CHAPTER 1

Lessons from the Recent Business Cycle

Economic conditions in the United States improved substantially during 2003, with real gross domestic product (GDP), the most comprehensive measure of the output of the U.S. economy, expanding at an annual rate of more than 8 percent in the third quarter of the year. Based on data available through the middle of January, a further solid gain appears likely in the fourth quarter (the GDP estimate for the fourth quarter was released after this *Report* went to press). The improvement in the economy over the course of the year stemmed largely from faster growth in household consumption, extraordinary gains in residential investment, and a sharp acceleration of investment in equipment and software by businesses. Payroll employment bottomed out in July and increased 278,000 over the remainder of the year. Financial markets responded favorably to the strengthening of the economy, with the total value of the stock market rising more than $3 trillion, or 31 percent, over the course of 2003.

Despite this improvement, the U.S. economy has further to go to make up for the weakness that began showing even before the economy slipped into recession roughly three years ago. Until recently, the recovery has been slow and uneven. Employment has lagged behind gains in other areas. Strong fiscal policy actions by this Administration and the Congress, together with the Federal Reserve's stimulative monetary policy, have softened the impact of the recession and have also put the economy on an upward trajectory. The Administration's pro-growth tax policy, in particular, has laid the groundwork for sustainable rapid growth in the years ahead.

This chapter discusses the distinctive features of the recent recession and recovery, and it draws lessons for the future. The key points in this chapter are:

- Structural imbalances, such as the "capital overhang" that developed in the late 1990s, can take some time to resolve.
- Uncertainty matters for economic decisions, and was likely a factor weighing on investment in recent years.
- Aggressive monetary policy can reduce the depth of a recession.
- Tax cuts can boost economic activity by raising after-tax income and enhancing incentives to work, save, and invest.
- Strong productivity growth raises standards of living but means that much faster economic growth is needed to raise employment.

Overview of the Recent Business Cycle

The recent recession and recovery mark the seventh business cycle in the U.S. economy since 1960. This cycle shares some common features with previous business cycles. According to the National Bureau of Economic Research (NBER), the unofficial arbiter of U.S. business cycles, a *recession* is "a period of falling economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales." The recent recession, like others, has involved a downturn in economic activity of sufficient depth, duration, and breadth to be judged a recession by the NBER.

The NBER also identifies the *peaks* and *troughs* of economic activity that mark when recessions begin and end. In November 2001, the NBER determined that the economy had peaked in March 2001. However, revisions to economic data since the NBER's initial decision suggest that the peak in activity was actually months earlier (Box 1-1). In July 2003, the NBER determined that the economy had reached a trough in November 2001.

Despite the similarities between the recent business cycle and previous ones, this most recent cycle was distinctive in important and instructive ways. One noteworthy difference is that real GDP fell much less in this recession than has been typical. Chart 1-1 shows the path of real GDP over the past several years compared with the average path of the six prior recessions, with the level of real GDP at the economy's peak set equal to 100 in each case. (All of the charts in this *Report* assume that the peak for the recent recession was in the fourth quarter of 2000.) The chart shows that the decline in real GDP in the recent recession was smaller than the historical average; indeed, it was the second smallest in any recession since 1960.

Box 1-1: When Did the Recent Recession Begin?

The National Bureau of Economic Research (NBER) uses a variety of economic data to determine the dates of business-cycle peaks and troughs. This task is made more difficult because many of these data series are subject to revision. For example, on November 26, 2001, the NBER announced that a recession had begun in March 2001. Since then, the four data series that the NBER used to determine the timing of the recession have been revised. The revisions to these series suggest that the recent recession began earlier than March 2001.

The four series cited by the NBER in their decision about the recent business-cycle peak were revised as follows:

Box 1-1 — *continued*

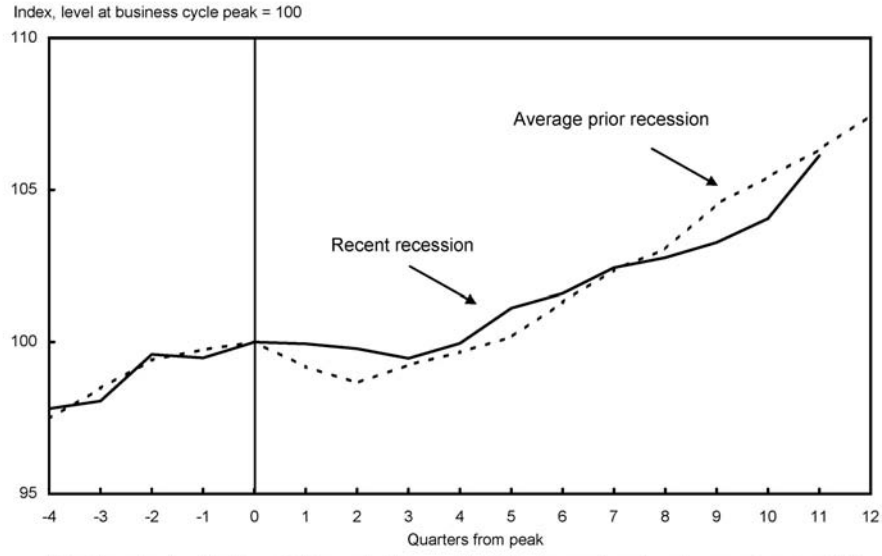
- *Real personal income less transfers:* When the NBER dated the recession, this series showed a generally steady rise throughout 2000 and early 2001. Subsequent revisions reveal that income peaked in October 2000.
- *Nonfarm payroll employment:* The data at the time of the recession announcement showed employment growing at a substantial pace in early 2001, with 287,000 jobs added from December 2000 to its peak in March 2001. Revised data show that employment grew less than one-third of this amount in early 2001 and peaked in February 2001.
- *Industrial production:* The original data used by the NBER showed that this series peaked in September 2000. Revised data show that this peak came even earlier, in June 2000.
- *Manufacturing and trade sales:* Original data showed a peak in August 2000; the most recent data show a peak in June 2000.

Thus, the revised data show that the *latest* peak among the four series was February 2001, with some series peaking considerably earlier. Moreover, another data series, which the NBER has recently announced it will incorporate into its business-cycle dating process, also shows a peak before March 2001: *monthly GDP* reached a high point in February 2001, according to the most recently available estimates computed by a private economic consulting firm.

While some arbitrariness in determining the date on which a recession began is inevitable, revisions since the NBER made its decision for the most recent recession strongly suggest that the business-cycle peak was before March 2001. The median date of the peak for the five series discussed here is October 2000. Other data support the notion that economic activity had slowed sharply or even begun to decline by this point, including the stock market, business investment, and initial unemployment claims. For these reasons, the analyses throughout this chapter (including the charts that compare this recession to past recessions) use the fourth quarter of 2000 as the peak of economic activity and the start of the recession.

In October 2003, the NBER announced that it would defer consideration of whether the latest business-cycle peak should be revised until the results of the coming comprehensive revision of the National Income and Product Accounts were released. The major results of this revision were announced in December 2003, but the monthly manufacturing and trade sales data and some of the detail needed to estimate monthly GDP had not been released at the time this *Report* went to press.

Chart 1-1 **Real GDP**
Real GDP fell less in the recent recession than it typically has.



Note: Recent peak set by Council of Economic Advisers at 2000:Q4. Average based on prior recessions since 1960.
Source: Department of Commerce (Bureau of Economic Analysis).

This relatively mild decline in output can be attributed to unusually resilient household spending. Consumer spending on goods and services held up well throughout the slowdown, and investment in housing increased at a fairly steady pace rather than declining as has been typical in past recessions. In contrast, business investment in capital equipment and structures has been quite soft in this cycle. As discussed below, business spending during the past few years has likely been held down by overinvestment in the late 1990s, as well as by heightened business caution owing to terrorism and corporate scandals. As a result of these forces, investment weakened sooner and has recovered more slowly than in the typical cycle.

Another distinguishing feature of this cycle has been the weakness in labor markets relative to output. In particular, the recovery in employment—although now under way—lagged the upturn in output by a much longer period than in prior recessions. This difference was associated with unusually large productivity gains.

The balance of this chapter draws five distinctive lessons from the recent business cycle in the United States. Chapter 3, *The Year in Review and the Years Ahead,* presents details about developments over the past year and discusses the Administration's forecast.

Lesson 1: Structural Imbalances Can Take Some Time to Resolve

Business investment in equipment and software surged in the late 1990s. Real investment increased at an average annual rate of roughly 13 percent between the fourth quarter of 1994 and the fourth quarter of 1999, compared with an average annual rate of less than 7 percent over the preceding three decades. The surge in investment was led by purchases of high-tech capital goods—computers, software, and communications equipment—which increased at an average annual rate of 20 percent over the period.

Economic theory implies that businesses invest when they believe that there are profits to be made from that investment. In the late 1990s, several developments fed a perception that the expected future return from newly installed capital would be considerably greater than the cost of this capital. Rapid advances in technology had lowered the price of high-tech capital goods dramatically throughout the 1990s and especially in the second half of the decade. For example, the quality-adjusted price index for business computers and peripheral equipment fell at an average annual rate of 22 percent between late 1994 and late 1999. In addition, rapidly growing demand for business output led firms to believe that newly installed capital would be used productively, boosting the expected return to investment.

Moreover, technological progress and legislation provided incentives for strong investment in high-tech equipment. The development of the World Wide Web enabled new and established firms to enter e-commerce, and rapidly increasing household and business access to the Internet provided a large base of potential customers for these firms. The Telecommunications Act of 1996 provided for substantial deregulation of the telecommunications industry and may have spurred investment in that sector. In addition, concern that some computer systems might be inoperable after December 1999 caused a wave of so-called Y2K-related investment. Some analysis indicates that Y2K spending alone boosted the growth rate of real equipment and software investment by more than 3½ percentage points per year in the latter part of the 1990s.

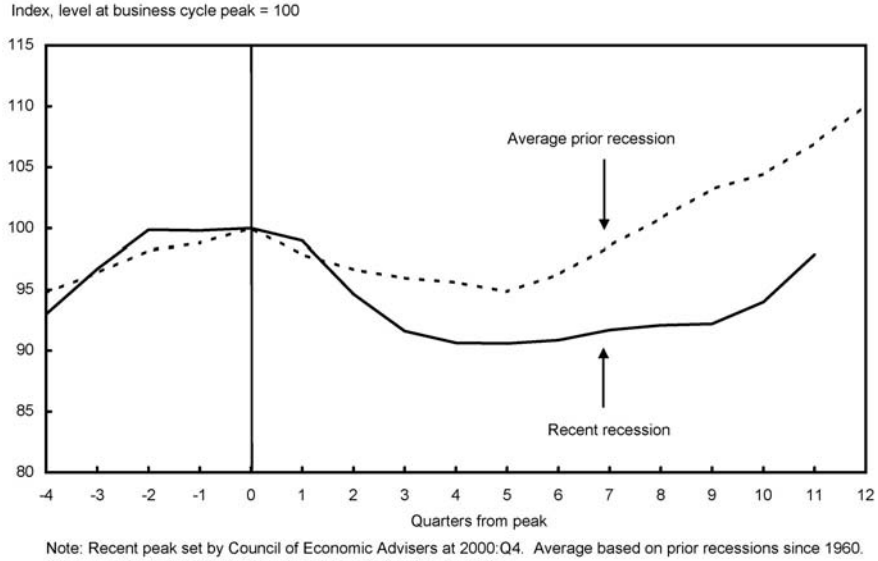
Optimism about the potential gains from new capital, and from high-tech capital in particular, was reflected not only in investment decisions but also in a sharp rise in stock prices. From late 1994 to late 1999, the Wilshire 5000—a broad index of U.S. stock prices—nearly tripled. The Nasdaq stock price index, which is heavily weighted toward high-tech industries, registered an even more dramatic ascent, increasing more than fourfold over this period. The increase in stock prices stimulated investment by reducing the cost of equity capital. In addition, the rise in stock prices fueled a consumption boom by boosting the wealth of a growing number of Americans and more

generally signaling better future economic conditions. This consumption boom encouraged further business investment.

In mid-2000, business equipment investment abruptly slowed. After rising at an annual rate of 15 percent in the first half of the year, real spending on business equipment and software inched up at about a ¼ percent annual rate in the second half. The slowdown in high-tech equipment investment was especially dramatic. For example, real outlays for computers had skyrocketed at an annual rate of 40 percent in the first half of the year, but grew at less than one-quarter of that pace in the second half. This stalling of investment preceded the downturn in the overall economy; by contrast, in the typical business cycle, investment has turned down at the same time as overall economic activity (Chart 1-2). The unusual timing of the investment slowdown in this recession is the reason that the recent business cycle has been widely viewed as an "investment-led" recession.

The sharp break in investment occurred in parallel with an apparent reevaluation of future corporate profitability among financial market participants. By the end of 2000, the Wilshire 5000 index of stock prices was down 13 percent from its peak, and analysts had substantially marked down their forecasts for S&P 500 earnings over the coming year. The movements were even more dramatic in the high-tech sector. The Nasdaq index of stock

Chart 1-2 **Real Investment in Equipment and Software**
Relative to the average prior recession, the weakness in investment in the recent recession occurred earlier, was more pronounced, and persisted longer.



Note: Recent peak set by Council of Economic Advisers at 2000:Q4. Average based on prior recessions since 1960.
Source: Department of Commerce (Bureau of Economic Analysis).

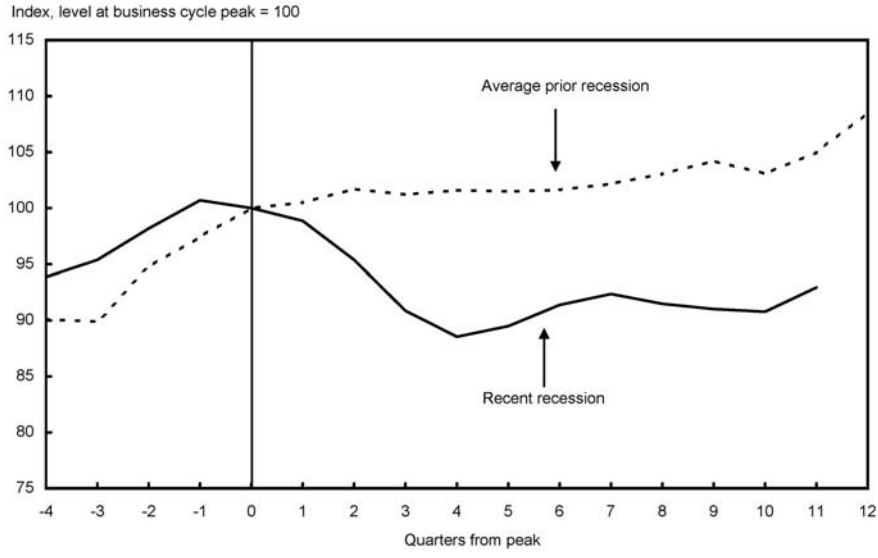
prices dropped nearly 50 percent from its peak in March 2000 to the end of the year. The prices of technology, telecommunications, and Internet shares fell particularly sharply, along with near-term earnings estimates. The elevated valuations of many such companies also declined markedly. Indeed, the price-earnings ratio (where "earnings" are those expected over the next year) for the technology component of the S&P 500 fell from a peak of more than 50 in early 2000 to less than 35 by the end of the year.

These facts and considerable anecdotal evidence suggest that business managers and investors sharply revised downward the expected gains from new capital investment during this period. One factor that may have contributed to the downward revision is a possible slowing of the pace of technological advance—the rate at which computer prices were declining eased (from more than 20 percent in the late 1990s to about half that in 2000), and the software industry reportedly developed no new so-called "killer applications" that required or spurred purchases of new hardware. In addition, firms may have been disappointed by the response of households to e-commerce opportunities and to new communications technologies such as broadband. Finally, previous investments had not uniformly translated into higher profitability, perhaps because the true potential of new forms of capital could be realized only by changing other aspects of production processes. For example, new computer systems designed to lower inventory management costs might have required an expensive reconfiguration of warehouses.

This reassessment of the gains from capital investment also implied that existing stocks of some types of equipment exceeded the amount of equipment that firms could put to profitable use. Such an excess of the existing capital stock relative to the desired stock (often called a *capital overhang*) is one type of *structural imbalance* that can slow or reverse economic expansion. In the case of an excess supply of capital, investment would be expected to slow until the capital overhang dissipates through a combination of depreciation in the existing stock and an increase in the desired stock due to lower costs of capital or stronger final demand.

Resolving the structural imbalance that developed in the late 1990s took considerable time. Real business spending on equipment and software dropped more than 9 percent during the four quarters of 2001 and posted less than a 2 percent gain during the four quarters of 2002. The high-tech categories showed especially sharp breaks in their upward trends. In these categories, the effects of the capital overhang were likely exacerbated by a reduction in normal replacement demand following the Y2K-related investment spurt. The prolonged period of sluggishness in business investment is another distinctive feature of this business cycle. Real investment in equipment and software typically has fallen less and has recovered more quickly than it did in the current recession and recovery (Chart 1-2).

Chart 1-3 **Real Exports**
Real exports have also been unusually weak in recent years relative to the average prior recession.



Note: Recent peak set by Council of Economic Advisers at 2000:Q4. Average based on prior recessions since 1960.
Source: Department of Commerce (Bureau of Economic Analysis).

A similar structural adjustment appears to have taken place overseas, where investment demand was also weak. The global slowdown in investment hampered U.S. export growth, since capital goods traditionally account for about one-third of the value of U.S. exports. Real exports fell sharply in this recession and have recovered only a little of their lost ground. In past recessions, exports have typically leveled off but not declined (Chart 1-3). Soft investment and weak export demand led to a long period of weakness in manufacturing output, a topic discussed in the next chapter.

Several forces have more recently moved existing capital stocks into better alignment with desired stocks and thereby set the stage for a renewal of robust investment demand. Previously installed capital has depreciated, a process that occurs especially quickly for many types of high-tech equipment. Rising demand for business output and falling costs for high-tech capital (caused by ongoing technological progress) have increased firms' desired capital stocks. The elimination of capital overhangs, together with improved business confidence and reductions in tax rates on capital income discussed later in this chapter, are consistent with the marked upturn in business investment spending in the second half of 2003.

Lesson 2: Uncertainty Matters for Economic Decisions

The U.S. economy has been hit hard in the past few years by a number of unexpected developments, including the tragic terrorist attacks of September 11, 2001, the corporate governance and accounting scandals of 2002, and the geopolitical tensions surrounding the war with Iraq in 2003. In addition to having direct effects on the economy, each of these events contributed to a climate of uncertainty that weighed on household and business confidence and thereby affected spending decisions.

The terrorist attacks have had substantial consequences for many aspects of the U.S. economy. The heightened focus on security at home, together with the determined efforts against terrorism around the world, have required increases in some types of government spending. The attacks hurt some industries directly: for example, fear of new attacks and the inconveniences associated with heightened airport security reduced air travel and tourism. Beyond these direct economic effects, the unprecedented attacks on the United States also generated uncertainty about future economic conditions.

Another setback for the economy was the series of revelations during 2002 regarding incomplete or misleading corporate financial reporting and, in some cases, wrongful conduct by corporate management. The number of financial restatements—that is, corrections to previous statements of earnings—by U.S. public corporations reached a record high in 2002. Although most of the restatements were not linked to misconduct, they raised questions about the reliability of accounting practices and the credibility of corporate financial disclosures. The combination of these concerns and allegations of misconduct by high-profile executives heightened investors' uncertainty about the quality of corporate governance and the reliability of earnings reports and projections.

In early 2003, uncertainty about the economic outlook increased during the period leading up to the war with Iraq. One source of this uncertainty was the potential effect of the conflict on the capacity for producing and transporting oil in the Persian Gulf, and thus on the future supply and price of oil. Observers were also concerned about the amount of additional government spending that would be needed to finance military operations and subsequent reconstruction, as well as the danger of retaliatory terrorist attacks on the United States. Finally, consumer confidence fell sharply in early 2003, raising concerns that the consumer demand that had supported the economy over the previous couple of years might falter. Such concerns were plausible, given that the 1990 Gulf War roughly coincided with a marked drop in consumer confidence and the start of the 1990-1991 recession.

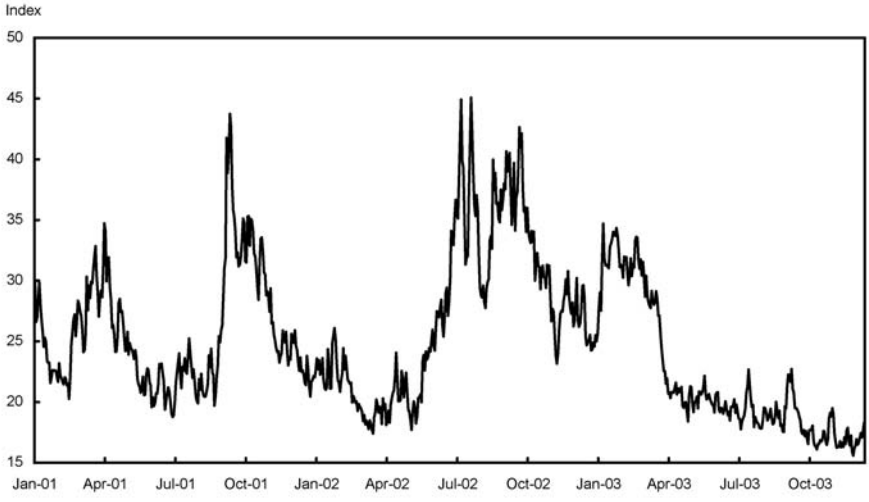
Chart 1-4 **The Wilshire 5000 Index of Stock Prices**
A broad measure of stock prices moved down after the terrorist attacks of September 2001, during the period of revelations of corporate misreporting, and before the war with Iraq.

Note: The data are daily and extend through December 31, 2003.
Source: Wilshire Associates.

The uncertainties created by the three developments described above had significant effects on financial markets. Stock prices dipped noticeably in September 2001, recovered subsequently, but moved down during the summer of 2002 and fell again in early 2003 (Chart 1-4). *Risk spreads* (the difference between interest rates on corporate bonds and on comparable Treasury bonds) jumped temporarily after the terrorist attacks and rose again in late 2002 during the peak of concerns about corporate governance. Because risk spreads generally reflect the extra return investors require to hold riskier corporate assets, the rise in spreads in 2002 indicated investors' greater perceived probability of default, lesser willingness to take on risk, or both. Investor uncertainty also was reflected in measures of the expected volatility of stock prices based on option prices, which were elevated during each of the episodes noted above (Chart 1-5).

Reductions in share prices and increases in bond yields raised the cost of funding capital expenditures and thus directly discouraged business investment. Increased uncertainty likely also had *direct* effects on business decisions about investment and hiring: uncertainty may cause firms to wait until they have more information before committing to an investment. In this case, firm managers hesitate to respond to a change in demand. Anecdotal evidence from the past few years as well as some statistical analyses

Chart 1-5 **Expected Near-Term S&P 500 Volatility**
Expected stock price volatility was elevated after the terrorist attacks of September 2001, during the period of revelations of corporate misreporting, and before the war with Iraq.



Note: The data are daily and extend through December 31, 2003.
Source: Chicago Board Options Exchange.

suggest that uncertainty has a noticeable damping effect on investment. Anecdotal evidence also suggests that uncertainty has held back hiring in the past few years.

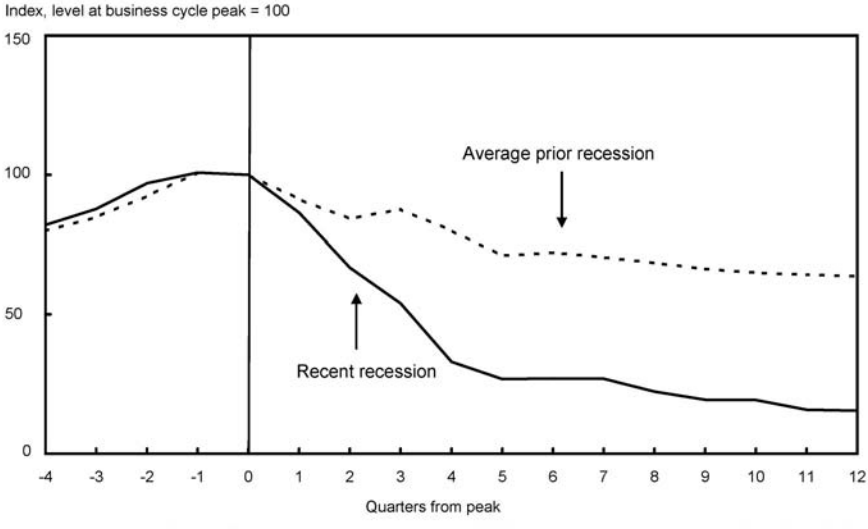
Household spending may also have been affected by uncertainty. Economic theory and empirical evidence suggest that greater uncertainty about future economic conditions may lead households to raise saving and reduce spending. However, such effects are not immediately apparent in the recent cyclical downturn—as will be explained shortly, household spending has shown remarkable resiliency over the past few years. A possible explanation for the seeming discrepancy between this pattern and empirical work based on earlier data is that the negative effects of greater uncertainty were offset by lower taxes and the effects of lower interest rates.

While the uncertainty created by these unexpected developments has hampered the economic recovery, household and business confidence strengthened considerably during the second half of 2003. This Administration and the Congress moved swiftly to address problems with corporate governance. In March 2002, the President proposed a set of reforms aimed at a wide range of corporate governance issues, and in July 2002, Congress passed the landmark Sarbanes-Oxley Act. As concerns about corporate governance have abated, and the durability of the recovery has become more apparent, firms have begun to invest and hire.

Lesson 3: Aggressive Monetary Policy Can Reduce the Depth of a Recession

When the economy showed signs of weakening three years ago, the Federal Reserve moved decisively to reduce interest rates to stimulate the economy. During 2001, the Federal Reserve cut the Federal funds rate eleven times for a total reduction of 4¾ percentage points. When the economy failed to gain much forward momentum, the Federal Reserve reduced the funds rate another ½ percentage point in November 2002 and a further ¼ percentage point last June, to 1 percent. The decline in the Federal funds rate in this economic downturn was larger and occurred more rapidly than in previous downturns (Chart 1-6). One factor that likely contributed to the Federal Reserve's willingness to cut the funds rate so sharply was the low level of inflation. Core consumer price inflation, as measured by the 12-month change in the consumer price index excluding food and energy, was around 2¾ percent in early 2001 and fell to just over 1 percent by late last year. Thus, the Federal Reserve was able to lower the Federal funds rate and keep it low with little apparent risk of triggering an undesirably high inflation rate.

Chart 1-6 **The Effective Federal Funds Rate**
The decline in the Federal funds rate in the recent recession was larger and occurred earlier than in the average prior recession.

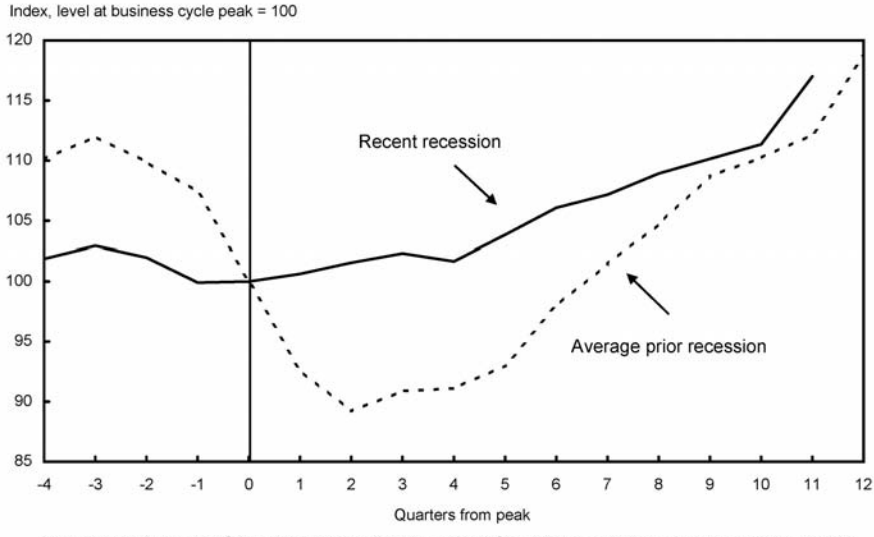


Note: Recent peak set by Council of Economic Advisers at 2000:Q4. Average based on prior recessions since 1960.
Source: Board of Governors of the Federal Reserve System.

Long-term interest rates on government securities and high-grade corporate securities began falling in late 2000, likely in part reflecting an anticipated decline in the Federal funds rate in response to a weaker economic outlook. Throughout 2001, short-term and medium-term interest rates declined along with the Federal funds rate. However, long-term rates changed little, on net, because market participants apparently expected the downturn to be short-lived and believed that the Federal Reserve would soon begin raising the funds rate. Then, in 2002, persistently weak economic conditions, combined with the Federal Reserve's decisions to hold the funds rate steady for much of the year and cut it further in November, persuaded market participants that short-term rates were likely to stay low for some time. As a result, long-term rates fell substantially, on balance, in 2002. Long-term rates fluctuated in 2003, but finished the year a little above where they started.

Interest rates on fixed-rate mortgages tracked long-term government yields over this period, as they typically have. In 2003, the interest rate on 30-year fixed-rate mortgages averaged more than 2 percentage points below the average in 2000. Low and falling mortgage rates have provided strong support for housing demand over the past few years. Indeed, residential investment has increased at a fairly steady pace throughout the period of overall economic weakness—a stark contrast to the pattern in past recessions, when residential investment tended to fall sharply (Chart 1-7).

Chart 1-7 **Real Residential Investment**
Real residential investment has steadily increased over the past few years, in stark contrast to the considerable decline seen in the average prior recession.



Note: Recent peak set by Council of Economic Advisers at 2000:Q4. Average based on prior recessions since 1960.
Source: Department of Commerce (Bureau of Economic Analysis).

Declining mortgage interest rates have also fueled an enormous wave of mortgage refinancing. (The response has been particularly strong because technological and institutional advances in mortgage markets have reduced the costs of such transactions.) In many refinancing transactions, homeowners have "cashed out" some of their accumulated home equity by taking out new mortgages that are larger than the remaining balance on their previous mortgages. According to a survey of households, more than half of the liquefied equity funded either home renovations or household consumption and thus may have helped to sustain aggregate demand. Another substantial portion reportedly was used to pay down credit card debt, which generally carries a higher interest rate than mortgage debt and, unlike mortgage debt, is not tax-deductible. By moving from a high-cost form of debt to a lower-cost one, households have been better able to cope with their debt burdens. In particular, the transition has held down the fraction of their income committed to regular debt service payments, and thus has increased the amount of income available for spending on discretionary items.

Low long-term interest rates have also reduced the cost of funds to businesses. In some cases, this lower cost has been passed directly to households. For example, motor vehicle manufacturers made low-interest-rate loans available to car buyers in late 2001 and have generally maintained a high level of financing incentives since then. These incentives have bolstered consumer outlays for motor vehicles.

More generally, lower interest rates make it cheaper for firms to finance new investment projects. The aggressive easing of monetary policy since early 2001 has likely helped to support business investment, even though the forces discussed earlier have, on balance, caused investment to be weak.

Firms have also taken advantage of low long-term interest rates to restructure their balance sheets. Net issuance of commercial paper and net borrowing from banks were both negative in each of the past three years, while net bond issuance was strong. By issuing longer-term bonds and paying down short-term debt, businesses have substantially lengthened the overall maturity of their debt. This restructuring reduced firms' near-term repayment obligations and locked in low rates for longer periods. The strengthening of businesses' financial positions means that financial constraints are less likely to restrain a further pickup in hiring and investment.

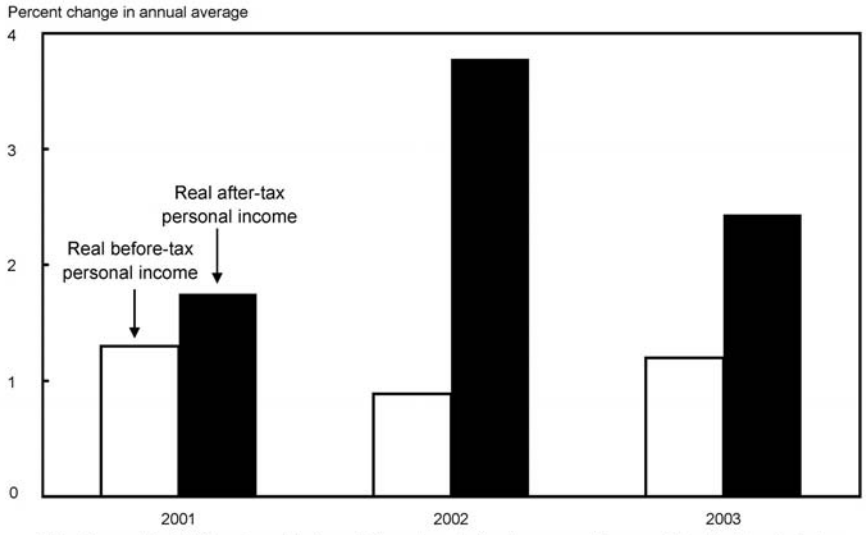
Lesson 4: Tax Cuts Can Boost Economic Activity by Raising After-Tax Income and Enhancing Incentives to Work, Save, and Invest

The use of *discretionary fiscal policy*—explicit changes in taxes and government spending, as opposed to those that occur automatically as economic activity changes—to reduce cyclical fluctuations in the economy has fallen out of favor with many economists over the past several decades. Some have pointed to the difficulties of crafting and implementing discretionary policy quickly enough to provide stimulus while the economy is still weak rather than accentuating an upturn that is already under way. It has also been noted that a temporary reduction in taxes might be mostly saved by households and thus encourage relatively little additional spending. Moreover, some have argued that expansionary fiscal policy can push up interest rates and thereby "crowd out" interest-sensitive spending. All told, before the recent business cycle, many economists believed that monetary policy made the use of discretionary fiscal policy unnecessary to stabilize the economy.

The experience of the past three years, however, shows that well-designed and well-timed tax cuts are a useful complement to expansionary monetary policy. Over this period, three bills have made significant changes to the personal and corporate tax systems. The President came into office with proposals for permanently reducing taxes on work and saving. With the budget surplus having reached its highest level relative to GDP in half a century, the proposals were aimed predominantly at reducing tax-based impediments to long-term growth. The proposals resulted in the Economic Growth and Tax Relief Reconciliation Act (EGTRRA), which the President signed into law in June 2001. In the wake of the terrorist attacks of September 2001 and continuing softness in the economy, the Congress passed the Job Creation and Worker Assistance Act (JCWAA), which the President signed into law in March 2002. And, in early 2003, with the pace of economic growth still falling below its potential and the labor market lagging behind, the President proposed and the Congress enacted the Jobs and Growth Tax Relief Reconciliation Act (JGTRRA), which the President signed into law in May.

These three bills provided substantial short-term stimulus to economic activity and helped put the economy on the road to recovery. One source of stimulus has been the large boost to after-tax personal income stemming from lower marginal tax rates, a larger child tax credit, reduced tax rates on dividends and capital gains, and other changes in the tax law. Real after-tax income has increased much more than before-tax income over the past three

Chart 1-8 **Growth in Personal Income, Before and After Taxes**
Real after-tax income has increased much more than before-tax income in recent years.



Note: Average for 2003 based on data through November. Before-tax personal income deflated by the price index for personal consumption expenditures.
Sources: Department of Commerce (Bureau of Economic Analysis) and Council of Economic Advisers.

years (Chart 1-8). Over the preceding five years, average annual growth in real after-tax income was more than ½ percentage point below the growth rate of real before-tax income. Numerous studies have shown that long-term tax cuts foster higher consumer spending. Thus, the additional income provided by the tax cuts is likely to have substantially boosted aggregate demand since 2000.

The tax cuts provided further stimulus by increasing incentives for business investment. Some of these incentives came in the form of *bonus depreciation* for business investment, an expansion in the amount of expensing of investment available for small businesses. The bonus depreciation was introduced in the 2002 tax cut (JCWAA), which specified that 30 percent of the price of investments made by September 10, 2004 could be treated as an immediate expense under the corporate profits tax and the remaining 70 percent depreciated over time according to the regular depreciation schedules. Moving the depreciation closer to the time of new investment increased the present value of depreciation allowances and the net after-tax return on investment. The 2003 tax cut (JGTRRA) raised the bonus depreciation to

50 percent of the price of new equipment and extended the period of eligibility so that investments made by the end of 2004 would be covered. It also increased the cap on small-business expensing from $25,000 to $100,000 per year through 2005, effectively lowering the cost of investment for small businesses. These tax changes lowered firms' cost of capital and likely provided support for investment at a crucial time.

The tax cuts also reduced the cost of capital and increased incentives for business investment by lowering tax rates on personal capital income. The 2001 tax cut (EGTRRA) phased out the estate tax and reduced marginal tax rates on all forms of income. These steps lowered the tax burden on capital income received from corporations and also on income received through sole proprietorships, partnerships, and S corporations (corporations for which income is taxed through individual tax returns). In addition, the 2003 tax cut (JGTRRA) reduced taxes on corporate dividends and capital gains.

Altogether, these three tax bills provided $68 billion in tax stimulus in fiscal year 2001, $89 billion in fiscal year 2002, $159 billion in fiscal year 2003, and $272 billion in fiscal year 2004. However, the bills were designed not only to provide short-term stimulus, but also to encourage stronger economic growth over the long run. Lower tax rates on labor income provide an incentive to increase work effort. Lower tax rates on capital income—the reward for saving and investment—provide an incentive to do more of these activities. Investment increases the amount of capital for each worker and also increases the rate at which new technology embodied in capital can be put to use. According to one study, the cut in taxes on capital income in the 2003 tax package (JGTRRA) reduced the marginal effective total tax rate on income from corporate investment by 2 to 4 percentage points. Lower taxes on dividends and capital gains also move the tax system toward a more equal treatment of debt and equity, of dividends and capital gains, and of corporate and noncorporate capital. This move increases economic efficiency because it promotes the allocation of capital based on business fundamentals rather than a desire for tax avoidance.

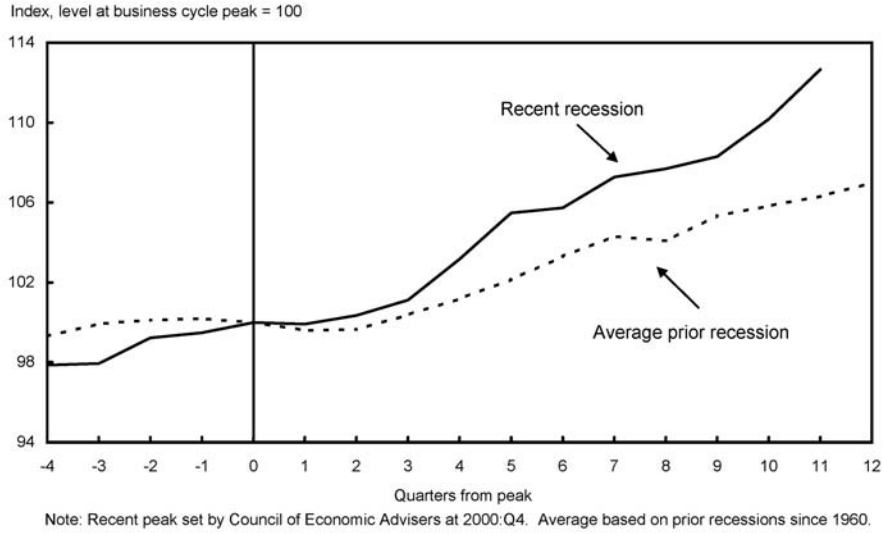
In sum, the tax cuts supported by this Administration provided a substantial short-term stimulus to consumption and investment and promoted strong and sustainable long-term growth. In weighing the merits of countercyclical monetary and fiscal policy, the stimulus provided by discretionary fiscal policy may be especially important in the low-inflation, low-interest-rate environment the country now enjoys. Under these circumstances, the Federal Reserve may have less room to cut interest rates, and direct stimulus to demand from fiscal policy may be needed to ensure that the Nation's resources are fully utilized in the face of cyclical weakness.

Lesson 5: Strong Productivity Growth Raises Standards of Living but Means that Much Faster Economic Growth is Needed to Raise Employment

One distinctive feature of this recession and recovery has been the remarkably fast growth of *labor productivity*—the amount of goods and services that a worker with given skills produces from each hour of work. The late 1990s had already witnessed an acceleration of productivity growth from an average annual rate of around 1½ percent between the fourth quarters of 1972 and 1995 to a roughly 2½ percent rate between the fourth quarters of 1995 and 2000. Productivity growth then picked up further, contrary to the usual experience in which productivity growth has typically softened in the quarters surrounding business-cycle peaks. In the latest recession, productivity growth leveled off for just one quarter before beginning to rise rapidly (Chart 1-9). Since the fourth quarter of 2000, productivity has increased at an exceptional annual rate of more than 4 percent per year.

Labor productivity growth can be decomposed into the skills of the workforce *(labor quality)*, increases in the amount of capital services per worker-hour *(capital deepening)*, and increases in *total factor productivity*—a

Chart 1-9 **Productivity in the Nonfarm Business Sector**
Productivity has risen unusually rapidly relative to the average prior recession/recovery period.



Note: Recent peak set by Council of Economic Advisers at 2000:Q4. Average based on prior recessions since 1960. Data based on productivity available as of December 3, 2003 (that is, prior to the benchmark revision of the National Income and Product Accounts).
Source: Department of Labor (Bureau of Labor Statistics).

residual category that captures the change in aggregate output not explained by changes in capital and labor inputs. According to this framework (as detailed in last year's *Report*), productivity growth stepped up in the mid-1990s partly because the rapid pace of business investment generated large increases in the amount of capital available to each worker. Yet a larger part of this acceleration owes to faster growth in the unexplained residual category of total factor productivity.

The explanation for faster productivity growth in the past couple of years is not clear (especially since the information needed to decompose productivity growth over this period is quite limited). One possibility is that weaker profits and skepticism about the return to new physical investment have encouraged firms to make better use of the resources they already had rather than investing in new technology and capacity. This effort to increase what is sometimes called *organizational capital* might involve, for example, restructuring production processes and retraining workers to take maximum advantage of new information-technology equipment installed in the late 1990s. Another possibility is that firms somehow induced extra work effort for a time because they were hesitant to hire new workers until they were more confident that increases in final demand would persist. A third possibility is that the slower recent pace of gross investment may have been accompanied by slower depreciation of the existing capital stock so that firms lengthened replacement cycles and held on to their existing equipment for longer periods. If this were the case, net investment and the growth rate of the capital stock would have been stronger than indicated by measures based on historical depreciation rates.

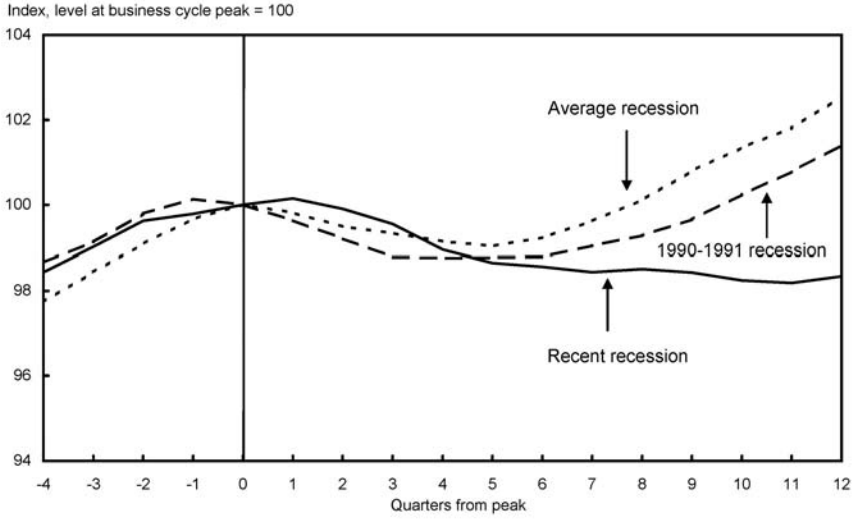
In the long run, productivity growth is the key determinant of growth in living standards. Without labor productivity growth, our nation's output and income would grow only at the rate at which the labor force expands; if the labor force grows proportionally with population, this would mean that income per person would be unchanged. With productivity growth, income per person increases. Indeed, U.S. average income is close to eight times as high as it was one hundred years ago, similar to the increase in productivity over this period. The recent robust gains in productivity have boosted both corporate profits and employees' compensation. Corporate profits declined sharply during the recession, but turned around and rose briskly in 2003 (based on data through the first three quarters). Average hourly earnings of production workers in private industry have risen at an average annual rate of close to 3 percent over the past three years. Moreover, productivity growth has reduced inflationary pressures by holding down growth in unit labor costs. As a result, wage gains after adjusting for inflation have been even more impressive by historical standards. In this recession, real average hourly earnings, published in the Bureau of Labor Statistics employment release, never fell below their pre-recession levels, and increased nearly 3 percent in

the eleven quarters after the recession began. The experiences in past recessions have been diverse, but many show a net decline in real hourly earnings or much weaker growth even eleven quarters after the start of the recession.

By definition, labor productivity multiplied by hours worked equals output. Thus, in an arithmetic sense, faster productivity growth generally implies that output must expand more rapidly to generate employment gains. The same principle explains why the rapid pace of productivity growth over the past couple of years has meant that gains in output occurred without gains in employment, until recently.

Indeed, the performance of employment over the past couple of years has been appreciably weaker than in past business cycles (Chart 1-10). Employment was slow to pick up in the average previous recovery, perhaps because employers delayed hiring until they became confident that the increases in demand were sustainable. However, such sluggishness typically has been short-lived (a quarter or two) and followed by vigorous expansion. In contrast, in the current business cycle, employment did not begin its recovery until nearly two years after the upturn in real GDP. The performance of employment in this cycle has lagged even that of the so-called "jobless recovery" from the 1990-1991 recession. (Chart 1-10 shows data from the *establishment survey* done by the Bureau of Labor Statistics (BLS). The BLS *household survey* can show a different pattern—as it has done over the past couple of years. As discussed in Box 1-2, however, the BLS views the establishment survey as a more accurate indicator of labor market conditions.)

Chart 1-10 **Total Nonfarm Employment**
The performance of employment in this recovery has lagged that in the typical recovery and even that in the "jobless recovery" of 1990-1991.



Note: Recent peak set by Council of Economic Advisers at 2000:Q4. Average based on prior recessions since 1960.
Source: Department of Labor (Bureau of Labor Statistics).

Nonetheless, one should not conclude that rapid productivity growth *causes* low employment growth. Rapid productivity growth means that output must increase faster for employment to expand, but it also means that the economy is capable of growing faster. In the long run, the faster rate of *potential output growth* is undoubtedly a good thing for living standards.

Box 1-2: Two Surveys of Employment

Everyone who works is either employed by a firm or is self-employed. Therefore, to count the total number of workers, one could ask each person whether he or she is employed, or one could ask each firm how many workers it employs. The Bureau of Labor Statistics, the agency responsible for tracking employment, uses both approaches. When the BLS asks individuals about their employment status, the results are summarized in the *household survey* of employment. When the BLS asks firms, it produces the *establishment survey* of employment.

Though both surveys ask about employment, they have some important differences that can cause their results to diverge. For example, the establishment survey obtains data from about 160,000 businesses and government agencies that represent about 400,000 worksites and employ over 40 million workers. The sample covers about one-third of all nonfarm payroll jobs in America. The household survey, in contrast, collects data from about 60,000 households, thereby directly covering fewer than 100,000 workers. The establishment survey's larger base of respondents means the calculated margin of error of its estimates is significantly smaller than that associated with the household survey estimates. In addition, the establishment survey is revised annually to match complete payroll records from the universe of establishments participating in state unemployment insurance programs, while the household survey is not.

Furthermore, definitional differences affect the scope of employment measured by the surveys. The establishment survey estimate represents the number of *payroll jobs*, or the number of jobs for which firms pay compensation, while the household survey estimate represents the number of employed persons. Because some people hold more than one job, the total number of payroll jobs can exceed the total number of employed persons. On the other hand, the household survey includes employees working in the agricultural sector, the unincorporated self-employed, unpaid family workers, workers in private households, and workers on unpaid leave from their jobs. The establishment survey excludes all of these categories because they are not reported on the nonfarm business payrolls that provide the source data for the survey.

Box 1-2 — *continued*

These differences and other factors create a gap between the household and establishment surveys' employment estimates, though they tend to display similar long-term trends. The average gap since 1990 has been about 6 percent, or 8 million workers.

While long-term trends in the two surveys are similar, over shorter periods of time their trends have sometimes diverged. This has been the case since late 2001, when employment from the two surveys has trended in opposite directions. For the first time in the two series' histories, one showed a large and sustained *decrease* in employment while the other showed a large and sustained *increase*. In particular, the establishment survey reported a decline in employment of over 1.0 million from the end of the recession in November 2001 to August 2003, while the household survey reported an increase of over 1.4 million. In every month of 2003, the establishment survey showed employment below the November 2001 level, while the household survey showed it above this level. Such a sustained string of divergence is unprecedented.

One possible explanation is that the establishment survey misses some new firms and therefore may underestimate employment at the start of an economic expansion. Past revisions to the establishment survey offer some support for this theory. For the recent data, however, this theory can explain at most the divergence since March 2003, because establishment survey data up to that point appear consistent with unemployment insurance records that cover all establishments. Another possible explanation is that the household survey results are overstated because of the way in which the survey results are extrapolated to represent the entire population. Specifically, information from the 2000 Census, together with estimates of how the population is changing over time, are used to determine how many actual U.S. households correspond to each household in the sample. If, for example, immigration has been unexpectedly low because of tighter border controls and the weaker labor market over the past few years, the estimated number of U.S. households corresponding to each household in the sample may be overstated. As a result, the estimates of total employment (and other aggregates based on the population estimates) from the household survey could be too high.

Both surveys contain valuable information about current economic developments, but, as with all economic statistics, the data from both surveys are imperfect. The Bureau of Labor Statistics has stated that the establishment survey is generally the more reliable indicator of current trends in employment. Still, the explanation for why these two surveys' results have diverged so markedly over the last few years, and what this might indicate about the economic recovery, remains a puzzle.

Conclusion

The U.S. economy is much stronger now than it was a year ago and, as will be discussed in Chapter 3, prospects for the coming year look solid. Nonetheless, the experiences of the past several years remain relevant for the future. Understanding the negative forces that weighed against the economy, as well as the policies that contributed to the recovery, can help policy makers ensure that economic activity maintains a strong upward trend in the years ahead.