

The Uncertainty of Budget Projections

The baseline projections in Chapters 1 and 2 represent the midrange of possible outcomes for the economy and the budget, based on past and current trends and the assumption that current policies do not change. But considerable uncertainty surrounds those projections for two reasons. First, future legislation is likely to alter the paths of federal spending and revenues. The Congressional Budget Office does not predict future legislation—indeed, any attempt to incorporate future legislative changes into its baseline would undermine the usefulness of those numbers as the base against which to measure the effects of legislative action. Second, the U.S. economy and the federal budget are highly complex and are affected by many economic and technical factors that are difficult to predict. As a result, actual budgetary outcomes will almost certainly differ from CBO's baseline projections.

This chapter explores how errors in the assumptions about economic and technical factors that CBO incorporates into its baseline can affect the accuracy of budget projections. If the future record is like the past, there is about a 50 percent chance that such errors will cause CBO's projection of the total budget surplus for the coming fiscal year to miss the actual outcome by more than 0.9 percent of GDP (or \$97 billion) and its projection of the annual surplus five years ahead to miss by more than 1.8 percent of GDP (or \$245 billion). CBO has been making 10-year projections for less than a decade, so it is not yet possible to assess their accuracy. But 10-year projections are likely to be less accurate than five-year projections.

In view of those uncertainties, the outlook for the budget can best be described not as the single row of numbers presented in CBO tables but as a fan of probabilities around those numbers. That fan widens as the projection extends (see Figure 5-1). The budget projections in Chapter 1 fall in the middle of the highest probabilities—the darkest part of the figure. But as the figure shows, nearby projections—other paths in the darkest part of the figure—have nearly the same probability as the baseline projections in Chapter 1. Moreover, projections that are quite different from the baseline also have a significant probability of coming to pass.

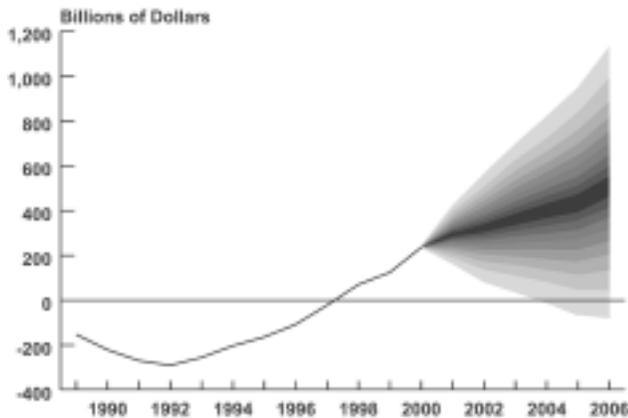
Figure 5-1 is intentionally somewhat fuzzy because the uncertainties are themselves estimates. The figure is derived from CBO's past five-year projections (which is why it extends for only five years). However, the record on which the probabilities are based is short, and it may not be representative of future uncertainties. The historical record contains only one full recession (that of 1990-1991) and the recovery from another (that of 1981). Moreover, the record includes no years in which inflation exceeded 7 percent, although inflation was higher than that in six of the eight fiscal years from 1974 through 1981.

In theory, current projections would be expected to be more accurate than those of the past because forecasters, including CBO, learn from their past inaccuracies. But forecasters must also deal with a changing economy. As this report was being pre-

pared, the economy appeared to be weakening more than previously expected, leading the Federal Reserve to take unusually emphatic action to restrain any further weakening. Economists are usually unable to forecast the turning points of business cycles—and indeed do not have a good record in recognizing them in the first months after they have occurred. Thus, the short-term outlook for the economy, and hence for the budget, is particularly uncertain when the business cycle may be approaching a turning point.

The longer-term outlook is also unusually hard to discern at present. Many commentators believe that major structural changes have created a “new economy,” and that belief influences the economic

Figure 5-1.
Uncertainty in CBO’s Projections of the Total Budget Surplus Under Current Policies
(By fiscal year)



SOURCE: Congressional Budget Office.

NOTES: The figure shows the estimated likelihood of alternative projections of the surplus under current policies. The calculations are based on CBO’s past track record. The CBO projections described in Chapter 1 fall in the middle of the darkest area. Assuming that policies do not change, the probability is 10 percent that actual surpluses will fall in the darkest area and 90 percent that they will fall within the whole shaded area.

Actual surpluses will of course be affected by legislation enacted during the next 10 years, including decisions about discretionary spending. The effects of future legislation are not included in this figure.

An explanation of how this probability distribution was calculated will appear shortly on CBO’s Web site at www.cbo.gov/otherdoc.html.

projections described in Chapter 2. However, CBO’s projections, like those of other forecasters, are based on very limited information about just a few years’ increased growth of productivity and strong investment in information technology. Projections of those recent changes as far as five or 10 years into the future are bound to be highly uncertain.

Another way to show the uncertainty of projections is to calculate the effects of specific sets of alternative assumptions on the budget outlook. CBO has chosen two alternative trend scenarios that make different but reasonable assumptions about the future course of the economy and the cost of federal health care programs. One scenario assumes that the good economic news of the past few years will continue for the next decade; the other assumes that the economy has simply experienced a temporary divergence from stable, long-term trends and will shortly return to the trend it followed from about 1973 through 1995. The projections that result from those two scenarios also suggest a very wide range of possible outcomes for the budget.

Policymakers will have to decide what that degree of uncertainty means for a budget process that currently relies on 10-year projections. Looking forward five or 10 years allows the Congress to consider the longer-term budgetary implications of policy changes. But it also increases the likelihood that budgetary decisions will be made on the basis of projections that later turn out to have been far wrong.

In contrast to the optimistic and pessimistic trend scenarios, a recession of average size would probably not alter the 10-year outlook significantly. The reason is that CBO’s baseline 10-year assumptions allow for the likelihood that a recession of average severity will occur over the next decade, as well as for the possibility of periods of above-trend growth.

The Accuracy of CBO’s Past Budget Projections

Because baseline budget projections are destined to deviate from reality in some respects, assessing their historical accuracy is not a simple matter. Baseline

projections are meant to serve as a neutral reference point for evaluating policy changes, so they make no assumptions about future legislation that might alter current budget policies. Of course, legislation is likely to be enacted, but the purpose of baseline estimates is not to forecast legislation. Consequently, this chapter concentrates on inaccuracies in forecasting that flow from economic and technical factors, not from the effects of new legislation.

To assess the accuracy of its past annual projections, CBO compared those projections with actual budgetary outcomes and attempted to determine the sources of any differences (after adjusting for the estimated effects of policy changes). The comparisons included 19 sets of projections for the current fiscal year (the one in which the projections were made), 18 sets for the following fiscal year (referred to as the budget year), and 14 sets of projections that extend five years into the future.¹

Innovations in This Analysis

For the purpose of this assessment, discretionary spending is handled somewhat differently from CBO's usual practice.² CBO normally allocates part of any discrepancies between the assumptions for discretionary spending in the baseline and what is finally enacted to the category of economic or technical differences. But discretionary spending, which is appropriated annually, is not controlled by the sort of

permanent laws and automatic rules that determine entitlement spending and taxes in the absence of new legislation. Indeed, when the Congress makes its actual decisions about discretionary spending, it does so through new legislation. For that reason, discretionary spending is treated as determined entirely by legislation and excluded from the uncertainties discussed in this chapter.

This analysis also differs from CBO's other evaluations of its track record by omitting any distinction between economic and technical differences (see Chapter 1 and Appendix C). That distinction can be arbitrary and subject to change as the underlying economic data are revised. In any case, the distinction is unnecessary for this analysis.³

CBO's Track Record

On average, the absolute difference (without regard to whether the difference was positive or negative) between CBO's estimate of the federal deficit or surplus and the actual result was 0.5 percent of gross domestic product for the current fiscal year, 1.1 percent for the budget year, and 3.1 percent for the fifth year beyond the current year (see Table 5-1). If those averages were applied to CBO's current baseline, the estimated surplus could be off in one direction or the other, on average, by about \$52 billion in 2001, \$120 billion in 2002, and \$412 billion in 2006.

Misestimates of the projected deficit or surplus are the net result of the separate estimates for revenues and outlays. In many past years, revenue and outlay differences did not offset each other but tended to work in the same direction with regard to the deficit or surplus—short-term projections on average had outlays too high but revenues too low, and medium-term projections on average had outlays close to actual levels but revenues too high.

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1. The projections are those made in July 1981 and CBO's winter projections (usually published in January) from 1983 through 1999. Insufficient data were available to use either projections made before 1981 or the projection made in early 1982. To calculate the role of policy changes in the projection errors, CBO used estimates of the budgetary effects of legislative changes that were made soon after the legislation was enacted. CBO does not recalculate those estimates with more recently available macroeconomic or other data.
 2. In previous analyses of its track record, CBO split discrepancies in discretionary spending into three components: the lion's share was attributed to legislation, but small portions were attributed to economic and technical assumptions. Attributing all discrepancies in discretionary spending to legislation, as is done in this chapter, permits the use of a larger historical record. Since 1986, the Balanced Budget and Emergency Deficit Control Act has mandated that the baseline for discretionary spending reflect assumptions about inflation. As a result, baselines for discretionary spending made before 1986 are not comparable with those made after that date. Counting all discrepancies in discretionary spending as legislative avoids that problem.

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3. Appendix C also looks at budgetary outcomes but compares them with the targets for the coming fiscal year set forth by the Congress in its concurrent resolution on the budget. Those targets often use as a starting point CBO's baseline projections for the coming year. However, the targets represent the Congress's budgetary goals, to be implemented through subsequent legislation, including appropriation acts and changes in laws that affect revenues and direct spending. Appendix C attributes differences between the targets and actual budgetary outcomes to policy, economic, and technical differences.

Misestimates of revenues have generally been larger than misestimates of outlays, reflecting the greater sensitivity of revenues to economic developments. In absolute terms, revenue projections have differed from actual outcomes by an average of about 1.7 percent of revenues for the current year, 4.0 percent for the budget year, and 11.5 percent for the fifth year. Inaccuracies in outlay projections were similar to those in revenue projections for the current year

but nearly 50 percent smaller than revenue inaccuracies for the budget year. Outlays projected five years ahead missed actual outlays by 5.6 percent, on average.

The misestimates of the budget's bottom line went in both directions: sometimes the projections were too high and at other times too low. On average, CBO's forecast of the deficit or surplus has

Table 5-1.
Average Difference Between CBO's Budget Projections and Actual Outcomes Since 1981, Adjusted for Legislation (In percent)

	Year for Which the Projection Was Made					
	Current Year	Budget Year	Budget Year + 1	Budget Year + 2	Budget Year + 3	Budget Year + 4
Difference as a Percentage of GDP						
Surplus or Deficit						
Average difference ^a	0.3	0.2	*	-0.3	-0.7	-1.1
Average absolute difference	0.5	1.1	1.7	2.1	2.6	3.1
Revenues						
Average difference	0.1	0.1	-0.2	-0.3	-0.6	-0.9
Average absolute difference	0.3	0.8	1.2	1.6	1.8	2.1
Outlays						
Average difference	-0.2	-0.2	-0.1	-0.1	0.1	0.2
Average absolute difference	0.4	0.5	0.7	0.8	1.0	1.2
Difference as a Percentage of Actual Outcome						
Revenues						
Average difference	0.5	0.2	-1.2	-2.2	-3.5	-5.6
Average absolute difference	1.7	4.0	6.6	8.4	9.8	11.5
Outlays						
Average difference	-0.8	-0.8	-0.8	-0.5	0.2	0.6
Average absolute difference	1.7	2.4	3.2	3.7	4.7	5.6

SOURCE: Congressional Budget Office.

NOTES: This comparison covers the baseline budget projections that CBO published in July 1981 in *Baseline Budget Projections: Fiscal Years 1982-1986* and the ones it published each winter between 1983 and 1999 in *The Economic and Budget Outlook*.

The current year is the fiscal year in which the projections are made; the budget year is the following fiscal year.

Differences are actual values minus projected values. Unlike the average difference, the average absolute difference ignores arithmetic signs and thus indicates the average distance between actual and projected values without regard to whether individual projections are overestimates or underestimates.

* = less than 0.05 percent.

a. A positive average difference for the surplus or deficit means that, on average, CBO underestimated the surplus or overestimated the deficit.

tended to be slightly pessimistic—that is, CBO overestimated deficits—for the current year and the budget year and slightly optimistic for the third through the fifth years of the projection. (That pattern may reflect the fact that deficit projections made before 1991 were too optimistic and those made in more recent years were too pessimistic; data on the later years are incomplete for projections made after 1995.) However, the average underestimates and overestimates at different horizons were not statistically significant and thus were not incorporated into Figure 5-1.

Sources of Past Inaccuracies in Projecting Revenues

Misestimates of revenues can rarely be traced to a single cause, but a few major factors can be identified. Both recessions and booms can be a problem for revenue projections—as noted earlier, predicting turning points is one of the most difficult challenges facing economic forecasters. Thus, revenues tend to be overestimated in recessions and underestimated during booms. In the past few years, the major source of inaccuracies in revenue projections was the failure to predict both the apparent change in the trend growth of the economy (described in Chapter 2) and the economic changes associated with it, especially the boom in the stock market and the increasing concentration of income growth among taxpayers in the highest tax brackets. The stock market boom led to huge capital gains on paper, which boosted tax revenues as investors began to realize those gains. That factor will probably continue to keep revenues high for several more years.

Only during unusual periods has CBO's revenue forecast for the budget year been off by more than 5 percent of revenues in either direction. The forecasts produced during the boom years of 1996 through 1999 (for fiscal years 1997 through 2000) are the only ones that underestimated revenues (excluding subsequent policy changes) by more than 5 percent. The three forecasts that overestimated revenues to that degree were produced in the recession years of 1981, 1990, and 1991.

Sources of Past Inaccuracies in Projecting Nondiscretionary Outlays

Economic performance affects federal spending, both directly and indirectly. CBO often overestimated inflation in the early 1980s, and more recently it anticipated an upturn in inflation during the late 1990s that did not occur. Overestimating inflation results in overestimating cost-of-living adjustments for beneficiaries of many cash benefit programs and reimbursements for health care providers. CBO also overestimated unemployment rates in the 1990s, which meant a corresponding overstatement of caseloads for means-tested benefit programs (such as Food Stamps and Medicaid) and of the number of applicants for unemployment and disability benefits.

Misestimates of those broad economic trends, however, account for only part of the inaccuracies in past outlay projections. The remainder come from errors in assumptions about such factors as what proportion of eligible individuals and families will participate in benefit programs, how sound financial institutions will be, and how health care providers will behave. Those factors can be extremely difficult to predict. For example, the deposit insurance crisis of the 1980s and the federal costs for its cleanup came as a surprise, though once the resolution was under way, CBO's estimates proved quite accurate. CBO also did not anticipate the expanded use of creative financing mechanisms to obtain federal Medicaid funds, which occurred in the late 1980s and early 1990s, or the more recent (and apparently temporary) slowing of the growth of Medicare costs.

Alternative Future Trends

The differences between CBO's past projections and actual budgetary outcomes could suggest how accurate future projections will be—if future errors are likely to mirror those of the past. But whether that will happen is an open question. Chapter 2 describes the important changes of the past few years (the transition to a “new economy”) that have led CBO to raise its estimates of the long-term rate of economic growth, and Chapter 3 identifies trends in income that have boosted revenues recently. However, not

enough time has elapsed for analysts to be sure that those changes really represent a new trend in the economy rather than a temporary deviation. Thus, the range of uncertainty around CBO's projections must include the possibility that the "new economy" is no more than a temporary increase in productivity growth, as well as the possibility that it is even more robust than CBO's baseline economic projections assume.

To examine the range of uncertainty in a different way, CBO has constructed two alternative scenarios about future trends. Referred to as the optimistic and pessimistic trend scenarios, they are intended to reflect assumptions that—although systematically different from the ones in the baseline projections—still seem reasonable to CBO analysts. They alter not only economic assumptions but also some assumptions that are usually labeled technical, such as assumptions about the level of capital gains realizations and the growth of spending for the major federal health care programs. (The scenarios illustrate possible alternative paths and are not intended to be symmetrical.)

The two trend scenarios illustrate a wide range of possible outcomes for the budget. Under them, the total budget surplus in 2011 differs from the one in CBO's baseline projections by \$600 billion to \$800 billion in either direction; the on-budget surplus or deficit in 2011 differs by \$600 billion to \$700 billion. The 10-year totals generally differ by \$3 trillion to \$4 trillion.

CBO's Baseline Assumptions

The baseline economic assumptions reflect recent favorable developments for the budget, including the extraordinary growth in productivity, the rise in income and capital gains realizations relative to GDP, and the concentration of income growth among people with higher tax rates (see Chapters 2 and 3). Labor productivity had been increasing at a trend rate of about 1.5 percent a year since 1974, but beginning in 1996 it accelerated, averaging about 2.9 percent growth from 1996 through 2000 and peaking at 5.0 percent from mid-1999 through mid-2000. CBO's

Table 5-2.
Key Economic Variables Under Alternative Scenarios (By fiscal year, in percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Growth of Real GDP											
Optimistic Scenario	2.9	3.6	3.8	3.5	3.4	3.4	3.4	3.4	3.4	3.5	3.5
CBO Baseline	2.7	3.2	3.4	3.1	3.0	3.0	3.0	3.0	3.0	3.1	3.1
Pessimistic Scenario	2.4	2.3	2.4	2.0	2.1	2.3	2.3	2.4	2.3	2.3	2.3
Personal Income Taxes as a Share of NIPA Taxable Personal Income											
Optimistic Scenario	15.0	15.3	15.6	16.0	16.3	16.5	16.6	16.8	17.0	17.2	17.5
CBO Baseline	14.7	14.6	14.6	14.6	14.7	14.7	14.8	14.9	15.1	15.3	15.5
Pessimistic Scenario	14.5	14.1	13.6	13.2	12.9	12.9	12.9	13.0	13.1	13.2	13.3
Growth of Medicare and Medicaid Spending											
Optimistic Scenario	9.5	6.1	6.6	7.0	8.0	5.4	8.0	7.2	7.2	7.6	7.6
CBO Baseline	10.5	7.1	7.6	8.0	9.0	6.4	9.0	8.2	8.2	8.6	8.6
Pessimistic Scenario	11.5	8.1	8.6	9.0	10.0	7.4	10.0	9.2	9.2	9.6	9.6

SOURCE: Congressional Budget Office.

NOTES: See the text for a description of the scenarios.

NIPA = national income and product accounts.

baseline economic projections assume that most, but not all, of that acceleration is permanent: in those projections, trend labor productivity grows at a rate of about 2.7 percent a year.

In addition, personal income tax liabilities grew at an average annual rate of about 11 percent from 1994 to 2000, while taxable personal income in the national income and product accounts grew by 6.6 percent a year. As a result, personal income taxes as a share of taxable personal income rose by 3 percentage points, from 11.5 percent to 14.5 percent. (CBO estimates that the latter figure would have been 0.3 percentage points higher if the Congress had not passed legislation in 1997 cutting individual income taxes.) A number of factors caused that rapid rise, including growth in capital gains realizations, real income, and the proportion of income taxed at higher rates (see Chapter 3).

CBO expects personal income tax liabilities to continue growing faster than income because real income growth places more income in higher tax brackets and makes more people subject to the alternative minimum tax. In its baseline, CBO projects that personal income tax liabilities will rise from 14.7 percent of taxable personal income in 2001 to 15.5 percent in 2011 (see Table 5-2).

The Optimistic Trend Scenario

Although those baseline assumptions appear reasonable given the available data, other assumptions are clearly possible and also reasonable. Thus, one of CBO's alternative trend scenarios assumes that the recent good news for the budget continues more or less unabated. In that alternative (the optimistic trend scenario), trend growth of labor productivity is 3.2 percent rather than 2.7 percent. In addition, the alter-

Table 5-3.
Budget Surpluses Under Alternative Scenarios (By fiscal year, in billions of dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total, 2002- 2011
Total Budget Surplus												
Optimistic Scenario	310	386	485	583	676	797	913	1,031	1,168	1,323	1,494	8,856
CBO Baseline	281	313	359	397	433	505	573	635	710	796	889	5,610
Pessimistic Scenario	257	238	215	175	140	152	156	148	144	136	122	1,627
On-Budget Surplus or Deficit (-)												
Optimistic Scenario	153	212	291	373	444	543	638	733	848	981	1,129	6,193
CBO Baseline	125	142	171	196	212	267	316	359	417	484	558	3,122
Pessimistic Scenario	103	73	39	-8	-57	-56	-64	-87	-102	-120	-143	-525
Net Indebtedness												
Optimistic Scenario	3,119	2,746	2,281	1,717	1,057	274	-628	-1,649	-2,812	-4,130	-5,621	n.a.
CBO Baseline	3,148	2,848	2,509	2,131	1,714	1,223	662	36	-669	-1,460	-2,346	n.a.
Pessimistic Scenario	3,172	2,948	2,752	2,595	2,472	2,333	2,188	2,050	1,911	1,780	1,661	n.a.

SOURCE: Congressional Budget Office.

NOTES: See the text for a description of the scenarios.

n.a. = not applicable.

native assumes that the recent increase in personal tax liabilities as a share of taxable personal income that was unrelated to real growth (caused largely by capital gains and the concentration of income growth among higher-income taxpayers) continues for another five years. Those tax liabilities therefore rise to 17.5 percent of taxable personal income by 2011—2 percentage points higher than in the baseline—with a small amount of that increase resulting from the higher real growth and productivity in that scenario (see Table 5-2). On the outlay side of the budget, the optimistic scenario assumes that spending for Medicare and Medicaid will grow at an annual rate that is 1 percentage point lower than in the baseline. The scenario makes a variety of other assumptions whose effects are smaller but all of which tend to increase the projected surplus.

The budget outlook would improve dramatically under the assumptions of the optimistic trend scenario (see Table 5-3 on page 99). By 2011, if there was no other action to cut taxes or increase spending, the annual on-budget surplus would exceed \$1.1 trillion, and the total budget surplus would near \$1.5 trillion. Projected surpluses of that magnitude would imply massive federal holdings of nonfederal assets (more than \$6 trillion) by 2011.⁴

The Pessimistic Trend Scenario

The pessimistic trend scenario reverses most of the assumptions of the optimistic scenario and assumes that the economy reverts in many respects to its situation before 1996. In this scenario, trends in the economy are generally unfavorable to the budget. The pessimistic alternative does not explicitly incorporate a recession, because the likelihood of one is already built into the economic baseline described in Chapter 2. Instead, the pessimistic trend scenario assumes that the recent burst of productivity will prove temporary, so future productivity growth averages its historical rate of 1.5 percent. In addition, the scenario assumes that the 1994-2000 increases in personal tax liabilities as a share of taxable personal income that were unrelated to real income growth largely phase

out over the next five years. Medicare and Medicaid spending is assumed to grow 1 percentage point faster than in the baseline.

Under that scenario, the on-budget surpluses expected under baseline assumptions would disappear after 2003. Instead, on-budget deficits would rise to more than \$140 billion a year by 2011 (see Table 5-3). Including off-budget accounts, the total budget would show a surplus in 2011 of a little over \$120 billion, and the federal government would remain in debt.

Other Possibilities

The optimistic and pessimistic trend scenarios are not meant to encompass the full range of possible outcomes for the budget, but rather to illustrate how those outcomes could differ from the one described in Chapter 1. Even higher or lower budget surpluses are not difficult to envisage.

CBO's alternative trend scenarios do not explore all of the possible changes in assumptions. For example, they take labor force projections as a given. Over a 10-year period, the principal uncertainties in labor force projections come from assumptions about labor force participation and legal and illegal immigration. The Social Security Administration assumes much lower labor force participation than CBO does in its projections; if those assumptions proved accurate, they would worsen the 10-year budget outlook by reducing the sustainable growth of the economy. Likewise, CBO's projections follow the Census Bureau's in assuming that net immigration will average nearly 900,000 people per year between 2000 and 2011. Immigration is partly a matter of policy and can be affected both by altering quotas for legal immigrants and by changing the degree of effort made to keep out illegal immigrants. Policy changes that increased the number of immigrants (particularly those with high skills) could increase growth. They might also improve the outlook for the federal budget, because immigrant workers usually pay taxes but are not generally eligible for most federal benefits in their first years in the United States.

An even wider range of assumptions about productivity growth than that lying between the optimis-

4. That figure is slightly larger than the \$5.6 trillion of net indebtedness shown in Table 5-3 because the government would probably not be able to retire all of its existing debt (see Chapter 1).

tic and pessimistic trend alternatives might also be reasonable. CBO's pessimistic scenario, in particular, assumes that the future growth rate of productivity will return to its trend of 1974 to 1995. If productivity growth over the next 10 years is instead slower than its previous trend, thus reversing the gains since 1996, the budget outlook will be substantially worse than even in the pessimistic scenario.

Assumptions about federal health care costs could also span a much broader range of possible

growth rates than the alternative scenarios incorporate. Those scenarios reflect growth rates that are 1 percentage point above or below CBO's baseline assumptions. But historical spending patterns in the Medicare and Medicaid programs suggest that a much broader range of outcomes around CBO's baseline is plausible. For example, from 1981 through 1990, the growth of Medicare spending over and above that attributable to enrollment and general inflation averaged 5.2 percent, compared with 3.1 percent in CBO's baseline.

Table 5-4.
Illustrative Recession Scenario (By calendar year)

	Forecast		Projected Annual Average	
	2001	2002	2003-2006	2007-2011
Nominal GDP (Billions of dollars)				
Recession scenario	10,196	10,741	13,180 ^a	16,869 ^b
CBO baseline	10,446	11,029	13,439 ^a	17,132 ^b
Nominal GDP (Percentage change)				
Recession scenario	2.2	5.3	5.2	5.1
CBO baseline	4.7	5.6	5.1	5.0
Real GDP (Percentage change)				
Recession scenario	0.1	3.6	3.8	3.1
CBO baseline	2.4	3.4	3.1	3.1
Consumer Price Index ^c (Percentage change)				
Recession scenario	2.7	2.4	2.1	2.5
CBO baseline	2.8	2.8	2.6	2.5
Unemployment Rate (Percent)				
Recession scenario	5.2	5.6	4.7	4.8
CBO baseline	4.4	4.5	4.7	5.2
Three-Month Treasury Bill Rate (Percent)				
Recession scenario	4.0	3.2	4.0	5.0
CBO baseline	4.8	4.9	4.9	4.9
Ten-Year Treasury Note Rate (Percent)				
Recession scenario	4.2	4.3	5.1	5.8
CBO baseline	4.9	5.3	5.6	5.8

SOURCE: Congressional Budget Office.

NOTE: Percentage changes are year over year.

a. Level of GDP in 2006.

b. Level of GDP in 2011.

c. The consumer price index for all urban consumers.

How likely is it that the actual outcome for the budget will lie between the optimistic and pessimistic scenarios? Unfortunately, no exact probability calculations can be made. The scenarios were constructed by choosing optimistic and pessimistic assumptions in several areas, and it is clearly less likely that all of those assumptions will prove true at once than that any one of them will prove true. If that were the only consideration, the scenarios might encompass most of the likely outcomes, and more extreme assumptions would be relatively unlikely. But an even wider range of assumptions might be reasonable. If CBO's track record is any guide, both the optimistic and pessimistic scenarios lie well within the range of uncertainty of the budget projections (see Figure 5-1 on page 94).

The Budgetary Effects of a Recession

One obvious concern about budget projections is how vulnerable they are to a recession. Although the current U.S. economic expansion is the longest ever, history strongly suggests that some form of downturn should be expected to occur in any 10-year period. In the experience of CBO and other forecasters, however, predicting the turning points of business cycles is extremely difficult. For that reason, CBO does not attempt to forecast cyclical developments in the economy beyond the next year. Instead, its economic projections for 2003 through 2011 are based on a relatively smooth path that eventually (by 2008) brings

the economy to its estimated long-term trend, or potential (see Chapter 2 for more details).

By its construction, that baseline projection allows for the likelihood that a recession of average severity will occur sometime in the next 10 years. It also weights in the probability of above-trend growth. As long as the economy is not buffeted by external shocks to prices (such as occurred in 1974 and 1979), gross domestic product is expected to be above its estimated potential during booms and below its estimated potential during recessions. On average over the business cycle, actual GDP should be equal to potential GDP.

Currently, disappointing retail sales at the end of 2000, growing inventories of automobiles, and reports of a sharp slowdown in manufacturing have joined with the steep drop in stock market indexes to suggest to many analysts that a significant slowdown may be under way. The Federal Reserve has taken that possibility seriously enough to cut its target for the federal funds rate by 0.5 percentage points between meetings of the Federal Open Market Committee—a strong indication of concern. Although few analysts now believe the slowdown will develop into a recession, it is worth considering what might happen to the budget if a recession were to develop in the near future.

To illustrate the possible budgetary implications of a recession, CBO has constructed an alternative scenario that resembles a mild recession, of about the same depth as that in 1990 and 1991 (see Table 5-4 on page 101). It assumes that a further deterioration in business and consumer confidence leads to de-

Table 5-5.
Budget Surpluses in a Recession (By fiscal year, in billions of dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total, 2002- 2011
Recession Scenario	234	250	341	396	429	501	568	628	702	785	876	5,477
CBO Baseline	281	313	359	397	433	505	573	635	710	796	889	5,610

SOURCE: Congressional Budget Office.

clines in consumption and investment this year. Real GDP growth of just 0.1 percent in 2001 pushes the unemployment rate up to 5.9 percent at the beginning of 2002 and modestly lowers inflation. However, the Federal Reserve cuts interest rates aggressively, helping to restore confidence and bringing the recession to an end late in 2001. The subsequent recovery is strong, bringing real GDP above its baseline level by 2005. Real interest rates are also close to baseline levels by that year.

Other scenarios for the business cycle are possible. Most postwar recessions have been preceded by larger increases in inflation, and thus larger rises in interest rates, than those of the past two years. Such a recession would have different budgetary effects from the one examined here. In addition, a recession could have different effects on the income of taxpayers facing different marginal tax rates. Little is known, however, about the effects of recessions on

income distribution, so this cyclical scenario omits such effects.

Budget projections based on this scenario suggest that the surpluses projected in Chapter 1 for the next 10 years would not vanish in a recession unless it was much larger than normal. In this scenario, the total budget surplus would dip below CBO's baseline projection by about \$45 billion in 2001 and \$65 billion in 2002, before recovering in the following two years (see Table 5-5). Although real GDP is assumed to be above baseline levels from 2005 on, surpluses remain slightly below those in the baseline—partly because lower surpluses during the recession boost interest payments in later years and partly because lower inflation in this scenario reduces revenues more than outlays. In the recession scenario, the cumulative surplus from 2002 to 2011 is just \$133 billion smaller than in the baseline.