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The 2013 Long-Term Budget Outlook

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Notes

Unless otherwise indicated, the years referred to in most of this report are federal fiscal years (which run from October 1 to September 30). In Chapters 6 and 7, budgetary values, such as the ratio of debt or deficits to gross domestic product (GDP), are presented on a fiscal year basis, whereas economic variables, such as gross national product (GNP) or interest rates, are presented on a calendar year basis.

In this report, historical values for GDP and GNP and budget figures expressed as ratios to GDP reflect revised data from the national income and product accounts that were released by the Bureau of Economic Analysis on July 31, 2013. In addition, all projections reflect CBO's extrapolation of those revisions to projected future GDP and GNP. Because historical values for GDP have been increased but no changes have been made to budget data, budget figures expressed as ratios to GDP are lower than they were before the revisions. For more information, see Congressional Budget Office, "Updated Historical Budget Data Following BEA's Recent Update of the National Income and Product Accounts," *CBO Blog* (August 12, 2013), www.cbo.gov/publication/44508.

Numbers in the text, tables, and figures of this report may not add up to totals because of rounding.

The Affordable Care Act comprises the Patient Protection and Affordable Care Act; the health care provisions of the Health Care and Education Reconciliation Act of 2010; and, in the case of this report, the effects of subsequent related judicial decisions, statutory changes, and administrative actions.

Additional data—including the data underlying the figures in this report, supplemental budget projections, the economic variables underlying those projections, and projections of the total U.S. population—are posted along with the report on CBO's website (www.cbo.gov/publication/44521).

Many of the terms used in the report are defined in a glossary available on the website (www.cbo.gov/publication/42904).

Summary

Between 2009 and 2012, the federal government recorded the largest budget deficits relative to the size of the economy since 1946, causing federal debt to soar. Federal debt held by the public is now about 73 percent of the economy's annual output, or gross domestic product (GDP). That percentage is higher than at any point in U.S. history except a brief period around World War II, and it is twice the percentage at the end of 2007. If current laws generally remained in place, federal debt held by the public would decline slightly relative to GDP over the next several years, the Congressional Budget Office (CBO) projects. After that, however, growing deficits would ultimately push debt back above its current high level. CBO projects that federal debt held by the public would reach 100 percent of GDP in 2038, 25 years from now, even without accounting for the harmful effects that growing debt would have on the economy (see Summary Figure 1). Moreover, debt would be on an upward path relative to the size of the economy, a trend that could not be sustained indefinitely.

Budget Projections for the Next 10 Years

The economy's gradual recovery from the 2007–2009 recession, the waning budgetary effects of policies enacted in response to the weak economy, and other changes to tax and spending policies have caused the deficit to shrink this year to its smallest size since 2008: roughly 4 percent of GDP, compared with a peak of almost 10 percent in 2009. If current laws governing taxes and spending were generally unchanged—an assumption that underlies CBO's 10-year baseline budget projections—the deficit would continue to drop over the next few years, falling to 2 percent of GDP by 2015. As a result, by 2018, federal debt held by the public would decline to 68 percent of GDP.[1]

However, budget deficits would gradually rise again under current law, CBO projects, mainly because of increasing interest costs and growing spending for Social Security and the government's major health care programs (Medicare, Medicaid, the Children's Health Insurance Program, and subsidies to be provided through health insurance exchanges). CBO expects interest rates to rebound in coming years from their current unusually low levels, sharply raising the government's cost of borrowing. In addition, the pressures of an aging population, rising health care costs, and an expansion of

1. For details about CBO's most recent 10-year baseline, see Congressional Budget Office, *Updated Budget Projections: Fiscal Years 2013 to 2023* (May 2013), www.cbo.gov/publication/44172. In July 2013, the Bureau of Economic Analysis (BEA) revised upward the historical values for GDP; CBO extrapolated those revisions for this report when projecting outcomes as a percentage of future GDP. Although CBO's projections of revenues, outlays, deficits, and debt over the 2013–2023 period have not changed since the baseline projections issued in May, those amounts measured as a percentage of GDP are now lower as a result of BEA's revisions. In this summary, budgetary values presented as a percentage of GDP have been rounded to the nearest one-half percent.

federal subsidies for health insurance would cause spending for some of the largest federal programs to increase relative to GDP. By 2023, CBO projects, the budget deficit would grow to almost 3½ percent of GDP under current law, and federal debt held by the public would equal 71 percent of GDP and would be on an upward trajectory.

Budget Projections for the Long Term

Looking beyond the 10-year period covered by its regular baseline projections, CBO produced an extended baseline for this report that extrapolates those projections through 2038 (and, with even greater uncertainty, through later decades). Under the extended baseline, budget deficits would rise steadily and, by 2038, would push federal debt held by the public close to the percentage of GDP seen just after World War II—even without factoring in the harm that growing debt would cause to the economy.

By 2038, CBO projects, federal spending would increase to 26 percent of GDP under the assumptions of the extended baseline, compared with 22 percent in 2012 and an average of 20½ percent over the past 40 years. That increase reflects the following projected paths for various types of federal spending if current laws generally remain in place:

- Federal spending for the major health care programs and Social Security would increase to a total of 14 percent of GDP by 2038, twice the 7 percent average of the past 40 years.

- In contrast, total spending on everything other than the major health care programs, Social Security, and net interest payments would decline to 7 percent of GDP, well below the 11 percent average of the past 40 years and a smaller share of the economy than at any time since the late 1930s.

- The federal government's net interest payments would grow to 5 percent of GDP, compared with an average of 2 percent over the past 40 years, mainly because federal debt would be much larger.

Federal revenues would equal 19½ percent of GDP by 2038 under current law, CBO projects, compared with an average of 17½ percent over the past four decades. Revenues are projected to rise from 15 percent of GDP last year to 17½ percent in 2014, spurred by the ongoing economic recovery and changes in provisions of tax law (including the expiration of lower income tax rates for high-income people, the expiration of a temporary cut in the Social Security payroll tax, and the imposition of new taxes). After 2014, revenues would increase gradually relative to GDP, largely because growth in income beyond that attributable to inflation would push taxpayers into higher income tax brackets over time.

The gap between federal spending and revenues would widen steadily after 2015 under the assumptions of the extended baseline, CBO projects. By 2038, the deficit would be 6½ percent of GDP, larger than in any year between 1947 and 2008, and federal debt held by the public would reach 100 percent of GDP, more than in any year except 1945 and 1946. With such large deficits, federal debt would be growing faster than GDP, a path that would ultimately be unsustainable.

Incorporating the economic effects of the federal policies that underlie the extended baseline worsens the long-term budget outlook. The increase in debt relative to the size of the economy, combined with an increase in marginal tax rates (the rates that would apply to an additional dollar of income), would reduce output and raise interest rates relative to the benchmark economic projections that CBO used in producing the extended baseline. Those economic differences would lead to lower federal revenues and higher interest payments. With those effects included, debt under the extended baseline would rise to 108 percent of GDP in 2038.

Harmful Effects of Large and Growing Debt

How long the nation could sustain such growth in federal debt is impossible to predict with any confidence. At some point, investors would begin to doubt the government's willingness or ability to pay U.S. debt obligations, making it more difficult or more expensive for the government to borrow money. Moreover, even before that point was reached, the high and rising amount of debt that CBO projects under the extended baseline would have significant negative consequences for both the economy and the federal budget:

- Increased borrowing by the federal government would eventually reduce private investment in productive capital, because the portion of total savings used to buy government securities would not be available to finance private investment. The result would be a smaller stock of capital and lower output and income in the long run than would otherwise be the case. Despite those reductions, however, the continued growth of productivity would make real (inflation-adjusted) output and income per person higher in the future than they are now.

- Federal spending on interest payments would rise, thus requiring larger changes in tax and spending policies to achieve any chosen targets for budget deficits and debt.

- The government would have less flexibility to use tax and spending policies to respond to unexpected challenges, such as economic downturns or wars.

- The risk of a fiscal crisis—in which investors demanded very high interest rates to finance the government's borrowing needs—would increase.

The Consequences of Alternative Fiscal Policies

Most of the projections in this report are based on the assumption that federal tax and spending policies will generally follow current law—not because CBO expects laws to remain unchanged but because the budgetary implications of current law are a useful benchmark for policymakers when they consider changes in laws. If tax and spending policies differed significantly from those specified in current law, budgetary outcomes could differ substantially as well. To illustrate the extent of that difference, CBO analyzed the effects of some additional sets of fiscal policies.

Under one set of alternative policies, referred to as the extended alternative fiscal scenario, certain policies that are now in place but that are scheduled to change under current law would continue instead, and some provisions of current law that might be difficult to sustain for a long period would be modified. With those changes to current law, deficits (excluding the government's interest costs) would be a total of about $2 trillion higher over the next decade than in CBO's baseline; in subsequent years, such deficits would exceed those projected in the extended baseline by rapidly growing amounts. The harmful effects on the economy from the resulting increase in federal debt would be partly offset by lower marginal tax rates. Nevertheless, in the long run, output would be lower and interest rates would be higher under that set of policies than under the extended baseline. With those economic changes incorporated, federal debt held by the public would reach about 190 percent of GDP by 2038, CBO projects.

In a different illustrative scenario, deficit reduction would be phased in such that deficits excluding interest costs would be a total of $2 trillion lower through 2023 than in the baseline, and the reduction in the deficit as a percentage of GDP in 2023 would be continued in later years. In that case, output would be higher and interest rates would be lower over the long run than in the extended baseline. Factoring in the effects of those economic changes on the budget, CBO projects that federal debt held by the public would be 67 percent of GDP in 2038, close to its percentage in 2012. Under a third scenario, with twice as much deficit reduction—a $4 trillion reduction in deficits excluding interest costs through 2023—CBO projects that federal debt held by the public would fall to 31 percent of GDP by 2038, slightly below its percentage of GDP in 2007 (35 percent) and its average percentage over the past 40 years (38 percent).

Those different scenarios for fiscal policy would also have different effects on the economy in the short term. During the next several years—when the nation's economic output will probably remain below its potential, or maximum sustainable, level—the spending increases and tax reductions in the alternative fiscal scenario (relative to what would happen under current law) would increase the demand for goods and services and thereby raise output and employment. The reductions in deficits under the other illustrative scenarios, by contrast, would decrease the demand for goods and services and thereby reduce output and employment.

The Uncertainty of Long-Term Budget Projections

Even if the tax and spending policies specified in current law continue, budgetary outcomes will undoubtedly differ from CBO's current projections as a result of unexpected changes in the economy, demographics, and other factors. Because the uncertainty of budget projections increases the farther the projections extend into the future, this report focuses on the next 25 years.

To illustrate the uncertainty of those projections, CBO examined how altering its assumptions about future productivity, interest rates, and federal spending on health care would affect the projections in the extended baseline. Under those alternative assumptions—which do not cover the full range of possible outcomes—federal debt held by the public in 2038 could range from as low as 65 percent of GDP (still elevated by historical standards) to as high as 156 percent of GDP, compared with the 108 percent of GDP projected under the extended baseline with the economic effects of fiscal policy included. Those calculations do not address other sources of uncertainty, such as the risk of an economic depression or major war or the possibility of unexpected changes in birth rates, life expectancy, immigration, or labor force participation. Nonetheless, CBO's analysis shows that under a wide range of possible assumptions about some key factors that influence federal spending and revenues, the budget is on an unsustainable path.

Choices for the Future

The unsustainable nature of the federal government's current tax and spending policies presents lawmakers and the public with difficult choices. Unless substantial changes are made to the major health care programs and Social Security, those programs will absorb a much larger share of the economy's total output in the future than they have in the past. Even with spending for all other federal activities on track, by the end of this decade, to represent the smallest share of GDP in more than 70 years, total federal noninterest spending would be larger relative to the size of the economy than it has been, on average, over the past 40 years. The structure of the federal tax code means that revenues would also represent a larger percentage of GDP in the future than they have, on average, in the past few decades—but not large enough to keep federal debt held by the public from growing faster than the economy starting in the next several years. Moreover, because federal debt is already unusually high relative to GDP, further increases in debt could be especially harmful. To put the federal budget on a sustainable path for the long term, lawmakers would have to make significant changes to tax and spending policies—letting revenues rise more than they would under current law, reducing spending for large benefit programs below the projected levels, or adopting some combination of those approaches.

The size of such changes would depend on the amount of federal debt that lawmakers considered appropriate. For example, bringing debt back down to 39 percent of GDP in 2038—as it was at the end of 2008—would require a combination of increases in

revenues and cuts in noninterest spending (relative to current law) totaling 2 percent of GDP for the next 25 years. (In 2014, 2 percent of GDP would equal about $350 billion.) If those changes came entirely from revenues, they would represent an increase of 11 percent relative to the amount of revenues projected for the 2014–2038 period; if the changes came entirely from spending, they would represent a cut of 10½ percent in noninterest spending from the amount projected for that period.

In deciding how quickly to carry out policy changes to make the size of the federal debt more sustainable, lawmakers face other trade-offs. On the one hand, waiting to cut federal spending or raise taxes would lead to a greater accumulation of debt and would increase the size of the policy adjustments needed to put the budget on a sustainable course. On the other hand, implementing spending cuts or tax increases quickly would weaken the economy's current expansion and would give people little time to plan for and adjust to the policy changes. The negative short-term effects that deficit reduction has on output and employment would be especially large now, because output is so far below its potential level that the Federal Reserve is keeping short-term interest rates near zero and could not lower those rates further to offset the impact of changes in spending and tax policies.

Chapter 1: The Long-Term Outlook for the Federal Budget

The federal budget deficit has shrunk noticeably in fiscal year 2013, and it is projected to continue to decline for the next few years. As a result, under current law, federal debt held by the public would be smaller relative to the size of the economy in 2018 than it is now, according to CBO's projections.

The long-term budget outlook is much less positive, however. The aging of the baby-boom generation, together with growth in health care spending per person and an expansion of federal subsidies for health insurance, is expected to steadily boost the government's spending for Social Security and major health care programs. Barring changes to current law, that additional spending would contribute to rising budget deficits starting in a few years, causing federal debt to swell from a level that is already very high relative to the size of the economy. In this report, the Congressional Budget Office (CBO) presents projections of federal revenues, outlays, deficits, and debt for the next several decades—under the assumption that laws governing taxes and spending remain largely unchanged—and discusses the possible consequences of such budgetary outcomes.

The Budget Outlook for the Next 10 Years

The budget deficit is expected to decline this year to its smallest size since 2008: roughly 4 percent of the nation's economic output, or gross domestic product (GDP), less than half of its peak of nearly 10 percent in 2009. That decline reflects the economy's gradual recovery from the 2007–2009 recession, the waning budgetary effects of policies enacted in response to the recession, and other changes to tax and spending policies. In CBO's 10-year baseline budget projections, which incorporate the assumption that current laws generally remain in place, the deficit is projected to continue to drop over the next few years, falling to 2 percent of GDP by 2015. As a result, by 2018, federal debt held by the public would decline to 68 percent of GDP from its current level of 73 percent.[2]

Thereafter, deficits would gradually rise again under current law, CBO projects. Interest rates are expected to rebound from their current unusually low levels, sharply increasing the cost of paying interest on the government's debt. Moreover, the pressures of an aging population, rising health care costs, and an expansion of federal subsidies for health insurance would cause mandatory spending to rise as a percentage of GDP after 2018.[3] In addition, CBO projects, revenues would decline relative to GDP for several years after 2015 as receipts from corporate income taxes and remittances from the Federal Reserve diminished as a share of the economy. By 2023, under current law, the budget deficit would grow to almost 3½ percent of GDP. In that year, federal debt would equal 71 percent of GDP and would be on the rise relative to the size of the economy.

The Long-Term Budgetary Imbalance

CBO's long-term projections extend beyond the usual 10-year budget window, focusing on the 25-year period ending in 2038. They generally adhere closely to current law, following the agency's May 2013 baseline budget projections through 2023 and then extending the baseline concept into later years; hence, they are referred to as the extended baseline (for details of the assumptions underlying those projections, see Table 1-1).

2. For details about CBO's most recent 10-year baseline, see Congressional Budget Office, *Updated Budget Projections: Fiscal Years 2013 to 2023* (May 2013), www.cbo.gov/publication/44172. Since the publication of that report, the Bureau of Economic Analysis has revised upward its estimates of gross domestic product in past years. The numbers shown in this report for budget amounts as a percentage of GDP reflect those revisions to the historical data and CBO's extrapolation of those revisions to projected future GDP.

3. Lawmakers generally determine spending for mandatory programs by setting eligibility rules, benefit formulas, and other parameters rather than by appropriating specific amounts each year. In that way, mandatory spending differs from discretionary spending, which is controlled by annual appropriation acts.

CBO's 10-year and extended baselines are meant to serve as benchmarks for measuring the budgetary effects of proposed changes to federal revenues or spending. They are not meant to be predictions of future budgetary outcomes; rather, they represent CBO's best judgment of how the economy and other factors would affect revenues and spending if current law did not change. By generally following current law, the baselines incorporate the assumption that some policy changes that lawmakers have routinely made in the past—such as preventing the sharp cuts to Medicare's payment rates for physicians called for by law—will not be made again.

CBO's extended baseline projections show a substantial imbalance in the federal budget over the long run, with annual revenues consistently falling short of annual outlays. Two measures offer complementary perspectives on the size of that long-term imbalance: Projections of federal debt illustrate how the shortfall of revenues relative to spending accumulates over time, and estimates of the "fiscal gap" summarize the shortfall over a given period in a single value. Both measures show that projected revenues would be insufficient to support projected spending if current law remained largely unchanged.

In addition to the extended baseline, CBO has developed an alternative long-term fiscal scenario, which incorporates several possible changes to current law that would result in higher outlays and lower revenues (see Chapter 6 for details). Under that scenario, federal debt would grow even faster than in the extended baseline, so larger policy changes would be needed to close the fiscal gap.

The Accumulation of Federal Debt

Debt held by the public represents the amount that the federal government has borrowed in financial markets (by issuing Treasury securities) to pay for its operations and activities.[4] For a combination of federal spending and revenues to be sustainable over time, debt held by the public must eventually grow no faster than the economy. If debt continued to rise relative to GDP, at some point investors would begin to doubt the government's willingness or ability to pay its debt obligations. Such doubts would make it more difficult or more expensive for the government to borrow money, thus forcing the government to cut spending, raise taxes, or pursue some combination of the two approaches. For that reason, the amount of federal debt held by the public relative to

4. When the federal government borrows in financial markets, it competes with other participants for financial resources and thus can crowd out private investment, reducing economic output and income. In contrast, federal debt held by trust funds and other government accounts represents internal transactions of the government and has no direct effect on financial markets. (That debt and debt held by the public together make up gross federal debt.) For more discussion, see Congressional Budget Office, *Federal Debt and Interest Costs* (December 2010), www.cbo.gov/publication/21960. Several factors not directly included in the budget totals also affect the government's need to borrow from the public. Those factors include increases or decreases in the government's cash balance as well as the cash flows reflected in the financing accounts used for federal credit programs. Changes in those factors were not modeled for this analysis.

the nation's annual economic output is an important barometer of the government's financial position.

Federal debt held by the public stood at 39 percent of GDP at the end of 2008, close to its average of the preceding several decades. Since then, large deficits have caused debt held by the public to grow sharply—to a projected 73 percent of GDP by the end of 2013. Debt has exceeded 70 percent of GDP during only one other period in U.S. history: from 1944 through 1950, when it spiked because of a surge in federal spending during World War II and peaked at 106 percent of GDP (see Figure 1-1).

CBO projects that, under current law, debt held by the public would rise slightly relative to GDP in 2014 and then, because of smaller deficits, decrease to 68 percent of GDP by 2018. Around 2020, with deficits growing again, debt would begin to rise faster than GDP. By 2038, under the extended baseline, federal debt held by the public would reach 100 percent of GDP (see Table 1-2)—nearly equal to the percentage just after World War II and almost triple the percentage in 2007—and would be on an upward path. That trajectory for federal debt would ultimately be unsustainable.

Projections that far into the future are highly uncertain, of course. Nevertheless, CBO projects that if current law generally stayed the same, federal debt would be quite high in 2038 under a wide range of possible assumptions about key factors that affect budgetary outcomes. (For a discussion of the uncertainty of CBO's long-term budget projections and budgetary outcomes under alternative assumptions about some of those factors, see Chapter 7.)

The Fiscal Gap

How much would policies have to change to avoid increasing federal debt further relative to the size of the economy? One answer comes from looking at the fiscal gap, which measures the change in spending or revenues that would be necessary to keep the ratio of debt to GDP the same at the end of a given period as at the beginning of the period. The fiscal gap is conceptually similar to the actuarial balances that are commonly reported for the trust funds for Part A of Medicare and Social Security (see Table 2-2 and Table 3-1). All three measures quantify a long-term shortfall or surplus in present-value terms—that is, as a single number that describes a flow of future revenues or outlays in terms of an equivalent lump sum received or spent today—and all three can be expressed as a percentage of GDP.[5]

The Size of Policy Changes to Close the Fiscal Gap. In CBO's extended baseline, the fiscal gap for 2014 to 2038 amounts to 0.8 percent of GDP. In other words, relative to projections that generally follow current law, a permanent combination of cuts in spending and increases in revenues totaling 0.8 percent of GDP beginning in 2014—about $145 billion in that year—would result in debt that was equal to 73 percent of GDP 25 years from now, the same as the current percentage. If those permanent changes came entirely from revenues or entirely from spending, they would amount to

roughly a 4½ percent increase in revenues or a 4½ percent cut in noninterest spending relative to the amounts projected for the 2014–2038 period.[6]

Increases in revenues or cuts in noninterest spending would have to be larger to reduce debt to percentages of GDP more typical of recent decades. For example, bringing debt back down to 39 percent of GDP in 2038—as it was at the end of 2008—would require a combination of revenue increases and cuts in noninterest spending (relative to current-law projections) totaling 2.0 percent of GDP for the next 25 years. (In 2014, 2.0 percent of GDP would be about $350 billion.) If those changes came entirely from revenues, they would represent an increase of 11 percent relative to the amount projected for the 2014–2038 period; if they came entirely from spending, they would represent a cut of 10½ percent in noninterest spending from the amount projected for that period.

The Timing of Policy Changes to Close the Fiscal Gap. In deciding how quickly to implement policies to put federal debt on a sustainable path, lawmakers face trade-offs. On the one hand, waiting to reduce federal spending or increase taxes would lead to a greater accumulation of debt and would increase the size of the policy adjustments needed to put the budget on a sustainable course. To illustrate the impact of delay, CBO simulated the effects of closing the fiscal gap beginning in 2015, 2020, or 2025. For example, if lawmakers wanted to keep debt at 73 percent of GDP in 2038 but did not begin making policy changes until 2020, the combination of increases in revenues and reductions in spending over that period would have to equal 1.3 percent of GDP, rather than the 0.8 percent needed to close the fiscal gap starting in 2014 (see Figure 1-2). If lawmakers waited until 2025 to take actions to accomplish that objective, the policy changes over the 2025–2038 period would have to amount to 1.9 percent of GDP. Those simulations omit the effects that deficits and debt would have on economic growth and interest rates in the intervening years; incorporating such effects would make the impact of delaying policy changes even larger.

On the other hand, implementing spending cuts or tax increases quickly would weaken the current economic expansion and would give people little time to plan and adjust to the policy changes. The negative short-term effects of deficit reduction on output and

5. The fiscal gap equals the present value of revenues over a given period minus the present value of noninterest outlays over that period, adjusted to keep federal debt at its current percentage of GDP. Specifically, current debt is added to the outlay measure, and the present value of the target end-of-period debt (which equals GDP in the last year of the period multiplied by the ratio of debt to GDP at the end of 2013) is added to the revenue measure. The present value of the projected stream of future revenues is computed by taking the revenue estimate for each year, discounting it to 2014 dollars, and summing the resulting estimates. The same method is applied to the projected stream of noninterest outlays. CBO used a discount rate equal to the average real interest rate on federal debt held by the public, which was assumed to be 2.7 percent over the long term, as explained below.

6. Those figures do not reflect the economic effects of the policies underlying the extended baseline. (For analysis of those effects, see Chapter 6.)

employment would be especially strong now, because output is so far below its potential (or maximum sustainable) level that the Federal Reserve is keeping short-term interest rates near zero and could not lower them further to offset the impact of changes in fiscal policy. By contrast, reductions in federal spending or increases in taxes a few years from now would have a smaller effect on output and employment because short-term interest rates would probably be well above zero at that time, so the Federal Reserve could adjust those rates in response to changes in fiscal policy. Even if policy changes were not implemented for a few years, however, making decisions about those changes quickly would give people more time to plan and would tend to increase output and employment in the next few years by holding down longer-term interest rates, reducing uncertainty, and enhancing businesses' and consumers' confidence.

Another trade-off confronting policymakers about the timing of deficit reduction involves the effects on different generations. Reducing deficits sooner would require more sacrifices from older workers and retirees for the benefit of younger workers and future generations. In a previous analysis, CBO assessed the economic impact of waiting a decade to resolve the long-term imbalance in the federal budget.[7] CBO compared economic outcomes under a policy that would stabilize the ratio of debt to GDP starting in 2015 with outcomes under a policy that would delay stabilizing that ratio until 2025. The analysis suggested that generations born after about 2015 would be worse off if action to stabilize the debt-to-GDP ratio was postponed from 2015 to 2025. People born before 1990, however, would be better off if action was delayed—largely because they would partly or wholly avoid the policy changes needed to stabilize the debt—and generations born between 1990 and 2015 could either gain or lose from a delay, depending on the details of the policy changes used to keep the debt stable.[8]

Consequences of Large and Growing Federal Debt

The high and rising amounts of federal debt held by the public that CBO projects for coming decades under the extended baseline would have significant negative consequences for both the economy and the federal budget. Those consequences include reducing the total amounts of national saving and income; increasing the government's interest payments, thereby putting more pressure on the rest of the budget; limiting lawmakers' flexibility to respond to unexpected events; and increasing the likelihood of a fiscal crisis.

7. Congressional Budget Office, *Economic Impacts of Waiting to Resolve the Long-Term Budget Imbalance* (December 2010), www.cbo.gov/publication/21959. That analysis was based on slower growth in debt than CBO now projects, so the effects of a similar policy today would not be exactly the same, although they would be qualitatively similar.

8. Those conclusions do not incorporate the possible negative effects stemming from a potential fiscal crisis and from the government's reduced flexibility to respond to unexpected challenges. Such negative effects, which are discussed in the next section, were not incorporated in that earlier analysis.

Less National Saving and Future Income

Large federal budget deficits over the long term would reduce investment, resulting in lower national income and higher interest rates than would otherwise occur. The reason is that increased government borrowing would cause a larger share of the savings potentially available for investment to be used for purchasing government securities, such as Treasury bonds. Those purchases would "crowd out" investment in capital goods, such as factories and computers, which make workers more productive. Because wages are determined mainly by workers' productivity, the reduction in investment would also reduce wages, lessening people's incentive to work. In addition, both private borrowers and the government would have to pay higher interest rates to compete for savings, and those higher rates would strengthen people's incentive to save. However, the rise in private saving would be a good deal smaller than the increase in federal borrowing represented by the change in the deficit, so national saving would decline, as would private investment. (For a detailed analysis of those economic effects, see Chapter 6.)

In the short run, though, large federal budget deficits would tend to boost demand, thus increasing output and employment relative to what they would be with smaller deficits. That is especially the case under conditions like those now prevailing in the United States—with substantial unemployment and underused factories, offices, and equipment—which have led the Federal Reserve to push short-term interest rates down almost to zero. The effects of the higher demand would be temporary because stabilizing forces in the economy tend to move output back toward its potential level. Those forces include the response of prices and interest rates to higher demand, as well as (in normal times) actions by the Federal Reserve.

Pressure for Larger Tax Increases or Spending Cuts in the Future

Large amounts of federal debt ordinarily require the government to make large interest payments to its lenders, and growth in the debt causes those interest payments to increase. (Net interest payments are currently fairly small relative to the size of the federal budget because interest rates are exceptionally low, but CBO projects that those payments will increase considerably as rates return to more normal levels.)

Higher interest payments would consume a larger portion of federal revenues, resulting in a larger gap between the remaining revenues and the amount that would be spent on federal programs under current law. Hence, if lawmakers wanted to maintain the benefits and services that the government is scheduled to provide under current law, while not allowing deficits to increase as interest payments grew, revenues would have to rise as well. Additional revenues could be raised in many different ways, but to the extent that they were generated by boosting marginal tax rates (the rates on an additional dollar of income), the higher tax rates would discourage people from working and saving, further reducing output and income. Alternatively, lawmakers could choose to offset rising interest costs, at least in part, by reducing benefits and

services. Those reductions could be made in many ways, but to the extent that they came from cutting federal investments, future output and income would also be reduced. As another option, lawmakers could respond to higher interest payments by allowing deficits to increase for some time, but that approach would require greater deficit reduction later if lawmakers wanted to avoid a long-term increase in debt relative to GDP.

Reduced Ability to Respond to Domestic and International Problems

Having a relatively small amount of outstanding debt gives a government the ability to borrow funds to address significant unexpected events, such as recessions, financial crises, and wars. In contrast, having a large amount of debt leaves a government with less flexibility to address financial and economic crises, which in many countries have been very costly.[9] A large amount of debt could also harm a country's national security by constraining military spending in times of crisis or limiting the country's ability to prepare for such a crisis.

A few years ago, the size of the U.S. federal debt gave the government the flexibility to respond to the financial crisis and severe recession by increasing spending and cutting taxes to stimulate economic activity, providing public funding to stabilize the financial sector, and continuing to pay for other programs even as tax revenues dropped sharply because of the decline in output and income. If federal debt stayed at its current percentage of GDP or grew further, the government would find it more difficult to undertake similar policies in the future. As a result, future recessions and financial crises could have larger negative effects on the economy and on people's well-being. Moreover, the reduced financial flexibility and increased dependence on foreign investors that would accompany a rise in debt could weaken the United States' international leadership.

9. See, for example, Carmen M. Reinhart and Kenneth S. Rogoff, "The Aftermath of Financial Crises," *American Economic Review*, vol. 99, no. 2 (May 2009), pp. 466–472, http://dx.doi.org/10.1257/aer.99.2.466; and Carmen M. Reinhart and Vincent R. Reinhart, "After the Fall," in Federal Reserve Bank of Kansas City, *Macroeconomic Challenges: The Decade Ahead* (2011), www.kansascityfed.org/publicat/sympos/2010/Reinhart_final.pdf (1.6 MB). Also see Luc Laeven and Fabian Valencia, *Systemic Banking Crises Database: An Update,* Working Paper 12-163 (International Monetary Fund, June 2012), www.imf.org/external/pubs/ft/wp/2012/wp12163.pdf (1 MB).

Greater Chance of a Fiscal Crisis

A large and continually growing federal debt would have another significant negative consequence: It would increase the probability of a fiscal crisis for the United States.[10] In such a crisis, investors become unwilling to finance all of a government's borrowing needs unless they are compensated with very high interest rates; as a result, the interest rates on government debt rise suddenly and sharply relative to rates of return on other assets. That increase in interest rates reduces the market value of outstanding government bonds, causing losses for investors who hold them. Such a decline can precipitate a broader financial crisis by creating losses for mutual funds, pension funds, insurance companies, banks, and other holders of government debt—losses that may be large enough to cause some financial institutions to fail.

Unfortunately, there is no way to predict with any confidence whether or when such a fiscal crisis might occur in the United States. In particular, there is no identifiable tipping point of debt relative to GDP that indicates that a crisis is likely or imminent. All else being equal, however, the larger a government's debt, the greater the risk of a fiscal crisis.

The likelihood of such a crisis also depends on the economic environment, both domestic and international. If investors expect continued economic growth, they are generally less concerned about debt burdens; conversely, high debt can reinforce more general concern about an economy. In many cases around the world, fiscal crises have begun during recessions and, in turn, have exacerbated them. In some instances, a crisis has been triggered by news that a government would, for any number of reasons, need to borrow an unexpectedly large amount of money. Then, as investors lost confidence and interest rates spiked, borrowing became more difficult and expensive for the government. That development forced policymakers to either cut spending and increase taxes immediately and substantially to reassure investors, or renege on the terms of the country's existing debt, or increase the supply of money and boost inflation. In some cases, a fiscal crisis also made borrowing more expensive for private-sector borrowers because uncertainty about the government's response to the crisis reduced confidence in the viability of private-sector enterprises. Higher private-sector interest rates, combined with reductions in government spending and increases in taxes, have tended to worsen economic conditions in the short term.

If a fiscal crisis occurred in the United States, policymakers would have only limited—and unattractive—options for responding to it. In particular, the government would need to undertake some combination of three approaches: restructuring its debt (that is, seeking to modify the contractual terms of its existing obligations), pursuing inflationary monetary policy, and adopting an austerity program of spending cuts and

10. For additional discussion, see Congressional Budget Office, *Federal Debt and the Risk of a Fiscal Crisis* (July 2010), www.cbo.gov/publication/21625.

tax increases. Thus, such a crisis would confront policymakers with extremely difficult choices and probably have a very significant negative impact on the country.

CBO's Assumptions About Spending and Revenue Policies

To produce the long-term projections in this report, CBO makes a series of assumptions about future budgetary policies for major categories of spending and revenues, such as Social Security, major health care programs, other mandatory programs, discretionary programs, and revenue sources.

CBO projects spending for Social Security and the government's major health care programs—Medicare, Medicaid, the Children's Health Insurance Program, and insurance subsidies that will be provided through the exchanges created under the Affordable Care Act (ACA)—by estimating outlays for the programs under the assumption that there will generally be no changes to current law. (In this report, Medicare outlays are presented net of offsetting receipts, such as premiums paid by enrollees, which reduce net outlays for that program.) For the purposes of these projections, CBO assumes that Social Security and Medicare will always pay benefits as scheduled under current law, regardless of the status of the programs' trust funds. That assumption is consistent with a statutory requirement that CBO, in its baseline projections, assume that funding is adequate to make all payments required by law for entitlement programs.[11] (For more details about the long-term projections for major health care programs and Social Security, see Chapters 2 and 3.)

For other mandatory programs—such as retirement programs for federal civilian and military employees, certain veterans' programs, the Supplemental Nutrition Assistance Program, unemployment compensation, and refundable tax credits—the long-term projections begin with CBO's baseline projections of outlays through 2023, which include reductions (through 2021) specified in the Budget Control Act. For years after 2023, CBO projects outlays for refundable tax credits as part of its revenue projections and projects spending for the remaining mandatory programs as a whole—by assuming that such spending will decline as a share of GDP after 2023 at the same rate that it is projected to fall between 2018 and 2023—but does not estimate outlays for each program. (For more details, see Chapter 4.)

Most discretionary appropriations for the 2013–2021 period are assumed in CBO's baseline to be constrained by the caps and automatic reductions put in place by the Budget Control Act of 2011. For 2022 and 2023, discretionary funding is assumed to

11. Section 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985; 2 U.S.C. §907(b)(1). The balances of the trust funds represent the total amount that the government is legally authorized to spend on each program. For a discussion of the legal issues related to exhaustion of a trust fund, see Christine Scott, *Social Security: What Would Happen If the Trust Funds Ran Out?* Report for Congress RL33514 (Congressional Research Service, June 15, 2012), http://go.usa.gov/DW99 (PDF, 346 KB).

grow at the rate of inflation from the 2021 amount. Funding for certain purposes, such as war-related activities, is not constrained by the Budget Control Act's caps; through 2023, CBO assumes that such funding will increase each year at the rate of inflation, starting from the current amount. After 2023, discretionary spending is assumed to remain fixed at its 2023 percentage of GDP. (For more details, see Chapter 4.)

Revenue projections through 2023 follow the 10-year baseline, which incorporates the assumption that various tax provisions will expire as scheduled, even if they have routinely been extended in the past. After 2023, rules for individual income taxes, payroll taxes, excise taxes, and estate and gift taxes are all assumed to evolve as scheduled under current law. Because of the structure of current tax law, total federal revenues from those sources are estimated to grow faster than GDP over the long run. Revenues from corporate income taxes and other sources (such as receipts from the Federal Reserve System) are assumed to remain constant as a percentage of GDP after 2023. (For more details, see Chapter 5.)

CBO's Projections of Demographic and Economic Trends

The long-term budget estimates in this report also depend on projections for a host of demographic and economic variables; the resulting economic outcomes are referred to here as the economic benchmark. Annual projected values for selected demographic and economic variables for the next 75 years are included in the supplemental data for this report that are available on CBO's website (www.cbo.gov).

Demographic Variables

The future size and composition of the U.S. population will affect federal tax revenues, federal spending, and the performance of the economy—for example, by influencing the size of the labor force and the number of beneficiaries of programs such as Medicare and Social Security. Population projections depend on projections of fertility, immigration, and mortality. For fertility rates, CBO adopted the intermediate (midrange) values assumed in the 2012 report of the Social Security trustees.[12] For immigration and mortality, CBO produced its own projections, which differ from those of the Social Security trustees. Together, CBO's long-term assumptions about fertility, mortality, and immigration imply a total U.S. population of 392 million in 2038, compared with 321 million today. CBO also used its own projection of the rate at which people will qualify for Social Security's Disability Insurance program.

Immigration. CBO estimates that there was less immigration in recent years, but will be more in the future, than the Social Security trustees do. In CBO's view, the recent

12. See Social Security Administration, *The 2012 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (April 2012), www.ssa.gov/OACT/TR/2012/index.html. Detailed data from the trustees' 2013 annual report were not available in time for CBO to incorporate into this analysis.

recession discouraged immigration to the United States in the past few years to a greater extent than the trustees estimate.[13] (The total number of immigrants who entered the country in recent years must be estimated because the number of unauthorized immigrants is not known.) In contrast, CBO anticipates more immigration over the coming decades than the trustees do. For its economic benchmark, CBO continues to assume that, in the long run, net immigration will equal 3.2 immigrants per year for every 1,000 members of the U.S. population, the average ratio for much of the past two centuries.[14] On that basis, CBO projects that net annual immigration to the United States will amount to 1.2 million people in 2024 and 1.3 million in 2038—rather than remain close to 1.1 million from 2022 on, as the trustees estimate in their 2013 annual report. The amount of authorized and unauthorized immigration over the long term is subject to a great deal of uncertainty, however.

Mortality. CBO has previously used the Social Security trustees' projections of mortality rates; this year, however, it used its own projections. Demographers have concluded that mortality has improved at a fairly consistent pace in the United States. In the absence of compelling reasons to expect that future trends will differ from those experienced in the past, CBO projects that mortality rates will decline by an average of 1.17 percent a year—as they did, on average, between 1950 and 2008.[15]

That figure is greater than the 0.80 percent average annual decline projected in the trustees' 2013 report, but it is less than the assumption of a 1.26 percent average annual decline recommended by the Social Security Administration's 2011 Technical Panel on Assumptions and Methods. The panel's recommendation reflects a belief that the decline in mortality will be greater in the future than in the past because of

13. For more background about immigration to the United States, see Congressional Budget Office, *A Description of the Immigrant Population—2013 Update* (May 2013), www.cbo.gov/publication/44134.

14. That ratio equals the estimated average net flow of immigrants between 1821 and 2002. See Social Security Administration, Technical Panel on Assumptions and Methods, *Report to the Social Security Advisory Board* (October 2003), p. 28, www.ssab.gov/Publications/Financing/2003TechnicalPanelRept.pdf (450 KB). That ratio was also the assumption recommended by the 2011 technical panel; see Social Security Administration, Technical Panel on Assumptions and Methods, *Report to the Social Security Advisory Board* (September 2011), p. 64, www.ssab.gov/Reports/2011_TPAM_Final_Report.pdf (6.3 MB).

15. Mortality rates measure the number of deaths per thousand people in a population. Historically, declines in mortality rates have varied among age groups, but CBO assumes the same average decline for all ages. For further discussion of mortality patterns in the past and methods for projecting mortality, see Social Security Administration, Technical Panel on Assumptions and Methods, *Report to the Social Security Advisory Board* (September 2011), pp. 55–64, www.ssab.gov/Reports/2011_TPAM_Final_Report.pdf (6.3 MB). For additional background, see Hilary Waldron, "Literature Review of Long-Term Mortality Projections," *Social Security Bulletin*, vol. 66, no. 1 (2005), www.socialsecurity.gov/policy/docs/ssb/v66n1/v66n1p16.html; and John R. Wilmoth, *Overview and Discussion of the Social Security Mortality Projections,* working paper for the 2003 Technical Panel on Assumptions and Methods (Social Security Advisory Board, May 5, 2005), www.ssab.gov/documents/mort.projection.ssab.pdf (480 KB).

decreases in smoking rates. However, because of uncertainty about the possible effects of many other factors, such as obesity and future medical technology, CBO has based its mortality projections on a simple extrapolation of past trends. Consequently, CBO projects that life expectancy in 2060 will be 84.9 years, substantially higher than the agency's estimate of current life expectancy, 78.5 years. (For additional information about why CBO changed its approach to projecting mortality, see Box A-1.)

Disability. Unlike in previous years, CBO now anticipates that more workers will enroll in the Disability Insurance program in the future than the Social Security trustees do. CBO projects that, of the people who have worked long enough to qualify for disability benefits but are not yet receiving them, an average of 5.6 per 1,000 will qualify each year (adjusted for changes in the age and sex makeup of the population, relative to its composition in 2000).

In the years after the recessions of the early 1990s and early 2000s, the age- and sex-adjusted rate at which people qualified for Disability Insurance declined by about half of the amount that it had risen from its low point before each recession. Assuming the same response after the 2007–2009 recession suggests an annual qualification rate of 5.8 per 1,000, the figure recommended by the 2011 Technical Panel on Assumptions and Methods. The recent recession was unusually severe, however, which suggests that the rate may fall a bit more in the wake of the recession than it did during previous economic recoveries. If it fell two-thirds of the way toward its previous low point, the rate would plateau at 5.6 per 1,000—a figure midway between the 5.8 per 1,000 recommended by the 2011 technical panel and the 5.4 per 1,000 used in the trustees' 2013 report and in CBO's long-term projections last year.[16]

Economic Variables

For the 2013–2023 period, CBO's benchmark projections of economic variables—such as the size of the labor force, interest rates, inflation, and earnings per worker—match those in its February 2013 economic forecast, which underlies the agency's most recent 10-year budget projections.[17] Beyond 2023, the benchmark generally reflects the economic experience of the past few decades. Thus, it does not incorporate the effects that projected changes in the debt-to-GDP ratio and marginal tax rates would have on economic growth and interest rates. Rather, it reflects two specific assumptions about fiscal policy: that debt held by the public will be kept at 71 percent of GDP (the percentage at the end of 2023 in CBO's baseline budget projections) and

16. For more discussion of historical patterns of disability and projection methods, see Social Security Administration, Technical Panel on Assumptions and Methods, *Report to the Social Security Advisory Board* (September 2011), pp. 74–82, www.ssab.gov/Reports/2011_TPAM_Final_Report.pdf (6.3 MB).

17. For more about that economic forecast, see Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2013 to 2023* (February 2013), Chapter 2, www.cbo.gov/publication/43907.

that effective marginal tax rates on income from work and saving will remain constant at the levels reached in 2023. (For estimates of how projected deficits and marginal tax rates would affect the economy under the extended baseline and some alternative policies, see Chapter 6.)

The Labor Market. Important benchmark projections about the labor market include estimates of the growth of the labor force, the average number of hours that people work, the rate of unemployment, and the share of total compensation that people receive in the form of taxable earnings. Those factors affect the amount of tax revenues that the government collects and the amount of federal spending on certain programs, such as Social Security.

Growth of the Labor Force. The number of workers will grow more slowly in coming decades than in past years because of the retirement of the large baby-boom generation born between 1946 and 1964, lower birth rates, and a tapering off of increases in women's participation in the labor market. The labor force expanded at an average rate of 1.6 percent a year during the 1970–2010 period, but CBO projects that it will grow by only about 0.4 percent a year, on average, between 2023 and 2038 and will continue to increase at about that rate in later years.

That slowdown in growth is expected to result both from more workers exiting the labor force and from fewer workers entering it. More workers are projected to leave the labor force than in past decades because the older members of the baby-boom generation have begun reaching retirement age (although the average age at which people leave the labor force because of retirement has increased slightly in recent decades). Fewer workers are projected to enter the labor force than in past decades for two reasons. First, birth rates have declined (for example, women had an average of more than three children apiece in the 1950s and 1960s, compared with fewer than two children today). Second, participation by women in the labor force is not projected to increase much, whereas in the past it rose significantly. For instance, over the 1970–2010 period, the working-age population (people ages 20 to 64) grew by an average of 1.3 percent a year, but the labor force grew faster—by 1.6 percent a year—mainly because of large increases in the participation rate of women (a factor that was only partly offset by a decline in the participation rate of men). CBO expects little change in the participation rates of specific groups after 2023, so the labor force is projected to grow at the same rate as the working-age population.

Average Hours Worked. Different segments of the population work different numbers of hours, on average; for example, men tend to work more hours than women do, and people between the ages of 30 and 40 tend to work more hours than do people between the ages of 50 and 60. CBO's projections are based on the view that those differences among groups will remain stable. However, CBO also expects that over the long term, the composition of the labor force will shift toward certain groups (such as older workers) that tend to work less, slightly reducing the average number of hours

worked in the labor force as a whole. CBO estimates that by 2038, the average number of hours per worker will be about 1 percent less than in 2023.

The Unemployment Rate. In February 2013, CBO projected that the unemployment rate would return to the natural rate of unemployment by 2018 and remain there through 2023. (The natural rate of unemployment is the rate that stems from all sources of unemployment other than fluctuations in overall demand related to the business cycle—for example, from differences between the skills of people who are looking for work and the skills that employers consider necessary to fill vacant positions.) CBO estimates that the natural rate of unemployment rose from 5.0 percent before the recent recession to about 6.0 percent in 2013 because of mismatches between the skills and locations of available unemployed workers and the needs of employers, the availability of extended unemployment insurance benefits, and the difficulties that the long-term unemployed have in finding work.[18] Those effects are expected to diminish gradually over the next 10 years as, for example, people acquire new skills or relocate. In addition, the effect of extended unemployment benefits is expected to dissipate quickly because those benefits are scheduled to expire at the end of this calendar year. However, the difficulties faced by the long-term unemployed are likely to be more persistent because of the stigma associated with being out of work for a long period and the resulting erosion of people's skills.[19] All told, in its 10-year baseline, CBO projects that the actual unemployment rate will decline from more than 7 percent in 2013 to 5.5 percent in 2018 and to 5.3 percent in 2023.

For years after 2023, CBO assumes an unemployment rate slightly higher than the estimated natural rate (to account for the likelihood that some periods of severe recession will occur over the long term). The natural rate of unemployment is projected to decline to 5.0 percent by 2028 and then remain at that level. However, CBO estimates that since World War II, the unemployment rate has been 0.3 percentage points higher than the natural rate, on average, because of shortfalls in overall demand related to the business cycle. Thus, in the economic benchmark, the average unemployment rate after 2023 is projected to remain at 5.3 percent—0.3 percentage points higher than the natural rate in the long run.[20]

Taxable Earnings as a Share of Compensation. Workers' total compensation consists of taxable earnings and nontaxable benefits, such as paid leave and employers' contributions for health insurance and pensions. The share of total compensation paid in the form of taxable earnings has slipped over the years—from about 90 percent in

18. See Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2013 to 2023* (February 2013), pp. 44–46, www.cbo.gov/publication/43907.

19. See Congressional Budget Office, *Understanding and Responding to Persistently High Unemployment* (February 2012), www.cbo.gov/publication/42989.

20. In last year's report on the long-term outlook, the unemployment rate was projected to equal the natural rate of 5.0 percent in the long run.

1960 to 80 percent in 2012—mainly because the cost of health insurance has grown more quickly than total compensation over the past several decades.[21]

Looking ahead, CBO expects that health care costs will continue to rise more rapidly than taxable earnings, a trend that by itself would further decrease the proportion of compensation that workers receive as taxable earnings. However, the Affordable Care Act imposed an excise tax on some employment-based health insurance plans that have premiums above a specified threshold. Some employers and workers will respond to that tax—which is scheduled to take effect in 2018—by shifting to less expensive plans, thereby reducing the share of compensation composed of health insurance premiums and increasing the share composed of taxable earnings. CBO projects that the effects of the excise tax on the mix of compensation will roughly offset the effects of rising costs for health care for a few decades; thereafter, the impact of rising health care costs will outweigh the impact of the tax.[22] As a result, in CBO's benchmark, the share of compensation that workers receive as taxable earnings is projected to remain close to 81 percent until around 2050 and then decline gradually, reaching 78 percent by 2088. (For more about the projected effects of the excise tax, see Chapter 5; for a discussion of trends in the costs of health care, see Chapter 2.)

Interest Rates. CBO's economic benchmark includes projections of various interest rates, such as the rate on 10-year Treasury notes, the average interest rate on federal debt held by the public, and the average interest rate on holdings of the Social Security and Medicare trust funds. For the long run, CBO projects a real (inflation-adjusted) interest rate on 10-year Treasury notes of 3.0 percent, which is near the average of the past six decades and slightly higher than the rate that CBO projected for 2023 in its February 2013 baseline.[23]

In the benchmark projections for interest rates, CBO takes into account both the assumed size of federal debt relative to GDP (which, at 71 percent, would be well above the percentages in recent decades) and the projected growth rate of the labor force (which CBO estimates will be slower than in recent decades). Those two factors affect projected interest rates in opposite ways:

21. For more details, see Congressional Budget Office, *How CBO Projects Income* (July 2013), www.cbo.gov/publication/44433.

22. CBO projects that the effects of the excise tax on the taxable share of compensation will diminish over time both because CBO expects that most people will want to have a significant amount of health insurance and because the ACA set minimum levels of coverage for health insurance plans. Therefore, the number of people moving to less expensive insurance plans will eventually dwindle.

23. The real interest rates presented in this report were adjusted for inflation as measured by the increase in the consumer price index. For the comparison with historical real rates, past values of the consumer price index were adjusted to account for changes over time in the way in which that index measures inflation.

- Increases in government debt tend to raise interest rates by causing a larger portion of total savings to be devoted to buying government securities, thus reducing the savings available to finance private investment. Therefore, a larger federal debt than in the past several decades would imply higher interest rates than those seen during that period.

- The projected slowdown in the growth of the labor force would increase the ratio of the capital stock (the total amount of capital goods) to the supply of labor. Having more capital goods per worker would reduce the amount by which additional capital goods would raise production—that is, it would lower the productivity of incremental units of capital. That lower productivity would mean that investments in capital would generate a smaller return, pushing interest rates lower.[24]

The effects that those and other factors (such as projected depreciation rates) would have on the interest rate on 10-year Treasury notes would roughly offset each other, CBO estimates.[25]

In CBO's benchmark, the real interest rate on federal debt held by the public is projected to average 2.7 percent over the long term. That rate is slightly lower than the benchmark rate on 10-year Treasury notes (3.0 percent) because CBO anticipates that interest rates will be lower on short-term debt than on long-term debt, as is typically the case, and the average maturity of federal debt is expected to be less than 10 years. In general, CBO also used that 2.7 percent value as a discount rate for calculating the present value of future streams of total federal revenues and outlays. (The higher the discount rate, the lower the present value of the future flows.)

The Social Security and Medicare trust funds hold special-issue bonds that generally earn interest rates that are higher than the average real interest rate on federal debt. Therefore, in projecting the balances in the trust funds and calculating the present value of future streams of revenues and outlays for those funds, CBO used a 3.0 percent discount rate.

Inflation. The economic benchmark includes projections of the prices of various categories of goods and services. For that benchmark, CBO projects that the rate of inflation for consumer goods and services—as measured by the annual rate of change

24. See Congressional Budget Office, *How Slower Growth in the Labor Force Could Affect the Return on Capital* (October 2009), www.cbo.gov/publication/41325.

25. Depreciation rates are the rates at which investment goods lose value because of obsolescence, wear, or destruction. In last year's report on the long-term outlook, the benchmark assumption for the long-term ratio of debt to GDP was 61 percent, which was the figure projected to be reached at the end of the 10-year baseline period at that time. The increase to 71 percent in this report would, by itself, have increased the long-term projection for interest rates. However, because CBO also increased its estimate of the effect of slower labor force growth on interest rates, the impact of higher debt was largely offset.

in both the consumer price index for urban wage earners and clerical workers and the consumer price index for all urban consumers—will be 2.5 percent in the long run. That rate is the same one that CBO used for its long-term projections last year and a little above the rate that CBO projected for 2023 in its February 2013 baseline.

CBO anticipates that prices will rise at roughly the same pace for most goods and services over the long term. An important exception is the prices of capital goods (things, such as equipment and machinery, that are used to produce other goods and services). Over the past several decades, prices for capital goods—especially for computer equipment—have increased more slowly, on average, than the various consumer price indexes. CBO's economic benchmark thus incorporates the view that, over the long term, the prices of capital goods, particularly computers, will continue to rise more slowly than the prices of consumer goods and services.

The annual inflation rate for all final goods and services produced by the economy, as measured by the rate of increase in the GDP deflator, is projected to average 0.3 percentage points less than the increase in the consumer price indexes over the long term—about the same differential that CBO projects for 2023.[26] The GDP deflator grows more slowly than the consumer price indexes for two reasons: because it fully accounts for consumers' ability to shift their mix of purchases as some prices change relative to other prices, and because the items on whose prices the GDP deflator is based include a greater proportion of things (such as computers) whose prices are projected to increase more slowly than those of most other goods and services.

Growth of Earnings per Worker and Real GDP. In its economic benchmark, CBO projects that over the 2023–2038 period, real earnings per worker will grow at an average annual rate of 1.2 percent and real GDP will grow at an average annual rate of 2.0 percent. For the longer period from 2023 to 2088, the corresponding figures are 1.4 percent and 2.2 percent, respectively.[27] Those growth rates are derived from the demographic and economic variables described above and from projections of the growth of the capital stock and productivity.

The projected growth of the capital stock depends on assumptions about such key elements as federal fiscal policy, private saving (saving by households and businesses), flows of capital to and from other countries, and the rate of increase in the prices of capital goods. Besides assuming for the benchmark that debt held by the public remains at 71 percent of GDP after 2023, CBO assumes that private saving and flows

26. Final goods and services consist of consumer goods and investment goods purchased by businesses.

27. The differences in average growth rates between the 2023–2038 and 2023–2088 periods stem primarily from the transition that occurs during the first several years after 2023 from the economic conditions at the end of CBO's 10-year baseline projections to the economic conditions that CBO expects will exist in the longer term.

of capital from other countries change by enough to result in a constant rate of return on investments in capital goods and thus steady interest rates.

Total factor productivity (real output per unit of combined labor and capital services), which also affects real earnings per worker, is assumed to grow at an annual rate of 1.3 percent over the long term. That assumption, together with the growth projected for the labor supply and the capital stock, leads CBO to project average growth in labor productivity (real output per hour worked) of 1.7 percent a year. Trends in prices, in the growth of nonwage compensation (such as employer-provided health insurance), and in average hours worked imply that average growth in real earnings per worker—1.4 percent—will be a bit slower than average growth in labor productivity.

Because the unemployment rate is projected to be 0.3 percentage points higher than the natural rate of unemployment in the long run, the level of GDP is projected to be 0.6 percent lower, on average, than it would be if unemployment were at the natural rate. That relationship between unemployment and output is consistent with past experience.

CBO's projection of the long-term growth rate of real GDP—2.2 percent a year, on average, over the 2023–2088 period—is substantially slower than the rate of economic growth seen in the past few decades, primarily because of the slowdown that CBO anticipates in the growth of the labor force. Real GDP per person is projected to increase at an average annual rate of 1.3 percent between 2023 and 2038 and 1.6 percent between 2023 and 2088, compared with 2.1 percent during the 40 years before the start of the 2007–2009 recession.[28]

The projected long-term average growth rate of real output (2.2 percent) is less than the projected long-term average real interest rate on federal debt held by the public (2.7 percent). That difference would mark a change from the experience of the past few decades, when interest rates on federal debt were, on average, roughly equal to the growth rate of output. Thus, for any given budget policies, federal debt is projected to climb faster relative to output than it would if the difference were closer to its historical average.

Alternative Economic Assumptions. CBO varied some of its economic assumptions to illustrate the uncertainty of long-term budget projections. In particular, the agency examined how using different assumptions about the long-term growth of total factor productivity, interest rates on federal debt, and the growth of federal spending on health care would affect budget projections. That analysis incorporated the economic effects of fiscal policy, which result in higher projected debt than an analysis that does

28. As noted above, the differences in average growth rates between the 2023–2038 and 2023–2088 periods stem primarily from the transition that occurs during the first several years after 2023 from the economic conditions at the end of CBO's 10-year baseline projections to the economic conditions that CBO expects will exist in the longer term.

not account for such effects. As an example of the impact of alternative assumptions, if productivity was assumed to grow during the next 25 years at a rate 0.5 percentage points higher or lower than the rate underlying CBO's projections, and if all other assumptions were the same as those underlying the extended baseline, projected debt would be as high as 156 percent of GDP in 2038 or as low as 65 percent (which would still be high by historical standards). If the annual growth of federal spending on health care during the next 25 years was projected to differ by 0.5 percentage points from the rate underlying CBO's projections, and all other assumptions were kept the same, projected debt in 2038 would range from 123 percent of GDP to 94 percent. (For more details, see Chapter 7.) By comparison, with economic effects included and all other assumptions the same as in the extended baseline, debt would reach 108 percent of GDP in 2038.

Projected Spending Through 2038

Federal outlays other than those for the government's net interest costs have averaged 18 percent of GDP over the past 40 years. Noninterest spending has been unusually high in the past few years because of the recent financial crisis and recession and the policies implemented in response to them (as well as underlying growth in the costs of Social Security and major health care programs). Noninterest spending spiked to 23 percent of GDP in 2009 and then declined, falling to about 19 percent this year. CBO projects that, if current laws affecting spending were unchanged, noninterest outlays would continue to decrease gradually relative to GDP until 2018, when they would equal their historical average of 18 percent. Thereafter, however, under the assumptions of the extended baseline, noninterest spending would rise, reaching 21 percent of GDP by 2038 and remaining on an upward path. (Differences between those long-term projections and the ones that CBO published last year are discussed briefly at the end of this chapter and in more detail in Appendix A.)

Under current law, spending for net interest would jump from 1.3 percent of GDP this year to more than 3 percent 10 years from now. By 2038, interest costs would reach nearly 5 percent of GDP, bringing total federal spending to 26 percent of GDP (see Figure 1-3). Federal spending has been a greater percentage of GDP only three times in U.S. history—for three years during World War II, when it topped 40 percent of GDP.

Outlays for Major Health Care Programs and Social Security

Mandatory programs have accounted for a sharply rising share of the federal government's noninterest spending in the past few decades; that share has averaged 60 percent in recent years. Most of the growth in mandatory spending has involved the three largest programs—Social Security, Medicare, and Medicaid. Federal outlays for those three programs together made up more than 40 percent of the government's noninterest spending, on average, during the past 10 years, compared with a quarter in 1973.

Most of the projected growth in noninterest spending as a share of GDP over the long term is expected to come from the government's major health care programs: Medicare, Medicaid, the Children's Health Insurance Program, and subsidies to help people purchase health insurance through the exchanges created under the Affordable Care Act. Under current law, total outlays for those health care programs, net of offsetting receipts, would grow much faster than the economy, increasing from almost 5 percent of GDP now to 8 percent in 2038 (see Chapter 2). Spending for Social Security would also increase relative to the size of the economy, but by much less—from almost 5 percent of GDP in 2013 to more than 6 percent in the 2030s and beyond (see Chapter 3).

Those projected increases in spending stem from three factors: the aging of the population; rising health care spending per beneficiary; and changes related to the ACA, specifically the introduction of exchange subsidies and the expansion of Medicaid in many states. (Box 1-1 provides a quantitative breakdown of the roles that those three factors play in CBO's spending projections for major health care programs and Social Security.)

Aging of the Population. The aging of the baby-boom generation portends a long-lasting shift in the age profile of the U.S. population. That shift will substantially alter the balance between the working-age and retirement-age segments of the population. During the next decade alone, the number of people over the age of 65 is expected to rise by more than a third. Over the longer term, the share of the population age 65 or older is projected to grow from about 14 percent now to 21 percent in 2038, whereas the share of the population ages 20 to 64 is expected to fall from 60 percent to 55 percent. Those trends are expected to continue in later decades, though at a slower pace, as life expectancy increases further. The change in the age profile of the population will be even greater among the oldest segment: CBO projects that the share of the population age 80 or older will rise from 4 percent today to 7 percent in 2038. That increase is especially important for government spending because per capita outlays on federal health care programs rise with age.

The aging of the population is the main factor driving the projected growth of Social Security spending as a percentage of GDP. Initial Social Security benefits are based on a person's earnings, which are indexed to the overall growth of wages in the economy. As a result, average benefits increase at approximately the same rate as average earnings, so economic growth does not significantly alter spending for Social Security as a share of GDP. Rather, that share depends primarily on the ratio of the number of people of working age to the number of Social Security beneficiaries. CBO projects that the number of people of working age per beneficiary will decline significantly over the next quarter century—from about three now to about two in 2038—and then continue to drift downward.

Rising Health Care Spending per Beneficiary. Although the growth of health care spending has slowed recently, CBO projects that spending per enrollee in federal health care programs will continue to increase at a faster pace than per capita GDP. However, the difference between those two growth rates will be smaller than its average of recent decades, CBO projects. The reason is that even if federal laws do not change, continuing increases in health care spending will create mounting pressure for state governments and the private sector to slow the growth of such spending, and their responses to that pressure will affect federal spending as well. For instance, as states move to limit their costs for Medicaid (a program in which the federal government matches a certain percentage of states' spending), the growth of per capita federal spending on those programs is expected to slow. Similarly, efforts to limit increases in the cost of private health insurance are expected to slow the rise of subsidies provided through the insurance exchanges.

Growth in Medicare spending per beneficiary is also projected to slow even without legislative action (though to a lesser degree than for the other major health care programs) because the Centers for Medicare & Medicaid Services (CMS) is likely, over time, to implement cost-saving changes to the Medicare program and because of changes that will occur in the health care system as a whole. For example, CMS has the authority to expand demonstration projects that prove capable of slowing the rise of Medicare spending without reducing the quality of care. In addition, Medicare may benefit from the spillover effects of private-sector initiatives to improve the efficiency of the health care system.

Effects of the Insurance Coverage Provisions of the Affordable Care Act. The ACA will result in new federal spending on subsidies for private health insurance and greater federal spending on Medicaid.[29] Beginning in calendar year 2014, individuals will be able to purchase private health insurance through exchanges established by the ACA. The federal government will subsidize the cost of those purchases for some people with income between 100 percent and 400 percent of the federal poverty guidelines. The subsidies will limit the percentage of income that eligible people have to pay to buy a relatively low-cost insurance plan that provides a specified level of benefits; people who choose more expensive plans will have to pay higher amounts. In addition, as a result of the ACA and a subsequent Supreme Court ruling, each state will have the option to expand eligibility for Medicaid beginning in calendar year 2014 to include all nonelderly adults with income below 138 percent of the federal poverty guidelines.

29. The ACA included many other provisions that will affect federal revenues and federal spending for Medicare and other programs. Taking the coverage provisions and the other provisions together, CBO and the staff of the Joint Committee on Taxation have estimated that the ACA will reduce deficits over the next 10 years and in the subsequent decade; see Congressional Budget Office, letter to the Honorable John Boehner providing an estimate for H.R. 6079, the Repeal of Obamacare Act (July 24, 2012), www.cbo.gov/publication/43471.

Other Noninterest Outlays

CBO projects that, under the assumptions used for this analysis, total federal spending for everything besides the major health care programs, Social Security, and net interest would decline to smaller percentages of GDP than have been seen for more than 70 years. Such spending, which currently equals about 10 percent of GDP, has made up more than 8 percent of GDP each year since the late 1930s. In the extended baseline, it is projected to fall below 8 percent of GDP in 2020 and then continue to decline slowly, dropping to about 7 percent of GDP in 2038 (see Chapter 4 for details).

Spending for discretionary programs is projected to decline significantly over the next 10 years—from 7½ percent of GDP to 5½ percent—because the constraints on discretionary spending imposed by the Budget Control Act are scheduled to limit the growth of such spending to a rate well below that of GDP. For its long-term projections, CBO assumed that discretionary outlays would remain at 5½ percent of GDP after 2023.

Spending for mandatory programs other than health care programs and Social Security is also projected to decline during the next 10 years. Such "other mandatory spending" is unusually high now—about 3 percent of GDP—because of various policy changes and because some outlays (such as for unemployment benefits and nutrition programs) automatically increase when the economy is weak. Under current law, that spending, in total, would grow more slowly than the economy and would fall to 2 percent of GDP by 2038, CBO projects—lower than at any point since at least 1962 (the first year for which comparable data are available). One of the reasons that decline would occur is that spending on some programs is linked to prices, which tend to grow at a slower rate than the economy does.

Outlays for Interest

CBO expects interest rates to rebound in coming years from their current unusually low levels. As a result, the government's net interest costs are projected to more than double relative to the size of the economy over the next decade—from 1¼ percent of GDP in 2013 to almost 2 percent in 2017 and to more than 3 percent by 2023—even though, under current law, federal debt would be slightly smaller relative to GDP for most of the decade than it is today.

Beyond 2023, interest rates are assumed to remain stable, so net interest payments would change roughly in line with changes to the amount of federal debt held by the public. By 2038, interest payments would reach nearly 5 percent of GDP under current law.

The growth in net interest payments and debt is mutually reinforcing. Deficits are sustainable in the long run only if federal debt grows no more rapidly than the economy. But under the extended baseline, interest rates would exceed the growth rate

of the economy, so even if the government's noninterest spending equaled its revenues, interest payments would cause debt to increase relative to GDP. However, noninterest spending is projected to be greater than revenues, causing debt to grow even faster.

Projected Revenues Through 2038

Federal revenues have fluctuated between about 15 percent and 20 percent of GDP over the past 40 years, averaging about 17½ percent. The composition of revenues has shifted over that time: Payroll taxes (also known as social insurance taxes) have generated a growing share of total tax receipts, and corporate income taxes and excise taxes have generated declining shares.[30]

After amounting to nearly 18 percent of GDP in 2007, federal revenues fell sharply in 2009, to less than 15 percent of GDP—primarily because of the severe recession—and remained near that percentage through 2011. CBO estimates that revenues will grow to 17 percent of GDP in 2013 because the economy has improved and changes in certain tax rules have resulted in higher tax rates. In particular, a temporary cut of 2 percentage points in the payroll tax for Social Security expired at the end of calendar year 2012. At the same time, the income tax rate rose from 35 percent to 39.6 percent for single taxpayers with income above $400,000 and for married taxpayers with income above $450,000 who file joint returns.

CBO projects that under current law, revenues would continue to rise as a percentage of GDP, reaching 18½ percent by 2023, because of scheduled changes to tax law and the ongoing economic recovery. The Affordable Care Act established new taxes on earnings and investment income, which began in 2013, and a new tax on some employment-based health insurance plans with high premiums, which is set to take effect in 2018. In addition, certain tax provisions are scheduled to expire over the next several years: Notably, rules that allow businesses to take accelerated depreciation deductions for some investments are due to expire at the end of 2013, and various individual income tax credits are scheduled to expire or decline in value after 2017.

Over the long run, revenues would keep growing more rapidly than GDP under current law. Most important, as real income rose, a greater proportion of income would be taxed in higher income tax brackets because brackets are indexed for inflation but not for growth in real income. By 2038, total revenues would be a little less than 20 percent of GDP, CBO projects. Nearly all of the almost 3 percentage-point rise in total revenues as a percentage of GDP over the next 25 years would stem from increases in receipts from individual income taxes. (For more details, see Chapter 5.)

Under an extension of current law, the tax system would be markedly different in 2038 than it is now. Average tax rates would be considerably higher for households

30. Most payroll tax revenues come from taxes designated for Social Security and Medicare; the rest come mainly from taxes for unemployment insurance.

throughout the income distribution—in other words, taxpayers at all income levels would pay a greater share of their income in taxes than similar households do today. Moreover, the effective marginal tax rate on labor income (the percentage of an additional dollar of labor income paid in federal taxes) would be about 35 percent, as opposed to about 31 percent now, and the effective marginal tax rate on capital income (the percentage of an additional dollar of income from investments paid in federal taxes) would be about 19 percent, compared with about 16 percent today.

Changes From Last Year's Long-Term Budget Outlook

Each time it prepares a long-term budget outlook, CBO incorporates the effects of new legislation and updates the economic and technical aspects of its projections. The only significant legislative change since June 2012, when the previous long-term outlook was published, was the enactment of the American Taxpayer Relief Act.[31] That law permanently extended some lower tax rates and other tax provisions that expired at the end of calendar year 2012, modified the alternative minimum tax to permanently limit the number of people to which it applies, and extended some other tax provisions temporarily. As a result, CBO's current-law revenue projections are substantially lower now than they were last year.[32] CBO also made a variety of changes to the economic and technical aspects of its projections since last year to reflect new data, new analysis by CBO and others, and new methodological approaches. (See Appendix A for a discussion of the key changes.) In addition, the Bureau of Economic Analysis recently revised the historical figures for GDP; the numbers shown in this report for budget amounts as a percentage of GDP reflect those revisions to the historical data and CBO's extrapolation of those revisions to projected future GDP.

Taken together, the legislative, economic, and technical changes had the following effects on CBO's view of the federal budget in the long term:

- Federal debt as a percentage of GDP in 2038 under the extended baseline is projected to be about twice as large as the amount estimated in last year's report. CBO now projects that debt would reach 100 percent of GDP in 2038 under current law, compared with its previous projection of 52 percent; the difference would be about 1 percentage point larger if the two projections were based on consistent measures of GDP. The increase in projected debt results primarily from the recent tax legislation. Other important changes affecting CBO's debt projections include increases in expected longevity and the incidence of disability (which increase projected debt) and reductions in projected federal spending for health care and for

31. For details of the previous long-term projections, see Congressional Budget Office, *The 2012 Long-Term Budget Outlook* (June 2012), www.cbo.gov/publication/43288.

32. For details about how that law affected CBO's 10-year baseline budget projections, see Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2013 to 2023* (February 2013), Appendix A, www.cbo.gov/publication/43907.

mandatory programs other than Social Security and major health care programs (which reduce projected debt).

- Spending for federal health care programs is projected to be a smaller share of GDP than CBO estimated last year. CBO now projects that federal spending for major health care programs would equal 8.0 percent of GDP in 2038 under current law, down from the previous projection of 8.7 percent. Revisions to GDP account for 0.2 percentage points of that reduction. Of the other 0.5 percentage-point difference, most comes from lower spending projections for the next 10 years; a small amount comes from a decline in the projected long-term growth rate of health care costs, which is based on a continuation of the recent trend of slower growth in those costs.[33]

- The actuarial shortfall for the Social Security trust funds is estimated to be significantly larger than CBO projected last year. The estimated actuarial balance for Social Security is the sum of the present value of projected tax revenues and the trust funds' current balance minus the sum of the present value of projected outlays and a target balance at the end of the period; that difference is traditionally presented as a percentage of the present value of taxable payroll. CBO now estimates that the 75-year actuarial deficit for Social Security is 3.4 percent of taxable payroll, compared with the previous projection of 1.9 percent. That change reflects increases in expected longevity and the incidence of disability (which raise projected spending for benefits), the reduction in income tax rates (which reduces projected revenues credited to the trust funds), and other factors.

- Spending for mandatory programs other than major health care programs and Social Security is projected to be a smaller share of GDP in the long run than CBO projected last year. As in last year's analysis, projections of "other mandatory spending" for the next decade correspond to the projections in CBO's most recent 10-year baseline. However, CBO has changed its approach to projecting such spending after the 10th year: In 2012, CBO projected that such spending would remain a constant share of GDP in the long run; this year, to better reflect current law, that spending is projected to decline relative to GDP in the long run at the same rate that it is projected to fall between 2018 and 2023.

Some changes in the presentation of the long-term budget projections appear in this report as well. CBO now focuses on a single long-term budget scenario and devotes more attention to the uncertainty of long-term projections:

33. For discussion of the revision to projections of health care spending for the next 10 years, see Congressional Budget Office, *Updated Budget Projections: Fiscal Years 2013 to 2023* (May 2013), www.cbo.gov/publication/44172.

- In addition to the current-law extended baseline, previous years' versions of this report focused on an extended alternative fiscal scenario, which embodied several changes to current law that would continue certain tax and spending policies that were in place at the time or had been in place recently and also incorporated changes to several provisions of law that might have been difficult to sustain for a long period. Projected budget deficits were much larger under the extended alternative fiscal scenario than under the extended baseline. Lawmakers have since enacted some of the changes to law included in the alternative scenario; in particular, the American Taxpayer Relief Act permanently extended most of the lower tax rates and other tax provisions that were scheduled to expire at the end of calendar year 2012 and modified the alternative minimum tax to permanently limit its reach. As a result of those changes, projected budgetary outcomes under the two scenarios differ much less now than they did earlier, and this report gives much less emphasis to the extended alternative fiscal scenario. (Chapter 6 presents the long-term budgetary and economic effects of the extended alternative fiscal scenario as well as the effects of two sets of assumptions about fiscal policy that produce smaller deficits.)

- A more extensive analysis of uncertainty than in previous years' versions of this report appears in Chapter 7. Future budgetary outcomes will depend in large part on future policies, but they will also be affected by changes in the economy, demographics, and other factors. Chapter 7 shows how CBO's projections of debt as a percentage of GDP would differ if the growth of productivity, interest rates on federal debt, or the growth of federal spending on health care was significantly higher or lower than projected in the extended baseline.

Chapter 2: The Long-Term Outlook for Major Federal Health Care Programs

Although spending for health care in the United States has grown more slowly in recent years than it had previously, high and rising levels of such spending continue to pose a challenge not only for the federal government's two major health insurance programs, Medicare and Medicaid, but also for state and local governments, businesses, and households. Measured as a share of economic output, federal spending for Medicare (net of what are termed offsetting receipts, which mostly consist of premiums paid by beneficiaries) and Medicaid rose from 1.8 percent of gross domestic product (GDP) in 1985 to 4.6 percent in 2012. Total national spending on health care services and supplies increased from 4.6 percent of GDP in calendar year 1960 to 9.5 percent in 1985 and to 16.4 percent in 2011, the most recent year for which such data are available.

Underlying those trends, health care spending per person has grown faster, on average, than the nation's economic output per person since 1985, even after the recent slowdown is factored in. On the basis of a calculation that gives greater weight to more recent years, the Congressional Budget Office (CBO) estimates that growth in health care spending per person (after adjusting for demographic changes) has outpaced growth in GDP per capita by an average of 1.5 percent per year since 1985. Key factors contributing to that faster growth have been the emergence and increasing use of new medical technologies, rising personal income, and the expanding scope of health insurance coverage. Factors that have restrained growth during that period, at least temporarily, include the spread of managed care plans in the 1990s and the recent economic recession, as well as legislated changes in Medicare's payment policies such as those introduced in the Balanced Budget Act of 1997.

The growth of health care spending cannot exceed economic growth indefinitely, because if it did, total spending on health care would eventually account for all of the country's economic output—an impossible outcome. Instead, over time, people will try to limit their spending for health care in order to maintain their consumption of other goods and services. Private insurers and employers will adjust the insurance coverage they offer, the benefits they provide, and the amounts and nature of their payments to health care providers. In addition, state governments—which pay a large share of Medicaid's costs and have considerable influence on those costs—will limit the growth of spending for health care in order to manage their budgets. Those reactions to cost pressures will increase the incentives for health care providers to invest in cost-reducing technologies and to increase efficiency. Thus, even in the absence of changes in federal law, growth in per capita spending on Medicaid and on health care financed through the private sector will gradually slow. The rate of growth of Medicare spending per beneficiary is also likely to slow, though to a lesser extent, even without changes in federal law—reflecting changes in medical practices common to all patients, payment rate changes allowed or required under current law, and the increasing pressure of premiums and cost-sharing amounts, such as copayments and deductibles, on enrollees' finances.

However, quantifying the extent to which the rate of growth of health care spending will decline under current law is difficult. The growth of such spending relative to the growth of the economy has varied greatly from year to year during the past several decades, so projections of the difference in growth rates in the future are very uncertain. As the projection period lengthens, the uncertainties mount because the likelihood of significant changes in medical practices and technology increases.

A particular challenge currently is estimating the extent to which the recent slowdown in growth can be attributed to temporary factors like the recession or instead reflects more enduring developments. Studies have generally concluded that a portion of the observed reduction in growth cannot be linked directly to the weak economy, and CBO's own analysis has found no link between the recession and slower growth in

spending for Medicare.[34] Accordingly, over the past few years, CBO has substantially reduced its projections of spending on Medicare and Medicaid during the coming decade and slightly lowered its estimate of the underlying rate of growth for health care spending per person for the country as a whole. CBO's estimate of that underlying rate takes into account spending trends since 1985 but gives greater weight to the recent experience; because of the pressures to constrain spending growth, the underlying rate is projected to decline gradually in the long run.

In contrast, federal spending for health care will be pushed up in the future by a sharp increase in the number of people receiving benefits from government programs. That increase can be attributed to two main factors. The first is the aging of the population—in particular, the aging of the baby-boom generation (people born between 1946 and 1964)—which will increase the number of people receiving benefits from Medicare by more than one-third over the next decade. The second is the expansion of federal support for health insurance under the Affordable Care Act (ACA), which will significantly increase the number of people receiving benefits from Medicaid and make other people eligible for subsidies for health insurance purchased through exchanges. (Box 1-1 in Chapter 1 provides a quantitative breakdown of the roles that the aging of the population, the expansion of federal subsidies, and growth in health care costs per person play in CBO's spending projections for health care programs.)

With all of those factors taken together, under CBO's extended baseline, which generally relies on an assumption that current law remains in place, federal spending on the government's major health care programs—Medicare, Medicaid, the Children's Health Insurance Program (CHIP), and the subsidies that will be provided through the health insurance exchanges that will be established starting in 2014—is expected to rise substantially relative to GDP.[35] Specifically, net federal spending for those programs (that is, spending net of offsetting receipts for Medicare) would grow from an estimated 4.6 percent of GDP in 2013 to 8.0 percent in 2038; in that year, 4.9 percent of GDP would be devoted to spending on Medicare (net of offsetting receipts) and 3.2 percent would be spent on Medicaid, CHIP, and the exchange subsidies. Beyond 2038, CBO

34. See Michael Levine and Melinda Buntin, *Why Has Growth in Spending for Fee-for-Service Medicare Slowed?* Working Paper 2013-06 (Congressional Budget Office, August 2013), www.cbo.gov/publication/44513.

35. In this report, federal discretionary spending on health care—that is, spending that is subject to annual appropriations—is included in the budget projections for other noninterest spending (see Chapter 4 and Table 1-2). Such discretionary spending includes federal support for health research and federal spending on health care provided by the Veterans Health Administration. Some mandatory spending on health care (for example, spending for care for federal retirees) is also included in other noninterest spending; that mandatory spending represents a very small share of the federal budget. The spending for subsidies to be provided through the exchanges that is analyzed in this chapter includes outlays for cost-sharing subsidies and for the refundable portion of subsidies for premiums; the reduction in taxes paid because of the premium subsidies—which is projected to be much smaller than the increase in outlays for the refundable portion of the subsidies—is reflected in the revenue projections in Chapter 5.

projects, federal health care spending would continue to climb relative to GDP but at a slower rate than has been sustained historically. (As discussed in Chapter 7, those estimates are subject to a considerable degree of uncertainty.)

Overview of Major Government Health Care Programs

Today, a combination of private and public sources finances health care in the United States. CBO estimates that about 52 million people are covered by Medicare, and about 57 million are covered by Medicaid, the two main sources of public financing.[36] Medicare provides nearly universal coverage for the elderly and also covers several million nonelderly people; Medicaid covers a variety of low-income people, including pregnant women, children, and parents and other caretaker relatives, as well as elderly and disabled individuals. The majority of Americans under the age of 65, however, have private health insurance. CBO estimates that about 157 million nonelderly people currently have an employment-based health plan as their primary source of coverage, and about 9 million people have primary coverage purchased directly from an insurer. At any given time during this year, according to CBO's projections, about 55 million people will be uninsured.[37]

In 2011, the most recent calendar year for which data are available, total spending for health care in the United States amounted to about $2.5 trillion, or 16.4 percent of the nation's GDP.[38] In that year, 53 percent of spending was financed privately; the rest of the spending came from public sources (see Figure 2-1):

- Payments by private health insurers made up 35 percent of total expenditures on health care. Consumers' out-of-pocket expenses, which include payments made to satisfy copayments and deductibles for services covered by insurance, as well as payments for services not covered by insurance, accounted for another 12 percent

36. Some people have coverage from more than one source at a time. Currently, about 8.5 million people with Medicaid coverage are also covered by Medicare, which is their primary source of coverage. For information on people eligible for benefits through both programs, see Congressional Budget Office, *Dual-Eligible Beneficiaries of Medicare and Medicaid: Characteristics, Health Care Spending, and Evolving Policies* (June 2013), www.cbo.gov/publication/44308. All of the estimates here reflect average monthly enrollment during the year.

37. Congressional Budget Office, "Effects on Health Insurance and the Federal Budget for the Insurance Coverage Provisions in the Affordable Care Act—May 2013 Baseline" (May 2013), www.cbo.gov/publication/44190.

38. This report defines "total spending for health care" as health consumption expenditures in the national health expenditure accounts maintained by the Centers for Medicare & Medicaid Services. That concept excludes spending on medical research, structures, and equipment. Under a broader definition that includes those categories, total national expenditures for health care were 17.4 percent of GDP in 2011. For more information, see Micah Hartman and others, "National Health Spending in 2011: Overall Growth Remains Low, but Some Payers and Services Show Signs of Acceleration," *Health Affairs*, vol. 32, no. 1 (January 2013), pp. 87–99, http://dx.doi.org/10.1377/hlthaff.2012.1206.

of those expenditures.[39] Other sources of private funds, such as philanthropy, accounted for 5 percent of total health care spending.

- Gross federal spending for Medicare made up 22 percent of total expenditures on health care in 2011, and federal and state spending for Medicaid and CHIP accounted for 16 percent. Another 9 percent was accounted for by various other public programs, including those run by state and local governments' health departments, by the Department of Veterans Affairs, and by the Department of Defense, as well as by workers' compensation programs.

Medicare

In 2013, Medicare will provide federal health insurance to 52 million people who are elderly or disabled or have end-stage renal disease. (The elderly make up about 85 percent of enrollees.) People become eligible for Medicare on the basis of age when they reach 65; disabled individuals generally become eligible for the program 24 months after they qualify for benefits under Social Security's Disability Insurance program.[40]

The Medicare program provides a specified set of benefits. Hospital Insurance (HI), or Medicare Part A, primarily covers inpatient services provided by hospitals as well as care in skilled nursing facilities, home health care, and hospice care. Part B mainly covers services provided by physicians and other practitioners and by hospitals' outpatient departments, and Part D provides a prescription drug benefit. Most enrollees in Medicare are in the traditional fee-for-service program, in which the federal government pays for covered services directly, but enrollees can instead obtain coverage for Medicare benefits through a private health insurance plan under Part C of the program, known as Medicare Advantage. In 2012, net spending for Medicare (that is, with the offsetting receipts that mostly consist of beneficiaries' payments of premiums taken into account) was $466 billion. Gross spending for Medicare was $551 billion in that year.

The various parts of the program are financed in different ways. Part A benefits are financed primarily by a payroll tax (2.9 percent of all taxable earnings), the revenues from which are credited to the HI trust fund. Beginning in 2013, an additional 0.9 percent tax on earnings over $200,000 ($250,000 for married couples) is also

39. In this analysis, out-of-pocket payments do not include the premiums that people pay for health insurance (because premiums fund the payments that insurers provide, which are already included in the measure of spending by private insurers).

40. People with amyotrophic lateral sclerosis (also known as Lou Gehrig's disease) who receive Social Security Disability Insurance benefits are eligible for Medicare with a reduced waiting period of one month.

being credited to the trust fund.[41] For Part B, premiums paid by beneficiaries cover just over one-quarter of outlays, and the government's general funds cover the rest. Federal payments to private insurance plans under Part C are financed by a blend of funds from Parts A and B. Enrollees' premiums under Part D are set to cover about one-quarter of the cost of the basic prescription drug benefit, although many low-income enrollees pay no premiums; general funds from the Treasury cover most of the remaining cost. Altogether, in calendar year 2012, receipts from the payroll tax were equal to about 36 percent of gross federal spending on Medicare, beneficiaries' premiums were equal to about 12 percent, and general funds allocated to the program's trust funds amounted to about 37 percent; the trust funds are also credited with money from other sources.[42]

Cost-sharing requirements in Medicare vary widely, and the program does not set an annual cap on the amount of health care costs for which beneficiaries are responsible. However, the vast majority of beneficiaries who receive care in the fee-for-service portion of Medicare have supplemental insurance that covers many or all of the program's cost-sharing requirements. According to one recent study, the most common sources of supplemental coverage in 2009 were plans for retirees offered by former employers (held by 43 percent of beneficiaries in the fee-for-service part of Medicare), individually purchased medigap policies (29 percent of beneficiaries), and Medicaid (17 percent of beneficiaries).[43] Many people covered through Medicare Advantage receive additional benefits or purchase additional coverage that provides some supplemental benefits.

A number of provisions of law will constrain the rates that Medicare pays to providers of health care in the future:

- Payments for physicians' services in Medicare are governed by the sustainable growth rate mechanism. Under current law, those payment rates will be reduced by about 25 percent in January 2014 and by small amounts in subsequent years, CBO projects. In recent years, legislation has been enacted to block similar reductions that were scheduled to occur.

41. Those thresholds are not indexed for inflation. Also, beginning in 2013, certain individuals are subject to a 3.8 percent tax on unearned income that is officially labeled as a Medicare tax. However, those revenues are not credited to the HI trust fund.

42. Calculations based on data from Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, *2013 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (May 2013), Table II.B1, http://go.usa.gov/bUZm. The measures of benefits and premium receipts in that table treat Part D premiums for basic benefits that beneficiaries pay directly to plans as if those premiums were paid to Medicare and then disbursed to the plans.

43. Estimates are based on information in Medicare Payment Advisory Commission, *A Data Book: Healthcare Spending and the Medicare Program* (June 2013), p. 51, www.medpac.gov/document_TOC.cfm?id=617.

- The Affordable Care Act contains numerous provisions that, on balance, will reduce federal spending on Medicare. The provisions with the greatest effect on the projected growth of Medicare spending impose permanent reductions in the annual updates to Medicare's payment rates for many types of health care providers (other than physicians) in the fee-for-service portion of the program. Under prior law, those payment updates generally would have been equal to the estimated percentage change in the average cost of providers' inputs (such as labor and equipment). Under current law, however, those updates equal the percentage changes in costs minus the 10-year moving average of growth in productivity in the economy overall—a measure that seeks to capture, for the economy as a whole, how much more output is being produced from a given level of inputs. (Under certain circumstances, the law also specifies additional reductions in the payment updates.)[44]

- The ACA also established an Independent Payment Advisory Board (IPAB), which will be required to submit a proposal to reduce Medicare spending in certain years if the rate of growth in spending per enrollee is projected to exceed specified targets. The proposal—or an alternative proposal submitted by the Secretary of Health and Human Services if the board does not submit a qualifying proposal—must achieve a specified amount of savings in the year it is implemented while not increasing spending in the succeeding nine years by more than the amount of those first-year savings. The terms of the proposal would go into effect automatically unless blocked or replaced by subsequent legislation. From 2015 through 2019, the target growth rate is the average of inflation in the economy generally and inflation for medical services in particular; in subsequent years, the target growth rate is the percentage increase in per capita GDP plus 1 percentage point. The ACA places a number of limitations on the actions available to the IPAB, including a prohibition against modifying Medicare's eligibility rules or reducing benefits. The IPAB mechanism can either result in savings or have no budgetary effect; it cannot increase spending. According to CBO's projections, under current law, growth in Medicare spending will remain below the IPAB's target growth rate during the next decade. However, the IPAB mechanism is expected to generate savings in some subsequent years because variation in Medicare's spending growth will cause it to exceed the target rate in some years.

- The Budget Control Act of 2011, as subsequently amended, specifies automatic procedures—sequestration, or the cancellation of funding—that will reduce most Medicare payments to providers for services furnished from April 2013 to March 2022. As a result of that law, according to CBO's estimates, nearly 90 percent of Medicare's spending will be subject to a 2 percent reduction, about 10 percent of

44. Payment updates have frequently been set to be lower than the estimated increases in providers' costs, but those adjustments have generally not been permanent, applying for only one year or a few years.

Medicare's spending will be exempt from any reductions, and about 1 percent will be subject to the percentage reduction that applies to other nondefense spending that is subject to sequestration. All told, CBO projects, the sequestration will decrease gross Medicare spending by about $90 billion between fiscal years 2013 and 2022 and will reduce net Medicare spending (with the effects on receipts from premiums taken into account) by about $81 billion over that period.[45]

Medicaid, CHIP, and Subsidies to Purchase Health Insurance Through Exchanges

Medicaid is a joint federal-state program that pays for health care services for low-income individuals. As a result of the ACA and a subsequent Supreme Court ruling, each state has the option to expand eligibility for Medicaid beginning in calendar year 2014 to all nonelderly adults with income below 138 percent of the federal poverty guidelines (commonly referred to as the federal poverty level, or FPL).[46] The people who will be newly eligible for Medicaid consist primarily of nonelderly adults with low income. Most children and pregnant women in low-income families qualify for Medicaid and CHIP under prior law. Some parents of those children also qualify for Medicaid, although the income thresholds vary by state.

The federal government's share of Medicaid's spending for benefits varies among the states. That share historically has averaged about 57 percent.[47] Beginning in calendar year 2014, the federal government will pay all of the costs of covering enrollees newly eligible under the ACA's coverage expansion. From 2017 to 2020, the federal share of that spending will decline gradually to 90 percent, where it will remain thereafter. According to CBO's estimates, those changes will result in a federal share of Medicaid's spending that averages 60 percent by 2020.

In fiscal year 2012, federal spending for Medicaid was $251 billion, of which $223 billion covered benefits for enrollees. (In addition to benefits, Medicaid's spending included payments to hospitals that treat a "disproportionate share" of low-income patients, costs for the Vaccines for Children program, and administrative expenses.) According to the Centers for Medicare & Medicaid Services (CMS), states

45. Estimated annual effects of the sequestration on Medicare spending are presented in Congressional Budget Office, "Medicare—May 2013 Baseline" (May 2013), www.cbo.gov/publication/44205.

46. The ACA expanded eligibility for Medicaid to include nonelderly residents with income up to 133 percent of the FPL. The act defines the income used to determine eligibility in a way that effectively increases that threshold to 138 percent of the FPL. The FPL is currently $23,550 for a family of four. As a result of the Supreme Court's decision issued on June 28, 2012 (*National Federation of Independent Business v. Sebelius*, 132 S. Ct. 2566 (2012)), CBO anticipates that some states will not expand their programs at all or will not expand coverage to the full extent authorized by the ACA.

47. The American Recovery and Reinvestment Act of 2009 provided states with additional federal financial assistance through December 2010. Subsequent legislation (Public Law 111-226) continued enhanced matching rates for an additional six months, generating an average federal share of about 64 percent in fiscal year 2011.

spent $160 billion on Medicaid in calendar year 2011, the most recent year for which data are available.[48]

States administer their Medicaid programs under federal guidelines that specify a minimum set of services that must be provided to certain categories of low-income individuals. Required services include inpatient and outpatient hospital services, services provided by physicians and laboratories, and nursing home and home health care. To be eligible for Medicaid, a person must have a low income and generally only a few assets—although the financial limits vary depending on the basis for an enrollee's eligibility. Groups that must be eligible include children in low-income families and families who would have qualified for the former Aid to Families with Dependent Children program, certain other children in low-income families and pregnant women, and most elderly and disabled individuals who qualify for the Supplemental Security Income program.[49]

Subject to those requirements and other statutory limits, states have flexibility in administering the Medicaid program and determining its scope. States may choose to make additional groups of people eligible (such as individuals with income above the standard eligibility limits and those who have high medical expenses relative to their income) or to provide additional benefits (such as coverage for prescription drugs and dental services), and they have exercised those options to varying degrees. Moreover, many states seek and receive federal waivers that allow them to provide benefits and cover groups that would otherwise be excluded. As a result, the program's rules are complex, and it is difficult to generalize about the types of enrollees covered, the benefits offered, and the cost sharing required. By one estimate, federal and state expenditures on optional populations and benefits accounted for about 60 percent of the Medicaid program's total spending in 2007.[50]

About 72 million people will be enrolled in Medicaid at some point during 2013, CBO estimates; the average enrollment over the course of the year will be about 57 million. Those two ways of measuring enrollment yield divergent estimates because many people are enrolled in Medicaid for only part of the year.

Currently, almost half of Medicaid's enrollees are children in low-income families, and just under one-third are either the parents of those children or low-income pregnant women. The elderly and disabled constitute the remaining almost one-quarter of

48. Centers for Medicare & Medicaid Services, National Health Expenditure Accounts, "NHE Tables" (accessed August 26, 2013), http://go.usa.gov/jmGY.

49. Undocumented immigrants and most legal immigrants in the country for less than five years are ineligible for full Medicaid services. Those immigrants may be eligible for emergency medical services covered by Medicaid if they meet other eligibility requirements of the program.

50. Kaiser Commission on Medicaid and the Uninsured, *Medicaid Enrollment and Expenditures by Federal Core Requirements and State Options* (Kaiser Family Foundation, January 2012), p. 1, http://tinyurl.com/pfb72d7.

enrollees. Expenses tend to be higher for beneficiaries who are elderly and disabled, many of whom require long-term care, than for other beneficiaries. In 2012, about 32 percent of federal Medicaid spending for benefits was for long-term services and supports, which include institutional care provided in nursing homes and certain other facilities as well as care provided in a person's home or in the community. Overall, the elderly and disabled account for almost two-thirds of Medicaid's payments for benefits.[51]

CHIP is a much smaller joint federal-state program that provides health insurance coverage for uninsured children living in families with income that is modest but too high for them to qualify for Medicaid.[52] Like Medicaid, CHIP is administered by the states within broad federal guidelines. Unlike Medicaid, however, CHIP is a matching-grant program with a fixed nationwide cap on federal spending. In 2012, federal spending on CHIP was $9.1 billion, and about 8 million people (mostly children) were enrolled in the program at some point during the year. The federal share of CHIP spending varies among the states but usually averages about 70 percent.[53]

Under the ACA, in 2014—in addition to the individuals who will become newly eligible for Medicaid in those states that opt to expand their programs—certain people with income between 100 percent and 400 percent of the FPL will be eligible for federal subsidies, provided through newly established health insurance exchanges, to reduce their cost of obtaining private health insurance.[54] The subsidies will limit the percentage of income that eligible people have to pay to purchase a plan with a relatively low price that provides a specified level of benefits; people choosing more expensive plans will have to pay additional amounts. In 2014, the shares of income will range from 2.0 percent for the lowest-income households to 9.5 percent for households with income between 300 percent and 400 percent of the FPL. Initially, the amounts that enrollees have to pay will be indexed so that the subsidies cover roughly the same share of the total premiums over time. After 2018, however, an additional indexing

51. As the ACA is implemented, some of those proportions will shift. For instance, by 2020, CBO estimates, the elderly and disabled will account for about one-fifth of the people enrolled in the program and just over half of the program's spending for benefits.

52. Under certain limited conditions, parents of children enrolled in CHIP and pregnant women are also eligible for the program, but they constitute a very small percentage of the program's enrollment.

53. The Affordable Care Act provided for an increase in the matching rate for CHIP such that the national average rate is projected to be 93 percent from 2016 through 2019, at which time it will revert to 70 percent.

54. In addition, legal residents with household income below 100 percent of the FPL will be eligible for exchange subsidies if they do not have access to Medicaid because of their immigration status.

factor will probably apply; if so, the shares of income that enrollees have to pay will increase, and the shares of the premiums that the subsidies cover will decline.[55]

People with income below 250 percent of the FPL will also be eligible to receive subsidies to reduce their cost-sharing requirements. People will not be eligible to receive subsidies through the exchanges if they qualify for other public coverage—including Medicaid—or if they are offered coverage through their employment, unless they would have to pay more than a specified share of their income for such coverage or if the benefits covered fall below a certain threshold.

The Historical Growth of Health Care Spending

Total spending for health care in the United States—that is, private and public spending combined—has risen significantly as a share of GDP over the past several decades. Such spending has grown relative to GDP in most years, with the notable exception of the periods from 1993 to 2000 and again from 2009 to 2011, when spending for health care remained relatively stable as a share of the economy. Many analysts have attributed the lull in growth from 1993 to 2000 to a substantial rise in the number of people enrolled in managed care plans as well as to excess capacity among some types of providers, which increased the leverage that health plans had in negotiating payments. Also, economic growth was relatively rapid in that period. Analysts generally have attributed the slow growth between 2009 and 2011 to a combination of a weak economy and structural changes in the health care and health care financing systems.

Spending for Medicare and Medicaid has also grown quickly in recent decades, in part because of rising enrollment and in part because of rising costs per enrollee. Between 1985 and 2012, federal spending for Medicare, net of offsetting receipts, rose from 1.5 percent of GDP to 2.9 percent, and federal spending for Medicaid increased from 0.5 percent of GDP to 1.6 percent. Over that same period, total spending for Medicaid (including spending by the states) increased from 0.9 percent of GDP to 2.7 percent. From 2009 to 2011, however, gross federal spending for Medicare and total spending for Medicaid grew at rates similar to that for the economy overall. In 2012, gross federal spending for Medicare grew more slowly than the economy, and

55. The additional indexing factor will apply in any year (after 2018) in which the total costs of exchange subsidies exceed a specified percentage of GDP. CBO's baseline projections account for uncertainty about whether the additional indexing factor will apply, but CBO expects that eventually it will. See Congressional Budget Office, "Additional Information About CBO's Baseline Projections of Federal Subsidies for Health Insurance Provided Through Exchanges" (May 12, 2011), www.cbo.gov/publication/41464.

total spending for Medicaid grew at about the same rate as the economy.[56] How long that slowdown might persist is highly uncertain.

Factors Affecting Growth in Health Care Spending

A crucial factor underlying the rise in per capita spending for health care in recent decades has been the emergence, adoption, and widespread diffusion of new medical technologies and services.[57] Major advances in medical science allow providers to diagnose and treat illnesses in ways that previously were impossible. Many of those innovations rely on costly new drugs, equipment, and skills. Other innovations are relatively inexpensive, but their costs add up quickly as growing numbers of providers and patients make use of them. Although technological advances can sometimes reduce costs, in medicine, such advances and the resulting changes in clinical practice have generally increased total spending.

Other factors that have contributed to the growth of per capita spending on health care include increases in personal income and the expanded scope of health insurance coverage. Demand for medical care tends to rise as real (inflation-adjusted) family income increases. Moreover, the expanding scope of insurance coverage in recent decades, as evidenced by the substantial reduction in the percentage of health care costs that people pay out of pocket, has also increased demand, because insurance reduces the cost of receiving additional medical care. Spending on health care would also be expected to grow if people were developing more health problems or becoming more likely to contract diseases, but the evidence on the importance of those factors is mixed. In particular, researchers have reached different conclusions about the contributions to health care spending of changes in the prevalence of chronic diseases (such as cardiovascular disease, diabetes, and arthritis), the share of the population with those diseases who receive treatment, and costs per case.[58]

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56. Federal spending for Medicaid grew at about the same rate as the economy in 2010 and 2011 and more slowly than the economy in 2012, as the federal government's share of spending returned to its historical average; the federal share of Medicaid spending had previously been increased under legislation enacted in response to the economic downturn.

57. Congressional Budget Office, *Technological Change and the Growth of Health Care Spending* (January 2008), www.cbo.gov/publication/41665.

58. For additional discussion, see Congressional Budget Office, *Key Issues in Analyzing Major Health Insurance Proposals* (December 2008), p. 23, www.cbo.gov/publication/41746. See also Congressional Budget Office, *How Does Obesity in Adults Affect Spending on Health Care?* (September 2010), www.cbo.gov/publication/21772; Charles S. Roehrig and David M. Rousseau, "The Growth in Cost per Case Explains Far More of U.S. Health Spending Increases Than Rising Disease Prevalence," *Health Affairs*, vol. 30, no. 9 (September 2011), pp. 1657–1663, http://dx.doi.org/10.1377/hlthaff.2010.0644; and Kenneth E. Thorpe and others, "The Rising Prevalence of Treated Disease: Effects on Private Health Insurance Spending," *Health Affairs,* web exclusive (June 2005), http://dx.doi.org/10.1377/hlthaff.w5.317.

Disentangling the effects of technology, income, and insurance on the growth of health care spending is difficult because the growth of income and insurance coverage has increased the demand for new technologies. One study estimated that new medical technologies and rising income were the most important factors explaining the growth in health care spending since 1960, with the two accounting for similar shares of that growth.[59] But the study also noted that the effect of the expansion in insurance coverage on spending growth is highly uncertain. Another study concluded that the expansion of insurance coverage resulting from the introduction of Medicare had a substantial impact on national spending on health care—raising spending not just for the elderly patients who gained coverage but for younger patients as well. It attributed part of the impact to more rapid and widespread adoption of existing treatment methods (such as those provided by cardiac intensive care units) but concluded that questions remained about the magnitude of those effects.[60]

Studies that have analyzed the sources of growth in per capita spending on health care in the past have consistently found that the aging of the population has had only a small effect.[61] Although older adults generally have higher average medical expenses than younger adults do, the age composition of the population has not changed sufficiently to account for much of the increase in per capita spending. Aging has had a larger effect on federal spending for health care, however, because nearly all U.S. residents become eligible for Medicare when they turn 65. From 1985 to 2013, the share of the population that was age 65 or older grew by more than one-sixth, from almost 12 percent to almost 14 percent.

A number of analyses have attributed the recent slowdown in health care cost growth for the country as a whole partly to the economic downturn and partly to structural changes in the health care system that may lead to continued slow growth in the

59. Sheila Smith, Joseph P. Newhouse, and Mark S. Freeland, "Income, Insurance, and Technology: Why Does Health Spending Outpace Economic Growth?" *Health Affairs*, vol. 28, no. 5 (September/October 2009), pp. 1276–1284, http://dx.doi.org/10.1377/hlthaff.28.5.1276.

60. Amy Finkelstein, "The Aggregate Effects of Health Insurance: Evidence From the Introduction of Medicare," *Quarterly Journal of Economics,* vol. 122, no. 1 (February 2007), pp. 1–37, http://qje.oxfordjournals.org/content/122/1/1.short. One factor that may have contributed to that study's findings was the relatively generous payment system that Medicare adopted. Following the common practice of private insurers at the time, Medicare initially paid hospitals on the basis of their incurred costs—an approach that gave hospitals little incentive to control those costs. The increase in hospital spending that resulted from Medicare's creation might have been smaller under a less generous payment system.

61. See, for example, Uwe E. Reinhardt, "Does the Aging of the Population Really Drive the Demand for Health Care?" *Health Affairs*, vol. 22, no. 6 (November 2003), pp. 27–39, http://dx.doi.org/10.1377/hlthaff.22.6.27.

future.[62] CBO's own analysis (cited earlier) suggests that the slowdown in spending growth for Medicare has not stemmed from the weak economy but appears to instead be attributable to changes in the behavior of beneficiaries and providers arising for other reasons.

Excess Cost Growth

When analyzing historical trends in the growth of health care spending and developing projections for the future growth of that spending, distinguishing between various components of that growth is useful. As part of that analysis, CBO calculates the growth in health care spending per person relative to the growth of potential GDP per person after removing the effects of demographic changes on health care spending—in particular, changes in the population's age distribution.[63] The resulting ratio of those growth rates is generally referred to as excess cost growth. The phrase is not intended to imply that growth in per capita spending for health care is necessarily excessive or undesirable; it simply measures the extent to which the growth in such spending (adjusted for changes in the age composition of the population) outpaces the growth in potential output per capita.

According to CBO's calculations, rates of excess cost growth have ranged between 0.2 percent and 2.0 percent for various parts of the health care system and during various multiyear periods in the past several decades (see Table 2-1).[64] Relative to the 1975–2011 period as a whole, excess cost growth was lower, on average, between 1985 and 2011. That slowing probably stemmed, at least partially, from two important shifts: First, private health insurance moved away from indemnity policies—which generally reimburse enrollees for their incurred medical costs and which predominated before the 1990s—and toward greater management of care. Second, Medicare shifted from cost-based payments to fee schedules that constrain price increases.

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62. See, for example, Kaiser Family Foundation, *Assessing the Effects of the Economy on the Recent Slowdown in Health Spending* (April 2013), http://tinyurl.com/m78guc9; David M. Cutler and Nikhil R. Sahni, "If Slow Rate of Health Care Spending Growth Persists, Projections May Be Off by $770 Billion," *Health Affairs*, vol. 32, no. 5 (May 2013), pp. 841–850, http://dx.doi.org/10.1377/hlthaff.2012.0289; and Alexander J. Ryu and others, "The Slowdown in Health Care Spending in 2009–11 Reflected Factors Other Than the Weak Economy and Thus May Persist," *Health Affairs*, vol. 32, no. 5 (May 2013), pp. 835–840, http://dx.doi.org/10.1377/hlthaff.2012.1297.

63. Potential GDP is the maximum sustainable output of the economy.

64. In calculating excess cost growth for Medicare, CBO adjusts for changes in the projected life expectancy (time until death) of beneficiaries. In calculating excess cost growth for Medicaid, CBO adjusts for changes in the program's case mix—that is, the proportions of beneficiaries who are children, disabled people, elderly people, and other adults—rather than for changes in the age composition of the population of beneficiaries. The introduction of Medicare's Part D drug benefit in 2006 resulted in a onetime shift in some spending from Medicaid to Medicare; to adjust for that shift, CBO assumed that excess cost growth in 2006 for both Medicare and Medicaid was equal to the average of excess cost growth in the two programs for that year.

Excess cost growth was even lower, on average, during the shorter 1990–2011 period, but that average gives substantial weight to the years in the 1990s when managed care was spreading most rapidly and to the past few years. Some of the slowing in the 1990s probably represented a onetime downward shift in health care costs rather than a change in the underlying growth rate. And some of the slowdown during the past few years, apart from that for Medicare, probably reflects the economic downturn and may be reversed once the economy recovers more fully. Even the portion of the recent slowdown that reflects structural changes in payment mechanisms or in how care is delivered may represent another onetime downward shift in costs rather than a persistent reduction in the growth rate.

In CBO's judgment, the rate of excess cost growth in overall spending on health care since 1985 best reflects features of the health care and health insurance systems that are likely to endure for a number of years, but the later years within that period provide a more useful guide to the future than do the earlier years. Therefore, CBO calculated a weighted average of the annual excess cost growth rates between 1985 and 2011 (the latest year for which data are available), placing twice as much weight on the latest year as on the earliest year.[65] The resulting average—1.5 percent per year—serves as an anchor for CBO's long-term projections of health care costs.

CBO's Methodology for Long-Term Projections of Federal Health Care Spending

CBO's projections of federal spending on major health care programs under its extended baseline are intended to generally reflect the provisions of current law. For the first 10 years, those projections match CBO's baseline projections, which were last released in May 2013 and which reflect detailed analysis of the programs involved. Beyond the coming decade, projecting federal health care spending becomes increasingly difficult because of the considerable uncertainties involved. A wide range of changes could occur—in people's health, in the sources and extent of their insurance coverage, and in the delivery of medical care—that are almost impossible to predict but that could have a significant effect on federal health care spending. Therefore, CBO followed a fairly formulaic approach for the projections beyond 2023. Those longer-term projections are based primarily on the projections of eligible populations and economic conditions described elsewhere in this report and on projections of a slowdown in excess cost growth in health care in response to the pressures created by rising costs (along with certain additional adjustments described below).

65. The weights increased linearly over time. CBO used a regression approach that allowed for the annual values to be weighted, rather than using a geometric average.

Long-Term Responses to Rising Health Care Costs

Health care expenditures cannot rise more quickly than GDP forever. When health care expenditures increase as a share of GDP, they absorb a rising share of people's income, restraining the consumption of other goods and services. Therefore, continued growth in health care spending will create mounting pressure to slow the growth of costs, even in the absence of changes in federal law.

The private sector will probably respond to rising costs for health care by pursuing various changes to reduce spending. Employers can intensify their efforts to reduce the costs of the insurance plans they sponsor—for example, by working with insurers to make the delivery of health care more efficient, by limiting the amount of insurance coverage they offer, or by offering a fixed contribution with which to purchase health insurance in private exchanges.[66] To avoid higher premiums, employees can shift to plans with more tightly managed benefits or higher cost-sharing requirements. Some such changes are already under way; for instance, the percentage of covered workers with an annual deductible increased from 55 percent in 2006 to 78 percent in 2013.[67] The excise tax on certain health insurance plans with high premiums, which was enacted in the Affordable Care Act and will go into effect in 2018, will also encourage individuals and employers to choose plans with lower premiums. In some places, the effects of that tax are already beginning to be felt.[68]

State governments will probably respond to growing costs for Medicaid and CHIP by lowering the rates paid to providers, limiting the services they choose to cover, or tightening eligibility to reduce the number of beneficiaries. Because the federal government's spending for Medicaid depends on what the states spend, actions by the states that reduce the growth of their Medicaid spending will tend to slow the growth of federal spending for the program as well.

Many features of the Medicare program cannot be altered without changes in federal law. Still, a slowdown in spending growth outside of Medicare will affect the program because it is integrated to a significant degree with the rest of the health care system. In particular, Medicare will experience some reduction in cost growth to the extent that actions by individuals, businesses, and states result in lower-cost "patterns of practice"

66. Paul Fronstin, *Private Health Insurance Exchanges and Defined Contribution Health Plans: Is It Déjà Vu All Over Again?* Issue Brief No. 373 (Employee Benefit Research Institute, July 2012), http://tinyurl.com/mcdeyxa.

67. Kaiser Family Foundation and Health Research and Educational Trust, *Employer Health Benefits: 2013 Annual Survey* (August 2013), p. 103, http://tinyurl.com/lsamruu.

68. The University of Minnesota, one of Minnesota's largest employers, is proposing changes to its employee health plans to avoid paying the excise tax. See Catharine Richert, "U of M Wants to Scale Back Employee Health Care Coverage," *Minnesota Public Radio News* (July 18, 2013), http://tinyurl.com/ml9ubte.

by physicians, slower development and diffusion of new medical technologies, and cost-limiting changes to the structure of the overall health care system.

In addition, current law includes a number of incentives for providers and beneficiaries to reduce spending growth in Medicare, and it allows certain types of flexibility for CMS in managing the program. From the beneficiaries' perspective, the demand for Medicare services will be constrained as the program's premiums and cost-sharing amounts consume a growing share of their income. From the providers' perspective, with updates to Medicare's payment rates generally scheduled to be smaller than the increases in the costs of their inputs, the pressure to adopt cost-reducing procedures and technologies will be significant. Other changes being made in the structure of Medicare's payments to providers—such as payment incentives to reduce hospital-acquired infections and readmissions—may also help hold down federal spending.[69] Further, the Centers for Medicare & Medicaid Innovation (CMMI), like many state Medicaid agencies and private insurance companies and providers, is aiming to achieve cost savings by testing promising ideas for modifying rules and payment methods and by expanding the use of those ideas that prove effective.[70] Several such demonstrations are currently under way; which of them—if any—will prove to be successful in slowing spending growth and can be scaled up is uncertain.

A sizable slowdown in the rate of excess cost growth in the health care system, which CBO projects will occur over the long term even in the absence of changes in federal law, probably can be achieved only through significant changes in the nature of health care, access to care, the amount that people pay directly for care, or all of those factors. In the private sector, people will probably face increased cost-sharing requirements and narrower networks of providers; new and potentially useful health technologies will probably be introduced more slowly or be used less frequently than they would without the pressures of rising costs; and more treatments and interventions may simply not be covered by insurance. In the public sector, Medicaid beneficiaries may lose their eligibility or face higher out-of-pocket spending if states narrow their eligibility criteria or drop coverage of optional services, and both they and people receiving subsidies for purchasing health insurance through the exchanges may find themselves in more tightly managed care with narrower provider networks.

69. Sarah L. Krein and others, "Preventing Hospital-Acquired Infections: A National Survey of Practices Reported by U.S. Hospitals in 2005 and 2009," *Journal of General Internal Medicine,* vol. 27, no. 7 (July 2012), pp. 773–779, www.ncbi.nlm.nih.gov/pmc/articles/PMC3378739/. A description of the program to reduce hospital readmissions is available at Centers for Medicare & Medicaid Services, "Readmissions Reduction Program" (accessed August 27, 2013), http://go.usa.gov/DxKC.

70. Sections 3021 to 3027 of the Patient Protection and Affordable Care Act authorized the creation of the CMMI. A list of ongoing CMMI projects is available at Centers for Medicare & Medicaid Services, "Innovation Models" (accessed August 27, 2013), www.innovations.cms.gov/initiatives/index.html.

Projected Evolution of Excess Cost Growth

In the absence of changes in federal law, state governments and the private sector have more flexibility to respond to the pressures of rising health care spending than does the federal government. Consequently, CBO projects that excess cost growth will slow more in Medicaid spending and in private health insurance premiums than it will in Medicare spending. It may be difficult to envision how excess cost growth for Medicare could outstrip that for Medicaid and private insurance premiums over a long period, but such an outcome could occur. For instance, actions taken to reduce spending growth in the private sector could weaken the incentives to develop and disseminate new medical procedures and technologies for nonelderly people but have less of an effect on new procedures and technologies focused on diseases that principally affect the elderly.

The starting point for all of the paths of excess cost growth in CBO's long-term projections is the weighted average rate (calculated in the manner discussed above) of excess cost growth observed in the overall health care system between 1985 and 2011. For its projections, CBO then assumed the following:

- The underlying annual rate of excess cost growth will decline by 2088 (the final year of the current 75-year projection period) to zero for Medicaid and private insurance premiums and to 1.0 percent for Medicare.

- The underlying rate of excess cost growth in each sector will decline linearly—that is, by the same fractional number of percentage points—each year between 2012 and 2088. That linear decline reflects a judgment that, over time, the steps needed to keep reducing growth rates will become increasingly onerous, but the pressure to take them will also intensify because of the increasingly high level of health care spending.

- For Medicare and federal subsidies of health insurance purchased through the exchanges, the projected rate of excess cost growth will equal the underlying rate beginning in 2030; for Medicaid, the projected rate of excess cost growth will equal the underlying rate beginning in 2024. Before those years, CBO's projected rates of excess cost growth incorporate certain adjustments that are described below.

For 2014 through 2023, CBO's projections of spending for Medicare, Medicaid, CHIP, and exchange subsidies in the extended baseline match those in its May 2013 baseline.[71] For those 10 years, CBO's baseline projections imply an average annual

71. CBO subsequently revised its estimate of the impact of certain provisions of the ACA to account for announced one-year delays in the imposition of penalties for certain large employers and the implementation of certain reporting requirements. See Congressional Budget Office, letter to the Honorable Paul Ryan providing an analysis of the Administration's announced delay of certain requirements under the Affordable Care Act (July 30, 2013), www.cbo.gov/publication/44465. Those revisions would not have a significant impact on the long-term budget outlook.

rate of excess cost growth for Medicare of about 0.3 percent; that is, spending per beneficiary for Medicare is projected to grow only slightly faster than potential GDP per capita. That slow projected growth rate stems primarily from historically low updates to payment rates: Payment rates for physicians are scheduled to be reduced in January 2014 by 25 percent; the Affordable Care Act specified reductions in payment rates for most other types of providers; and payments are being constrained by the Budget Control Act. Because some of the changes in payment rules are being phased in, excess cost growth in Medicare is projected to be especially slow during the next few years and then to rise to about 1.4 percent per year by the end of the decade.

For the initial 10 years, the implied average annual rate of excess cost growth for federal Medicaid spending is about 1.5 percent (after an adjustment for the changing federal share of Medicaid spending). The expansion of benefits to people with income up to 138 percent of the federal poverty level will increase total Medicaid spending but not spending per beneficiary and thus will not have a significant impact on excess cost growth.

To project spending under the extended baseline beyond the initial 10-year span, CBO projected the number of beneficiaries of each program and transitioned in the following ways from the growth rates for that first decade to the underlying rates of excess cost growth described above:

- For Medicare, for the years from 2024 through 2029, CBO used a rate of excess cost growth of 1.0 percent—equal to the average rate for 2020 through 2023 with certain adjustments.[72] That figure reflects the projected effects of the ACA as well as other provisions of current law. For 2030 and beyond, CBO assumed that several policies that are in current law but might be difficult to sustain over a long period would no longer be in effect, so for those years, the agency used the underlying rates of excess cost growth for Medicare described above.[73] Altogether, by CBO's projections, excess cost growth for Medicare would average 0.8 percent per year

72. Three adjustments were made in the calculation of excess cost growth for Medicare in those years: First, spending amounts were adjusted for the fact that, given the quirks of the calendar, Medicare is scheduled to make 13, rather than the normal 12, capitation payments in Parts C and D of the program in 2022. Second, the effect of the sequestration under the Budget Control Act was removed because that cancellation of funding will not affect spending after 2022. Third, the reductions in updates to payments for most providers specified in the Affordable Care Act were calculated on the basis of their projected long-run annual average of 1.2 percent, rather than the projected annual rates in those years, which depend on a 10-year moving average and are affected by economic fluctuations.

73. Three key policies that might be difficult to sustain over a long period are the ongoing reductions in payment updates for most providers in the fee-for-service program, the sustainable growth rate mechanism for payment rates for physicians, and spending reductions from the process associated with the Independent Payment Advisory Board. CBO estimates that the underlying rate of excess cost growth for Medicare will have declined from 1.5 percent in 2012 to a little under 1.4 percent by 2030 and to 1.0 percent by 2088.

during the 2014–2038 period (and 1.1 percent per year during the 2014–2088 period). CBO projects that the number of Medicare beneficiaries will grow with the size of the population over age 65 and with the number of recipients of Social Security Disability Insurance.[74]

- For Medicaid, for 2024 and beyond, CBO used the underlying rates of excess cost growth for Medicaid described above.[75] According to the agency's projections, excess cost growth for the program would average 1.3 percent per year during the 2014–2038 period (and 0.7 percent per year during the 2014–2088 period). The agency projects that the number of Medicaid beneficiaries will grow with the size of the population with adjustments for changes in the age distribution of the population.

- For federal subsidies of health insurance purchased through the exchanges, for the years 2024 through 2029, CBO used a growth rate for private insurance premiums consistent with its estimates for the latter part of the initial 10-year projection period. For 2030 and beyond, CBO used the underlying rates of excess cost growth for those premiums described above.[76] The agency projected the amounts of subsidies on the basis of two key factors: A smaller percentage of people will be eligible for subsidies over time because incomes are projected to increase more quickly than the eligibility thresholds, and federal subsidies will cover a declining share of the premiums over time because of the additional indexing factor described above.

- Spending on CHIP is currently subject to a statutory cap for most years in the 2014–2023 period.[77] For 2024 and beyond, CBO assumed that spending on the program would be the same share of GDP as in 2023.

All long-term economic and demographic developments are uncertain, but excess cost growth in health care may be particularly so. Medical procedures and technology continue to evolve rapidly, and spending for any of the federal health care programs

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74. For more information about how CBO projects the number of beneficiaries of Social Security Disability Insurance, see Congressional Budget Office, *CBO's Long-Term Model: An Overview* (June 2009), www.cbo.gov/publication/20807. Since last year's long-term projections, CBO has changed its projection of the incidence of disability, resulting in a higher projection of the number of people receiving Disability Insurance benefits. For additional information, see "CBO's Projections of Demographic and Economic Trends" in Chapter 1 and "New Legislation and Changes in Assumptions and Methods" in Appendix A.

75. CBO estimates that the underlying rate of excess cost growth for Medicaid will have declined from 1.5 percent in 2012 to a little under 1.3 percent by 2024 and to zero by 2088.

76. CBO estimates that the underlying rate of excess cost growth for private health insurance premiums will have declined from 1.5 percent in 2012 to 1.1 percent by 2030 and to zero by 2088.

77. Title XXI of the Social Security Act authorizes CHIP through September 2015. Following statutory guidelines, CBO assumes in its baseline spending projections that annual funding for the program from 2016 through 2023 will continue at $5.7 billion.

could be higher or lower than CBO projects. (Chapter 7 shows how CBO's projections would differ if the growth of health care costs was significantly higher or lower than is projected in the extended baseline.)

Long-Term Projections of Spending for Major Health Care Programs

Federal spending on major health care programs is projected to increase significantly as a share of the economy in the coming decades under the extended baseline, which generally follows current law.

Projected Spending

In 2013, federal spending for Medicare (net of offsetting receipts), Medicaid, and CHIP will amount to 4.6 percent of GDP, CBO expects—with net Medicare spending equal to 3.0 percent of GDP and federal spending on Medicaid and CHIP equal to 1.7 percent of GDP. Under CBO's extended baseline, federal spending for those programs and for exchange subsidies would rise to 8.0 percent of GDP in 2038—with Medicare, net of offsetting receipts, accounting for 4.9 percent and Medicaid, CHIP, and the exchange subsidies, 3.2 percent (see Figure 2-2).[78] Gross Medicare spending is projected to increase from 3.5 percent of GDP in 2013 to 5.8 percent in 2038.

The projected rise in federal spending for the major health care programs relative to GDP results from the continued aging of the population, an expectation of continued faster growth in health care costs per beneficiary than in potential GDP per capita, and the expansion of federal subsidies for health care through Medicaid and the insurance exchanges. Over the next 25 years, aging accounts for 35 percent of the programs' spending growth relative to GDP in CBO's extended baseline, excess cost growth accounts for 40 percent, and the expansion of federal subsidies accounts for 26 percent (see Box 1-1). Beyond the next 25 years, the age profile of the population is expected to change less rapidly, so the incremental effect of aging on the programs' spending growth would diminish. In addition, the Medicaid expansion and the addition of exchange subsidies would put less incremental upward pressure on spending after they took full effect. As a result, excess cost growth would account for an increasing share of the projected growth in spending for those programs as a share of GDP.

The factors that underlie the projected rise in total federal spending for health care programs would also affect the amounts of spending that would subsidize care for different sorts of beneficiaries. Despite the significant expansion of federal support for health care for lower-income people enacted in the Affordable Care Act, under the extended baseline, only about one-fifth of federal spending for the major health care

78. The projections in this chapter include the effects of the exchange subsidies on outlays; the smaller effects on revenues are included in the projections presented in Chapter 5. In all of the projections, the outlays for exchange subsidies are presented in combination with outlays for Medicaid and CHIP, both for ease of exposition and because they all constitute federal subsidies for health insurance for low- and moderate-income households.

programs in 2023 would finance care for able-bodied nonelderly people, CBO projects; about three-fifths would go toward care for people who are age 65 or older, about one-fifth, toward care for blind and disabled people.[79] Beyond 2023, by CBO's estimates under the extended baseline, the share of federal spending for the major health care programs that finances care for people who are age 65 or older would rise slowly because of the continued aging of the population and higher projected excess cost growth in Medicare than in other parts of the health care system.

Among people who are age 65 or older, spending in Medicare has traditionally been higher, on average, for the older people within that group. For example, in the fee-for-service portion of Medicare in 2010, spending for 66-year-old beneficiaries averaged about $5,000, spending for 75-year-old beneficiaries averaged about $8,500, and spending for 85-year-old beneficiaries averaged more than $12,000.[80] CBO expects that pattern to persist in the future.

One consequence of the positive correlation between age and Medicare spending is that a larger share of the program's spending goes to beneficiaries over any given age than the share of beneficiaries they constitute. Consider people who are age 55 or older this year. Under current law, those people who survive to 2023 and will then be age 65 or older will represent all elderly Medicare beneficiaries, and all spending for elderly Medicare beneficiaries will finance care for them. Those same people who survive to 2033 and will be age 75 or older will represent about 50 percent of elderly Medicare beneficiaries—but about 60 percent of Medicare spending for elderly beneficiaries will be for them, according to CBO's projections. In 2043, those of that group who survive to that year will be age 85 or older and will represent only about 20 percent of elderly Medicare beneficiaries—but they will account for about one-quarter of Medicare spending for elderly beneficiaries.

Although the focus of this chapter is federal spending on health care, CBO also projected total national spending on health care. To do so, CBO combined its projections of federal spending on major health care programs with rough projections of other health care spending (see Box 2-1). According to that analysis, national

79. The federal government also subsidizes health care through the tax exclusion for employment-based health insurance. The tax expenditure associated with that exclusion—including the effects on revenues from payroll taxes as well as the income tax—is estimated to be roughly $250 billion in 2013, nearly 30 percent as large as gross federal spending for the major health care programs. For more analysis of the tax exclusion, see Congressional Budget Office, *The Distribution of Major Tax Expenditures in the Individual Income Tax System* (May 2013), www.cbo.gov/publication/43768.

80. Average spending for 65-year-old beneficiaries is not helpful for this comparison because most such beneficiaries are enrolled in Medicare for only part of the calendar year in which they turn 65, and average spending for beneficiaries of that age reflects that fact. The amounts reported here include spending under Parts A and B of Medicare averaged across all beneficiaries of that age enrolled in Part A, Part B, or both. The fraction of beneficiaries enrolled in both Parts A and B increases among beneficiaries of older ages.

spending on health care as a share of GDP will continue to rise—from about 16 percent of GDP now to about 22 percent of GDP by 2038.

Financing of Major Health Care Programs

Spending on the government's major health care programs is financed in various ways, as described earlier in this chapter. For Medicaid and CHIP, states and the federal government share in the financing. The federal share of spending on those programs is funded entirely from general funds of the federal government, as will be the subsidies to be provided through health insurance exchanges.

In contrast, Medicare is funded through a combination of payroll taxes, beneficiaries' premiums, general funds of the federal government, and other sources. The relative magnitudes of those sources of funding have changed significantly over time. The amount of Medicare payroll taxes collected has declined from 63 percent of gross federal spending for Medicare in 2000 to an estimated 35 percent in 2013 (see Figure 2-3). During that same period, the share of those benefits financed by beneficiaries' premiums and other offsetting receipts has grown from 10 percent to an estimated 13 percent, and the share financed by general funds of the government, income taxes on benefits, and the remaining sources of funding for the program has increased from 27 percent to 51 percent.[81] According to CBO's projections, under the extended baseline in 2038, receipts from payroll taxes would equal 22 percent of gross federal spending for Medicare, and beneficiaries' premiums and other offsetting receipts would account for 15 percent—leaving 64 percent financed by general funds, income taxes on benefits, and other sources.

Benefits under Part A of Medicare are paid from the Hospital Insurance Trust Fund, which is credited with receipts from payroll taxes and a small amount of other revenues. A commonly used summary measure of the financial status of Part A is the estimated actuarial balance of the HI trust fund—that is, the present value of projected noninterest revenues and the current balance of the trust fund, minus the present value of projected outlays and the target trust fund balance (generally defined to be one year of outlays) at the end of a specified period.[82] That difference is usually shown as a

81. The increase in the share of spending covered by sources other than payroll taxes is largely the result of an increase in the portion of benefits provided by the parts of the program that are financed mainly by a combination of premiums and general funds—Part B and, since 2006, Part D. In 1980, Part B accounted for 30 percent of Medicare spending; in 2013, Parts B and D will account for 53 percent of Medicare spending, CBO estimates. In 2013, the percentage of benefits covered by premiums and other offsetting receipts would be higher than shown here if the two-thirds of Part D premiums that are paid directly by beneficiaries to Part D plans and the resulting benefit payments were included.

82. A present value is a single number that expresses a flow of current, past, and future income or payments in terms of an equivalent lump sum received or paid today. For this analysis, payroll taxes include the shares paid by employers and employees. Benefits are those scheduled to be paid under current law, regardless of the balances projected for the trust fund.

percentage of the present value of taxable payroll over the same period. A negative estimated actuarial balance means that outlays plus the desired trust fund balance will exceed revenues plus the current balance; the value of the estimated actuarial balance represents the amount by which revenues as a percentage of taxable payroll (the income rate) would have to be increased immediately and in every year of the projection period to cover all projected costs and provide the target balance in the trust fund at the end of the period. Alternatively, outlays as a percentage of taxable payroll (the cost rate) could be reduced by an equivalent amount—or a combination of the two approaches yielding the same total effect could be used to address the imbalance.

Projections of future spending under Part A of Medicare are even more uncertain than projections of overall Medicare spending. Changes over time in the delivery of health care and in the health care system might lead to greater or lesser reliance on the services covered by Part A relative to the services covered by Part B or Part D. CBO has not developed the analytic capability to project such shifts over the long term. Therefore, the agency's long-term projections of spending under Part A of Medicare are constructed on the assumption that such spending grows in line with projected spending for Medicare as a whole.

In the extended baseline, the estimated actuarial imbalance for the HI trust fund over the next 25 years is 1.0 percentage points, which is the difference between projected income equal to 3.5 percent of taxable payroll and projected costs totaling 4.5 percent of taxable payroll (see Table 2-2). Eliminating a gap of that size would require an immediate and permanent increase in HI payroll taxes from 2.9 percent to 3.9 percent of taxable payroll as currently projected, an immediate and permanent cut in spending on Part A equal to almost one-quarter of current spending, or some combination of tax increases and spending cuts with an overall present value equal to 1.0 percent of projected taxable payroll. Over the next 75 years, the estimated actuarial imbalance would be much larger, reaching 3.3 percent of taxable payroll.

Another commonly used measure of the sustainability of Part A of Medicare is the timing of the projected exhaustion of the HI trust fund. According to CBO's May 2013 baseline projections, under current law the balance of the HI trust fund would fall from $229 billion at the end of fiscal year 2012 to $31 billion at the end of fiscal year 2023, with a drop in the trust fund balance during 2023 of about $35 billion.[83] Therefore, under the extended baseline, the trust fund would be exhausted just beyond the coming decade.

Once the HI trust fund was exhausted, it appears that total payments to health plans and providers for services covered under Part A of Medicare would be limited to the amount of revenues subsequently credited to the trust fund. If that occurred,

83. Congressional Budget Office, "Medicare—May 2013 Baseline" (May 2013), www.cbo.gov/publication/44205.

beneficiaries' access to health care services would almost certainly be reduced. However, projections in this report are consistent with a statutory requirement that CBO, in its baseline projections, assume that funding is adequate to make all payments required by law for entitlement programs.[84]

Medicare Benefits and Payroll Taxes for People in Different Birth Cohorts

Different generations will pay different amounts of Medicare payroll taxes and receive different amounts of Medicare benefits during their lifetime. Benefits are expected to be higher for later generations primarily because of the growth of health care spending per person but also because increases in life expectancy will cause later generations to receive benefits for longer periods, on average. Payroll taxes will be higher for later cohorts because real earnings generally grow over time.

CBO estimated real lifetime benefits and payroll taxes for various birth cohorts as the present value, discounted to the year in which a beneficiary turns 65, of all benefits that an individual receives from Medicare (net of premiums paid for those benefits) and all payroll taxes paid to the program.

According to CBO's projections, under the assumption that all scheduled benefits are paid, real median lifetime benefits (net of premiums paid) and real median lifetime payroll taxes would be greater, in general, for each successive cohort (see Figure 2-4). Over their lifetime, beneficiaries born in the 1940s would, on average, receive about $160,000 in benefits (net of premiums paid) and pay about $45,000 in payroll taxes (both figures are expressed in 2013 dollars). Those born in the 1950s would receive, on average, about $205,000 in benefits and pay about $60,000 in payroll taxes, CBO estimates. And those born in the 1960s would receive, on average, about $270,000 in benefits and pay about $65,000 in payroll taxes. In each cohort, the beneficiaries would also pay other taxes to the federal government over their lifetime, and a portion of the taxes going into the general fund would be used to finance Medicare benefits—but those amounts from the general fund cannot be readily traced to taxes paid by taxpayers in different cohorts.

Those calculations of lifetime benefits and payroll taxes are based on a real discount rate of 3.0 percent, the average long-term interest rate projected for securities held in the HI trust fund. If a higher interest rate was used for such discounting, the present value of lifetime benefits discounted to the year in which a beneficiary turns 65 would be smaller than the amounts shown here, but the present value of lifetime payroll taxes discounted to that year would be larger. Thus, because people generally receive benefits later in life than they pay payroll taxes, the present value of benefits would be smaller relative to the present value of payroll taxes if a higher discount rate was used. The opposite would be true if a discount rate of less than 3.0 percent was used.

84. Section 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985; 2 U.S.C. §907(b)(1).

Chapter 3: The Long-Term Outlook for Social Security

The federal government spends more on Social Security than it does on any other single program. Created in 1935, the program has long consisted of two parts: Old-Age and Survivors Insurance (OASI), which pays benefits to retired workers and to their dependents and survivors, and Disability Insurance (DI), which makes payments to disabled workers who have not reached full retirement age (the age of eligibility for full retirement benefits) and to their dependents. In all, more than 57 million people currently receive Social Security benefits. The Congressional Budget Office (CBO) estimates that outlays for that program in fiscal year 2013 will total $809 billion, accounting for nearly a quarter of all federal spending.

During the program's first four decades, spending for Social Security increased relative to the size of the economy, reaching about 4 percent of gross domestic product (GDP) in the mid-1970s. That increase was caused largely by repeated expansions of the program. Costs rose to 4.8 percent of GDP in 1983, the year that the last major piece of legislation focused on Social Security was enacted. Between 1984 and 2008, spending for Social Security fluctuated between 4.0 percent and 4.5 percent of GDP. During the most recent recession, GDP contracted and Social Security outlays increased more rapidly than they would have with stable economic growth because the number of OASI and DI claimants rose as the job market deteriorated. As a result, outlays grew from 4.1 percent of GDP in 2007 to 4.7 percent of GDP in 2009 (see Figure 3-1). CBO anticipates that spending for Social Security will reach 4.9 percent of GDP in 2013, and if the full benefits specified under current law were paid, spending would reach 6.2 percent of GDP in 2038 and remain close to that value in subsequent decades.

How Social Security Works

Social Security is often characterized as a retirement program because a majority of its beneficiaries—70 percent—are retired workers or the spouses and children of those people. In general, workers qualify for retirement benefits if they are age 62 or older and have paid sufficient Social Security taxes for at least 10 years.[85] However, Social Security also provides other types of benefits, such as payments to deceased workers' survivors, who make up 11 percent of beneficiaries. In addition, workers younger than the full retirement age who have had to limit their employment because of a physical or mental disability can qualify for DI benefits, in many cases with a shorter employment history. Disabled workers and their spouses and children account for 19 percent of

85. For a more detailed description of the Social Security program, see Congressional Budget Office, *Social Security Policy Options* (July 2010), "An Overview of Social Security," pp. 1–4, www.cbo.gov/publication/21547.

beneficiaries.[86] In dollar terms, retired workers and their dependents receive 68 percent of Social Security benefits, survivors receive 14 percent, and disabled workers and their spouses and children receive 18.[87]

The benefits that retired or disabled workers initially receive are based on their individual earnings histories, although those earnings and the formula used to compute initial benefits are indexed to changes in average annual earnings for the workforce as a whole. In subsequent years, a cost-of-living adjustment is applied to the initial benefits to reflect annual growth in consumer prices.

Workers born before 1938 were able to receive full retirement benefits at the age of 65. But under a schedule put in place by the Social Security Amendments of 1983, the full retirement age increases gradually. It reached 66 for people born from 1943 to 1954; it will increase again gradually beginning with people born in 1955, who will turn 62 in 2017, and it will reach 67 for people born after 1959, who will turn 62 in 2022 or later. The age at which workers may start receiving reduced benefits remains 62.

The Social Security Administration estimates that workers who retire at age 65 in 2013 and who had earnings equal to the average earnings of all workers in the country throughout their career will qualify for an annual benefit of about $18,000. That amount will replace slightly more than 40 percent of their preretirement earnings. In coming decades, the replacement rate will be lower for workers with average earnings who retire at age 65, mainly because of the scheduled increase in the full retirement age. Nevertheless, because initial benefits are based on beneficiaries' previous earnings indexed to overall average wages and because wages grow over time, the real (inflation-adjusted) value of those benefits will rise over time.

The Social Security program is funded by two sources of dedicated tax revenues. Roughly 96 percent of those revenues derive from a payroll tax—generally, 12.4 percent of earnings—that is split evenly between workers and their employers; self-employed people pay the entire tax. Only earnings up to a maximum annual amount ($113,700 in 2013) are subject to the payroll tax. That amount, referred to as the taxable maximum, generally increases each year at the same rate as average earnings in the United States. However, the share of economywide earnings that falls

86. See Congressional Budget Office, *Social Security Disability Insurance: Participation Trends and Their Fiscal Implications* (July 2010), www.cbo.gov/publication/21638, and *Policy Options for the Social Security Disability Insurance Program* (July 2012), www.cbo.gov/publication/43421.

87. The ways in which beneficiaries and benefits are categorized are not completely consistent because some beneficiaries receive more than one type of benefit. For instance, some retired workers are also entitled to survivors' benefits. Those beneficiaries are classified as retired workers for the purpose of calculating the distribution of beneficiaries, but for the purpose of calculating the distribution of funding, their benefit payments are prorated between the categories of retired worker and survivor.

below the taxable maximum varies each year as the distribution of earnings changes. When earnings inequality increases, as it has in recent decades, the taxable share of earnings declines because a greater share of income is above the taxable maximum. Earnings inequality will grow somewhat during the next few decades, and the share of earnings subject to the payroll tax, which has varied between 82 percent and 85 percent in recent years, will average around 82 percent in coming decades, CBO projects.

The remaining share of tax revenues—4 percent—is collected from income taxes on benefits. Those filing singly must pay taxes on Social Security benefits if the sum of their non-Social Security income and half of their benefits exceeds $25,000. The threshold for those filing jointly is $32,000. Under current law, those thresholds remain fixed, with no adjustment for earnings growth or inflation.

Revenues from both sources are credited to the two Social Security trust funds (the OASI trust fund and the DI trust fund). Social Security benefits and the program's administrative costs are paid from those funds; benefit payments constitute 99 percent of total outlays for the program. Interest on the trust funds' balances is credited to those funds, but because the interest transactions represent payments from one part of the government (the general fund of the U.S. Treasury) to another (the Social Security trust funds), they do not affect federal budget deficits or surpluses. The balances in those funds ($2.8 trillion at the end of August 2013) have accumulated over many years, during which tax revenues and interest received by the trust funds have exceeded the benefits paid from those funds.

The Outlook for Social Security Spending and Revenues

The cost of the Social Security program will rise significantly in coming decades—a development that analysts have long foreseen. Average benefits per beneficiary tend to grow over time because the earnings on which those benefits are based also increase.[88] In addition, as more members of the baby-boom generation reach retirement age and as longer life spans lead to longer retirements, a significantly larger share of the population will draw Social Security benefits. As a result, the total amount of benefits scheduled to be paid under current law will grow faster than the economy.

88. CBO expects that private-sector costs for health care will continue to grow more quickly than workers' total compensation. By itself, that trend would reduce the share of compensation that workers receive as wages in employment that is subject to the Social Security payroll tax. (That share is called *covered wages* and includes wages above the taxable maximum.) However, the Affordable Care Act instituted an excise tax on some employment-based health insurance plans with high premiums. Some workers and employers will respond by shifting to less expensive plans, thus reducing the share of compensation allocated to health insurance premiums and increasing the share of cash wages. (See Chapter 1, "Taxable Earnings as a Share of Compensation.") In CBO's projections, the effects of the excise tax roughly offset the effects of rising health care costs on cash wages as a share of total compensation until around 2050, but the effects of rising health care costs dominate thereafter. Therefore, CBO expects the share of compensation that workers receive as covered wages to remain at roughly its 2023 level through 2050 and then to decline.

Projected Spending and Revenues

CBO's long-term projections for Social Security revenues and benefits are based on the agency's detailed microsimulation model, which starts with data about individuals from a representative sample of the population and projects demographic and economic outcomes for that sample through time. For each individual in the sample, the model simulates birth, death, immigration and emigration, marriages and divorces, fertility, labor force participation, hours worked, earnings, payroll taxes, and Social Security retirement, disability, and dependent benefits.[89]

According to CBO's projections, the population age 65 or older will increase by 37 percent between now and 2023 and by 85 percent between now and 2038, compared with increases of just 5 percent and 11 percent over those periods in the number of people ages 20 to 64.[90] Today, that older group is 23 percent the size of the younger group; at those rates of growth, it will be 30 percent as large as the younger group by 2023 and 38 percent as large by 2038 (see Figure 3-2). Under current law, about 76 million people would collect benefits in 2023 and more than 101 million people would in 2038, compared with 57 million who currently receive them.

As the baby-boom generation ages and life expectancy increases, Social Security beneficiaries will become older, on average, as well. Currently, about 13 percent of beneficiaries who are 65 or older are 85 or older; by 2038, 17 percent of them will be 85 or older, CBO projects. In any given year, in CBO's extended baseline, average benefits for older beneficiaries are slightly lower than for younger retirees because older beneficiaries tend to have had lower earnings; thus, in the baseline, the share of benefits paid to people 85 or older (relative to those paid to people 65 or older) is smaller than the share of beneficiaries in that group, growing from about 12 percent today to 14 percent in 2038.

If current law remained in place, spending for the program would rise from 4.9 percent of GDP in 2013 to 6.2 percent by 2038, CBO estimates. Spending would then dip slightly relative to the size of the economy as members of the baby-boom generation die, but it would later turn upward again as a result of beneficiaries' increasing life spans.

The share of Social Security outlays going to pay for disability benefits would decline from 17 percent today to 14 percent in 2038. Most disabled beneficiaries are between

89. See Congressional Budget Office, *CBO's Long-Term Model: An Overview* (June 2009), www.cbo.gov/publication/20807.

90. CBO's current assumptions about mortality imply greater average lifespans than did the assumptions underlying last year's long-term projections. For additional information, see Appendix A. That change boosts projected spending for Social Security.

50 and the full retirement age, and, as the baby- boom generation ages, the share of the population in that range will decline.[91]

Under current law, Social Security revenues would grow more slowly than spending. Because the payroll tax is a fixed share of taxable earnings, and CBO expects that taxable earnings will remain a fairly stable share of GDP, the agency projects that payroll taxes would remain fairly constant as a share of GDP. However, under current law, both the number of Social Security beneficiaries whose benefits are subject to taxation and their average income tax rates would increase, CBO projects.[92] As a result, income taxes on Social Security benefits would grow from about 3 percent of benefits today to almost 4½ percent of benefits in 2038. By that year, total Social Security tax revenues (payroll taxes plus taxes on benefits) would reach 4.8 percent of GDP, compared with the current level of 4.3 percent.

In 2010, for the first time since the enactment of the Social Security Amendments of 1983, annual outlays for the program exceeded annual revenues excluding interest credited to the trust funds. A gap between those amounts has persisted since then, and by CBO's projections based on current law, outlays would exceed such revenues by around 13 percent over the next decade. After that, the difference would grow; by 2038, outlays would be about one-third greater than annual revenues excluding interest credited to the trust funds.

Financing of Social Security

A common measure of the sustainability of a program that has a trust fund and a dedicated revenue source is its estimated actuarial balance over a given period—that is, the sum of the present value of projected tax revenues and the current trust fund balance minus the sum of the present value of projected outlays and a target balance at the end of the period.[93] For Social Security, that difference is traditionally presented as a percentage of the present value of taxable payroll. Over the next 75 years, if current law remained in place, the program's actuarial shortfall would be 3.4 percent

91. CBO's current estimates regarding the incidence of disability imply that more people will receive DI benefits than did the estimates underlying last year's long-term projections. For additional information, see Appendix A. That change boosts projected spending for Social Security.

92. For information about CBO's projections of total income taxes, see Chapter 5.

93. A present value is a single number that expresses a flow of current, past, and future income or payments in terms of an equivalent lump sum received or paid today. To account for the difference between the trust fund's current balance and the balance desired for the end of the period, the balance at the beginning is added to the projected tax revenues and an additional year of costs at the end of the period is added to projected outlays.

of taxable payroll, or 1.2 percent of GDP, CBO estimates (see Table 3-1).[94] In other words, to bring the program into actuarial balance through 2087, given CBO's projections, payroll taxes could be increased immediately and permanently by 3.4 percent of taxable payroll, scheduled benefits could be reduced by an equivalent amount, or some combination of tax increases and spending reductions of equal present value could be used.

Those estimates of the actuarial shortfall do not account for revenues and outlays after the next 75 years. A policy that increased revenues or reduced outlays by the same percentage of taxable payroll in each year so as to eliminate the 75-year shortfall would not place Social Security on a permanently stable financial path. Instead, such a policy would create surpluses during the next several decades but generate deficits in later years and leave the system in a state of financial imbalance after 2087.[95] If such a policy was adopted, the 75-year measure used in this report and commonly used in other analyses of Social Security would show no shortfall now because the measure includes the taxes paid by workers each year until 2087 but does not include the benefits that would be paid to those workers after 2087. That measure is known as the *75-year open-group unfunded obligation* because, with no change in law, the program would continue to be open to new participants.

An alternative measure—sometimes called the *closed-group unfunded obligation*—shows the shortfall in the system that would occur if the law was changed to close Social Security to anyone born after 1998 (for estimates of that measure prepared today), thereby encompassing future taxes paid and benefits received only by people who are now age 15 or older. That measure thus excludes the financial consequences of participation in Social Security by future generations; such groups would pay much more in taxes over the next 75 years than they would receive in benefits during that period. (Similar assessments are made of the financial outlook for private pension plans.) The Social Security trustees estimate that, when measured as a share of taxable payroll, the closed-group shortfall as of 2013 is more than 50 percent larger than the open-group shortfall.[96]

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94. To be consistent with the 75-year actuarial balance reported by the Social Security trustees, the 75-year projection period used here begins in 2013 and ends in 2087. The Social Security trustees estimate that the program's 75-year actuarial shortfall is 2.7 percent of taxable payroll, 0.6 percentage points less than CBO estimates. That difference can be explained entirely by the differences in projected mortality rates and incidence of disability that are discussed in Chapter 1; all of the other factors that affect the actuarial shortfall, taken together, would lead CBO and the trustees to make roughly the same estimate. See Social Security Administration, *The 2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (May 2013), www.socialsecurity.gov/oact/tr/2013.

95. Both the estimates of the actuarial imbalance of Medicare's Hospital Insurance Trust Fund presented in Table 2-2 and the fiscal gap presented in Table B-1 are subject to the same limitation.

96. Social Security Administration, *The 2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (May 2013), Tables IV.B6 and IV.B7, www.socialsecurity.gov/oact/tr/2013. CBO has not estimated the closed-group shortfall.

Another commonly used measure of Social Security's sustainability is the trust funds' date of exhaustion, which, under CBO's extended baseline, would be in calendar year 2031.[97] Once the trust funds are depleted, the Social Security Administration would no longer have legal authority to pay full benefits when they are due. In the years after the exhaustion of the trust funds, it appears that annual outlays would therefore be limited to annual revenues. Thus, benefits can be projected in two ways: as *payable benefits,* which reflect the limits imposed by the availability of balances in the trust funds, or as *scheduled benefits,* which reflect the benefit formulas specified in law, regardless of the trust funds' balances. This report uses the latter approach, which is consistent with a statutory requirement that CBO, in its baseline projections, assume that funding is adequate to make all payments required by law for entitlement programs.[98]

Social Security Benefits and Payroll Taxes for People in Different Birth Cohorts

Different generations will end up paying different amounts of Social Security taxes and receiving different amounts of benefits during their lifetime. Taxes and benefits alike would be higher for later cohorts because real earnings are projected to keep growing. Continuing increases in life expectancy also contribute to the growth in lifetime benefits because later cohorts will live to receive Social Security benefits for longer periods.[99]

CBO estimated real lifetime benefits and payroll taxes for various birth cohorts as the present value, discounted to the year in which a beneficiary turns 62, of all benefits that an individual receives from Social Security and all payroll taxes paid to the program.[100]

According to CBO's projections, under the assumption that all scheduled benefits are paid, real median lifetime benefits and real median lifetime payroll taxes would be greater, in general, for each successive cohort (see Figure 3-3). Over their lifetime, beneficiaries born in the 1940s would, on average, receive about $190,000 in benefits and pay about $205,000 in payroll taxes. Those born in the 1960s would, on average, receive $240,000 in benefits and pay $245,000 in payroll taxes; and

97. The DI trust fund would be exhausted in fiscal year 2016, and the OASI trust fund would be exhausted in calendar year 2033. This document, however, focuses on the combined trust funds. In 1994, the annual report of the Social Security trustees projected that the DI trust fund would be exhausted in 1995. That outcome was prevented by legislation that redirected revenues from the OASI trust fund to the DI trust fund. Partly because of that experience, it is a common analytical convention to consider the DI and OASI trust funds as combined.

98. Section 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985; 2 U.S.C. §907(b)(1).

99. For additional analysis of the distribution of Social Security benefits and taxes, see *CBO's 2012 Long-Term Projections for Social Security: Additional Information* (October 2012), www.cbo.gov/publication/43648.

100. For this analysis, payroll taxes include the combined shares paid by employers and employees. Benefits are those scheduled to be paid under current law regardless of the balances projected for the trust funds. Benefits are net of income taxes paid on benefits and credited to the Social Security trust funds.

those born in the 1980s would, on average, receive $310,000 in benefits and pay $260,000 in payroll taxes. For workers born from the 1940s through the 1980s, taken all together, lifetime payroll taxes would be roughly equal to lifetime benefits. But benefits for earlier generations were considerably larger than their payroll taxes, and that historical imbalance contributes to the system's ongoing financial shortfall.[101]

Those calculations of lifetime benefits and payroll taxes are based on a real discount rate of 3.0 percent, the average long-term interest rate projected for securities held in the Social Security trust funds. If a higher interest rate was used for such discounting, the present value of lifetime benefits discounted to the year in which a beneficiary turns 62 would be smaller than the amounts shown here, but the present value of lifetime payroll taxes discounted to that year would be larger. Thus, because people generally receive benefits later in life than they pay payroll taxes, the present value of benefits would be smaller relative to the present value of payroll taxes using a higher discount rate. The opposite would be true if a discount rate of less than 3.0 percent was used.

Chapter 4: The Long-Term Outlook for Other Federal Noninterest Spending

In 2013, half of the federal government's spending went toward programs and activities other than major health care programs (Medicare, Medicaid, and the Children's Health Insurance Program), Social Security, and net interest. That half of spending—referred to in this report as other federal noninterest spending—includes outlays for discretionary programs, which are funded through the annual appropriation process, and outlays for mandatory programs (other than major health care programs and Social Security), which are usually funded according to underlying statutes that establish eligibility and payment standards.[102] Mandatory spending in this category also includes the refundable portions of the earned income tax credit, the child tax credit, and the American Opportunity Tax Credit, which are recorded in the budget as outlays.

The Congressional Budget Office (CBO) projects that if current laws generally continued without change, other federal noninterest spending would drop from a total of 11.3 percent of gross domestic product (GDP) in 2012 to 7.6 percent in 2023 and then to 7.1 percent in 2038. Discretionary spending, which equaled 8.0 percent of GDP in 2012, would fall to 5.3 percent of GDP by 2023; for its extended baseline, CBO assumed that discretionary spending would remain at that percentage of GDP

101. See Congressional Budget Office, *How Pension Financing Affects Returns to Different Generations* (September 2004), www.cbo.gov/publication/15993.

102. For a description of the activities included in various categories of federal spending, see Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2012 to 2022* (January 2012), Box 3-1, p. 48, www.cbo.gov/publication/42905.

thereafter. Mandatory spending other than that for major health care programs, Social Security, and net interest would decrease from 3.3 percent of GDP last year to 2.3 percent in 2023 and to 1.8 percent in 2038 (see Figure 4-1).

Other Federal Noninterest Spending Over the Past Four Decades

During the past 40 years, federal spending for everything other than major health care programs, Social Security, and net interest has averaged 11 percent of GDP. Such spending declined from 12 percent of GDP in 1973 to 8 percent in the late 1990s and early 2000s, stayed close to 10 percent through most of the first decade of the 2000s, and then spiked to 14 percent in 2009, before receding to 11 percent of GDP in 2012.

Discretionary Spending

A distinct pattern in the federal budget since the 1970s has been the diminishing share of spending that occurs through the annual appropriation process. Between 1973 and 2012, discretionary spending fell from 53 percent of total federal spending to 36 percent. Relative to the size of the economy, discretionary spending declined from 9.6 percent of GDP to 8.0 percent.

Most of that decline involved spending for national defense. Defense discretionary spending peaked at 9.1 percent of GDP in the late 1960s, at the height of the Vietnam War. In the late 1970s, defense spending dropped below 5.0 percent, and during the defense buildup of 1982 to 1986, it averaged 5.9 percent (see Figure 4-2). After the end of the Cold War, outlays for defense fell again relative to GDP, reaching a low of 2.9 percent at the turn of the century. Such outlays began climbing again in 2002, however. Defense spending averaged 4.6 percent of GDP from 2009 through 2011, mainly as a result of increased spending on operations in Iraq and Afghanistan, before falling to 4.2 percent in 2012.

Nondefense discretionary spending covers a wide array of federal activities, such as education, transportation, income security, veterans' health care, and homeland security. Over the past four decades, nondefense discretionary spending has generally ranged between about 3 percent and 4 percent of GDP, although from 1975 to 1981, it averaged almost 5 percent of GDP. More recently, funding from the American Recovery and Reinvestment Act of 2009, as well as other funding associated with the federal government's response to the 2007–2009 recession, helped push nondefense discretionary outlays above 4 percent of GDP from 2009 through 2011. Like defense discretionary spending, such outlays declined as a share of GDP in 2012 (to 3.8 percent).

Other Mandatory Spending

Spending for mandatory programs other than Medicare, Medicaid, the Children's Health Insurance Program, and Social Security covers such things as unemployment

compensation, retirement benefits for federal civilian employees and military personnel, the Supplemental Nutrition Assistance Program (formerly known as Food Stamps), veterans' benefits, and other programs. Spending for that category is net of various offsetting receipts, such as the contributions that government agencies make to federal civilian and military retirement programs and the proceeds from leases to drill for oil and natural gas on the Outer Continental Shelf.[103]

Other mandatory spending averaged 3.7 percent of GDP from the mid-1970s through the early 1980s. It was generally lower from the mid-1980s to 2008, averaging 2.5 percent of GDP, with some fluctuations. In 2009, however, other mandatory spending nearly doubled to 5.1 percent of GDP because of the financial crisis and recession and the federal government's response to them. In particular, spending increased sharply for unemployment benefits and federal nutrition programs, and additional outlays were recorded for the Troubled Asset Relief Program (TARP), deposit insurance, and payments to Fannie Mae and Freddie Mac (two institutions, now under government conservatorship, that facilitate the flow of funding for home loans). Some of that spending proved temporary, and net outlays for the TARP and for Fannie Mae and Freddie Mac have turned out to be noticeably lower than originally recorded in 2009. As a result, total other mandatory spending declined to an average of 3.4 percent of GDP over the 2010–2012 period.

Long-Term Projections of Other Federal Noninterest Spending

Under CBO's extended baseline, other federal noninterest spending is projected to total 7.6 percent of GDP in 2023 and 7.1 percent in 2038. Those figures represent the lowest amounts relative to the size of the economy since the 1930s.

Discretionary Spending

Projections of discretionary spending for 2013 through 2023 come from CBO's most recent 10-year baseline budget projections, which were published in May.[104]

Through 2021, most discretionary appropriations are constrained by the caps and automatic spending reductions put in place by the Budget Control Act of 2011; for 2022 and 2023, CBO assumed that discretionary appropriations would equal the 2021 amount, with increases for projected inflation. Under that assumption, outlays from those appropriations are projected to decline from 8.0 percent of GDP last year—already below the 40-year average of 8.4 percent—to 5.3 percent in 2023 (see Table 4-1). That 2023 amount would be the lowest level of discretionary spending

103. In last year's version of this report, the category of other mandatory spending also included offsetting receipts for the Medicare program (mostly premiums paid by Medicare beneficiaries). In this report, those offsetting receipts are included with Medicare spending.

104. See Congressional Budget Office, *Updated Budget Projections: Fiscal Years 2013 to 2023* (May 2013), www.cbo.gov/publication/44172.

relative to GDP in more than half a century (since at least 1962, the first year for which comparable data are available). Under those projections, defense and nondefense discretionary spending would each equal 2.6 percent of GDP in 2023, which would also be the smallest share of the economy for each category in at least five decades.

After 2023, CBO's extended baseline incorporates the assumption that discretionary spending remains at the percentage of GDP projected for 2023—in other words, that such spending grows at the same pace as the economy. CBO's baseline and extended baseline are meant to be benchmarks for measuring the budgetary effects of legislation, so they mostly reflect the assumption that current laws remain unchanged. However, after 2021—when the caps and automatic spending cuts established by the Budget Control Act are due to expire—total discretionary spending will not be limited by current laws and will be determined by lawmakers' future actions. With no basis for predicting those actions, CBO based its long-term projections of discretionary spending on a combination of the baseline projections through 2023 and historical experience.

In CBO's judgment, projecting a continued decline in discretionary spending as a share of GDP beyond 2023 would not provide the most useful benchmark for considering potential changes to discretionary programs, for several related reasons: First, discretionary spending has been a larger share of economic output throughout the past 50 years than it is projected to be in 2023. Second, nondefense discretionary spending has been higher than 3.0 percent of GDP throughout the past five decades and has shown no sustained trend relative to GDP. Third, defense spending has equaled at least 2.9 percent of GDP throughout the past five decades and has shown no trend relative to GDP in the past two decades. Conversely, projecting an increase in discretionary spending as a percentage of GDP beyond 2023 would require CBO to select a specific percentage, which the agency does not have a clear basis for doing. As a result of those considerations, CBO assumed for the extended baseline that discretionary spending would remain a constant share of GDP beginning in 2023.

Other Mandatory Spending

In constructing baseline projections, CBO assumes that mandatory programs will operate as they do under current law, which includes the automatic spending cuts put in place by the Budget Control Act.

In CBO's most recent baseline projections, total spending for mandatory programs other than major health care programs and Social Security is estimated to fall from 3.3 percent of GDP in 2012 to 2.7 percent this year, primarily because of a transitory boost in payments to the Treasury from Fannie Mae and Freddie Mac. Other mandatory spending is projected to move back up to 3.0 percent of GDP in 2014 but then decline in subsequent years, to 2.3 percent by 2023.

A small part of the decline between 2014 and 2023 stems from a projected reduction in spending for the earned income tax credit, the child tax credit, and the American Opportunity Tax Credit. Outlays for the refundable portions of those credits are projected to decrease from 0.5 percent of GDP in 2014 to 0.3 percent in 2023 because the American Opportunity Tax Credit and temporary increases in the earned income and child tax credits are scheduled to expire at the end of calendar year 2017 and because, as income grows, the amounts of various credits that people qualify for decrease. Most of the projected decline in other mandatory spending between 2014 and 2023 occurs because, as a whole, the rest of that category is projected to grow at approximately the rate of inflation. Because the economy is expected to grow faster than inflation, however, that spending is projected to decrease as a share of GDP through 2023.

For the years beyond 2023, CBO projected outlays for the refundable portions of the earned income and child tax credits as part of its long-term revenue projections (discussed in Chapter 5). The remainder of other mandatory spending was not projected in detail after 2023 because of the number of programs involved and the variety of factors that influence spending on them. Instead, CBO used an approximate method to project spending for those programs as a group: assuming that such spending would decline as a share of GDP after 2023 at the same rate that it is projected to fall between 2018 and 2023.[105]

The main reason for that projected decline is that spending for many mandatory programs would grow more slowly than GDP under current law. For example, outlays for some income support programs, such as Supplemental Security Income and the Supplemental Nutrition Assistance Program, are linked to prices and the size of the eligible population; however, GDP tends to grow faster than the sum of price increases and population growth, because inflation-adjusted income per person tends to rise over time. As a result, under current law, the benefits that would be provided under many of the programs would decline substantially in value relative to average income. That change would make the system of federal benefit payments very different than it is today. As another example of why some mandatory programs would grow more slowly than GDP under current law, spending on federal retirement programs is projected to decrease relative to GDP because federal employees are expected to account for a shrinking share of the total workforce over time.

Under the assumption that spending on mandatory programs (other than major health care programs, Social Security, and the earned income and child tax credits) would continue to decline relative to GDP at the rate projected for the 2018–2023 period, such spending would decrease from 2.0 percent of GDP in 2023 to 1.6 percent by

105. In last year's version of this report, CBO assumed that under the extended baseline scenario, such spending would remain the same share of GDP in the long run as in the last year of the 10-year baseline period.

2038. With spending on those tax credits included, other mandatory spending would equal 1.8 percent of GDP in 2038.

Chapter 5: The Long-Term Outlook for Federal Revenues

Federal revenues come from various sources, including individual and corporate income taxes, payroll (social insurance) taxes, excise taxes, estate and gift taxes, and other taxes and fees. Currently, proceeds from individual income taxes and payroll taxes account for more than 80 percent of the federal government's revenues.

Projecting the amount of revenues that will be collected in the future is difficult because revenues are sensitive to economic developments and because policymakers frequently make changes to tax law. For this report, the Congressional Budget Office (CBO) projected the future path of revenues under an extended baseline scenario, which follows the agency's May 2013 baseline budget projections for the next decade and then extends the baseline concept beyond that 10-year window. The revenues projected for the 10-year window are the same as those in CBO's May 2013 baseline. Since then, the Bureau of Economic Analysis (BEA) has revised the historical figures for gross domestic product (GDP), so the percentages shown in this report for revenues as a share of GDP reflect those recent revisions.

The extended baseline generally adheres closely to current law and embodies the following assumptions about future federal tax policy: that the rules governing individual income, payroll, excise, and estate and gift taxes would evolve as specified under current law (including the scheduled expiration of temporary provisions lawmakers have routinely extended in the past); and that revenues from corporate income taxes and other sources (such as receipts from the Federal Reserve) would grow as projected through 2023 and then remain constant as a share of GDP thereafter.[106] The resulting projections are not intended to be a prediction of future budgetary outcomes; rather, they serve as a benchmark against which lawmakers can measure the potential effect of proposed changes in law.

Under CBO's extended baseline, federal revenues as a share of GDP are projected to rise from 17.0 percent in 2013 to 18.5 percent in 2023, reflecting scheduled changes in tax law and the ongoing economic recovery. After 2023, revenues are projected to

106. The sole exception to the current-law assumption during the 10-year baseline period applies to expiring excise taxes dedicated to trust funds. The Deficit Control Act requires CBO's baseline to reflect the assumption that those taxes would be extended at their current rates. The law does not provide for the extension of other expiring tax provisions, even if they have been routinely extended in the past.

continue to rise faster than GDP under current law for two reasons: growth in real (inflation-adjusted) income and the interaction of the tax system with inflation would push a greater proportion of income into higher tax brackets; and certain tax increases enacted in the Affordable Care Act would generate increasing amounts of revenues relative to the size of the economy. Federal revenues are projected to reach 19.7 percent of GDP by 2038 and to continue rising thereafter (see Figure 5-1).[107] By comparison, revenues have averaged 17.4 percent of GDP over the past 40 years. Without significant changes in tax law, the tax system in 2038 would be quite different from what it is today: A considerably larger share of each additional dollar of income earned by households would go to taxes, and households throughout the income distribution would pay a greater share of their total income in taxes than households in similar places in that distribution pay today.

Primarily because of the enactment of the American Taxpayer Relief Act in January 2013, revenues as a share of GDP are now projected to be significantly lower than the amounts shown in last year's report on the long-term outlook. Among many other changes, that law extended lower individual income tax rates for most taxpayers, and it raised and permanently indexed for inflation the exemption amounts for the individual alternative minimum tax (AMT), which were previously scheduled to drop sharply and thereby subject many more taxpayers to the alternative tax.[108] That law reduced tax revenues in 2013 and will result in slower growth in revenues in the coming decade and beyond. (For more detail, see Box 5-1.) Last year, CBO projected that total revenues would be 21.3 percent of GDP in 2023 under the extended baseline, whereas this year's projection for that year is 18.5 percent—2.8 percentage points lower. Most of that difference is attributable to the change in tax law.[109] In addition, CBO projected last year that total revenues under the extended baseline would reach

107. The revenue projections presented in this chapter are based on CBO's benchmark projections of economic variables such as GDP, inflation, and interest rates. For the 2013–2023 period, the benchmark matches CBO's February 2013 economic forecast. For later years, the benchmark is generally aligned with the economic experience of the past few decades; it also incorporates two specific assumptions about fiscal policy—that debt held by the public is maintained at 74 percent of GDP, the level reached in 2023 in CBO's baseline budget projections, and that the effective marginal tax rates on income from work and saving remain constant after that year. (Effective marginal tax rates on labor or capital income represent the percentage of an additional dollar of such income that is paid in federal taxes.) Thus, the economic benchmark and the revenue projections in this chapter do not incorporate the effects on people's behavior of the increase in marginal tax rates that would occur after 2023 under the extended baseline. See Chapter 6 for an analysis of the economic impact of the debt levels and marginal tax rates that CBO projects under the extended baseline.

108. The alternative minimum tax is a parallel income tax system with fewer exemptions, deductions, and rates than the regular income tax. Households must calculate the amount they owe under both the alternative minimum tax and the regular income tax and pay the larger of the two amounts.

109. A portion of the drop in 2023, 0.7 percentage points, is attributable to BEA's revisions to the level of GDP. A similar percentage-point decline is attributable to the GDP revision in each year of the projection.

23.9 percent of GDP in 2038, 2.6 percentage points higher than in 2023; this year, CBO projects that total revenues under that scenario would reach 19.7 percent of GDP in 2038, only 1.2 percentage points higher than in 2023 and 4.2 percentage points lower than last year's projection for 2038. The slower growth in revenues after 2023 can be attributed mainly to the provisions of the American Taxpayer Relief Act that index for inflation the parameters of the AMT (under the individual income tax) and the unified credit (under the estate tax).[110]

Last year's version of this report focused not only on an extended baseline scenario but also on an extended alternative fiscal scenario, which embodied several changes to current law that would have continued certain tax policies that were (or had recently been) in place at that time. Lawmakers have since enacted some of those changes; in particular, the American Taxpayer Relief Act made most of the tax provisions previously scheduled to expire at the end of 2012 permanent for most taxpayers. As a result of those changes, projected revenues under the two scenarios differ less now than they did earlier. Therefore, this report focuses primarily on the extended baseline. (Chapter 6 discusses the consequences of fiscal policies other than those included in current law.)

Revenues Over the Past 40 Years

Over the past 40 years, total federal revenues have ranged from a high of 19.9 percent of GDP (in 2000) to a low of 14.6 percent (in 2009 and 2010), with no evident trend over time (see Figure 5-2). The composition of total revenues during that period has varied as well. Individual income taxes, which account for about half of all revenues now, have ranged from slightly less than 10 percent of GDP (in 2000) to slightly more than 6 percent (in 2010). Payroll taxes, which generate about one-third of total revenues now, have varied between less than 5 percent of GDP and 6 percent over the past 40 years. (Those taxes consist primarily of payroll taxes credited to the Social Security and Medicare Hospital Insurance trust funds.) Corporate income taxes have fluctuated between about 1 percent of GDP and 3 percent since the 1970s, as have combined revenues from other sources.

Some of the variation in the amounts of revenue generated by different types of taxes has stemmed from changes in economic conditions and from the way those changes interact with the tax code. For example, in the absence of legislated tax reductions, receipts from individual income taxes tend to grow relative to GDP because rising real income tends to push a greater share of income into higher tax brackets—a phenomenon known as real bracket creep. In addition, because some parameters of the tax system are not indexed for inflation, rising prices alone push a greater share of

110. The parameters of the tax system include the amounts that define the various tax brackets, the amounts of the personal exemption, standard deductions and credits, and tax rates.

income into higher tax brackets.[111] During economic downturns, corporate profits generally fall as a share of GDP, which causes corporate tax revenues to shrink; and losses in households' incomes tend to push a greater share of total income into lower tax brackets, which depresses individual income tax revenues. Thus, total tax revenues automatically rise relative to GDP when the economy is strong and decline relative to GDP when the economy is weak. By contrast, revenues derived from excise taxes have declined over time relative to GDP because many excise taxes are levied on the quantity of a good purchased (such as a gallon of gasoline) as opposed to a percentage of the price paid. Because those levies are not indexed for inflation, revenues have declined relative to GDP as prices have risen over time.

Tax revenues as a share of GDP have also varied over time as a result of legislative changes. In the past 40 years, lawmakers have enacted at least a dozen pieces of legislation that have raised or lowered revenues by 0.5 percent of GDP or more per year.

Revenue Projections Under CBO's Extended Baseline

CBO's extended baseline follows the agency's May 2013 baseline budget projections for the next decade and then extends the baseline concept beyond that 10-year window.[112] The extended baseline reflects the assumptions that, after 2023, the rules governing the individual income, payroll, excise, and estate and gift taxes would evolve as specified under current law and that revenues from corporate income taxes and all other sources (such as receipts from the Federal Reserve) would remain constant as a share of GDP.

Previous years' versions of this report reflected the fact that major tax provisions were scheduled to expire under the law in effect at the time. But, with enactment of the American Taxpayer Relief Act, the most significant provisions of that sort were permanently extended. Even under current law, though, certain tax provisions are scheduled to expire during the next decade, and new provisions of law are scheduled to go into effect. Therefore, the extended baseline incorporates the following specific assumptions:

- Tax increases scheduled to go into effect as a result of the Affordable Care Act would be implemented as specified in current law. Such increases include new taxes on earnings and investment income (that began in 2013) and a new tax on certain employment-based health insurance plans with high premiums (beginning in 2018);

111. The effect described in the text was much more significant before 1984, when none of the parameters of the individual income tax were indexed for inflation.

112. See Congressional Budget Office, *Updated Budget Projections: Fiscal Years 2013 to 2023* (May 2013), www.cbo.gov/publication/44172.

- Certain tax provisions that have recently expired would not be subsequently extended, and provisions scheduled to expire over the next several years would do so, even if those provisions have been routinely extended in the past. In particular, rules allowing for accelerated depreciation deductions for certain business investments would expire at the end of December 2013 and certain individual income tax credits would expire or decline in value after 2017.

Under the extended baseline, tax revenues are projected to rise from 17.0 percent of GDP in 2013 to 18.5 percent in 2023, and then to 19.7 percent in 2038. Of the 2.8 percentage-point increase in the ratio of total revenues to GDP that is projected to occur over the next quarter-century, the individual income tax system would account for nearly all of the increase—2.7 percentage points. The projected increase in individual income tax receipts reflects several factors, including various structural features of the income tax system, scheduled future tax increases enacted in the Affordable Care Act, demographic trends, expiring tax provisions, the ongoing economic recovery, and other factors.

Structural Features of the Individual Income Tax System

Most of the parameters of the individual income tax are indexed for inflation, which prevents average tax rates (the share of income that people pay in taxes) from rising much when income increases only with inflation. Rising real income, however, causes an ever-larger proportion of income to be subject to higher tax rates, and it further increases taxes by reducing taxpayers' eligibility for various credits, such as the earned income tax credit and the child tax credit. In addition, some provisions of the tax code are not indexed for inflation, so cumulative inflation generates some increase in receipts relative to GDP. Revenues from the individual income tax also depend on the distribution of income. CBO's projections reflect an expectation that incomes will grow faster for higher-income people than for others during the next two decades—as they have over the past several decades—and that the incomes of all taxpayers will grow at similar rates thereafter.[113] Altogether, if current laws remained in place, growth in people's income would increase income tax revenues relative to GDP by 1.8 percentage points between 2013 and 2038, CBO estimates (see Table 5-1).

Tax Provisions Enacted in the Affordable Care Act

Under CBO's extended baseline, implementing several provisions of the Affordable Care Act would raise revenues as a share of GDP by 0.6 percentage points between 2013 and 2038. One key provision of the legislation, which is scheduled to go into effect in 2018, is an excise tax on certain high-premium health insurance plans. Under that provision, employment-based plans with premiums exceeding a specified threshold

113. Jonathan A. Schwabish and Julie H. Topoleski, *Modeling Individual Earnings in CBO's Long-Term Microsimulation Model,* Working Paper 2013-04 (Congressional Budget Office, June 2013), www.cbo.gov/publication/44306.

would generally be subject to an excise tax of 40 percent. That tax, which would be levied on insurers but probably passed on to their customers through higher premiums, is expected to increase revenues in two ways:

- First, in those cases in which the tax applies, it would generate additional excise tax revenues.
- Second, many individuals and employers would probably respond to the presence of the excise tax by shifting to lower-cost insurance plans to reduce the excise tax paid or to avoid paying it altogether. As a result, total payments of health insurance premiums for those individuals would be less than they would have been in the absence of the tax. However, CBO anticipates that total compensation paid by employers (including wages and salaries, contributions to health insurance premiums, pensions, and other fringe benefits) would not be affected over the long term, so lower expenditures for health insurance would mean higher taxable wages for employees and, as a result, higher payments of income and payroll taxes.

Thus, whether policyholders decided to pay the excise tax through higher premiums or to avoid it by switching to lower-cost plans, total tax revenues would ultimately rise compared with what they would have been in the absence of the tax. Although the threshold for the tax on high-premium health insurance plans is indexed for changes in overall consumer prices, health care costs will grow faster than prices over the long term, CBO projects; consequently, under the extended baseline a greater share of premiums would be subject to the excise tax over time.[114] Accordingly, CBO projects that the excise tax, if left in place, would increase total revenues by 0.4 percent of GDP in 2038 and by higher percentages thereafter.

Also, starting in 2013, the Affordable Care Act imposes additional taxes on earnings and investment income of individuals with income in excess of $200,000 and of families with income in excess of $250,000. Those thresholds are not indexed for inflation. Because, under current law, those new surtaxes would affect an increasing share of earnings and investment income over time, they would boost revenues by a small but growing share of GDP, CBO projects. Other provisions of the ACA would also raise revenues by a small amount.

Demographic Trends

During the next few decades, the retirement of members of the baby-boom generation (people born between 1946 and 1964) will cause them to withdraw money from retirement accounts and receive pension benefits, which will boost income tax revenues as a share of GDP. Depending on the specific characteristics of retirement plans—such as 401(k) plans and individual retirement accounts—some or all of the amounts

114. The thresholds will be indexed to general inflation plus 1 percent for 2019 and to general inflation for 2020 and subsequent years.

withdrawn will be subject to taxation. Likewise, compensation that is deferred under employer-sponsored defined benefit plans is taxed when the benefits are paid.[115] Thus, the U.S. Treasury would receive significant tax revenues that have essentially been deferred for years. As a result, under the extended baseline, revenues as a share of GDP are projected to climb by about 0.5 percentage points between 2013 and 2038. That upward trend is expected to end in the late 2030s, however, when almost all of the baby boomers will have reached retirement; so beyond that point, revenues from taxable withdrawals would no longer grow faster than GDP.

Expiring Individual and Corporate Income Tax Provisions

Although most of the tax provisions previously scheduled to expire over the next decade have been permanently extended, certain provisions are still slated to expire. Most significantly, under current law, businesses will no longer be permitted to immediately deduct 50 percent of new investments in equipment from their taxable income after 2013. And after 2017, certain new credits are scheduled to expire, and the expansion of certain existing refundable tax credits in the individual income tax system is set to end. Together, under the extended baseline, those and other expirations would boost receipts by 0.4 percent of GDP between 2012 and 2038, CBO projects.

Impact of the Economic Recovery on Individual Income Taxes

CBO anticipates that certain sources of income that had been unusually small during the economic downturn (for instance, capital gains realizations) will recover and return to levels consistent with an economy slowly moving closer to its long-term path for growth. Under the extended baseline, the effects of the recovery are projected to increase revenues from individual income taxes as a share of GDP by a total of 0.1 percentage point through 2038; most of that growth would occur by 2015, CBO estimates.

Other Factors

Under the extended baseline, factors besides those already discussed would also affect the growth of federal revenues as a share of GDP. In particular, CBO projects that under current law, excluding the effects of expiring provisions, corporate income tax revenues would decline as a share of GDP over the next decade. That projected decline stems largely from an expected drop in domestic economic profits relative to GDP, which in turn results from the rising burden of corporate interest payments, growing depreciation on the larger stock of business capital, and an increase in the share of income going to labor.

115. A defined benefit plan is an employment-based retirement plan that promises retirees a certain benefit upon retirement. Typically, the benefit is based on a formula that takes into account an employee's length of service and salary.

In addition, excluding the excise tax on high-premium health insurance plans, excise taxes are projected to decline as a share of GDP over time because many excise taxes are assessed as a fixed dollar amount per quantity of a good that is purchased and not as a percentage of the price paid for that good. Therefore, as overall prices rise over time, receipts from excise taxes are projected to fall as a share of GDP. Moreover, payroll taxes for unemployment insurance are projected to decline as the economy recovers over the next several years, further reducing receipts as a share of GDP.

Taking all of the relevant factors together, CBO projects that—under current law and apart from the effects of the Affordable Care Act and other scheduled changes to law—revenues from corporate income taxes, estate and gift taxes, federal excise taxes, payroll taxes, and other miscellaneous sources would decline by a combined 0.7 percent of GDP between 2013 and 2038 and remain about constant as a share of the economy thereafter.

Long-Term Implications for Tax Rates and the Tax Burden

Even if no changes in tax law were enacted in the future, the tax system that would be in place would differ in significant ways from the system in effect today. Slightly more taxpayers would become subject to the AMT, although the share of taxpayers who would pay the alternative tax was greatly limited by the American Taxpayer Relief Act of 2012. More significantly, inflation and income growth would push up marginal and average tax rates over time and cause the dollar value of some tax parameters to fall sharply in real terms and even more sharply relative to people's income. (The effective marginal tax rate is the percentage of an additional dollar of income from labor or capital that is unavailable to a taxpayer because it is paid in federal taxes. The average tax rate is total taxes paid divided by total income.) In the long run, people throughout the income distribution would pay a larger share of their income in taxes than people at the same points in the distribution pay today, and many taxpayers would face diminished incentives to work and save.

Limited Expansion of the AMT Over Time

The American Taxpayer Relief Act of 2012 raised the exemption amounts for the AMT for 2012 and, beginning in 2013, permanently indexed those exemption amounts for inflation. Also indexed for inflation were the income thresholds at which those exemptions phase out and the income threshold at which the second rate bracket for the AMT begins. Before those legislative changes went into effect, CBO projected that more than half of the nation's households would be subject to the AMT by 2038. Under current law, CBO projects, the share of households subject to the alternative tax in 2038 would be just over 4 percent, only slightly above the roughly 3 percent subject to the tax in 2013. The share of total individual income tax liability attributable to the AMT would remain essentially unchanged over the next quarter-century, hovering just above 2 percent (see Figure 5-3). Although rising real income would gradually make more

taxpayers subject to the AMT, many of those newly affected would owe only slightly more than their regular income tax liability.

Marginal Tax Rates on Income From Labor and Capital

Under CBO's extended baseline, marginal tax rates on income from labor and capital would rise considerably over time. According to those projections, the effective federal marginal tax rate on labor income—that is, the marginal tax rate on labor income averaged across taxpayers using weights proportional to their labor income—would increase from about 31 percent in 2013 to 35 percent in 2038 (see Table 5-2). Similarly, the effective federal marginal tax rate on income from capital (returns on investment) would rise from 16 percent to 19 percent over that period.

The projected increase in the effective marginal tax rate on labor income reflects the following factors:

- *Real bracket creep under the regular income tax.* As households' inflation-adjusted income rose over time, they would be pushed into higher marginal tax brackets, and a portion of their income would become subject to higher tax rates. (Because the thresholds for taxing income at different rates are indexed for inflation, increases in income that just kept pace with inflation would not generally increase households' tax liabilities.) One consequence is that the share of ordinary income subject to the top rate of 39.6 percent would rise from 11 percent in 2013 to 17 percent by 2038.

- *The additional 0.9 percent tax on earnings above an established threshold that was enacted in the ACA.* Over time, that tax, which went into effect at the beginning of 2013, would apply to a growing share of labor income because the $250,000 threshold is not indexed for inflation.

- *The excise tax on certain high-premium health insurance plans that is due to take effect in 2018.* According to CBO's projections, once implemented, that tax would affect a growing share of compensation over time because health care costs are expected to rise faster than the threshold for the tax.

- *Rising marginal tax rates over time for taxpayers who receive premium subsidies through health insurance exchanges.* Those subsidies would be conveyed in the form of tax credits that phased out as income rose over a certain range, increasing marginal rates on income in that range. Because the average real value of the subsidies would grow over time but the income range over which they phased out would remain constant in real terms, the tax credits would phase out at a higher rate and produce higher effective marginal tax rates.

The projected increase from 16 percent to 19 percent in the effective marginal tax rate on capital income between 2013 and 2023 would occur largely because a tax provision that allows businesses to immediately deduct 50 percent of new investments

in equipment is scheduled to expire after 2013. In contrast, CBO estimates that real bracket creep would not raise the effective federal marginal tax rate on capital income very much because a large share of capital income is already being taxed at the top rate in 2013. As a result, CBO projects, the marginal tax rate on capital would remain at about 19 percent from 2017 through 2038.

The increase in the marginal tax rate on labor income would reduce people's incentive to work, and the increase in the marginal tax rate on capital income would reduce their incentive to save. However, the reductions in earnings and savings from higher taxes would also encourage people to work and save more in order to maintain the same amount of after-tax income and savings. Evidence suggests that the former behavioral responses typically prevail and that, on balance, higher marginal tax rates discourage economic activity.[116] (The overall effect of federal taxes on economic activity depends not only on marginal tax rates but also on the amount of revenues raised relative to federal spending, and thereby on the resulting federal deficits and debt.) Those macroeconomic effects are not reflected in the analysis in this chapter but are addressed in Chapter 6 of this report.

Average Tax Rates for Some Representative Households

Most parameters of the tax code are not indexed for real income growth, and some are not indexed for inflation. As a result, the personal exemption, the standard deduction, the amount of the child tax credit, and the thresholds for taxing income at different rates all would tend to decline relative to income over time. One consequence is that, under the extended baseline, average federal tax rates would increase in the long run.

With no changes in tax law, the cumulative effect of rising prices would significantly reduce the value of some parameters of the tax system that are not indexed for inflation. In one example, CBO estimates that the amount of mortgage debt eligible for the mortgage interest deduction, which is limited to $1 million under current law, would be worth less than $600,000 in 2038, measured in today's dollars. In another example, the portion of Social Security benefits subject to taxation would increase from about 30 percent now to about 50 percent by 2038, CBO estimates, because the thresholds for taxing benefits are fixed in nominal (current-dollar) terms.

Even tax parameters that are indexed for inflation would lose value relative to income over the long term under the extended baseline. According to CBO's projections, the current $3,900 personal exemption would rise by more than 75 percent by 2038 because it is indexed for inflation, but income per household would more than double during that period, so the value of the exemption relative to income would decline by more than 30 percent. Assuming that income grew at similar rates for both higher-income and lower-income taxpayers, the decline in the value of the personal exemption

116. See Congressional Budget Office, *How the Supply of Labor Responds to Changes in Fiscal Policy* (October 2012), www.cbo.gov/publication/43674.

(and, similarly, the standard deduction) relative to income would tend to boost the average tax rates of lower-income taxpayers more than the average tax rates of other taxpayers. In addition, without legislative changes, the proportion of taxpayers claiming the earned income tax credit is projected to fall from 16 percent this year to 11 percent in 2038 as growth in real income would move more taxpayers out of the eligibility range for the credit.

Those developments and others would cause individual income taxes as a share of income to grow by varying amounts over time for households at different points in the income distribution. For example, a married couple with two children earning the median income of $95,400 (including both cash income and other compensation) in 2013 and filing a joint tax return would pay about 3 percent of their income in individual income taxes (see Table 5-3).[117] By 2038, under current law, a similar couple earning the median income would pay 7 percent of their income in individual income taxes, an increase of 4 percentage points. For a married couple with two children earning half the median income, the change in individual income taxes as a share of income would be significantly greater: That family would receive a net payment equal to 13 percent of its income in 2013 in the form of refundable tax credits from the federal government, but by 2038 it would become a net taxpayer, paying 1 percent of its income in income taxes. By comparison, for a married couple with two children earning four times the median income, the share of income that they would pay in individual income taxes would be much higher and would rise by 3 percentage points—from 18 percent to 21 percent—between 2013 and 2038. After 2038, income taxes as a share of income would continue rising at each of the income levels—but the percentage-point increases after that year would be more equal across those levels. Income taxes as a share of income for households at other points in the income distribution would also differ greatly under current law from what they are today. By contrast, payroll taxes as a share of income would differ only slightly under current law from what they are today.

Those taxes are principally levied as a flat rate on earned income below a certain threshold, which is indexed for both inflation and overall real income growth.

Although rising real income would contribute to rising average tax rates under current law, that real income growth would also mean that households in the future would have higher after-tax income than similar households at the same point in the income distribution have today. As a result, growth in pretax income would more than offset the increase in taxes. For example, from 2013 to 2038, real *after-tax* income for a couple earning the median income is projected to grow by about 50 percent under the extended baseline.

117. In the examples, all income received by taxpayers is assumed to be from labor compensation. Furthermore, median income is assumed to grow with average income, so income at each multiple of the median grows at the same rate. For details about the calculations, see Table 5-3.

Chapter 6: The Economic and Budgetary Effects of Alternative Budget Policies

The long-term budget projections presented in the preceding chapters of this report are based on the assumption that federal tax and spending policies generally follow current law, as reflected in the Congressional Budget Office's (CBO's) extended baseline. In addition, those projections do not incorporate any feedback from fiscal policy to the economy, but instead are based on "benchmark" projections of economic and fiscal variables, including a constant ratio of debt to gross domestic product (GDP) and constant tax rates. This chapter expands on the preceding analysis in two ways: First, it shows how the budget policies that would be in place under the extended baseline would affect the economy in the long run and how that economic feedback, in turn, would affect the budget. Second, the chapter shows how the budget and the economy would evolve under three additional sets of fiscal policies: an extended alternative fiscal scenario that results in larger deficits and more debt than in the extended baseline and two illustrative scenarios that result in smaller deficits and lower debt.

Although spending and tax policies can affect the economy in many ways, CBO's analysis in this report addresses the effects of changes in the amount of federal debt and changes in federal marginal tax rates (that is, the rates that would apply to an additional dollar of income):

- Higher debt "crowds out" investment and thereby reduces output relative to what would otherwise occur; lower debt has the opposite effect.
- Higher marginal tax rates discourage working and saving, which reduces output, whereas lower marginal tax rates have the opposite effect.

As discussed below, CBO used ranges of estimates drawn from the economics literature both for the extent of crowding out and for the response of the supply of labor to changes in tax rates.

In assessing the long-term effects of spending and tax policies on output, CBO focused on effects on gross national product (GNP). Unlike the more commonly cited GDP, GNP includes the income that U.S. residents earn abroad and excludes the income that foreigners earn in this country; GNP is therefore a better measure of the resources available to U.S. households. The difference between GNP and GDP is particularly important in analyzing the long-term effects of fiscal policies: When the federal government runs larger budget deficits, more capital tends to flow into the United States from other countries, offsetting some of the crowding out of investment; however, a growing amount of income needs to be paid later to foreign investors as profits or interest on that invested capital. Therefore, other things being equal, increases in debt

cause a greater reduction in GNP (and the well-being of U.S. households) than in GDP, and reductions in debt lead to a greater increase in GNP than in GDP.

The fiscal policies of the extended baseline tend to worsen the economic outlook, CBO estimates, and incorporating feedback effects of those economic changes on the budget worsens the budgetary outlook as well. Specifically, given the policies of the extended baseline, the ratio of debt to output would rise significantly over the next 25 years, as would marginal tax rates; both of those changes would reduce future GDP relative to what it would otherwise be. According to CBO's central estimates for key economic parameters, with that economic feedback taken into account, GNP in 2038 would be roughly 4 percent lower than it is in the extended baseline without economic feedback, and interest rates would be about half a percentage point higher.[118] With the budgetary impact of that economic feedback incorporated into the extended baseline, federal debt held by the public would rise to 108 percent of GDP in 2038, compared with 100 percent in the extended baseline without economic feedback taken into account (as described in Chapter 1).

For the three additional fiscal scenarios, CBO's analysis yields the following economic and budgetary outcomes relative to those under the extended baseline with economic feedback (according to the agency's central estimates):

- Under the extended alternative fiscal scenario, certain policies that are now in place but are scheduled to change under current law are assumed to continue, and some provisions of current law that might be difficult to sustain for a long period are assumed to be modified. Under that scenario, deficits excluding interest payments would be about $2 trillion higher over the first decade than under the baseline, and such deficits in subsequent years would be larger than those under the extended baseline by rapidly increasing amounts, doubling as a percentage of GDP in less than a decade. After incorporating economic feedback, CBO projects that GNP in 2038 would be about 7 percent lower under the extended alternative fiscal scenario than under the extended baseline with economic feedback, and interest rates would be about 1 percentage point higher. With the budgetary impact of that economic feedback incorporated, federal debt would rise to about 190 percent of GDP in 2038.

- Under one illustrative scenario, deficit reduction is phased in such that deficits excluding interest payments are $2 trillion lower through 2023 than under the baseline, and the reduction in the deficit in 2023 as a percentage of GDP is continued in subsequent years. After incorporating economic feedback, CBO projects that GNP in 2038 would be about 4 percent higher and interest rates would

118. For the results presented in this chapter, changes in interest rates reflect changes in both the average real (inflation-adjusted) return on private capital investment and the average real interest rate on federal debt.

be about half a percentage point lower under this scenario than under the extended baseline with economic feedback. Under those circumstances, federal debt relative to the size of the economy in 2038 would be roughly the same as it was in 2012—close to 70 percent of GDP.

- Under the other illustrative scenario, the amount of deficit reduction in the next 10 years is twice as large, being phased in such that deficits excluding interest payments are $4 trillion lower through 2023 than under the baseline. As in the preceding scenario, the reduction in the deficit in 2023 as a percentage of GDP is continued in subsequent years. After incorporating economic feedback, CBO projects that GNP in 2038 would be about 7 percent higher and interest rates would be nearly 1 percentage point lower under this scenario than under the extended baseline with economic feedback. With those economic effects, federal debt would fall to 31 percent of GDP in 2038, a little below the level in 2007 (35 percent) and the average over the past 40 years (38 percent).

All three of those additional fiscal scenarios would have significant effects on the economy during the next few years, in addition to the long-term effects that are the focus of this chapter. (A discussion of the short-term economic effects of those scenarios appears at the end of this chapter.)

Long-Term Effects of the Fiscal Policies Underlying the Extended Baseline

Under the fiscal policies in the extended baseline, deficits and debt expressed as percentages of GDP would rise over time, as would marginal tax rates. The higher debt and higher marginal tax rates would reduce output and raise interest rates relative to what they would otherwise be, which in turn would worsen budgetary outcomes.[119] Compared with CBO's estimates last year, the estimated effects arising from economic feedback under the extended baseline are considerably more negative this year—mainly because the extension of various expiring tax provisions raised the path of debt beyond the 10-year budget window significantly in the extended baseline.

119. The fiscal policies underlying the extended baseline could also affect the economy in other ways that CBO did not analyze for this report. For example, the rules governing eligibility for various federal benefits (and the amounts of those benefits) could interact with the projected long-term increase in real incomes in ways that changed people's incentives to work and save; in this report, CBO's modeling of those incentives was generally limited to benefits provided in the form of tax credits. In addition, if the projected reduction in discretionary spending as a share of GDP resulted in a decline in government investment—such as spending to build and maintain infrastructure or to conduct research and development—productivity and output could grow more slowly than CBO projects.

Fiscal Policies Underlying the Extended Baseline

The extended baseline incorporates the fiscal policies specified in current law through 2023 and CBO's extension of that baseline concept thereafter. Under those policies, according to CBO's projections, federal debt would rise from close to 70 percent of GDP in 2012 to 71 percent in 2023 and to 100 percent of GDP in 2038 (see Table 6-1). In addition, marginal tax rates on labor income and capital income (income derived from wealth, such as stock dividends, realized capital gains, and owners' profits from businesses) would increase over time, as rising incomes pushed more of taxpayers' income into higher tax brackets. The effective marginal tax rate on labor income in 2038 would be about 35 percent, compared with about 31 percent now, and the effective marginal tax rate on capital income would be about 19 percent, compared with about 16 percent today. (See Chapter 5 for details.)

How Increased Federal Borrowing Would Affect the Economy

Increased borrowing by the federal government generally draws money away from (that is, crowds out) private investment in productive capital because the portion of people's savings used to buy government securities is not available to finance private investment. The result is a smaller stock of capital and lower output in the long run than would otherwise be the case (all else held equal).[120]

Two factors offset part of that crowding-out effect. One is that additional federal borrowing tends to lead to greater private saving, which increases the total funds available to purchase federal debt and finance private investment. That response occurs for several reasons:

- Additional federal borrowing tends to raise interest rates, which boosts the return on saving;
- Some people anticipate that policymakers will raise taxes or cut spending in the future to cover the cost of paying interest on the additional accumulated debt, so those people increase their own saving to prepare for paying higher taxes or receiving less in benefits; and
- The policies that give rise to deficits (such as tax cuts or increases in government transfer payments) put more money in private hands, some of which is saved.

120. To analyze medium-term to long-term effects of changes in federal debt and marginal tax rates, CBO used its enhanced version of a widely used model originally developed by Robert Solow. In CBO's model, people base their decisions about working and saving primarily on current economic conditions—especially wage levels, interest rates, and government policies. People's responses to changes in such conditions are generally assumed to mirror their responses to economic and policy developments in the past; as a result, the responses reflect people's anticipation of future policies in a general way but not their expectations of specific future developments. For details of that model, see Congressional Budget Office, *The Economic Impact of the President's 2013 Budget* (April 2012), Appendix, www.cbo.gov/publication/42972.

Because the crowding out of domestic investment reduces the capital stock, it alters pretax wages and rates of return on saving, which in turn change the incentives to work and save. Specifically, the reduction in the capital stock makes workers less productive and decreases pretax wages relative to what they would otherwise be. Those lower wages reduce people's incentive to work. However, the productivity of existing capital is greater because more workers make use of each unit of capital—for example, each computer, piece of machinery, or structure—and that greater productivity raises the return on capital. A higher return on capital boosts the return on equity shares in the ownership of capital and boosts the return on other investments (such as interest rates on federal debt) that are competing for people's savings. The resulting increase in the return on savings, in turn, strengthens people's incentive to save.

Overall, however, the rise in private saving is generally a good deal smaller than the increase in federal borrowing, so greater borrowing leads to less national saving.[121] CBO's central estimate, based on the agency's reading of the research literature on this topic, is that private saving rises by 43 cents for every dollar increase in federal borrowing, leaving a net decline of 57 cents in national saving.

A second factor offsetting part of the crowding-out effect is that higher interest rates tend to increase net inflows of capital from other countries—by attracting more foreign capital to the United States and inducing U.S. savers to keep more of their savings at home. Those additional net inflows prevent investment in this country from declining as much as national saving does in the face of more federal borrowing. CBO's central estimate, again drawn from the research literature on the topic, is that net inflows of private capital rise by 24 cents for every dollar increase in government borrowing.

However, an increase in inflows of capital from other countries also means that more profits and interest payments will flow overseas in the future. Therefore, although flows of capital into the United States can help moderate a decline in domestic investment, part of the income resulting from that additional investment does not accrue to

121. National saving comprises total saving by all sectors of the economy: personal saving; business saving, in the form of after-tax profits not paid out as dividends; and government saving or dissaving, in the form of surpluses or deficits of the federal government and state and local governments.

U.S. residents.[122] The result is that greater net inflows of capital keep GDP from declining as much as it would otherwise but have less effect on GNP.

With those two offsets taken together, when the deficit goes up by $1, private saving rises by 43 cents (so national saving falls by 57 cents), and foreign capital inflows rise by 24 cents, ultimately leaving a decline of 33 cents in investment, according to CBO's central estimates. To reflect the wide range of estimates in the economics literature on how government borrowing affects national saving and domestic investment, CBO produced estimates of the economic effects of the budget scenarios using three assumptions about those effects. Those assumptions imply that for each dollar that deficits rise, national saving is reduced by 39 cents, 57 cents, or 71 cents, and domestic investment is reduced by 15 cents, 33 cents, or 50 cents.[123]

CBO's estimates of the effects of higher federal debt on interest rates, private saving, and net capital inflows are based on historical experience. However, history may not be a good guide to the effects of rising debt in the extended baseline because that path for fiscal policy involves a large, persistent increase in the ratio of debt to GDP—an outcome that lies outside historical experience in the United States, where previous large increases in debt have been temporary (such as during wars and their immediate aftermath) (see Figure 1-1). If participants in financial markets came to believe that policymakers intended to allow debt to continue to rise on an ongoing basis relative to the size of the economy, interest rates would probably increase by more than the historical relationship between debt and interest rates would suggest. In addition, the increases in federal debt might affect private saving and net capital inflows differently from what has occurred in the past.

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122. Rising debt affects GDP and GNP differently, depending on the amount of additional capital that foreigners invest in the United States and the rate of return they receive on that additional investment, as well as the amount of additional capital that domestic residents keep in the United States rather than sending abroad and the return they would have received on that capital in other countries. In recent decades, foreign investors have earned a lower average return on their U.S. investments than domestic investors have earned on their investments in the rest of the world. See Congressional Budget Office, *Why Does U.S. Investment Abroad Earn Higher Returns Than Foreign Investment in the United States?* (November 2005), www.cbo.gov/publication/17504. However, economic theory suggests that, over the long run, there should be little difference between the returns that foreigners earn on their investments in the United States and the returns that domestic investors earn on comparable investments elsewhere. In assessing the impact of rising federal debt on GNP, CBO assumed that the additional net inflows of capital spurred by that rising debt would be invested in assets earning the average return that U.S. investors earn on domestic assets, and that the foreign investments forgone by domestic investors would have earned the average return that U.S. investors earn on foreign assets.

123. Since publishing *The 2012 Long-Term Budget Outlook*, CBO narrowed its range of estimates of the extent to which federal borrowing crowds out private investment, slightly increasing the estimated magnitude of the lower and medium responses. For details on CBO's estimates of the responsiveness of saving and investment to changes in federal debt, see Congressional Budget Office, *Macroeconomic Effects of Alternative Budgetary Paths* (February 2013), www.cbo.gov/publication/43769.

How Increased Marginal Tax Rates Would Affect the Economy

Increases in marginal tax rates on labor and capital income would reduce output and income relative to what would be the case with lower rates (all else held equal). For example, a higher marginal tax rate on capital income decreases the after-tax rate of return on saving, weakening people's incentive to save; less saving implies less investment, a smaller capital stock, and lower output and income. However, because that higher marginal tax rate also decreases people's return on their existing savings, they need to save more to have the same future standard of living, which tends to increase the amount of saving. CBO concludes, as do most analysts, that the former effect outweighs the latter, such that a higher marginal tax rate on capital income decreases saving. Specifically, CBO assumes that an increase in the marginal tax rate on capital income that decreases the after-tax return on saving by 1 percent results in a decrease in private saving of 0.2 percent. (A lower marginal tax rate on capital income has the opposite effect.)

Similarly, a higher marginal tax rate on labor income decreases people's incentive to work, lowering the number of hours people work and therefore the amount of output and income. However, because that higher marginal tax rate also decreases people's after-tax income from the work they are already doing, they need to work more to maintain their standard of living, which tends to increase the supply of labor. Again, CBO concludes, as do most analysts, that the former effect outweighs the latter and that an increase in the marginal tax rate on labor income decreases the labor supply. (A lower marginal tax rate on labor income has the opposite effect.)

To reflect the high degree of uncertainty about the effect of the marginal tax rate on the labor supply, CBO produced estimates using a range of assumptions about how people would adjust the number of hours they worked in response to changes in marginal tax rates (and changes in pretax wages as well):

- A "strong labor supply response," under which workers' response is on the high side of the consensus range of empirical estimates;
- A "weak labor supply response," under which workers' response is on the low side of the consensus range; and
- A "medium labor supply response," under which workers' response is roughly midway between strong and weak.

The responsiveness of the labor supply to taxes is often expressed as the total wage elasticity (the change in total labor income caused by a 1 percent change in after-tax wages). The total wage elasticity, in turn, has two components: a substitution elasticity, which measures the effect of changes in *marginal* tax rates, and an income elasticity, which measures the effect of changes in *average* tax rates. In this analysis, CBO's assumptions for labor supply response correspond to total wage elasticities of about

0.32 for the strong response (composed of a substitution elasticity of 0.32 and an income elasticity of zero); about 0.06 for the weak response (composed of a substitution elasticity of 0.16 and an income elasticity of -0.10); and about 0.19 for the medium response (composed of a substitution elasticity of 0.24 and an income elasticity of -0.05).[124]

Output and Interest Rates Under the Extended Baseline

In CBO's estimation, the higher debt and higher marginal tax rates resulting from the policies in the extended baseline would, on balance, reduce real GNP by about 4 percent by 2038 relative to the economic outcome used for the budget projections excluding economic effects presented in the preceding chapters of this report. That reduction indicates the effect on the income of U.S. residents if current law generally remained in place, pushing up both debt and marginal tax rates over time. As a result, real GNP per person in 2038 is projected to be about $72,500 (in 2013 dollars) under the extended baseline with economic feedback, compared with about $75,700 under the baseline without economic feedback; for comparison, real GNP per person in 2012 was about $52,600. Interest rates in 2038 would be about half a percentage point higher than those under the extended baseline without economic feedback.

Those outcomes are based on CBO's central estimates for key parameters of economic behavior—including the extent to which government borrowing crowds out capital investment and the effect that changes in effective marginal tax rates have on the supply of labor. Under the breadth of assumptions that CBO uses for the crowding out of investment and labor supply responses, the reduction in GNP in 2038 would range from about 2 percent to about 6 percent, and the estimated increase in interest rates in that year would range from a very small amount to a little over three-quarters of a percentage point.

Those ranges reflect only two sources of uncertainty regarding the effects of fiscal policies on the economy in CBO's long-term economic projections. Significant uncertainty surrounds those projections even without accounting for the effects of fiscal policies. (Some of those additional sources of uncertainty are explored in Chapter 7).

Budgetary Outcomes Including Economic Feedback

Under the extended baseline, budgetary outcomes would be worse after accounting for the effects of the reduction in economic output and the increase in interest rates. Lower output implies less income and, thus, less tax revenues. Lower output also implies that

124. Since publishing *The 2012 Long-Term Budget Outlook*, CBO tightened its range of estimates of the total wage elasticity, slightly decreasing the estimated magnitude of the "strong labor supply response" and slightly increasing the estimated magnitude of the "weak labor supply response" and the "medium labor supply response." For details on CBO's estimates of the responsiveness of the supply of labor to changes in the after-tax wage rate and the revisions to those estimates, see Congressional Budget Office, *How the Supply of Labor Responds to Changes in Fiscal Policy* (October 2012), www.cbo.gov/publication/43674.

(for any amount of debt) the ratio of federal debt to GDP would be higher. Moreover, higher interest rates mean greater interest payments on government debt. Working in the other direction, lower output implies lower federal spending on health care and retirement programs.[125] After incorporating those additional budgetary effects, CBO projects that debt in 2038 would be 108 percent of GDP (according to its central estimate), compared with 100 percent under the extended baseline without economic feedback, as presented in earlier chapters of this report (see Table 6-1 and Figure 6-1).

Other Consequences of High and Rising Federal Debt

High and rising levels of federal debt under the extended baseline would have a number of negative consequences apart from the economic effects described above:

- Growing federal debt would increase the amount of interest that the government pays to its lenders (all else being equal). If policymakers wished to maintain the benefits and services that are embodied in current laws and not allow deficits to increase as interest payments grew, then tax revenues would have to increase as well. Alternatively, policymakers could choose to offset the rising interest costs, at least in part, by reducing benefits and services. Or they could allow deficits to increase for some time and then change fiscal policy to reduce deficits later—but waiting to change policy would ultimately require larger deficit reductions if policymakers wished to avoid long-term increases in the debt burden.

- Rising debt would increasingly restrict policymakers' ability to use tax and spending policies to respond to unexpected challenges, such as economic downturns or financial crises. As a result, those challenges would tend to have larger negative effects on the economy and on people's well-being.

- Growing federal debt would increase the probability of a fiscal crisis, when investors would lose confidence in the government's ability to manage the budget, and the government would thereby lose its ability to borrow at affordable rates. Such a crisis would present policymakers with extremely difficult choices and probably have a very significant negative impact on the country.

Long-Term Effects of an Alternative Fiscal Scenario With Larger Deficits

In recent years, CBO's *Long-Term Budget Outlook* has included an extended alternative fiscal scenario that illustrated the impact on projected deficits and debt of maintaining

125. In this analysis (as well as the analysis in Chapter 7), decreases in GDP from incorporating economic feedback lower spending for retirement programs (based on the formulas linking earnings and subsequent benefits) and spending for health care programs (following CBO's standard approach for projecting long-term cost growth, which is described in Chapter 2). However, CBO projects that other noninterest spending would remain at baseline levels, even as GDP deviated from the extended baseline.

policies that were then in place but that were scheduled to change under then-current law and of modifying some provisions of law that might be difficult to sustain for a long period. The American Taxpayer Relief Act of 2012 extended indefinitely a number of tax provisions that were scheduled to expire and indexed the alternative minimum tax (AMT) for inflation, making some components of the previous years' alternative fiscal scenarios part of the extended baseline. However, several key components of those previous scenarios remain, and those components are incorporated in the extended alternative fiscal scenario in this report.

Under that scenario, deficits excluding interest payments through 2023 would be about $2 trillion larger than they would be under the extended baseline.[126] Beyond 2023, the difference in deficits between the extended baseline and the extended alternative fiscal scenario would increase, and the difference in the resulting federal debt would grow rapidly. The unfavorable effects on the economy from that increase in deficits would be offset in part by lower marginal tax rates on labor income and capital income. On balance, the higher debt and lower marginal tax rates would reduce output and raise interest rates relative to what they would be under the extended baseline. Including economic feedback, CBO projects, real GNP would be about 7 percent lower in 2038 under the extended alternative fiscal scenario than it would be under the extended baseline with economic feedback (see Table 6-2). Moreover, according to CBO's central estimates, debt under the extended alternative fiscal scenario would reach 190 percent of GDP in 2038—compared with 108 percent of GDP under the extended baseline with economic feedback.

In comparison with the extended alternative fiscal scenario in *The 2012 Long-Term Budget Outlook*, the ratio of debt to GDP under this extended alternative fiscal scenario is lower. The difference arises largely because projected spending on Medicare and Medicaid is lower in this extended alternative fiscal scenario (owing to changes that also affected the extended baseline, as discussed in Appendix A) and because the alternative fiscal scenario no longer includes extending the earlier tax cuts for high-income people (those cuts were allowed to expire in 2012). Because projected debt under the alternative fiscal scenario in this year's analysis is lower than it was in last year's, the economic outcomes are more favorable: The projected reduction in real GNP in 2038 is only about three-quarters as large as it was last year.

126. For additional detail on the underlying policies in the alternative fiscal scenario over that period, see Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2013 to 2023* (February 2013), www.cbo.gov/publication/43907. For budget estimates of the alternative fiscal scenario over the next 10 years without economic feedback, see Congressional Budget Office, *Deficits Projected in CBO's Baseline and Under an Alternative Fiscal Scenario* (May 2013), www.cbo.gov/publication/44194. In contrast to those previously published budget estimates, the budget estimates for the extended alternative fiscal scenario shown in Table 6-1 in this report incorporate economic feedback.

Fiscal Policies in the Extended Alternative Fiscal Scenario

Under CBO's extended alternative fiscal scenario, non-interest spending would be higher and revenues would be lower than under the extended baseline (see Table 6-1). Noninterest spending in 2023 would be 0.5 percent of GDP higher under the alternative fiscal scenario than under the baseline, and that difference would grow in later years, reaching roughly 3 percent of GDP in 2038. The higher noninterest spending stems from several assumptions of the extended alternative fiscal scenario: that the automatic reductions in spending required by the Budget Control Act for 2014 and later will not occur (although the original caps on discretionary appropriations in that law are assumed to remain in place); that lawmakers will act to prevent Medicare's payment rates for physicians from declining; that after 2023, lawmakers will not allow various restraints on the growth of Medicare costs and health insurance subsidies to exert their full effect; and that after 2023, federal spending for programs other than Social Security and the major health care programs will rise to the average of other noninterest spending, net of offsetting receipts, as a percentage of GDP during the past two decades, rather than fall significantly below that level, as it does in the extended baseline.*

Revenues in 2023 would be 0.4 percent of GDP lower under the alternative fiscal scenario than under the baseline, and that difference also would grow in later years, reaching roughly 2 percent of GDP in 2038. The alternative scenario incorporates the following assumptions regarding revenues: that about 75 expiring tax provisions (including a provision allowing businesses to immediately deduct 50 percent of new investments in equipment) will be extended through 2023; and that after 2023, revenues will remain at 18.1 percent of GDP, matching their 2023 value and a little above the average during the past 40 years of 17.4 percent, rather than rising over time as a percentage of GDP, as they do in the extended baseline.

Output and Interest Rates Under the Extended Alternative Fiscal Scenario

On the basis of its central estimates of the economic effects of budget policies, CBO projects that real GNP under the extended alternative fiscal scenario would be lower by 0.7 percent in 2023 and by roughly 7 percent in 2038, relative to the amounts under the extended baseline with economic feedback (see Table 6-2). Under the breadth of assumptions that CBO uses for the crowding out of investment and labor supply responses, the reduction in GNP would range from slight to a bit more than 1 percent in 2023 and from about 3 percent to about 12 percent in 2038.[127] The projected impact on GNP reflects the unfavorable effects of much higher debt that would be offset only in part by the favorable effects of lower marginal tax rates. However, even with the negative impact of fiscal policy under the alternative scenario, CBO projects

127. Here and in the following section, each comparison of outcomes under the scenario at hand to those under the extended baseline with economic feedback applies the same parameters of economic responses to both. That is, one comparison is based on the two outcomes using parameters that imply weak economic responses; another, using central estimates; and a third, using parameters that imply strong responses.

[*Description of the calculation corrected on September 24, 2013]

that real GNP per person would be considerably higher in 2038 than in 2013 because of continued growth in productivity.

Interest rates in 2038 would be about 1 percentage point higher under the alternative scenario than under the extended baseline, according to CBO's central estimates.

Budgetary Outcomes Including Economic Feedback

Projected budgetary outcomes under the extended alternative fiscal scenario are worsened by the economic changes that result from its policies. With the effects of lower output and higher interest rates incorporated, federal debt held by the public under the extended alternative fiscal scenario would reach 190 percent of GDP in 2038—about 80 percentage points greater than that under the extended baseline with economic feedback—according to CBO's central estimates (see Figure 6-2).[128]

Other Consequences of Surging Federal Debt

The rapid increase in federal debt under the extended alternative fiscal scenario—especially after 2023—would have significant negative consequences beyond the scenario's effects on output. The problems stemming from additional federal debt, discussed above for the extended baseline, would be much more acute under this scenario because the debt would be higher and would be rising much more rapidly.

Long-Term Effects of Two Illustrative Scenarios With Smaller Deficits

Policies resulting in sustained lower deficits would lead to better long-term economic outcomes than those under the extended baseline. In a recent study, CBO analyzed the economy during the coming decade under two illustrative budgetary paths that would decrease deficits gradually such that deficits excluding interest payments between 2014 and 2023 would be $2 trillion or $4 trillion smaller than those under current law.[129] For this report, CBO extended those paths to later years by assuming that the reductions in the deficit in 2023, measured as a percentage of GDP, would continue in subsequent years. (The reduction in the deficit excluding interest payments in 2023 would be $360 billion, or nearly 1½ percent of GDP, under the first scenario, and $720 billion, or nearly 3 percent of GDP, under the second scenario.) With economic feedback taken into account, real GNP would be higher and the ratio of federal debt to GDP would be

128. Under the assumptions leading to the most negative impact on GNP, debt would reach 250 percent of GDP shortly after 2038. In CBO's judgment, the agency's model cannot provide reliable estimates of the economic impact of debt exceeding that magnitude: The model incorporates responses of private saving and capital inflows to fiscal policy that are based on historical experience, and if interest rates and the debt-to-GDP ratio rose to levels well outside of that experience, the estimated responses would probably no longer be valid.

129. Congressional Budget Office, *Macroeconomic Effects of Alternative Budgetary Paths* (February 2013), www.cbo.gov/publication/43769.

much lower in 2038 under those illustrative scenarios than under the extended baseline.

Fiscal Policies in the Two Illustrative Scenarios

For both illustrative scenarios, CBO assumed that the reductions in the deficit relative to the extended baseline would be comparatively small in 2014 and would increase steadily through 2023. In addition, the reductions in the deficit in 2023, expressed as a percentage of GDP, are assumed to continue in subsequent years, resulting in much smaller deficits over the long run than those under the extended baseline.

For the sake of simplicity and to avoid any presumption about what particular policies might be chosen to reduce the deficit, CBO has analyzed those illustrative scenarios without specifying the tax and spending policies under-lying them. As a result, the projected outcomes under the scenarios reflect no direct changes to the incentives to work and save that exist under current law; in particular, marginal tax rates are assumed to be the same as those under current law. Therefore, the estimated economic effects presented here arise solely from the differences in deficits and debt, and not from any differences in tax policies or benefit programs that would directly alter people's incentives to work and save. In fact, lessening budget deficits significantly relative to what would occur under current law without altering incentives to work and save would be very difficult. If policies that lowered deficits affected those incentives, then their overall economic impact would depend on both the changes in federal borrowing and the changes in incentives.

Output and Interest Rates Under the Two Illustrative Scenarios

According to CBO's central estimates, real GNP under the illustrative scenario involving a reduction of $2 trillion in deficits excluding interest payments over the first decade would be higher by 0.8 percent in 2023 and by about 4 percent in 2038 relative to real GNP under the extended baseline with economic feedback (see Table 6-2). Under the breadth of assumptions that CBO uses for the crowding out of investment and labor supply responses, the increase in GNP would range from 0.4 percent to 1.3 percent in 2023 and from about 2 percent to about 6 percent in 2038. Interest rates in 2038 would be about half a percentage point lower under that scenario than under the extended baseline, by CBO's central estimates.

According to CBO's central estimates, real GNP under the illustrative scenario involving a reduction of $4 trillion in deficits excluding interest payments over the first decade would be higher by 1.6 percent in 2023 and about 7 percent in 2038 relative to real GNP under the extended baseline. Under the breadth of assumptions that CBO uses for the crowding out of investment and labor supply responses, the increase in GNP would range from 0.8 percent to 2.5 percent in 2023 and from about 3 percent to about 11 percent in 2038. Interest rates in 2038 would be about 1 percentage point lower under that scenario than under the extended baseline, by CBO's central estimates.

Budgetary Outcomes Including Economic Feedback

The higher output and lower interest rates in the illustrative scenarios would improve long-term budgetary outcomes. For the illustrative scenario involving a $2 trillion reduction in deficits excluding interest payments over the first decade, federal debt held by the public in 2038 would stand at 67 percent of GDP, according to CBO's central estimates, close to the value of 70 percent in 2012 and roughly 40 percentage points lower than the amount under the extended baseline with economic feedback (see Table 6-1 and Figure 6-3).

For the illustrative scenario involving a $4 trillion reduction in deficits excluding interest payments over the first decade, according to CBO's central estimates, federal debt held by the public would fall to 31 percent of GDP in 2038, nearly 80 percentage points lower than the amount under the extended baseline with economic feedback. By comparison, debt was about 35 percent of GDP in 2007 and averaged 38 percent of GDP during the past 40 years.

Other Consequences of Debt That Remains Roughly Stable or Declines Relative to GDP

Stable or declining levels of federal debt relative to GDP would yield additional positive consequences beyond the effects on output. Relative to outcomes under the extended baseline, federal interest payments would be smaller, policymakers would have greater leeway in using tax and spending policies to respond to any economic downturns or financial crises, and the risk of a sudden fiscal crisis would be much smaller.

Short-Term Effects of the Three Additional Fiscal Scenarios

The various fiscal policies analyzed in this chapter would have different effects on the economy in the short term as well as in the long term. In the short term, policies that increased federal spending or cut taxes (and thus boosted budget deficits) would generally increase the demand for goods and services, thereby raising output and employment relative to what would occur in the absence of those policies. Similarly, policies that decreased federal spending or raised taxes (and thus decreased budget deficits) would generally reduce demand, thereby lowering output and employment relative to what would otherwise occur. Those effects would be especially strong under conditions like those currently prevailing in the United States, where output is so far below its potential (maximum sustainable) level that the Federal Reserve is keeping short-term interest rates near zero and would probably not adjust those rates to offset the effects of changes in federal spending and taxes.

Effects Under the Alternative Fiscal Scenario

Under the alternative fiscal scenario, the increase in deficits relative to those under current law would cause real GDP to be higher in the next several years than it would be under current law, CBO estimates. The policies incorporated in that scenario would undo the automatic spending reductions specified by the Budget Control Act, hold

constant Medicare's payment rates for physicians' services (which are now scheduled to be reduced in January 2014), and extend certain tax provisions, including one allowing businesses to immediately deduct 50 percent of new investments in equipment.

CBO estimates that those policies would raise the demand for goods and services in the short run, increasing real GDP relative to that under current law by roughly 0.6 percent in both 2014 and 2015 (see Table 6-3).[130] The policies would probably also increase real GDP for a couple of years after 2015, but CBO has not estimated the effects in those years. The figures given for 2014 and 2015 represent the agency's central estimates, which correspond to the assumption that key parameters of economic behavior (in particular, the extent to which lower federal taxes and higher federal spending boost aggregate demand in the short term) equal the midpoints of the ranges used by CBO. The full ranges that CBO uses for those parameters suggest that real GDP would be between 0.2 percent and 1.0 percent higher in 2014 and between 0.1 percent and 1.1 percent higher in 2015.[131]

To produce that additional output, businesses would hire additional workers. According to CBO's central estimates, the policies encompassed by the alternative fiscal scenario would raise full-time-equivalent employment by 0.7 million in 2014 and by 0.8 million in 2015 relative to full-time-equivalent employment under current law.[132]

Effects Under the Two Scenarios With Smaller Deficits

Under the two illustrative scenarios that reduce deficits, real GDP would be lower in the next several years than under current law, CBO estimates. The agency did not specify fiscal policies underlying the two illustrative scenarios, so the estimated economic effects arise solely from the differences in overall deficits. In the first scenario, the deficit is reduced gradually such that deficits excluding interest costs between fiscal years 2014 and 2023 are $2 trillion less than those under current law; the reductions in the deficit excluding interest costs in fiscal years 2014 and 2015 amount to $40 billion and $76 billion, respectively. In the second scenario, the deficit is reduced gradually such that deficits excluding interest costs over the same period are $4 trillion less than

130. CBO's estimates of the short-term effects of the alternative fiscal scenario and the two illustrative scenarios on real GDP are very similar to the agency's estimates of the effects on real GNP. This analysis focuses on GDP to be consistent with CBO's other analyses of the short-term impact of fiscal policies. The estimates reported here refer to averages during the calendar years referenced; some of CBO's other analyses of the short-term impact of fiscal policies have focused on effects during specific quarters of years, such as the fourth quarter.

131. For a discussion of CBO's analytical approach to estimating the economic effects of fiscal policy, see Felix Reichling and Charles Whalen, *Assessing the Short-Term Effects on Output of Changes in Federal Fiscal Policies*, Working Paper 2012-08 (Congressional Budget Office, May 2012), www.cbo.gov/publication/43278; and Congressional Budget Office, *Macroeconomic Effects of Alternative Budgetary Paths* (February 2013), Appendix, www.cbo.gov/publication/43769.

132. A year of full-time-equivalent employment is equal to 40 hours of employment per week for one year.

those under current law; the reductions in the deficit excluding interest costs in fiscal years 2014 and 2015 amount to $80 billion and $151 billion, respectively.[133]

Under the first scenario, real GDP in 2014 would be 0.2 percent lower than it is projected to be under current law (or between 0.1 percent and 0.4 percent lower under CBO's full range of assumptions); in 2015, real GDP would be 0.3 percent lower (or as much as 0.5 percent lower under the full range of assumptions). Under the second scenario, with greater deficit reduction, real GDP in 2014 would be 0.5 percent lower than it is projected to be under current law (or between 0.1 percent and 0.8 percent lower under the full range of assumptions); in 2015, real GDP would be 0.6 percent lower (or between 0.1 percent and 1.0 percent lower under the full range of assumptions). By CBO's estimates, the policies would continue to decrease real GDP for a period after 2015, but the effect on output would be positive by 2018.

Because businesses would produce less, they would hire fewer workers. According to CBO's central estimates, full-time-equivalent employment under the first of those scenarios would be 0.3 million lower in 2014 and 0.4 million lower in 2015 relative to employment under current law; under the second of those scenarios, full-time-equivalent employment would be 0.5 million lower in 2014 and 0.8 million lower in 2015 than the levels under current law.

If policymakers wanted to minimize both the short-term economic costs of shrinking the deficit very quickly and the longer-term costs of allowing large deficits to persist, they could enact a combination of changes in tax and spending policies that would increase the deficit in the next few years relative to what it would be under current law but that would reduce deficits later relative to what would occur if current policies were extended. That approach, however, would allow a greater amount of federal debt to accumulate and might raise doubts about whether longer-term deficit reduction would actually take place. Households, businesses, state and local governments, and participants in the financial markets would be more likely to believe that the future deficit reduction would truly take effect if the future policy changes were specific and widely supported.

133. For details on the budgetary paths underlying those two illustrative deficit scenarios over the next 10 years as well as a very similar analysis of the economic effects of those paths over that period, see Congressional Budget Office, *Macroeconomic Effects of Alternative Budgetary Paths* (February 2013), www.cbo.gov/publication/43769. (The economic effects estimated in that analysis differ slightly from those in the current analysis because of changes in CBO's baseline as well as minor changes in estimating assumptions.) As in that report, CBO's central estimates here reflect the agency's estimate that each $1 change in budget deficits excluding interest payments relative to those under current law would, in the short term and under current economic conditions, change output cumulatively by $1 over several quarters. That dollar-for-dollar response lies within the ranges of estimated effects on GDP of many policies that CBO examined in analyzing the macroeconomic effects of the American Recovery and Reinvestment Act of 2009. And, as in the February 2013 report, CBO's full range of estimates imply that each $1 change in deficits excluding interest payments would, in the short term and under current economic conditions, change output cumulatively by between $0.33 and $1.67.

Chapter 7: The Uncertainty of Long-Term Budget Projections

Budget projections are inherently uncertain. The projections in this report are based largely on current law and on estimates of future economic conditions, demographic trends, and other developments that reflect the typical experience of the past several decades. Budgetary outcomes will depend importantly on future policies, as shown in the preceding chapter. But even if future spending and tax policies match what is assumed in the Congressional Budget Office's (CBO's) extended baseline, budgetary outcomes will undoubtedly differ from the projections in this report owing to unexpected changes in the economy, demographics, and other factors.

To illustrate the uncertainty of long-term budget projections, CBO generated projections based on some assumptions that differ from those underlying the projections in most of this report. In particular, the agency generated budget projections based on different assumptions about the growth of total factor productivity (which equals inflation-adjusted output per unit of combined labor and capital services and is referred to in this chapter as "productivity"), interest rates on government debt, and the growth of federal spending on health care.[134] Productivity is a key determinant of economic output, income, and federal revenues, and interest rates on government debt and federal spending on health care are important drivers of overall federal spending.

The range of budgetary outcomes that arises from those different assumptions shows only a portion of the un-certainty associated with long-term budget projections, however. One reason is that productivity, interest rates, or federal spending on health care could differ from CBO's central estimates by more than the differences considered in this analysis. Another reason is that other factors that are not addressed in this chapter could also differ from CBO's expectations. For example, an increase in the birth rate or in labor force participation could boost the growth of the labor force and thus raise tax revenues, or an economic depression could sharply cut incomes and tax revenues.

134. An alternative approach to quantifying the uncertainty of budget projections would be to create a distribution of outcomes from a large number of simulations in which such factors as productivity growth, interest rates, and the growth of federal spending on health care varied. CBO generally uses that approach in its reports on the financial outlook for the Social Security trust funds; see Congressional Budget Office, *The 2012 Long-Term Projections for Social Security: Additional Information* (October 2012), www.cbo.gov/publication/43648, and *Quantifying Uncertainty in the Analysis of Long-Term Social Security Projections* (November 2005), www.cbo.gov/publication/17472. However, determining the appropriate variation in those factors and estimating the distribution of outcomes for the federal budget as a whole requires additional modeling tools that CBO has not yet developed.

Policymakers could address the uncertainty associated with long-term budget projections in various ways. For example, they might design policies that would partly insulate the federal budget from some unanticipated events; however, such policies could have unwanted consequences, such as shifting risk to individuals. Alternatively, policymakers might aim for a smaller amount of federal debt to provide some buffer against the budgetary impact of adverse surprises and give future policymakers more flexibility in responding to unexpected crises.

The Long-Term Budgetary Effects of Differences in Productivity, Interest Rates, and Federal Spending on Health Care

CBO based its long-term projections of the budget in part on projections of the growth rate of productivity, interest rates on government debt, and the growth of federal spending on health care. Budgetary outcomes could differ greatly from CBO's projections if those factors diverged significantly from the paths that underlie the projections in this report. In the examples CBO presents below, for instance, federal debt held by the public in 2038 would vary from as low as 65 percent of gross domestic product, or GDP (which is still high by historical standards) to as high as 156 percent of GDP, compared with 108 percent under the extended baseline with economic feedback. (As explained in Chapter 6, that version of the baseline incorporates the economic effects of the fiscal policies in the baseline and, in turn, the impact of those economic effects on budgetary outcomes; as a result, the economic and budget projections in the extended baseline with economic feedback differ somewhat from those presented in the preceding chapters of this report.)

Productivity

Productivity is an important determinant of economic output. The growth of total factor productivity stems from the introduction and spread of technological change as well as from increases in workers' education and skill levels and the use of new processes that improve the efficiency of organizations.[135] CBO estimates that the growth of total factor productivity has accounted for 40 percent of the increase in real (inflation-adjusted) output since 1950, rising by an average of 1.3 percent each year. CBO's extended baseline incorporates the projection that such productivity will continue to increase by 1.3 percent each year.

135. The current analysis focuses on *total factor productivity*, which reflects the efficiency with which labor and capital combine to produce goods and services. In contrast, *labor productivity* measures the amount of goods and services that can be produced per hour of labor (and reflects the skill of workers, the amount of capital each worker uses, and total factor productivity).

The rate of growth of productivity has often varied for extended periods. For example, total factor productivity grew at an average annual rate of 2.1 percent between 1950 and 1973 but at a rate of only 0.2 percent between 1974 and 1981.[136] Periods of rapid growth often result from major technological innovations. For example, innovations in four critical areas—electricity generation, internal-combustion engines, chemicals, and telecommunications—triggered a surge in productivity in the 1920s and 1930s. Another surge occurred in the 1950s and 1960s, spurred by the electrification of homes and workplaces, suburbanization, completion of the nation's highway system, and production of consumer appliances. The latest, more modest surge began in the 1990s and is attributed to innovations involving computers and other types of information technology.[137]

The future growth rate of productivity is uncertain. The nation could experience faster growth in productivity than is reflected in CBO's extended baseline, either steadily (for example, from ongoing gains from integrating information technology into the economy) or in a burst (for example, from a specific technological breakthrough, such as the development of a new source of energy). Conversely, the growth of productivity could be slower than in CBO's extended baseline if the pace of technological innovation or the dispersion of previous innovations throughout the economy diminished.

The budgetary impact of a different growth rate for productivity would depend on whether, and to what extent, the change affected interest rates paid by the federal government. According to many economic models, higher productivity would mean that capital was more productive, implying a higher rate of return from capital investment, all else being equal. Because the federal government competes with private borrowers for investors' money, higher returns from private investment should push up federal interest rates.[138] However, whether that predicted relationship holds in practice is not clear because many different factors, including ones that influence the domestic saving rate and the global demand for investment, affect interest rates. Given that

136. Since 1950, the 25-year moving average of productivity growth has varied between 0.8 percent and 1.9 percent and has been between 0.9 percent and 1.4 percent two-thirds of the time. Past performance is no guarantee of future outcomes, however.

137. For further discussion, see Robert Shackleton, *Total Factor Productivity Growth in Historical Perspective*, Working Paper 2013-01 (Congressional Budget Office, March 2013), www.cbo.gov/publication/44002.

138. Several theories of economic growth—including the one underlying CBO's Solow-type growth model, which was used for this analysis—imply that permanently higher rates of productivity growth will lead to permanently higher rates of return from investment, and therefore higher interest rates. For example, in CBO's Solow-type growth model, if productivity grew 0.5 percentage points faster than in the extended baseline with economic feedback, the average interest rate on the federal debt in 2038 would be about 1 percentage point higher than the baseline value. For a detailed description of the Solow-type growth model, see Congressional Budget Office, *CBO's Method for Estimating Potential Output: An Update* (August 2001), www.cbo.gov/publication/13250.

uncertainty, CBO used two alternative estimates of the effect of productivity growth on interest rates to examine the budgetary impact of changes in productivity growth: first, no accompanying change in interest rates, and second, an increase in interest rates consistent with CBO's Solow-type growth model.

CBO analyzed the effects of growth in total factor productivity that is faster or slower than in the extended baseline with economic feedback. If productivity growth after 2013 was faster, on average, than the rate assumed for the extended baseline projections, budgetary outcomes would be more favorable, all else being equal; if productivity growth was slower, budgetary outcomes would be less favorable:

- For example, if productivity grew by 1.8 percent annually, 0.5 percentage points faster than in the extended baseline with economic feedback, and if interest rates stayed the same, then greater GDP would result in higher revenues, smaller budget deficits, and a smaller ratio of federal debt to GDP. In that case, federal debt would reach 65 percent of GDP in 2038 rather than 108 percent as CBO projects under the extended baseline with economic feedback (see the left panel of Figure 7-1).[139]

- In contrast, if productivity grew by 0.8 percent annually, 0.5 percentage points more slowly than in the extended baseline with economic feedback (again, assuming no impact on interest rates), slower economic growth would result in lower revenues, bigger budget deficits, and a larger ratio of debt to GDP, totaling 156 percent in 2038.[140]

Alternatively, if changes in the growth rate of productivity affected interest rates, the budgetary effects of the changes in productivity themselves would be partly offset by the budgetary effects of the changes in interest rates:

- Under that assumption, if productivity grew 0.5 percentage points faster than in the extended baseline with economic feedback, the ratio of debt to GDP would decrease to 77 percent in 2038 (see the right panel of Figure 7-1).

139. In this analysis (as well as the analysis in Chapter 6), increases in GDP relative to CBO's extended baseline are projected to raise revenues (based on the tax code that is assumed to be in effect in future years), spending on retirement programs (based on the formulas linking earnings and subsequent benefits), and spending on health care programs (following CBO's standard approach for projecting long-term cost growth, which is described in Chapter 2). However, CBO projects that other noninterest spending would remain at baseline levels, even as GDP deviates from the extended baseline.

140. An increase of 0.5 percentage points in the growth rate of productivity results in productivity in 2038 that is 13 percent higher than in the extended baseline; a decrease of 0.5 percentage points in the growth rate of productivity results in productivity in 2038 that is 12 percent lower than in the extended baseline. Therefore, the budgetary effects of those two deviations from the baseline projections are not exactly symmetrical.

- If productivity grew 0.5 percentage points more slowly than in the extended baseline with economic feedback (under the assumption that slower productivity reduced interest rates), the ratio of debt to GDP would increase to 135 percent in 2038.

Productivity growth could also affect the budget in other ways not incorporated in this analysis—for example, by changing the shares of the nation's income received by workers (such as wages and salaries) and by the owners of capital (such as corporate profits). In recent years, technological change appears to have affected productivity in ways that put downward pressure on labor's share—such as by expanding options for using capital in place of labor—a trend that some economists believe will be long-lasting.[141] In addition, some types of ongoing technological change appear to be intensifying wage inequality.[142] Such shifts in the distribution of income could significantly affect revenues and spending for some specific programs (such as Social Security); whether they would have a large impact on the federal budget overall is unclear.

Interest Rates

Projecting future interest rates on government debt is difficult because those rates have varied considerably over time. Historically, the average real interest rate on federal government debt as a whole has been similar to the rate on 10-year Treasury notes. They are not identical primarily because the government holds debt with other maturities that have different interest rates. During the 1960s, the real interest rate on 10-year Treasury notes averaged about 3 percent.[143] The rate declined to about 1 percent, on average, over the 1970–1980 period as surges in the price of oil pushed inflation well above what workers, employers, and financial markets had been anticipating. Real rates were much higher during the remainder of the 1980s, averaging 6 percent, because of a decline in inflation that was much larger than most people had been expecting. Since then, the real interest rate on 10-year Treasury notes has tended to decline, averaging 4 percent during the 1990s and about 2 percent between 2000 and 2007; during the past five years of financial crisis, recession, and weak recovery, it averaged about 1 percent.

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141. For further discussion, see Congressional Budget Office, *How CBO Projects Income* (July 2013), www.cbo.gov/publication/44433.

142. See Erik Brynjolfsson and Andrew McAffee, *Race Against the Machine: How the Digital Revolution Is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy* (Digital Frontier Press, 2012).

143. Real interest rates are calculated as the difference between nominal interest rates and the rate of inflation. The real interest rates presented in this report are adjusted for inflation using the research series of the consumer price index for all urban consumers, published by the Bureau of Labor Statistics (BLS). For analyzing trends in the prices paid by consumers, that research series is a better measure than the more well-known consumer price index for all urban consumers. BLS does not publish values of the research series for years before 1978, so CBO estimated those values.

In the economic benchmark underlying the projections in this report, CBO estimates that real interest rates will rise from their current, extremely low, levels. The real rate on 10-year Treasury notes is assumed to near its historical average over the long term, rising from close to zero to 3.0 percent. Through 2038, the effect of higher federal debt on interest rates is offset by other factors, such as slower growth in the labor force.

In CBO's economic benchmark, the average real rate on federal debt rises to 2.7 percent. The difference in 2038 between the real rate on 10-year Treasury notes and the real rate on federal debt arises because CBO anticipates that interest rates on short-term debt will be lower than those on long-term debt, as is typically the case, and because the average maturity of federal debt is expected to be less than 10 years. (For further discussion of the economic estimates underlying the projections in this report, see the section titled "CBO's Projections of Demographic and Economic Trends" in Chapter 1.)

Interest rates could be higher or lower than CBO projects, for various reasons. For example, productivity could grow at a faster or slower rate than CBO estimates, which could affect interest rates (as discussed in the section on productivity, above). Economic developments other than changes in productivity growth—such as changes in the rate of national saving or in inflows of foreign capital—could also affect the rate of return on capital and therefore interest rates. Or an unexpected surge in inflation could lead to lower real interest rates.

Another source of uncertainty regarding interest rates stems from the gap between the average interest rate on federal debt and the average return on private capital. CBO's budgetary projections incorporate a gap of 5 percentage points between those rates, similar to the average gap during the past 25 years. The historical difference between those rates reflects the risk and return characteristics of private capital and federal debt as well as investors' preferences regarding risk and return. Rates on federal debt could be higher or lower than CBO projects if those risk and return characteristics or investors' preferences differ from historical patterns.

Budgetary projections would be altered significantly if, after 2013, interest rates faced by the federal government differed considerably from the path that underlies the projections in this report:

- For example, if interest rates were 0.75 percentage points lower each year than CBO projected but the economy was otherwise the same (with respect to productivity growth and inflation, for example), then net interest would account for 15 percent of federal outlays by 2038 (reflecting the economic and budgetary effects of those lower rates), compared with 20 percent in the extended baseline with economic

feedback.[144] Federal debt would be 89 percent of GDP in 2038, rather than 108 percent as CBO projected in the extended baseline with economic feedback (see Figure 7-2).

- If interest rates faced by the government were 0.75 percentage points higher than CBO projected but the economy was otherwise the same, net interest would make up 26 percent of federal outlays and debt would reach 132 percent of GDP in 2038.

Spending on Health Care

One significant source of budgetary uncertainty is the future growth of federal spending on health care. The federal government pays for health care through Medicare, Medicaid, and other programs, and through tax preferences, especially the exclusion of employer-sponsored health insurance from income and payroll taxes. The federal government's health care spending will grow considerably in 2014 because of changes made by the Affordable Care Act: More low-income people will become eligible for Medicaid, and others will become eligible for subsidies for health insurance purchased through exchanges.

Many factors will affect federal spending on health care in the long term. Future rates of growth of per-beneficiary spending in federal health care programs and in the private sector will depend significantly on the extent to which advances in health care technology raise or lower costs. New medical services are often very expensive; and even for services that are relatively inexpensive, aggregate spending can rise quickly if ever-growing numbers of patients use them.[145] Moreover, changes in the structure of payment systems and in the delivery of health care could also prove important to the cost of health care; indeed, such changes could affect, and be affected by, advances in technology.

In addition, federal spending on health care will depend on the health of the population, which could evolve in unexpected ways for various reasons, such as these:

- Changes in behavior (for example, in smoking rates, participation in physical activity, or dietary patterns) that affect the incidence and prevalence of certain chronic conditions;

144. The effects on budget projections from changes in the government's borrowing rates do not incorporate the source of the variation in rates, such as changes in inflation, nor do they incorporate any changes in remittances by the Federal Reserve or in the relative amounts of different types of taxable income (for example, profits and interest income). Changes of those sorts would have additional budgetary implications.

145. See Congressional Budget Office, *Technological Change and the Growth of Health Care Spending* (January 2008), www.cbo/gov/publication/41665.

- New medical interventions that reduce the occurrence of certain conditions or diseases;
- New treatments for various illnesses; and
- The emergence of medical epidemics (whether on the scale of the 1918 pandemic flu, which killed roughly one of every 150 people in the United States, or on the even larger scale of the current AIDS epidemic in parts of Africa).

Outlays for Medicare and Medicaid, for example, depend in part on the prevalence of certain medical conditions—such as cardiovascular and pulmonary diseases, diabetes, arthritis, and depression—among beneficiaries; people with multiple chronic conditions tend to use more medical care and to have a greater need for long-term services and supports than most people. (For further discussion, see Chapter 2.)

CBO's extended baseline shows federal spending on health care per beneficiary increasing more slowly in the future than during the past several decades but still substantially outpacing the growth of per capita GDP. Between 2013 and 2038, federal spending per beneficiary in Medicare, after adjusting for the influence of demographic changes, is projected to grow at an average annual rate of 4.3 percent, and spending per beneficiary in Medicaid is projected to grow at an average annual rate of 4.7 percent. Because spending for those programs is so great, changes in those rates of growth could have significant budgetary effects:

- If Medicare and Medicaid spending per beneficiary rose 0.5 percentage points per year more slowly, on average, than in the extended baseline with economic feedback, federal spending for those programs in 2038 would be 10 percent lower. As a result of that slower growth, federal debt held by the public would be 94 percent of GDP in 2038, rather than 108 percent, as CBO projects under the extended baseline with economic feedback (see Figure 7-3).
- In contrast, if Medicare and Medicaid spending per beneficiary rose 0.5 percentage points faster, on average, than in the extended baseline with economic feedback, federal spending for the programs in 2038 would be 11 percent higher, and federal debt held by the public would be 123 percent of GDP.

To the extent that changes in the growth of federal spending on health care per beneficiary reflected changes in health status that led to changes in life expectancy, they would also affect the number of Medicare and Social Security recipients and outlays for other mandatory spending programs (such as Medicaid and Supplemental Security Income). However, the relationship between health care spending per beneficiary, health status, and life expectancy is unclear: In any year, higher health care spending per beneficiary might reflect more spending on medical technologies that extend life expectancy, or it might reflect deterioration in average health status that reduces life expectancy.

The effects of changes in life expectancy on future spending per beneficiary in federal health care programs are uncertain in other ways as well. Although health care spending tends to be high near the end of life, some studies have found that greater longevity is associated with a compressed period of higher spending—which would imply that future spending will not grow as quickly as longevity, all other factors held equal.[146] To the extent that such a "compression of morbidity" has occurred, its impact is already reflected in historical data on health cost growth and thus in CBO's projections of federal spending on health care, but uncertainty remains about whether that impact will be larger, smaller, or the same in the future. Because the direction of all those interactions is unclear, the estimated budgetary impact of alternative assumptions about the growth of federal spending on health care per beneficiary discussed above does not incorporate any effects of changes from benchmark projections for life expectancy.

Other Risks to the Long-Term Budget Outlook

The range of budgetary outcomes described above conveys only a portion of the uncertainty associated with long-term budget projections. For example, the extended baseline and other projections in this report reflect the average experience of business cycles since the end of World War II, but they do not incorporate more extreme developments, such as an economic depression like the one that occurred in the United States in the 1930s. The projections also do not reflect the risk of unexpectedly large losses on federal financial obligations such as mortgage guarantees. In addition, demographic trends and the growth of the labor force could diverge from the projections CBO used for its calculations. The risk of unpredictable catastrophic events, such as a major natural disaster or a war on the scale of World War II, is also not incorporated in CBO's projections. All such events could significantly affect the economy and the federal budget.

An Economic Depression

Economic downturns automatically affect the federal budget by reducing revenues significantly and raising outlays for social safety-net programs, such as unemployment insurance and nutrition assistance.[147] In addition, downturns have historically prompted policymakers to enact legislation that further reduces revenues and increases spending to help people suffering from the weak economy, to bolster the financial condition of state and local governments, and to stimulate additional economic activity and employment. For example, debt as a share of GDP increased from 35 percent in 2007 to 70 percent in 2012, owing in large part to the budgetary effects of the

146. See David M. Cutler, Kaushik Ghosh, and Mary Beth Landrum, *Evidence for Significant Compression of Morbidity in the Elderly U.S. Population,* Working Paper 19268 (National Bureau of Economic Research, July 2013), www.nber.org/papers/w19268.

147. See Congressional Budget Office, *The Effects of Automatic Stabilizers on the Federal Budget as of 2013* (March 2013), www.cbo.gov/publication/43977.

recession and weak recovery and the policy responses enacted to counter that downturn. Conversely, strong economic growth in the 1990s was one factor that helped to lower debt as a share of GDP over that decade.

Since the end of World War II, the unemployment rate has been about ¼ percentage point higher, on average, than CBO's estimate of the natural rate of unemployment (the rate arising from all sources except fluctuations in aggregate demand). That difference implies that bouts of significant economic weakness (such as the 2007–2009 recession and its aftermath) have pushed the unemployment rate above CBO's estimate of the natural rate more than periods of significant economic strength have pushed it below that estimate. Consistent with that finding, the economic projections underlying the extended baseline after 2028 incorporate an unemployment rate of 5.3 percent, which is about ¼ percentage point higher than CBO's estimate of the natural rate of unemployment for that period. Thus, those projections take into account occasional economic downturns that are not offset by upturns of similar magnitude.

But the long-term projections in this report do not incorporate the possibility of an event like the Great Depression. The unemployment rate averaged 17 percent between 1929 and 1939; by comparison, the unemployment rate averaged less than 8 percent between 2007 and 2012, a period during which the federal debt as a share of GDP increased by 35 percentage points. However, extraordinary events like the Great Depression are rare, and—partly as a consequence—their magnitude and timing cannot readily be predicted.

Changes in Demographics and Labor Force Growth

Demographic factors and the growth of the labor force will also affect budgetary outcomes over the long term. Federal outlays as a share of GDP are sensitive to the ratio of the number of elderly people (those 65 and older) to the number of working-age adults because GDP depends to a large degree on the number of workers and because outlays for Medicare, Medicaid, and Social Security are closely linked to the number of elderly people. Higher rates of fertility or immigration would generally cause federal spending to decrease relative to GDP, whereas growth in life expectancy that was faster than expected would generally cause federal spending to increase relative to GDP. Demographic trends could diverge relatively suddenly from the projections used for CBO's calculations—for example, because of a medical breakthrough that reduced mortality or because of the spread of a new infectious disease. Alternatively, such shifts could occur gradually—for instance, if trends in fertility rates or mortality improvements diverged steadily from their projected paths.

Projections of the labor force combine demographic projections with estimates of the rate of participation in the labor force, which depends on several factors, including economic conditions and public policies (especially those that involve taxes on labor or that directly affect people's incentive to work in some other way). The rate of participation in the labor force can vary considerably over time. For example, that

rate averaged 59 percent in the 1950s and 1960s, increased to more than 67 percent by 2000, and averaged a little more than 63 percent in the first half of 2013.[148] If the growth of the labor force differed greatly from the path that underlies the projections in this report, budgetary outcomes could be altered significantly. For example, if the labor force grew faster than projected in the extended baseline, the faster economic growth would result in higher revenues, smaller budget deficits, and a smaller ratio of federal debt to GDP. In contrast, if the labor force grew more slowly than projected in the extended baseline, the slower economic growth would result in less revenues, larger budget deficits, and a greater ratio of debt to GDP.

Uncertain Costs of Federal Financial Obligations

The federal government supports a variety of private activities through federal insurance and through federal credit programs that provide loans and loan guarantees. Federal insurance takes several forms, including coverage for deposits at financial institutions (provided by the Federal Deposit Insurance Corporation), insurance for workers' pensions (provided by the Pension Benefit Guaranty Corporation), and coverage for property against damage by floods (provided by the National Flood Insurance Program). The largest federal credit programs provide mortgage loan guarantees (through the Federal Housing Administration, Fannie Mae, and Freddie Mac), student loans, and federally backed loans to businesses (through the Small Business Administration, for example).[149] A number of other, smaller, programs provide similar types of support, including loan guarantees provided by the Department of Energy and terrorism risk insurance administered by the Treasury Department.

Although CBO includes some losses from those credit and insurance programs in its baseline projections, a major disruption in the financial system, a deep slump in the economy, or other unexpected events could result in significantly greater losses relative to CBO's projections. Federal credit and insurance programs generate losses when the support provided by the federal government exceeds the money taken in by the programs through fees, partial loan repayments, asset sales, wage garnishment, and other means. For example, in the wake of the recent housing crisis, widespread defaults on guaranteed mortgages have led to substantial outlays by the federal government (in part through authority granted in legislation enacted in response to the crisis). Widespread defaults on student loans or the bankruptcy of numerous companies with underfunded pension plans could lead to analogous costs for the federal government in the future.[150]

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148. The rate of participation in the labor force also varies across demographic groups; see Congressional Budget Office, *CBO's Labor Force Projections Through 2021* (March 2011), www.cbo.gov/publication/22011.

149. The federal government guaranteed certain new student loans until July 1, 2012, when the Federal Direct Loan Program replaced the government's Federal Family Education Loan Program. However, the federal government still guarantees outstanding loans issued under that earlier program.

Moreover, the federal government may have significant implicit liabilities apart from the liabilities created by formal government programs. In the event of a financial crisis, for example, federal policymakers may decide to provide monetary support to the financial system, as they did during the recent financial crisis.

Catastrophic Events

The federal government also faces implicit obligations in the case of catastrophic events. Natural and manmade disasters occur fairly often in the United States. Previous disasters have seriously damaged local communities and economies, but they rarely have had significant, lasting impacts on the national economy. However, an increased frequency of disasters or the occurrence of a catastrophic event could affect budgetary outcomes by reducing economic growth over a number of years, leading to substantial additional federal spending. For example, the nation could experience a massive earthquake, a nuclear meltdown or attack that rendered a significant part of the country uninhabitable, a large pandemic, an asteroid strike, or a geomagnetic storm from a large solar flare. Participation in a major war also could have significant economic and budgetary impacts: The ratio of federal debt to GDP rose by 60 percentage points during World War II, for instance. Because catastrophic events are extremely rare, estimating the probability of their future occurrence is very difficult.

Implications of Uncertainty for the Design of Fiscal Policy

Policymakers could take uncertainty into account in various ways when making fiscal policy choices.[151] For example, they might decide to design policies that would reduce the budgetary implications of certain surprises. However, such policies might have other consequences, such as increasing the risk borne by individuals, that policymakers might view as undesirable. Alternatively, or as a complement, policymakers might decide to provide a buffer against events with negative budgetary implications by aiming for lower debt than they would otherwise.

Fiscal policy cannot eliminate the risk factors that create uncertainty about budgetary outcomes, but it can reduce the budgetary implications of those factors. Under current law, for example, outlays for Medicare and Medicaid depend on the growth of health care costs, but some policymakers have proposed that growth in federal outlays per beneficiary of those programs be linked to measures of overall economic growth. Such a change could have a range of effects on total spending for health care, the federal budget, individuals' costs, and the budgets of state and local governments. One effect

150. For more discussion of this issue, see James D. Hamilton, "Off-Balance-Sheet Federal Liabilities" (paper prepared for the Third Annual *Cato Papers on Public Policy* Conference and revised July 17, 2013), http://dss.ucsd.edu/~jhamilto/Cato_paper.pdf.

151. For example, see Alan J. Auerbach and Kevin Hassett, "Uncertainty and the Design of Long-Run Fiscal Policy," in Alan J. Auerbach and Ronald D. Lee, eds., *Demographic Change and Fiscal Policy* (Cambridge University Press, 2001), pp. 73–92.

could be to greatly reduce uncertainty about future federal outlays for those programs while greatly increasing uncertainty about the future costs borne by the programs' beneficiaries and state and local governments. (Most proposed policy changes of that sort would affect both the expected federal outlays and uncertainty about those outlays, but those two aspects are conceptually distinct.)

Similarly, policymakers could reduce the budgetary implications of uncertainty about future life expectancy by indexing the eligibility age for programs such as Social Security or Medicare to average life spans. Under current law, if longevity increased more than expected, outlays for federal health and retirement programs would exceed projections. If policies were changed so that the age of eligibility for those programs rose automatically with increases in longevity, the budgetary effects would be dampened. However, individuals would face greater uncertainty about the timing and amount of benefits they would receive.

Whether or not the federal budget directly bears the risk of uncertain outcomes, all risk is ultimately distributed among individuals—as taxpayers, as beneficiaries of federal programs, or as both. If federal spending turned out to be higher than projected, the additional imbalance could be offset only through higher revenues or lower outlays. If the additional imbalance was not offset, then deficits would be larger, resulting in lower future incomes. Conversely, if budget imbalances were smaller than expected, then an opportunity would exist to lower taxes or boost spending; it would also be possible to reduce future deficits, which would result in higher incomes. How risk was distributed among individuals—for example, among which income groups or generations—would depend on the specific policies that lawmakers enacted to deal with an unexpected imbalance.

As an alternative or complementary approach, policymakers could improve the federal government's ability to withstand the effects of events that would significantly worsen the budgetary outlook. In particular, reducing the amount of federal debt would give future policymakers more flexibility in responding to extraordinary events. For example, a financial crisis in the future might have significant negative economic and budgetary implications just as the recent financial crisis did. The ratio of debt to GDP increased by 35 percentage points between 2007 and 2012; if another financial crisis prompted a similar increase when the ratio of debt to GDP was already at a high rate (such as 70 percent, where it is today), policymakers might be reluctant to accept the initial cost of a desired intervention in the financial system or the economy even if they expected to recoup at least part of that cost over time.

In addition, a high ratio of debt to GDP increases the risk of a fiscal crisis, in which investors would lose confidence in the government's ability to manage its budget and the government would thus lose its ability to borrow at affordable rates.[152] There is no way to predict the amount of debt that might contribute to such a crisis, but starting from a position of relatively low debt would reduce the risk of that occurring.

Appendix A: Changes in CBO's Long-Term Projections Since June 2012

The Congressional Budget Office (CBO) now projects that under the assumptions of the extended baseline, federal debt held by the public would rise significantly in the next quarter century: from about 73 percent of gross domestic product (GDP) this year to 100 percent in 2038 (see Figure A-1). In last year's extended baseline, by contrast, CBO projected that debt would decline relative to GDP, falling to 52 percent in 2038.[153] That difference of 48 percentage points would be slightly larger, 49 percentage points, if the 2012 projections were adjusted to use the same values for GDP used for the current projections. (In July 2013, the Bureau of Economic Analysis revised its estimates of past GDP, and CBO extrapolated those revisions when projecting future GDP for this report.)

The very large change between this year and last year in projected federal debt stems primarily from changes in tax law that have sharply reduced future revenues. The reduction in projected revenues is partly offset by a slight decrease in projected noninterest outlays, which occurs mainly because spending on the government's major health care programs is now projected to be smaller as a share of GDP in 2023 than CBO expected last year, and because CBO is projecting slightly slower growth in federal spending for those programs and for most other mandatory programs as a group than it did last year. Revisions to various assumptions and methods and the availability of newer data have also affected CBO's long-term projections.

New Legislation and Changes in Assumptions and Methods

A significant change in tax law and updates to several of CBO's assumptions about spending and revenues are among the changes that have had the greatest impact on CBO's long-term projections since last year.

- **The American Taxpayer Relief Act of 2012 reduced revenues substantially relative to previous law.** That legislation, which was enacted in early January 2013, made most of the tax provisions that had been due to expire at the end of 2012—including

152. That sort of crisis might also occur if an adverse event such as a major economic disruption caused by a depression or a war drove up the ratio of debt to GDP to levels investors saw as unsustainable. For further discussion, see Congressional Budget Office, *Federal Debt and the Risk of a Fiscal Crisis* (July 2010), www.cbo.gov/publication/21625.

153. See Congressional Budget Office, *The 2012 Long-Term Budget Outlook* (June 2012), www.cbo.gov/publication/43288. That report focused on two scenarios: the extended baseline scenario and the alternative fiscal scenario, which incorporated the assumptions that certain policies that had been in place for a number of years would be continued and that some provisions of law that might be difficult to sustain for a long period would be modified. This appendix compares only the projections under the extended baseline made in 2012 and 2013.

lower individual income tax rates—permanent for most taxpayers. It also raised the exemption amounts for the individual alternative minimum tax, which had been scheduled to drop sharply, and permanently indexed them for inflation. (For details, see Box 5-1.)

- **"Other mandatory spending" is projected to be a smaller percentage of GDP in the long run than was projected in last year's report.** As they did last year, projections for that spending category (which consists of spending for mandatory programs other than major health care programs and Social Security) match the projections in CBO's most recent baseline for the coming 10 years. However, CBO has changed its approach to projecting other mandatory spending after the 10th year: In 2012, CBO projected that such spending would remain constant as a percentage of GDP in the long run, but this year, to better reflect current law, CBO projects that such spending would decline relative to GDP in the long run at the same rate it is projected to fall between 2018 and 2023. (In a separate change from last year's report, other mandatory spending this year does not include offsetting receipts for Medicare, which are included instead in Medicare spending.)

- **CBO increased its projection of life expectancy, resulting in higher projected spending for Social Security and Medicare.** In earlier long-term analyses, CBO used the life expectancy projections of the Social Security trustees; this year, it used its own projections, which incorporate faster growth in life expectancy than the trustees anticipate. In developing its projections, CBO consulted several demographers and examined the recent report to the Social Security Advisory Board by the Technical Panel on Assumptions and Methods.[154] Last year's projections were based on the assumption that mortality rates would decline at an average pace of 0.78 percent a year, but in this report, mortality is projected to decline by 1.17 percent a year. (For more information about why CBO changed its approach to projecting mortality, see Box A-1.)

- **CBO increased its projection of how long people will work.** In previous long-term analyses, CBO assumed that greater longevity would not directly cause participation in the labor force to rise. CBO now projects that people born after 1969 will retire later than previously projected as life expectancy increases. Specifically, CBO adjusted its projection of labor force participation to reflect the assumption that the average person will work three more months for each additional year of life expectancy. For example, if life expectancy was four years longer for one cohort of workers than for an earlier cohort, the longer-lived cohort would work an average of one extra year, everything else being equal. (That change is separate from the increase in the projection of life expectancy.)

154. Social Security Administration, Technical Panel on Assumptions and Methods, *Report to the Social Security Advisory Board* (September 2011), pp. 55–64, www.ssab.gov/Reports/2011_TPAM_Final_Report.pdf (6.3 MB).

- **CBO increased its projection of the share of workers who will receive Social Security disability benefits, resulting in higher projected spending for Social Security.** In past years, CBO used the Social Security trustees' estimate of the rate at which people will become eligible for the Disability Insurance program; this year, CBO used its own, higher estimate. CBO now projects that the ultimate age- and sex-adjusted rate of disability incidence will be 5.6 per 1,000 eligible people, compared with last year's estimate of 5.2 per 1,000. (That rate is the share of workers who newly qualify for disability benefits each year, adjusted for changes since 2000 in the age and sex makeup of the population that has worked long enough to qualify for those benefits but is not yet receiving benefits.) CBO's estimate last year was the rate used in the trustees' 2011 report (in 2012 and 2013, the trustees used a rate of 5.4 per 1,000). CBO's current estimate is based on analysis of past trends and on recommendations by several Social Security Technical Panels on Assumptions and Methods.

- **CBO lowered its projection of the growth rate of health care costs.** A key concept underlying CBO's long-term projections of health care spending is the rate of excess cost growth—that is, of the growth in health care spending per person (adjusted to remove the effects of demographic changes) relative to the growth in potential GDP per person. As it did last year, CBO projects that the rate of excess cost growth will decline throughout the 75-year projection period, ending at 1.0 percent per year for Medicare and zero for Medicaid and private insurance premiums.[155] However, last year, the underlying rate of excess cost growth was assumed to begin at 1.6 percent in 2011, which equaled the weighted average rate of excess cost growth experienced in the health care system between 1985 and 2010. (Costs are not always projected to grow at the underlying rate, as described in Chapter 2.) This year, the underlying rate of excess cost growth is assumed to begin at 1.5 percent in 2012, which equals the weighted average rate of excess cost growth seen in the health care system between 1985 and 2011.

- **CBO reduced its projection of how much the new excise tax on some health insurance plans will affect the mix of compensation that employees receive, resulting in lower projections of taxable earnings.** The Affordable Care Act created an excise tax, which is due to take effect in 2018, on certain employment-based health insurance plans with premiums above a specific threshold. Some employers and workers will respond to the tax by shifting to less expensive plans, thus reducing the share of compensation that consists of health insurance premiums and increasing the share that consists of taxable earnings.

155. The growth of private health insurance premiums affects federal spending on exchange subsidies, excise taxes on health insurance plans with high premiums, and the impact of the tax exclusion for employment-based health insurance.

CBO now expects less shifting to occur than it did last year, for two reasons. First, as described above, CBO is projecting slightly slower growth in health care costs than it did in 2012, which decreases the share of health insurance premiums that will be subject to the excise tax. Second, CBO now expects that employers who offer health insurance plans with premiums above the threshold will not reduce the cost of their plans as much as the agency projected last year. CBO still expects that workers enrolled in an employment-based plan would be willing to accept a significant reduction in the percentage of health expenses covered by the plan in order to avoid the excise tax, but not quite as large a reduction as the agency built into last year's analysis.

As a result of those changes, CBO projects that taxable earnings will make up about 81 percent of compensation until about 2050 and then will fall to about 78 percent by 2088. Last year, by comparison, CBO projected that taxable earnings would first rise to about 84 percent of compensation by about 2050 and then fall to about 81 percent by the end of the 75-year projection period.

- **CBO raised its projection of the unemployment rate over the long term from 5.0 percent to 5.3 percent.** That change was made to reflect U.S. experience since World War II, a period in which the average unemployment rate has been slightly higher than CBO's estimate of the natural rate of unemployment (the rate that results from all sources except fluctuations in aggregate demand). That change in the long-term unemployment rate reduced CBO's projection of the level of GDP by about 0.6 percent after 2027.

CBO also made two changes in how its long-term budget projections are presented:

- **CBO expanded its analysis of the factors that contribute to projected growth in spending for major health care programs and Social Security.** In past years, CBO estimated the extent to which projected growth in spending for those programs was attributable to upcoming changes in the age profile of the population and the rate of excess cost growth for health care. This year, CBO added a third factor: increases in federal spending for health insurance coverage authorized by the Affordable Care Act (specifically, an expansion of eligibility for Medicaid and the introduction of subsidies for health insurance purchased through new insurance exchanges). In 2012, CBO estimated that, of the projected growth in federal spending on major health care programs and Social Security through 2037 that could be attributed to aging and excess cost growth, aging explained 75 percent and excess cost growth explained 25 percent. This year, CBO estimates that, of the total projected growth in spending for those programs through 2038, aging explains 54 percent, excess cost growth explains 28 percent, and the Medicaid expansion and introduction of exchange subsidies explain 19 percent (see Box 1-1).

The addition of the third factor allows CBO to explain the total projected growth in spending for those programs rather than just the growth attributable to aging and excess cost growth, which reduces the relative importance of those two factors. Also, as each year passes, more members of the large baby-boom generation reach the eligibility age for Medicare, reducing the amount of *future* population aging in the 25-year projection period; therefore, aging will tend to account for less of the projected growth in spending, and excess cost growth will tend to account for relatively more. Finally, CBO made technical modeling changes for this year's report that affect the estimated shares of growth attributable to each factor.

- **CBO included offsetting receipts for Medicare in Medicare spending instead of in other mandatory spending.** In the 2012 report, Medicare premiums and other offsetting receipts paid to the federal government were included as part of other mandatory spending, reducing net outlays for that category; the analysis of health care programs focused on gross Medicare outlays. This year, CBO included those offsetting receipts in its calculations of Medicare spending, and the analysis of health care programs focuses on net Medicare outlays. That change in classification has no effect on projected federal deficits or debt.

Changes in Projections Under the Extended Baseline

Federal revenues under the extended baseline are now expected to be substantially lower in coming decades than CBO projected in 2012 (see the top panel of Figure A-2). By 2023, revenues are projected to be 2.8 percent of GDP lower than projected in the 2012 analysis: 18.5 percent of GDP rather than 21.3 percent. About 0.9 percentage points of that difference stems from revisions to GDP.[156] In subsequent decades, revenues are projected to grow more slowly than CBO expected last year, mainly because the number of people affected by the alternative minimum tax would rise much more slowly under current law than under previous law, now that the exemption amounts for that tax have been indexed for inflation. Revenues are now projected to equal 19.7 percent of GDP in 2038, 4.2 percentage points lower than the 23.9 percent figure projected last year. About 0.5 percentage points of that difference is attributable to revisions to GDP. The gap between this year's and last year's revenue projections continues to widen after 2038.

Noninterest spending under the extended baseline is now expected to be lower in coming decades than CBO projected in 2012 (see the middle panel of Figure A-2). Specifically, noninterest spending in 2038 is projected to be 1.4 percent of GDP lower than in the 2012 analysis. About 0.5 percentage points of that difference reflects revisions to GDP; most of the rest comes from the aforementioned reductions in CBO's long-term projections of spending on major health care programs and other

156. The majority of that difference comes from the Bureau of Economic Analysis's recent revisions to GDP; the remainder results from other changes since 2012 in CBO's projection of GDP.

mandatory spending. As with revenues, the difference between the current and previous projections of noninterest spending keeps growing after 2038.

The combination of changes in the revenue and spending projections causes the current projected difference between revenues and noninterest spending to be negative throughout the next quarter century—meaning that even without interest costs, federal spending would exceed revenues throughout the 25-year projection period (see the bottom panel of Figure A-2). In last year's analysis, by contrast, revenues were projected to exceed noninterest spending in all years after 2014.

CBO's current long-term projection of federal spending on major health care programs is lower than last year's projection (see Figure A-3), largely because Medicaid spending is now expected to grow more slowly over the next decade than CBO anticipated in 2012. Combined federal spending for Medicaid, the Children's Health Insurance Program, and exchange subsidies is projected to be about 0.5 percent of GDP lower in 2038 than projected last year; revisions to GDP are responsible for one-fifth of that change. In addition, spending for Medicare is now projected to be about 0.2 percent of GDP lower in 2038 than CBO projected last year; that difference reflects changes to the 10-year baseline, slightly lower projections of the rate of excess cost growth, and revisions to GDP.

The current projection of Social Security spending as a percentage of GDP is lower than last year's projection through 2028—for much of that period, almost entirely because of revisions to GDP (see Figure A-4). For years after 2028, Social Security spending as a percentage of GDP is higher than projected last year, and the difference is greater if the spending levels projected in last year's report are adjusted for the GDP revisions. The higher projection results from a number of factors, including increases in projections of life expectancy and of the disability incidence rate. The 75-year actuarial deficit currently projected for Social Security, 3.4 percent of taxable payroll (see Table 3-1), is substantially greater than the 1.9 percent deficit projected last year. Of the 1.5 percentage-point increase in that deficit, higher projections of life expectancy account for 0.6 percentage points, higher projections of the disability incidence rate account for 0.1 percentage point, reductions in income tax rates enacted in January 2013 (which reduce the revenues for Social Security from income taxes on benefits) account for 0.4 percentage points, and other factors (including a later projection period and updated data) account for 0.4 percentage points.

Total federal spending on everything other than major health care programs, Social Security, and net interest is now projected to equal a smaller share of GDP throughout the next 25 years than CBO projected last year (see Figure A-5). As discussed above, beyond 2023, that difference stems largely from a change in how CBO projects other mandatory spending.

CBO's revenue projections have declined by much more than its spending projections, so debt held by the public is now projected to equal a much larger share of GDP under the extended baseline than CBO anticipated last year (see Figure A-1). The growth in projected debt has pushed up projections of interest outlays. In last year's report, interest spending was projected to equal less than 3 percent of GDP in 2038, whereas now it is projected to reach almost 5 percent of GDP by 2038.

Appendix B: Budget Projections Through 2088

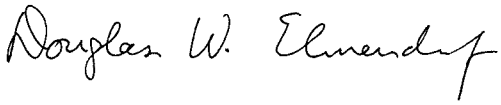
In most of this report, the Congressional Budget Office (CBO) presents its long-term budget projections under the extended baseline for the next 25 years (through 2038). The figures and table in this appendix extend those projections for a further 50 years (through 2088). Figure B-1 shows federal debt held by the public, total spending and revenues, and components of total spending through 2088 (extending Summary Figure 1). Figures B-2 and B-3 compare CBO's current 75-year projections of debt held by the public, revenues, and noninterest spending with the projections published in 2012 (extending Figures A-1 and A-2). The data underlying all of those figures are included in the supplemental data posted with this report on CBO's website www.cbo.gov/publication/44521). Table B-1 updates Table 1-3 from CBO's 2012 long-term budget report, summarizing the difference between projected federal noninterest spending and revenues (referred to as the fiscal gap) through 2088.

About This Document

This volume is one of a series of reports on the state of the budget and the economy that the Congressional Budget Office (CBO) issues each year. In accordance with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

Prepared under the supervision of Joyce Manchester, the report represents the work of many analysts at CBO. Noah Meyerson wrote the summary and Chapters 1, 3, and 4. Julie Topoleski wrote Chapter 2, and Joshua Shakin wrote Chapter 5. Robert Shackleton wrote Chapter 6, and Charles Whalen wrote Chapter 7. Noah Meyerson and Julie Topoleski wrote Appendix A. Michael Simpson compiled Appendix B. Robert Arnold, Jessica Banthin, Linda Bilheimer, Tom Bradley, Wendy Edelberg, Philip Ellis, Peter Fontaine, Holly Harvey, Jean Hearne, Jeffrey Holland, Kim Kowalewski, David Mosher, Andrea Noda, Benjamin Page, Sam Papenfuss, Frank Sammartino, and Robert Stewart made valuable contributions. Michael Simpson developed the long-term budget simulations, with assistance from Charles Pineles-Mark, Jonathan Schwabish, and Julie Topoleski. Jonathan Huntley and Felix Reichling prepared the macroeconomic simulations. David Weiner coordinated the revenue simulations, which were prepared by Paul Burnham, Ed Harris, Shannon Mok, Larry Ozanne, Kurt Seibert, and Joshua Shakin. Alexander Arnon, Alexia Diorio, Leah Loversky, Xiaotong Niu, and Charles Pineles-Mark provided research assistance. In addition, this report builds on the 10-year projections of the economy and budget that CBO released earlier this year and that reflected the contributions of more than 100 people at the agency.

Christine Bogusz, Christian Howlett, Loretta Lettner, Jeanine Rees, and John Skeen edited the report. Maureen Costantino and Jeanine Rees prepared the report for publication, and Maureen Costantino and Jonathan Schwabish designed the cover. The report is available on CBO's website (www.cbo.gov/publication/44521).



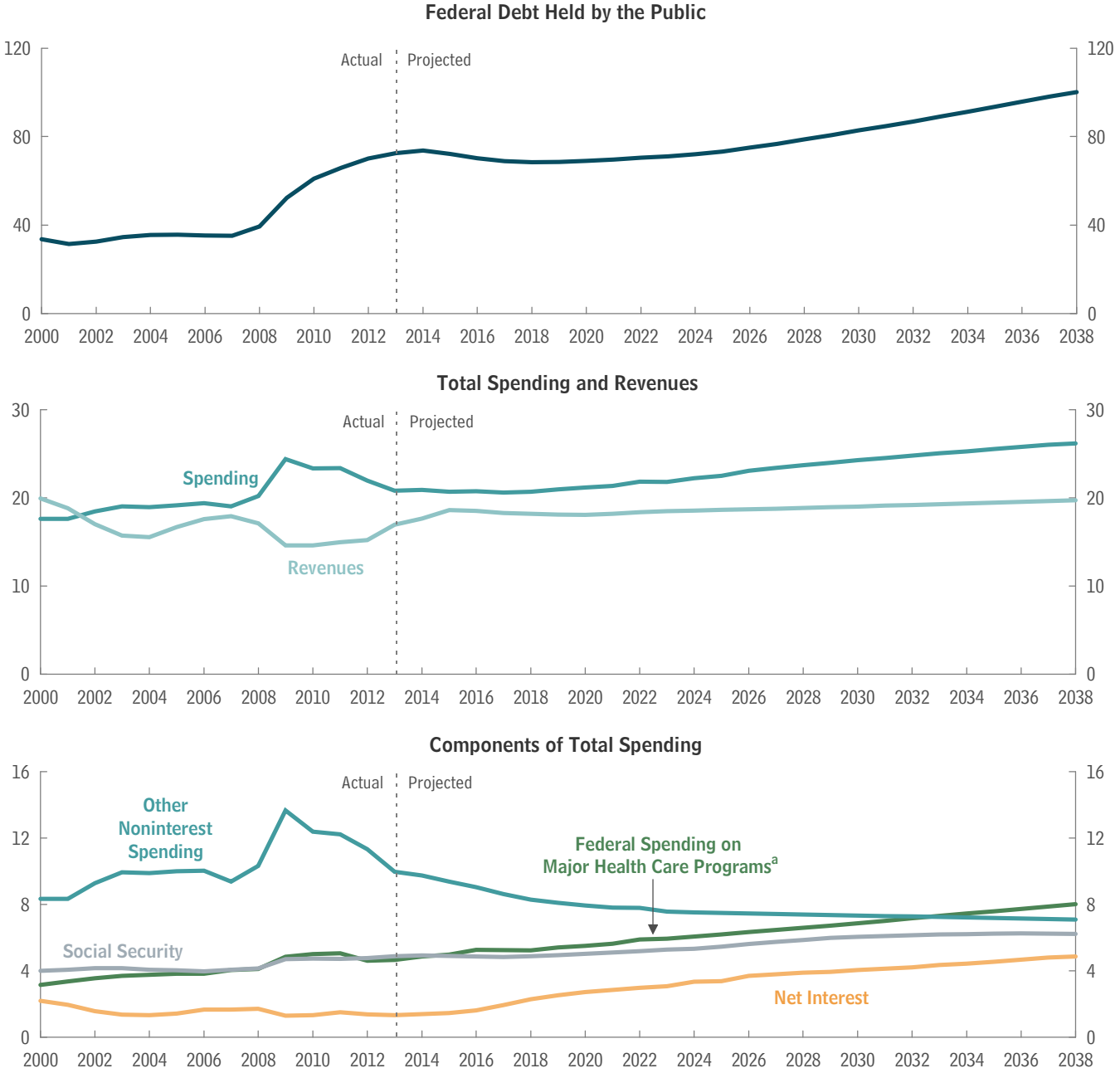
Douglas W. Elmendorf
Director

September 2013

Summary Figure 1. Return to Reference 1, 2

Debt, Spending, and Revenues Under CBO's Extended Baseline

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period. These projections do not reflect the economic effects of the policies underlying the extended baseline. (For an analysis of those effects and their impact on debt, see Chapter 6.)

These data reflect recent revisions by the Bureau of Economic Analysis to estimates of GDP in past years and CBO's extrapolation of those revisions to projected future GDP.

a. Spending on Medicare (net of offsetting receipts), Medicaid, the Children's Health Insurance Program, and subsidies offered through new health insurance exchanges.

Table 1-1. Return to Reference

Assumptions About Spending and Revenues Underlying CBO's Extended Baseline

	Assumptions About Spending
Medicare	As scheduled under current law,[a] except that three policies that would restrain the growth of Medicare spending are assumed to be in effect only through 2029: – Ongoing reductions in payment updates for most providers in the fee-for-service program (after 2029, those updates are assumed to grow with costs); – The sustainable growth rate mechanism for payment rates for physicians; and – Spending reductions from the process associated with the Independent Payment Advisory Board.
Medicaid	As scheduled under current law
Children's Health Insurance Program	As projected in CBO's baseline through 2023; remaining constant as a percentage of GDP thereafter
Exchange Subsidies	As scheduled under current law
Social Security	As scheduled under current law[a]
Other Noninterest Spending	As projected in CBO's baseline through 2023; thereafter, discretionary spending remains at its 2023 percentage of GDP, and "other mandatory spending" (total spending on mandatory programs other than major health care programs and Social Security) is as scheduled under current law. Specifically, refundable tax credits are estimated as part of revenue projections, and the rest of other mandatory spending is assumed to decline as a percentage of GDP after 2023 at the same rate that it is projected to decline between 2018 and 2023.
	Assumptions About Revenues
Individual Income Taxes	As scheduled under current law
Payroll Taxes	As scheduled under current law
Corporate Income Taxes	As scheduled under current law through 2023; remaining constant as a percentage of GDP thereafter
Excise Taxes	As scheduled under current law
Estate and Gift Taxes	As scheduled under current law
Other Sources of Revenues	As scheduled under current law through 2023; remaining constant as a percentage of GDP thereafter

Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

For CBO's most recent 10-year baseline projections, see Congressional Budget Office, *Updated Budget Projections: Fiscal Years 2013 to 2023* (May 2013), www.cbo.gov/publication/44172.

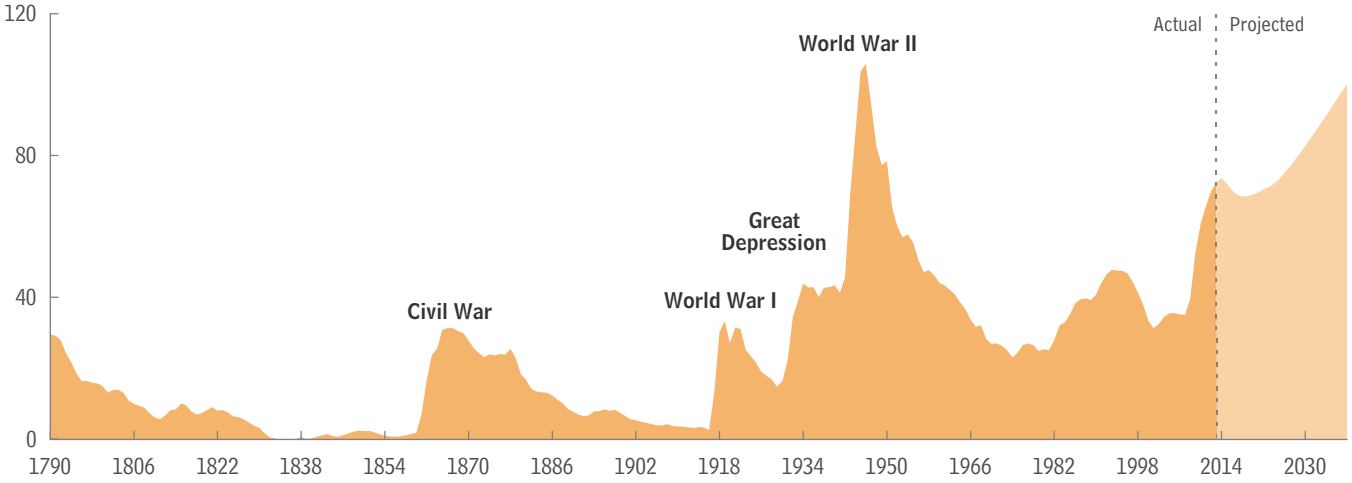
GDP = gross domestic product.

a. Assumes the payment of full benefits as calculated under current law, regardless of the amounts available in the program's trust funds.

Figure 1-1. Return to Reference 1, 2

Federal Debt Held by the Public Under CBO's Extended Baseline

(Percentage of gross domestic product)



Source: Congressional Budget Office. For details about the sources of data used for past debt held by the public, see Congressional Budget Office, *Historical Data on Federal Debt Held by the Public* (July 2010), www.cbo.gov/publication/21728.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period. The long-term projections of debt do not reflect the economic effects of the policies underlying the extended baseline. (For an analysis of those effects and their impact on debt, see Chapter 6.)

Data from 1929 onward reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP.

Table 1-2. Return to Reference 1, 2

Projected Spending and Revenues in Selected Years Under CBO's Extended Baseline

(Percentage of gross domestic product)

	2013	2023	2038
Spending			
Noninterest			
Medicare (Net of offsetting receipts)[a]	3.0	3.3	4.9
Medicaid, CHIP, and exchange subsidies	1.7	2.6	3.2
Social Security	4.9	5.3	6.2
Other	10.0	7.6	7.1
Subtotal	19.5	18.8	21.3
Net interest	1.3	3.1	4.9
Total Spending	20.8	21.8	26.2
Revenues	17.0	18.5	19.7
Deficit (-)			
Excluding net interest	-2.5	-0.3	-1.6
Total	-3.9	-3.3	-6.4
Debt Held by the Public at the End of the Year	73	71	100
Memorandum:			
Gross Medicare Spending[a]	3.5	4.0	5.8

Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

The numbers shown here for 2013 and 2023 differ from those published in Congressional Budget Office, *Updated Budget Projections: Fiscal Years 2013 to 2023* (May 2013), www.cbo.gov/publication/44172, because of recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP.

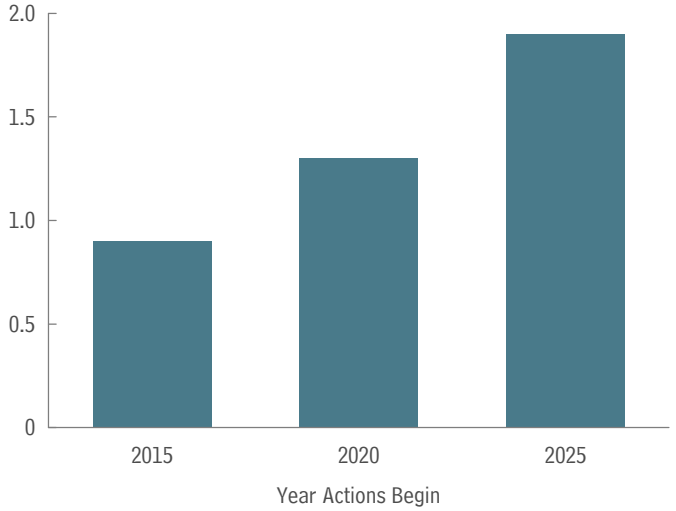
CHIP = Children's Health Insurance Program.

a. Medicare spending net of offsetting receipts reflects premium payments by beneficiaries and certain other receipts used to offset a portion of spending for the Medicare program; gross Medicare spending does not include those offsetting receipts.

Figure 1-2. Return to Reference

Size of the Reductions in Noninterest Spending or Increases in Revenues Needed to Close the Fiscal Gap Through 2038, Starting in Various Years

(Percentage of gross domestic product)



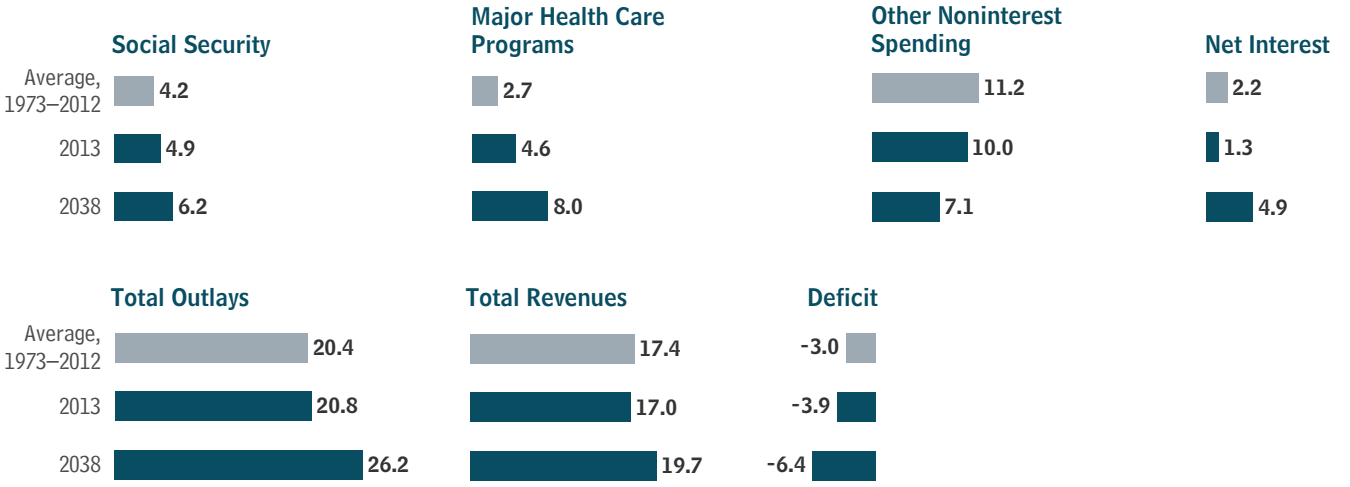
Source: Congressional Budget Office.

Note: The fiscal gap is a measure of the difference between projected federal noninterest spending and revenues over a given period. It represents the extent to which the government would need to immediately and permanently raise tax revenues or cut spending—or do both, to some degree—to make the government's debt the same size (relative to gross domestic product) at the end of the period that it is at the end of 2013.

Figure 1-3. Return to Reference

Spending and Revenues Under CBO's Extended Baseline, Compared With Past Averages

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

These numbers reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP.

Major health care programs consist of Medicare, Medicaid, the Children's Health Insurance Program, and subsidies offered through new health insurance exchanges. (Medicare spending is net of offsetting receipts.) Other noninterest spending is all federal spending other than that for major health care programs, Social Security, and net interest.

Box 1-1. Return to Reference 1, 2, 3, 4

Causes of Projected Growth in Federal Spending for Major Health Care Programs and Social Security

In the Congressional Budget Office's (CBO's) extended baseline, the growth of federal noninterest spending as a share of gross domestic product (GDP) results entirely from projected increases in spending for a few large programs: Social Security, Medicare, Medicaid, and (to a lesser extent) insurance subsidies that will be provided through the health insurance exchanges established under the Affordable Care Act (ACA). The health care programs, which currently account for just over half of total spending for those large programs, are responsible for almost three-quarters of the rise in spending projected for those programs over the next 25 years under the extended baseline. (By contrast, total federal spending on everything other than those programs and net interest is projected to fall significantly as a percentage of GDP over the next 25 years under the assumptions of the extended baseline.)

Three factors underlie the projected increase in federal spending for the major health care programs and Social Security as a percentage of GDP:

- The aging of the U.S. population—in particular, the aging of the baby-boom generation (people born between 1946 and 1964)—which will increase the share of the population receiving benefits from those programs and also affect the average age of beneficiaries;

- "Excess cost growth"—that is, the rate at which health care costs per beneficiary (adjusted for changes in the age profile of beneficiaries over time) grow faster than potential GDP per capita; and

- The upcoming expansion of Medicaid eligibility and provision of health insurance subsidies authorized by the ACA.

CBO calculated how much of the projected growth in federal spending for the major health care programs and Social Security could be attributed to each of those factors. (Aging is the only one of those factors that affects CBO's projections for Social Security.) To make those calculations, CBO compared the outlays projected for those programs under the extended baseline with the outlays that would occur under three alternative paths: one that included aging of the population but no excess cost growth and no Medicaid expansion or exchange subsidies, one that included excess cost growth but no aging of the population and no Medicaid expansion or exchange subsidies, and one that included both aging and excess cost growth but no Medicaid expansion or exchange subsidies.

The ways in which aging of the population and excess cost growth interact with each other accentuate the individual effects of those factors. For example, as aging causes the number of Medicare beneficiaries and elderly Medicaid beneficiaries to rise, higher

health care spending per person has a greater impact on federal health care spending. Likewise, when health care costs are growing, having more beneficiaries imposes a larger budgetary cost. That interaction effect can be identified separately—or, as in CBO's analysis, it can be allocated in proportion to the shares of projected growth that are attributable to aging and excess cost growth. Additionally, aging of the population and excess cost growth affect the budgetary impact of the Medicaid expansion and exchange subsidies: Excess cost growth increases the effect of those changes on federal health care spending, but aging decreases their effect by reducing the share of the population that is under age 65 and therefore could be eligible for exchange subsidies (depending on people's income).

Explaining Projected Growth in Federal Spending for Major Health Care Programs and Social Security as a Share of GDP

	Percentage of Projected Growth Through	
	2023	2038
	Major Health Care Programs and Social Security	
Aging	41	54
Excess Cost Growth	19	28
Medicaid Expansion and Exchange Subsidies	39	19
	Major Health Care Programs	
Aging	21	35
Excess Cost Growth	26	40
Medicaid Expansion and Exchange Subsidies	53	26

Source: Congressional Budget Office.

According to those calculations, aging of the population accounts for 54 percent of the projected growth in federal spending for the major health care programs and Social Security as a share of GDP through 2038 (see the table above). Excess cost growth accounts for 28 percent, and the Medicaid expansion and exchange subsidies account for the remaining 19 percent. (For more information about CBO's projections of demographic changes over that period, see Chapter 3; for more information about excess cost growth and upcoming changes in federal health care programs, see Chapter 2. In addition, Appendix A discusses how those calculations differ from ones that CBO produced in past years' analyses of the long-term budget outlook.)

Excluding Social Security from the calculations reduces the relative impact of the population's aging and increases the significance of the factors related to health care.

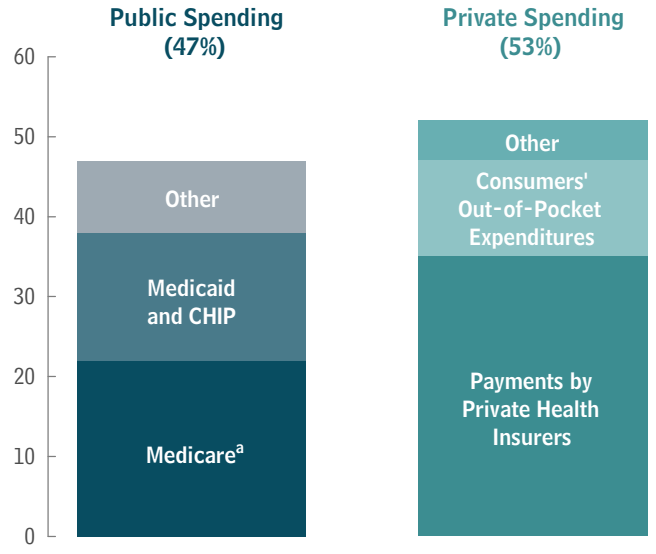
For the major health care programs alone, aging accounts for 35 percent of projected growth in federal spending for those programs as a share of GDP through 2038, excess cost growth accounts for 40 percent, and the Medicaid expansion and exchange subsidies account for 26 percent. Total federal spending for those programs would increase from 4.6 percent of GDP in 2013 to 8.0 percent in 2038 under current law, CBO projects. Of that rise of 3.4 percentage points, aging would contribute 1.2 percentage points; excess cost growth, 1.3 percentage points; and the Medicaid expansion and exchange subsidies, 0.9 percentage points.

Under the assumptions of the extended baseline, the relative importance of those three factors would shift over the longer term. The age profile of the population is expected to change less rapidly after 2038, which means that aging would account for less of the growth in spending for federal programs. The Medicaid expansion and exchange subsidies would also account for less of the growth in spending once they took full effect. Thus, excess cost growth would be the primary driver of the total projected growth in spending for major health care programs and Social Security as a share of GDP after 2038.

Figure 2-1. **Return to Reference**

Distribution of Spending for Health Care, 2011

(Percentage of health care spending)



Source: Congressional Budget Office based on data from the Centers for Medicare & Medicaid Services.

Note: CHIP = Children's Health Insurance Program.

a. Gross Medicare spending (excludes offsetting receipts from premium payments by beneficiaries and amounts paid by states from savings on Medicaid's prescription drug costs).

Table 2-1. Return to Reference

Excess Cost Growth in Spending for Health Care

(Percent)

	Medicare	Medicaid	Other	Overall
1975 to 2011	2.0	1.6	1.9	1.9
1980 to 2011	1.7	1.2	1.8	1.7
1985 to 2011	1.5	0.8	1.6	1.5
1990 to 2011	1.3	0.2	1.3	1.2

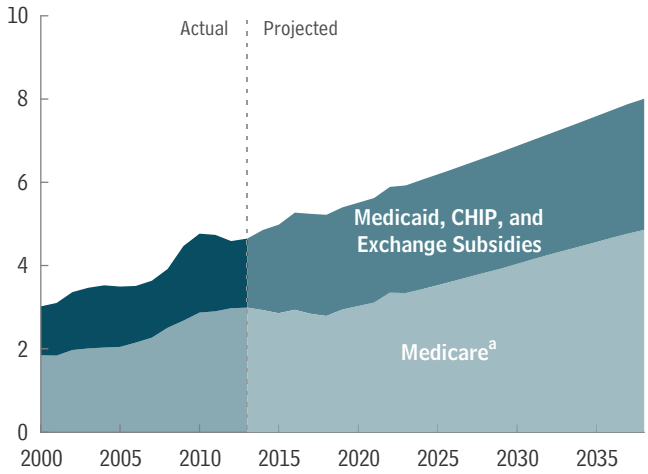
Source: Congressional Budget Office.

Note: Excess cost growth refers to the extent to which the annual growth rate of nominal Medicare or Medicaid spending per beneficiary, or of all other health care spending per capita or overall health care spending per capita—adjusted for demographic characteristics of the relevant populations—outpaced the annual growth rate of potential gross domestic product (GDP) per capita, on average. (Potential GDP is CBO's estimate of the maximum sustainable output of the economy.) The historical rates of excess cost growth are a weighted average of annual rates, placing twice as much weight on the latest year as on the earliest year.

Figure 2-2. Return to Reference

Federal Spending on Major Health Care Programs, by Category, Under CBO's Extended Baseline

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

CHIP = Children's Health Insurance Program.

a. Net Medicare spending (includes offsetting receipts from premium payments by beneficiaries and amounts paid by states from savings on Medicaid's prescription drug costs).

Box 2-1. Return to Reference

National Spending on Health Care

The Congressional Budget Office (CBO) has a limited ability to project national spending on health care because the agency does not track all of the components of that spending as closely as it analyzes the components that are directly relevant for the federal budget. Therefore, to generate projections of national spending for health care, the agency combined its own projections for some categories of spending with projections for other categories developed by the Office of the Actuary in the Centers for Medicare & Medicaid Services (CMS).[157] The resulting projections are rough and involve substantial uncertainty—especially as they look farther into the future—and therefore should be viewed with caution.

To project national spending for health care for the 2014–2023 period, CBO started with its projections of federal spending on the government's major health care programs. Other spending for health care includes payments by private health insurers, out-of-pocket payments by consumers, and other public spending. CBO estimated such spending using its own projections of payments by private health insurers and the Office of the Actuary's projections of out-of-pocket payments by consumers and other public spending. Because the projections from CMS are available only through 2021, CBO used a historical rate of excess cost growth (described below) to extend them for the following two years.[158]

To project national spending for health care after 2023, CBO again started with its projections of federal spending on the government's major health care programs. It estimated other spending for health care by combining its projections of demographic and economic conditions with assumptions about excess cost growth for such spending. The starting point for projected excess cost growth in other health care spending was the weighted average rate (calculated in the manner discussed in the text) of excess cost growth observed in the overall health care system between 1985 and 2011. CBO assumed that the rate of excess cost growth for other health care spending would slow from that historical rate—1.5 percent—in 2012 to zero in 2088, in reaction to the pressures developing from rising health care spending. The slowdown was assumed to decline linearly—that is, by the same number of fractional percentage points each year.

National spending on health care increased from 9.5 percent of GDP in 1985 to 16.4 percent of GDP in 2011. Under CBO's extended baseline, which generally reflects current law, national spending for health care would increase to about 22 percent of GDP by 2038.

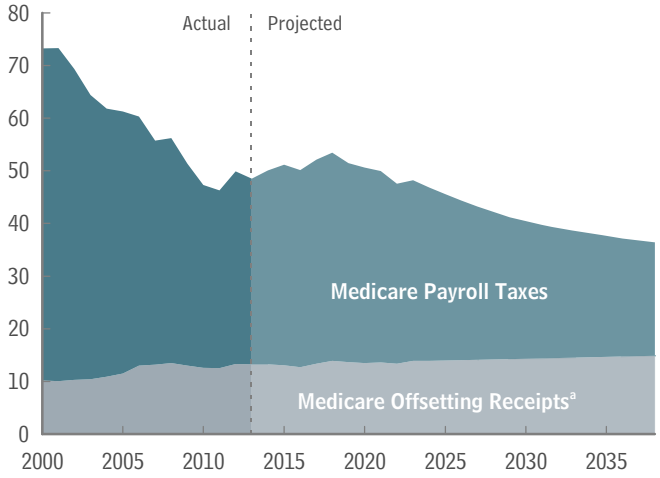
157. As used here, national spending on health care is health consumption expenditures as defined in the national health expenditure accounts, which are maintained by CMS. That concept excludes spending on medical research, structures, and equipment.

158. Sean P. Keehan and others, "National Health Expenditure Projections: Modest Annual Growth Until Coverage Expands and Economic Growth Accelerates," *Health Affairs*, vol. 31, no. 7 (July 2012), pp. 1600–1612, http://dx.doi.org/10.1377/hlthaff.2012.0404.

Figure 2-3. Return to Reference

Medicare Payroll Taxes and Offsetting Receipts Under CBO's Extended Baseline

(Percentage of gross Medicare benefits)



Sources: Office of Management and Budget (actual shares); Congressional Budget Office (projected shares).

Note: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

a. Premium payments by beneficiaries and amounts paid by states from savings on Medicaid's prescription drug costs.

Table 2-2. Return to Reference 1, 2, 3

Financial Measures for Medicare's Hospital Insurance Trust Fund Under CBO's Extended Baseline

(Percentage of taxable payroll)

Projection Period (Calendar years)	Income Rate	Cost Rate	Actuarial Balance (Difference)
25 Years (2013 to 2037)	3.5	4.5	-1.0
50 Years (2013 to 2062)	3.5	5.6	-2.1
75 Years (2013 to 2087)	3.6	6.9	-3.3

Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

Over the relevant periods, the income rate is the present value of annual noninterest revenues (including the initial trust fund balance), and the cost rate is the present value of annual outlays (including the target trust fund balance at the end of the period), each divided by the present value of taxable payroll. The actuarial balance is the difference between the income and cost rates.

To be consistent with the latest report of the Medicare trustees, the 25-, 50-, and 75-year periods for the financial measures reported here include 2013 and end in 2037, 2062, and 2087, respectively. See Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds, *2013 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds* (May 2013), http://go.usa.gov/bUZm.

Figure 2-4. Return to Reference

Median Lifetime Medicare Payroll Taxes and Benefits for Various Cohorts, by Decade of Birth

(Thousands of 2013 dollars)

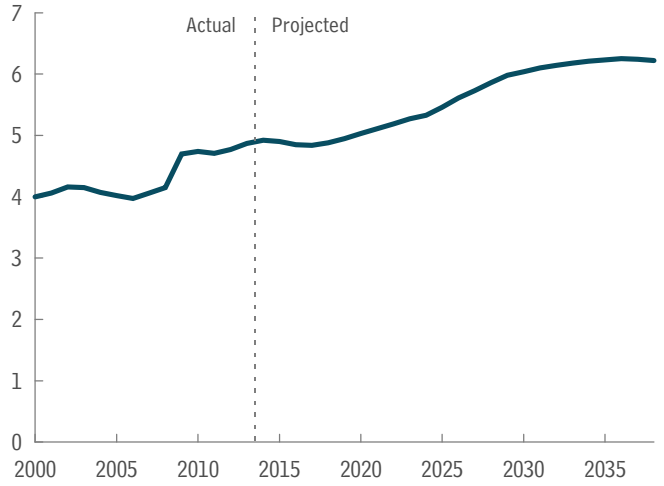
Source: Congressional Budget Office.

Note: The amounts shown here are present values. To calculate a lump-sum present value, amounts are adjusted to remove the effects of inflation (to produce constant dollars) and discounted to the value for beneficiaries at age 65. Benefits are net of premiums paid by beneficiaries.

Figure 3-1. Return to Reference

Spending for Social Security Under CBO's Extended Baseline

(Percentage of gross domestic product)



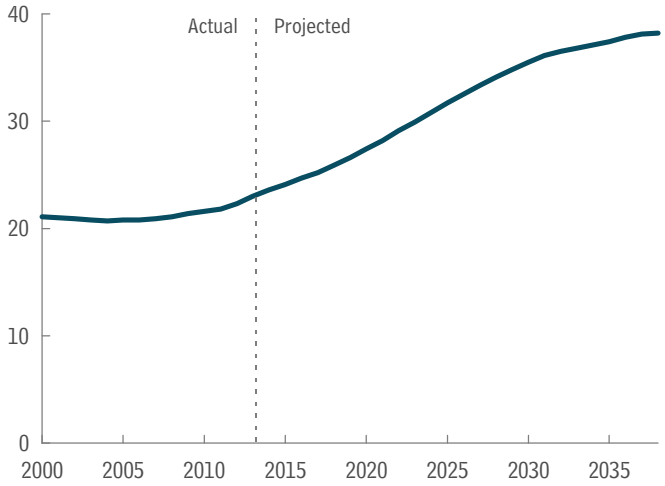
Source: Congressional Budget Office.

Note: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

Figure 3-2. Return to Reference

Population Age 65 or Older as a Share of the Population Ages 20 to 64

(Percent)



Source: Congressional Budget Office.

Table 3-1. Return to Reference 1, 2, 3

Financial Measures for Social Security Under CBO's Extended Baseline

Projection Period (Calendar years)	Income Rate	Cost Rate	Actuarial Balance (Difference)
		As a Percentage of Taxable Payroll	
25 Years (2013 to 2037)	14.9	16.4	-1.5
50 Years (2013 to 2062)	14.2	16.9	-2.7
75 Years (2013 to 2087)	14.0	17.4	-3.4
		As a Percentage of Gross Domestic Product	
25 Years (2013 to 2037)	5.4	6.0	-0.5
50 Years (2013 to 2062)	5.2	6.1	-1.0
75 Years (2013 to 2087)	5.1	6.3	-1.2

Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

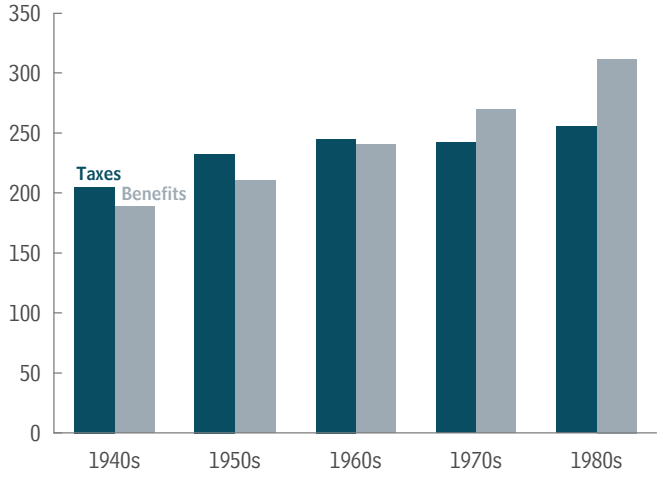
Over the relevant periods, the income rate is the present value of annual tax revenues (including the initial trust fund balance), and the cost rate is the present value of annual outlays (including the target trust fund balance at the end of the period), each divided by the present value of taxable payroll or gross domestic product. The actuarial balance is the difference between the income and cost rates.

To be consistent with the latest report of the Social Security trustees, the 25-, 50-, and 75-year projection periods for the financial measures reported here include 2013 and end in 2037, 2062, and 2087, respectively. See Social Security Administration, *The 2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (May 2013), www.socialsecurity.gov/oact/tr/2013.

Figure 3-3. Return to Reference

Median Lifetime Scheduled Social Security Payroll Taxes and Benefits for Various Cohorts, by Decade of Birth

(Thousands of 2013 dollars)



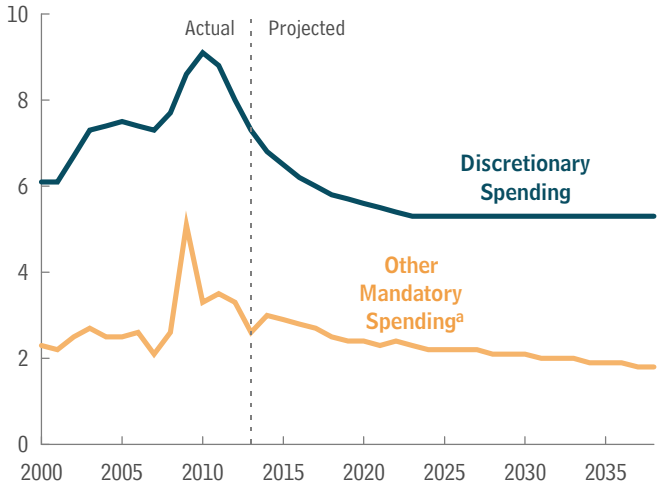
Source: Congressional Budget Office.

Note: The amounts shown here are present values. To calculate a lump-sum present value, amounts are adjusted for inflation (to produce constant dollars) and discounted to the value for beneficiaries at age 62. Benefits are net of income taxes paid on benefits and credited to the Social Security trust funds. Scheduled benefits are benefits as calculated under the Social Security Act, regardless of the balances in the program's trust funds.

Figure 4-1. Return to Reference

Other Federal Spending Under CBO's Extended Baseline

(Percentage of gross domestic product)



Source: Congressional Budget Office.

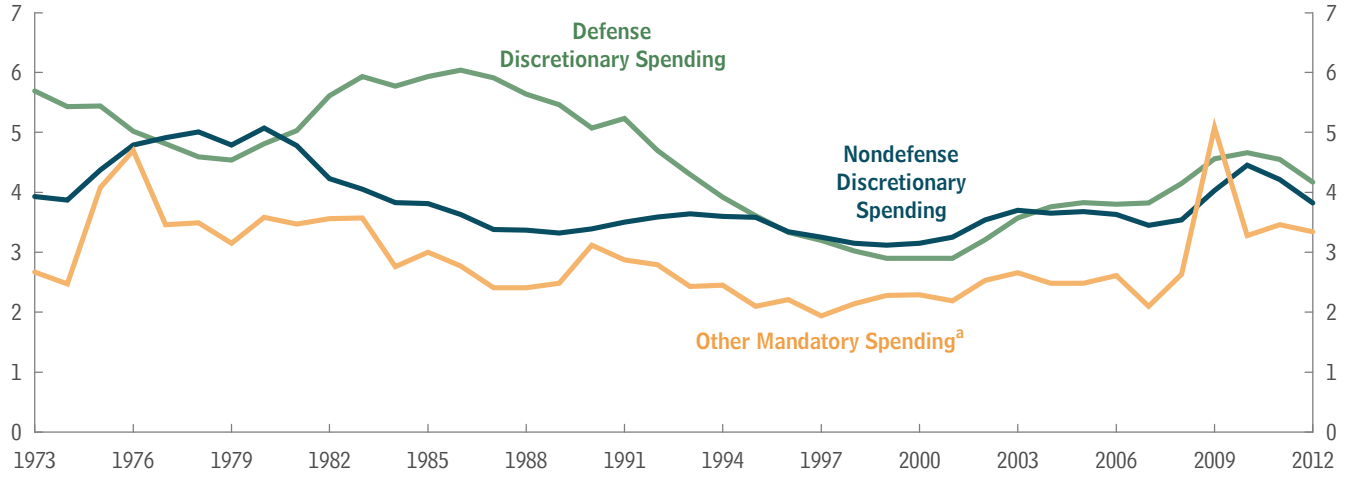
Note: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

a. Other mandatory spending is all mandatory spending other than that for major health care programs, Social Security, and net interest. It includes the refundable portions of the earned income and child tax credits and of the American Opportunity Tax Credit.

Figure 4-2. Return to Reference

Other Federal Spending, by Category, Since 1973

(Percentage of gross domestic product)



Source: Congressional Budget Office.

a. Other mandatory spending is all mandatory spending other than that for major health care programs, Social Security, and net interest. It includes the refundable portions of the earned income and child tax credits and of the American Opportunity Tax Credit.

Table 4-1. Return to Reference

CBO's Baseline Projections of Other Federal Spending

(Percentage of gross domestic product)

	2013	2023
Discretionary Spending		
Defense	3.8	2.6
Nondefense	3.5	2.6
Total	**7.3**	**5.3**
Other Mandatory Spending		
Civilian and military retirement	0.9	0.8
Nutrition programs	0.6	0.4
Refundable tax credits[a]	0.5	0.3
Veterans' benefits	0.5	0.4
Unemployment compensation	0.4	0.2
Supplemental Security Income	0.3	0.3
Offsetting receipts	-0.7	-0.6
Other	0.1	0.5
Total	**2.7**	**2.3**
Total, Other Federal Spending	**10.0**	**7.6**

Source: Congressional Budget Office.

Notes: Other federal spending is all spending other than that for major health care programs, Social Security, and net interest.

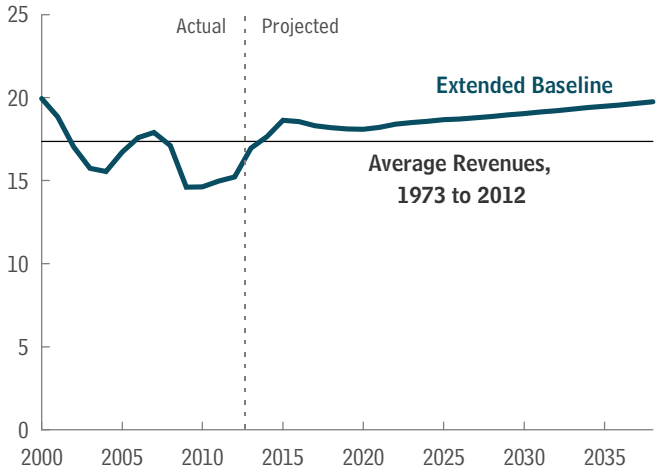
The numbers shown here differ from those published in Congressional Budget Office, *Updated Budget Projections: Fiscal Years 2013 to 2023* (May 2013), www.cbo.gov/publication/44172, because of recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP.

a. The earned income and child tax credits and the American Opportunity Tax Credit.

Figure 5-1. Return to Reference

Total Revenues Under CBO's Extended Baseline

(Percentage of gross domestic product)



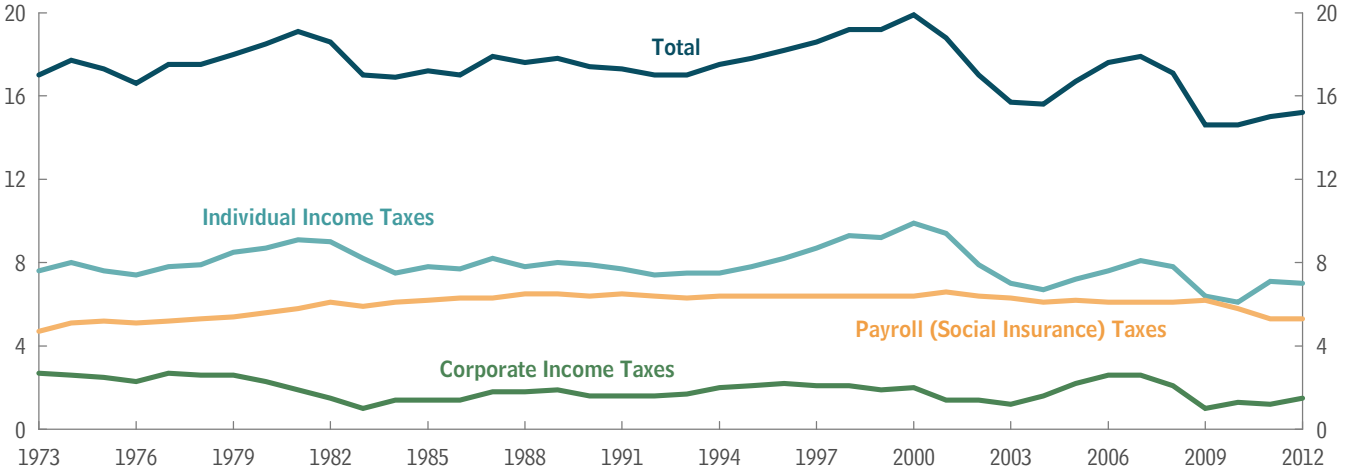
Source: Congressional Budget Office.

Note: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

Figure 5-2. Return to Reference

Revenues, by Source, Since 1973

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Box 5-1. Return to Reference 1, 2

Impact of the American Taxpayer Relief Act of 2012 on Revenues

The American Taxpayer Relief Act of 2012 (Public Law 112-240), which was enacted in early January 2013, permanently extended some lower tax rates and other tax provisions that expired at the end of calendar year 2012. In addition, it modified the alternative minimum tax (AMT) to permanently limit its reach and temporarily extended other tax provisions.[159]

The staff of the Joint Committee on Taxation and the Congressional Budget Office (CBO) estimated that, relative to laws in place at the end of 2012, enactment of the American Taxpayer Relief Act would reduce revenues by $3.6 trillion over the 2013–2022 period. The reduction in 2022 amounted to $496 billion, or about 10 percent of the revenues CBO had previously projected.

With some modifications affecting high-income taxpayers, the new law made permanent several major tax provisions, originally enacted in 2001 and 2003, that expired on December 31, 2012.[160] Those provisions include the following:

- Lower tax rates on ordinary income (generally all income except capital gains and dividends);
- An expanded 15 percent tax bracket and an increase in the standard deduction for married couples;
- The child tax credit of $1,000 per child;
- The 15 percent tax rate on long-term capital gains realizations and dividends; and
- The estate and gift tax rules in effect in 2012, with some modifications.

Under prior law, at the end of 2012, tax rates on ordinary income were slated to rise from the lower rates in effect that year (10, 15, 25, 28, 33, and 35 percent) to the rates in effect before 2001 (15, 28, 31, 36, and 39.6 percent). The American Taxpayer Relief Act permanently extended the lower rates, with the following exception: The top tax rate for single taxpayers with income above $400,000 and for married taxpayers who file jointly and have income above $450,000 is now set at 39.6 percent, the same top rate that had been scheduled to take effect in 2013 before the law was enacted.

159. The alternative minimum tax is a parallel income tax system with fewer exemptions, deductions, and rates than the regular income tax. Households must calculate the amount they owe under both the alternative minimum tax and the regular income tax and pay the larger of the two amounts.

160. Those provisions were originally enacted in the Economic Growth and Tax Relief Reconciliation Act of 2001 and the Jobs and Growth Tax Relief Reconciliation Act of 2003.

The new law permanently extended the increase in the child tax credit from $500 to $1,000 per child; it also permanently extended provisions (enacted in 2001) that made the credit refundable for more families. (Before 2001, the credit was refundable only for families with three or more children.) In addition, the law extended, through 2017, a lower earned income threshold for the refundability of the child tax credit, expansions of the earned income credit, and the American Opportunity Tax Credit (a refundable credit for postsecondary education expenses)—all of which were enacted in 2009.

Before the enactment of the American Taxpayer Relief Act, the tax rate on capital gains was scheduled to rise to 20 percent, and the tax rate on dividends was scheduled to equal the taxpayer's rate on other income in 2013. The new law kept the 15 percent limit on those rates for most taxpayers and raised the top rate on dividends and capital gains to 20 percent for high-income taxpayers. Separately, the law permanently extended the estate and gift tax rules in effect in 2012, although with a higher top tax rate of 40 percent, and indexed the unified credit under that tax for inflation. The law also increased the AMT's exemption amount (the higher amount had expired at the end of 2011) and indexed that amount (and other parameters of the tax) for inflation, beginning in 2013.

Several tax provisions extended by the new law through calendar year 2013 had expired at the end of calendar year 2011. Some of those, including the research and experimentation tax credit, have routinely been extended in the past. The law also extended for one year a tax provision that allows businesses to immediately deduct 50 percent of new investments in equipment.

Table 5-1. Return to Reference

Sources of Growth in Total Revenues as a Percentage of GDP Between 2013 and 2038 Under CBO's Extended Baseline

Source of Growth	Percentage of GDP
Structural Features of the Individual Income Tax System (Including real bracket creep)[a]	1.8
Tax Provisions Enacted in the Affordable Care Act	0.6
Demographic Trends	0.5
Expiring Individual and Corporate Income Tax Provisions	0.4
Impact of Economic Recovery on Individual Income Taxes	0.1
Other Factors (Including corporate, payroll, excise, and estate and gift taxes)[b]	-0.7
Growth in Total Revenues Over the 2013–2038 Period	**2.8**

Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

GDP = gross domestic product.

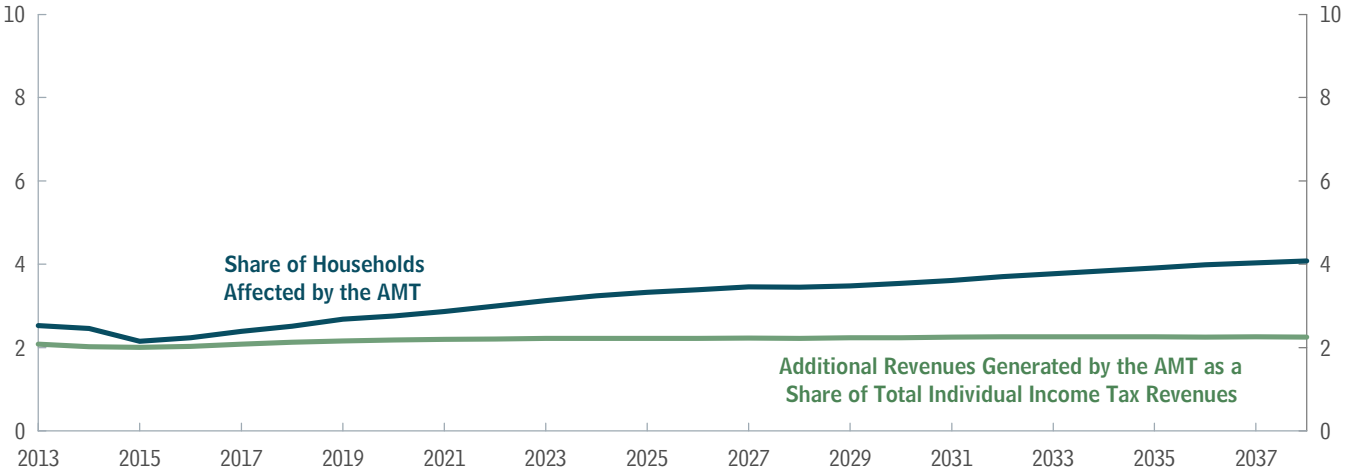
a. "Real bracket creep" refers to the phenomenon in which rising real (inflation-adjusted) income causes an ever-larger proportion of income to be subject to higher tax rates.

b. Excludes the effects on those revenue sources of provisions enacted in the Affordable Care Act, which are accounted for in a preceding line of the table.

Figure 5-3. Return to Reference

Impact of the Alternative Minimum Tax on Individual Income Tax Revenues Under CBO's Extended Baseline

(Percent, by calendar year)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

AMT = alternative minimum tax.

Table 5-2. Return to Reference

Estimates of Effective Federal Marginal Tax Rates Under CBO's Extended Baseline

(Percent)

	2013	2023	2038
Marginal Tax Rate on Labor Income	31	34	35
Marginal Tax Rate on Capital Income	16	19	19

Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

The effective federal marginal tax rate on income from labor is the share of an additional dollar of such income that is paid in federal individual income taxes and payroll taxes, averaged across taxpayers using weights proportional to their labor income. The effective federal marginal tax rate on income from capital is the share of the return on an additional investment made in a particular year that will be paid in taxes over the life of that investment. Rates are calculated for different types of assets and industries, then averaged over all types of assets and industries using the share of asset values as weights.

Table 5-3. Return to Reference 1, 2

Individual Income and Payroll Taxes as a Share of Total Income Under CBO's Extended Baseline

	Income (2013 dollars)[a]		Taxes as a Share of Total Income (Percent)	
	Cash	Total	Income Taxes	Income and Payroll Taxes[b]
		Taxpayer Filing a Single Return		
Half the Median Total Income				
2013	10,200	16,700	-2	8
2038	16,200	25,700	2	12
Median Total Income				
2013	25,700	33,400	6	17
2038	40,000	51,400	7	19
Twice the Median Total Income				
2013	56,800	66,900	9	22
2038	87,700	102,700	12	25
Four Times the Median Total Income				
2013	119,200	133,800	14	27
2038	184,600	205,800	16	28
		Married Couple (With two children) Filing a Joint Return[c]		
Half the Median Total Income				
2013	29,000	47,700	-13	-3
2038	45,900	73,300	1	10
Median Total Income				
2013	73,300	95,400	3	15
2038	114,000	146,500	7	19
Twice the Median Total Income				
2013	161,900	190,800	10	23
2038	250,100	293,500	13	27
Four Times the Median Total Income				
2013	346,000	382,100	18	28
2038	534,600	587,800	21	31

Source: Congressional Budget Office based on data from the March 2012 Current Population Survey.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

Cash income includes compensation from wages and self-employment income. Total income includes cash income, the employer's costs for employment-based health insurance, and the employer's share of payroll taxes. For 2038, the premium on employment-based health insurance is assumed not to exceed the excise tax threshold in the Affordable Care Act.

Taxpayers are assumed to itemize if itemized deductions are greater than the standard deduction. State and local taxes are assumed to be 8 percent of wages; other deductions are assumed to be 15 percent of wages.

a. Income amounts have been rounded to the nearest $100.

b. Payroll taxes include the share paid by employers.

c. The examples for a married couple reflect the assumption that the spouses earn the same amount.

Table 6-1. Return to Reference 1, 2, 3, 4, 5

Long-Run Effects on the Federal Budget of the Fiscal Policies in CBO's Budget Scenarios

(Percentage of gross domestic product)

	2023	2038
Revenues		
Without Economic Feedback		
Extended baseline	18.5	20
With Economic Feedback		
Extended baseline	18.5	20
Extended alternative fiscal scenario	18.1	18
Illustrative scenario with 10-year deficit reduced by $2 trillion	n.a.	n.a.
Illustrative scenario with 10-year deficit reduced by $4 trillion	n.a.	n.a.
Spending Excluding Interest Payments		
Without Economic Feedback		
Extended baseline	18.8	21
With Economic Feedback		
Extended baseline	18.8	22
Extended alternative fiscal scenario	19.3	25
Illustrative scenario with 10-year deficit reduced by $2 trillion	n.a.	n.a.
Illustrative scenario with 10-year deficit reduced by $4 trillion	n.a.	n.a.
Deficit (-) or Surplus Excluding Interest Payments		
Without Economic Feedback		
Extended baseline	-0.3	-2
With Economic Feedback		
Extended baseline	-0.3	-2
Extended alternative fiscal scenario	-1.1	-7
Illustrative scenario with 10-year deficit reduced by $2 trillion	1.2	*
Illustrative scenario with 10-year deficit reduced by $4 trillion	2.6	1
Total Deficit (-) or Surplus		
Without Economic Feedback		
Extended baseline	-3.3	-6
With Economic Feedback		
Extended baseline	-3.3	-7
Extended alternative fiscal scenario	-4.7	-18
Illustrative scenario with 10-year deficit reduced by $2 trillion	-1.5	-4
Illustrative scenario with 10-year deficit reduced by $4 trillion	0.4	*

Continued

Table 6-1. **Continued**

Long-Run Effects on the Federal Budget of the Fiscal Policies in CBO's Budget Scenarios

(Percentage of gross domestic product)

	2023	2038
Federal Debt Held by the Public		
Without Economic Feedback		
Extended baseline	71	100
With Economic Feedback		
Extended baseline	71	108
Extended alternative fiscal scenario	81	190
Illustrative scenario with 10-year deficit reduced by $2 trillion	61	67
Illustrative scenario with 10-year deficit reduced by $4 trillion	51	31

Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

The extended alternative fiscal scenario incorporates the assumptions that certain policies that have been in place for a number of years will be continued and that some provisions of law that might be difficult to sustain for a long period will be modified.

In the illustrative scenarios with the 10-year deficit reduced by $2 trillion and by $4 trillion, those amounts are the cumulative reductions between 2014 and 2023 in deficits excluding interest payments relative to the baseline.

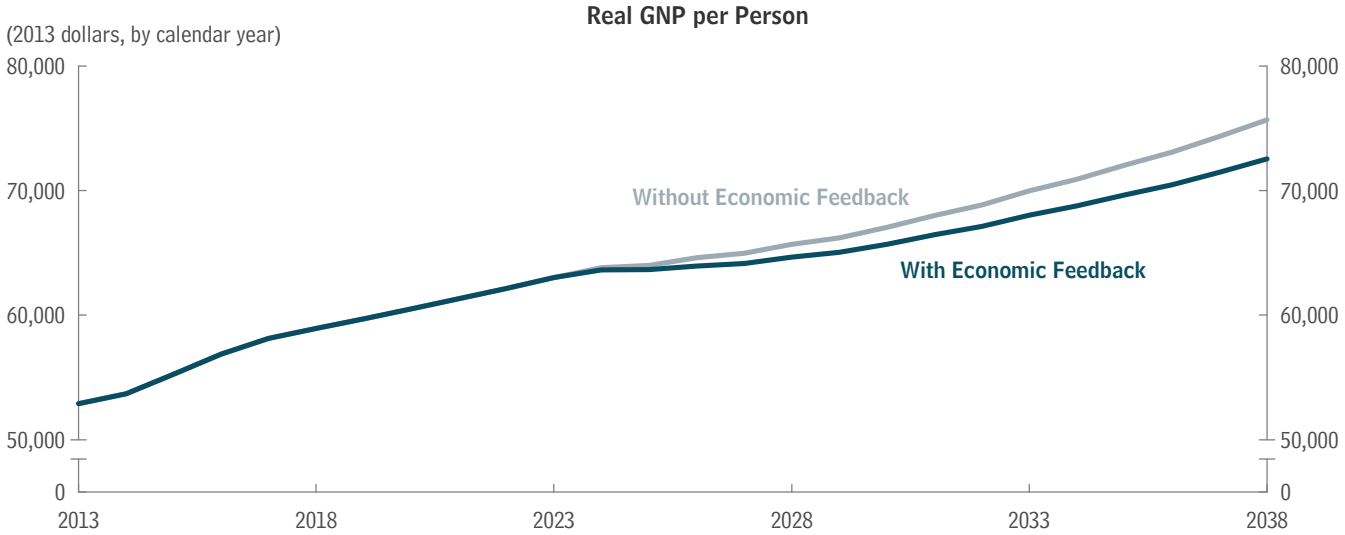
The results with economic feedback include the economic effects of the budget policies in the long run and the effects of that economic feedback on the budget. Those results are CBO's central estimates from ranges determined by alternative assumptions about how much deficits "crowd out" investment in capital goods such as factories and computers (because a larger portion of people's savings is being used to purchase government securities) and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

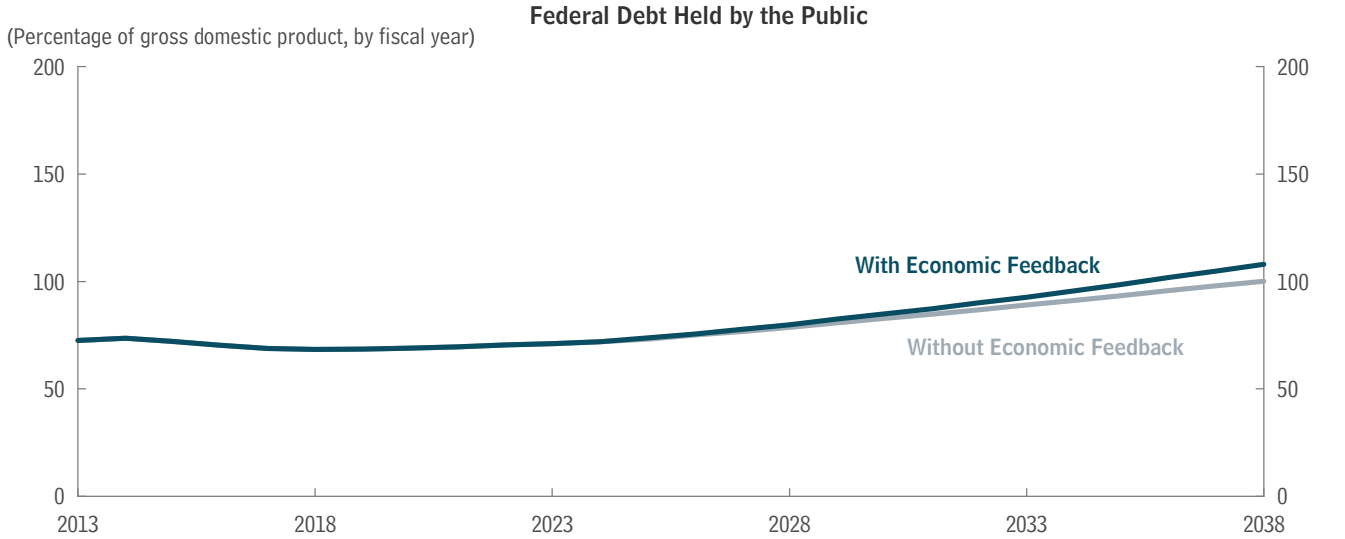
These data reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP.

n.a. = not applicable; * = between -0.5 percent and zero.

Figure 6-1. Return to Reference

Effects of the Fiscal Policies in CBO's Extended Baseline





Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

Real (inflation-adjusted) gross national product (GNP) differs from gross domestic product (GDP), the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The results with economic feedback are CBO's central estimates from ranges determined by alternative assumptions about how much deficits "crowd out" investment in capital goods such as factories and computers (because a larger portion of people's savings is being used to purchase government securities) and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

These data reflect recent revisions by the Bureau of Economic Analysis to estimates of GNP and GDP in past years and CBO's extrapolation of those revisions to projected future GNP and GDP.

Table 6-2. Return to Reference 1, 2, 3

Long-Run Effects on Real GNP per Person of the Fiscal Policies in CBO's Budget Scenarios

(Percentage difference from level in the extended baseline with economic feedback)

	2023	2038
Extended Alternative Fiscal Scenario		
Central estimate	-0.7	-7
Range	-0.3 to -1.2	-3 to -12
Illustrative Scenario With 10-Year Deficit Reduced by $2 Trillion		
Central estimate	0.8	4
Range	0.4 to 1.3	2 to 6
Illustrative Scenario With 10-Year Deficit Reduced by $4 Trillion		
Central estimate	1.6	7
Range	0.8 to 2.5	3 to 11

Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

The extended alternative fiscal scenario incorporates the assumptions that certain policies that have been in place for a number of years will be continued and that some provisions of law that might be difficult to sustain for a long period will be modified.

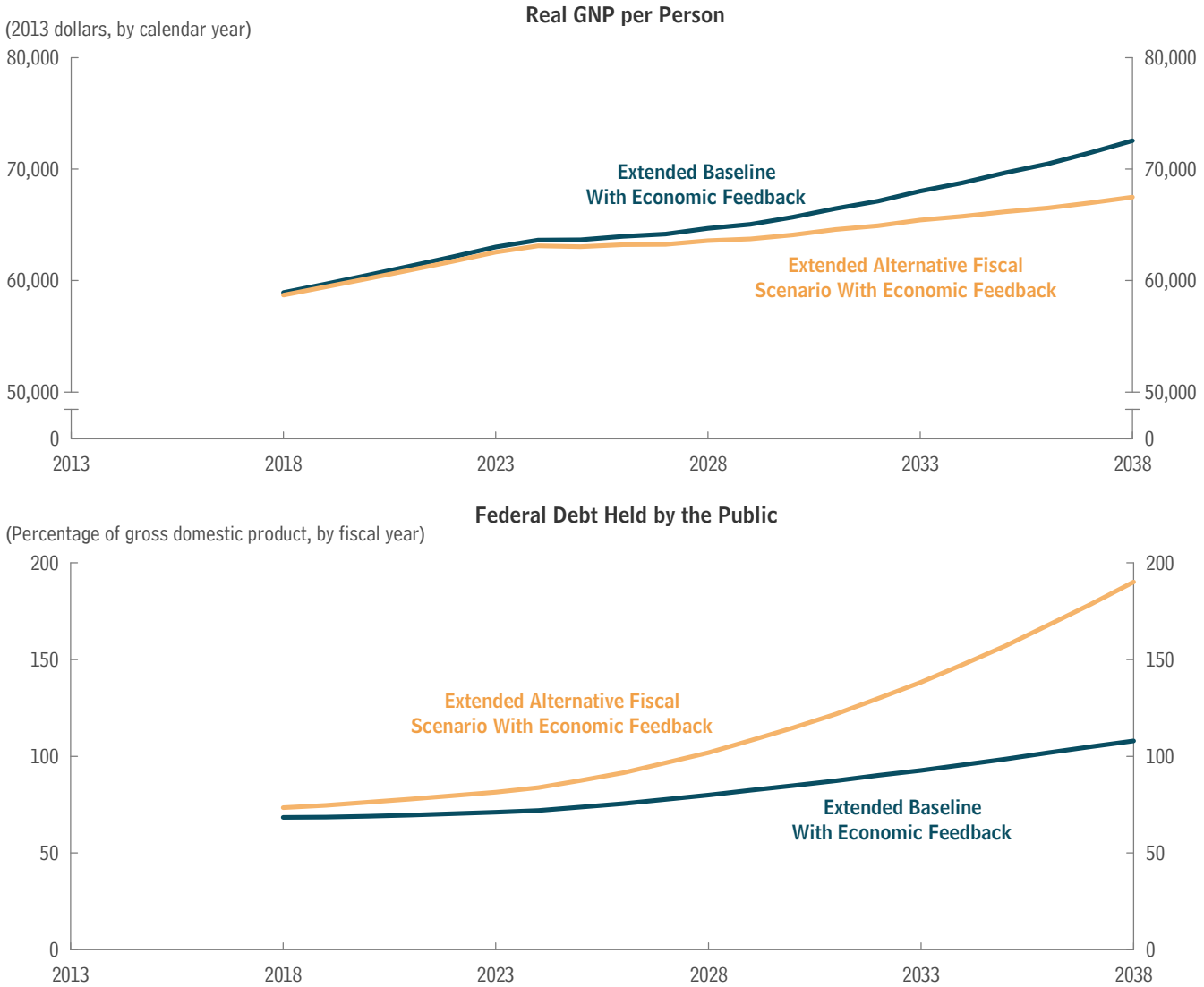
In the illustrative scenarios with the 10-year deficit reduced by $2 trillion and by $4 trillion, those amounts are the cumulative reductions between 2014 and 2023 in deficits excluding interest payments relative to the baseline.

Real (inflation-adjusted) gross national product (GNP) differs from gross domestic product, the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The central estimates and ranges reflect alternative assumptions about how much deficits "crowd out" investment in capital goods such as factories and computers (because a larger portion of people's savings is being used to purchase government securities) and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

Figure 6-2. Return to Reference

Long-Run Effects of the Fiscal Policies in CBO's Extended Alternative Fiscal Scenario



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

The extended alternative fiscal scenario incorporates the assumptions that certain policies that have been in place for a number of years will be continued and that some provisions of law that might be difficult to sustain for a long period will be modified.

The results shown here do not include the economic effects of the scenarios from 2013 to 2017. Short-run economic effects are discussed later in this chapter.

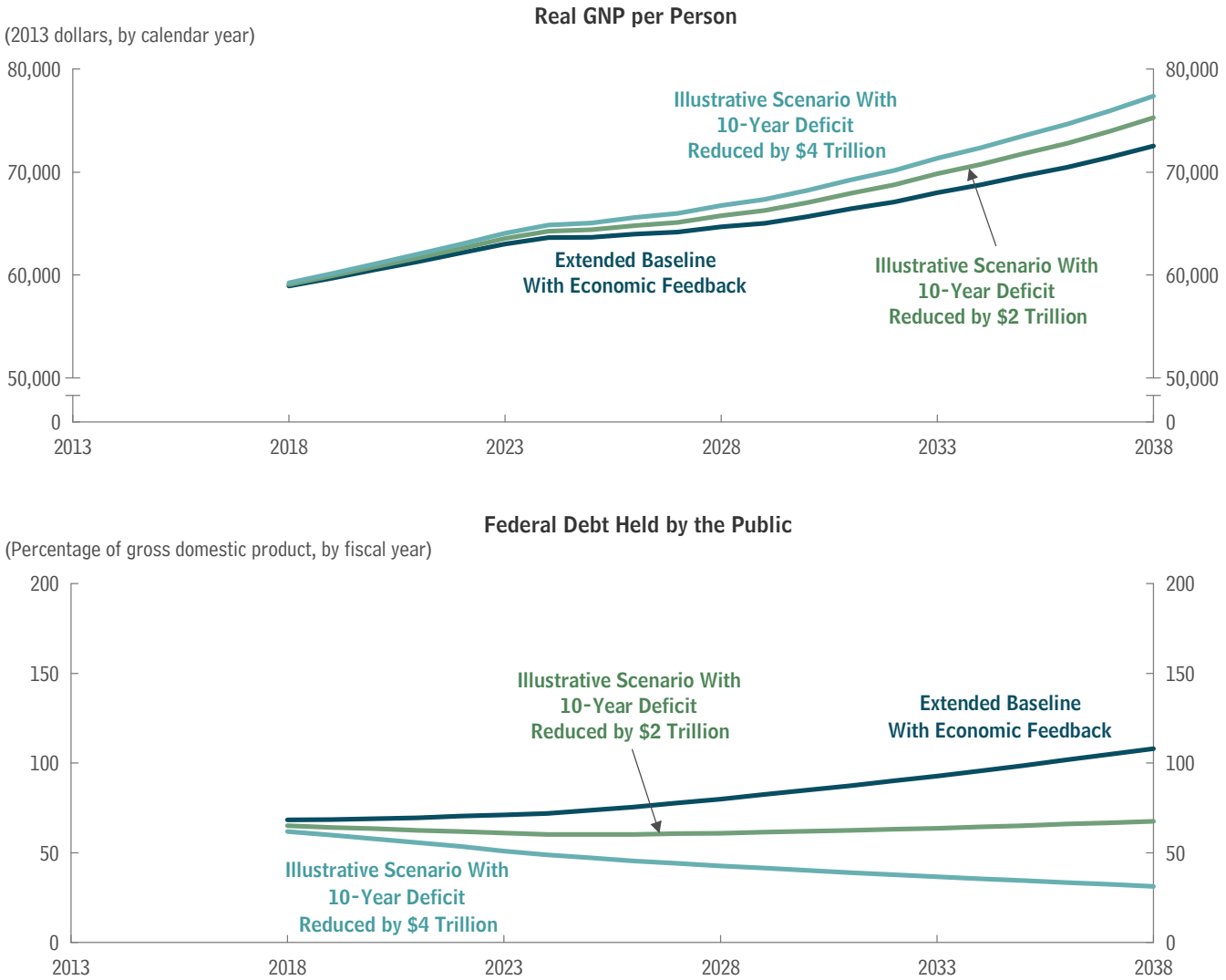
Real (inflation-adjusted) gross national product (GNP) differs from gross domestic product (GDP), the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The results with economic feedback are CBO's central estimates from ranges determined by alternative assumptions about how much deficits "crowd out" investment in capital goods such as factories and computers (because a larger portion of people's savings is being used to purchase government securities) and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

These data reflect recent revisions by the Bureau of Economic Analysis to estimates of GNP and GDP in past years and CBO's extrapolation of those revisions to projected future GNP and GDP.

Figure 6-3. Return to Reference

Long-Run Effects of the Fiscal Policies in CBO's Illustrative Scenarios With Smaller Deficits



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

In the illustrative scenarios with the 10-year deficit reduced by $2 trillion and by $4 trillion, those amounts are the cumulative reductions between 2014 and 2023 in deficits excluding interest payments relative to the baseline.

The results shown here do not include the economic effects of the scenarios from 2013 to 2017. Short-run economic effects are discussed later in this chapter.

Real (inflation-adjusted) gross national product (GNP) differs from gross domestic product (GDP), the more common measure of the output of the economy, by including the income that U.S. residents earn abroad and excluding the income that nonresidents earn in this country.

The results with economic feedback are CBO's central estimates from ranges determined by alternative assumptions about how much deficits "crowd out" investment in capital goods such as factories and computers (because a larger portion of people's savings is being used to purchase government securities) and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

These data reflect recent revisions by the Bureau of Economic Analysis to estimates of GNP and GDP in past years and CBO's extrapolation of those revisions to projected future GNP and GDP.

Table 6-3. Return to Reference

Short-Run Effects of the Fiscal Policies in CBO's Budget Scenarios

	Inflation-Adjusted Gross Domestic Product (Percentage difference)		Full-Time-Equivalent Employment (Difference in millions)	
	2014	2015	2014	2015
Alternative Fiscal Scenario				
Central estimate	0.6	0.6	0.7	0.8
Range	0.2 to 1.0	0.1 to 1.1	0.2 to 1.1	0.3 to 1.4
Illustrative Scenario With 10-Year Deficit Reduced by $2 Trillion				
Central estimate	-0.2	-0.3	-0.3	-0.4
Range	-0.4 to -0.1	-0.5 to 0	-0.4 to -0.1	-0.7 to -0.2
Illustrative Scenario With 10-Year Deficit Reduced by $4 Trillion				
Central estimate	-0.5	-0.6	-0.5	-0.8
Range	-0.8 to -0.1	-1.0 to -0.1	-0.9 to -0.2	-1.3 to -0.3

Source: Congressional Budget Office.

Notes: Figures reflect the differences in the levels between outcomes under a scenario and outcomes under CBO's baseline, which incorporates an assumption that current laws generally remain unchanged.

The alternative fiscal scenario incorporates the assumptions that certain policies that have been in place for a number of years will be continued and that some provisions of law that might be difficult to sustain for a long period will be modified.

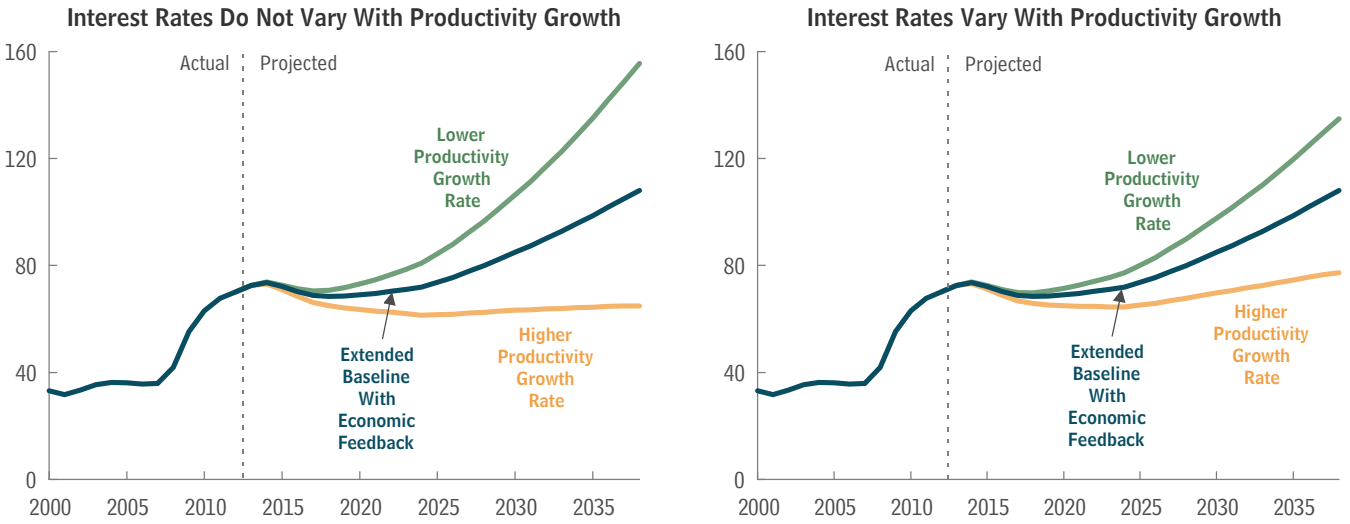
In the illustrative scenarios with the 10-year deficit reduced by $2 trillion and by $4 trillion, those amounts are the cumulative reductions between 2014 and 2023 in deficits excluding interest payments relative to the baseline.

The central estimates and ranges reflect alternative assumptions about how much deficits "crowd out" investment in capital goods such as factories and computers (because a larger portion of people's savings is being used to purchase government securities) and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

Figure 7-1. Return to Reference 1, 2

Federal Debt Held by the Public Under Alternative Assumptions About the Growth of Productivity

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

The lower productivity growth rate is 0.5 percentage points lower, and the higher productivity growth rate is 0.5 percentage points higher, than in the extended baseline.

In the alternatives in which interest rates do not vary with productivity growth, the interest rate on federal debt equals the rate in the extended baseline with economic feedback.

In the alternatives in which interest rates vary with productivity growth, the relationship between them is based on CBO's Solow-type growth model. In that model, a permanent increase of 0.5 percentage points in the growth rate of productivity beginning in 2013 raises the average interest rate on federal debt by about 1 percentage point in 2038.

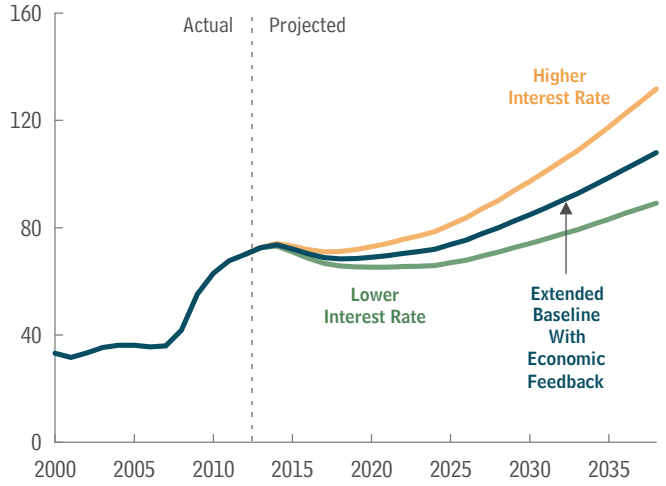
All results are CBO's central estimates from ranges determined by alternative assumptions about how much deficits "crowd out" investment in capital goods such as factories and computers (because a larger portion of people's savings is being used to purchase government securities) and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

These data reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP.

Figure 7-2. Return to Reference

Federal Debt Held by the Public Under Alternative Assumptions About Interest Rates

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

The higher interest rate is an average interest rate on federal debt that is 0.75 percentage points higher relative to the return on capital, and the lower interest rate is a rate that is 0.75 percentage points lower, than in the extended baseline with economic feedback.

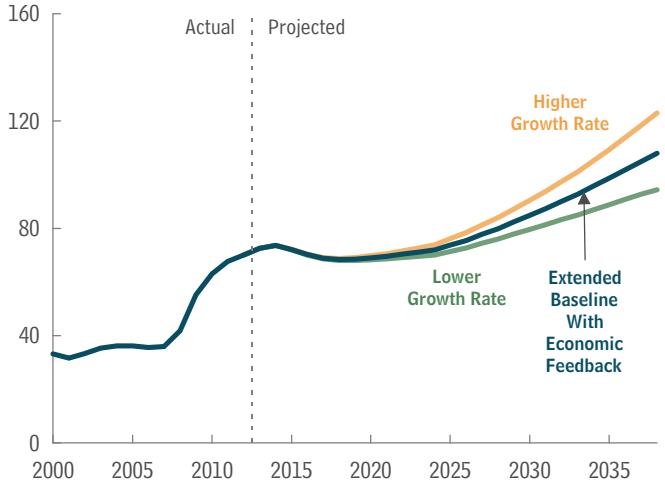
All results are CBO's central estimates from ranges determined by alternative assumptions about how much deficits "crowd out" investment in capital goods such as factories and computers (because a larger portion of people's savings is being used to purchase government securities) and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

These data reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP.

Figure 7-3. Return to Reference

Federal Debt Held by the Public Under Alternative Assumptions About the Growth of Federal Spending on Health Care

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

The higher growth rate of per-beneficiary federal spending on Medicare and Medicaid is 0.5 percentage points per year higher, and the lower growth rate is 0.5 percentage points per year lower, than in the extended baseline with economic feedback.

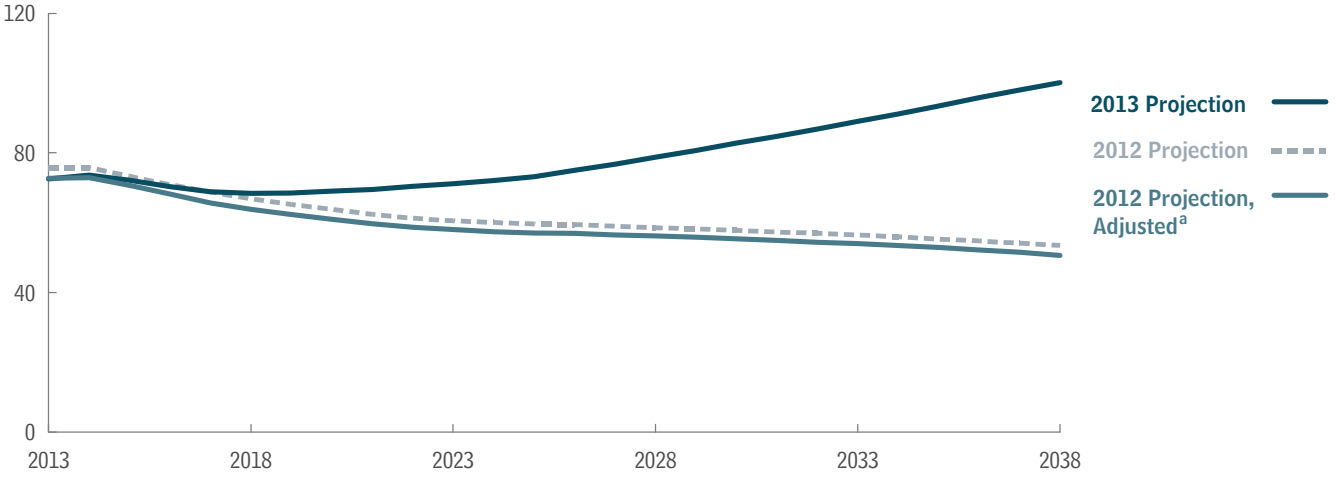
All results are CBO's central estimates from ranges determined by alternative assumptions about how much deficits "crowd out" investment in capital goods such as factories and computers (because a larger portion of people's savings is being used to purchase government securities) and how much people respond to changes in after-tax wages by adjusting the number of hours they work.

These data reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP.

Figure A-1. Return to Reference 1, 2, 3

Comparison of CBO's 2012 and 2013 Projections of Federal Debt Held by the Public Under the Extended Baseline

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Note: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period. Debt does not reflect the economic effects of the policies underlying the extended baseline. (For an analysis of those effects and their impact on debt, see Chapter 6)

a. For comparison with the current long-term projections, CBO adjusted its 2012 long-term projections to reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP. Specifically, for this adjustment, CBO divided its 2012 budget projections by its current projection of GDP.

Box A-1. Return to Reference 1, 2

Why CBO Changed Its Approach to Projecting Mortality

This year the Congressional Budget Office (CBO) based its long-term budget projections on its own projections of mortality rates, whereas in previous years it used the projections in the annual report of the Social Security trustees. The trustees' 2013 report incorporates an assumption that mortality rates, adjusted for the age and sex composition of the population, will decline at an average pace of 0.80 percent a year over the next 75 years—a rate of decline smaller than the one seen for the past several decades. CBO, by contrast, projects that mortality rates will decline at an average pace of 1.17 percent a year—as they did between 1950 and 2008. The faster projected decrease in mortality rates, compared with the decrease assumed in last year's long-term budget outlook, leads to an increase in projected life expectancy and thus an increase in projected spending for Social Security and Medicare.

The Social Security trustees note that, "Many factors are responsible for historical reductions in death rates, including increased medical knowledge, increased availability of health-care services, and improvements in sanitation and nutrition"; their projections, they say, are based on "the expected rate of future progress in these and other areas."[161] In the past decade, the trustees have increased their projection of the decline in mortality rates: from 0.70 percent a year for the last 50 years of the 75-year projection period in their 2004 report to 0.80 percent for all 75 years of the projection period in their 2013 report. As a result, the trustees' projection of life expectancy in 2060 has increased from 79.4 years in the 2004 report to 83.6 years in the 2013 report (see the table below).

161. Social Security Administration, *The 2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (May 31, 2013), p. 80, www.ssa.gov/OACT/TR/2013/index.html. For additional discussion of those assumptions, see Social Security Administration, Office of the Chief Actuary, *The Long-Range Demographic Assumptions for the 2013 Trustees Report* (May 31, 2013), www.ssa.gov/oact/TR/2013/2013_Long-Range_Demographic_Assumptions.pdf (620 KB).

Various Analysts' Estimates of What Life Expectancy Will Be in 2060

	Life Expectancy (Years)[a]
2011 Technical Panel on Assumptions and Methods, Social Security Advisory Board	85.8
2006 Bongaarts (Extrapolated)	85.8
2013 CBO	**84.9**
2012 Census Bureau	84.8
2013 Report of the Social Security Trustees	83.6
2004 Report of the Social Security Trustees	79.4

Source: Congressional Budget Office based on the sources described in the footnotes of this box.

a. These values represent period life expectancy, which is the average number of years that a person would live if mortality rates for a given year remained constant throughout the person's life (in this case, if someone experienced 2060 conditions for his or her entire life). Analysts sometimes also estimate cohort life expectancy, which is the average number of years that someone born in a given year would live if mortality rates changed over time as projected. (For any given year, cohort life expectancies are generally projected to be higher than period life expectancies because mortality rates usually decline over time.)

Many demographers, however, have argued that mortality rates will probably decline more rapidly than the trustees assume. In 1992, Ronald Lee and Lawrence Carter found that age-specific mortality rates fell at a relatively constant pace between the early 1930s and the late 1980s.[162] That is, gains in life expectancy have been fairly constant over time despite changes in behavior, medical technology, and public health conditions; in contrast, the trustees assume that gains in life expectancy will be smaller in the future than they were in recent decades. In 2006, John Bongaarts reviewed evidence of increases in life expectancy in 16 high-income countries and found no signs that the pace of improvement in life expectancy was slowing down.[163] In 2012, Samir Soneji and Gary King developed a different approach to projecting life expectancy, using U.S. data and adjusting for trends in smoking and obesity; they also concluded that mortality will decline faster than the trustees assume.[164] In addition, the Census Bureau's 2012 projections show a more rapid decrease in mortality rates than the trustees assume.[165]

162. Ronald D. Lee and Lawrence R. Carter, "Modeling and Forecasting U.S. Mortality," *Journal of the American Statistical Association,* vol. 87, no. 419 (September 1992), pp. 659–671, http://tinyurl.com/ono94tn.

163. John Bongaarts, "How Long Will We Live?" *Population and Development Review,* vol. 32, no. 4 (December 2006), pp. 605–628, http://dx.doi.org/10.1111/j.1728-4457.2006.00144.x.

164. Samir Soneji and Gary King, "Statistical Security for Social Security," *Demography,* vol. 49, no. 3 (August 2012), pp. 1037–1060, http://dx.doi.org/10.1007/s13524-012-0106-z. (Those projections extend only to 2031, so they are not included in the table at the top of this page.)

165. Census Bureau, *Methodology and Assumptions for the 2012 National Projections* (2012), www.census.gov/population/projections/data/national/2012.html.

Every four years, the Social Security Advisory Board convenes an independent panel of demographers, actuaries, and economists to review the assumptions and methods used by the Social Security trustees. All four of the technical panels that have met since 1999 have recommended that the assumed rate of mortality improvement be based on an extrapolation of past trends.[166]

The 2011 panel also recommended that such an extrapolation be adjusted, because in their view, the net effect on mortality of changes in smoking and obesity will diminish over time, causing the decline in mortality rates to speed up. The negative impact of smoking on life expectancy peaked in the 1990s and is expected to continue to dwindle because of decreases in the prevalence of smoking that have already occurred. Past improvement in mortality was depressed by increases in smoking, so future improvement will be greater than it otherwise would be because of the decrease in smoking. However, the panel also noted that some of that improvement is likely to be offset by an increase in obesity rates. The panel argued that the Social Security trustees' mortality projections should be based mainly on an extrapolation of past trends and should not be adjusted for many specific factors—but that the effect of smoking (and, to a lesser extent, of obesity) was large enough and predictable enough to merit explicit adjustment.

CBO chose to take a simpler approach—extrapolating from past trends without adjustment—for a few reasons. First, a number of past factors (such as improvements in medical technology, environmental conditions, and health behaviors) have had as significant an impact on mortality rates as smoking has. Second, there is great uncertainty about how such factors will affect mortality in the future. Projecting a continuation of past improvement requires no subjective judgments about the roles that specific changes will play. That approach implies that although a great deal of uncertainty exists about the impact of the many factors that will influence mortality, the effects on mortality of future changes in those factors will be such that mortality rates will continue to decline at their long-term average pace.

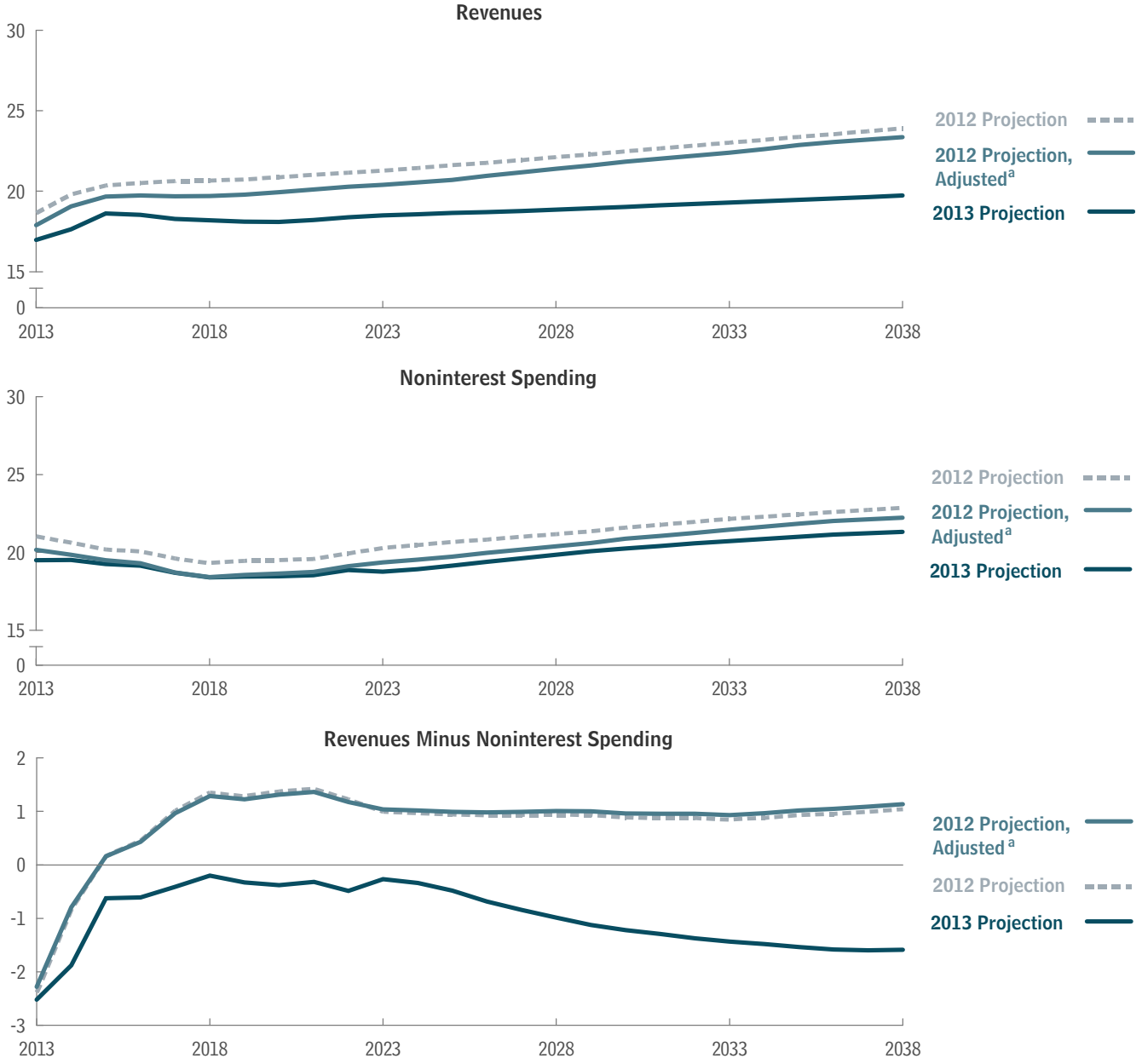
Projecting mortality from past trends requires choosing a historical period on which to base the projection. The pace at which mortality improved was different in the first and second halves of the 20th century, with a noticeable break around 1950. Like the 2011 technical panel, CBO based its projection on the average improvement beginning in 1950.

166. See Social Security Administration, Technical Panel on Assumptions and Methods, *Report to the Social Security Advisory Board* (September 2011), pp. 55–64, www.ssab.gov/Reports/2011_TPAM_Final_Report.pdf (6.3 MB). For additional background, see Hilary Waldron, "Literature Review of Long-Term Mortality Projections," *Social Security Bulletin*, vol. 66, no. 1 (September 2005), www.socialsecurity.gov/policy/docs/ssb/v66n1/v66n1p16.html; and John R. Wilmoth, *Overview and Discussion of the Social Security Mortality Projections,* working paper for the 2003 Technical Panel on Assumptions and Methods (Social Security Advisory Board, May 5, 2005), www.ssab.gov/documents/mort.projection.ssab.pdf (480 KB).

Figure A-2. Return to Reference 1, 2, 3, 4

Comparison of CBO's 2012 and 2013 Budget Projections Under the Extended Baseline

(Percentage of gross domestic product)



Source: Congressional Budget Office.

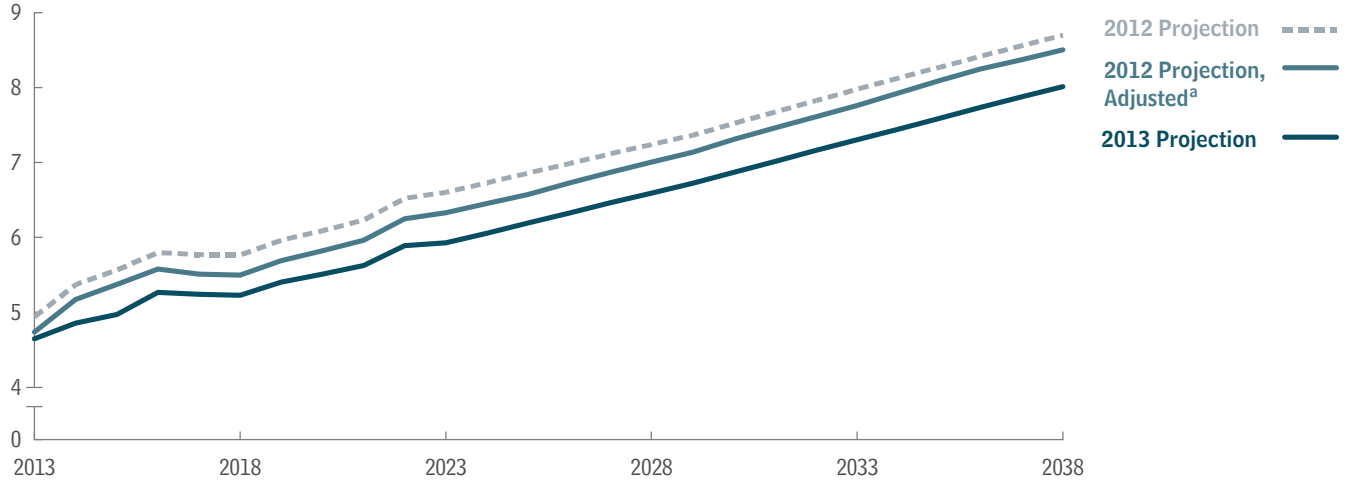
Note: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

a. For comparison with the current long-term projections, CBO adjusted its 2012 long-term projections to reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP. Specifically, for this adjustment, CBO divided its 2012 budget projections by its current projection of GDP.

Figure A-3. Return to Reference

Comparison of CBO's 2012 and 2013 Projections of Federal Spending on Major Health Care Programs Under the Extended Baseline

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

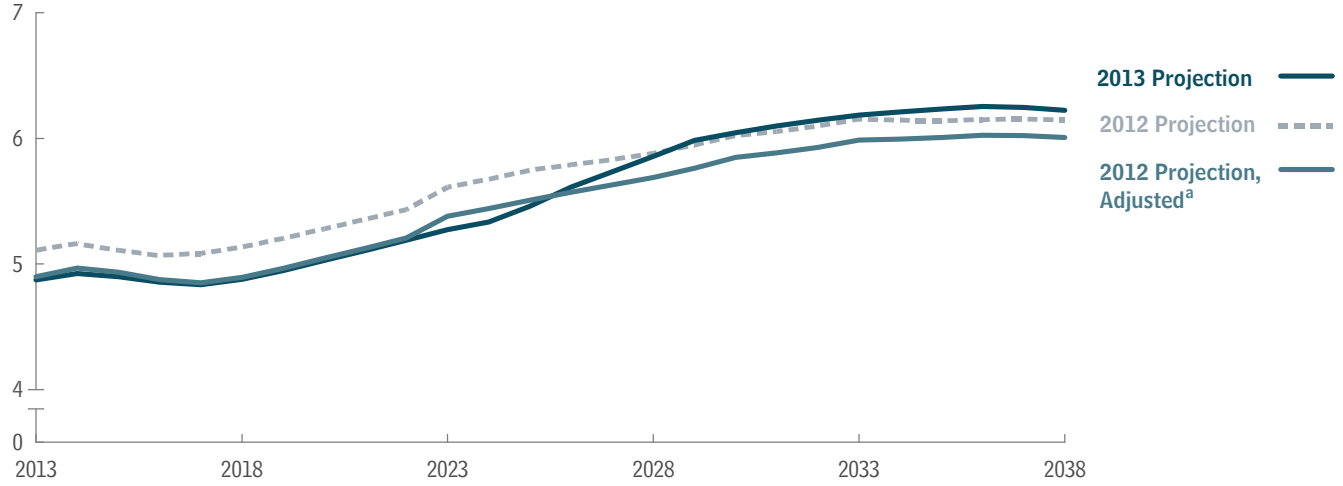
Major health care programs consist of Medicare, Medicaid, the Children's Health Insurance Program, and subsidies offered through new health insurance exchanges. (Medicare spending is net of offsetting receipts.)

a. For comparison with the current long-term projections, CBO adjusted its 2012 long-term projections to reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP. Specifically, for this adjustment, CBO divided its 2012 budget projections by its current projection of GDP.

Figure A-4. Return to Reference

Comparison of CBO's 2012 and 2013 Projections of Federal Spending on Social Security Under the Extended Baseline

(Percentage of gross domestic product)



Source: Congressional Budget Office.

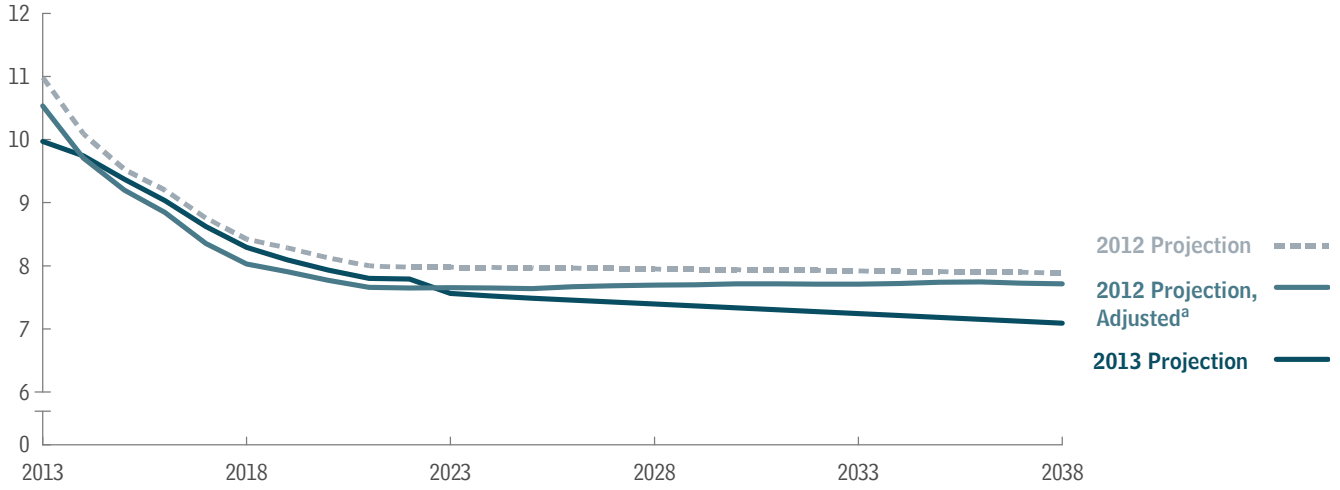
Note: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

a. For comparison with the current long-term projections, CBO adjusted its 2012 long-term projections to reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP. Specifically, for this adjustment, CBO divided its 2012 budget projections by its current projection of GDP.

Figure A-5. Return to Reference

Comparison of CBO's 2012 and 2013 Projections of Other Federal Spending Under the Extended Baseline

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

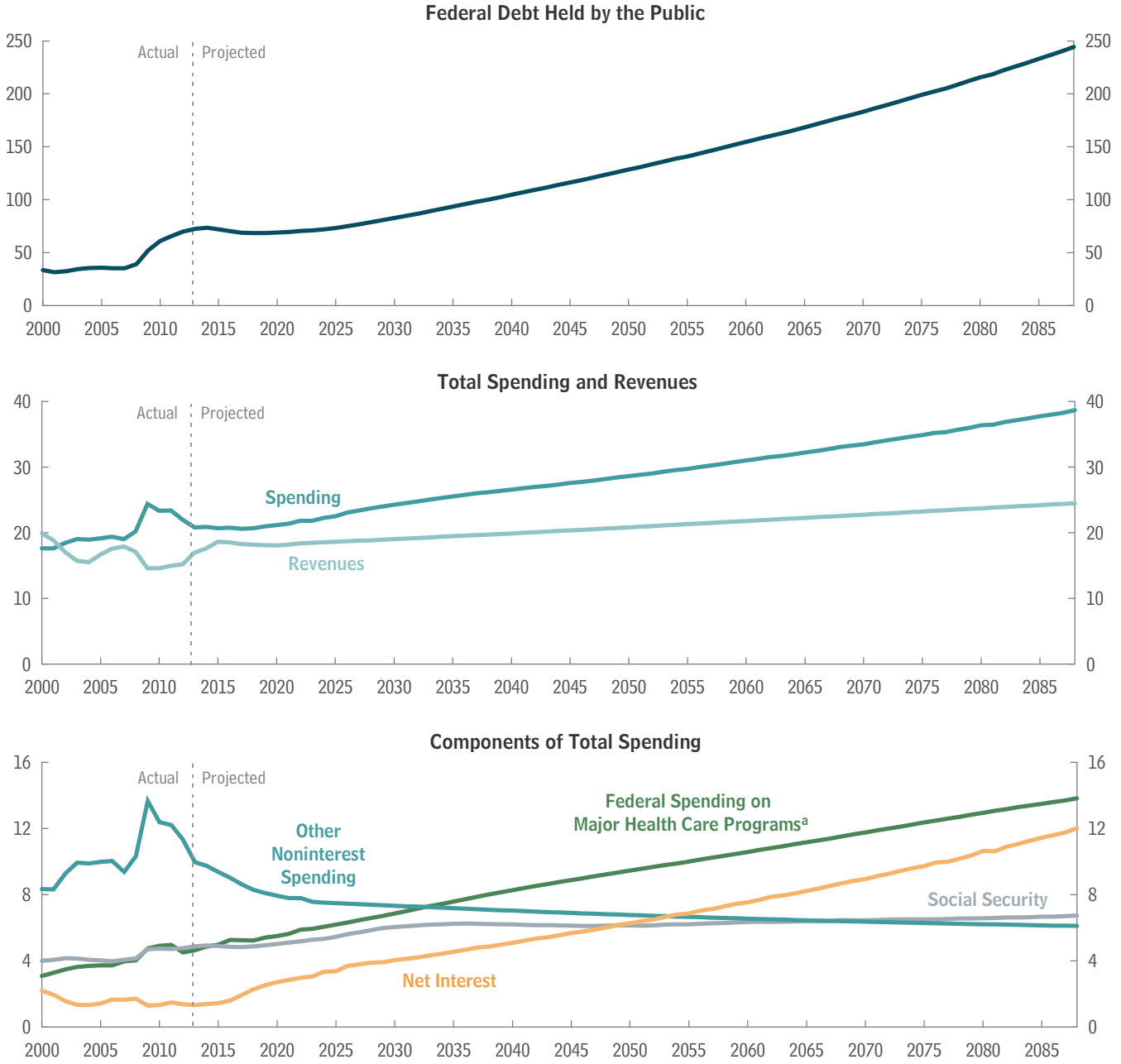
Other federal spending is all spending other than that for major health care programs, Social Security, and net interest.

a. For comparison with the current long-term projections, CBO adjusted its 2012 long-term projections to reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP. Specifically, for this adjustment, CBO divided its 2012 budget projections by its current projection of GDP.

Figure B-1. Return to Reference

Debt, Spending, and Revenues Under CBO's Extended Baseline Through 2088

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period. These projections do not reflect the economic effects of the policies underlying the extended baseline. (For an analysis of those effects and their impact on debt, see Chapter 6.)

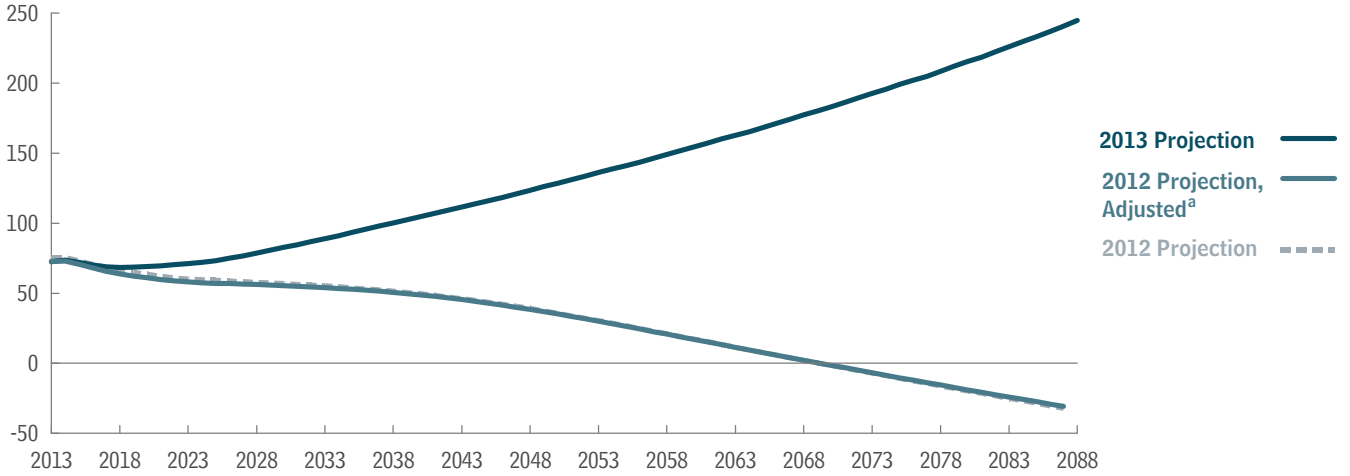
These data reflect recent revisions by the Bureau of Economic Analysis to estimates of GDP in past years and CBO's extrapolation of those revisions to projected future GDP.

a. Spending on Medicare (net of offsetting receipts), Medicaid, the Children's Health Insurance Program, and subsidies offered through new health insurance exchanges.

Figure B-2. Return to Reference

Comparison of CBO's 2012 and 2013 Projections of Federal Debt Held by the Public Under the Extended Baseline Through 2087

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period. These projections do not reflect the economic effects of the policies underlying the extended baseline. (For an analysis of those effects and their impact on debt, see Chapter 6.)

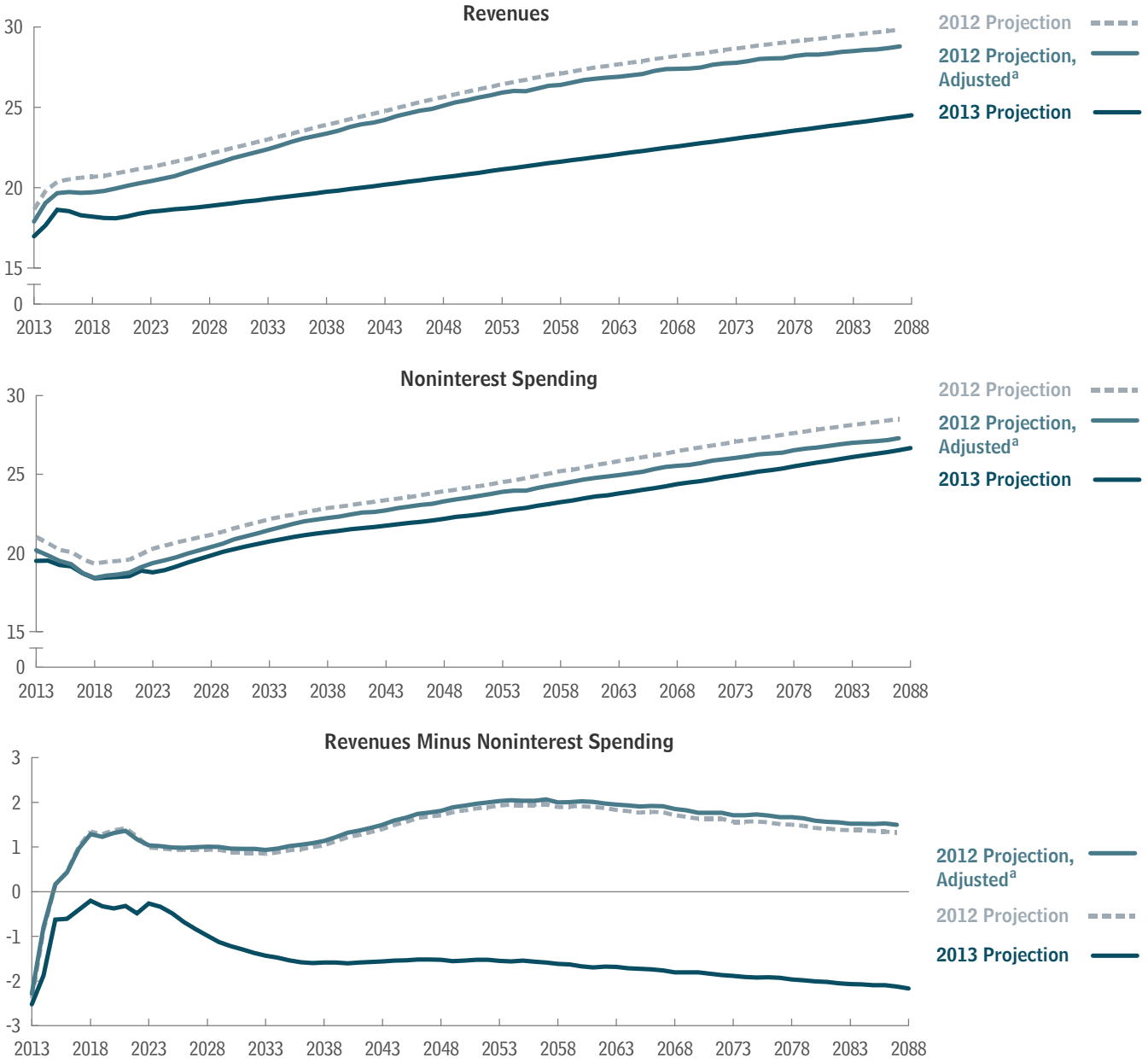
Negative amounts of debt held by the public indicate the cumulative amount of budget surpluses remaining after paying down publicly held debt available for redemption.

a. For comparison with the current long-term projections, CBO adjusted its 2012 long-term projections to reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP. Specifically, for this adjustment, CBO divided its 2012 budget projections by its current projection of GDP.

Figure B-3. Return to Reference

Comparison of CBO's 2012 and 2013 Budget Projections Under the Extended Baseline Through 2087

(Percentage of gross domestic product)



Source: Congressional Budget Office.

Note: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period. These projections do not reflect the economic effects of the policies underlying the extended baseline. (For an analysis of those effects, see Chapter 6.)

a. For comparison with the current long-term projections, CBO adjusted its 2012 long-term projections to reflect recent revisions by the Bureau of Economic Analysis to estimates of gross domestic product (GDP) in past years and CBO's extrapolation of those revisions to projected future GDP. Specifically, for this adjustment, CBO divided its 2012 budget projections by its current projection of GDP.

Table B-1. Return to Reference 1, 2

Fiscal Gap Under CBO's Extended Baseline

(Percentage of gross domestic product)

Projection Period	Present Value of the Future Stream of Revenues or Outlays Over a Given Period		Fiscal Gap (Difference)
	Revenues Plus Target Debt[a]	Outlays Plus Starting Debt[a]	
2013 to 2038	20.7	21.5	0.8
2013 to 2063	20.9	22.3	1.5
2013 to 2088	21.4	23.1	1.7

Source: Congressional Budget Office.

Notes: The extended baseline generally adheres closely to current law, following CBO's 10-year baseline budget projections through 2023 and then extending the baseline concept for the rest of the long-term projection period.

The fiscal gap is a measure of the difference between projected federal noninterest spending and revenues over a given period. It represents the extent to which the government would need to immediately and permanently raise tax revenues or cut spending—or do both, to some degree—to make the government's debt the same size (relative to gross domestic product) at the end of the period that it is at the end of 2013.

a. To allow for the increase in the nominal value of federal debt that would occur even if that debt was maintained at its current share of gross domestic product (GDP), the present value of the target end-of-period debt is added to revenues, and current debt is added to outlays. (The target end-of-period debt is equal to GDP in the last year of the period multiplied by the ratio of debt to GDP in 2013. A present value is a single number that describes a flow of future revenues or outlays in terms of an equivalent lump sum received or spent today.)