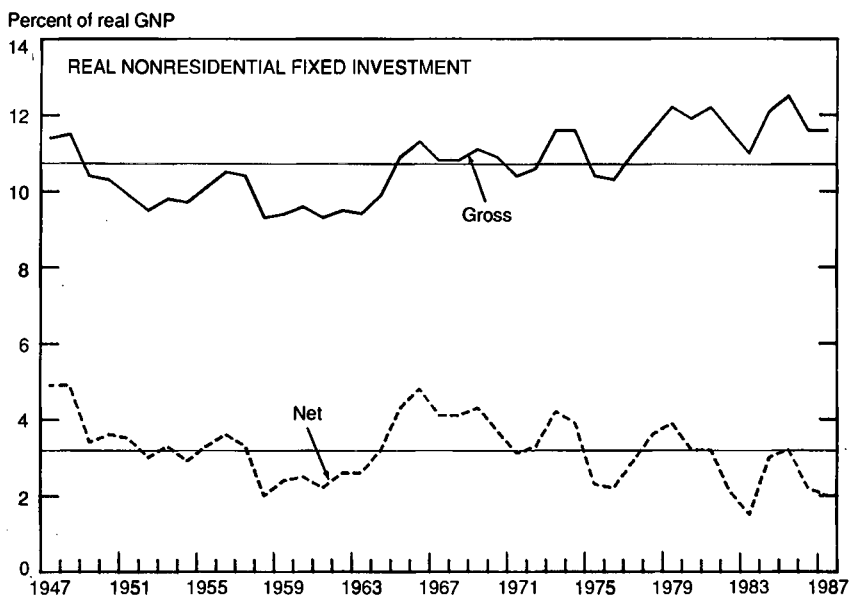
Trends in Investment: In response to the improved outlook and heightened investment incentives, real nonresidential investment spending has done well in the 1980s. Investment dropped during the 1981–82 recession, but between 1981 and 1987 it averaged 11.8 percent of GNP, which is 1 percentage point above the postwar average. Despite this increase in gross investment, the net real capital stock per worker grew at only a 0.5 percent annual rate between 1981 and 1987. This difference in rates of capital accumulation reflects the fact that, while the gross investment share of GNP has been increasing, measures of net investment—gross investment less estimated depreciation—have been falling (Chart 1–9).

In terms of its effect on productivity, this trend in net investment and capital per worker has been offset by increases in the efficiency of capital, particularly in manufacturing. Since 1981 real output per unit of capital has risen 15 percent, or 2.3 percent a year.

Despite the improvement in capital productivity, some observers consider this trend in net investment particularly disturbing because standard national accounting measures indicate that U.S. investment as a share of GNP is smaller than that of other nations. Also, the United States spends a bigger share of investment on consumer durables and housing than many other nations. However, properly measured aggregate U.S. investment is comparable with that of most other industrialized nations of the world. Concerns about the low rate of aggregate saving and investment in the United States are exaggerated by national income and product accounts accounting conventions. If all expenditures that yield future income or services are counted as investment—including consumer durables, education, research and development, and military capital—then U.S. investment and saving as a share of GNP roughly equal those of most major industrialized nations of the world. The U.S. saving and investment shares on this basis are still significantly lower than Japan's, but because per capita income is higher than in Japan, investment per

Chart 1-9

Gross and Net Investment Shares of GNP



Source: Department of Commerce.

capita in the United States is not significantly lower than Japan's when investment is measured more comprehensively than in the national income and product accounts.

The composition of U.S. investment and the slower U.S. rates of investment in plant and equipment relative to other countries result partly from the high levels of U.S. nonresidential private capital relative to other nations in the postwar era. The United States could afford to invest more in consumer durables because of its high ratios of capital to labor and associated high levels of GNP per capita. Japan and the other industrialized nations, on the other hand, had powerful incentives to invest and rebuild their capital stocks. As they approach U.S. levels, however, their investment paths may more closely resemble the U.S. path. In the pre-war era the United States had high investment rates relative to the rest of the world.

The U.S. investment pattern, however, may also stem from the bias in the Tax Code toward investments in housing and consumer durables. Also, higher levels of government infrastructure in the United States than in other countries allowed government investment to slip in the 1970s and 1980s. Now that other countries have closed most

of the gap and the United States is running a persistent trade and saving-investment deficit, it may be time to take steps to reallocate the investment mix and raise the level of U.S. nonresidential business investment or accept a lower rate of growth in the standard of living than in competing countries.

Accompanying the high levels of investment in residential structures and consumer durables is the declining trend in net nonresidential fixed investment (Chart 1-9). While gross nonresidential investment as a share of GNP has risen in the 1980s relative to the 1970s, net nonresidential fixed investment has declined as a share of GNP. These divergent trends result partly from tax incentives and may also be examples of problems in measuring depreciation.

The reason for the divergence between the trends in gross and net investment as a share of GNP is a shift in the mix of assets. Investment has shifted toward shorter lived assets, and the measured rate of depreciation on the capital stock has increased. The implication is that either the mix of investment must change or gross investment must increase even faster if the growth rate of net investment is to rise.

Technological change and a Tax Code that favored investment in equipment over structures has caused private nonresidential investment to shift away from long-lived structures toward shorter lived equipment. In 1960, 48 percent of investment was in structures and 52 percent in equipment; by 1987 these proportions were 28 and 72 percent, respectively. The shift to equipment was amplified by a shift within equipment toward shorter lived computers and transportation equipment.

The Tax Reform Act of 1986 did much to even effective tax rates between equipment and structures. However, tax reform raised effective corporate tax rates on business investment and removed the preferential treatment of business capital gains while retaining much of the advantage of investment in housing and consumer durables. Residential housing receives preferential treatment, because imputed returns are not taxed, interest and property tax payments are generally tax deductible, capital gains can be rolled over into a residence of equal or greater value, and, with the one-time exclusion of \$125,000 in capital gains from the sale of a principal residence for those over age 55, the bulk of capital gains on residential housing is never taxed. The Tax Reform Act of 1986 phased out the deductibility of interest payments on consumer durables, but a revision on the use of home-equity loans in 1987 opened the possibility for homeowners to use deductible home-equity loans to finance consumer durables. Under current law, deductibility is no longer limited to home improvements or educational and medical expenses.

Although a clear shift has appeared in the mix of capital and some of the bias toward short-lived investment has been reduced, at least part of the trend in net investment may be related to problems in measuring depreciation. The problems are so severe that many researchers use averages of net and gross investment to approximate the productive potential of capital stocks. Gross investment may be more relevant than net investment in analyzing productivity because replacement investment embodies the latest technologies. If an average of the two measures were used to measure investment share, no clear trend would be visible in its share during the 1980s.

Unfortunately, not much solid information is available on service lives for different types of capital assets, and much of the data available from the Department of the Treasury seems to embody a bias toward shorter service lives during the postwar period that does not appear to be related to technological change.

Equally important to the size of the net capital stock and net investment are depreciation and retirement patterns. Once again solid empirical data on this dimension of capital are lacking. The official Department of Commerce capital stock estimates are based on straight-line depreciation and a pattern of discards that is similar to a normal distribution. Straight-line depreciation is generally not consistent with most independent estimates of economic depreciation, however, and little empirical information is available on the distribution of discards around the estimates of average service life. As a result, the Department of Commerce produces an alternative capital stock series that uses a different decay function, with slower depreciation in the early years and faster depreciation in the later years of an asset's service life. This alternative method raises the 1987 value of the U.S. net capital stock for nonresidential capital by 29 percent, to \$4.8 trillion. This alternative series also shows a slowing of net investment since the mid-1960s, although the relative growth rate differs, with somewhat slower growth before 1973, from the straight-line measure and somewhat faster growth afterward.

Comparisons of foreign and U.S. net investment are even more difficult. According to official estimates of depreciation lives used to produce national capital stock estimates, apparently similar kinds of assets have significantly different durability across developed countries. For example, official estimates indicate that machinery and equipment in the Japanese chemical industry last only 8 years versus 31 years in the United Kingdom.

Increased Competitiveness: Increasing foreign competition and labor market accommodation were also factors stimulating increases in output and productivity. Imports' share of U.S. markets in manufacturing increased from 8.3 percent in 1981 to 12.9 percent in 1986.

Inefficient producers left the market. The remaining producers closed plants, cut back on excess labor, invested in higher technology equipment, and improved inventory control and other management procedures.

The impact was particularly large in durable goods manufacturing, where imports' share of the U.S. market rose from 10.7 percent in 1981 to 16.8 percent in 1986. Durable goods productivity rose over 5 percent per year between 1981 and 1987, compared with 1.0 percent between 1973 and 1981. In nondurable goods, where the imports' share was lower and growing more slowly—increasing from 5.9 to 8.0 percent—productivity growth was more modest.

Shifts in the Composition of Labor: Manufacturing benefited from improvements in the quality and quantity of labor. Increasing competitive pressure forced U.S. industries to conserve on inventories, labor, and capital. The labor force in manufacturing aged and gained experience. This labor force also benefited from the fact that manufacturing had kept up investment during the 1970s and, although part of the investment was diverted to energy-saving capital and regulation, some embodied new technologies. As a result capital-labor ratios in manufacturing in 1987 were 45 percent higher than in 1973 and the effective capital-labor ratio would probably show an even larger increase.

Work Effort and Marginal Tax Rates: Between 1981 and 1988 the top statutory personal Federal income tax rate was reduced from 70 to 28 percent, while the top corporate rate was reduced from 46 to 34 percent. Marginal tax rates have been cut across the board. For example, a one-earner family of four earning twice the median income has seen its marginal Federal income tax rate reduced from 43 to 28 percent. A one-earner family of four earning the median income has seen its marginal tax rate reduced from 24 to 15 percent. Two-earner couples have seen even larger cuts in their marginal tax rates.

The effect of cutting tax rates on incentives appears to have been large. Although other factors clearly had a hand, an explosion of small business growth has occurred during this economic expansion. Small businesses have accounted for a disproportionate share of overall job growth. Although they accounted for only about 50 percent of employment, between 1982 and 1986 they accounted for 64 percent of net employment growth. Proprietors' income, which had been declining as a share of personal income throughout the postwar period, has turned around, rising from 7.4 to 8.3 percent of personal income. The share of taxes paid by the top 5 percent of taxpayers increased from 34.9 percent in 1981 to 44.3 percent in 1986.

Regulation: Another boost to overall productivity has come from the deregulatory process that began in the late 1970s. In transportation,

regulation has changed dramatically. The railroad, bus, trucking, and airline industries have all become more efficient as a result. Problems in measuring productivity gains in service industries seem to have obscured the gains in these industries. Because all sectors of the economy, including manufacturing, depend on the transportation system, gains in this sector help the overall economy. Lower rates and improved services have permitted U.S. industry to reduce inventory costs and adopt more efficient production techniques. Overall savings are estimated to be between \$60 billion and \$90 billion per year.

Sector-Specific Productivity Improvements: Manufacturing has been the leader in improving U.S. productivity growth. Manufacturing more than accounted for the improvement in total nonfarm productivity. The increase in manufacturing productivity stems from the reduction in inflation and instability, improvements in incentives, increases in competition, the aging of the labor force, high capital-labor ratios, and the flexibility of U.S. labor markets.

There is some indication that manufacturing output and productivity have been overstated in the 1970s and the 1980s. Some observers have pointed to this overstatement as evidence of deindustrialization, noting that manufacturing's share of GNP may be overstated by 1 or 2 percentage points. Even if manufacturing's share were reduced from 22 to 20 percentage points, this lower figure is well within the range of normal variation in its share and just 1 percentage point below manufacturing's postwar average GNP share.

A review of the data also suggests that whatever revisions are made to manufacturing productivity data will not revise away the sharp improvement in manufacturing productivity since 1981. A large share of the problem—to the extent there is one—is said to arise from an adjustment that lowered 1972 manufacturing output and raised its growth rate for 1972–87. However, the largest impact of the adjustment on output growth occurred between 1972 and 1979, with little impact on manufacturing productivity growth after 1979. Thus removal of the adjustment would make the recovery of manufacturing productivity growth after 1981 look even stronger relative to the 1973–81 period. In addition, regardless of what revisions are finally made to the 1973–81 period, manufacturing productivity growth of 4.1 percent in the 1981–87 period is a significant increase relative to the 2.8 percent growth in the 1948–73 period. Finally, even if the level of manufacturing productivity is lowered somewhat, because manufacturing productivity is constructed separately from overall activity, the revision may simply lower manufacturing productivity and raise nonmanufacturing productivity, leaving overall productivity growth unchanged.

More fundamental problems exist with measured productivity growth in nonmanufacturing industries than a possible mismeasurement between manufacturing and nonmanufacturing. Although the nonmanufacturing sector has been growing rapidly, contributing heavily to real GNP growth and increased employment, its productivity record in the 1980s has been weak. The weakness is something of a puzzle. As can be seen in Table 1-3, not all the nonmanufacturing industries have done poorly. The average growth rate in output per hour in farming, mining, communication, utilities, and trade for the past 6 years has been 3.8 percent. However, this growth has been offset by slow measured growth in transportation and services and negative growth in construction, the finance sector, and government enterprises.

TABLE 1-3.—*Growth in Value Added per Hour Paid, 1948-87*

[Average annual percent change, except as noted]

Sector	1987 output share (percent) ¹	1948 to 1973	1973 to 1981	1981 to 1987
Goods-producing:				
Farm	2.4	4.6	5.2	5.2
Mining	3.8	4.0	-6.8	5.2
Construction	5.7	.6	-2.7	-6
Manufacturing	27.1	2.8	1.3	4.1
Durable manufacturing	17.0	2.4	1.1	5.2
Nondurable manufacturing	10.2	3.4	1.7	2.5
Service-producing:				
Transportation	4.4	2.3	-2	.7
Communication	3.5	5.2	4.3	5.3
Utilities	3.4	5.9	.4	1.4
Trade	21.3	2.7	.5	2.4
Wholesale	9.4	3.1	-1	3.5
Retail	11.9	2.4	.5	1.8
Finance, insurance, and real estate	10.7	1.4	-4	-7
Services	16.1	2.2	.3	.4
Government enterprises	1.5	-1	1.2	-9
BUSINESS	100.0	2.9	.6	1.6

¹ Detail does not add to total because of rounding.

Source: Unpublished data from Department of Labor (Bureau of Labor Statistics).

Part of the explanation for this divergent performance in productivity may be that these slow and negative growth sectors accounted for more than 65 percent of the job growth since 1981. As a result, they have added a disproportionate share of young and inexperienced workers to their labor force. Capital-labor ratios have also shown little growth in these industries, perhaps because of a substitution of labor for capital.

Measurement problems may also continue to exist in these rapidly expanding areas. In the services and finance sector—which accounted for more than 67 percent of total nonfarm employment growth—

output is extremely difficult to measure. The rapid rates of innovation in these industries make it difficult to identify quality changes or to separate pure price changes from price changes arising from changes in product characteristics.

Slow growth in measured productivity in transportation is related to measurement problems in the airline industry. Deregulation has produced lower fares and increased passenger miles per employee. Most estimates indicate large net savings, yet productivity as measured by value added per hour worked appears to have fallen. This clear contradiction of the evidence in airlines may be the result of the problem of developing consistent deflators during a period when the fare structure is rapidly changing. Today 90 percent of fares are sold at discounts from full fare; in 1976, 85 percent of travelers paid the listed full-fare price.

Construction offers another example of the problems of measurement. Value added per worker in construction stands at the same level as in 1948. This poor productivity performance seems difficult to believe given the development of prehung factory-made doors and windows, factory-made trusses, aluminum siding, and more sophisticated construction equipment. Understatement of construction activity and inadequate price data have always posed a problem, and it may be worsening.

International Productivity and Growth: A major question that arises in looking at the productivity and growth experience in the 1980s is why many of the other industrialized nations have not seen the recovery in productivity growth and output that the United States has witnessed. Part of the reason probably lies in their lack of labor market flexibility. Employment, especially in Europe, has not recovered from the contraction of the early 1980s. Unemployment among the Organization for Economic Cooperation and Development (OECD) nations of Europe is above 10 percent, and mandated benefits and high marginal taxes make employers reluctant to innovate and expand their businesses.

Strong growth of output and employment require flexible labor markets that are free from rigidities and distortions. The flexibility of U.S. labor markets contributed to the strong performance of the U.S. economy. In many countries, especially in Europe, the flexibility of labor markets has been reduced by restrictive work practices, excessive nonwage labor costs, rigid work rules, generous unemployment insurance benefits, and burdensome job security arrangements. Such distortions, along with high marginal tax rates in these countries, discourage job growth by driving a wedge between wages paid and wages received while reducing the costs of remaining unemployed and reducing labor mobility.

Most governments, as expressed in recent economic summits and the OECD, now accept the importance of market flexibility and structural adjustment. This relatively new development is attributable to the positive experience of the United States in the 1980s.

Market incentives form the basis for economic decisionmaking in the United States. For example, wage negotiations between workers and firms are voluntary, free of government intervention, and free to take into account special regional and industrial factors. The imposition of government-mandated benefits raises the cost of labor, thereby slowing the growth of employment and raising unemployment. As a result the young, inexperienced, and lower productivity workers, whom mandated benefits are often intended to help, are among those who are hurt.

Flexible markets ensure adjustment to changing economic circumstances. Flexible markets also promote dynamic adjustment. Admittedly adjustment can be painful for some workers and for some firms. In the United States, for example, during the 1980s, the adjustment of workers and manufacturing firms in many cases was especially difficult and costly. Some workers were displaced; the real earnings of others declined, and company profits fell. These difficulties are best dealt with by firms and workers, however, not the government. Government intervention slows the adjustment process and often does not help workers in any real sense, but simply shifts the burden elsewhere.

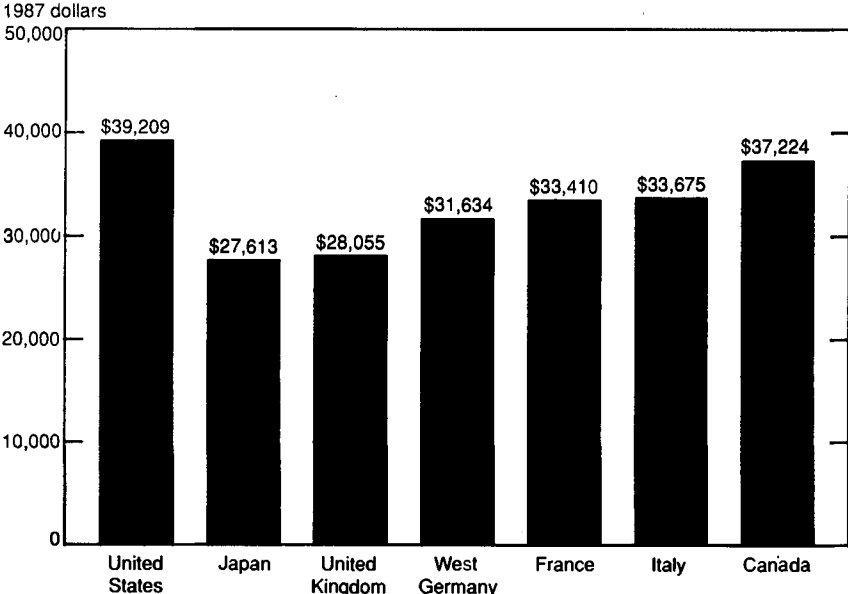
Although labor market inflexibility helps to explain the poorer growth and employment experience abroad, it does not help explain why growth in other countries' productivity has not revived as it has in the United States. The explanation may be that a slowdown in growth was inevitable for these countries. During most of the postwar period it was relatively easy to raise productivity through new investments adapting U.S. technology. As the other nations' capital stocks and standards of living have moved closer to those of the United States, and as the U.S. technological advantage was reduced, the other nations' productivity growth has approached the U.S. rate. As the British and French found with the Concorde and the Japanese with Beta videocassette recorders, innovation and new products are riskier, slower, and more expensive than imitation.

Thus while other nations will continue to benefit from the postwar free trade and stabilization programs of the United States, their growth rates and levels of output will likely converge toward U.S. rates and levels. Still, the United States continues to have the highest standard of living of the major industrialized nations of the world, and U.S. real income per capita and productivity still exceed that of any of the other major industrial countries (Chart 1-10). Contrary to

popular myths, Japan still has a way to go to reach the level of per capita income enjoyed by the United States, and its productivity is only 70 percent of U.S. real gross domestic product (GDP) per worker. It is clear that the United States is still the world's economic leader. From this position the United States should continue to strive to provide the free markets and stability that have allowed it and the other market economies to succeed so well during the postwar period.

Chart 1-10

Real GDP per Employed Person in the Seven Summit Countries, 1987



Note.—Data based on purchasing power parity exchange rates.
 Source: Unpublished data from Department of Labor.

SOCIAL PERFORMANCE

Although the 1981–82 recession was costly, the inflation that plagued the 1970s has been reduced dramatically. The expansion that followed brought strong job growth, growth in real family income, and increases in economic opportunity.

The economic expansion has improved the position of almost all demographic groups. Real median family income is up 9.4 percent since 1982. Black family income is up 10.5 percent, white family

income is up 9.0 percent, and Hispanic family income is up 3.9 percent.

Families across the distribution of income also showed gains. Between 1982 and 1987 families at the lowest fifth of the income distribution saw their income grow at a 1.4 percent annual rate, while those at the top fifth saw theirs grow at a 1.9 percent annual rate.

Tax reform will offset part of the faster relative growth in the before-tax money income of those at the upper end of the distribution. Tax reform cut low-income taxpayers' Federal income taxes by 65 percent, those in middle income groups by between 9 and 10 percent, and those in upper income groups by between 1 and 2 percent. Tax reform eliminated taxes for about 4 million low-income taxpayers.

Economic expansion also helped to reduce poverty. The poverty rate has declined from a postrecession high of 15.2 percent in 1983 to 13.5 percent in 1987. Unfortunately, the rising economic tide lifts only those boats that are in the water. Despite the lowest unemployment rate in 14 years, the head of the household in more than 85 percent of all families in poverty did not have a year-round, full-time job.

The continuing problem of poverty and dependency led to the Family Support Act of 1988, which the Congress passed in an attempt to increase individual responsibility, training, and support for low-income families. By strengthening provisions for child-support enforcement, the act requires fathers to take greater responsibility for their children. By introducing work requirements for those able to work and by extending employment-related services, the act is intended to help the poor to escape poverty and become self-supporting.

The Job Training Partnership Act (JTPA) was another step in the right direction. In contrast with the earlier Comprehensive Employment Training Act (CETA), where the bulk of the funds went for payments to individuals, JTPA focuses on training. By law, the block grant program—JTPA's largest program—must devote at least 70 percent of its funds to actual training compared with less than 20 percent under CETA. The JTPA provides training and job-finding services, using a decentralized approach. It gives State and local governments the responsibility and discretion to work with the private sector to train workers to meet local labor market needs.

These programs will certainly help, but much needs to be learned about incentives and dependency. For this reason, the Administration has assisted several States in undertaking welfare reforms designed at the local level, and has encouraged these States to employ randomized assignment for the purpose of subsequent evaluation. If the

Nation is to learn about the complex processes that determine dependency and self-sufficiency, it must provide the best possible opportunity to observe program effects. The object of study is too important to view through the veil of fundamentally arbitrary adjustments for pre-selection and other factors. Certainly, of all the welfare-related investments the Nation might make, an investment in understanding should rank high on the list.

CONCLUSION

The lessons of the past suggest that solutions to economic and social problems should place maximum reliance on free markets. Government has a role in providing a stable macroeconomic environment, encouraging free trade and investment, providing basic public goods and a social safety net, but lasting solutions are achieved when private incentives encourage private solutions.

Subsequent chapters of this *Report* expound on this general theme and the major functions that contribute to economic growth. Chapter 2 traces the role of fiscal policy in the 20th century, and especially the postwar period, in stimulating growth. Chapter 3 examines the role of international financial markets, capital movements, the international debt problem, and the role of international financial institutions in providing a framework for growth. Chapter 4 documents the significant reduction in trade barriers in the postwar period and the major contribution to growth that resulted. Regulatory issues and their relationship to long-term growth are explored in Chapter 5. Chapter 6 discusses the role of science and technology in increasing productivity, which underlies so much of the Nation's increased prosperity. Chapter 7 reviews the accomplishments of the present expansion and presents the Administration's economic forecast.