# ECONOMIC AND ACCOUNTING ANALYSES

# 1. ECONOMIC ASSUMPTIONS

## Introduction

The economy begins this year in excellent condition. Budget surpluses have replaced soaring deficits; fiscal policy is now augmenting national saving, investment and growth, rather than restraining them. Monetary policy has successfully pursued the goals of supporting economic growth while at the same time wringing out inflation.

These sound policies have contributed to another year of outstanding economic achievement. Data for the first three quarters of 1998 and partial data for the fourth indicate that real Gross Domestic Product (GDP) rose about 4 percent over the four quarters of 1998, almost one percentage point faster than the average pace set during the prior five years. The Nation's payrolls increased by 2.9 million jobs during 1998, bringing the total number of new jobs created since this Administration took office to 17.7 million—93 percent of which were in the private sector. Healthy job growth pulled the unemployment rate down further last year. By December, the rate was 4.3 percent, the lowest level in nearly three decades and 3.0 percentage points lower than in January 1993. The unemployment rate averaged 4.5 percent last year, the lowest it has been since 1969.

Despite robust growth and low unemployment, inflation remained low. The Consumer Price Index (CPI) rose just 1.6 percent last year, aided by a sharp fall in energy prices. Even excluding the volatile food and energy components, the CPI rose only 2.4 percent. The GDP chain-weighted price index, the broadest measure of prices paid by consumers, business, and government, rose by around 1 percent. Not since the early 1960s has inflation been this low. The combination of a low unemployment rate and a low inflation rate pulled the "Misery Index"—the sum of the two rates—to its lowest level since the 1960s.

Both households and businesses have prospered in this environment of strong growth and low inflation. For the second year in a row, hourly earnings after adjustment for inflation increased faster than at any time in the past two decades, while the share of profits in GDP reached 10 percent during the last three years, the highest it has been since 1968.

Effective policy actions and the fundamental health of the American economy have enabled it to weather an extraordinary buffeting from economic turmoil abroad. Imports, adjusted for inflation, rose last year, while exports shrank; but robust growth of domestic demand by consumers and businesses more than offset this source of restraint. The sound fiscal policies of this Administration, which produced the first Federal budget surplus since 1969, lowered interest rates and reduced the government's demands in credit markets, thereby providing needed resources for private-sector spending. During the summer and fall, financial crises in foreign lands sent tremors through stock and bond markets. Beginning in September, the Federal Reserve responded by cutting the Federal funds rate in three successive steps, actions that restored confidence to financial markets. As 1999 began, financial and nonfinancial market indicators were signaling that the economic outlook remains healthy.

The economy has outperformed the consensus forecast during the past six years, and the Administration believes that it can continue to do so if sound fiscal policies are maintained. However, for purposes of budget planning, it is prudent to rely on mainstream projections. The Administration assumes that the economy will continue to expand, while unemployment, inflation and interest rates will remain low. Real growth in the next few years is expected to moderate to 2.0 percent per year, followed by somewhat faster, but sustainable, growth thereafter averaging 2.4 percent per year.

Even with more moderate growth than recently, the economy will generate millions of new jobs. The unemployment rate, which by mainstream estimates is below the level consistent with stable inflation, is projected to edge up slightly until mid-2001. Thereafter, it is projected to average a relatively low 5.3 percent, the middle of the range that the Administration estimates is consistent with stable inflation. Inflation is expected to rise slightly as the restraining influence of temporary factors wanes, but then to average just above 2 percent per year. Short-term interest rates are expected to remain in the neighborhood of levels reached at the end of 1998. Long-term rates are projected to move up by about 0.6 percentage point, the same amount as the rise in inflation, leaving inflation-adjusted long-term rates not much different than in December.

Most private sector forecasts have a similarly favorable view of the outlook. The most recent *Blue Chip* consensus, an average of 50 private forecasts, calls for real growth of 2.1 percent this year, and 2.4 percent, on average, through 2004. Unemployment and inflation projections are also close to the Administration's economic assumptions, while interest rates are projected to be slightly higher in the outyears of the budget horizon. The similarity with private-sector projections indicates that the Administration's assumptions provide a reasonable, prudent basis for projecting the budget.

In December, this business cycle expansion (which began in April 1991) set the record for the longest period of continuous growth during peacetime—surpassing the expansion of the 1980s. Last month marked the 94th consecutive month of growth. If the expansion continues through February 2000, it will exceed the

longevity record of 106 months set during the Vietnam War expansion of the 1960s. The Administration expects, as do most private sector forecasters, that this expansion will surpass that record.

This chapter begins with a review of recent developments, and then discusses two statistical issues: the growing statistical discrepancy (the difference between the aggregate measures of output and income); and recent methodological improvements in the calculation of the Consumer Price Index. The chapter then presents the Administration's economic projections, followed by a comparison with the Congressional Budget Office's projections. The following sections present the impact of changes in economic assumptions since last year on the projected budget surplus, and the cyclical and structural components of the surplus. The chapter concludes with estimates of the sensitivity of the budget to changes in economic assumptions.

## Fiscal and Monetary Policy

***Fiscal Policy:*** When this Administration took office in January 1993, it vowed to restore sound fiscal discipline. That goal has been amply achieved. In contrast to 1992, when the deficit reached a postwar record of $290 billion, representing 4.7 percent of GDP, the budget last year recorded a surplus of $69 billion, or 0.8 percent of GDP. The last time the budget was in surplus was in 1969; the last time the surplus was a larger share of GDP was in 1956. This year, the surplus is projected to rise to $79 billion, or 0.9 percent of GDP. The dramatic shift in the Nation's fiscal position in the last six years from huge deficits to surpluses is unprecedented since the demobilization just after World War II.

The historic improvement in the Nation's fiscal position during this Administration is due to two landmark pieces of legislation, the Omnibus Budget Reconciliation Act of 1993 (OBRA) and the Balanced Budget Act of 1997 (BBA). OBRA, based on proposals made by the Administration soon after it came into office and signed into law in August of that year, set budget deficits on a downward path. The deficit reductions following OBRA have far exceeded predictions made at the time of its passage. OBRA was projected to reduce pre-Act deficits by $505 billion over the five years 1994–98. The total deficit reduction has been more than twice this—$1.2 trillion. In other words, OBRA and subsequent developments have enabled the Treasury to issue $1.2 trillion less debt than would have been required under previous estimates.

While OBRA fundamentally altered the course of fiscal policy towards lower deficits, it was not projected to eliminate the deficit. Without further action, deficits were expected to begin to climb once again. To prevent this and bring the budget into permanent surplus, the Administration negotiated the Balanced Budget Act with the Congress in the summer of 1997. The BBA was not expected to produce surpluses until 2002, but like OBRA, the results of pursuing a policy of fiscal discipline far exceeded expectations. The budget moved into surplus in 1998, four years ahead of schedule. OBRA and the BBA together are estimated to have improved the budget balance compared with the pre-OBRA baseline by a cumulative total of $4.4 trillion over 1993–2002.

Like the budget, the economy in recent years has far outperformed expectations. This is more than a coincidence. Lower deficits contribute to a healthy, sustainable expansion by reducing interest rates and boosting interest-sensitive spending in the economy. Rapid growth of business capital spending expands industrial capacity and boosts productivity growth. The additional capacity, in turn, prevents shortages and bottlenecks that might otherwise threaten to ignite inflation.

Lower interest rates also raise equity prices, which increases household wealth, optimism, and spending. The added impetus to consumer spending creates new jobs and business opportunities. While the benefits of fiscal discipline have been widely recognized, the surprise in recent years has been the magnitude of the positive impact on the economy. Growth of production, jobs, income, and capital gains have all exceeded expectations. Consequently, Federal revenues in the past three years have been larger than projected—the so-called "revenue surprise." Deficits have been smaller than expected and surpluses have occurred sooner. The outstanding economic performance during this Administration is proof positive of the lasting benefits of prudent fiscal policies.

***Monetary Policy:*** Monetary policy shares the credit for the economy's excellent performance. During this expansion, the Federal Reserve appropriately tightened policy when inflation threatened to pick up, but eased when the expansion risked stalling out. In 1994 and early 1995, interest rates were raised when rapid growth threatened to cause inflationary pressures. During 1995 and early 1996, however, the Federal Reserve reduced interest rates because the expansion appeared to be slowing unduly at a time when higher inflation no longer threatened. From January 1996 until this past fall, monetary policy remained essentially unchanged; the sole adjustment was a one-quarter percentage point increase in the federal funds rate target in March 1997 to 5½ percent.

Last year, the spread of financial turmoil from foreign markets to our own threatened to undermine the hard-won health of the U.S. economy. The Russian government's default on its debt in August led to a near-panic in credit markets and a sell-off of equities here and abroad. Almost instantly there was a drastic revaluation of potential risks—not just for foreign loans, but for domestic credit as well. At the height of the flight to quality in early October, the spreads between yields on Treasury and private sector bonds widened dramatically. Market participants shunned all but the most liquid of credit instruments. The drying up of normal credit channels intensified with the near-failure of a large, highly leveraged U.S. hedge fund that had borrowed heavily from major banks.

In response to these challenges, the Federal Reserve quickly shifted policy once more. It cut the Federal funds rate by one-quarter percentage point in September, followed by a cut of similar magnitude in both the funds rate and the discount rate in October and again in November. The drop in the funds rate target from 5½ to 4¾ percent in just seven weeks, accompanied by a one-half percentage point cut in the discount rate to 4½ percent, was the swiftest easing since 1991, when the economy was just emerging from recession.

Market sentiment responded quickly to these actions. U.S. stock markets, which endured a short but sharp decline in late summer and early fall, rallied during the winter, reaching record levels in January, 1999. The S&P 500 was up 27 percent during 1998, a remarkable achievement after having more than doubled during the prior three years. Other market indexes staged impressive gains as well. During the last four years, the S&P and the narrower Dow-Jones Industrial Average have risen by 2½ times. This is the best four-year performance in the postwar period.

By December, the Federal Reserve's actions had restored normal relationships in most credit markets. Rates on short-term Treasury bills and commercial paper were about 70 basis points lower than in December 1997. The yield on 30-year Treasury bonds was about 90 basis points lower than a year earlier while yields on high-grade AAA-rated corporate bonds were 55 basis points lower. New bond and equity issuance, which had plummeted in the panic-ridden market atmosphere of October, recovered—even for less creditworthy companies.

Some signs of heightened risk aversion remained, however. Interest rate spreads between highly rated instruments and more risky ones were still unusually large, although not as large as in October. The yield spread between below-investment grade corporate bonds and equivalent maturity Treasury bonds, for example, finished the year three percentage points higher than at the end of 1997.

Although there were still strains in some markets, credit, so essential to a healthy economy, was generally widely available—and at favorable interest rates by historical standards. Consequently, at its December meeting, the Federal Reserve decided that no further easing was needed. The actions taken during the prior three months had accomplished its goal of restoring confidence.

## Recent Developments

***Real Growth:*** The economy expanded at a 3.7 percent annual rate over the first three quarters of 1998, and is estimated to have grown at a somewhat faster pace during the fourth quarter. This is the third year in a row of robust growth of around 4 percent annually. In each of these years, most forecasters had expected growth to slow to about 2¼ percent per year, around the pace that the economy is generally believed capable of sustaining on a long-run basis.

The fastest growing sector last year was again business spending on new equipment: up at a 16 percent annual rate during the first three quarters of the year, it is estimated to have risen at a double-digit rate in the fourth quarter as well. The biggest gains continued to be for information processing and related equipment, but businesses invested heavily in other forms of equipment as well. Investment in new structures, in contrast, edged down during 1998.

This exceptionally strong growth of spending for new equipment boosted productivity and expanded industrial capacity to meet current and future demands. Overall industrial capacity rose by more than 5 percent in each of the past four years; the last time capacity grew this rapidly was in the late 1960s. The extra capacity has helped keep inflation low by easing the bottlenecks that might otherwise have developed. In the fourth quarter of 1998, the manufacturing operating rate was below its long-term average, even though labor markets were much tighter than usual.

Growth last year was also supported by robust household spending. Low unemployment, low interest rates, rising real incomes, extraordinary capital gains, and record levels of consumer optimism have provided households with the resources and willingness to spend heavily, especially on discretionary, postponable purchases. Overall consumer spending after adjustment for inflation rose at a 5.4 percent annual rate during the first three quarters of the year, and continued at a brisk pace in the fourth quarter. Growth of consumer spending last year was the fastest in 15 years.

The surge in consumer spending last year outstripped even the robust growth of disposable personal income. As a result, the saving rate edged down during the year, and entered negative territory in the fourth quarter. Not since the 1930s has the household saving rate been negative. Then, however, it was sign of extreme stress: incomes were shrinking faster than spending. Now, it is the result of economic success: soaring stock market wealth has enabled households to feel confident boosting spending knowing they have made unexpectedly large capital gains.

The same factors spurring consumption pushed new and existing home sales during 1998 to their highest level since record-keeping began. The homeownership rate reached a record 66.8 percent in the third quarter. Buoyant sales and low inventories of unsold homes provided a strong incentive for builders to start new construction. Housing starts rose last year to the highest level since 1987. Residential investment, after adjustment for inflation, increased at a 13.5 percent annual rate during the first three quarters of the year, and is estimated to have risen at a double-digit pace in the fourth quarter. The growth of residential investment last year was the strongest since 1992, when homebuilding was just emerging from recession.

Government purchases, on balance, made very little contribution to GDP growth last year. Federal government spending in GDP after adjustment for inflation edged down at a 1.2 percent annual rate during the

first three quarters, about the same contraction as during 1997. By the third quarter of last year, Federal government spending in GDP was 12 percent lower than when the Administration took office. State and local spending in GDP rose at a moderate 2.3 percent rate during the first three quarters of 1998, offsetting the restraint on growth from the Federal sector. In recent years, States and localities have increased their spending only modestly, despite the availability of unexpectedly large budget surpluses resulting from stronger-than-expected revenues.

The foreign sector was the primary restraint on growth last year, as it was the year before. Exports of goods and services after adjustment for inflation shrank last year (the first time that has occurred since 1985) as several economies abroad contracted—including Japan, the world's second largest economy. In addition, the 21 percent rise in the dollar from the end of 1996 to October 1998 stimulated imports into the United States. The widening of the net export deficit during the first three quarters of the year trimmed 1¾ percentage point off of real GDP growth. The negative contribution from the trade sector was less pronounced during the second half of the year than the first, suggesting that the worst of the adverse trade impact may be over.

***Labor Markets:*** The performance of the labor market last year far exceeded most predictions. At the start of the year, most forecasters had expected growth to slow and the unemployment rate to rise slightly. Instead, the economy expanded at about the same rapid pace as during 1997, driving the unemployment rate down to 4.3 percent by December. When this Administration took office, the unemployment rate was 7.3 percent. All demographic groups, and especially minorities, have experienced a large decline in unemployment. Forty states had unemployment rates of 5.0 percent or less in November; only two had rates above 6.0 percent.

The Nation's payrolls expanded by a sizeable 2.9 million jobs last year. Unlike previous years, employment gains were not widespread across industries. Mining and manufacturing, especially vulnerable to developments in international trade, lost jobs. This was more than offset numerically by job growth by the private service sector, construction, state and local government, and even the Federal Government (because of its temporary hiring in preparation for the decennial census). The abundance of employment opportunities pushed the labor force participation rate and employment/population ratio up the highest levels on record.

***Inflation:*** Despite rapid growth and the low unemployment rate, inflation remained low last year, and even declined by some measures. The Consumer Price Index (CPI) and the CPI excluding food and energy increased about the same rate in 1998 as in 1997. The core CPI excluding food and energy rose just 2.4 percent last year, nearly matching 1997's 2.2 percent, which was the slowest rise since 1965. Because of falling energy prices, the total CPI rose even less, 1.6 percent, about the same as the 1.7 percent of 1997.

Progress in reducing inflation is even more impressive measured by the broadest indicator, the GDP chain-weighted price index. It rose just 0.9 percent at an annual rate during the first three quarters of 1998, 0.8 percentage point less than during the four quarters of 1997. The last time aggregate inflation was this low was in 1961.

The favorable inflation performance was the result of several factors: intense foreign competition, low unit labor costs, and perhaps structural changes in the link between unemployment and inflation. The rise in the dollar has reduced the costs of imported materials and intensified price competition from imports. Non-oil import prices fell 3.1 percent last year, while imported oil prices tumbled 40 percent. Export prices of goods (a component of the GDP price index) fell 3.5 percent, as American exporters trimmed prices to remain competitive abroad.

Despite low unemployment, the increase in hourly earnings and the broader measures of compensation were not much different during 1998 than the prior year. Moreover, robust investment in new equipment contributed to unusually strong productivity growth for this stage of an expansion, helping to restrain inflation by offsetting the gains in labor compensation. Unit labor costs rose at only a 1.8 percent annual rate during the first three quarters of 1998, down from 2.0 percent during 1997.

The absence of inflationary pressures has implications for the estimate of the level of unemployment that is consistent with stable inflation. This threshold has been called the NAIRU, or "nonaccelerating inflation rate of unemployment." Economists have been lowering their estimates of NAIRU in recent years in keeping with the accumulating experience that lower unemployment has not led to higher inflation, even after taking into account the influence of temporary factors. The economic projections for this Budget assume that NAIRU is in a range centered on 5.3 percent. That is 0.1 percentage point less than estimated in the 1999 Budget assumptions and 0.4 percentage point less than in the 1997 Budget. Most private forecasters have also reduced their estimates of NAIRU in recent years.

By the end of 1998, the unemployment rate was about one percentage point below the current mainstream estimate of NAIRU. The Administration forecast for real growth over the next three years implies that unemployment will return to 5.3 percent by the middle of 2001.

### Statistical Issues

The U.S. statistical agencies endeavor to measure accurately the economy's performance, but the U.S. economy is a moving target; statistical agencies must constantly improve their measurement tools just to keep up with rapid structural changes. It is not surprising, therefore, that concerns have been raised about possible

mismeasurement in recent years, especially of real GDP growth and of inflation.

***Real Growth:*** In a perfect statistical world, the value of output would equal the value of income generated in its production: GDP would match Gross Domestic Income (GDI). However, because the series are estimated from different source data, each with its own gaps and inconsistencies, the two measures are hardly ever identical. What is particularly unusual now is the wide and growing difference between product and income measures.

This "statistical discrepancy" (defined as aggregate output minus aggregate income) was –$102 billion in the third quarter of 1998, a record –1.2 percent of nominal GDP. By comparison, in the first quarter of 1995, the statistical discrepancy was nearly zero, and two years earlier, in the first quarter of 1993, it was a positive $71 billion, or 1.1 percent of GDP. A swing of this magnitude means that during the past five and a half years, the annual average real growth rate measured from the familiar GDP output side has been about 0.4 percentage point less than the growth rate measured from the income side. During the first three quarters of last year, the divergence between the two measures of real growth remained near this magnitude.

It is possible that the incorporation of more complete source data in the annual and benchmark revisions to the national accounts will eventually reduce the size of the statistical discrepancy. That is what happened last July, but even after that revision, the discrepancy in the third and fourth quarters of 1997 was still a sizeable –0.8 percent of GDP.

The absence of a clear picture of the economy's actual growth performance is a cause for some concern. Any estimate of potential growth depends on an estimate of trend productivity growth, which itself depends on recent data on actual growth. When there is a growing divergence between product and income measures, there is a comparable divergence in estimates of the productivity trend. For example, from the last cyclical real GDP peak in the second quarter of 1990 to the third quarter of 1998, labor productivity growth has increased at a 1.3 percent annual rate according to the official productivity statistics which measure output growth from the product side. Productivity growth measured from the income side, however, is at a 1.5 percent rate.

While faster growth of trend productivity and potential GDP of 0.2 percentage point per year may seem trivial, cumulated over the 10-year budget horizon—or more significantly over the 75 years of the long-run projections made in Chapter 2 of this *Analytical Perspectives* volume—the additional output made possible by higher productivity growth can imply tens or even hundreds of billions of dollars of additional income in the economy.

It is unclear whether the product or the income side provides the more accurate measure of growth. The Bureau of Economic Analysis (BEA) recognizes the shortcomings of both measures but believes that GDP is a more reliable measure than GDI (see the *Survey of Current Business,* August 1997, page 19). Other experts believe that some figure between the two measures may be more accurate.

There is circumstantial evidence to suggest that growth may be faster than shown by the traditional GDP output measure. The recent combination of low inflation and high profits suggests that productivity growth may be stronger than reported from the output side. Moreover, the unexpected strength of Treasury receipts in the last three years suggests that the output measure, and even the income measure, may be too low. While some of the higher receipts are from capital gains generated by the booming stock market, which are not included in the national income accounts (because they arise from asset price revaluations rather than from current production), capital gains do not fully account for the surge.

The Administration's budget assumptions project trend productivity growth of 1.3 percent per year, the average measured pace since GDP reached its last peak in the second quarter of 1990. It is possible that trend productivity growth may be somewhat faster, not only because of the faster growth of gross domestic income than gross domestic product in recent years, but also because the next benchmark GDP revision to the national accounts may incorporate improvements to the measurement of consumer prices that would lower GDP inflation slightly during the first half of the 1990s and raise real GDP growth by a comparable amount.

In last July's annual revision covering the years 1995–1998, the Bureau of Economic Analysis took a step in this direction by switching to a geometric mean formula for the calculation of the consumer price measures used to deflate personal consumption expenditures. This lowered overall GDP inflation by almost 0.2 percentage points per year, and thereby boosted measured nonfarm output and productivity growth by 0.2 percentage points annually. The next benchmark GDP revisions, which will be published in October 1999, will incorporate this methodological change going back at least to 1990. All other things equal, this would be expected to raise slightly productivity growth measured from the last cyclical peak. However, because the benchmark revisions will include many other methodological and source data improvements, it is not possible to know how much and in what direction the currently measured productivity trend will be altered. Therefore, the budget projections are based on the prudent course of assuming a continuation of the productivity trend as measured by the statistics now available.

The uncertainty surrounding actual growth and its trend makes it more difficult to determine appropriate monetary policy. From a budgetary perspective, estimates of receipts and expenditures are more uncertain because they are dependent on the forecast for growth. As shown in Table 1–6, "Sensitivity of the Budget to Economic Assumptions," even small errors in projecting real GDP growth can have a significant effect on the budget balance cumulated over several years.

***Inflation:*** Accurate measurement of inflation has become increasingly important in recent years, even as inflation has been brought under control. Eliminating biases of even a few tenths of a percentage point a year can be important relative to a goal of price stability when inflation is low, while it may have less significance when inflation is higher.

A few years ago, questions were raised about the magnitude of bias in the Consumer Price Index (CPI). In December 1996, the Advisory Commission to Study the Consumer Price Index, appointed by the Senate Finance Committee, reported that the index overstated the actual cost of living by 1.1 percentage points per year; other experts believed that the magnitude of empirically demonstrated biases was less.

The Bureau of Labor Statistics (BLS) has made important methodological improvements beginning in 1995 that have significantly reduced any overstatement of inflation as measured by the CPI. Taken together, these changes are estimated to result in a 0.7 percentage point slower annual rise in the CPI by 1999 compared with the methodologies used in 1994. The changes instituted from 1995–1998 are estimated to have slowed the growth of the CPI by 0.5 percentage point per year. These improvements include correction of a problem in rotating new stores into the survey, a better measure of prices for hospital services and computers, and a more accurate estimate of the equivalent rent attributed to owner-occupied housing. In addition, the BLS updated the expenditure weights used in the CPI from a 1982–84 basis to 1993–95 weights, introduced a more accurate geographic sample based on the 1990 decennial census, and redefined the groupings of items. (For a fuller description of these changes, see pages 7–8 in last year's *Analytical Perspectives.*) The changes introduced this year are expected to reduce CPI growth by another 0.2 percentage point per year.

Two methodological improvements are being instituted this year. Beginning with the January CPI, items will be sampled on a product rather than a geographical basis. This switch will allow more frequent sampling of categories with rapidly changing product lines, such as consumer electronics.

An even more important change is the replacement of the fixed-weighted Laspeyres formula that has been used in the CPI by a geometric mean formula for combining individual price quotations within certain components of the index. BLS is applying this improvement to categories where there are deemed to be substantial possibilities for substitution among items within the category—for example, different varieties of apples. In total, the categories using geometric means account for about 60 percent of the overall weight of the CPI. A CPI calculated using geometric means more closely approximates a cost-of-living index. Unlike the fixed-weighted aggregation, the geometric mean formula allows for some shifts in consumer spending patterns in response to changes in relative prices within categories of goods and services.

Because the CPI is used to deflate some nominal spending components of GDP, a slower rise in the CPI translates directly into a faster measured rise in real GDP and productivity growth. As noted in the discussion of real GDP in the prior section, the BEA recently applied the geometric mean formula to the prices used to deflate nominal personal consumption expenditures. As a result, measured productivity growth and real GDP growth in recent years were raised by almost 0.2 percentage point per year.

The improved measurement of inflation, both in the CPI and the national income accounts, has important implications for the budget. Slower growth of the CPI means that outlays for programs with cost-of-living adjustments tied to this index or its components—such as Social Security, Supplemental Security Income (SSI), retirement payments for railroad and Federal employees, and Food Stamps—will rise at a slower pace more in keeping with true inflation than they would have without these improvements. In addition, slower growth of the CPI will raise the growth of receipts: personal income tax brackets, the size of the personal exemptions, and eligibility thresholds for the Earned Income Tax Credit (EITC) will rise more slowly because they are also indexed to the CPI. Hence, the methodological improvements made in recent years act on both the outlays and receipts sides of the budget to increase the size of budget surpluses.

## Economic Projections

The economy's strong performance last year—and, indeed, over the last six years—and the maintenance of sound fiscal and monetary policies raise the possibility that actual economic developments may even be better than assumed—as has been the case in recent years. Nonetheless, it is prudent to base budget estimates on a conservative set of economic assumptions close to the consensus of private-sector forecasts.

The economic assumptions summarized in Table 1–1 are predicated on the adoption of the policies proposed in this budget. The swing in the fiscal position from deficit to surplus is expected to contribute to continued favorable economic performance. Federal Government surpluses reduce interest rates, stimulate private sector investment in new plant and equipment, and help keep inflation under control. The Federal Reserve is assumed to continue to pursue successfully the twin goals of keeping inflation low while promoting growth.

The economy is likely to continue to grow during the next few years, although at a more moderate pace than during 1998. While job opportunities are expected to remain plentiful, the unemployment rate is likely to rise gradually to a level consistent with stable inflation over the longer horizon. New job creation will boost incomes and consumer spending and keep confidence at a high level. Continued low inflation will enable monetary policy to support economic growth. Growth, in turn, will further improve the budget balance.

**Table 1–1. ECONOMIC ASSUMPTIONS** [1]

(Calendar years; dollar amounts in billions)

| | Actual 1997 | Projections | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| **Gross Domestic Product (GDP):** | | | | | | | | |
| Levels, dollar amounts in billions: | | | | | | | | |
| Current dollars | 8,111 | 8,497 | 8,833 | 9,199 | 9,582 | 10,004 | 10,456 | 10,930 |
| Real, chained (1992) dollars | 7,270 | 7,539 | 7,717 | 7,872 | 8,029 | 8,208 | 8,404 | 8,606 |
| Chained price index (1992 = 100), annual average | 111.6 | 112.7 | 114.4 | 116.8 | 119.3 | 121.8 | 124.4 | 127.0 |
| Percent change, fourth quarter over fourth quarter: | | | | | | | | |
| Current dollars | 5.6 | 4.5 | 4.0 | 4.2 | 4.1 | 4.5 | 4.5 | 4.5 |
| Real, chained (1992) dollars | 3.8 | 3.5 | 2.0 | 2.0 | 2.0 | 2.4 | 2.4 | 2.4 |
| Chained price index (1992 = 100) | 1.7 | 0.9 | 1.9 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| Percent change, year over year: | | | | | | | | |
| Current dollars | 5.9 | 4.8 | 4.0 | 4.1 | 4.2 | 4.4 | 4.5 | 4.5 |
| Real, chained (1992) dollars | 3.9 | 3.7 | 2.4 | 2.0 | 2.0 | 2.2 | 2.4 | 2.4 |
| Chained price index (1992 = 100) | 1.9 | 1.0 | 1.5 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| **Incomes, billions of current dollars:** | | | | | | | | |
| Corporate profits before tax | 734 | 721 | 724 | 739 | 765 | 787 | 826 | 867 |
| Wages and salaries | 3,890 | 4,146 | 4,349 | 4,526 | 4,701 | 4,892 | 5,106 | 5,331 |
| Other taxable income [2] | 1,717 | 1,763 | 1,815 | 1,863 | 1,921 | 1,980 | 2,051 | 2,126 |
| **Consumer Price Index (all urban):** [3] | | | | | | | | |
| Level (1982–84 = 100), annual average | 160.6 | 163.1 | 166.7 | 170.6 | 174.5 | 178.5 | 182.6 | 186.8 |
| Percent change, fourth quarter over fourth quarter | 1.9 | 1.6 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| Percent change, year over year | 2.3 | 1.6 | 2.2 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| **Unemployment rate, civilian, percent:** | | | | | | | | |
| Fourth quarter level | 4.7 | 4.6 | 4.9 | 5.1 | 5.3 | 5.3 | 5.3 | 5.3 |
| Annual average | 5.0 | 4.6 | 4.8 | 5.0 | 5.3 | 5.3 | 5.3 | 5.3 |
| **Federal pay raises, January, percent:** | | | | | | | | |
| Military [4] | 3.0 | 2.8 | 3.6 | 4.4 | 3.9 | 3.9 | 3.9 | 3.9 |
| Civilian [5] | 3.0 | 2.8 | 3.6 | 4.4 | 3.9 | 3.9 | 3.9 | 3.9 |
| **Interest rates, percent:** | | | | | | | | |
| 91-day Treasury bills [6] | 5.1 | 4.8 | 4.2 | 4.3 | 4.3 | 4.4 | 4.4 | 4.4 |
| 10-year Treasury notes | 6.4 | 5.3 | 4.9 | 5.0 | 5.2 | 5.3 | 5.4 | 5.4 |

[1] Based on information available as of early December 1998.
[2] Rent, interest, dividend and proprietors components of personal income.
[3] Seasonally adjusted CPI for all urban consumers. Two versions of the CPI are now published. The index shown here is that currently used, as required by law, in calculating automatic adjustments to individual income tax brackets. Projections reflect scheduled changes in methodology.
[4] Beginning with the 1999 increase, percentages apply to basic pay only; adjustments for housing and subsistence allowances will be determined by the Secretary of Defense.
[5] Overall average increase, including locality pay adjustments.
[6] Average rate (bank discount basis) on new issues within period.

***Real GDP, Potential GDP and Unemployment:*** Over the next three years, real GDP is expected to rise 2.0 percent per year. This shift to more moderate growth recognizes that by mainstream assumptions, growth has exceeded the pace that can be maintained on a sustained basis, and that this could eventually result in upward pressures on inflation. More moderate growth has been expected for this reason. Also, recessions in Asia and slow growth elsewhere are expected to restrain U.S. growth again this year, albeit not as much as during 1998. From 2001–2007, growth is expected to average a slightly faster 2.4 percent per year—the Administration's estimate of the economy's potential growth rate. In 2008, potential growth is projected to slow to 2.3 percent to reflect the foreseeable demographic trend toward slower growth of the workforce as the baby-boomers begin to retire.

The net export component of GDP is expected to restrain real growth by about half as much as during 1998. Exports are expected to rise, rather than contract as they did in 1998, and import growth is likely to be somewhat slower than last year as our domestic demand slows. Beginning with 2000, the foreign sector is not expected to make a large contribution, positive or negative, to overall growth.

As has been the case throughout this expansion, during the next six years business fixed investment is expected to be the fastest growing component of GDP. Although residential investment is also expected to benefit from low mortgage rates and strong demand for second homes for vacation or retirement, the high level of housing starts in recent years and underlying demographic trends may tend to reduce future growth somewhat. Consumer spending, especially on durable goods, is also likely to moderate from the rapid pace of 1998. The fundamental factors supporting consumer spending are likely to remain favorable, although not quite to the same extent as during 1998. The government component of GDP will grow slowly through 2004. A decline in Federal consumption and gross investment is projected to be offset by moderate growth in State and local spending.

Potential GDP growth of 2.4 percent on average through 2007 can be decomposed into the trend growth

of productivity, 1.3 percent per year, plus the growth of the labor force, estimated at 1.1 percent annually. The Administration's labor force projection assumes that the population of working age will grow 1.0 percent per year and that the labor force participation rate will edge up 0.1 percent per year.

Both the labor force and participation rate assumptions are lower than recent experience. The participation rate has risen 0.2 percent per year since 1993, as falling unemployment and rapidly expanding job opportunities have induced job-seeking. With the labor force participation rate and employment/population ratio already at post-World War II highs last year, it is prudent to project a slower rise in coming years. In addition, the female participation rate, which had risen sharply during much of the postwar period, grew much more slowly during the 1990s, and this is forecast to be reflected in future growth rates.

The real GDP growth projection of 2.0 percent through 2001 is consistent with a gradual rise in the unemployment rate to 5.3 percent. Unemployment is then projected to average 5.3 percent from 2001 onward, when real GDP growth reverts on average to the Administration's estimate of the economy's potential growth rate.

***Inflation:*** With unemployment expected to be slightly below the NAIRU during the next three years, inflation is projected to creep up. The CPI is projected to increase 2.3 percent during this and the subsequent years of the forecast; the GDP chain-weighted price index is projected to increase 2.1 percent annually beginning in 2000. The 0.2 percentage point difference between the two inflation measures is narrower than the 0.5 percentage point of 1998, in part because BLS will introduce the geometric means formula into the CPI this year, which will slow the growth in the index by about 0.2 percentage point annually. As discussed above, this change will not affect the GDP price index because BEA has already incorporated this improvement.

Despite the relatively tight labor market in the next few years, the inflation rate is projected to remain low, partly because of two temporary factors. The rise in the dollar is expected to hold down import prices and intensify price competition from imported goods and services. In addition, wide profit margins provide a cushion that will enable firms to absorb cost increases without having to pass them on fully into higher prices. Moreover, the methodological improvements to the CPI introduced this year also will slow the rise in the CPI.

***Interest Rates:*** The assumptions, which were finalized in early December, project stable short-term rates and a slight rise in long-term interest rates. The rise at the long end of the maturity spectrum is about the same as the increase in the CPI. By 2002, the 91-day Treasury bill rate is expected to be 4.4 percent, close to December's average; the yield on the 10-year Treasury bond is projected to be 5.3 percent, compared with 4.7 percent in December.

***Incomes:*** The moderating of real growth during the projection horizon is expected to shift the distribution of national income slightly, augmenting somewhat the share going to compensation, while trimming the unusually high profits share in GDP. The personal interest income share is also projected to decline as interest rates remain historically low and as households hold less Federal government debt because of the projected budget surpluses. On balance, total taxable income is projected to decline gradually as a share of GDP.

### Comparison with CBO

The Congressional Budget Office (CBO) prepares the economic projections used by Congress in formulating budget policy. In the executive branch, this function is performed jointly by the Treasury, the Council of Economic Advisers (CEA), and the Office of Management and Budget (OMB). It is natural that the two sets of economic projections be compared with one another, but there are several important differences, along with the similarities, that should be kept in mind:

The Administration's projections always assume that the President's policy proposals in the budget will be adopted in full. In contrast, CBO normally assumes that current law will continue to hold; thus, it makes a "pre-policy" projection. In recent years, and currently, CBO has made economic projections based on a fiscal policy similar to the budget's.

Both CBO and the Administration assume that maintaining budget surpluses would have significant macroeconomic effects, especially for interest rates and the distribution of income.

The two sets of projections are often prepared at different times. The Administration's projections must be prepared in early December, months ahead of the release of the budget. Some of the differences in the Administration's and CBO's near-term forecasts, therefore, may be due to the availability of more recent data to CBO. Timing differences are much less likely to play an important role in any differences in outyear projections, however.

Table 1–2 presents a summary comparison of the two sets of projections. Briefly, the Administration and CBO projections are very similar for all the major variables affecting the budget outlook:

***Real GDP:*** The projections of real GDP growth are quite similar; both the Administration and CBO project that real GDP will grow at an average annual rate of 2.2 percent over the 1999–2004 period.

***Inflation:*** Both the Administration and CBO expect inflation to continue at a slow, steady rate over the next several years. For the chain-weighted GDP price index, both predict that inflation will be 2.1 percent yearly; CBO expects the annual rate of change in the CPI to be about 0.3 percentage point higher than the Administration.

***Unemployment:*** CBO projects unemployment to rise from its current level to 5.7 percent. The Administra-

**Table 1–2. COMPARISON OF ADMINISTRATION AND CBO ECONOMIC ASSUMPTIONS**

(Calendar years; percent)

| | Projections | | | | | |
|---|---|---|---|---|---|---|
| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| **Real GDP (chain-weighted):** [1] | | | | | | |
| CBO January | 1.8 | 1.9 | 2.3 | 2.4 | 2.5 | 2.4 |
| 2000 Budget | 2.0 | 2.0 | 2.0 | 2.4 | 2.4 | 2.4 |
| **Chain-weighted GDP Price Index:** [1] | | | | | | |
| CBO January | 2.1 | 2.0 | 2.2 | 2.1 | 2.1 | 2.1 |
| 2000 Budget | 1.9 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| **Consumer Price Index (all-urban):** [1] | | | | | | |
| CBO January | 2.7 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 2000 Budget | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| **Unemployment rate:** [2] | | | | | | |
| CBO January | 4.6 | 5.1 | 5.4 | 5.6 | 5.7 | 5.7 |
| 2000 Budget | 4.8 | 5.0 | 5.3 | 5.3 | 5.3 | 5.3 |
| **Interest rates:** [2] | | | | | | |
| **91-day Treasury bills:** | | | | | | |
| CBO January | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| 2000 Budget | 4.2 | 4.3 | 4.3 | 4.4 | 4.4 | 4.4 |
| **10-year Treasury notes:** | | | | | | |
| CBO January | 5.1 | 5.3 | 5.4 | 5.4 | 5.4 | 5.4 |
| 2000 Budget | 4.9 | 5.0 | 5.2 | 5.3 | 5.4 | 5.4 |
| **Taxable income (share of GDP):** [3] | | | | | | |
| CBO January | 77.8 | 77.1 | 76.9 | 76.6 | 76.5 | 76.3 |
| 2000 Budget | 78.0 | 77.5 | 77.1 | 76.6 | 76.4 | 76.1 |

[1] Percent change, fourth quarter over fourth quarter.
[2] Annual averages, percent.
[3] Taxable personal income plus corporate profits before tax.

tion projects that the unemployment rate will average a slightly lower 5.3 percent.

***Interest rates:*** The Administration and CBO have very similar paths for long- and short-term interest rates.

***Income distribution:*** The Administration and CBO have similar projections for total taxable income shares of GDP. Both CBO and the Administration expect a shift of income from interest to corporate profits as a result of the sustained lower interest rates resulting from continued budget surpluses. Both project a similar secular decline in the total taxable income share.

### Impact of Changes in the Economic Assumptions

The economic assumptions underlying this budget are similar to those of last year. Both budgets anticipated that achieving a fundamental shift in fiscal posture from large deficits to surpluses would result in a significant decline in interest rates, which would serve to extend the economic expansion at a moderate pace while helping to maintain low, steady rates of inflation and unemployment. The shift to budget surpluses and the ensuing lower interest rates were also expected to shift the composition of income from interest to profits. This would have favorable effect on receipts and the budget balance, because profits are on average taxed more heavily than interest income.

The changes in the economic assumptions since last year's budget have been relatively modest, as Table 1–3 shows. The differences are primarily the result of economic performance in 1998 that has, once again, proven more favorable than was anticipated at the beginning of last year. Economic growth was stronger than expected in 1998, while inflation and unemployment were lower. Because of this favorable performance, the projected annual averages for the unemployment rate and GDP price index have again been reduced slightly this year. At the same time, interest rates are assumed in this budget to remain near their current low levels. Interest rates are already lower than the levels to which they were assumed to decline eventually in last year's forecast.

**Table 1–3. COMPARISON OF ECONOMIC ASSUMPTIONS IN THE 1999 AND 2000 BUDGETS**

(Calendar years; dollar amounts in billions)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|
| Nominal GDP: | | | | | | | |
| 1999 Budget assumptions [1] | 8,473 | 8,818 | 9,189 | 9,596 | 10,045 | 10,508 | 10,999 |
| 2000 Budget assumptions | 8,497 | 8,833 | 9,199 | 9,582 | 10,004 | 10,456 | 10,930 |
| Real GDP (percent change): [2] | | | | | | | |
| 1999 Budget assumptions | 2.0 | 2.0 | 2.0 | 2.3 | 2.4 | 2.4 | 2.4 |
| 2000 Budget assumptions | 3.5 | 2.0 | 2.0 | 2.0 | 2.4 | 2.4 | 2.4 |
| GDP price index (percent change): [2] | | | | | | | |
| 1999 Budget assumptions | 2.0 | 2.1 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 2000 Budget assumptions | 0.9 | 1.9 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| Consumer Price Index (percent change): [2] | | | | | | | |
| 1999 Budget assumptions | 2.2 | 2.2 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 2000 Budget assumptions | 1.6 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| Civilian unemployment rate (percent): [3] | | | | | | | |
| 1999 Budget assumptions | 4.9 | 5.1 | 5.3 | 5.4 | 5.4 | 5.4 | 5.4 |
| 2000 Budget assumptions | 4.6 | 4.8 | 5.0 | 5.3 | 5.3 | 5.3 | 5.3 |
| 91-day Treasury bill rate (percent): [3] | | | | | | | |
| 1999 Budget assumptions | 5.0 | 4.9 | 4.8 | 4.7 | 4.7 | 4.7 | 4.7 |
| 2000 Budget assumptions | 4.8 | 4.2 | 4.3 | 4.3 | 4.4 | 4.4 | 4.4 |
| 10-year Treasury note rate (percent): [3] | | | | | | | |
| 1999 Budget assumptions | 5.9 | 5.8 | 5.8 | 5.7 | 5.7 | 5.7 | 5.7 |
| 2000 Budget assumptions | 5.3 | 4.9 | 5.0 | 5.2 | 5.3 | 5.4 | 5.4 |

[1] Adjusted for July 1998 NIPA revisions.
[2] Fourth quarter-to-fourth quarter.
[3] Calendar year average.

The net effects of these modifications in the economic assumptions on the budget are shown in Table 1–4. The largest effects come from higher receipts during 1999–2004. In all years through 2004, there are lower outlays for interest due to the unexpectedly large fall in interest rates, and lower outlays for cost-of-living adjustments to Federal programs due to lower 1998 inflation. The change in economic assumptions since last year increases budget surpluses by $40 billion to $50 billion a year.

**Table 1–4. EFFECTS ON THE BUDGET OF CHANGES IN ECONOMIC ASSUMPTIONS SINCE LAST YEAR**

(In billions of dollars)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|
| **Budget totals under 1999 Budget economic assumptions and 2000 Budget policies:** | | | | | | |
| Receipts | 1,778.4 | 1,857.0 | 1,909.0 | 1,988.9 | 2,060.2 | 2,154.5 |
| Outlays | 1,743.1 | 1,789.0 | 1,824.8 | 1,846.3 | 1,921.0 | 1,987.8 |
| Surplus | 35.4 | 68.1 | 84.1 | 142.6 | 139.2 | 166.8 |
| **Changes due to economic assumptions:** | | | | | | |
| Receipts | 27.9 | 25.9 | 24.4 | 18.1 | 14.8 | 11.0 |
| Outlays: | | | | | | |
| Inflation | –4.9 | –6.3 | –6.6 | –6.9 | –7.3 | –7.9 |
| Unemployment | –3.5 | –2.4 | –1.6 | –0.7 | –0.9 | –1.0 |
| Interest rates | –6.4 | –11.0 | –-11.4 | –10.0 | –9.2 | –8.3 |
| Interest on changes in borrowing | –1.2 | –3.6 | –6.1 | –8.4 | –10.6 | –12.7 |
| Total, outlay decreases (–) | –16.0 | –23.3 | –25.6 | –26.0 | –28.1 | –29.9 |
| Increase in surplus | 43.9 | 49.2 | 50.0 | 44.1 | 42.9 | 40.9 |
| **Budget totals under 2000 Budget economic assumptions and policies:** | | | | | | |
| Receipts | 1,806.3 | 1,883.0 | 1,933.3 | 2,007.1 | 2,075.0 | 2,165.5 |
| Outlays | 1,727.1 | 1,765.7 | 1,799.2 | 1,820.3 | 1,893.0 | 1,957.9 |
| Surplus | 79.3 | 117.3 | 134.1 | 186.7 | 182.0 | 207.6 |

### Structural vs. Cyclical Balance

When the economy is operating above potential as it is currently estimated to be, receipts are higher than they would be if resources were less fully employed, and outlays for unemployment-sensitive programs (such as unemployment compensation and food stamps) are lower. As a result, the deficit is smaller or the surplus is larger than it would be if unemployment were at the NAIRU. The portion of the surplus or deficit that can be traced to this factor is called the cyclical surplus or deficit. The remainder, the portion that would remain with unemployment at the NAIRU (consistent with a 5.3 percent unemployment rate), is called the structural surplus or deficit.

**Table 1–5. ADJUSTED STRUCTURAL BALANCE**

(In billions of dollars)

| | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unadjusted deficit (–) or surplus | –290.4 | –255.0 | –203.1 | –163.9 | –107.4 | –21.9 | 69.2 | 79.3 | 117.3 | 134.1 | 186.7 | 182.0 | 207.6 |
| Cyclical component | –75.0 | –66.2 | –38.1 | –16.5 | –7.8 | 12.4 | 34.3 | 29.4 | 16.7 | 6.6 | 0.3 | ..... | ..... |
| Structural deficit (–) or surplus | –215.4 | –188.9 | –165.0 | –147.4 | –99.6 | –34.3 | 35.0 | 49.9 | 100.6 | 127.5 | 186.5 | 182.0 | 207.6 |
| Deposit insurance outlays | –2.3 | –28.0 | –7.6 | –17.9 | –8.4 | –14.4 | –4.4 | –5.0 | –2.3 | –1.8 | –1.3 | –* | 0.8 |
| Adjusted structural deficit (–) or surplus | –217.7 | –216.9 | –172.6 | –165.3 | –108.0 | –48.7 | 30.6 | 44.8 | 98.3 | 125.7 | 185.1 | 182.0 | 208.5 |

Changes in the structural balance give a better picture of the impact of budget policy on the economy than does the unadjusted budget balance. The level of the structural balance also gives a clearer picture of the stance of fiscal policy, because this part of the surplus or deficit will persist even when the economy achieves permanently sustainable operating levels.

In the early 1990s, large swings in net outlays for deposit insurance (the S&L bailouts) had substantial impacts on deficits, but had little concurrent impact on economic performance. It therefore became customary to remove deposit insurance outlays as well as the cyclical component of the surplus or deficit from the actual surplus or deficit to compute the adjusted structural balance. This is shown in Table 1–5.

For the period 1998 through mid-2001, the unemployment rate is slightly below the estimated NAIRU of 5.3 percent, resulting in cyclical surpluses. Thereafter, unemployment is projected to equal the NAIRU, so the cyclical component of the surplus vanishes. Deposit insurance net outlays are relatively small and do not change greatly from year to year. The adjusted structural surplus or deficits in this budget display much the same pattern of year-to-year changes as the actual deficits. Two significant points are illustrated by this table. First, of the $360 billion swing in the actual budget balance between 1992 and 1998 (from a $290 billion deficit to a $69 billion surplus), 30 percent ($109 billion) resulted from cyclical improvement in the economy. The rest of the reduction stemmed primarily from policy actions—mainly those in the Omnibus Budget Reconciliation Act of 1993, which reversed a projected continued steep rise in the deficit and set the stage for the remarkable cyclical improvement that has occurred. Second, the structural surplus is expected to rise substantially over the projection horizon—in part due to the effects of the Balanced Budget Act of 1997.

### Sensitivity of the Budget to Economic Assumptions

Both receipts and outlays are affected by changes in economic conditions. This sensitivity seriously complicates budget planning, because errors in economic assumptions lead to errors in the budget projections. It is therefore useful to examine the implications of alternative economic assumptions.

Many of the budgetary effects of changes in economic assumptions are fairly predictable, and a set of rules of thumb embodying these relationships can aid in estimating how changes in the economic assumptions would alter outlays, receipts, and the surplus.

Economic variables that affect the budget do not usually change independently of one another. Output and employment tend to move together in the short run: a high rate of real GDP growth is generally associated with a declining rate of unemployment, while moderate or negative growth is usually accompanied by rising unemployment. In the long run, however, changes in the average rate of growth of real GDP are mainly due to changes in the rates of growth of productivity and labor supply, and are not necessarily associated with changes in the average rate of unemployment. Inflation and interest rates are also closely interrelated: a higher expected rate of inflation increases interest rates, while lower expected inflation reduces rates.

Changes in real GDP growth or inflation have a much greater cumulative effect on the budget over time if they are sustained for several years than if they last for only one year.

Highlights of the budget effects of the above rules of thumb are shown in Table 1–6.

If real GDP growth is lower by one percentage point in calendar year 1999 only and the unemployment rate rises by one-half percentage point, the fiscal 1999 surplus would decrease by $9.8 billion; receipts in 1999 would be lower by about $8.0 billion, and outlays would

be higher by about $1.8 billion, primarily for unemployment-sensitive programs. In fiscal year 2000, the receipts shortfall would grow further to about $17.2 billion, and outlays would increase by about $6.1 billion relative to the base, even though the growth rate in calendar 2000 equals the rate originally assumed. This is because the level of real (and nominal) GDP and taxable incomes would be permanently lower, and unemployment higher. The budget effects (including growing interest costs associated with higher deficits or smaller surpluses) would continue to grow slightly in later years.

The budget effects are much larger if the real growth rate is assumed to be one percentage point less in each year (1999–2004) and the unemployment rate to rise one-half percentage point in each year. With these assumptions, the levels of real and nominal GDP would be below the base case by a growing percentage. The budget balance would be worsened by $163.3 billion relative to the base case by 2004.

The effects of slower productivity growth are shown in a third example, where real growth is one percentage point lower per year while the unemployment rate is unchanged. In this case, the estimated budget effects mount steadily over the years, but more slowly, resulting in a $133.3 billion worsening of the budget balance by 2004.

Joint changes in interest rates and inflation have a smaller effect on the deficit than equal percentage point changes in real GDP growth, because their effects on receipts and outlays are substantially offsetting. An example is the effect of a one percentage point higher rate of inflation and one percentage point higher interest rates during calendar year 1999 only. In subsequent years, the price level and nominal GDP would be one percent higher than in the base case, but interest rates are assumed to return to their base levels. Outlays for 1999 rise by $5.6 billion and receipts by $9.2 billion, for a increase of $3.6 billion in the 1999 surplus. In 2000, outlays would be above the base by $12.9 billion, due in part to lagged cost-of-living adjustments; receipts would rise $18.4 billion above the base, however, resulting in a $5.6 billion improvement in the budget balance. In subsequent years, the amounts added to receipts would continue to be larger than the additions to outlays.

If the rate of inflation and the level of interest rates are higher by one percentage point in all years, the price level and nominal GDP would rise by a cumulatively growing percentage above their base levels. In this case, the effects on receipts and outlays mount steadily in successive years, adding $54.0 billion to outlays and $109.0 billion to receipts in 2004, for a net increase in the surplus of $55.0 billion.

The table shows the interest rate and the inflation effects separately. These separate effects for interest rates and inflation rates do not sum to the effects for simultaneous changes in both. This occurs because, when the budget is in surplus and some debt is being retired, the combined effects of two changes in assumptions affecting debt financing patterns and interest costs may differ from the sum of the separate effects, depending on assumptions about Treasury's selection of debt maturities to retire and the interest rates they bear. The last entry in the table shows rules of thumb for the added interest cost associated with changes in the budget surplus.

The effects of changes in economic assumptions in the opposite direction are approximately symmetric to those shown in the table. The impact of a one percentage point lower rate of inflation or higher real growth would have about the same magnitude as the effects shown in the table, but with the opposite sign.

These rules of thumb are computed while holding the income share composition of GDP constant. Because different income components are subject to different taxes and tax rates, estimates of total receipts can be affected significantly by changing income shares. However, the relationships between changes in income shares and changes in growth, inflation, and interest rates are too complex to be reduced to simple rules.

## Table 1–6. SENSITIVITY OF THE BUDGET TO ECONOMIC ASSUMPTIONS

(In billions of dollars)

| Budget effect | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|
| **Real Growth and Employment** | | | | | | |
| **Budgetary effects of 1 percent lower real GDP growth:** | | | | | | |
| For calendar year 1999 only: [1] | | | | | | |
| Receipts | –8.0 | –17.2 | –20.1 | –20.9 | –21.8 | –22.7 |
| Outlays | 1.8 | 6.1 | 6.6 | 8.0 | 9.7 | 11.5 |
| Decrease in surplus (–) | –9.8 | –23.3 | –26.7 | –28.9 | –31.5 | –34.2 |
| Sustained during 1999–2004: [1] | | | | | | |
| Receipts | –8.0 | –25.4 | –46.1 | –68.3 | –92.0 | –117.5 |
| Outlays | 1.8 | 8.0 | 14.7 | 23.1 | 33.3 | 45.7 |
| Decrease in surplus (–) | –9.8 | –33.4 | –60.9 | –91.4 | –125.4 | –163.3 |
| Sustained during 1999–2004, with no change in unemployment: | | | | | | |
| Receipts | –8.0 | –25.4 | –46.2 | –68.4 | –92.1 | –117.6 |
| Outlays | 0.2 | 1.0 | 2.8 | 5.7 | 10.0 | 15.7 |
| Decrease in surplus (–) | –8.2 | –26.4 | –49.0 | –74.2 | –102.1 | –133.3 |
| **Inflation and Interest Rates** | | | | | | |
| **Budgetary effects of 1 percentage point higher rate of:** | | | | | | |
| Inflation and interest rates during calendar year 1999 only: | | | | | | |
| Receipts | 9.2 | 18.4 | 17.8 | 16.4 | 17.2 | 18.1 |
| Outlays | 5.6 | 12.9 | 10.3 | 9.2 | 9.0 | 8.3 |
| Increase in surplus (+) | 3.6 | 5.6 | 7.5 | 7.2 | 8.2 | 9.7 |
| Inflation and interest rates, sustained during 1999–2004: | | | | | | |
| Receipts | 9.2 | 28.1 | 47.1 | 65.7 | 86.3 | 109.0 |
| Outlays | 5.6 | 18.6 | 29.3 | 38.1 | 46.4 | 54.0 |
| Increase in surplus (+) | 3.6 | 9.5 | 17.8 | 27.6 | 39.9 | 55.0 |
| Interest rates only, sustained during 1999–2004: | | | | | | |
| Receipts | 1.3 | 3.3 | 4.1 | 4.4 | 4.8 | 5.1 |
| Outlays | 5.2 | 14.1 | 18.5 | 20.3 | 21.6 | 22.2 |
| Decrease in surplus (–) | –3.9 | –10.9 | –14.4 | –15.9 | –16.9 | –17.1 |
| Inflation only, sustained during 1999–2004: | | | | | | |
| Receipts | 8.0 | 24.8 | 43.0 | 61.3 | 81.6 | 103.9 |
| Outlays | 0.5 | 4.7 | 11.3 | 18.7 | 26.4 | 34.1 |
| Increase in surplus (+) | 7.5 | 20.2 | 31.7 | 42.6 | 55.2 | 69.7 |
| **Interest Cost of Higher Federal Borrowing** | | | | | | |
| Outlay effect of a $50 billion reduction in the 1999 surplus | 1.2 | 2.4 | 2.5 | 2.7 | 2.9 | 3.0 |

* $50 million or less.

[1] The unemployment rate is assumed to be 0.5 percentage point higher per 1.0 percent shortfall in the level of real GDP.