Chapter Two

The Economic Outlook

The U.S. economy entered a recession in 2001, and most forecasters, including the Congressional Budget Office, believe that it will prove mild in comparison with most past downturns. However, in the aftermath of the events of September 11, new risks to both the nation and the economy have become evident, and policymakers must face the possibility of a significantly different outcome.

CBO's forecast of the U.S. economy's most likely path, which is described in this chapter, anticipates that the recession will be over by the end of the first quarter of 2002 (unless otherwise specified, all years in this chapter are calendar years).[1] CBO estimates that the annual rate of growth of real (inflation-adjusted) gross domestic product will accelerate from -0.2 percent over the four quarters of 2001 to 2.5 percent in 2002 and then quicken further, to 4.3 percent, in 2003 (see Table 2-1). (Chapter 5 explores less likely outcomes, both those that are more optimistic and those that are more pessimistic.)

The recession ended an economic expansion that was unusual in many ways. At 10 years, from March 1991 to March 2001, it was the longest in the nation's history.[2] Midway through the period, the rate of growth of labor productivity sped up significantly, from an annual average of 1.6 percent, between 1991 and 1995, to 2.6 percent, between 1995 and 2000. That acceleration differed from the typical pattern, in which productivity growth slows in the later stages of an expansion. Several factors contributed to that increase in growth, but the most important was a historically high level of business investment, spurred by stunning technological advances in information technology (computers, peripherals, software, and communications equipment) and a surge in stock prices, which reduced the cost of capital. The 10-year expansion was also unusual in that the rapid growth of productive capacity at home, together with excess capacity overseas, kept inflation from picking up as much as it ordinarily does in the later stages of expansions.

Just as the economy's behavior in the 1990s was unusual, the current recession has been out of the ordinary. Expansions typically end after imbalances build up in the economy. Prior to most of the nine recessions that have occurred since World War II, the imbalance—which was reflected in rising rates of inflation—had been a level of overall demand that exceeded overall supply. Monetary tightening in response to the inflation then helped trigger those recessions. At the end of the 1990s, however, the primary imbalance seems to have arisen not from an excess of demand over supply but from overly optimistic expectations of the future profitability of new

1. According to the National Bureau of Economic Research (NBER), a recession is a significant decline in activity spread across the economy, lasting more than a few months, visible in industrial production, employment, real income, and wholesale-retail trade. An economic expansion is the period between the end of one recession and the beginning of the next. Recessions and expansions are both phases of what economists term the business cycle.

2. The previous expansion, lasting from December 1982 to July 1990, was the second-longest peacetime expansion in the nation's history. (The second-longest expansion overall lasted from February 1961 to December 1969.) The NBER maintains the chronology of U.S. business cycles. For the annual record from 1790 to 1855, see Geoffrey H. Moore and Victor Zarnowitz, "Appendix A: The Development and Role of the National Bureau of Economic Research's Business Cycle Chronologies," in Robert J. Gordon, ed., *The American Business Cycle: Continuity and Change* (Chicago: University of Chicago Press for NBER, 1986), p. 746. For the monthly record from the trough in December 1854 to the present, see www.nber.org/cycles.html.

Table 2-1.
CBO's Economic Forecast for 2002 and 2003

	Estimated 2001	Forecast 2002	Forecast 2003
Fourth Quarter to Fourth Quarter (Percentage change)			
Nominal GDP	1.7	4.2	6.5
Real GDP	-0.2	2.5	4.3
GDP Price Index	1.9	1.6	2.1
Consumer Price Index[a]			
Overall	2.2	2.3	2.5
Excluding food and energy	2.7	2.4	2.5
Calendar Year Average			
Real GDP (Percentage change)	1.0	0.8	4.1
Unemployment Rate (Percent)	4.8	6.1	5.9
Three-Month Treasury Bill Rate (Percent)	3.4	2.2	4.5
Ten-Year Treasury Note Rate (Percent)	5.0	5.0	5.5

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics; Federal Reserve Board.

a. The consumer price index for all urban consumers.

investment. Those expectations, which were particularly out of balance for companies that were producing and intensively using information technology, drove both stock prices and levels of business fixed investment (spending on structures, equipment, and software) higher than was merited in retrospect.

As a result, investment plunged beginning late in 2000. A sharp drop in profit margins, probably tied to excess capacity stemming from overoptimism, has worsened that fall. While this recession has been mild so far, the contraction in the share of GDP claimed by corporate profits is expected to be one of the worst since World War II.

Further hurting production is that businesses have reduced their investment in inventory, especially for items that are used to produce new equipment. As the growth of income slowed in response to weaker production and households' equity wealth eroded, the rate of growth of consumption also slackened, but not by as much as did GDP growth. At the same time, the growth of foreign economies began to flag, worsening the downturn in this country by reducing demand for U.S. exports.

The terrorist attacks on September 11 weakened demand still more in an already vulnerable economy. Some industries, such as airlines, hotels, and other travel-related businesses, were directly affected. Consumers lost confidence and cut back their spending on other items as well. "Spreads" (or differences) between the interest rates on corporate and government debt widened noticeably—the financial markets' signal that risk had increased—while stock prices fell; both outcomes raised the cost of funds for business investment. Firms both within and outside the travel sector cut payrolls, and the unemployment rate jumped. Since September, however, many of those effects on the demand side of the economy have been partly or even fully reversed.

Other unusual features of the recession—chiefly the rapidity of policymakers' responses, the moderating behavior of prices, and an early reduction of inventories—support CBO's expectation that the current downturn will not be severe. During 2001, the Federal Reserve cut the federal funds rate (the rate banks charge for overnight loans) 11 times, from 6.5 percent to 1.75 percent. Those cuts probably kept the stock market from sinking further than it did. They also bolstered the housing market and auto sales by putting downward pressure on mortgage interest rates and making it easier for automakers to offer new-car financing of zero percent late last year. On the fiscal side, the tax cuts that became effective in mid-2001 helped prevent consumption from slowing more than it did, and additional federal spending in response to the terrorist attacks will boost GDP in 2002.

Large declines in the prices of oil and natural gas and a lack of pressure on the prices of other items have propped up consumption by boosting real disposable income. Although the price picture indicates some erosion in firms' profit margins, which may be hurting investment, the net impact of the low rate of inflation is probably positive. Also to the good is that businesses began to reduce inventories earlier in this recession than they did in past slowdowns, hurting production last year but setting the stage for stronger production this year. Additional reasons for optimism about the relative moderateness of the recession include the general health of the financial

system and recent monthly indicators of recovery, including a downward trend, between October 2001 and early 2002, in initial claims for unemployment insurance.

The unique character of the recession also bolsters CBO's view that the ensuing recovery will be modest. Since the level of residential construction and purchases of consumer durable goods (such as cars and appliances) have not fallen as much as they have in other recessions, they are not likely to rebound as much when growth returns. Moreover, the lingering presence of significant excess capacity will slow the recovery in business investment. Continued economic weakness overseas means that export growth will also be lower than it was during other recoveries.

CBO forecasts that, in the near term (that is, the next two years), weak growth in GDP, translated into weak growth in employment, will push the unemployment rate higher but also restrain inflation. For 2002, CBO expects the unemployment rate to jump to 6.1 percent, after averaging 4.8 percent in 2001 and just 4.0 percent in 2000 (see Table 2-2 and Figure 2-1). The stronger growth that CBO forecasts for the economy in 2003 trims unemployment to 5.9 percent. And the rate of inflation faced by consumers, as measured by the growth of the consumer price index for urban consumers (CPI-U), falls from 2.9 percent in 2001 to 1.8 percent this year. Lower prices for oil account for most of that forecast decline, although the recession also plays a role. As oil prices stabilize, inflation bounces back to 2.5 percent in 2003.

CBO's and other forecasters' predictions of a mild recession and weak recovery may founder, however, on the uncertainties that accompany the unusual economic patterns of recent years. The possibility of either a stronger recovery or, indeed, a much deeper downturn than CBO forecasts cannot be discounted. Forecasters' lack of experience with this type of recession also means that there are fewer precedents for forecasting the recovery, which increases the uncertainty of their estimates.[3] In addition, other extraordinary events—such as another terrorist attack in the United States or turmoil in the Middle East that causes a severe and sustained rise in oil prices—could deepen or prolong the economy's downturn.

Looking out over the medium term (approximately the next decade), CBO expects the growth of real GDP (production, or output) to average 3.1 percent. That projection for the 2002-2012 period is roughly the same as the projection CBO made in January 2001 for the 2002-2011 period. Nonetheless, the level of real GDP is lower over the 2002-2011 period in CBO's current forecast than in last January's, for two reasons. First, actual GDP fell much farther in 2001 than CBO expected last January. Second, the average rate of growth of potential GDP in the medium term is slightly lower in the current forecast than in last January's because CBO expects productivity to grow somewhat less rapidly than it projected last winter.[4] That lower growth results from less business investment and an altered view of the size of the computer sector: CBO no longer expects that component of the economy, with its high rate of productivity growth, to constitute as large a share of GDP during the next decade as it expected last January that it would.

Recent Economic Developments

The economy had already begun to contract before the events of September 11, a downturn that might even have been deep enough to qualify as a recession without the attacks. A collapse in investment was the single most important source of weakness. Drawdowns in inventories, faltering foreign economies, and increased caution among consumers and investors added to the difficulties. Nonetheless, the slowdown was unusual in that business investment played such an important role. As the economy entered recession during the first half of 2001, growth of GDP

3. For an assessment of CBO's economic forecasts, see *CBO's Economic Forecasting Record*, which will appear shortly on CBO's Web site (www.cbo.gov).

4. Potential GDP is the highest level of real gross domestic product that could persist for a substantial period without raising the rate of inflation. CBO estimates potential GDP using projections of labor; capital; and total factor productivity, which is the average real output per unit of combined labor and capital inputs.

Table 2-2.
CBO's Current and Previous Economic Projections for Calendar Years 2001 Through 2011

	Estimated	Forecast		Projected Annual Average	
	2001	2002	2003	2004-2007	2008-2011
Nominal GDP (Billions of dollars)					
January 2002	10,193	10,422	11,063	13,639[a]	16,676[b]
January 2001	10,446	11,029	11,623	14,100[a]	17,132[b]
Nominal GDP (Percentage change)					
January 2002	3.2	2.2	6.1	5.4	5.2
January 2001	4.7	5.6	5.4	4.9	5.0
Real GDP (Percentage change)					
January 2002	1.0	0.8	4.1	3.3	3.1
January 2001	2.4	3.4	3.3	3.0	3.1
GDP Price Index (Percentage change)					
January 2002	2.2	1.4	2.0	2.0	2.0
January 2001	2.3	2.1	2.0	1.9	1.9
Consumer Price Index[c] (Percentage change)					
January 2002	2.9	1.8	2.5	2.5	2.5
January 2001	2.8	2.8	2.7	2.5	2.5
Unemployment Rate (Percent)					
January 2002	4.8	6.1	5.9	5.2	5.2
January 2001	4.4	4.5	4.5	4.8	5.2
Three-Month Treasury Bill Rate (Percent)					
January 2002	3.4	2.2	4.5	4.9	4.9
January 2001	4.8	4.9	5.0	4.9	4.9
Ten-Year Treasury Note Rate (Percent)					
January 2002	5.0	5.0	5.5	5.8	5.8
January 2001	4.9	5.3	5.5	5.7	5.8
Tax Bases (Percentage of GDP)					
Corporate book profits					
January 2002	6.9	6.1	7.0	7.9	8.1
January 2001	8.9	8.5	8.4	8.1	8.0
Wages and salaries					
January 2002	50.0	50.3	50.1	49.3	48.9
January 2001	48.2	48.2	48.2	48.1	48.0

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics; Federal Reserve Board.

NOTES: CBO's January 2001 projections for GDP and its components were based on data from the national income and product accounts before the accounts were revised in July 2001.

Percentage changes are year over year.

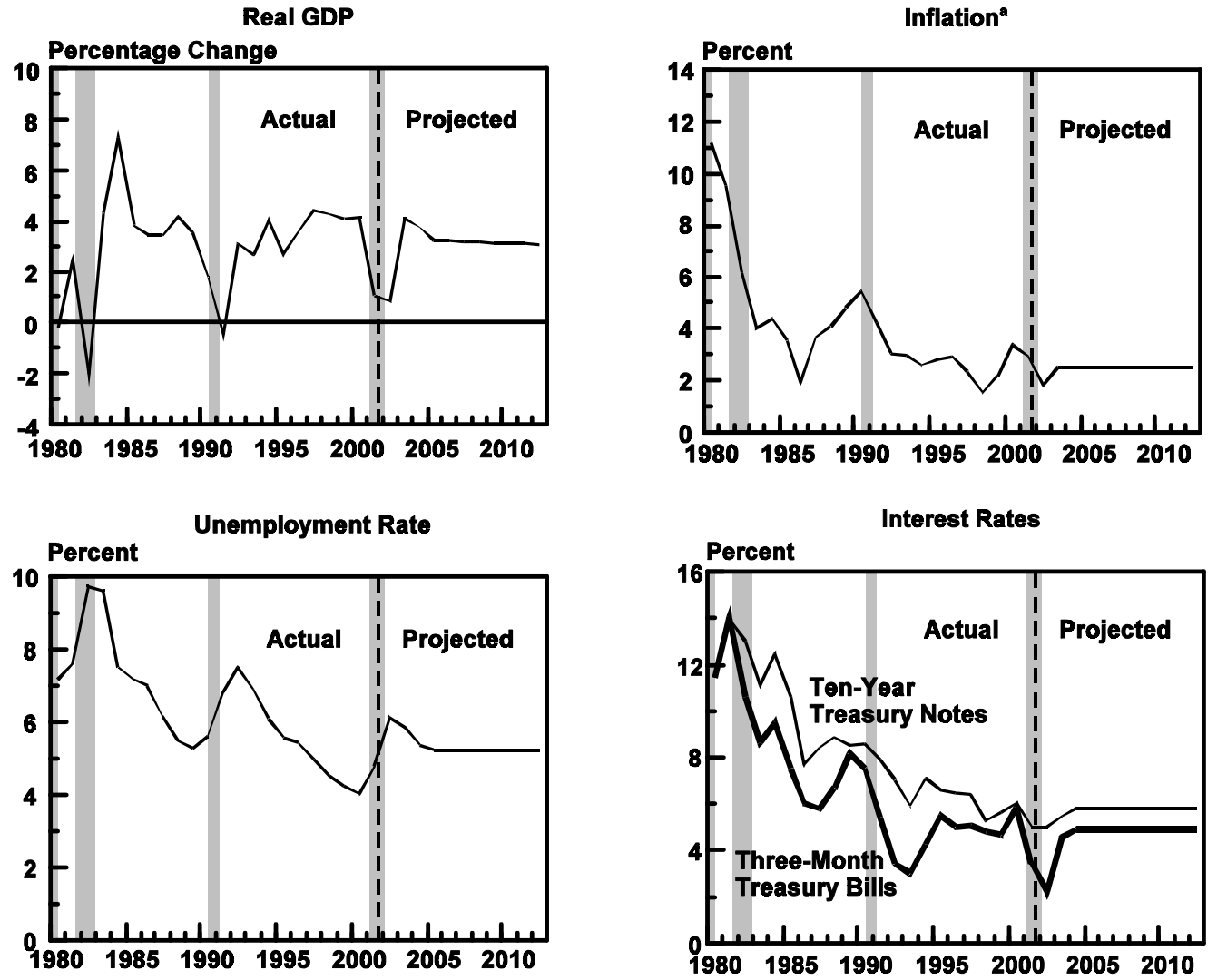
Year-by-year economic projections for calendar and fiscal years 2001 through 2012 appear in Appendix E.

a. Level of GDP in 2007.

b. Level of GDP in 2011.

c. The consumer price index for all urban consumers.

Figure 2-1.
The Economic Forecast and Projections



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics; Federal Reserve Board.

NOTES: All data are annual values; percentage changes are year over year.

The trough of the current recession is assumed to be in the first quarter of 2002.

a. The change in the consumer price index for all urban consumers, applying the current methodology to historical price data (CPI-U-RS).

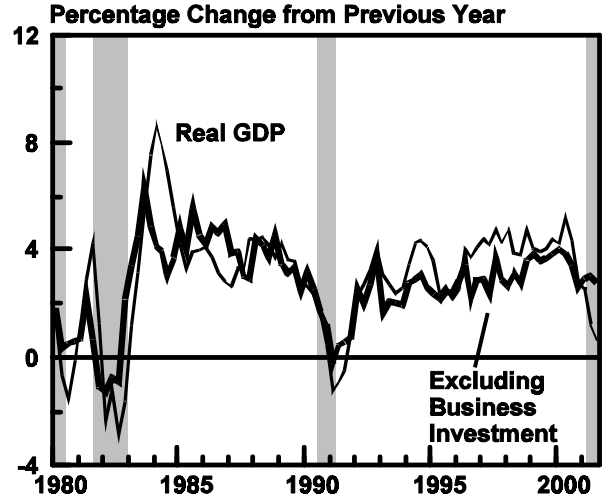
slowed to 0.8 percent from an annual rate of 4.0 percent in the first half of 2000.

The terrorist attacks on September 11 dealt another blow to an already faltering economy. Investors, consumers, and businesses lost confidence. As a result, stock prices fell, consumers bought less, and firms sharply reduced orders for new equipment. Lower demand in turn led businesses to reduce their workforces. Although many of the initial economic effects of the attacks have faded, the economy at the end of 2001 was still weaker than it was before the attacks. How much of that additional weakness stems from the events of September 11 and how much reflects trends already in place before the attacks occurred is difficult to determine.

Business Fixed Investment and Inventories

A dramatic downward shift in the rate of growth of business fixed investment and inventories was the primary cause of the recession. Real nonresidential fixed investment fell by 5.8 percent in the year ending in the third quarter of 2001, after an upward surge of 10.2 percent in the prior four-quarter period. During the first three quarters of 2001, businesses drew down their inventories at an annual rate of $42 billion, after building them at an annual rate of $51 billion in 2000. The downturn in business fixed investment and inventories accounted for 3.7 of the 4.7 percentage points of slowing in the year-over-year growth rate of the economy between the second quarter of 2000 and the third quarter of 2001 (see Figure 2-2).

Figure 2-2.
Growth in Real GDP



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

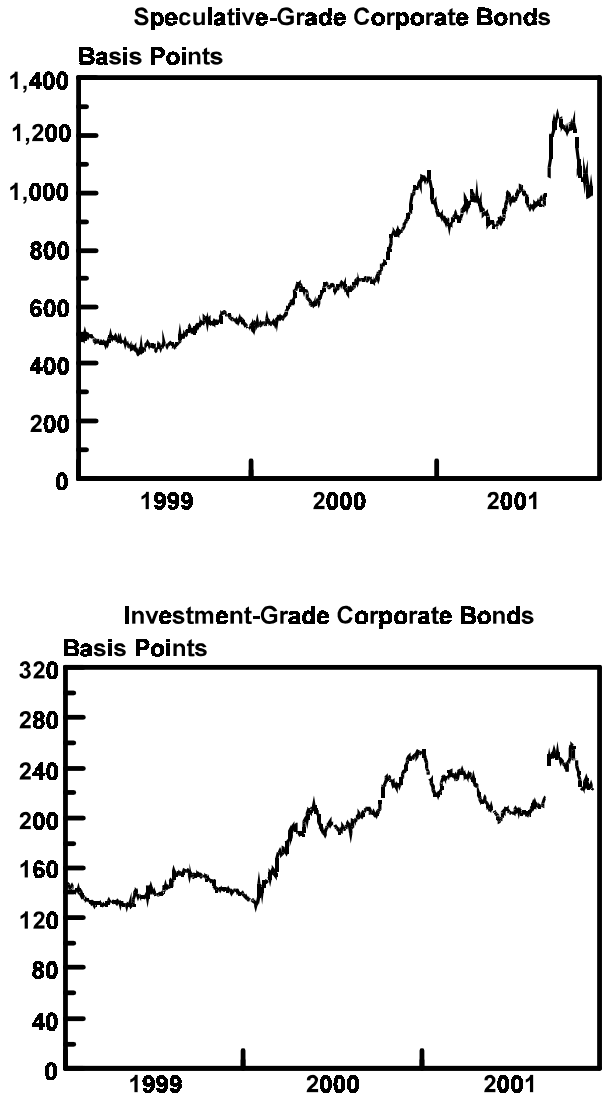
NOTE: Business investment includes business fixed investment (spending on structures, equipment, and software) and the change in business inventories.

Several factors contributed to the decline in investment, but the most influential was probably overinvestment in plant and equipment during the late 1990s and early 2000. Overly optimistic expectations of future growth in demand, which were reflected in inflated stock prices, led businesses to invest in new plant and equipment at levels that appear excessive in hindsight. In addition, many firms in the information technology (IT) sector invested ahead of demand, in an attempt to be first in new Internet and other IT markets. Even though not all such firms were overinvesting, they were all investing at an unsustainable pace. And while overinvestment in information technology appears to have been especially pronounced, there is some evidence of overinvestment in other types of equipment as well.

The decline in investment since early 2000 can be seen as comprising two steps. First, investment has declined from an unsustainably high rate to a more sustainable one. Second, businesses have temporarily reduced investment below that sustainable rate to work off the excess capacity that built up while they were overinvesting. Analysts' estimates of the cumulative level of business overinvestment in information technology alone during the late 1990s and 2000, also known as the IT investment overhang, range from near zero to almost $200 billion—compared with an annual rate of investment in information technology of roughly $350 billion. CBO's implicit assumption about the amount of the overhang is that it falls in the middle of analysts' estimates.

Financial developments since early 2000 exacerbated the drop in firms' investment in plant and equipment. For example, the difference between the interest rates on private and government debt, which private borrowers must pay lenders to compensate for their greater risk of default, grew as the perceived default risk rose. Rates surged on speculative-grade securities (debt carrying some risk of default or nonpayment at maturity), which boosted the cost of capital for firms that rely on such debt. Even for businesses issuing investment-grade debt (which offers a high level of security of repayment at maturity), the spread between the interest rate those firms had to pay and the rate the government paid widened—which meant that the yields on corporate debt fell by less than the yields on Treasury debt (see Figure 2-3). A further development, reported in surveys by the Federal Reserve, was that banks' loan officers tightened lending standards and terms for business customers as a result of the uncertain economic outlook, reducing the availability of bank loans at any given interest rate. Moreover, falling profits last year re-

Figure 2-3.
Interest Rate Spreads



SOURCES: Congressional Budget Office; Standard & Poor's Risk Solutions credit indexes.

NOTES: The spread, which indicates the riskiness of bonds, is measured as the difference between interest rates on speculative-grade and investment-grade corporate bonds and those on Treasury securities of comparable maturity.

A basis point is one-hundredth of a percentage point.

Note that the scales of the vertical axes of the two panels differ.

Breaks in data, most notably those after September 11, 2001, indicate days on which the bond markets were closed.

duced cash flow for many businesses, further limiting their ability to finance new investment.

The attacks on September 11 temporarily worsened those adverse financial conditions and increased uncertainty, which curbed investment still further. Investor confidence plummeted, pushing the Standard & Poor's 500 stock index down by almost 12 percent between September 10 and September 21. (The NASDAQ and Dow Jones industrial indexes fell by even larger percentage amounts.) The spread between yields on corporate securities (both speculative- and investment-grade) and Treasury bonds widened further. In that environment of diminished expectations, orders for nondefense capital goods plunged by 13 percent in September, to their lowest level since August 1995. Although by mid-November the major stock market indexes were back to where they had been before the attack and spreads for corporate bonds had receded nearly to their former levels, orders for nondefense capital goods crept up by just 6 percent in October and 5 percent in November, leaving orders below where they had been in August. Shipments of nondefense capital goods also remained below their August levels in November.

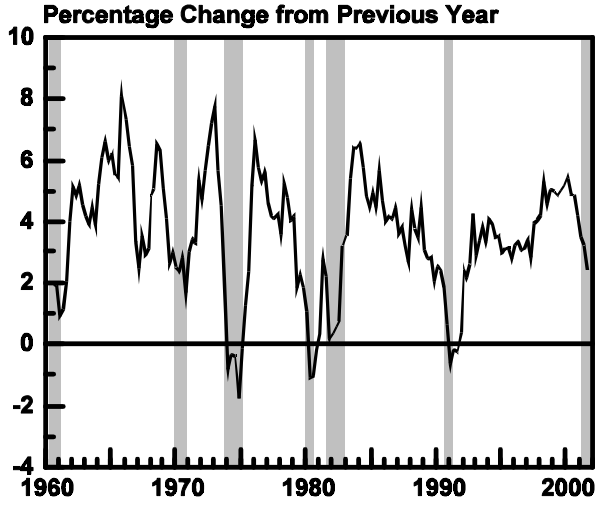
Adverse financial conditions prevailing since September 11 have probably also hurt demand for new nonresidential structures. Vacancy rates for commercial and industrial space have climbed since the end of 2000, as the economy has slowed. Although rising levels of investment in oil-drilling structures, in response to higher oil prices, kept overall construction growing through early 2001, investment in new structures has fallen sharply since then.

The reduction in inventories seen over the past year is primarily a reaction to slower sales, especially of IT equipment. For example, manufacturers of computers and electronic products held only 13 percent of total manufacturing inventories in January 2001, but they accounted for 31 percent of the reduction in those inventories through November 2001. Slowing sales also led wholesalers and retailers to reduce inventories last year. Auto dealers made especially large cuts. In addition, the ratio of inventories to sales rose somewhat in 2000, which produced an inventory overhang at the beginning of 2001 that businesses have since been working off.

Consumer Spending and Residential Investment

The rate of growth of consumption has also slowed since 2000, although the slowdown to date has been much less severe than in most other recessions (see Figure 2-4). Before September 11, real consumer spending was still growing, albeit more slowly than in 2000. From January to August 2001, real consumption rose at an annual rate of 2.7 percent, down from growth of 4.8 percent during 2000 (measured year over year) and 5.0 percent in 1999.

Figure 2-4.
Real Consumer Spending



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Several factors account for the sagging growth in consumer spending prior to the attacks. In line with the stalling economy, pretax income grew more slowly in 2001 than in 2000. In addition, the rapid rise in equity wealth from higher stock prices, which had helped fuel the growth in consumption in recent years, stopped abruptly in 2000, then swung into reverse. That about-face played a major role in halting the steady decline in the saving rate (which had reflected faster growth in consumption than in income). More recently, tighter standards for consumer lending may also have slowed the growth of consumption slightly.

In fact, if those factors had been the only influences on consumption over the past year, the slowdown would have been more severe than it was. Instead, three other factors helped support consumer spending. First, last summer's tax legislation boosted disposable income, offsetting some of the income lost through lower growth of wages and salaries. Second, rising home prices cushioned the blow to household wealth from lower stock prices. Third, low mortgage rates encouraged many homeowners to refinance their mortgages. Those refinancings have allowed households to consume some of their newfound housing wealth; according to Freddie Mac, a government-sponsored enterprise that provides funding to the home mortgage market, more than half of the homeowners who refinanced during the first three quarters of 2001 took out at least 5 percent of their equity.

For a short time, the terrorist attacks on September 11 sent consumer confidence and consumer outlays reeling. The University of Michigan's index of consumer sentiment fell from 92 in August to just 72 during the second half of September, producing one of the largest monthly declines ever. Consumer confidence, as measured by the Conference Board (a business information group), also dropped. The link between consumption and confidence is not always close, but in this instance, it was: real consumer spending fell by 1.2 percent (monthly rate) during September, the biggest monthly decline in almost 15 years. Travel was especially hard hit, as real spending nosedived for domestic airline travel (down 35 percent), foreign travel (down 28 percent), hotels and motels (down 15 percent), and spectator amusements (down 17 percent). In addition, real outlays for durable goods declined by almost 3 percent, and outlays for clothing and shoes tumbled almost 5 percent.

Since then, consumers have overcome much of the initial shock of the attacks. According to the University of Michigan's index, by the end of October, consumers regained about half of the confidence they had lost during the second half of September, and they regained most of the rest by December. Consumer spending also rebounded, growing by 2.3 percent in October, an upswing that was spearheaded by a sharp rise in sales of light vehicles. (That category includes such vehicles as cars, minivans, and pickup trucks.) Offers of zero-percent financing by automakers pushed sales of such vehicles up by 34 per-

cent in October, to a record annual rate of 21.3 million. Moreover, sales of light vehicles in November and December remained above their levels of a year earlier. Excluding those sales, consumption rose by 0.8 percent in October and 0.2 percent in November, but it remained below August's level. Because automakers made only minor changes in how much they were producing, the sales led mainly to lower inventories rather than to higher GDP growth.

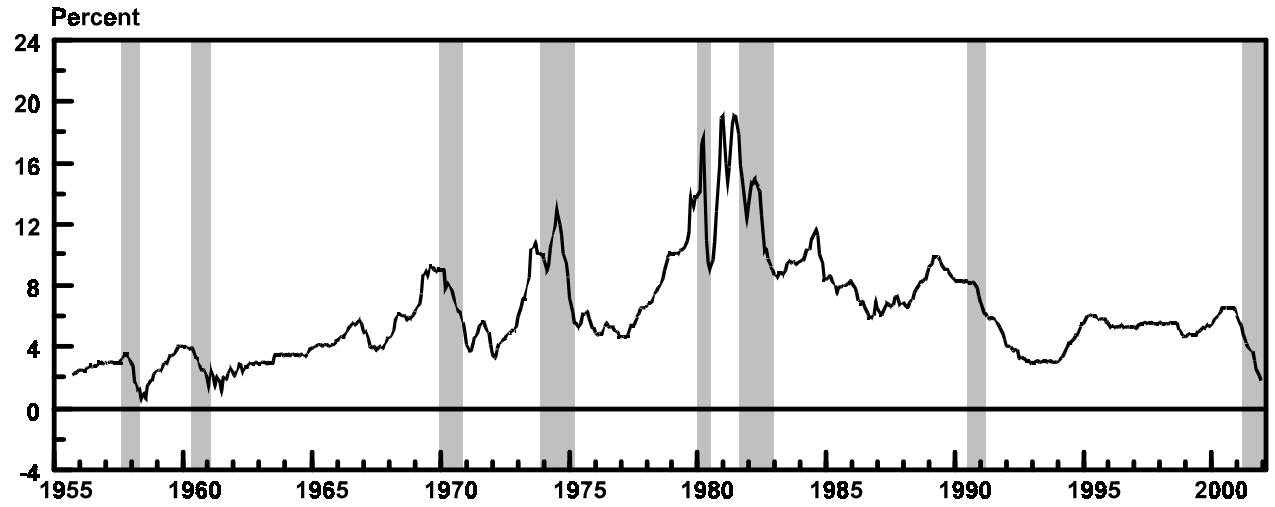
Unlike consumer spending growth, the growth of real residential construction actually accelerated during most of 2001, averaging 5.6 percent annually during the first three quarters of 2001 after a slight decline in 2000. Normally, real residential construction falls during the early stages of a recession, but until a drop in November 2001, it had held up well. At the end of 2001, indicators for the housing market were giving mixed signals. In October, permits for new units fell to their lowest level since 1997, but they jumped back in November to levels similar to those before September 11. If the November jump was due mainly to unseasonably warm weather and not to improving demand for new homes, residential construction is likely to contract in coming months. But barring further major shocks, analysts do not anticipate a collapse.

Monetary Policy

In response to accumulating signs of economic weakness, the Federal Reserve eased monetary policy substantially in 2001, cutting the target for the federal funds rate from 6.5 percent in the first days of January to 1.75 percent in mid-December (see Figure 2-5). It was unusual for the central bank to act preemptively by cutting the rate noticeably even before the official start of the recession. A key factor that made such action easier was the low inflation in the economy—in part the result of excess capacity—as the recession began. Indeed, the same overinvestment that helped cause the downturn may also have helped pave the way for an aggressive response of monetary policy.

However, several factors have muted the ability of those rate cuts to halt the downturn. First, long-term interest rates have fallen over the past 12 months by less than one might expect, given the de-

Figure 2-5.
The Federal Funds Rate



SOURCES: Congressional Budget Office; Federal Reserve Board.

NOTE: The federal funds rate is the rate banks charge for overnight loans.

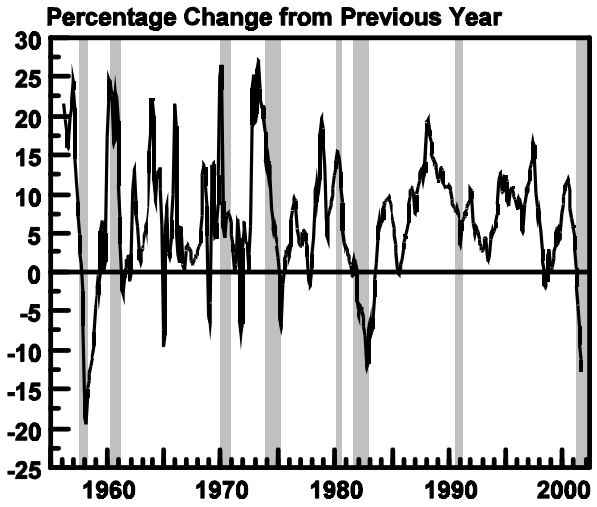
cline in short-term rates; in some cases, they have even risen. Whether they have been sluggish because bondholders expect only a brief recession, because bondholders are demanding a risk premium for inflation (in the form of higher interest rates) as a result of the easier monetary policy, because foreign long-term rates have fallen by only a little, or because the outlook for the federal surplus has deteriorated over the past year is unclear. Second, stock prices fell last year instead of rising, which further neutralized the impact of lower short-term rates on businesses' cost of capital. Third, dimming prospects for foreign economic growth have kept the dollar from falling with the plunge in short-term rates. The dollar's strength has kept U.S. goods from becoming more competitive with foreign goods, which means that another traditional channel by which monetary policy may affect the economy has been blocked. Finally, when excess capacity is unusually large, interest rate cuts may be less effective in boosting investment than they typically are. As a result of all those factors, the Federal Reserve saw the balance of risks at the end of 2001 as still mainly on the side of economic weakness.

International Trade

The trade sector has not played its usual stabilizing role in this recession. The growth of real exports typically holds up during recessions, while weak domestic demand reduces imports, causing a rise in real net exports that partially offsets weakness in other categories of GDP. This time, however, foreign economies withered in tandem with the United States', and real exports fell by 9.0 percent between the third quarters of 2000 and 2001, preventing real net exports from rising (see Figure 2-6). Although the nominal trade deficit narrowed over that period, the improvement stemmed from a stronger dollar and lower oil prices rather than from an increase in real net exports. The synchronous global downturn is another reason that the recovery from the current recession is likely to be relatively weak and the risk of a longer recession cannot be ruled out (see Box 2-1).

The global economy has been buffeted by the recessionary impact of three shocks—the oil price hike of 1999 and early 2000, a sharp pullback in investment since 2000, and the terrorist attacks of September 11—which have pushed the world economy into its weakest state since at least 1982. Countries that depend heavily on foreign direct investment to finance purchases of new plant and equipment have been particularly hard hit by investors' heightened sensitivity to risk after the attacks. (In foreign direct investment, the party investing in a foreign country retains control of the investment.)

Figure 2-6.
Real Exports



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

Economic conditions are worst in Asia and the Americas, but they are also troubling in Europe. Japan's economy, the largest in Asia, is mired in its third recession in a decade and probably its most severe in 20 years. Many other Asian economies, unable to sustain solid growth after the regional crisis in 1997 and 1998, have also entered their worst recession in years. The collapse of the high-tech sector and the sharp slowdown in U.S. demand have been devastating for Asia's export-dependent economies, especially those that are most closely linked to the production of information technology, such as Singapore and Taiwan. In addition, the depreciation of the yen is now making it hard for emerging Asian economies to stage a comeback. In the Americas, Canada's and Mexico's economies have also been buffeted by the global slowdown and the U.S. recession. Argentina's situation is even more dire. After entering its fourth year of recession, Argentina devalued its cur-

Box 2-1.
How the Global Downturn Could Affect Economic Recovery in the United States

Whether the slowdown in the world economy is technically a recession depends on the yardstick one uses, but most analysts agree that the global economy is in its weakest state since at least the 1982 recession. For the first time since 1974, the world's three biggest economies—those of the United States, Japan, and Germany—are contracting simultaneously. In addition, a number of countries (for example, Japan, Hong Kong, Taiwan, China, and Argentina) are in the grip of deflation, or a decline in the general level of prices.

Although weak foreign economies probably helped sustain the U.S. economy's recent expansion—by providing financial capital and a low-cost source of imports—the current global downturn deepened last year's recession in the United States and could even threaten this year's anticipated recovery. Economic growth in the United States can bounce back more quickly and more strongly in an environment of robust economic growth abroad than in an environment of global slowdown. If a U.S. downturn occurs during a foreign boom, U.S. exports will rise and imports will fall, boosting net exports and thus this country's gross domestic product. Net exports stop playing that cushioning role, however, when the world is in a synchronous downturn. In that case, both exports and imports fall, in line with slowing demand in the United States and overseas. That has been true in the current recession, as real (inflation-adjusted) net exports have remained fairly constant, instead of rising as they did in most recessions in the past.

During a global recession, the United States is also more vulnerable to a worldwide financial crisis, which could develop at an alarming speed. U.S. investors hold substantial assets abroad; if many foreign countries began to default on their international debts, investors could incur large losses. Indeed, the risk of systemic financial turmoil that could adversely affect all countries, including the United States, probably increases amid a global downturn. The world—and the United States—are also vulnerable during a global recession to a surge of protectionism that could hinder recovery, such as that seen during the Great Depression.

Although the current worldwide recession has increased the probability of certain adverse outcomes, it has also led to two developments that offer reasons for cautious optimism: the reversal of the global oil price shock and the countercyclical conduct of economic policy in the United States and abroad. The drop in worldwide demand for energy that began at the end of 2000 has more than offset any concerns about shortages in supply. In addition, many foreign countries—for example, Canada, the United Kingdom, Switzerland, Taiwan, and South Korea—have aggressively eased both monetary and fiscal policy. Even the conservative European Central Bank lowered its key interest rate by 150 basis points last year. (A basis point is a hundredth of a percentage point.) Those developments have helped mitigate the severity of the current downturn.

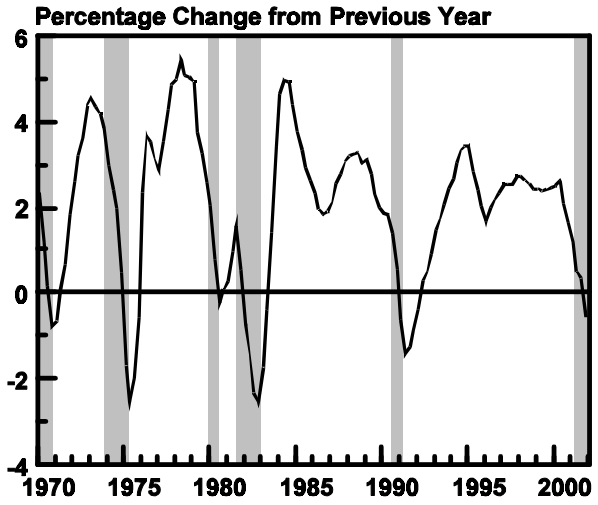
rency and defaulted on its foreign debt at the end of last year. It now faces what could become a wave of bankruptcies. Even Western Europe, which is on a more solid economic footing than other regions are, saw its rate of GDP growth skid from 3.4 percent in 2000 to about 1.5 percent in 2001.

The worldwide plunge in business investment has hit U.S. imports and exports of capital goods especially hard. A drop in imports of nonautomotive capital goods accounted for 74 percent of the decline in real imports during the first three quarters of 2001, even though they constituted only 24 percent of all imports at the end of 2000. Capital goods also made up a disproportionate share of the fall in exports.

Labor Markets

U.S. labor markets have deteriorated markedly over the past year (see Figure 2-7). The unemployment rate had already drifted up to 4.3 percent in March 2001, the final month of the expansion, from a low of 3.9 percent in October 2000. Between March and September 2001, the unemployment rate rose by another 0.7 percentage points, to 5.0 percent. But even that higher rate was low by historical standards. Between March and September, total nonfarm employment fell by 424,000 jobs. The drop in private nonfarm employment alone was nearly twice as large but was partially offset by government hiring. The manufacturing sector accounted for almost all of the de-

Figure 2-7.
Nonfarm Payroll Employment



SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

cline in private payrolls, with losses disproportionately high among producers of capital goods.

Lower demand after the terrorist attacks in September led businesses to further reduce their workforces. In October, the first month to fully register conditions in the labor markets after September 11, the unemployment rate jumped to 5.4 percent.[5] The markets continued to deteriorate for the rest of the year, and the unemployment rate climbed to 5.8 percent in December. Nonfarm employment fell by more than 900,000 jobs between September and December. Job losses were spread across many sectors, but travel-related and manufacturing industries suffered disproportionately, as did temporary workers hired through agencies.

Inflation

Consumer price inflation excluding food and energy (which is also known as the core CPI-U) has been remarkably stable for many years, in contrast to the pattern typically seen at the end of economic expansions in the past. The year-to-year growth in the core CPI-U has remained between 2.0 percent and 2.8 percent since 1996. Through the middle of last year, after the slowdown had begun, core CPI-U inflation was only 2.7 percent.

Usually, inflation accelerates late in an expansion, as unemployment falls and the rate of utilization of firms' capacity to produce rises. But the expansion of the late 1990s was unusual in that it was accompanied by a rapid increase in both domestic productive capacity and foreign supply. Growth in total factor productivity (TFP)—the productivity of both labor and capital together—accelerated, and booming investment pushed the capital stock higher. In addition, the percentage of domestic demand met by foreign suppliers increased, and the prices of imports remained low. Annual growth in the overall CPI-U, measured fourth quarter over fourth quarter, slowed to 2.2 percent during 2001 from 3.4 percent during 2000, as energy prices changed course, shifting from a rapid increase to a rapid decline.

CBO's Economic Forecast for 2002 and 2003

CBO forecasts that growth of real GDP will rebound to 2.5 percent in 2002 (measured fourth quarter over fourth quarter) as the economy emerges from recession early in the year and will then accelerate to 4.3 percent in 2003 (see Table 2-1 on page 20). Thus, CBO expects a mild recession and a subdued recovery, by historical standards (see Box 2-2). Inflation is likely to remain moderate: CBO estimates that the CPI-U will climb by 2.3 percent over the four quarters of this year and by 2.5 percent next year. Short-term interest rates in CBO's forecast begin to rise in mid-2002, as economic growth picks up, but they are lower on average in 2002 than in 2001. Those rates then continue to climb in 2003. CBO expects long-term rates to be somewhat higher in 2003 than in 2002.

CBO's current forecast for 2002 and 2003 is much weaker than the forecast it published in January 2001, reflecting both the economy's slide into recession and a reduction of GDP in the national income and product accounts (NIPAs) following last year's

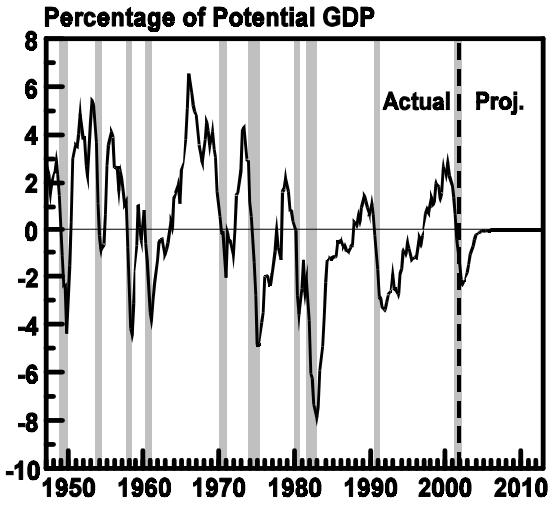
5. The September data do not reflect conditions following the attack because a person who was employed at any time from September 9 to September 15 was considered employed during the month.

Box 2-2.
How Does This Recession Compare with Others?

In the view of the Congressional Budget Office (CBO), the current recession will be mild compared with the nine previous recessions since 1947. In fact, if CBO's forecast comes to pass, the decline in economic activity in this recession and the rise in the unemployment rate will be close to the smallest in the post-World War II period. During the nine previous recessions, gross domestic product (GDP), after adjustment for inflation, dropped from its peak to its trough (or lowest point) by an average of 2.1 percent, but CBO's forecast for the current slowdown indicates a drop of only 0.6 percent. By that measure, only the recession of 1970 was as mild. At the end of the current downturn, CBO expects, the percentage difference between actual GDP and its trend level (known as potential GDP) will be smaller than at the end of most recessions in the past (see the figure).

Similarly, CBO anticipates that the jump in the unemployment rate in this recession will be smaller than that in most past downturns. In CBO's forecast, the unemployment rate rises to a quarterly high of 6.2 percent by the middle of this year, compared with an actual quarterly low of 4.0 percent in late 2000. That increase of 2.2 percentage points is less than the hikes seen in seven of the previous nine recessions. Only in the downturns of 1960 and 1980 did the unemployment rate increase by a smaller amount. CBO also expects that the unemployment rate will peak at a level that is lower than the peak experienced in most recessions in the past.

Potential Output Gap



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

NOTE: The potential output gap is the percentage difference between real GDP and CBO's estimate of potential GDP.

annual revision by the Commerce Department's Bureau of Economic Analysis. (CBO uses data from the NIPAs to prepare its forecast.) For 2002, growth of real GDP in CBO's current outlook is more than 2 percentage points lower, the level of real GDP is almost 5 percent lower, and the unemployment rate averages 1.6 percentage points higher than in its January 2001 forecast (see Table 2-2 on page 22). Although CBO's estimate now of the growth of GDP in 2003 is higher than last January's, its estimate of the level of GDP is lower. The estimate of consumer price inflation in the current forecast is also lower than in last January's, especially for 2002, because of both a drop in energy prices and a weaker economy. The Federal Reserve's rate cuts in 2001 led to estimates of short-term interest rates that are much lower for 2002 and slightly lower for 2003; the forecast for long-term rates is also slightly lower for 2002 but the same for 2003. CBO's current estimate of corporate profits is down sharply from last January's, reflecting an unexpectedly large drop in profits in 2001. CBO's downward revisions of the projected growth of GDP are in line with a consensus of private forecasts (see Table 2-3).

Growth of Real GDP

CBO's short-term forecast for real GDP rests on the assumption that the recession will end by early 2002, with recovery beginning before midyear. During the early part of this year, CBO estimates, business fixed investment and exports will continue to decline, consumption will slow as zero-percent financing for

Table 2-3.
Changes in Forecasters' Estimates for Calendar Year 2002 (In percent)

	Blue Chip Consensus	CBO
Growth of Real GDP[a]		
January 2002	1.0	0.8
January 2001	3.4	3.4
Growth of GDP Price Index[a]		
January 2002	1.6	1.4
January 2001	2.0	2.1
Average Three-Month Treasury Bill Rate		
January 2002	2.1	2.2
January 2001	5.4	4.9

SOURCES: Congressional Budget Office; Aspen Publishers, Inc., *Blue Chip Economic Indicators* (January 10, 2002, and January 10, 2001).

NOTE: The *Blue Chip* consensus is the average of nearly 50 private-sector forecasts.

a. Changes are year over year.

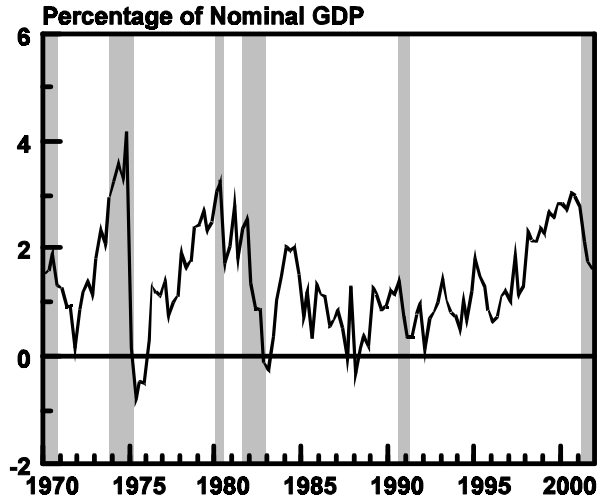
light-vehicle purchases expires, and housing construction will ease slightly. By mid-2002, however, the primary cause of the recession, the downturn in investment, will have finally run its course, and production and income will rise as businesses stop cutting inventories. Increased federal spending will also help put growth back on track. The recovery will gather steam as exports, consumption, and residential construction begin to grow and businesses restock their inventories.

Although CBO's forecast anticipates that consumption and housing will slow in early 2002, both should be growing again by midyear, if not before. Zero-percent financing boosted sales of new light vehicles in the fourth quarter of 2001—but probably at the expense of future sales. Thus, real consumption is likely to fall in the first quarter of 2002. After that, CBO estimates that it will rise along with real income, or even somewhat faster, as greater confidence among consumers adds to spending. Residential construction will follow a similar pattern, CBO forecasts, falling early in 2002 but rebounding with consumers' renewed confidence about the future.

Real business fixed investment will probably continue to decline during early 2002 but then begin to grow moderately again. By the end of 2001, as Figure 2-8 shows, investment had fallen by enough to bring the corporate financing gap down closer to its historical average. (The corporate financing gap is a measure of firms' capital expenditures minus their internal funds, and thus indicates the amount of funding they must raise from outside the corporate sector.) Also by the end of 2001, investment had dropped low enough to eventually draw down the excess capacity built up during the late 1990s. However, given the high levels of excess capacity that many firms still experience, the drawdown is not over, so few prospects exist for rapid growth of investment. Consequently, in terms of investment, this recovery is likely to be one of the weakest of the postwar period, with real business fixed investment projected to remain below its peak (in the fourth quarter of 2000) until late 2003.

The federal budget will add to the growth of GDP in 2002 as a result of legislation passed in response to the terrorist attacks, automatic stabilizers, and the continued effect on consumption of last

Figure 2-8.
The Corporate Financing Gap



SOURCES: Congressional Budget Office; Federal Reserve Board.

NOTE: The corporate financing gap is measured as capital expenditures minus internal funds minus the inventory valuation adjustment for the nonfarm, nonfinancial corporate business sector.

year's tax cuts.[6] CBO expects growth of real federal consumption and gross investment to pick up in 2002 but then to slow somewhat in 2003. Personal tax rates on average will be lower in 2002 than in 2001. However, state and local governments are likely to contribute little help to GDP growth in 2002, because many of them will probably cut back spending in response to paltry increases in revenues.

Firms' investment in inventories will strongly augment GDP growth, whereas international trade will be a net drag, CBO forecasts. During 2001, the reduction in inventories meant that real GDP grew more slowly than did final sales. However, with the very low levels of inventory that firms are now holding, any rebound in sales will trigger a buildup in inventory, causing GDP to grow more rapidly than sales in 2002.

Although real exports are expected to start growing again by mid-2002, CBO forecasts that net exports will hold down real GDP growth in 2002 and 2003. The primary reason is that the economic recoveries of important U.S. customers—for example, the European nations—are likely to lag behind the U.S. recovery. Japan, in particular, will remain in recession in 2002, according to the International Monetary Fund and the Organisation for Economic Co-operation and Development. Thus, imports will rebound faster than will U.S. exports, reducing GDP. In addition, the appreciation of the dollar during 2001 will modestly hurt real net exports by making U.S. products less competitive.

Unemployment

In CBO's forecast, the recession pushes unemployment higher in 2002 than it was in 2001. CBO expects that the unemployment rate will rise to an average of 6.1 percent in 2002, up from 4.8 percent in 2001. As actual GDP begins to grow faster than potential GDP in 2003, the unemployment rate will ease back to 5.9 percent.

6. In general, automatic stabilizers are factors that dampen the impact on GDP of a drop in demand. In the context of fiscal policy, automatic stabilizers are those provisions of tax law and the budget, such as the income-based tax system and unemployment insurance, that partially offset losses in pretax income arising from a drop in demand, thus reducing the consequent fall in consumption.

Inflation

Inflation, as measured by the CPI-U, slows to just 1.8 percent in CBO's forecast for 2002 (down from 2.9 percent in 2001) before rebounding to 2.5 percent for 2003, as energy prices stabilize. Several factors underlie that benign forecast. First, the rate of price increase was already low as the recession began. Second, a weak economy will keep that rate down by both restraining demands for higher wages and limiting businesses' ability to pass on any increase in costs to their customers. Third, falling oil prices will reduce the prices of energy and of goods and services that are produced using energy. CBO expects that oil prices will be lower on average in 2002 than in 2001. In 2003, inflation is likely to pick up, primarily because energy prices will be stable instead of falling.

Interest Rates

CBO forecasts that the Federal Reserve will gradually raise short-term interest rates as the economy recovers to prevent it from overheating and, thus, inflation from rising. Nevertheless, short-term interest rates are likely to remain relatively low over most of the next two years. CBO expects that the rate on three-month Treasury bills will average just 2.2 percent in 2002, roughly 1 percentage point less than in 2001 and much lower than in 2000. As the growth of GDP quickens its pace in 2003, the short-term rate will rebound to 4.5 percent.

Long-term rates typically fluctuate less than short-term rates do, and that is likely to be true again during the forecast period. CBO expects the rate on 10-year Treasury notes to average 5.0 percent in 2002—as it did in 2001. In 2003, CBO forecasts, the rate will rise by 0.5 percentage points, which compares with a rise of 2.3 percentage points in short-term rates.

Comparison of Two-Year Forecasts

Overall, CBO's forecast for 2002 is similar to the *Blue Chip* consensus forecast published in January 2002 (see Table 2-4). (The consensus is an average of roughly 50 private-sector forecasts.) CBO's estimate of GDP growth, relative to that in the *Blue Chip*

Table 2-4.
Comparison of *Blue Chip*'s and CBO's Forecasts for Calendar Years 2002 and 2003

	Estimated 2001	Forecast 2002	Forecast 2003
Nominal GDP (Percentage change)			
Blue Chip high 10		4.0	6.2
Blue Chip consensus	3.3	2.6	5.4
CBO	**3.2**	**2.2**	**6.1**
Blue Chip low 10		1.3	4.3
Real GDP (Percentage change)			
Blue Chip high 10		2.0	4.1
Blue Chip consensus	1.0	1.0	3.4
CBO	**1.0**	**0.8**	**4.1**
Blue Chip low 10		0	2.7
GDP Price Index (Percentage change)			
Blue Chip high 10		2.2	2.4
Blue Chip consensus	2.2	1.6	1.9
CBO	**2.2**	**1.4**	**2.0**
Blue Chip low 10		1.0	1.2
Consumer Price Index[a] (Percentage change)			
Blue Chip high 10		2.4	3.1
Blue Chip consensus	2.9	1.7	2.4
CBO	**2.9**	**1.8**	**2.5**
Blue Chip low 10		1.1	1.8
Unemployment Rate (Percent)			
Blue Chip high 10		6.4	6.2
Blue Chip consensus	4.8	6.1	5.7
CBO	**4.8**	**6.1**	**5.9**
Blue Chip low 10		5.6	5.1
Three-Month Treasury Bill Rate (Percent)			
Blue Chip high 10		2.8	4.3
Blue Chip consensus	3.4	2.1	3.4
CBO	**3.4**	**2.2**	**4.5**
Blue Chip low 10		1.7	2.5
Ten-Year Treasury Note Rate (Percent)			
Blue Chip high 10		5.6	6.1
Blue Chip consensus	4.9	5.1	5.6
CBO	**5.0**	**5.0**	**5.5**
Blue Chip low 10		4.6	5.0

SOURCES: Congressional Budget Office; Aspen Publishers, Inc., *Blue Chip Economic Indicators* (January 10, 2002).

NOTE: The *Blue Chip* high 10 is the average of the 10 highest *Blue Chip* forecasts; the *Blue Chip* consensus is the average of the nearly 50 individual *Blue Chip* forecasts; and the *Blue Chip* low 10 is the average of the 10 lowest *Blue Chip* forecasts.

a. The consumer price index for all urban consumers.

forecast, is somewhat lower for 2002 but higher for 2003. Even so, CBO's forecast of unemployment is identical to that of the consensus for 2002 and 0.2 percentage points higher than the *Blue Chip*'s consensus for 2003. The two forecasts are similar in their estimates of consumer price inflation and long-term interest rates, but CBO expects slightly lower GDP price inflation in 2002 and higher short-term interest rates in 2003.

Why CBO Is Forecasting a Mild Recession

CBO expects that the current recession will be mild, for several reasons. A prominent one is that the Federal Reserve has already eased monetary policy aggressively, and the low inflation that prevailed as the recession began will give the central bank room to do still more without worrying about exacerbating inflation in the near term. Analysts usually expect a lag of six to 18 months between a change in interest rates and its impact on GDP; consequently, some effects of past easing are probably still in the pipeline. Legislation following the attacks, automatic stabilizers, and last year's tax cuts are also likely to aid the recovery. Further bolstering CBO's expectation of a modest downturn is that financial conditions are better now than during, for example, the 1990-1991 recession. In particular, the banking system is stronger than it was then, because financial institutions are better capitalized and have fewer bad loans relative to their assets.

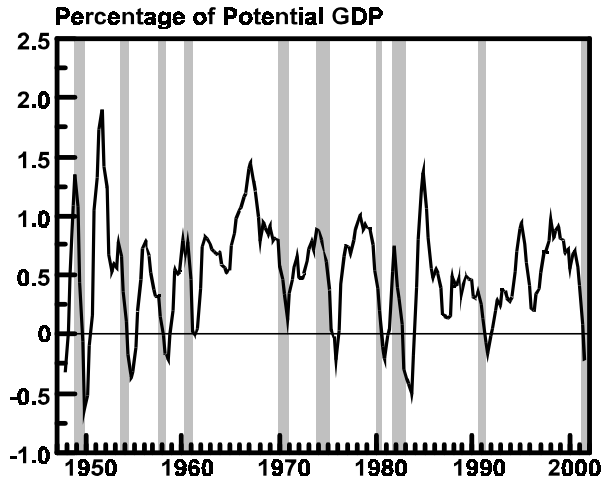
Current moderate rates of consumer price inflation are another cause for optimism. Between May 2001 and December 2001, the price of crude oil fell by almost $10 per barrel, as global demand for oil shrank faster than supply. Natural gas prices also fell during that time. The resulting drop in the cost of household energy boosted consumers' real disposable income, offsetting some of what had been lost with the rise in unemployment. Each decline of $1 in the price of a barrel of oil directly adds nearly $3 billion to the amount consumers have available to spend on other goods and services. In addition, lower oil prices reduce the cost of doing business, allowing further markdowns in consumer prices.

More broadly, price cutting triggered by excess capacity has pushed up real consumer income, preventing a decline in real consumption. Although the lower profit margins that accompany such cuts may hurt investment by businesses, the net effect on GDP of lower prices is probably positive.

Recent data also lend some support to the forecast of a mild recession. Stock prices have rebounded from the lows they reached immediately after the terrorist attacks in September. In addition, consumer confidence has bounced back. Consumption has been growing, even without factoring in the surge in sales of light vehicles. And initial claims for unemployment insurance, while still high, have nevertheless fallen well below the levels seen in the weeks immediately after the attacks. In addition, despite a drop in manufacturing employment in December, average weekly hours worked in the manufacturing sector rose.

As the economy goes forward, the currently low level of inventories means that any recovery should gain momentum fairly quickly. If inventories declined in the final quarter of 2001, as many analysts assume, it would be only the fourth time since World War II that they had been drawn down for four consecutive quarters. After the three previous declines (in 1949, 1953-1954, and 1982-1983), inventory growth was strong (see Figure 2-9). However, stable

Figure 2-9.
Business Inventory Investment

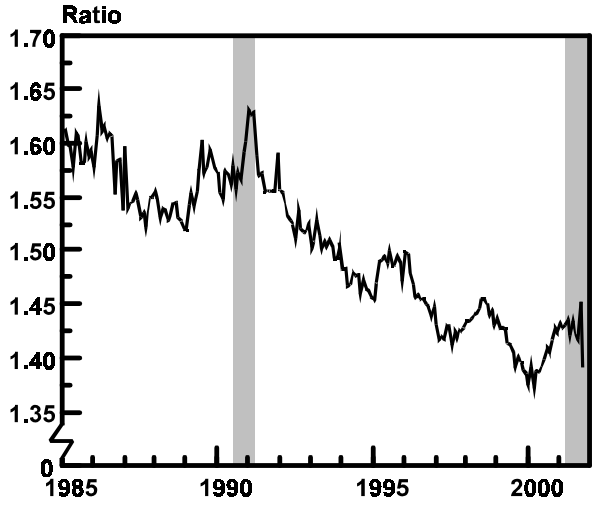


SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

NOTE: Data are four-quarter moving averages.

or recovering sales are key to the economy's picking up, since the drop in inventories during the first eight months of 2001 only mirrored the drop in businesses' sales, as reflected in a relatively stable ratio of inventories to sales (see Figure 2-10).

Figure 2-10.
Ratio of Inventories to Sales



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of the Census.

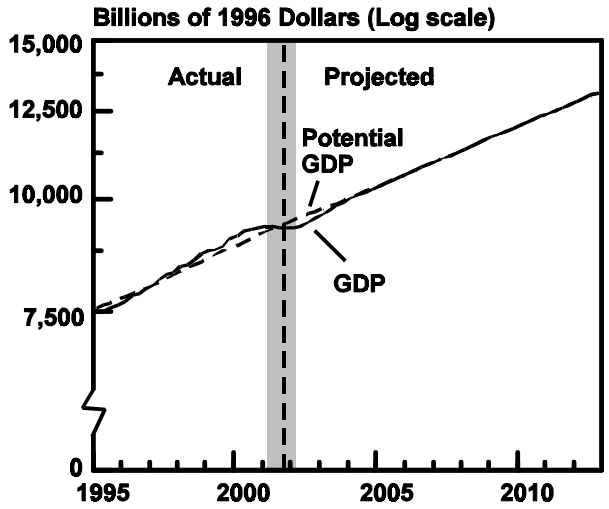
NOTE: Data are for inventories and sales in the manufacturing and trade sectors.

The Outlook Beyond 2003

CBO's economic projections do not explicitly incorporate specific cyclical recessions or booms beyond 2003. Instead, CBO reflects the likelihood that at least one cyclical episode will occur in any 10-year interval by incorporating the average effects of typical business cycles into its projections. The projections for the medium term extend historical trends in such underlying factors as the growth of the labor force, the growth of productivity, the rate of national saving, and the shares of GDP claimed by various categories of income. CBO's projections of real GDP, inflation, real interest rates, and tax revenues depend critically on those underlying trends.

CBO projects that real GDP will grow at an average annual rate of 3.2 percent between 2003 and 2012, which is slightly faster than CBO's estimate of the growth of potential GDP (3.1 percent) over the same span. CBO expects real GDP to grow more quickly than potential output after 2003 because weak growth in 2001 reduced the level of real GDP below its potential, or trend, level and GDP will still be below potential in 2003. Thus, CBO assumes that the economy, in order to catch up, will grow faster than its trend rate during the recovery period (2002 through 2005) and then expand at the level of its trend from 2006 through 2012 (see Figure 2-11). Potential GDP grows more slowly in CBO's current projection than it did in last January's, largely because CBO has revised its outlook for business investment substantially downward from a year ago.

Figure 2-11.
Gross Domestic Product



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

CBO's projections of consumer price inflation and interest rates after 2003 are nearly identical with last January's. However, CBO now expects that the unemployment rate will average 5.2 percent from 2004 through 2007, compared with last January's estimate of 4.8 percent. In both projections, CBO's estimate of the unemployment rate after 2007 is 5.2 percent.

CBO's Projection of Potential Output

CBO now projects that potential output will grow at an average annual rate of 3.1 percent over the 2002-2012 period, which is a reduction of almost 0.3 percentage points from its projection in January 2001 (see Table 2-5). Slower accumulation of capital is the primary reason for that downward revision; growth in the index of capital services ("capital input" in the table) averages 4.2 percent annually during the 2002-2012 period, down from 5.3 percent in last January's projection. That revision by itself crops 0.3 percentage points from CBO's projection of the rate of growth of output and labor productivity in the nonfarm business sector and accounts for most of the change to projected potential growth.

Table 2-5.
Key Assumptions in CBO's Projection of Potential GDP (By calendar year, in percent)

	Average Annual Growth					Overall Average Annual Growth,	Projected Average Annual Growth,
	1951-1973	1974-1981	1982-1990	1991-1995	1996-2001	1951-2001	2002-2012
Overall Economy							
Potential GDP	3.9	3.3	3.0	2.6	3.4	3.4	3.1
Potential Labor Force	1.6	2.5	1.6	1.1	1.2	1.6	1.1
Potential Labor Force Productivity[a]	2.2	0.8	1.4	1.5	2.2	1.8	2.0
Nonfarm Business Sector							
Potential Output	4.0	3.6	3.2	3.0	3.9	3.7	3.4
Potential Hours Worked	1.3	2.2	1.6	1.5	1.5	1.5	1.2
Capital Input	3.7	4.3	3.6	2.5	5.4	3.9	4.2
Potential Total Factor Productivity	2.0	0.8	1.0	1.1	1.3	1.4	1.3
Potential TFP excluding adjustments	2.0	0.7	1.1	1.1	1.1	1.4	1.1
TFP adjustments	0	0	0	0	0.3	0	0.2
Computer quality	0	0	0	0	0.2	0	0.1
Price measurement	0	0	0	0	0.1	0	0.2
Additional spending on security	0	0	0	0	0	0	-0.1
Contributions to Growth of Potential Output (Percentage points)							
Potential hours worked	0.9	1.5	1.1	1.1	1.0	1.1	0.9
Capital input	1.1	1.3	1.1	0.8	1.6	1.2	1.3
Potential TFP	2.0	0.8	1.0	1.1	1.3	1.4	1.3
Total Contributions	4.0	3.6	3.1	2.9	4.0	3.7	3.4
Memorandum:							
Potential Labor Productivity[b]	2.7	1.4	1.6	1.4	2.4	2.1	2.2

SOURCE: Congressional Budget Office.

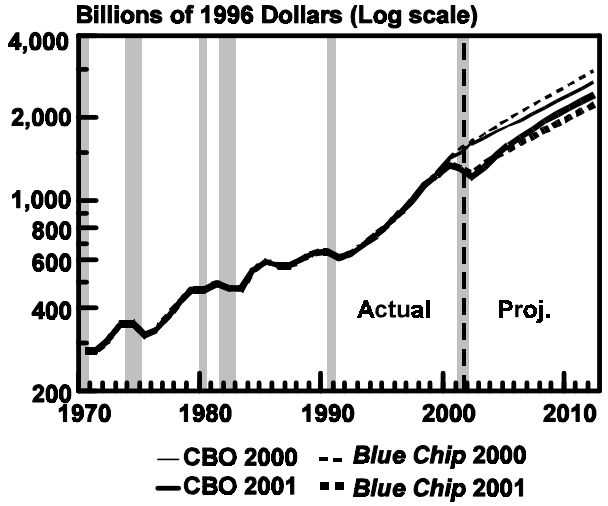
NOTE: CBO assumes that the rate of growth of potential total factor productivity (TFP) changed after the business-cycle peaks of 1973, 1981, and 1990 and again after 1995.

a. The ratio of potential GDP to the potential labor force.

b. Estimated trend in the ratio of output to hours worked in the nonfarm business sector.

CBO's projection of capital accumulation is lower than last January's because CBO, like the *Blue Chip* consensus of private forecasters, has reduced its projection of business fixed investment for the medium term (see Figure 2-12). That revision stems from three considerations. First, the Bureau of Economic Analysis (BEA) sharply lowered its estimates of the level of investment over the 1998-2001 period; the changes were concentrated in the information technology categories of investment, such as computers and software. Second, business investment has been weak during the current recession and is expected to recover slowly. Third, the share of GDP devoted to investment during the late 1990s now appears—in light of the experience of the past year—to have been unsustainable.

Figure 2-12.
CBO's and *Blue Chip*'s Projections of Real Business Fixed Investment



SOURCES: Congressional Budget Office; Aspen Publishers, Inc., *Blue Chip Economic Indicators* (October 10, 2000, and October 10, 2001).

NOTE: The "*Blue Chip* 2000" and "CBO 2000" projections were made late in calendar year 2000; the "*Blue Chip* 2001" and "CBO 2001" projections were made late in calendar year 2001.

CBO projects that potential total factor productivity will grow by 1.3 percent on average during the 2002-2012 period. That rate of growth is roughly 0.2 percentage points slower than the rate CBO projected last January, despite the fact that the historical trend is down only slightly. Two factors explain the difference. First, CBO has incorporated a rough adjustment to account for the effects on long-run growth of additional costs for security following the events of September 11. The adjustment, which trims growth in potential TFP by 0.06 percentage points during the projection period, includes a one-time reduction of 0.3 percentage points for 2002 as well as a cut in the growth rate of 0.03 percentage points for each year of the projection (see Box 2-3).

Second, CBO's current estimate of the contribution to overall TFP growth made by technological advances in the computer manufacturing sector (0.1 percentage points) is smaller than last January's (0.2 percentage points). That change arises not because the outlook for technical innovation in the computer sector has altered but because purchases of computers are now expected to make up a smaller share of overall output than was anticipated last January (a further consequence of the downward revision to business investment).

CBO projects that slower capital accumulation and slower growth of potential TFP will combine to restrain the growth in potential labor productivity. CBO expects an average annual increase of 2.2 percent in that rate during the projection period, or 0.5 percentage points less than its estimate in January 2001.

Partially offsetting the projected downward influence that slower growth of capital and total factor productivity will have on the growth of potential output is a small upward revision to growth in the labor input. CBO's current projection shows potential hours worked in the nonfarm business sector growing by 1.2 percent annually on average during the 2002-2012 period, or about a tenth of a percentage point faster than in last winter's projection. That revision stems partly from the Economic Growth and Tax Relief Reconciliation Act of 2001, whose cuts in marginal tax rates are expected to boost the labor force by 0.3 percent in 2011. In making that calculation, CBO has not attempted to reflect the expiration of those cuts in 2011. Another contributor was CBO's reevaluation (spurred in part by revisions to the historical data following the 2000 census) of the trends underlying both the labor force and hours worked. That reassessment indicated a slightly faster rate of

Box 2-3.
Effects on Productivity Growth of Increasing Spending for Security

The terrorist attacks on September 11 do not have a large impact on the level of productivity or its long-run growth in the Congressional Budget Office's (CBO's) economic projections for the medium term (the next decade). Although those attacks exacted a great human toll, their effect on the nation's ability to produce, even in the short run, was small relative to the economy's immense size. Past experience with natural disasters, such as earthquakes and hurricanes, suggests that the physical destruction caused by the attacks will not generate significant, long-lasting economic effects. (For a discussion of further risks from terrorism, beyond its effects on productivity, see Chapter 5. Chapter 7 discusses the budgetary implications of actions by the federal government to counter terrorism.)

One key difference between a terrorist attack and a natural disaster, however, is that an attack increases the perceived risk of another violent assault. In the medium term, the effects on economic growth of the events of September 11 depend on both how people respond to that risk and whether more terrorist incidents occur. Those effects could operate through several channels, including increased costs for security (for example, in the form of additional security guards, more scanning equipment, and higher defense spending) and escalation in the costs of doing business that goes beyond security considerations (such as delays in shipping, higher costs for insurance, and the need to hold larger inventories). A further possible channel is the psychological impact of the attacks, which could translate into lower business investment or a change in consumer spending. Measures of productivity give a confused account of how spending on security affects well-being. Presumably, such spending enhances well-being, although it is also likely to slow the growth of productivity slightly (see Box 7-1 in Chapter 7).

The effects on productivity noted above can be divided into those that have a one-time impact on its level and those that would be expected to permanently affect its growth. CBO's medium-term projections include rough estimates of the size of those effects. In light of the uncertainties in CBO's analysis, those estimates lean toward the pessimistic end of the range of possible outcomes, implying that the actual effects on productivity could well be smaller.

Effects on Productivity Levels

Effects on productivity are costs, borne by private companies, that CBO assumes would reduce profits and the level of productivity dollar for dollar in 2002 and beyond. They incorporate the cost of additional security guards and of delays in transportation resulting from heightened security. CBO estimates that such costs will total approximately $20 billion in 2002, or roughly 0.3 percent of gross domestic product (GDP, or output) in the nonfarm business sector. Therefore, the adjustment for spending on security reduces CBO's projection of the level of total factor productivity (TFP)—real output per combined unit of capital and labor—for 2002 and later years by about 0.3 percent.

Effects on Growth

CBO expects that over the medium term, firms will divert some business investment toward security equipment (such as alarm systems, facility access systems, surveillance cameras, and protective fences). Accordingly, CBO has reduced its projection of TFP growth by an annual average of about 0.03 percentage points. Capital goods acquired by private businesses for security purposes are considered part of final demand, which means that producing them in place of other goods does not immediately reduce GDP. However, firms buy and use those capital goods to produce a service—security—that is not considered part of final output. Therefore, if national saving does not rise to match the increased overall demand for capital, GDP will be reduced by the value of the goods and services that the security-related capital would have provided if it had been used for production that was counted as part of GDP.[1]

Capital expenditures for security equipment are analogous to businesses' spending on pollution abatement in that they generate an output that is not considered part of GDP. One study estimated that firms' expenditures to abate pollution reduced real growth of GDP by about 0.13 percentage points on average over the 1973-1985 period.[2] Another study, however, found a smaller effect, estimating that spending on pollution abatement reduced the growth of output by 0.07 percentage points on average between 1973 and 1982.[3] During its peak in the mid-1970s, spending on pollution abatement totaled roughly 10 percent of all nonresidential business fixed investment (spending on structures, equipment, and software). How much additional spending firms will allocate to security equipment because of the attacks on September 11 is hard to predict, but it will probably be substantially less than that spent on pollution abatement.

1. CBO approximates the effect of the diversion of capital on economic growth by adjusting TFP rather than capital services because the TFP adjustment is less burdensome to compute.

2. See Dale Jorgenson and Peter Wilcoxen, "Impact of Environmental Legislation on U.S. Economic Growth, Investment, and Capital Costs," in *U.S. Environmental Policy and Economic Growth: How Do We Fare?* Monograph Series on Tax and Environmental Policies & U.S. Economic Growth (Washington, D.C.: American Council for Capital Formation, March 1992).

3. See Edward Denison, *Trends in American Economic Growth, 1929-1982* (Washington, D.C.: Brookings Institution, 1985), p. 34.

growth for potential hours worked than the rate CBO estimated last January.

Unemployment, Inflation, and Interest Rates

The unemployment rate will decline gradually during the projection period, CBO estimates, falling to a rate of 5.2 percent in 2005 and averaging 5.2 percent thereafter. The decline in the unemployment rate mirrors the behavior of real GDP, which CBO projects will grow more rapidly than potential GDP during the first part of the 2002-2012 period.

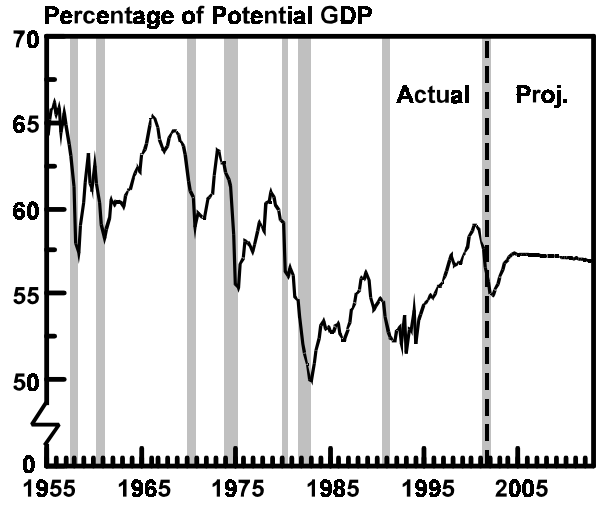
CBO's current projections for inflation as measured by the CPI-U are little altered from last January's, and the average annual rate—2.5 percent—is the same. The GDP price index, CBO estimates, will grow at an average annual rate of 2.0 percent between 2004 and 2012, or about one-tenth of a percentage point faster than CBO expected last winter. CBO assumes that the inflation rate will be determined by monetary policy in the medium term and that the Federal Reserve's policies will maintain the rate of CPI-U inflation near 2.5 percent on average.

CBO projects interest rates by adding the projection for inflation to its estimate of real interest rates. Using the CPI-U as a measure of changes in prices, CBO estimates that the real rate on three-month Treasury bills will average 2.4 percent during the 2004-2012 period and the real rate on 10-year Treasury notes will average 3.3 percent. Combining those rates with the projected estimates of CPI-U inflation implies nominal rates of 4.9 percent for Treasury bills and 5.8 percent for Treasury notes.

Taxable Income

CBO's budget projections are closely connected to its projections of economic activity and national income. However, different categories of national income are taxed at different rates, and some are not taxed at all. Therefore, the distribution of income among its various components is a crucial factor in CBO's economic projections. Wage and salary disbursements and corporate profits are particularly important because they are taxed at the highest effective rates. As a share of potential GDP, those two categories average about 57 percent during the 2004-2012 period, which is roughly equal to their average during the 1996-2000 period (see Figure 2-13). The high level of that share in 2000 reflected the high level of actual GDP relative to potential.

Figure 2-13.
Corporate Profits Plus Wages and Salaries



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

The downward revision since last winter of CBO's projection of the growth of real GDP reduces income and, consequently, tax revenues. However, the projected loss in income and revenues is less than might have been expected on the basis of the downward revision to GDP, for two reasons. First, the revisions to the NIPAs reduced gross domestic income by less than they reduced GDP. For example, BEA revised GDP down by about 0.8 percent for the early part of 2001, but it left national income virtually unchanged.[7]

The other reason that income has been trimmed in CBO's projection by less than the downward revision to GDP stems from a secondary, offsetting effect of BEA's cut in its estimate of business investment

7. Those revisions were reflected in a more negative statistical discrepancy—the difference between estimates of the sum of all expenditures on goods and services and the sum of all income paid to labor and owners of capital.

during the 1998-2001 period and CBO's correspondingly lower projection. Less business investment implies a smaller capital stock and a lower level of depreciation. CBO estimates that depreciation will average 13.7 percent of national income during the 2004-2012 period, down from 15.1 percent in CBO's projection of last winter. Since depreciation is an expense that is deducted from earnings before taxes, a lower path for depreciation raises the share of income subject to taxation.