ECONOMIC AND ACCOUNTING ANALYSES

1. ECONOMIC ASSUMPTIONS

Introduction

Economic growth decelerated suddenly and sharply last year; by the end of the year, the record-long expansion was on the verge of stalling. The economy hardly expanded in the fourth quarter, and signs of weakness in the first months of this year were widespread. The stock market has plummeted, consumer and business confidence has dropped sharply, industrial production and capacity utilization rates have declined, and job growth has slackened. The unemployment rate, although low by historical standards, has begun to climb.

Despite the sudden weakness, most forecasters, including the Administration, anticipate that an economic recovery will begin later this year. Forward-looking indicators have begun to strengthen recently, pointing to faster growth in the coming months. Monetary policy has shifted to stimulating demand. The Federal Reserve reduced the Federal funds rate twice in January, and it made another cut in March.

Fiscal policy is poised to support a recovery. The Administration proposes to reduce individual income taxes, which will provide near-term fiscal stimulus and long-term economic incentives to encourage work and saving. Beyond the next year or two, the long-term outlook has never been brighter. There is accumulating evidence that the underlying productivity trend has improved markedly. This is welcome news for American workers and business. Enhanced productivity growth enables real wages to grow faster, profits to expand, and the stock market to rise. In the long run, productivity growth is the key to maintaining a strong economy and rising living standards.

This chapter begins with a review of recent developments and then presents the Administration's economic assumptions, followed by a comparison with projections of the Congressional Budget Office and the consensus of private sector forecasters. The following section decomposes the surplus into its cyclical and structural components. The chapter concludes with estimates of the sensitivity of the budget to changes in economic assumptions.

Recent Developments

Financial Markets: Beginning in 1999 and lasting through May 2000, the Federal Reserve tightened monetary policy to reduce the risk of higher inflation in a rapidly expanding economy. However, the ensuing deceleration of demand, the falloff in profits, and financial strains were unexpectedly sharp. As a result, the threat of higher inflation diminished while the risk that the expansion might end soon rose. In response to this shift in the balance of risks, the Federal Reserve eased monetary policy by cutting the Federal funds by a total of one percentage point in January and by another one-half percentage point in March to 5.0 percent. Judging by the futures market, investors expect additional cuts in the funds rate of one-half percentage point by the summer.

The credit markets responded promptly to the monetary easing. In the Treasury market, the yield on 3-month bills fell by 1.5 percentage points from the end of 2000 to late March, bringing the rate down to 4.3 percent. The decline in the yield on the 10-year Treasury note was less pronounced, from 5.1 percent to 4.8 percent. Together these changes restored an upward sloping yield curve, which in the past has often signaled faster economic growth ahead. In response to the shift in monetary policy, bond yields fell this year while new issuance rose significantly. The renewed access to capital enables firms to cope with the financial pressures from weaker sales and profits.

The easing of monetary policy and lower interest rates, however, did not succeed in arresting the fall in the stock market. As of late March, the S&P 500 and the broad-based Wilshire 5000 were down almost 15 percent since the end of last year, bringing the total decline from their peaks in March 2000 to over 25 percent. The technology-laden NASDAQ was hit even harder—off about 20 percent through late March, and about 60 percent from its year-earlier peak.

Economic Activity: Economic growth decelerated significantly last year, sliding from a robust 5.2 percent annual rate of increase during the first half of the year to only a 1.1 percent advance in the fourth quarter. The decline in the growth rate reflected the effects of falling stock prices and rising interest rates. The deceleration was most pronounced in the sectors that are especially responsive to changes in financial market conditions: residential investment, business capital spending, and consumer durable goods purchases.

- Residential investment contracted in the third and fourth quarters, the first back-to-back declines in four years. Homebuilding was adversely affected by the rise in mortgage rates during 1999 and the first half of 2000. By May, the rate on 30-year mortgages reached 8.5 percent, the highest level in over five years. Since then, however, the mortgage rate has fallen to 7.0 percent, the lowest rate in three years, and there were signs of a pickup in the housing markets as the new year began.
- After adjusting for inflation, investment in new plant and equipment contracted slightly in the fourth quarter, a marked drop-off from the double-digit gains that prevailed since 1995. Even demand for high-technology hardware and software, which had soared in recent years, slackened in

the final quarter, growing at about one-third the pace of the first half of the year. Weakening capital spending reflected lackluster demand, growing excess capacity, and a rising cost of capital because of higher interest rates and falling equity values.

- Real consumer spending on durable goods fell in the fourth quarter, led by an unexpected drop in motor vehicle purchases, which, in turn, contributed to a buildup of unwanted inventories on dealers' lots and sizeable cutbacks in production in the first quarter. The drop in durable goods spending restrained the total growth of consumer spending in the fourth quarter to a 2.8 percent annual rate, the smallest advance in over three years. The slackening of consumer spending was influenced by falling equity wealth—a reversal from the prior five years when exceptional stock market gains boosted wealth and fueled consumer spending. From its peak in March 2000 to the end of the year, the decline in the stock market cut $3 trillion off the $18 trillion in market capitalization of U.S. equities.

The foreign sector also restrained GDP growth in the fourth quarter, trimming about one-half percentage point off the growth rate. Imports of goods and services declined modestly at the end of the year, which bolstered growth slightly, but this was more than offset by a decline in exports, in part because of weakening demand in our trading partners.

The economic news so far in 2001 has been mixed. On the downside, surveys of consumers' attitudes revealed a further loss of confidence, with especially heightened concerns about the future. The stock market, which is an indicator of investors' confidence, fell as well.

On the upside, the Nation's total payrolls continued to expand in January and February, despite large job losses in manufacturing industries. The unemployment rate ticked up from 4.0 percent to 4.2 percent in January and held there in February. This is still a very low rate, two percentage points below the average rate over the previous thirty years.

Based on information for the first two months of the year, consumer spending after adjustment for inflation appears to have continued to expand in the first quarter at a moderate pace. Sales of motor vehicles, however, recovered sharply, which helped reduce the excess inventories that built up at the end of last year.

In the housing market, starts, permits, existing home sales and refinancing all increased at the start of the year in response to the fall in mortgage rates during the second half of 2000. There were also signs that business investment was holding up. In January, nondefense capital goods orders and unfilled orders, excluding the volatile aircraft sector, rose sharply.

Inflation: Price inflation accelerated last year, primarily because of a jump in crude oil prices, which rippled through to higher energy prices. The price of West Texas Intermediate crude oil doubled during 1999 and rose by another third during the first 11 months of 2000. On a year-over-year basis, the total Consumer Price Index (CPI) rose 3.4 percent in 2000, up from 2.2 percent in 1999. Since November, oil prices have fallen sharply, which can be expected to slow the growth of overall inflation this year. Excluding the volatile food and energy components, the acceleration in core CPI inflation last year was much less pronounced than the rise in the total. The core CPI rose just 2.4 percent during 2000, which is not much more than the 2.1 percent rise in 1999.

The GDP chain-weighted price index, a broad gauge of inflation covering all the goods and services produced in the United States, rose just 2.1 percent in 2000 measured on a year-over-year basis. Although higher than the 1.5 percent advance in 1999, it is still a remarkably low rate of inflation. Looking at the prices paid by consumers, businesses, and governments, and excluding the food and energy components, inflation was only 1.8 percent in 2000, not much different than the 1.5 percent of 1999.

Historically low unemployment last year contributed to strong growth of labor compensation, including benefits as well as cash wages. Nonetheless, core price inflation rose very little because of continued robust productivity growth, which provided an offset to the upward price pressures from rising labor costs.

With the unemployment rate near 4 percent for the last two years and only a small step-up in the core rate of inflation, the economy appeared capable of maintaining stable inflation at a lower level of unemployment than previously envisaged. In light of this experience, the Budget assumes that NAIRU (the "nonaccelerating inflation rate of unemployment") is 4.6 percent in the long run. That is identical to the rate implied by the consensus of private sector forecasters. By contrast, two years ago the consensus implied a NAIRU just above 5 percent.

Productivity: Productivity growth during the past five years has averaged 2.9 percent per year, double the rate that prevailed from 1974 through 1995. Increased capital investment and general improvements in business efficiency were responsible for the step up. The maintenance of this strong productivity growth, even as the expansion has aged and unemployment has declined to very low levels, provides evidence that the improvement is likely to be ongoing.

Economic Projections

The Administration's economic projections, summarized in Table 1–1, assume the adoption of the policies proposed in the Budget: tax relief for American workers and their families, the maximum feasible reduction in Federal debt, Federal spending restraint, and the preservation of the Social Security surplus for Social Security. Enactment of this comprehensive program will provide both a needed near-term stimulus to the economy and promote an economic climate that fosters long-term growth. The Federal Reserve is assumed to continue

Table 1–1. ECONOMIC ASSUMPTIONS [1]

(Calendar years; dollar amounts in billions)

	Actual 1999	Projections											
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Gross Domestic Product (GDP):													
Levels, dollar amounts in billions:													
Current dollars	9,299	9,974	10,434	11,004	11,596	12,217	12,866	13,550	14,269	15,023	15,817	16,649	17,524
Real, chained (1996) dollars	8,876	9,325	9,551	9,867	10,184	10,509	10,840	11,180	11,532	11,894	12,264	12,642	13,031
Chained price index (1996 = 100), annual average	104.8	107.0	109.2	111.5	113.8	116.2	118.7	121.2	123.7	126.3	128.9	131.7	134.4
Percent change, fourth quarter over fourth quarter:													
Current dollars	6.5	6.2	4.8	5.5	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2
Real, chained (1996) dollars	5.0	3.7	2.6	3.3	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Chained price index (1996 = 100)	1.6	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Percent change, year over year:													
Current dollars	5.8	7.3	4.6	5.5	5.4	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Real, chained (1996) dollars	4.2	5.1	2.4	3.3	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Chained price index (1996 = 100)	1.5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Incomes, billions of current dollars:													
Corporate profits before tax	823	935	951	983	1,030	1,080	1,137	1,173	1,222	1,256	1,291	1,332	1,402
Wages and salaries	4,470	4,766	5,016	5,312	5,620	5,930	6,256	6,590	6,927	7,272	7,641	8,035	8,448
Other taxable income [2]	2,141	2,285	2,348	2,431	2,505	2,590	2,677	2,770	2,872	2,979	3,092	3,206	3,324
Consumer Price Index (all urban): [3]													
Level (1982–84 = 100), annual average	166.7	172.3	176.9	181.4	186.1	190.8	195.6	200.4	205.5	210.6	215.9	221.3	226.8
Percent change, fourth quarter over fourth quarter	2.6	3.4	2.5	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Percent change, year over year	2.2	3.4	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Unemployment rate, civilian, percent:													
Fourth quarter level	4.1	4.0	4.6	4.6	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.6	4.6
Annual average	4.2	4.0	4.4	4.6	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.6	4.6
Federal pay raises, January, percent:													
Military [4]	3.6	4.8	3.7	4.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Civilian [5]	3.6	4.8	3.7	3.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Interest rates, percent:													
91-day Treasury bills [6]	4.7	5.8	5.3	5.6	5.6	5.6	5.3	5.0	5.0	5.0	5.0	5.0	5.0
10-year Treasury notes	5.6	6.0	5.4	5.6	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7

[1] Based on information available as of January 20, 2001.
[2] Rent, interest, dividend and proprietor's components of personal income.
[3] Seasonally adjusted CPI for all urban consumers.
[4] 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.

to pursue monetary policies that support economic activity while keeping inflation under control.

The economic assumptions are conservative and are close to those of the Congressional Budget Office and mainstream private sector forecasters. The key assumption for the average real GDP growth over the next 10 years is even slightly below the private sector consensus. The economy may perform even better than assumed here. Nonetheless, for the purpose of planning fiscal policy, it is appropriate to base the Budget on prudent assumptions that do not over-estimate available resources.

Real GDP, Potential GDP and Unemployment: Real GDP, which rose 5.0 percent in 2000 on a calendar-year basis, is projected to increase 2.4 percent this year. Economic activity is expected to gain momentum during the year as the easing of monetary policy stimulates interest-sensitive sectors. The restraint on production and GDP growth from the buildup of excess inventories evident early in the year is likely to diminish as inventories are brought in line with sales.

Economic activity is expected to increase 3.3 percent during 2002. Faster economic growth over the next year and a half will add to the pace of job creation, household incomes, and corporate profits, which in turn will improve consumer confidence and equity markets. With actual GDP growth below the Nation's potential GDP growth during much of this year, the unemployment rate is projected to creep up to 4.6 percent by the fourth quarter. During 2002, the unemployment rate is projected to remain at that relatively low level.

Beyond 2002, real GDP growth is projected to moderate gradually to a 3.1 percent annual rate of increase beginning in 2005. Average GDP growth over the next ten years is expected to be close to potential growth, which would maintain the unemployment rate on a plateau of around 4.6 percent. Potential GDP growth depends largely on the growth of the labor force and the trend growth of labor productivity. The labor force is projected to increase 1.0 percent per year on average over the ten years 2002 to 2011.

Nonfarm business sector productivity is projected to grow 3.0 percent in calendar year 2001, 2.6 percent in 2002–2003, slowing to a 2.2 percent average annual increase from 2004 through 2011. Over the next ten years, productivity growth is assumed to average 2.3

percent yearly, close to the very long-run average for the U.S. economy. This is well above the 1.4 percent average rate during 1974–1995, although it is a deceleration from the 2.9 percent average rate of the past five years. The assumption that productivity growth will taper off somewhat from its recent trend is a conservative one, appropriate for prudent budget planning.

Inflation: The rate of inflation, measured by either the CPI or the GDP chain-weighted price index, is expected to slow this year as energy prices fall from the high levels at the end of last year. The CPI is projected to rise 2.7 percent in 2001 on a calendar year basis and slow to 2.5 percent yearly beginning in 2004. The GDP measure of inflation is forecast to increase 2.1 percent each year. The CPI tends to increase faster than the GDP chain-weighted price index in part because sharply falling computer prices, which are expected to continue, exert less of an impact on the CPI than on the GDP inflation measure.

Interest Rates: The 91-day Treasury bill rate is projected to rise during 2001, leveling off at 5.6 percent during 2002–2004, then gradually decline to 5.0 percent in 2006 and thereafter. The yield on the 10-year Treasury note is assumed to rise to 5.7 percent in 2003 and remain at that level through 2011. The projected decline in the short-term rate after 2004 would restore an upward sloping yield curve, which is normal during periods of expansion.

Incomes: The share of total taxable income in nominal GDP is projected to decline gradually, mainly because capital consumption is expected to claim a larger proportion of GDP. The investment boom of recent years and the projected rising share of investment in GDP imply a rapid growth of depreciation, a component of business expenses. As the share of depreciation in GDP rises, the share of corporate profits is projected to decline. The share of wages and salaries in GDP is projected to be relatively stable over the projection horizon.

Comparison with CBO and Private-Sector Forecasts

The Congressional Budget Office (CBO) and many private-sector forecasters also make 10-year projections. The CBO projection is used by Congress in formulating budget policy. In the executive branch, this function is performed jointly by the Treasury, the Council of Economic Advisers, and the Office of Management and Budget. The private sector forecasts are often used by businesses for long-term planning. Table 1–2 compares the Budget assumptions with projections by the CBO and the Blue Chip consensus, an average of about 50 private forecasts

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

Table 1–2. COMPARISON OF ECONOMIC ASSUMPTIONS

(Calendar years; percent)

	Projections											Average, 2002–11
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Real GDP (chain-weighted): [1]												
CBO January	2.4	3.4	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1
Blue Chip Consensus March	1.9	3.4	3.5	3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.4
2002 Budget	2.4	3.3	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.2
Chain-weighted GDP Price Index: [1]												
CBO January	2.3	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Blue Chip Consensus March	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2
2002 Budget	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Consumer Price Index (all-urban): [1]												
CBO January	2.8	2.8	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6
Blue Chip Consensus March	2.8	2.4	2.6	2.6	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6
2002 Budget	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Unemployment rate: [2]												
CBO January	4.4	4.5	4.5	4.7	4.8	4.9	5.0	5.1	5.2	5.2	5.2	4.9
Blue Chip Consensus March	4.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
2002 Budget	4.4	4.6	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.6	4.6	4.6
Interest rates: [2]												
91-day Treasury bills:												
CBO January	4.8	4.9	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Blue Chip Consensus March	4.6	4.8	5.2	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2
2002 Budget	5.3	5.6	5.6	5.6	5.3	5.0	5.0	5.0	5.0	5.0	5.0	5.2
10-year Treasury notes:												
CBO January	4.9	5.3	5.5	5.6	5.7	5.8	5.8	5.8	5.8	5.8	5.8	5.7
Blue Chip Consensus March	5.1	5.4	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
2002 Budget	5.4	5.6	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7

Sources: Congressional Budget Office; Aspen Publishers, Inc., Blue Chip Economic Indicators

[1] Year over year percent change.

[2] Annual averages, percent.

a "pre-policy" projection. The private sector forecasts are based on an appraisal of "the most-likely policy outcome," which would vary considerably among forecasters. Despite these differences in policy assumptions, the three sets of projections are currently quite close for almost all the key economic assumptions.

For real GDP growth, the Blue Chip consensus is slightly lower than the public-sector forecasts in 2001. The private forecasts, made in early-March, were influenced in part by the weaker recent data. For 2002, all three sets of forecasts anticipate a rebound of growth. Over the ten years 2002–2011, the Blue Chip consensus averages 3.4 percent GDP growth, two-tenths of a percentage point faster than the 3.2 percent in the Administration's conservative assumptions.

The Administration's inflation projection is very similar to that of the Blue Chip consensus. CBO's GDP inflation projection is slightly below the Administration's assumptions in most years. The Administration's unemployment rate is nearly identical to the Blue Chip's, while the CBO's rate is well above either of the other two forecasts.

The Administration's projection of the yield on the 10-year Treasury note is identical in most years to that of the Blue Chip consensus, and is close to that of CBO. The Administration's short-term interest rate projection is somewhat higher than that of the Blue Chip consensus over the next few years. Beyond 2005, the three short-term interest projections are quite close.

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 intensely employed, and outlays for unemployment-sensitive programs (such as unemployment compensation and food stamps) are lower. As a result, the surplus is larger than it would be if unemployment were at the sustainable long-run average. The portion of the surplus that can be traced to this factor is called the cyclical component. The balance, the portion that would remain with the unemployment rate at its long-run value, is called the structural surplus (or structural deficit).

The structural balance 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. For this reason, changes in the structural balance give a better picture of the impact of budget policy on the economy than does the unadjusted budget balance.

During 1992–1996, when the actual unemployment rate was above the 5.2 percent estimate of NAIRU, the cyclical component was negative: the unadjusted deficit was larger than the structural deficit. From 1997 to 2000, the consensus of private sector forecasters gradually reduced NAIRU to 4.6 percent. Nonetheless, the actual unemployment rate was below NAIRU, resulting in a positive cyclical component. By 2000, the actual surplus of $236 billion was $72 billion larger than the structural surplus.

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 1–3.

Two significant points are illustrated by this table. First, of the $527 billion swing in the actual budget balance between 1992 and 2000 (from a $290 billion deficit to a $236 billion surplus), only 35 percent ($182 billion) resulted from cyclical improvement in the economy. The rest of the reduction stemmed from policy actions and an unusually strong rise in individual income tax receipts as a percentage of GDP. Second, in 2002 and thereafter, the cyclical component of the surplus is small because the projected unemployment rate is close to the assumed NAIRU of 4.6 percent. Deposit insurance net outlays are also projected to be very small in the coming years. Therefore, the adjusted structural surplus and the unadjusted surplus are nearly identical during the forecast horizon.

Sensitivity of the Budget to Economic Assumptions

Both receipts and outlays are affected by changes in economic conditions. This sensitivity 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

Table 1–3. ADJUSTED STRUCTURAL BALANCE

(In billions of dollars)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Unadjusted deficit (–) or surplus	–290.4	–255.1	–203.3	–164.0	–107.5	–22.0	69.2	124.6	236.4	280.7	231.2	242.0	262.1	269.0
Cyclical component	–109.9	–104.0	–68.7	–29.5	–16.0	5.9	33.5	44.8	72.0	36.3	2.1	6.4	7.6	7.1
Structural deficit (–) or surplus	–180.5	–151.1	–134.6	–134.5	–91.5	–27.9	35.7	79.8	164.4	244.4	229.1	235.6	254.5	261.9
Deposit insurance outlays	–2.3	–28.0	–7.6	–17.9	–8.4	–14.4	–4.4	–5.3	–3.1	–1.0	–0.7	0.1	0.6	1.1
Adjusted structural deficit (–) or surplus	–182.8	–179.1	–142.2	–152.3	–99.9	–42.3	31.3	74.5	161.3	243.4	228.4	235.7	255.1	263.0

NOTE: The NAIRU is assumed to be 5.2% through calendar year 1998, 4.9% in 1999, and 4.6% thereafter.

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 force, 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 1–4.

If real GDP growth is lower by one percentage point in calendar year 2001 only and the unemployment rate rises by one-half percentage point more than in the budget assumptions, the fiscal year 2001 surplus is estimated to decrease by $11.7 billion; receipts in 2001 would be lower by $9.6 billion, and outlays would be higher by $2.1 billion, primarily for unemployment-sensitive programs. In fiscal year 2002, the estimated receipts shortfall would grow further to $20.9 billion, and outlays would increase by $7.3 billion relative to the base, even though the growth rate in calendar 2002 equaled 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 smaller surpluses) would continue to grow slightly in each successive year.

The budget effects are much larger if the real growth rate is assumed to be one percentage point less in each year (2001–2011) and the unemployment rate to rise one-half percentage point in each year. In this case, the levels of real and nominal GDP would be below the base case by a growing percentage. The budget balance would be worsened by $545.0 billion relative to the base case by 2011.

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 $431.9 billion worsening of the budget balance by 2011.

Joint changes in interest rates and inflation have a smaller effect on the surplus than equal percentage point changes in real GDP growth. An example is the effect of a one percentage point higher rate of inflation and one percentage point higher interest rates during calendar year 2001 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 2001 rise by $5.5 billion and receipts by $11.0 billion, for a increase of $5.5 billion in the 2001 surplus. In 2002, outlays would be above the base by $11.4 billion, due in part to lagged cost-of-living adjustments; receipts would rise $22.4 billion above the base, however, resulting in an $11.0 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 $57.7 billion to outlays in 2011 and $341.1 billion to receipts, for a net increase in the 2011 surplus of $283.4 billion. This rule-of-thumb now shows a more positive net budget outcome than was estimated a few years ago, when the interest outlays were larger because of higher levels of public debt.

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 in part because, when the budget is in surplus and 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.

The outlay effects of a one percentage point increase in interest rates alone is now relatively small, and changes sign, that is, reduces outlays after 2006 when increased interest earnings on the Government's excess balances exceed increased interest payments on the outstanding debt held by the public. The receipts portion of this rule-of-thumb is due to the Federal Reserve's deposit of earnings on its securities portfolio.

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 1–4. SENSITIVITY OF THE BUDGET TO ECONOMIC ASSUMPTIONS

(In billions of dollars)

Budget effect	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Real Growth and Employment											
Budgetary effects of 1 percent lower real GDP growth:											
For calendar year 2001 only: [1]											
Receipts	–9.6	–20.9	–24.8	–26.0	–27.3	–28.5	–29.8	–31.2	–32.7	–34.2	–35.9
Outlays	2.1	7.3	8.6	10.8	13.0	15.1	17.5	20.2	23.0	26.2	29.7
Decrease in surplus (–)	–11.7	–28.3	–33.3	–36.8	–40.3	–43.6	–47.3	–51.4	–55.8	–60.4	–65.6
Sustained during 2001–2011: [1]											
Receipts	–9.6	–30.8	–56.7	–84.8	–115.2	–147.9	–183.0	–220.8	–261.6	–305.0	–353.0
Outlays	2.1	9.5	18.5	30.1	43.8	59.6	78.4	101.0	126.6	157.1	192.0
Decrease in surplus (–)	–11.7	–40.3	–75.2	–114.9	–159.1	–207.5	–261.4	–321.8	–388.2	–462.1	–545.0
Sustained during 2001–2011, with no change in unemployment:											
Receipts	–9.6	–30.8	–56.7	–84.9	–115.3	–148.0	–183.1	–221.0	–261.9	–305.2	–353.3
Outlays	0.2	1.1	3.3	7.1	12.2	18.2	25.9	35.8	47.6	61.9	78.6
Decrease in surplus (–)	–9.8	–31.8	–60.1	–92.0	–127.5	–166.1	–209.0	–256.8	–309.5	–367.2	–431.9
Inflation and Interest Rates											
Budgetary effects of 1 percentage point higher rate of:											
Inflation and interest rates during calendar year 2001 only:											
Receipts	11.0	22.4	22.1	20.7	21.9	23.1	24.5	25.8	27.1	28.7	30.6
Outlays	5.5	11.4	9.8	9.0	8.4	7.2	6.5	6.1	5.6	5.2	4.6
Increase in surplus (+)	5.5	11.0	12.3	11.7	13.4	15.9	18.0	19.7	21.5	23.5	26.0
Inflation and interest rates, sustained during 2001–2011:											
Receipts	11.0	34.1	58.2	82.4	109.2	138.7	171.4	207.3	247.1	290.9	341.1
Outlays	5.3	16.1	23.9	30.8	37.5	42.8	47.4	51.4	54.5	56.7	57.7
Increase in surplus (+)	5.7	17.9	34.3	51.7	71.7	95.9	124.0	155.9	192.7	234.1	283.4
Interest rates only, sustained during 2001–2011:											
Receipts	1.4	3.8	4.8	5.3	5.7	6.1	6.5	7.0	7.4	7.8	8.2
Outlays	4.1	9.8	11.6	11.3	10.2	8.3	5.7	2.1	–2.1	–7.1	–13.4
Decrease in surplus (–)	–2.7	–6.0	–6.8	–6.0	–4.6	–2.2	0.9	4.8	9.4	14.8	21.6
Inflation only, sustained during 2001–2011:											
Receipts	9.6	30.3	53.4	77.2	103.5	132.6	164.8	200.3	239.7	283.1	332.9
Outlays	1.2	6.6	12.8	20.6	29.2	37.4	46.0	55.2	64.5	74.3	84.7
Increase in surplus (+)	8.4	23.7	40.5	56.6	74.4	95.2	118.9	145.1	175.3	208.8	248.2
Interest Cost of Higher Federal Borrowing											
Outlay effect of $100 billion reduction in the 2001 unified surplus	2.8	5.9	6.3	6.7	6.9	7.0	7.2	7.6	8.0	8.4	8.9

* $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.