Growth and Prosperity Series

Vol. 1

Economic Growth and the Future Prospects of the U.S. Economy

October 1999

Joint Economic Committee Staff Report
Office of the Chairman, U.S. Senator Connie Mack

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EXECUTIVE SUMMARY

- The economic environment influences growth. Well-defined and enforced property rights, competitive markets, monetary and price stability, openness to international trade, and limited government create an environment conducive for rapid growth.

- It is important to distinguish between stability and growth. The stability of the U.S. economy since 1982 has been unprecedented, but despite rapid growth recently, growth during the 1990s has been slower than during any decade since World War II.

- The experience of the industrial economies indicates that expansion in the size of government retards economic growth. During the last four decades, there has been a consistent negative relationship between size of government and growth.

- The Irish economy illustrates the importance of sound policies. During 1960-1986, Ireland's government spending rose from 28 percent to 52 percent of GDP. Monetary policy was unstable and trade restraints were high. This led to a stagnating economy. In the late 1980s, Ireland made a U-turn. Government spending was cut sharply; tax rates were sliced; trade barriers were reduced; and a more stable monetary policy was instituted. These policies led to the "Irish miracle"—7.1 percent annual growth—during the 1990s.

- The baby boomers are now in their peak earning years (35 to 59). Their demands for government services are low and their high incomes generate substantial tax revenue. This combination of factors is now exerting a positive impact on the federal budget and the U.S. economy.

- The United States is at an important crossroads. If we control government spending during the next decade, the economy will grow more rapidly and thereby reduce the burden accompanying the retirement of the "baby boom" generation. In contrast, if the federal government undertakes new spending initiatives and does nothing to reform existing health care and retirement programs, the U.S. will become a big-government, European-style economy when the baby boomers retire. This will lead to slower growth and less prosperity.

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FOREWORD

Economic growth is the key to higher living standards. When sustained over a long period, even seemingly small differences in economic growth exert an enormous impact on income levels and living standards. For example, if two countries have the same initial income level, but one grows 4 percent annually and the other 2 percent, the income level of the one with the higher growth will be twice that of the other after 35 years. Because of the impact of growth on quality of life, I asked the research staff of the Joint Economic Committee to focus on this topic. The Committee will publish a series of reports presenting the findings of their research.

This initial report of the series explores the factors that influence growth and analyzes their implications with regard to the future of the U.S. economy. The report compares the recent performance of the United States with that of other countries, as well as with American growth during earlier periods. During the next few years, policy makers will confront issues that will influence the future growth and prosperity of America. This report explains why the choices are important and provides a framework that will help us choose wisely.

Senator Connie Mack, Chairman
Joint Economic Committee

INTRODUCTION

Growth is a complex phenomenon resulting from the interaction of institutions, incentives, and individual preferences. While there is no precise recipe for economic growth, we do have a good idea of the main ingredients. Even though the United States has recently had faster growth than other large industrial countries, growth has been slower than during other periods not so long ago. The U.S. economy could do better. This report explains why and outlines policies that will enhance future growth.

Too often, reports of this type focus on current conditions without paying much attention to the underlying factors that determine long-term economic performance. Yet our living standards reflect what happens over the long term. Thus, we think it is important to focus on long-term sustainable growth and what might be done to enhance it.

It is important to distinguish between economic stability and economic growth. An economy can be stable even though its growth rate is well below its potential. Stability is necessary but not sufficient for fast growth. Section 1 explains the all-important connection between monetary policy and economic stability. Section 2 analyzes the primary ingredients of long-term growth. Section 3 explains why the growth rate of the U.S. during the last decade has been more rapid than that of other major industrial countries. Section 4 focuses on lessons that we can learn from the experience of Ireland, one of the world's fastest-growing economies during the 1990s. Finally, Section 5 focuses on the current state of the U.S. economy and important policy issues that will influence its future growth.

1. ECONOMIC STABILITY AND MONETARY POLICY

If nothing else, the experience of the last decade has reinforced earlier evidence that a necessary condition for maximum sustainable economic growth is price stability.

Alan Greenspan
Testimony to the House Committee
on Banking and Financial Services
July 22, 1999

Three decades ago, policy makers and economists alike generally thought that monetary policy could be used to smooth ups and downs in the business cycle and keep unemployment low. However, efforts to use monetary policy in this manner led to inflation and economic instability during the 1970s. People do not act mechanically, as the models of three decades ago assumed; they change their expectations and behavior in response to policies. Once this became better understood, the limitations of monetary policy became more evident. During the last fifteen years, monetary policy has focused on a more narrow objective—price stability. The closer monetary policy has come to achieving price stability, the more stable the economy has been and the lower the rate of unemployment has fallen.

When policy makers sought to achieve more than monetary policy could deliver, they created instability. In contrast, when they focused on the objective that monetary policy could deliver, they enhanced the overall performance of the economy.

I. The Importance of Price Stability

The high standard of living that Americans enjoy is the result of gains from specialization, division of labor, and mass production processes. To realize those gains, trade and a smoothly functioning price system are necessary. High and variable rates of inflation generate uncertainty and reduce the efficiency of a market economy.

Price stability contributes to economic growth and the efficient use of resources in several ways.

1. Price stability reduces the uncertainty accompanying decisions, such as saving and investing, that involve transactions across time. When the general level of prices is constantly changing from year to year, no one knows what to expect. Unanticipated changes of even 3 percent or 4 percent in the rate of inflation can turn an otherwise profitable venture into an unprofitable one. The uncertainty generated by inflation reduces the attractiveness of both saving and investing. As a result, both will be lower than they would be under price stability.

2. When the price level is stable, relative prices direct resources more consistently toward the most productive uses. Prices communicate important information about the relative scarcity of goods and resources. Inflation distorts this information. Some prices can be easily and regularly changed, but that is not true for other prices, particularly those set by long-term contracts. There will be delays before the prices for rental agreements, items sold in catalogs, mortgage interest rates, and collective bargaining contracts can be modified. Because some prices respond more quickly than others, unanticipated changes in inflation affect *relative prices* as well as the *general price level.* As a result, prices become a less reliable indicator of relative scarcity. Producers and resource suppliers then make mistakes they would not make under stable prices, and the allocation of resources is less efficient.

3. People respond to high and variable inflation by spending less time producing and more time protecting themselves from inflation. Because failure to anticipate the rate of inflation can have a substantial effect on one's wealth, individuals divert scarce resources from production toward speculation. Funds flow into speculative investments such as gold, silver, and art objects rather than into productive investments, such as buildings, machines, and technological research, that expand the economy's potential output and generate economic growth.

II. Inflation and the Tax Code

Inflation can also hurt economic growth through interaction with the tax code. Even modest rates of inflation can alter the effective tax rate on savings and investment, making it substantially higher than the statutory tax rate. That is true even if the overall tax structure is indexed. There are two major areas where such inequities are particularly important.

1. Inflation and capital gains taxes. Inflation increases the effective tax on capital gains. If someone buys an asset for $1,000 and sells it for $2,000, the gain is $1,000. If the statutory tax rate on capital gains is 20 percent, the tax liability is $200. If the general price level was stable during the years the asset was held, the 20 percent rate is the effective tax rate. So, when prices are stable, the effective and statutory tax rates are the same.

In contrast, consider what happens when inflation pushes the price level up by 50 percent during the holding period of the asset, so that $1,000 at the start of the period is equal to $1,500 at the end. If the asset is sold for $2,000, the real (inflation-adjusted) capital gain, measured in current dollars, is only $500. Nonetheless, under current law, the capital gains tax is still $200 because the 20 percent rate does not adjust for the effect of inflation. The statutory capital gains rate is only 20 percent, but the real, effective tax rate is 40 percent—$200 divided by the real capital gain of $500. When assets are held for lengthy periods, even low inflation can drastically alter the effective tax rate on capital gains, forcing people to pay taxes even when they suffer real capital losses. This increases the cost of capital, thereby deterring investment and retarding economic growth.

2. Inflation and taxes on interest. Inflation also increases the effective tax on interest and thereby reduces the incentive to save. Suppose prices are stable and an individual in the 28 percent tax bracket earns 5 percent interest on $100 of savings. After taxes, the individual ends up with $3.60. Because prices are stable, the after-tax, inflation-adjusted interest rate is 3.6 percent.

Now consider what happens when persistent inflation of 5 percent pushes nominal interest rates up to 10 percent. After taxes the individual ends up with $7.20 ($10 less the 28 percent tax

liability). But $5 of this is due to inflation, leaving the individual with an after-tax, inflation-adjusted interest return of only $2.20 (2.2 percent). The effective tax rate is 56 percent, twice the statutory rate.

These examples highlight one benefit of price stability: it keeps effective tax rates on capital gains and interest in line with statutory rates. Inflation pushes effective tax rates on capital gains and interest to exceedingly high levels.[1]

III. Two Key Propositions of Monetary Policy

It is crucial to understand two things about monetary policy.

1. Persistent increases in the general level of prices are always the result of excessive growth in the money supply. Inflation is a monetary phenomenon. Inflation is the result of too much money chasing too few goods. When the money supply expands more rapidly than goods and services, the additional money is used to bid up the general level of prices. Viewed from another perspective, when the supply of money exceeds the quantity that people are willing to hold at the existing price level, they spend more, putting upward pressure on the price level. If the increase in the money supply was unanticipated, the additional spending may stimulate output and employment in the short run. However, sustained expansion of the money supply at an overly rapid rate soon pushes the price level upward, causing inflation.

The experience of the United States and other countries is consistent with this view. Low rates of growth in the money supply are associated with low inflation, while high rates are associated with high inflation. The long-term link between growth in the money supply and inflation is one of the most consistent empirical relations in economics.

2. Monetary policy can achieve price stability. When it does, it has done its part to promote maximum growth and employment. When the general level of prices shows signs of rising,

[1]Inflation also reduces the value of depreciation allowances. This results in an overstatement of the net income derived from depreciable assets, which increases the effective tax rate imposed on them. It also causes the effective tax rate on the return from depreciable assets to exceed the statutory rate.

monetary restraint can bring it back under control. The Federal Reserve can drain reserves from the banking system and increase the federal funds rate (the rate banks pay to borrow from each other the deposits they hold as reserves at the Federal Reserve). By shifting to a more restrictive monetary policy, the Federal Reserve reduces total spending, which places downward pressure on the price level. Correspondingly, the Federal Reserve can combat deflation—a decline in the general level of prices—by shifting to a more expansionary monetary policy.

The level of prices reflects monetary policy. Monetary policy should focus on attaining price stability. Price stability reduces uncertainty, improves the efficiency of markets, and promotes full employment.

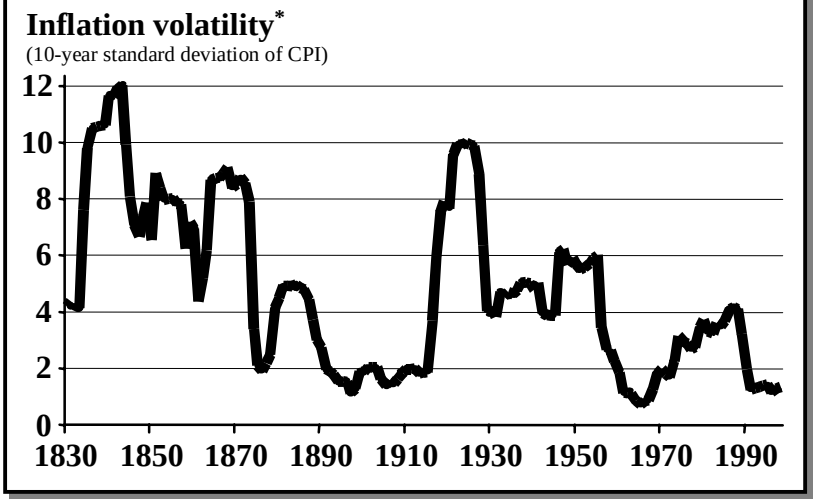
How should price stability be defined? Federal Reserve Chairman Alan Greenspan has testified on several occasions that price stability is the point at which changes in the general price level are no longer a significant consideration when people make economic decisions. Implicit in this definition is the element of credibility. If prices are stable today but people believe they will rise in the future, long-term interest rates will stay higher than necessary, limiting the investment needed to raise living standards. When monetary policy achieves stable prices and convinces the public that the price stability will continue in the future, it has done its part to promote economic growth and prosperity.

IV. The Remarkable Record of the Last Two Decades

Since the double-digit inflation of the 1970s, policy makers and economists alike have become increasingly aware of the importance of price stability. Under the chairmanships of Paul Volcker and Alan Greenspan, the focus of the Federal Reserve has been to reduce inflation and move toward price stability.

This policy has been highly effective. It is informative to place the current policy in historical perspective. Figure 1.1 shows the ten-year moving standard deviation of inflation from 1830 to 1998. A low standard deviation indicates little volatility in year-to-year changes in inflation. When inflation is low and steady over a lengthy

Figure 1.1: Inflation Volatility in the United States, 1830-1998

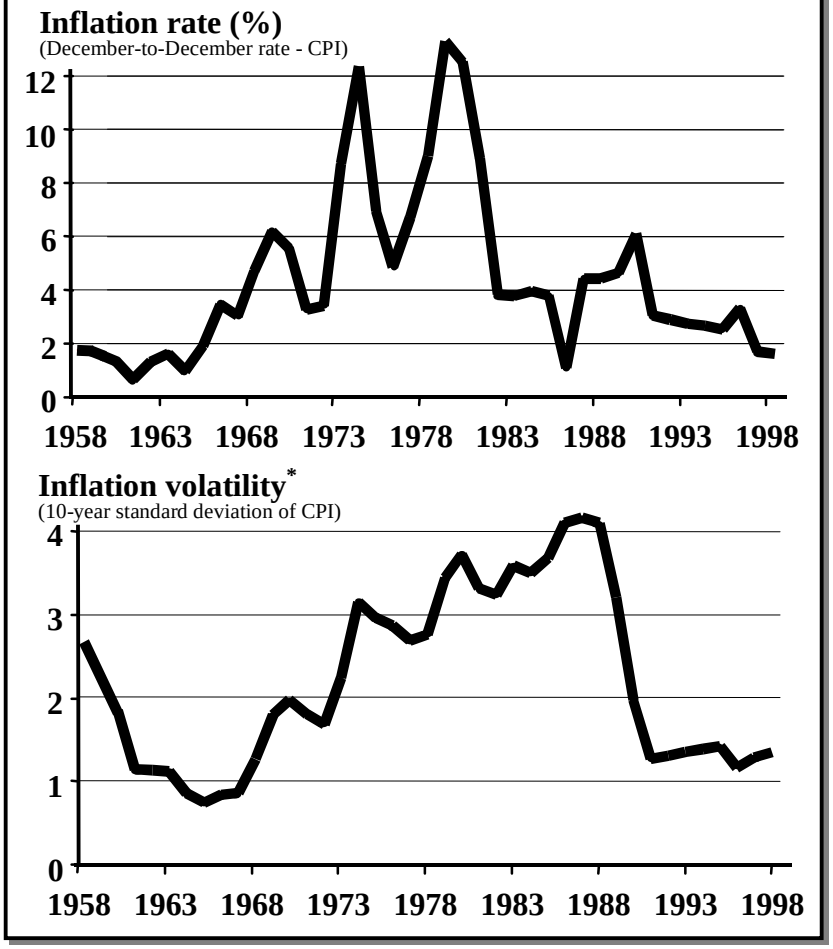


Sources: Global Financial Data; Haver Analytics.
**Note: ***Based on December-to-December changes in Consumer Price Index.

period, people come to anticipate it and adjust their choices accordingly. Long-term interest rates tend to be low and do not change much in response to unanticipated blips in the price level. Because the figure measures volatility over ten-year moving periods, it indicates credibility—the extent to which people can count on the continuation of the policy. The lower the standard deviation, the closer the economy comes to long-term price stability. As the figure shows, inflation was steadiest in the two decades prior to World War I, the 1960s, and the last ten years. It was more volatile from 1830 to 1870, 1915 to 1950, and from the 1970s to the early 1980s.

Figure 1.2 takes a closer look at inflation and its volatility during the last four decades. As the top frame shows, inflation rose from 1965 to 1980, and was particularly high and variable in the 1970s. It fell abruptly during the recession of 1982 and has been on a gradual downward trend since. The bottom frame illustrates that after falling during the first half of the 1960s, the ten-year volatility of inflation

Figure 1.2: Inflation and Inflation Volatility in the United States, 1958-1998

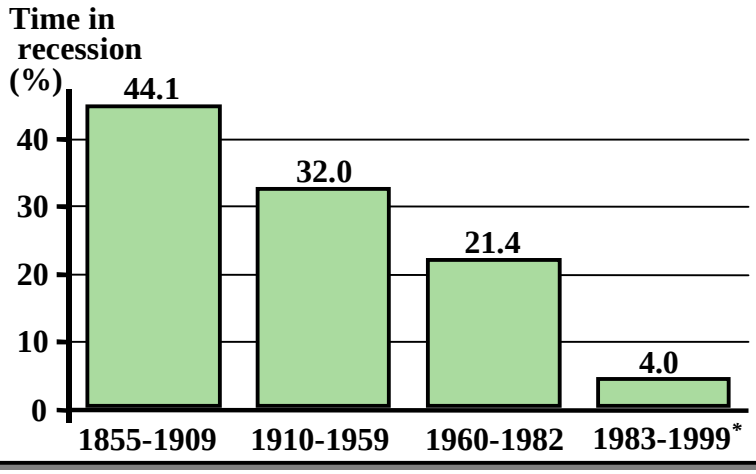


Sources: Global Financial Data; Haver Analytics.

Note: *Based on December-to-December changes in Consumer Price Index.

rose persistently throughout the next two decades. It fell sharply in the late 1980s and early 1990s, following a decade of relative price

Figure 1.3: Increased Stability of U.S. Economy



Source: Carl Walsh, Federal Reserve Bank of San Francisco *Economic Letter* 99-16, May 14, 1999.

**Note: ***Final period ends with June 1999.

stability, and since 1991 has remained below 1.5 percent. If inflation can be maintained between 1 and 2 percent during the next few years, the ten-year volatility of inflation may reach an all-time low.

Many economists argue that monetary shocks have been a major source of economic instability.[2] If they are correct, periods of price stability should also be associated with stable growth and a high level of employment. This has indeed been the case. Not only has inflation been low and relatively stable during the last 16 years, but the overall stability of the economy has been unprecedented. As Figure 1.3 shows, the amount of time the U.S. economy has spent in

[2]Milton Friedman summarized this position when he stated, "Every major contraction in this country has been either produced by monetary disorder or greatly exacerbated by monetary disorder. Every major inflation has been produced by monetary expansion." Milton Friedman, "The Role of Monetary Policy," *American Economic Review*, v. 58 (March 1968), p. 12.

recession has declined from 44 percent during 1855-1909 to only 4 percent since 1982. The current era has had the least amount of recession of any comparable period in American history.

Monetary policy deserves most of the credit for the remarkable stability of the U.S. economy since 1982. From 1983 to 1998, the year-to-year change in inflation never exceeded 1.2 percentage points. The Federal Reserve followed policies consistent with low and stable inflation and its policies led to economic stability. This experience provides strong evidence that monetary policy consistent with price stability is a key, perhaps the key, to stable growth and an environment that permits unemployment to fall.

V. The Limitations of Monetary Policy

While monetary policy can achieve price stability, several important economic objectives are beyond its reach. Efforts to use monetary policy to achieve these objectives will not only fail; they will lead to economic instability.

1. Stop-go monetary policy cannot smooth the ups and downs of the business cycle. Rather, it increases economic instability. In the 1960s and 1970s it was widely believed that monetary policy could be used to smooth the ups and downs of the business cycle. The proponents of this view argued that monetary policy could stimulate the economy during recessions and restrain it during booms, promoting higher average growth, more stable output, and lower unemployment.

As the experience of the 1970s shows, monetary policy makers lack sufficient information to adjust policy to smooth the business cycle. There is a lag between when a policy change is instituted and when it begins to affect output and employment. Studies indicate that the lag is lengthy and unpredictable, generally ranging from 6 to 18 months. Furthermore, changes in economic conditions are often the result of unforeseen economic shocks such as droughts, wars, political revolutions, and financial crises. Our ability to forecast such shocks is limited. Proper timing would require monetary policy to change an unknown and variable number of months before a

recession or boom that itself is unlikely to be foreseen. That is beyond the capability of economics.

Incorrectly timed attempts to stabilize the economy through monetary policy have destabilizing effects. Accordingly, most economists now believe that monetary policy should follow a stable and transparent course focused on price stability. If it achieves price stability, output and employment will also be relatively stable.

2. Expansionary monetary policy cannot enhance the long-term growth of output and employment. Attempts to use monetary policy in expansionary fashion lead to inflation. Once people come to expect inflation, it no longer spurs output and employment. While economists continue to debate how quickly people alter their expectations in response to a change in the rate of inflation, the controversy is about whether there may be some temporary impact. Almost all economists now agree that in the long run, trying to stimulate employment through expansionary monetary policy causes inflation and destabilizes the economy.

3. Expansionary monetary policy cannot reduce the unemployment rate. In the 1960s and 1970s, many economists thought there was a tradeoff between inflation and unemployment. They believed that the unemployment rate could be reduced if we were willing to tolerate a little more inflation. This view was incorporated into policy. The Full Employment and Balanced Growth Act of 1978 implicitly assigned the Federal Reserve System responsibility for reducing unemployment to no more than 4 percent.[3]

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[3]Economists refer to the relationship between inflation and unemployment as the Phillips Curve. Paul Samuelson and Robert Solow, who later won Nobel Prizes in economics, claimed, "In order to achieve the nonperfectionist's goal of high enough output to give us no more than 3 percent unemployment, the price index might have to rise by as much as 4 to 5 percent per year. That much price rise [inflation] would seem to be the necessary cost of high employment and production in the years immediately ahead." Paul A. Samuelson and Robert Solow, "Analytical Aspects of Anti-Inflation Policy," *American Economic Review,* v. 50 (May 1960), p. 192. The alleged inflation-unemployment tradeoff was even incorporated into the *Economic Report of the President* for 1969 (p. 95).

An unanticipated shift to a more expansionary policy may temporarily reduce the unemployment rate. However, any reduction will be short-lived. As soon as decision makers anticipate the higher rate of inflation and adjust their decisions accordingly, unemployment will return to its normal level—the sustainable rate consistent with the composition of the labor force and structure of the labor market. Even high rates of inflation will fail to reduce unemployment once people anticipate them. There is no permanent tradeoff between inflation and unemployment.

4. Expansionary monetary policy cannot permanently reduce interest rates. Expansionary policy leads to high rather than low interest rates. Political leaders often suggest that the Federal Reserve follow a more expansionary monetary policy to reduce interest rates. The Federal Reserve can use its control over bank reserves to influence short-term interest rates. However, the Federal Reserve's control over long-term interest rates is far more limited. Furthermore, while monetary expansion may reduce short-term interest rates, if it persists it will increase long-term rates. Persistent monetary expansion leads to inflation. Once people begin to anticipate higher inflation, long-term interest rates rise.

High interest rates do not necessarily mean that monetary policy is too restrictive. In the United States, interest rates were high during the l970s, a period of expansionary monetary policy and inflation. On the other hand, low interest rates do not necessarily signal that monetary policy is expansionary. Interest rates in the United States were relatively low during the 1960s and 1990s, periods of more restrictive monetary policy. During the Great Depression, interest rates fell to less than 1 percent. Rather than reflecting an expansionary monetary policy, low interest rates reflected a highly restrictive monetary policy that was causing deflation and the expectation of a falling price level.

Today, the dominant view among economists is that economic stability and the highest sustainable rate of economic growth are goals best achieved by maintaining long-term price stability. Senator Connie Mack (R-Florida) has introduced the Economic Growth and Price Stability Act of 1999, which would make long-term price stability the primary goal of Federal Reserve policy.

Internationally, the picture is the same. The highest interest rates in the world have occurred in countries experiencing hyperinflation— Argentina and Brazil in the 1980s and Russia in the 1990s, for example. In the late 1990s, interest rates in Japan fell below 1 percent. As with the United States during the Great Depression, low interest rates in Japan today reflect a highly restrictive monetary policy that has led to a falling price level and the expectation of deflation.

VI. Conclusion

The experience of the last two decades highlights the importance of monetary policy. Monetary policy helps the economy most when it focuses on providing price stability. Price stability enables people to make more accurate economic decisions, enabling them to employ labor and other resources to the fullest extent under existing conditions.

2. WHY ECONOMIC GROWTH MATTERS AND HOW TO ACHIEVE IT

I. The Importance of Economic Growth

Good monetary policy is necessary but not sufficient for economic growth. A country can have economic stability yet lack dynamism because excessive taxes and regulation hinder growth.

Economic growth is the key to higher living standards. Output and income are closely linked; in fact, output must grow for income to grow. Expansion in output per person is vitally important because it makes higher living standards possible.

Over long periods, seemingly small differences in growth rates have big effects on income. The "rule of 70"[4] helps to illustrate this point. Dividing 70 by a country's average growth rate approximates the number of years required for income to double. At an average annual growth rate of 2 percent, income doubles in 35 years (70 divided by 2). In contrast, at a 4 percent annual growth rate, income doubles in only 17.5 years (70 divided by 4). If two countries have the same initial income level, after 35 years the income of the country growing at 4 percent will be twice that of the country growing at 2 percent.

Sustained reductions in annual rates of growth can cause major problems, while sustained increases can help resolve them. The budget deficits of the U.S. during the last ten years illustrate this point. From 1990 to 1992, real GDP grew only 0.9 percent a year. Largely as a result, the federal budget deficit ballooned from $152 billion (2.8 percent of GDP) in 1989 to $290 billion (4.7 percent of GDP) in 1992. In contrast, from 1994 to 1998, real GDP grew 3.4 percent a year and the large budget deficit of 1992 became a $69 billion surplus by 1998.

The most important problem currently confronting the U.S. economy is planning for the increased burden of retirement and

[4] Also known as the rule of 72. For lower numbers, using 70 provides more accurate results; for higher numbers, using 72 provides more accurate results.

health care benefits as the "baby boom" generation starts to retire beginning around 2010. The weight of the burden will depend on the growth of the U.S. economy in the years immediately ahead. If the economy grows at a 3.5 percent annual rate during the next two decades, real GDP will be 100 percent above the current level 20 years from now. That will substantially increase the economy's ability to support the baby boomers in retirement. On the other hand, if the economy grows at only 2.4 percent a year, as it did from 1986 to 1995, real GDP 20 years from now will be only 60 percent above the current level. Clearly, the burden of Social Security and Medicare will be much greater if growth is slower. As these and other programs are modified, it is vitally important for policy makers to focus on how the changes will affect future economic growth.

II. Determinants of Economic Growth

Economic growth is complex. Several factors play important roles, and they are often related. Weakness in one or two key areas can undermine growth. Although economics does not provide a precise recipe for economic growth, it does highlight several ingredients that are important.[5]

Building on the work of Robert Solow, many economists stressed the importance of inputs and technology as sources of economic growth during the three decades following World War II.[6] The Solow model indicates that growth results from expansion in the resource base and improvements in technology. Several researchers sought to measure the growth of the stock of physical and human capital and use these figures to estimate their contribution to the growth of output. The unexplained residual was thought to be the result of advancements in technology.

Inputs are vitally important for economic growth, but they are not created and used in a vacuum. The economic environment

[5]There is nothing automatic about economic growth. Of the 152 countries for which data are available, 45 (about 30 percent) experienced reductions in real GDP per person from 1990 to 1997.

[6]Robert Solow, "A Contribution to the Theory of Economic Growth," *Quarterly Journal of Economics*, v. 70 (February 1956), pp. 65-94.

Figure 2.1: Key Factors in Economic Growth

1. Investment in physical and human capital
2. Technological improvements
3. Efficiency of institutions and policies
   - (A) Secure property rights & political stability
   - (B) Competitive markets
   - (C) Monetary stability
   - (D) Freedom to trade with foreigners
   - (E) Size of government and level of taxes

influences the incentives to supply inputs and the efficiency with which they are used. Reflecting this point, recent work on economic growth integrates the quality of the economic environment—property rights, monetary stability, taxation, government spending, and regulation—into the analysis of growth. In many ways, this "new growth theory" is a return to the approach of Adam Smith, who also stressed the importance of the economic environment.[7] The new approach has several strands. Figure 2.1 lists the major factors that influence economic growth.

1. Investment in physical and human capital. Investment in physical capital (tools, structures, and machines) and human capital (education and training) can increase the productivity of workers. When workers make more goods and services valued by others, they can increase their incomes. Other things being equal, countries using

[7]The new approach builds on the work of Peter Bauer and Douglass North. See P. T. Bauer, *Dissent on Development: Studies and Debates in Development Economics* (Cambridge, Massachusetts: Harvard University Press, 1972) and D. C. North, *Institutions, Institutional Change, and Economic Performance* (Cambridge: Cambridge University Press, 1990). Other leading contributors to the new approach include Robert Barro, Arnold Harberger, and Gerald Scully.

a larger share of their resources to produce tools, machines, and factories tend to grow more rapidly. Spending more on education and training also tends to enhance economic growth.

Investment is not a free lunch. As more is spent to increase physical and human capital, less is available to spend on goods and services for current consumption. Furthermore, if investment is to expand output and income, it must be channeled into productive projects. High rates of investment do not always lead to more rapid growth, as the centrally planned economies of Eastern Europe and the former Soviet Union illustrate. They had high rates of investment but unimpressive rates of growth, because they invested so much in unproductive projects.

2. Technological advancements. Research and brain power can be used to discover lower-cost methods of production and to produce valuable new products. During the last 250 years, science and technology have exerted a remarkable impact on living standards. The steam engine and later the internal combustion engine, electricity, and nuclear energy have vastly altered our sources of power. The railroad, automobile, and airplane have dramatically changed both the cost and speed of transportation.

Science and technology continue to transform our lives. During the last 30 years, life-saving drugs, heart transplants, MRI and CAT scans, and laser surgery have transformed health care. Word processing equipment, fax machines, and electronic mail have vastly improved the speed and accuracy of communications. In the home, new technologies ranging from microwave ovens to personal computers have improved the quality of our lives. If anything, the speed of technological development appears to be accelerating as we head into the next century.

However, technology alone does not produce economic growth. Developing countries are in a position to emulate (or import at low cost) technologies that have been successful in developed countries. If technology were the primary factor limiting the creation of wealth, most developing countries would rapidly be catching up to developed countries. However, many developing countries have fallen farther behind even though modern technology is readily available to them.

3. Economic environment. Investment and technology are important for economic growth. But they are influenced by a country's institutional structure and the policy environment. Countries with a sound economic environment tend to attract investors willing to supply resources and adopt technological improvements. It is vitally important to incorporate the institutional and policy structure of countries into the analysis of economic growth. Models of economic growth that fail to incorporate the economic environment may well be omitting the key factor underpinning sustainable growth. The key difference between a centrally planned economy and a market economy is the economic environment.

III. Institutions and Policies for Economic Growth

Economic theory suggests several key institutions and policy factors that are important for the achievement of maximum economic growth. Figure 2.1 lists them.

1. Secure property rights and political stability. A legal system committed to protecting individuals and their property is a minimal prerequisite for sustained economic growth. Private ownership protects property and property owners against those seeking to acquire wealth by violence, theft, or fraud. Without well-defined and well-enforced property rights, investors will not be willing to buy equipment and other fixed assets that fuel economic growth.

The most important thing about private ownership is the incentives it provides. Private ownership holds people accountable for their actions. Under private ownership, people get ahead by providing things that other people value and by engaging in actions that increase the value of resources. To use a good or resource, you must buy or lease it from the owner. Each economic participant faces the cost of using scarce resources. To succeed in business, you must bid resources away from other potential users and provide customers with goods and services more valuable than the cost of production.

There is therefore a strong incentive to use resources productively—to discover and undertake actions that generate economic growth.[8]

A volatile political climate undermines the security of property rights. Some governments have confiscated physical and financial assets, imposed punitive taxes, and used regulations to punish their political enemies. Countries with this kind of history find it difficult to guarantee the security of property rights and gain the confidence of potential investors.

2. Competitive markets. Competition is the disciplining force of a market economy. As Adam Smith stressed long ago, when competition is present, even self-interested individuals engage in actions that promote the general welfare. In a competitive environment, producers must woo the dollar "votes" of consumers away from other suppliers. To do so, they must produce goods efficiently and provide consumers with worthwhile products. Sellers who cannot provide quality goods at competitive prices are driven from the market. This process leads to improvement in both products and production methods, while directing resources toward projects where they are able to produce more value. It is a powerful stimulus for economic growth.

Such policies as unhampered entry into business and freedom of exchange with foreigners enhance competition and thereby help to promote economic progress. In contrast, business subsidies, price controls, entry restraints, and trade restrictions stifle competition and retard economic growth.

3. Stable money and prices. A stable monetary environment provides the foundation for the efficient operation of a market economy. In contrast, monetary and price instability generate uncertainty and undermine the security of contracts. When prices increase 10 percent one year, 30 percent the next year, 15 percent the year after that, and so on, individuals and businesses are unable to

[8]For evidence that a legal system that protects property rights, enforces contracts, and relies on the rule of law to settle disputes promotes economic growth, see Stephen Knack and Philip Keefer, "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures," *Economics and Politics,* v. 7 (1995), pp. 207-27. See also Tom Bethell, *The Noblest Triumph* (New York: St. Martin's Press, 1998).

develop sensible long-term plans. In response, people save less, and businesses move their activities to countries with a more stable monetary environment. Foreigners invest elsewhere, and citizens often go to great lengths to get their savings out of the country. As a result, potential gains from capital formation and business activities are lost.

4. Freedom to trade with foreigners. International trade makes it possible for people to specialize in making the things they are best at—those they produce most efficiently. Trade also enables people to use the revenue from selling the things they produce for goods that are produced most efficiently abroad. Specialization and trade are mutually advantageous. Each trading partner produces more and earns more income than would otherwise be possible. Economists call this the law of comparative advantage.[9]

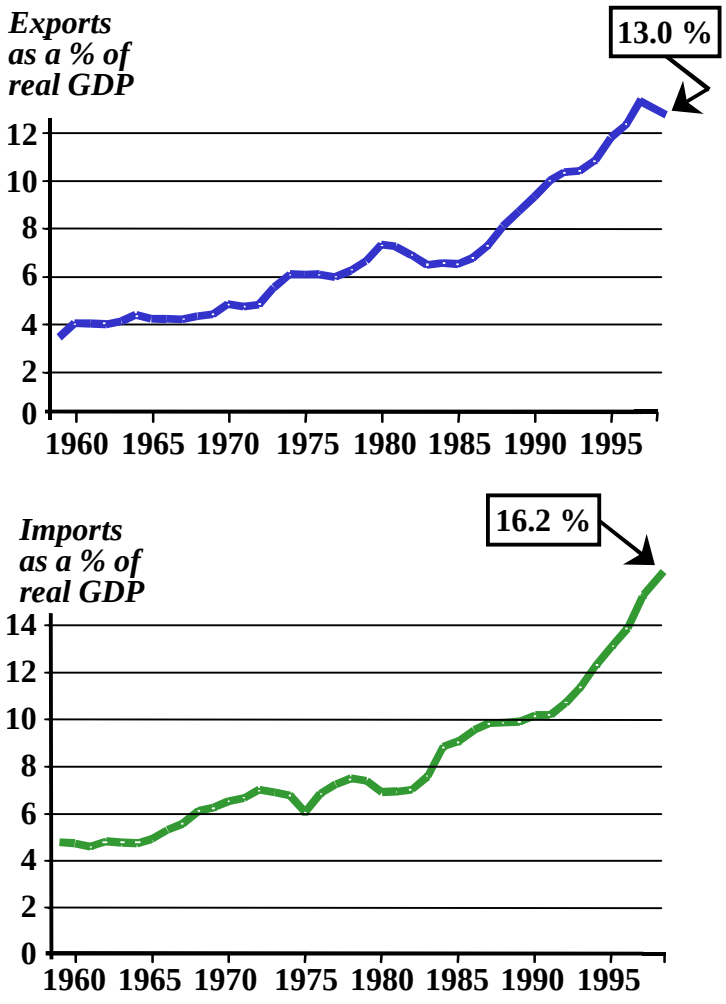
Both reductions in trade barriers and lower transport costs lead to more international trade. As a country shifts more and more of its resources toward economic activities that it performs well, it achieves higher levels of output and income. Increased openness and lower transport costs have helped expand international trade during the last several decades. Approximately 21 percent of the world's total volume of output is now sold in a different country from where it was originally produced—double the proportion of 1960.

As Figure 2.2 shows, the exports and imports of the United States have grown rapidly in recent decades. Exports increased from 7 percent of GDP in 1980 to 13 percent in 1998. Imports rose even faster, from 7 percent of GDP in 1980 to 16 percent in 1998. The expansion in the trade sector has contributed to the health of the U.S. economy.

5. Appropriate size of government. Governments can enhance growth by providing an infrastructure for the smooth operation of markets. Important functions in this area include a legal system capable of protecting people and property, and a monetary system that provides price stability. In addition, governments may enhance

[9]The impact of international trade on the level and growth of income is an area where economic fallacies abound. See Joint Economic Committee, Office of the Chairman, "12 Myths of International Trade," July 1999, available online at <http://www.senate.gov/~jec/trade1.html>.

Figure 2.2: Growth in U.S. Trade Sector



Sources: *Economic Report of the President*, 1999; Haver Analytics.

growth by providing a limited set of goods—which economists call public goods—that are troublesome to supply through markets

because of the difficulties of making all who enjoy the goods pay for them. Examples include national defense, flood control, and air and water quality. Government spending that expands educational opportunity and the development of human capital may also stimulate economic growth.

However, a government that grows too large retards economic growth in a number of ways. First, as government grows relative to the market sector, the returns to government activity diminish. The larger the government, the greater is its involvement in activities it does poorly.

Second, more government means higher taxes. As taxes take more earnings from citizens, the incentive to invest, develop resources, and engage in productive activities declines.

Third, compared to the market sector, government is less innovative and less responsive to change. Growth is a discovery process. In the market sector, entrepreneurs have strong incentives to discover new and improved technologies, better methods of doing things, and opportunities that were previously overlooked. Also, they are in a position to act quickly, as new opportunities arise.[10] In government, the nature of the political process lengthens the time required to modify bad choices (such as ending ineffective programs) and adjust to changing circumstances. As the size of government expands, the sphere of innovative behavior shrinks.

Finally, as government grows, it becomes more heavily involved in redistributing income and in regulatory activism. That induces people to spend more time seeking favors from the government and less time producing goods and services for consumers.[11]

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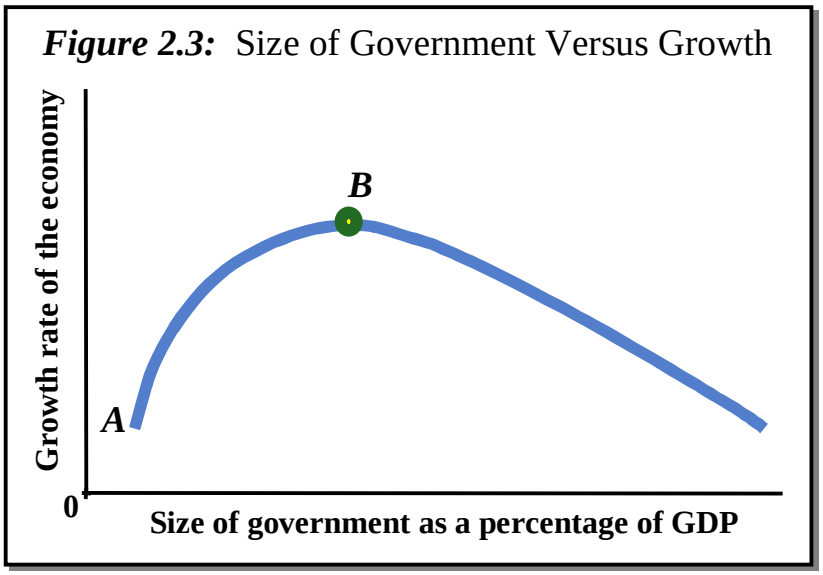
[10]The writings of Israel Kirzner and Joseph Schumpeter highlight this point. See Israel M. Kirzner, *Competition and Entrepreneurship* (Chicago: University of Chicago Press, 1973); and Joseph A. Schumpeter, *The Theory of Economic Development*, trans. Redvers Opie (Cambridge, Massachusetts: Harvard University Press, 1934—original German-language publication 1912).

[11]Gordon Tullock, "The Welfare Costs of Tariffs, Monopolies, and Theft," *Western Economic Journal*, v. 5 (1967), pp. 224-32; and Anne O. Krueger, "The Political Economy of the Rent-Seeking Society," *American Economic Review*, v. 64 (1974), pp. 291-303.



Government provision of certain core goods and services can enhance economic growth. However, as government grows larger it eventually retards growth as it increasingly undertakes activities for which it is ill suited. Figure 2.3 illustrates the expected relationship between the size of government and economic growth, *assuming that government undertakes the most beneficial activities first.* As the size of government (horizontal axis) expands from zero, initially the growth rate of the economy—measured on the vertical axis—increases. The part of the curve from point A to point B shows the initial positive impact of more government on economic growth. However, as government becomes increasingly large, it spends more and more on activities that yield few or even negative benefits. The rate of economic growth falls, as shown by the part of the curve to the right of point B.[12] A government that engages in appropriate activities and is not too large maximizes economic growth. Expanding government beyond the optimal size retards growth.

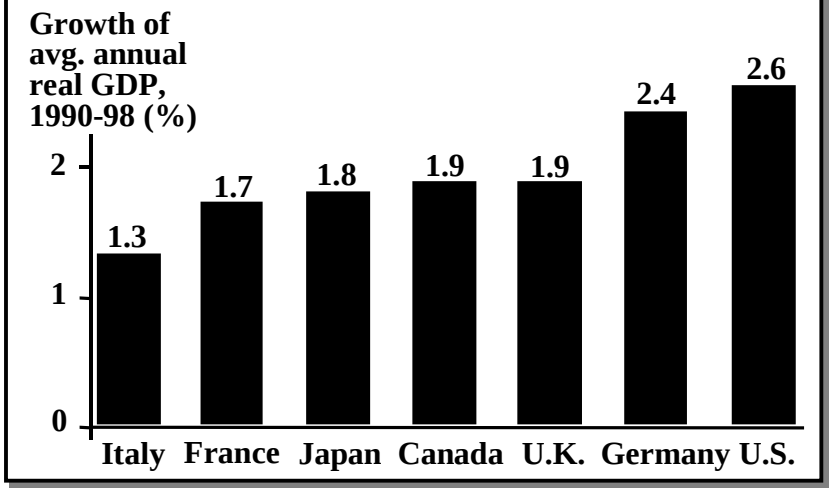
[12]For a formal model with the characteristics outlined here, see Robert J. Barro, "Government Spending in a Simple Model of Endogenous Growth," *Journal of Political Economy,* v. 98 (1990), pp. S103-S125.

3. WHY HAS THE UNITED STATES GROWN FASTER THAN OTHER LARGE ECONOMIES?

Compared to other large industrial nations, the recent performance of the United States is quite impressive. As Figure 3.1 shows, during the 1990s the United States has been the fastest-growing of the seven largest industrial economies. The U.S. growth rate has been twice that of Italy and significantly higher than those of Japan, the United Kingdom, France, and Canada. Only Germany has achieved similar growth during the decade, and during the past six years even its growth has been sluggish—just 1.5 percent a year.

The strong performance of the U.S. economy is surprising given that the United States is a high-income country. There is some tendency for lower-income countries to grow faster because they can profit from technologies whose costs of development have been borne by higher-income countries. But the United States already had the highest income of the large industrial nations in 1990, so the U.S. economy grew fastest despite the costs of technological leadership.

Figure 3.1: Growth of the 7 Largest Industrial Economies During the 1990s



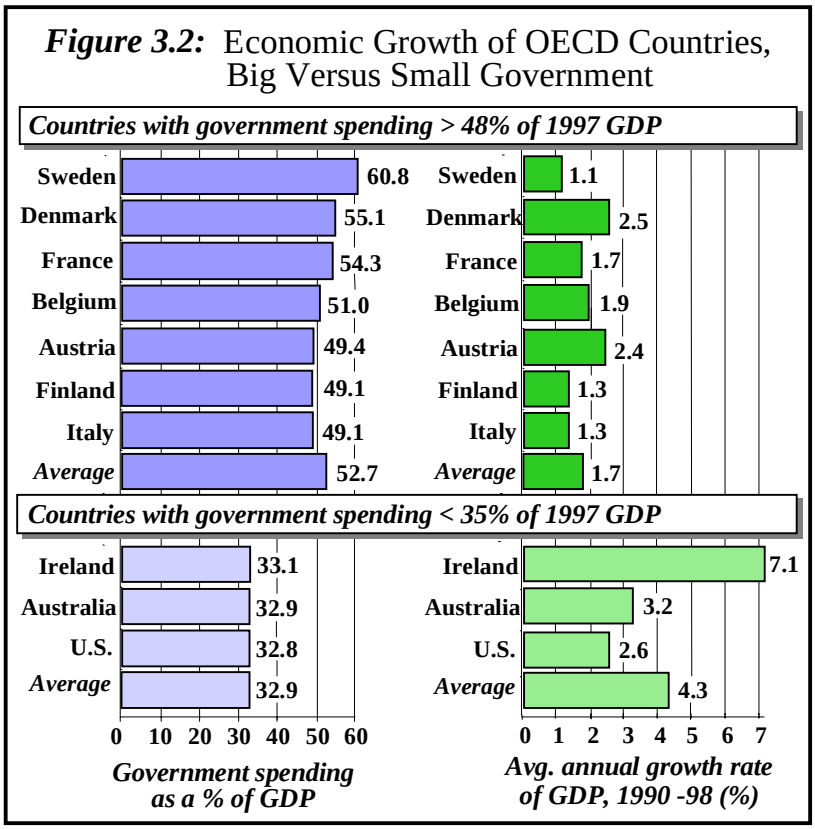
Sources: *OECD Historical Statistics: 1960-94; OECD Economic Outlook,* 6/1999.

Why has the United States grown faster than other large industrial economies? The previous section explained how the economic environment makes a difference. In many respects, the institutions and policies of the seven largest industrial economies are similar. All are stable democracies with mature legal systems capable of protecting property rights. During the 1990s, inflation in all has been low and relatively stable. With the possible exception of Japan, all are relatively open economies with similar trade policies. Each has a well-educated labor force. These characteristics also apply to the other long-time members of the Organisation for Economic Co-operation and Development (OECD), a sort of "rich countries club."

The economic environments of the large industrial countries do, however, differ in three major areas that influence economic growth: size and growth of government, regulation of labor markets, and attractiveness of the economy to entrepreneurs.

I. Size of Government and Economic Growth

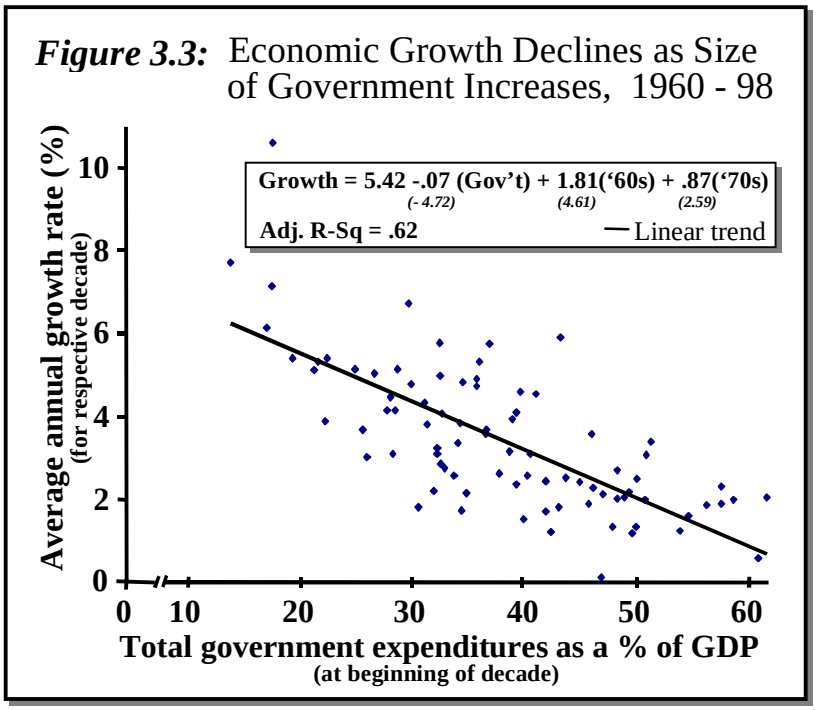
The size of government is smaller and its growth has been more modest in the United States than in other high-income countries. Consider the evidence on the link between size of government and economic growth. As the upper part of Figure 3.2 indicates, seven long-time OECD members—Sweden, Denmark, France, Belgium, Austria, Finland, and Italy—had total government expenditures of 48 percent or more of GDP in 1998. Annual economic growth during the 1990s in these "big government" economies ranged from Sweden's 1.1 percent to Denmark's 2.5 percent. The average growth of the seven nations was 1.7 percent. By way of comparison, three long-time OECD members—Ireland, Australia, and the U.S.—had total government expenditures of less than 35 percent of GDP in 1998. Annual economic growth in these "smaller government" economies ranged from 2.6 percent in the United States to 7.1 percent in Ireland. Their group average was 4.3 percent, more than twice the average for the big government group. The highest growth rate among the big government group—Denmark's 2.5 percent—was slightly below the lowest rate among the small government group.



Sources: *OECD Historical Statistics: 1960-94; OECD Economic Outlook,* 6/1999.

Figure 3.3 looks at the relationship between the size of government and growth over a longer period—the last four decades. The size of government *at the beginning of a decade* is measured on the horizontal axis, while the growth of real GDP *during that decade* is measured on the vertical axis. The graph contains four dots for each of the 21 OECD members on which data were available. The plot shows a clear relationship: slower growth is associated with more government spending.[13]

[13]The equation in Figure 3.3, known as a regression equation, expresses the relationship numerically. The equation includes "dummy variables"



Source: Derived from *OECD Historical Statistics: 1960-1994* and *OECD Economic Outlook*, 6/1999. This analysis is based upon 84 observations (21 OECD countries for which data were available times 4 decades).

In the 1960s and 1970s, government spending as a share of GDP ranged from a low of around 15 percent to a high of more than 60

(adjustment factors) for the data points in the 1960s and 1970s to take into account that growth rates then were significantly different than during other decades. The variable for the size of government is significant at the 99 percent level, meaning that there is only a 1 percent possibility that such a result could have been generated purely by chance. The coefficient is -.07, meaning that a 10 percentage point increase in size of government as a share of GDP reduces the long-term annual growth rate of real GDP by seven-tenths of a percent. The R^2 statistic indicates that the variable for the size of government and the dummy variables for the 1960s and 1970s "explain" 62 percent of the variation in growth among the 21 countries involved.

percent. The dots representing low levels of government—less than 20 percent of GDP—are either almost on the regression line or well above it. There is therefore no evidence that government expenditures were too small to maximize growth in any of these countries. Put another way, the evidence indicates that all of these countries were to the right of point B on the curve in Figure 2.3.[14]

During the last four decades, the size of government has expanded in every OECD country, while the rate of growth in every country, with the exception of Ireland, has fallen. However, there has been considerable variation in the magnitude of government expansion. If big government retards long-term growth, as Figures 3.2 and 3.3 imply, the countries with the largest *increases* in government should experience the sharpest *reductions* in growth.

Since 1960, the size of government as a share of GDP has increased 20 percentage points or more in six long-time OECD countries: Denmark, Finland, Greece, Portugal, Spain, and Sweden. On the other hand, it has increased 10 percentage points or less in four long-time OECD countries: Iceland, Ireland, the United Kingdom, and the United States. Figure 3.4 presents data on the growth rates of these two groups, along with the average for OECD countries (bottom line of the table). Among the "rapid expansion in government" group, the average annual growth of real GDP fell from 6.4 percent in 1960-65 to 1.9 percent in the 1990s, a drop of 4.5 percentage points. Among the "slower expansion in government" group, the average annual growth of real GDP fell from 4.1 percent in 1960-65 to 3.5 percent in the 1990s, a drop of only 0.6 percentage

[14]For additional details, see James Gwartney, Robert Lawson, and Randall Holcombe, "The Size and Functions of Government and Economic Growth," Joint Economic Committee, April 1998, available online at <http://www.house.gov/jec/growth/function/function.htm>; Edgar Peden, "Productivity in the United States and Its Relationship to Government Activity: An Analysis of 57 Years, 1929-1986," *Public Choice*, v. 69 (1991), pp. 153-73; and Gerald Scully, *What Is the Optimal Size of Government in the United States?* (Dallas: National Center for Policy Analysis, 1994). While the methods employed by each study were different, all found that the growth-maximizing size of government was considerably smaller than the actual size of government in all OECD countries.

Figure 3.4: Economic Growth in OECD Countries with Most and Least Expansion in Size of Government

Countries with least growth in size of gov't as a share of GDP (< 10%)	Gov't as a % of GDP 1960 (1)	1998 (2)	Change (3)	Growth rate of real GDP (% per year) '60-'65 (4)	'90-'98 (5)	Change (6)
Iceland	28.2	36.2	*8.0*	4.5	2.3	*-2.2*
Ireland	28.0	33.1	*5.1*	4.1	7.1	*3.0*
United Kingdom	32.2	40.2	*8.0*	3.5	1.9	*-1.6*
United States	28.4	32.8	*4.4*	4.4	2.6	*-1.8*
Average	*29.2*	*35.6*	*6.4*	*4.1*	*3.5*	*-0.6*
Countries with most growth in size of gov't as a share of GDP (> 20%)						
Denmark	24.8	55.1	*30.3*	5.9	2.5	*-3.4*
Finland	26.6	49.1	*22.5*	5.6	1.3	*-4.3*
Greece	17.4	41.8	*24.4*	7.2	1.7	*-5.5*
Portugal	17.0	43.6	*26.6*	6.5	2.7	*-3.8*
Spain	13.7	41.8	*28.1*	8.5	2.2	*-6.3*
Sweden	31.0	60.8	*29.8*	4.9	1.1	*-3.8*
Average	*21.8*	*48.7*	*27.0*	*6.4*	*1.9*	*-4.5*
*Average for 21 OECD countries**	*27.3*	*44.3*	*17.0*	*5.6*	*2.4*	*-3.2*

Sources: Derived from *OECD Historical Statistics* and *OECD Economic Outlook* (various issues).

Note: *All countries for which data were available in the sample period were included. The countries are U.S., Japan, Germany, France, Italy, U.K., Canada, Australia, Austria, Belgium, Denmark, Finland, Greece, Iceland, Ireland, Netherlands, New Zealand, Norway, Portugal, Spain, and Sweden.

points. The best country in the "rapid expansion in government" group experienced a greater drop in growth than the worst country in the "slower expansion in government" group.[15]

In 1960 government expenditures as a share of GDP for every country in the top part of Figure 3.4 exceeded the OECD average (bottom line of table) of 27.3 percent. At the same time, their average GDP growth rate of 4.1 percent was below the OECD average of 5.6 percent during the 1960s. The situation was exactly the opposite *for this same set of countries* in the 1990s. After their ratios of government expenditures to GDP dropped below the OECD average, their growth rates rose above the average.

The reverse happened to the nations in the bottom part of Figure 3.4. In 1960 their government expenditures as a share of GDP were below the OECD average, and their average GDP growth rates were higher than the OECD average. By 1998 their government expenditures had risen above the OECD average and their average growth rates had fallen below it. Because these statistics are for the same countries and country groupings, they are particularly revealing.

II. Labor Market Flexibility and Growth

Compared to other high-income countries, the United States has a labor market with less regulation and more wage flexibility. That makes it easier for employees to move among industries and occupations in response to changing conditions.

Several factors contribute to this flexibility. First, collective bargaining in the United States, Canada, and Japan is

[15]While the growth of government in Japan was slightly less than 20 percentage points, it is revealing nonetheless. At the beginning of the 1960s, government spending was only 17.5 percent of GDP, and it averaged only 22 percent of GDP during the decade. With small government, the Japanese economy registered an average annual growth rate of 10.4 percent in the 1960s. Over the next three decades, the Japanese government grew steadily; by 1998 government spending was 36.9 percent of GDP. Average annual economic growth fell to 5.3 percent in the 1970s, 3.8 percent in the 1980s, and 1.6 percent in the 1990s.

Figure 3.5: Share of Employees with Wages Set by Collective Bargaining

Sources: OECD, *Employment Outlook*, July 1994, Table 5.7; OECD, *Employment Outlook*, 7/1997, Table 3.3; and OECD, *Country Surveys* (various issues).

decentralized—it takes place at the company or plant level. In 7contrast, wage-setting is highly centralized in Western Europe, where negotiations between a union (or federation of unions) and an association of employers set wages in various industries, occupations, or regions. Even the wages paid to nonunion employees by nonassociation employers are determined by these negotiations. Therefore, as Figure 3.5 indicates, the number of workers whose wages are set by collective bargaining is far greater than union membership in France, Germany, and Italy.

Nationwide wage-setting reduces the flexibility of wages across occupations, industries, and regions.

Second, Western European countries have regulations mandating lengthy periods of prior notification or months of severance pay for dismissing workers. Firms are often required to obtain approval from the government to dismiss workers. While the stated objective of these regulations is to enhance job security, they make entry into the labor force more difficult. Because it is more costly to dismiss workers, it is more costly to hire them. When dismissal is costly, employers are reluctant to add workers even during periods of strong demand. Countries with highly restrictive dismissal regulations also have high rates of unemployment, particularly among young workers seeking to enter the labor force.

Finally, generous unemployment benefits and other transfers to the able-bodied unemployed reduce the cost of being unemployed. People respond with longer periods of job search, causing the unemployment rate to rise. Overly generous benefits offer an alternative to work, reducing output by idling workers.

Figure 3.6 shows the replacement rate, which is the size of the average unemployment benefit expressed as a percentage of the wages a person earned when employed. Unemployment benefits in Western Europe and Canada are far more generous than in Japan and the United States. Throughout the 1990s, unemployment in France, Germany, Italy, and Canada has been 4 to 8 percentage points higher than in Japan and United States. High unemployment in those countries is not due to cyclical factors; rather, it reflects the structure of their labor markets.[16]

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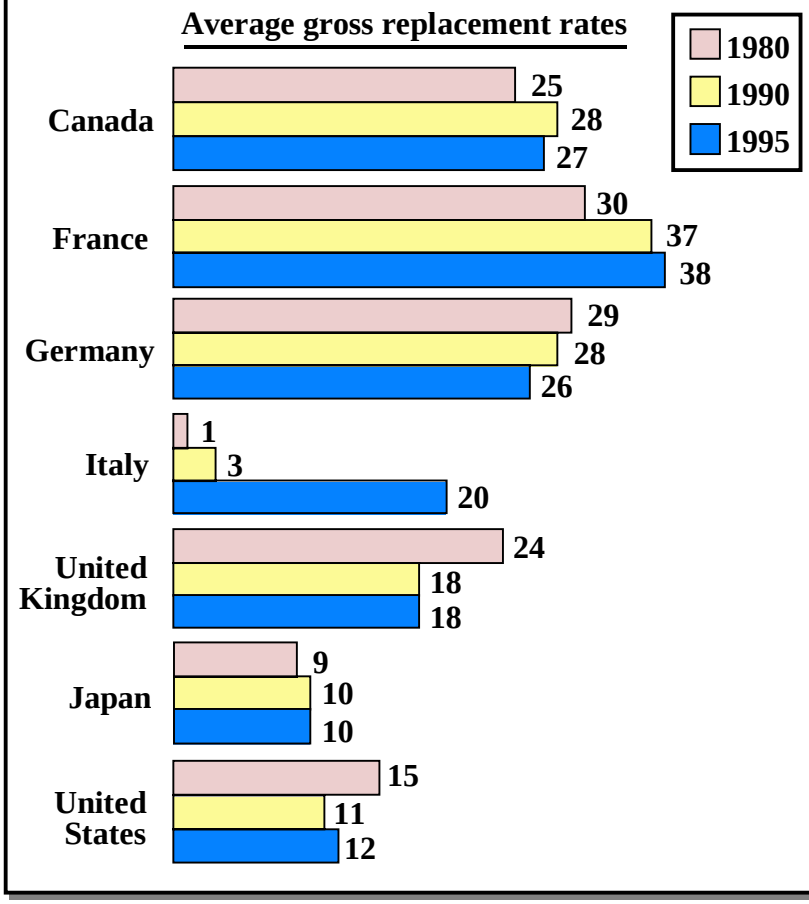
[16]For details, see Edward Bierhanzl and James Gwartney, "Regulation, Unions, and Labor Markets," *Regulation*, v. 21 (Summer 1998), pp. 40-53.

Initial replacement rates among the large industrial economies are quite similar. However, Western European countries generally permit workers to draw benefits for longer than the United States does. The OECD has calculated the replacement rates in member countries for recipients at two different income levels, three family situations, and three time periods of unemployment. The replacement rates of Figure 3.6 were derived from the rates of these 18 different categories.

Figure 3.6: Replacement Rate of Unemployment Benefits



Sources: OECD, *OECD Jobs Strategy: Making Work Pay* (1997), Figure 2; OECD, *Implementing the OECD Jobs Strategy: Member Countries' Experience*, Table 5.

The United Kingdom illustrates what labor market reform can do to unemployment. During the 1980s, various reforms made labor markets more competitive. At the same time, unemployment benefits

were scaled back. Increasingly, the unemployment rate in the United Kingdom resembles that of the United States rather than other Western European countries. [17]

III. Entrepreneurship and Growth

The United States has a business climate that is relatively favorable to entrepreneurship. As we will discuss later, taxation on savings and capital formation are high. In other respects, however, the U.S. economy provides opportunity for entrepreneurs. In particular, the capital markets in the United States are more open than in most other countries. The U.S. capital market is the largest in the world. It provides entrepreneurs with a wide variety of sources for financial capital. A number of financiers specialize in providing venture capital—start-up funds for high-risk but potentially high-reward business activities. For companies that wish to tap investment from the public directly, U.S. stock markets offer well developed channels for doing so. The practice of offering stock options to employees, as a way of encouraging entrepreneurial behavior within companies, is more highly developed in the U.S. than in other countries. The encouragement of aggressive entrepreneurial behavior has been an important source of recent economic growth, particularly in the high-technology sector.

IV. Conclusion

There is abundant evidence that secure property rights, competitive markets, price stability, openness to international trade, and smaller government enhance economic growth. If the United States is to achieve its full potential, it must diligently pursue these objectives. The experience of Western Europe is that big government—high government expenditures and extensive regulation—leads to sluggish growth.

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[17] In the summer of 1999, unemployment in the United Kingdom was 6.1 percent, versus 10.5 percent in Germany, 11 percent in France, and 12 percent in Italy. Figures are OECD standardized measures of unemployment.

4. A CASE STUDY IN RAPID GROWTH: IRELAND

The experience of Ireland in the last four decades offers a case study in how much difference the right policies can make to economic growth .

I. Ireland's U-Turn

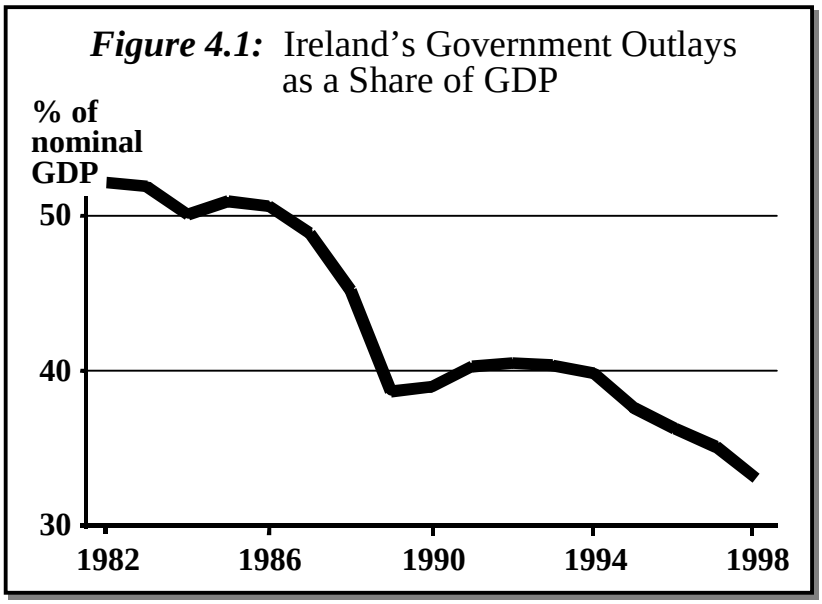
From the early 1960s to the mid 1980s, the Irish government followed policies that hampered economic growth. Government spending rose from 28 percent of GDP in 1960 to 43 percent in 1974 and 52.3 percent in 1986.[18] Taxes were high, monetary policy was unstable, and trade restraints limited international exchange. By the mid 1980s, Ireland was on the verge of collapse. Real growth had fallen sharply. Unemployment soared to more than 17 percent during 1985-87. People were leaving the country in search of opportunity.

Out of desperation, the Irish government began to shift policy. Government spending was sliced, tax rates were lowered, monetary policy became more stable, and trade became more open.

1. Smaller government. By the mid 1980s, government spending was out of control and the size of the government debt was expanding rapidly, peaking at 120 percent of GDP in 1986. An attempt in 1983 to balance the budget by raising taxes had failed, throwing the economy into recession and leading to even higher levels of government debt. Finally, in 1987, the Irish government decided to try the alternative approach of reducing government spending. Government employment was cut by about 10 percent between 1986 and 1989.[19] As Figure 4.1 shows, total government outlays fell from 50 percent of GDP in 1986 to less than 40 percent in 1989. They have continued to recede in the 1990s, reaching 33.1

[18]Figures are from *OECD Historical Statistics: 1960-1994* (Paris: Organisation for Economic Co-Operation and Development, 1996), Table 6.5.

[19]Alberto Alesina and Roberto Perotti, "Fiscal Adjustments in OECD Countries: Composition and Macroeconomic Effects," National Bureau of Economic Research Working Paper W5730 (1996), p. 25.

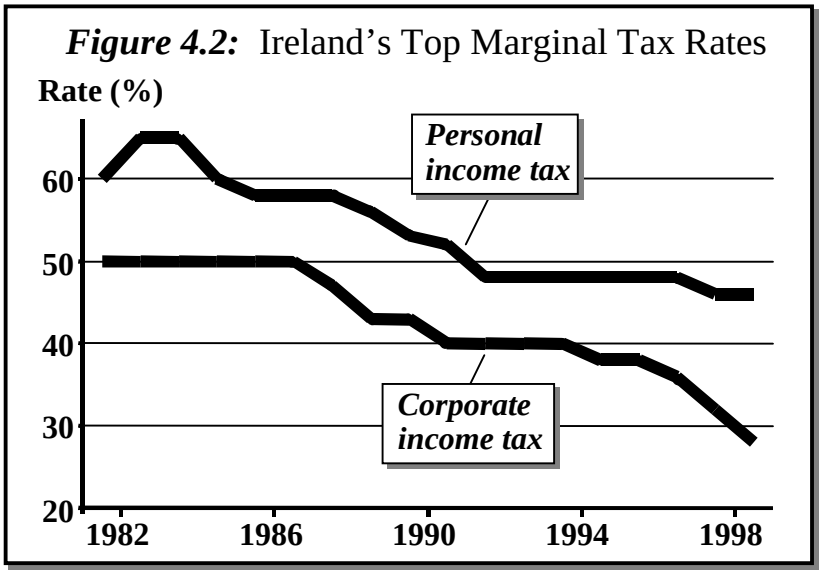


Source: *OECD Economic Outlook,* 1999.

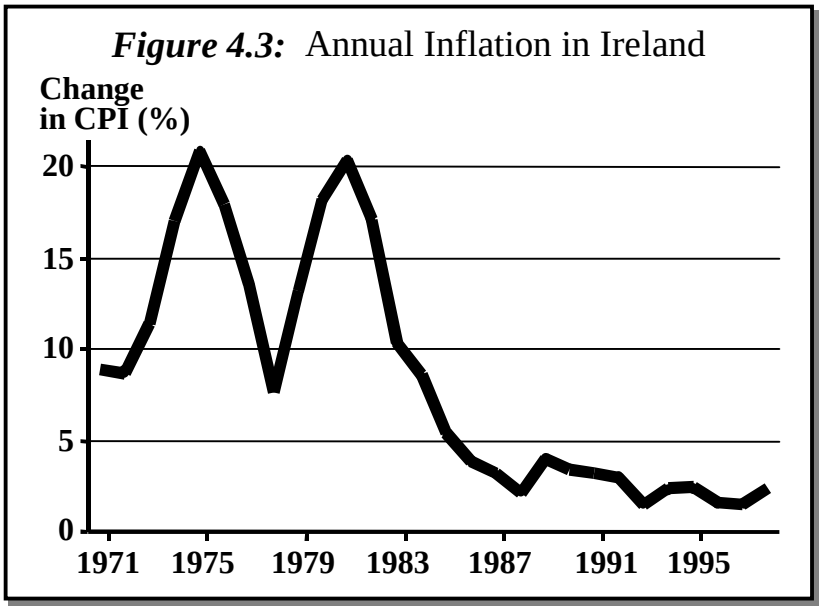
percent of GDP in 1998. The improvement in the budget situation reduced interest rates and led to increased confidence in the Irish economy, which created more investment.

2. Lower tax rates. As the size of government shrank, the tax burden on both individuals and businesses was systematically reduced. As Figure 4.2 shows, the top marginal rate imposed on personal income was sliced from 65 percent in 1984 to 58 percent in 1986 to 48 percent in 1992. Most recently, it has been reduced to 46 percent. Corporate tax rates have also been reduced sharply, from the top rate of 50 percent in 1987 to the current rate of less than 30 percent. The reductions have increased incentives to work, invest, and innovate.

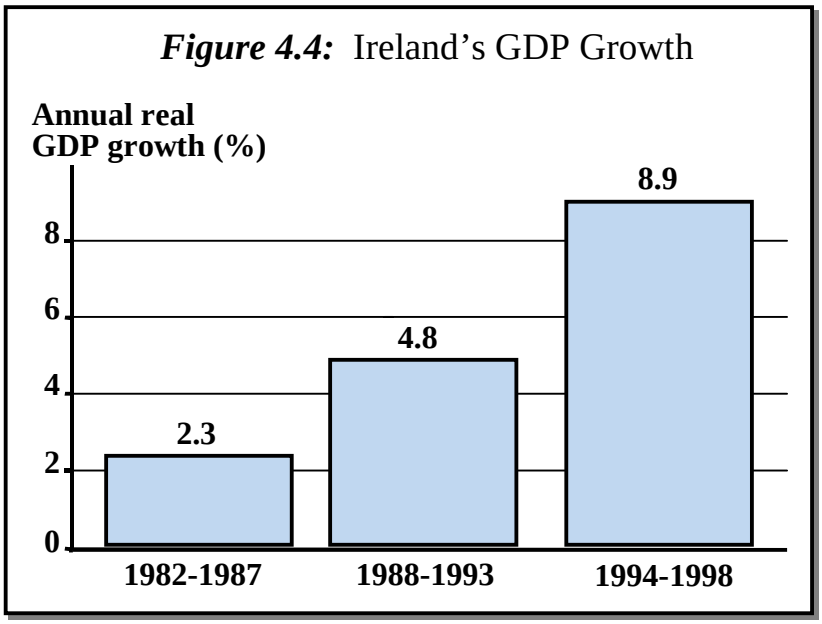
3. Sound monetary policy. Monetary policy has improved substantially since the late 1980s. Ireland's annual rate of inflation has fallen and become more stable (Figure 4.3). Since 1987, inflation has averaged 2.5 percent a year, down from an average of 12.7 percent a year from 1970 to 1986.



Source: Price Waterhouse, *Individual Taxes: A Worldwide Summary* (var. issues).



Source: *OECD Economic Outlook*, 1999.



Source: *OECD Economic Outlook*, 1999.

4. Openness to international trade. When Ireland joined the European Union (EU) in 1973, it was required to harmonize its trade policy with that of the EU over the next decade. Ireland benefitted from free trade within the EU and from EU tariff rates being lower than the rates previously imposed by the Irish government. The increased openness of the Irish economy propelled exports from 50 percent of GDP in 1980 to 60 percent in 1990 and 84 percent in 1997. Once heavily dependent upon neighboring Britain as a trading partner, Ireland's trade is now more diversified. Britain now accounts for only 27 percent of Irish exports, down from 47 percent in 1979.

II. The Impact of the Policy Changes

What impact have these policies had on the Irish economy? The turnaround since the late 1980s has been remarkable. As Figure 4.4 shows, the annual growth rate of real GDP rose from 2.3 percent in

1982-87 to 4.8 percent in 1988-93. From 1994 to 1998 the Irish economy grew 8.9 percent a year. Ireland's growth rate has been the strongest by far in Europe during the 1990s. Certainly, the Irish experiment reinforces the view that open and competitive markets, reduction in the size of government, lower tax rates, and stable monetary policy matter—indeed, they matter a great deal.

The lone blemish on Ireland's economic record is unemployment. Ireland's unemployment rate has fallen from its 17 percent rate in the late 1980s to 6.6 percent today. This compares favorably with the EU average of 10.2 percent, but it is still about half again as high as the rate of the United States. Irish unemployment benefits are still quite generous and the labor market would profit from additional deregulation. Nonetheless, the overall picture is a remarkable success story.

5. RECORD AND PROSPECTS OF THE U.S. ECONOMY

I. Growth of the U.S. Economy Since 1945

Compared to other large industrial nations, the United States has had impressive economic growth during the 1990s. However, the growth is much less impressive when compared with the 25 years following World War II. Growth during the 1950s and 1960s was considerably more robust than it has been during the 1990s.[20] Moreover, the case of Ireland suggests that the 1990s have no special characteristics that have made it inevitably a period of slower growth. Faster growth is achievable if the right policies are in place.

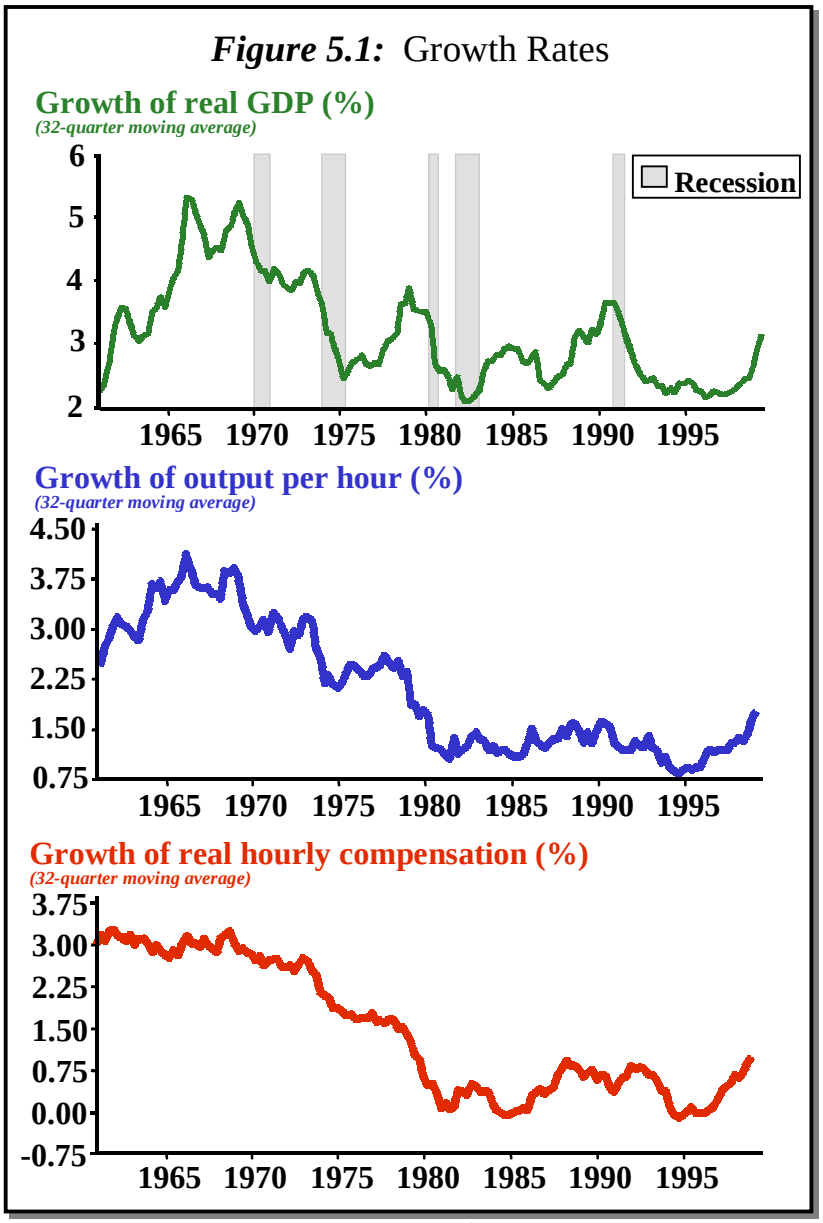
Figure 5.1 presents data on the growth rates of real GDP, productivity, and real hourly compensation. To highlight long-term growth rather than short-term cyclical movements, the data are 32-quarter moving averages: each observation shows the average growth rate over the previous eight years.

The growth rates of real GDP, productivity, and hourly compensation tend to move together, as one would expect. Real GDP measures total output, while productivity measures output per hour. When productivity changes, real GDP tends to change in the same direction. Productivity growth provides the basis for increases in compensation. Therefore, when productivity rises or falls, so does hourly compensation.

The growth rates of real GDP, productivity, and hourly compensation were all higher in the 1960s and early 1970s than during the last 25 years. The long-term growth rates of productivity and hourly compensation fell in the 1970s and have remained on a lower plateau since. All three indicators have been rising during the last few years, but remain well below the rates of the 1960s and early 1970s.

[20]During the 25-year period 1949 to 1973, the average annual growth rate of real GDP was 3.9 percent. During the last 25 years (1974 to 1998) the average growth rate was 2.7 percent. Growth rates of real GDP in recent decades have been as follows: 1960-69—4.4 percent; 1970-79—3.2 percent; 1980-89—2.7 percent; 1990-98—2.6 percent.

Figure 5.1: Growth Rates



Sources: Haver Analytics; *Economic Report of the President*, 1999.

All of this raises a question that is crucial for the U.S. economy and for the federal government: Is the increase in the long-term growth rate since 1995 merely a temporary phenomenon, or is it a more permanent movement?

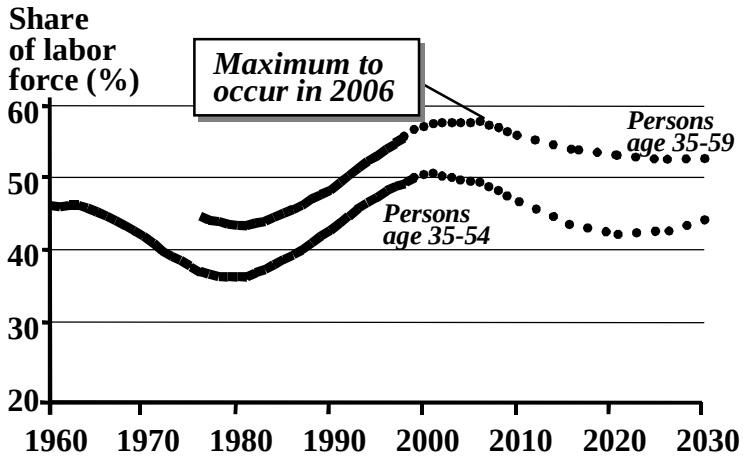
II. Demographic Changes and Economic Growth

Changes in the age profile of the population affect both the level of income and its growth. Most people spend their twenties and early thirties developing skills through higher education, training, and job experience. During this phase, their productivity and earnings are generally below average. When people approach retirement, their productivity often declines because of worsening health and because their job skills may not be as up-to-date as they once were. Thus, the productivity and earnings of people over 60 are also generally below average. People 35 to 59 generally have the combination of education, experience, and health that results in the highest levels of productivity. Earnings figures confirm that the average real earnings of individuals reach a peak during these years.

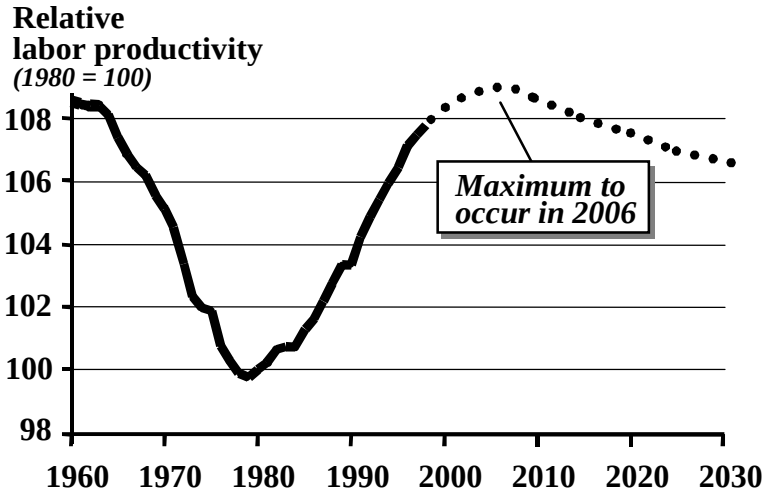
An increase in the share of the population 35 to 59 years old tends to push average productivity and earnings upward. When workers 35 to 59 are expanding as a share of the labor force, it enhances the growth of productivity and output. In contrast, an increase in the share of the population younger or older tends to retard growth.

The top frame of Figure 5.2 shows the percentage of the labor force ages 35 to 54 since 1960, and ages 35 to 59 from 1977 forward. The share of these groups fell by almost 10 percentage points from 1965 to 1980. This trend reversed during the 1980s as the "baby boom" generation entered its prime working years. During the last decade, the percentage of the labor force ages 35 to 54 rose from 40 percent to 50 percent. Currently, approximately half of the U.S. labor force is 35 to 54 years old, up from only 36 percent in 1980. The share of the labor force in the prime-age category will not change much during the next decade, but in about 15 years it will begin to shrink, and by 2020 it will return to the levels of the late 1980s.

Figure 5.2: Impact of Demographics on Labor Productivity and Growth



(a) 'Prime-age' workers



(b) Effect of demographics on labor productivity

Sources: Bureau of Labor Statistics; U.S. Census Bureau.

What do these demographic trends have to do with economic growth? The bottom frame of Figure 5.2 shows how the changing age composition of the labor force during the last several decades has influenced average productivity. The influx of youthful, inexperienced workers accompanying the entry of the baby boom generation into the labor force between 1960 and 1980 reduced average productivity by about eight percentage points. This negative impact on productivity —and its growth—was particularly sharp during the 1970s.

The impact reversed during the 1980s, and in the 1990s the rapid growth of prime-age workers has boosted both productivity and its growth. Between 1991 and 1998, the growth of prime-age workers as a share of the labor force increased average productivity by a total of four percentage points. On an annual basis, this factor alone added approximately one-half of a percentage point to the growth rate of productivity from 1991 to 1998. [21]

[21]The productivity index in the bottom frame of Figure 5.2 was derived by weighting the age-earnings profile for males in 1998 by the percent of the labor force in each age category for each year in the data set. Mathematically, the ratio for each of the "i" years is equal to the sum of (P_{a98} x A_{ai}) divided by the sum of (P_{a98} x A_{a80}), where P_{a98} is equal to the 1998 annual earnings within each of the "a" age categories (e.g. 20-24, 25-29, and so on), A_{ai} is the percent of the labor force in each age cell during the ith year, and A_{a80} is the percent of the labor force in each age cell during the 1980 base year. The ratio was derived for each year.

For 1960 to 1998, the number of persons with earnings in each age cell was used to derive the share of the labor force in the age cell. For years beyond 1998, the representation in each age cell is based on population projections. Our projections (based upon U.S. Census Bureau forecasts of population growth) assume that the rate of labor force participation in each age category will remain the same as it was in 1998. When the share of the labor force in the high-earnings (productivity) age categories is large relative to the 1980 base year, the ratio will be greater than 100. Increases (reductions) in the share of the labor force in the prime-earnings age groupings will cause the ratio to rise (fall). The index estimates the amount by which earnings, and thus productivity, differ from the 1980 base year as the result of changes in the age composition of the labor force. Data before

Prime-age workers will continue to comprise a large share of the labor force during the decade ahead. However, when the baby boom generation starts retiring around 2010, the situation will change dramatically. During the decade following 2010, the number of retirees will increase sharply, while the share of the prime-age workers will fall.[22] This combination will be a drag on the growth of the economy during the second and third decades of the next century.

III. The Slowdown of Growth During the 1970s

The growth rates of real GDP, productivity, and hourly compensation fell sharply in the 1970s. Demographic changes—specifically the entry of numerous youthful, inexperienced workers into the labor force—adversely affected productivity. Sharp increases in the price of oil in 1973 and 1981 also contributed to the slowdown, by reducing the efficiency of vast amounts of capital. Many machines and structures designed for cost effectiveness at pre-1973 energy prices were too costly to operate at higher prices. Energy prices fell throughout most of the 1980s, but initially people were not sure whether lower energy prices were temporary or more permanent. It took time to adjust to the new situation, so growth did not immediately rebound.

In addition to the unfavorable impact of demographic changes and higher energy prices, inappropriate policies also contributed to the fall in the growth rate during the 1970s. Monetary policy was unstable: both the rate and volatility of inflation rose throughout the decade. It takes time to regain lost credibility, and even though inflation declined during the 1980s, the adverse consequences of the

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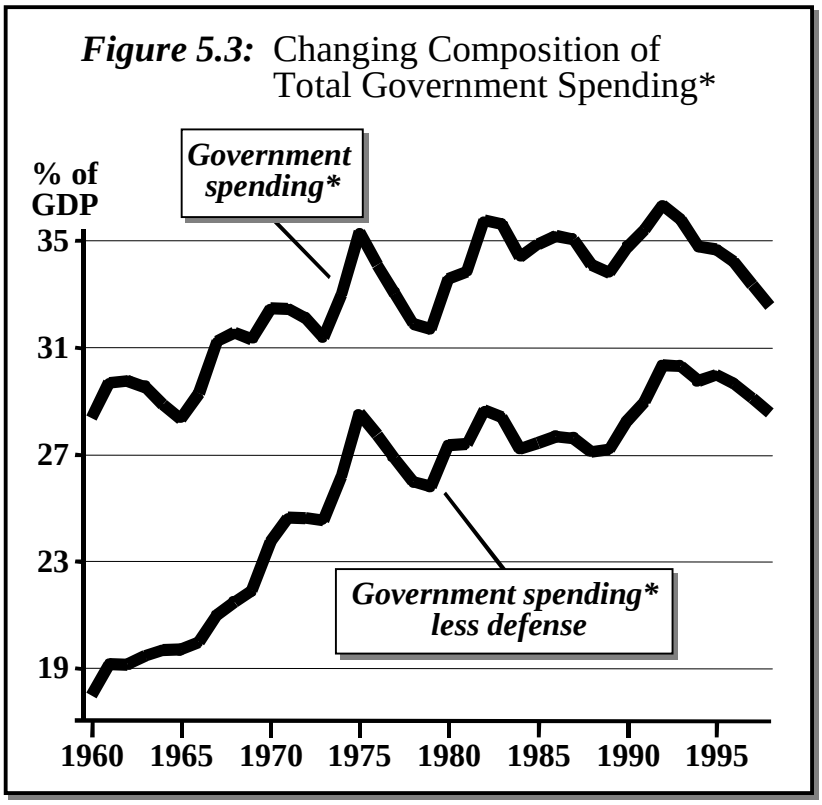
1976 use ten-year age categories instead of the five-year categories present in the rest of the data.

[22]The number of Americans over age 70 is projected to increase from 27.3 million in 2010 to 34.8 million in 2020 and 47.8 million in 2030. *Bipartisan Commission on Entitlement and Tax Reform, Final Report to the President* (Washington: Government Printing Office, 1995), p. 13; *1995 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds* (Washington: Government Printing Office, 1995), p. 21.



Sources: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, 3/1998; *Economic Report of the President*, 1999.
Note: *Government spending is composed of federal, state, and local expenditures and investment.

earlier monetary and price instability lingered. The growth of government also played a role in the slowdown. As Figure 5.3 shows, total government expenditures (federal, state, and local) rose from less than 29 percent of GDP in 1965 to more than 35 percent in 1975. They fluctuated around this high level from 1975 to 1990.[23]

[23]The data of Figure 5.3 on government expenditures include capital expenditures as well as government consumption and transfer payments. Government investment is often omitted from data purporting to give "total government expenditures."

IV. The Underpinnings of Growth During the 1990s

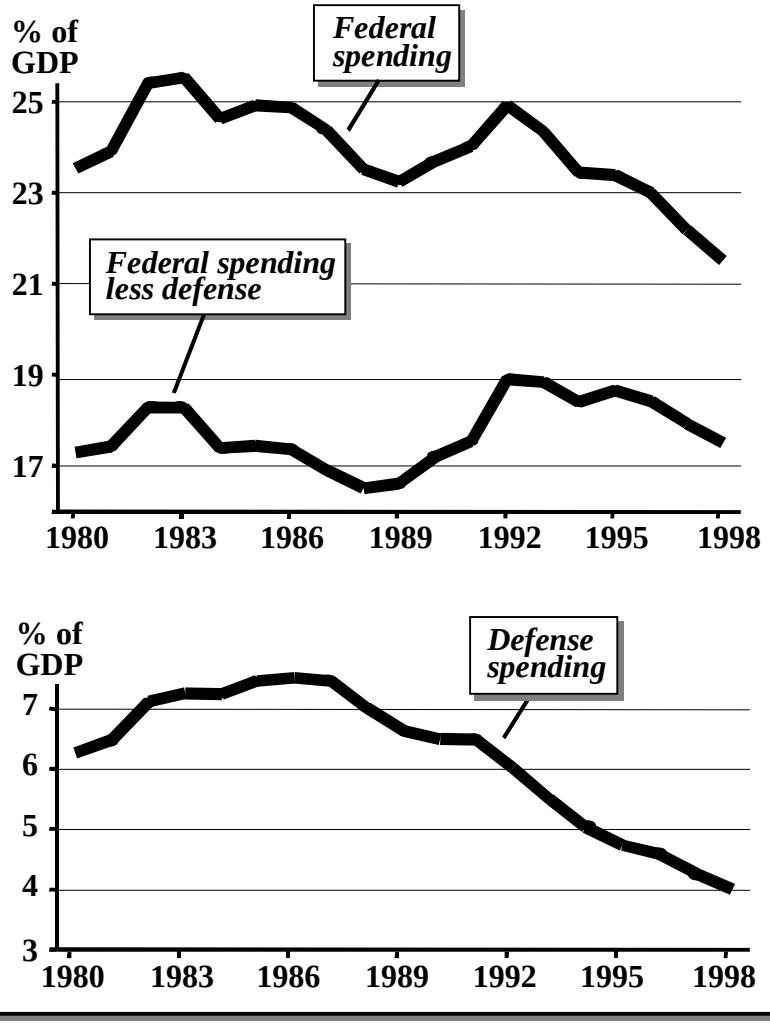
While the long-term growth rate of the U.S. economy remains below the levels achieved during the 25 years following World War II, there are signs that it is increasing. The 32-quarter average annual growth rates of real GDP, productivity, and hourly compensation have all increased sharply during the last few years. Just as the slowdown of the 1970s reflected several negative factors, the improved performance of the U.S. economy during the 1990s is the culmination of several positive developments.

1. Monetary and price stability. Monetary policy since 1982 has achieved low, stable inflation. As the Federal Reserve has kept the inflation rate low and stable, it has regained credibility it lost in the 1970s. People are now more confident that the Federal Reserve will follow policies consistent with price stability. That helps keep interest rates low and reduces the uncertainties accompanying investment and other choices that involve income and costs across time periods.

2. Lower defense spending and smaller government. During the 1990s, there has been a modest reduction in government spending as a share of the economy. It has fallen from approximately 35 percent of GDP in 1991-1993 to less than 33 percent in 1998. As Figure 5.4 shows, federal spending fell from 25 percent of GDP in 1992 to less than 22 percent in 1998. The primary factor responsible for the decline has been lower defense spending now that the Cold War has been won. Defense spending fell from 7.5 percent of GDP in 1986-1987 to 4 percent in 1998. Had it not fallen, government spending as a share of the economy would have remained virtually unchanged during the 1990s.

3. Lower trade barriers. Numerous countries have reduced their trade barriers during the last 15 years. The United States has modestly reduced barriers, particularly those that apply to trade with Canada and Mexico. Following on the heels of the U.S.-Canadian Free Trade Agreement of 1988, the North American Free Trade Agreement (NAFTA) took effect in 1994. As the result of these two agreements, trade now flows more freely among the three largest

Figure 5.4: Changing Composition of Federal Spending



Sources: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, March 1998; *Economic Report of the President*, 1999.

North American nations. By 2004, tariffs on most products among these three countries will be phased out. Restrictions on financial investments and trade in services such as banking are also being removed.

Responding to lower trade barriers and reductions in transport and communications costs, the U.S. trade sector has grown sharply. Since 1990, imports have risen from 10 percent of GDP to 16 percent. During the same period, exports have expanded from 9 percent of GDP to 14 percent. Trade is a positive-sum activity: both parties gain from it.

4. Favorable demographics. The sharp increase in the share of the labor force in the prime-age, high-productivity categories during the 1990s has enhanced productivity per worker. An increased share of the population in their peak earning years has also boosted government revenue. People 35 to 59 pay considerable taxes from their relatively high incomes but consume relatively few government services. In contrast, rapid growth in the number of young people increases government spending for education, while rapid growth in the number of the elderly increases government spending for Social Security and health care. In the 1970s, the presence of more children and young adults pushed government, particularly state and local governments, toward more spending. The presence of more people in their peak earning years in the 1990s has helped generate budget surpluses at all levels of government.

5. Welfare reform. In 1996, the federal government enacted sweeping welfare reforms. It ended the "entitlement" status of welfare, whereby anyone with children who had a sufficiently low income automatically qualified for federal benefits. States were given much greater latitude in setting eligibility requirements and time limits for those receiving benefits. Since 1994, the share of the U.S. population on welfare has fallen by almost half, a substantially larger reduction than can be attributed to the general strength of the economy.[24]

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[24]General economic growth only accounts for about 20 percent of the reduction in welfare caseloads since 1994, and less since 1996. *Economic Report of the President*, 1999 (Washington: Government Printing Office, 1999), p. 119.

For the economy as a whole, the cost of hiring workers includes transfer payments as well as compensation directly paid to workers. By making work less attractive for those who face entering the labor force in low-paying jobs, transfer payments to the able-bodied unemployed tend to increase the unemployment rate. By reducing transfer payments to the able-bodied unemployed, welfare reform reduces the cost of hiring, thereby increasing private-sector hiring and economic growth. Once in the labor force, workers in low-paying jobs acquire skills that help them stay employed and move into higher-paying jobs, whereas if they remain unemployed they never acquire the skills. At least one study suggests welfare reform alone is responsible for a reduction in the unemployment rate of one percentage point.[25]

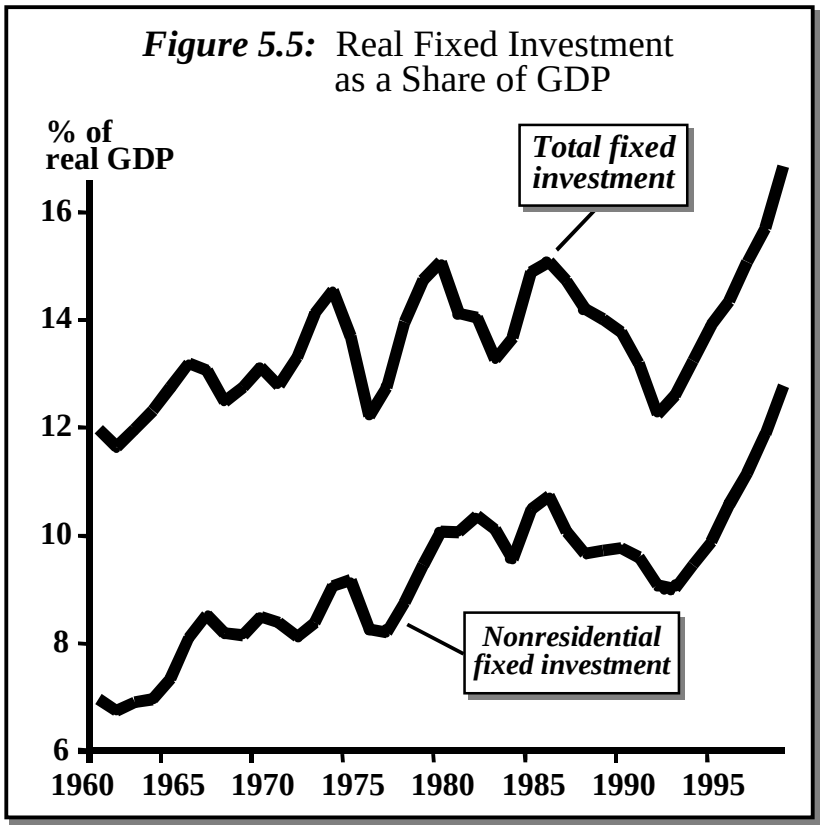
Considering the favorable factors that emerged during the last few years — a sustained period of low inflation, increased trade, an increase in the relative number of persons in their prime earning years, and smaller government in the post-Cold War era — it would have been surprising if there had not been an increase in growth and productivity.

V. Future Prospects for the U.S. Economy

The U.S. economy expanded at an annual rate of 2.7 percent during the 1980s and 2.6 percent during the 1990s. This is less than the rates of the 1960s and 1970s. During the last five years, real GDP has grown at a 3.4 percent annual rate. Does the recent higher growth reflect primarily short-term cyclical factors or is it the beginning of more robust long-term growth? Two factors are emerging that should enhance the future growth of the U.S. economy: strong investment and leadership in high-technology industries.

1. Growth of real fixed investment. Figure 5.5 presents data on both total real fixed investment and nonresidential real fixed investment as a share of GDP during the last four decades. The

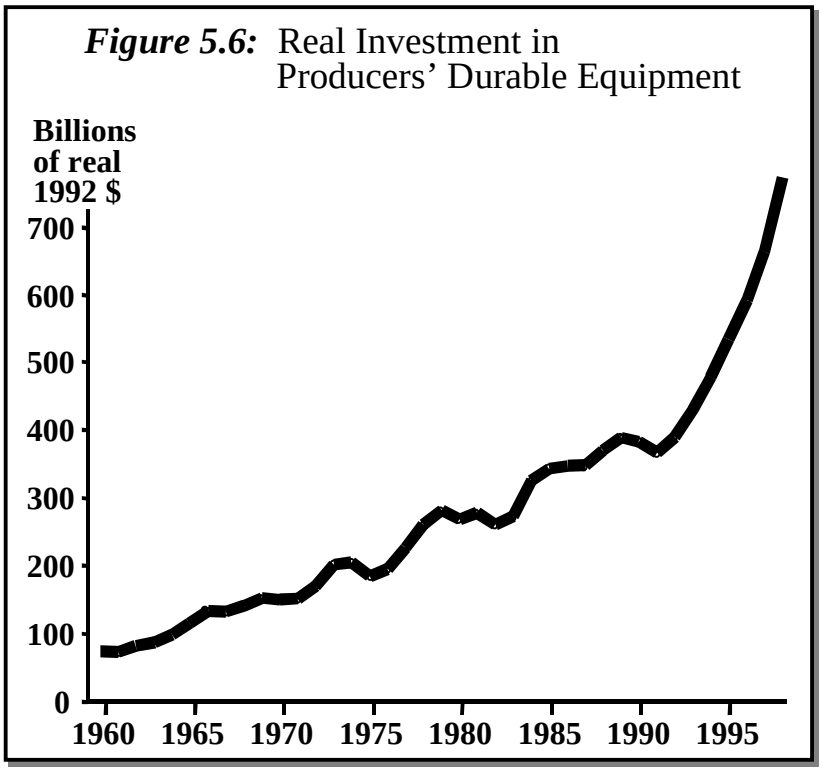
[25]John Mueller, "The Answer to Three Puzzles: Welfare Reform Lowered Unemployment," *LBMC Report* (Lehrman Bell Mueller Cannon, Inc., Arlington, Virginia), July 23, 1999.



Source: Haver Analytics.

interesting thing is the recent strength of these numbers, particularly the figures for nonresidential fixed investment. During the current expansion, nonresidential fixed investment has risen from 8.9 percent to 12.7 percent of GDP. The latter figure is two percentage points higher than during any recent expansion.

Purchases of durable equipment, such as machines, have been the driving force underlying the rapid growth of investment in the 1990s. The investment trend is important because capital—more and better equipment—enhances the future productivity of workers. In turn, higher productivity per worker provides the basis for rapid growth of income. Real purchases of producers' durable equipment



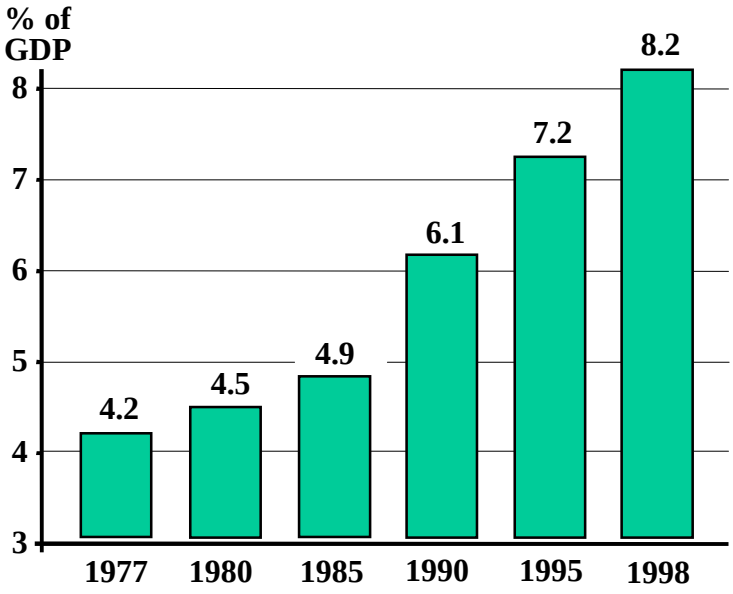
Source: Haver Analytics.

rose from $389 billion in 1992 to $770 billion in 1998—an unprecedented rate of growth (Figure 5.6).

2. Growth of the high-technology sector. Evidence is mounting that the United States is in the midst of a boom in high technology. According to the U.S. Department of Commerce, information technology industries have generated about one-third of the recent growth of the U.S. economy.[26] Striking increases in growth have occurred in semiconductors, software, the Internet, and biotechnology. The size of the high-tech sector rose from 4.9 percent

[26]See *The Emerging Digital Economy* (Washington: U.S. Department of Commerce, 1998).

Figure 5.7: Growth of High-Technology Sector

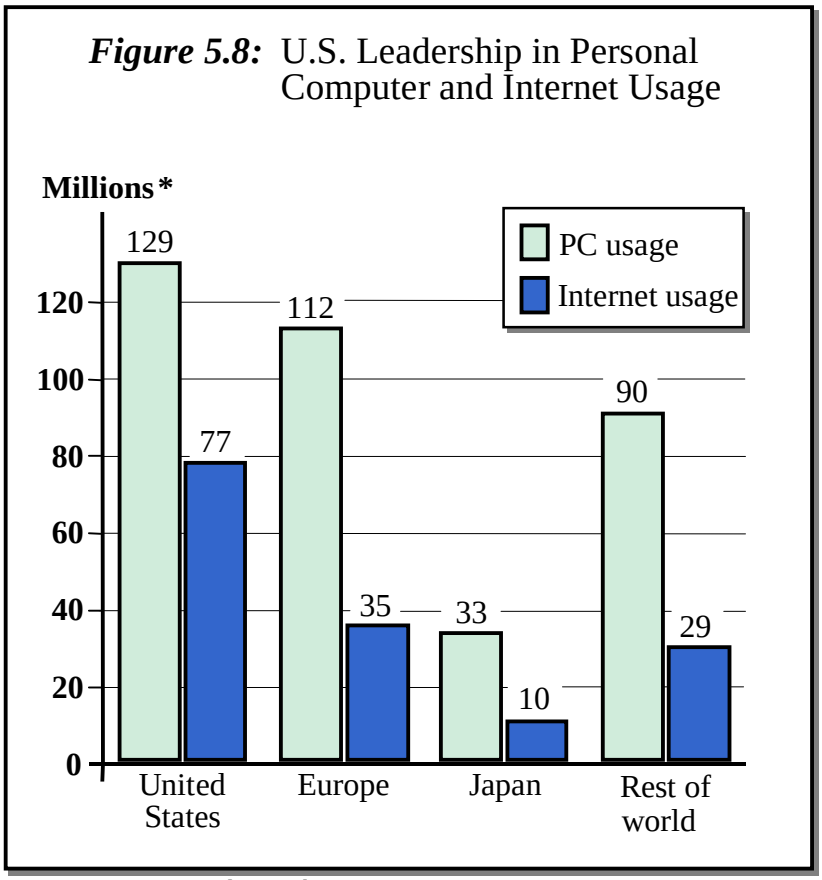


Sources: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business,* March 1998; *Economic Report of the President*, 1999.

of GDP in 1985 to 6.1 percent in 1990 and 8.2 percent in 1998 (Figure 5.7).

The United States occupies a position of world leadership in high technology. As Figure 5.8 shows, personal computer usage in the United States is substantially greater, both absolutely and per person, than in Western Europe and Japan. The U.S. has over half of the world's Internet users and more than 60 percent of the world's Internet host computers.[27]

[27]In the United States, 48 percent of the population uses personal computers, versus 26 percent in Japan and 22.5 percent in Western Europe. In the United States, 29 percent of the population uses the Internet, versus 8



Source: *Computer Industry Almanac.*
Note: *Millions of personal computers in use / millions of weekly Internet users.

Consumer applications of the World Wide Web such as book selling and stock trading are well known, but business-to-business electronic commerce on the Web is much larger and potentially more important for economic growth. Web connections to suppliers and

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percent in Japan and 7 percent in Western Europe. (These calculations are based on figures from *Computer Industry Almanac*.)

customers are promoting faster, more accurate, and lower-cost transactions throughout the economy.[28]

Increasingly, we live in a world where growth is driven by brain power and entrepreneurship. The economic structure of the U.S.—the legal structure, dynamic venture capital market, recent record of price stability, openness of the economy, and reliance on markets—provides a favorable environment for success in this new world.

Besides the growth of fixed investment and of the high-technology sector, other factors influencing growth also appear positive or at least neutral. If the Federal Reserve continues to remain vigilant, there is no reason why the relative price stability of recent years cannot be maintained. The positive effects on growth from the trade sector will also continue. While the demographic changes in the decade ahead will not be as favorable as they have been during the 1990s, they will still be quite positive. Therefore the evidence points to a robust rate of growth being sustainable at least for the next decade.

VI. The U.S. Economy Is at a Crossroads

The prospects for the U.S. economy are bright. If we continue to follow a stable monetary course and expand the openness of the economy, economic growth in the decade ahead is likely to be the most robust since the 1960s. Sustaining the recent annual growth of 3.5 percent is not only possible, it is likely. However, to achieve robust growth, we must control the size of government. Big government means slow growth, and rapid growth in government leads to economic stagnation. The recent history of the major Western European economies, Japan, and even Canada illustrate this point (see Figures 3.3 to 3.5).

Because of favorable demographics resulting from the unusually large share of the population in their prime earning years, tax revenue will be high. If new programs are not adopted, government

[28]For additional evidence on the size and importance of Internet commerce in the United States, see *The Internet Economy Indicators* (Austin: University of Texas Center for Research in Electronic Commerce, 1999).

spending will fall as a share of GDP in the near future. In addition, both major political parties support the use of the Social Security surplus to pay down outstanding federal debt. This will reduce future interest costs, which will also help reduce the relative size of government. Post-Cold War defense cuts facilitated reductions in government as a share of the economy in the 1990s. In turn, smaller government contributed to recent economic growth. Favorable demographic trends can play the same role in the decade ahead.

However, dangers lurk beneath the favorable demographics and projected revenue growth. New spending initiatives will be tempting. It would be short-sighted to adopt them. As the baby boomers begin to retire, the impact of demographics on the budget will change dramatically. If we are not sensitive to this situation, the combination of new spending commitments and current obligations to future retirees will cause the U.S. to become a stagnating "big government" economy sometime after 2010.

The United States is at a crossroads. We can use the revenue increases accompanying the current favorable demographics to undertake new spending initiatives. If we choose this route, government spending will rise sharply when the baby boomers retire. Between 2010 and 2030, persons age 65 and over will increase from 12 percent to 18 percent of the population. Given current commitments, this change alone will increase government spending as a share of the economy by 4 to 6 percentage points. Should we undertake additional commitments, particularly to the elderly, the U.S. will be "Europeanized" when the baby boomers retire. The big-government European nations have been surpassed by others following more sensible policies. The United States will experience the same fate if we allow our government to get too big.

The alternative is to control government spending and allow the favorable demographics of the upcoming decade to reduce the relative size of government. It would also be helpful to reform the pay-as-you-go Social Security and health care programs in a manner that encourages private saving and economizing behavior. If we choose this alternative, the future of the U.S. economy is exceedingly bright. The budget choices in the years immediately ahead will determine which route we will take.

This staff report was prepared by James Gwartney, Chief Economist to the Chairman, and James Carter, Chris Edwards, Angela Ritzert, Kurt Schuler, Charles D. Skipton, Robert Stein, Lawrence Whitman, and Victor Wolski, with assistance from David Landau. Contact James Gwartney (202-224-2989) with any questions or comments.

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