



The 2017 Long-Term Budget Outlook

At 77 percent of gross domestic product (GDP), federal debt held by the public is now at its highest level since the end of World War II. If current laws generally remained unchanged, the Congressional Budget Office projects, growing budget deficits would boost that debt sharply over the next 30 years. During that period, federal spending for retirement benefits and health care programs that benefit older people would increase substantially. In particular, as the population ages, outlays for Social Security and Medicare will rise as a percentage of GDP because of the increasing number of beneficiaries for those programs and because of rising health care costs per beneficiary. In addition, the government's interest costs would increase because of rising interest rates and higher federal debt.

The growth in spending would outpace growth in revenues, leading to larger budget deficits as a share of the nation's total economic output—its GDP. As a result, CBO projects, federal debt held by the public would increase, reaching 89 percent of GDP by 2027 (see Table 1). Two decades later, in 2047, debt would reach 150 percent of GDP—the highest level in the nation's history. Such high and rising debt would have serious budgetary and economic consequences.

In this report, CBO presents its projections of federal outlays, revenues, deficits, and debt for the next three decades and describes some possible consequences of those budgetary outcomes. This report's projections are consistent with the 10-year baseline budget and economic projections that CBO published in January 2017.¹ They extend most of the concepts underlying those projections for an additional 20 years, and they reflect the macroeconomic effects of projected fiscal policy over that

period. All together, they constitute the agency's *extended baseline* projections.

CBO's 10-year and extended baseline projections are not predictions of budgetary outcomes. Rather, they represent the agency's best assessment of future revenues, spending, and deficits under the assumption that current laws generally remain unchanged.

The Budget Outlook for the Next 30 Years

CBO's extended baseline shows a substantial imbalance in the federal budget over the next three decades, with revenues falling short of spending by steadily increasing amounts. The growing budget deficits would lead to rising amounts of federal debt, which in turn would increase pressures on the federal budget and dampen economic growth.

Rising Budget Deficits

The 2007–2009 recession and the resulting policy responses led to large federal budget deficits, which peaked in 2009 at nearly 10 percent of GDP. Although the deficit declined steadily through 2015, last year it rose again in relation to the size of the economy. This year, CBO estimates, the deficit will be roughly 3 percent of GDP. Under current law, deficits would remain close to that level through 2020.

Later in the 10-year baseline period and in the following two decades, deficits would become notably larger as the gap between spending and revenues grew (see Figure 1 on page 4). If current laws generally remained unchanged, the deficit would reach 5 percent of GDP by 2027 and almost 10 percent by 2047.

CBO projects that the aging of the population will drive up spending relative to revenues because of increased outlays for Social Security and Medicare, programs that primarily benefit people over the age of 65. Rising per capita health care costs also would boost Medicare

1. For information on CBO's recent baseline budget and economic projections, see Congressional Budget Office, *The Budget and Economic Outlook: 2017 to 2027* (January 2017), www.cbo.gov/publication/52370.

Table 1.

Key Projections in CBO's Extended Baseline

Percentage of Gross Domestic Product

	2017	Projected Annual Average		
		2018–2027	2028–2037	2038–2047
Revenues				
Individual income taxes	8.6	9.4	10.0	10.4
Payroll taxes	6.0	5.9	5.9	5.9
Corporate income taxes	1.7	1.6	1.6	1.6
Other ^a	1.5	1.3	1.3	1.4
Total Revenues	17.8	18.2	18.7	19.3
Outlays				
Mandatory				
Social Security	4.9	5.6	6.3	6.4
Major health care programs ^b	5.5	6.2	7.6	8.8
Other	2.6	2.6	2.4	2.2
Subtotal	13.0	14.3	16.2	17.4
Discretionary	6.3	5.6	5.3	5.4
Net interest	1.4	2.2	3.4	5.2
Total Outlays	20.7	22.2	24.9	28.0
Deficit	-2.9	-4.0	-6.2	-8.6
Debt Held by the Public at the End of the Period	77	89	113	150
Memorandum:				
Social Security				
Revenues ^c	4.6	4.5	4.5	4.5
Outlays ^d	4.9	5.6	6.3	6.4
Contribution to the Federal Deficit ^e	-0.3	-1.0	-1.7	-1.9
Medicare				
Revenues ^c	1.5	1.5	1.5	1.5
Outlays ^d	3.7	4.4	5.7	7.0
Offsetting Receipts	-0.6	-0.7	-1.0	-1.2
Contribution to the Federal Deficit ^e	-1.6	-2.1	-3.2	-4.2
Gross Domestic Product at the End of the Period (Trillions of dollars)	19.2	28.0	41.5	61.3

Source: Congressional Budget Office.

This table satisfies a requirement specified in section 3111 of S. Con. Res. 11, the Concurrent Resolution on the Budget for Fiscal Year 2016.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

- Consists of excise taxes, remittances to the Treasury from the Federal Reserve System, customs duties, estate and gift taxes, and miscellaneous fees and fines.
- Consists of spending for Medicare (net of premiums and other offsetting receipts), Medicaid, and the Children's Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.
- Includes payroll taxes for the program other than those paid by the federal government on behalf of its employees (which are intragovernmental transactions). Also includes income taxes paid on Social Security benefits, which are credited to the trust funds. Does not include interest credited to the trust funds.
- Does not include discretionary outlays related to administration of the program.
- The contribution to the deficit shown here differs from the change in the trust fund balance for the program. It does not include intragovernmental transactions, interest earned on balances, or outlays related to administration of the program.

outlays, in CBO's estimation. By 2047, under current law, federal spending for people age 65 or older who receive benefits from Social Security, Medicare, and Medicaid (the federal health care program for people with limited income and resources) would account for about half of all federal noninterest spending, compared with about two-fifths today.

Moreover, because interest rates are expected to rise from their current low levels and federal debt is projected to grow, interest payments on the government's debt would rise sharply. All told, under CBO's extended baseline, federal spending would increase from today's 21 percent of GDP to 23 percent in 2027 and to 29 percent by 2047. (Federal spending has averaged about 20 percent of GDP over the past 50 years.)

Meanwhile, if current laws generally remained unchanged, revenues would rise more slowly—from 17.8 percent of GDP this year to 18.4 percent in 2027. That growth would result from increased receipts of individual income taxes, which would be partially offset by a decrease in remittances from the Federal Reserve and, to a lesser extent, by decreases in payroll and corporate income tax receipts relative to GDP. Beyond the next 10 years, revenues would continue to grow faster than the economy, in part because of real bracket creep, which occurs as more income is pushed into higher tax brackets as people's income rises faster than inflation. In addition, revenues from a new excise tax on certain employment-based health insurance plans would grow rapidly in the following decades if it took effect, as scheduled, in 2020. All told, CBO projects, revenues would reach nearly 20 percent of GDP in 2047, which would be above the average of about 17 percent for the past several decades but would still fall short of spending.

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.² Measuring debt as a percentage of GDP is useful for comparing amounts of debt in different years because it accounts for changes in price levels, population, output, and income—all of which affect the nation's ability to finance the debt. The ratio of debt to GDP places the effects of potential adjustments to the budget within the context of the nation's resources. Examining whether debt as a percentage of GDP is increasing is therefore a simple and meaningful way to assess the budget's sustainability.

Federal debt held by the public has ballooned over the past decade: At the end of 2007, it stood at 35 percent of GDP. Deficits arising from the recession and the resulting policy responses caused debt to grow sharply over the next five years, however, and by the end of 2012, debt as a share of GDP had doubled to 70 percent. Since then, the upward trajectory has continued, and debt is projected to reach 77 percent of GDP by the end of this year—a very high amount by historical standards. For comparison, such debt has averaged 40 percent of GDP over the past 50 years. During only one other period in U.S. history—from 1944 through 1950, because of the surge in federal spending during World War II—has that debt exceeded 70 percent of GDP (see Figure 2 on page 6).

If current laws generally remained unchanged, federal debt as a percentage of GDP would reach unprecedented levels because the gap between spending and revenues would continue to widen. CBO projects that debt would rise to 89 percent of GDP by 2027, and eight years later, in 2035, it would surpass the peak of 106 percent recorded in 1946. By 2047, federal debt would reach 150 percent of GDP—significantly larger than the average of the past five decades—and it would be on track to grow even larger.

Consequences of a Large and Growing Federal Debt

The burgeoning federal debt over the coming decades would:

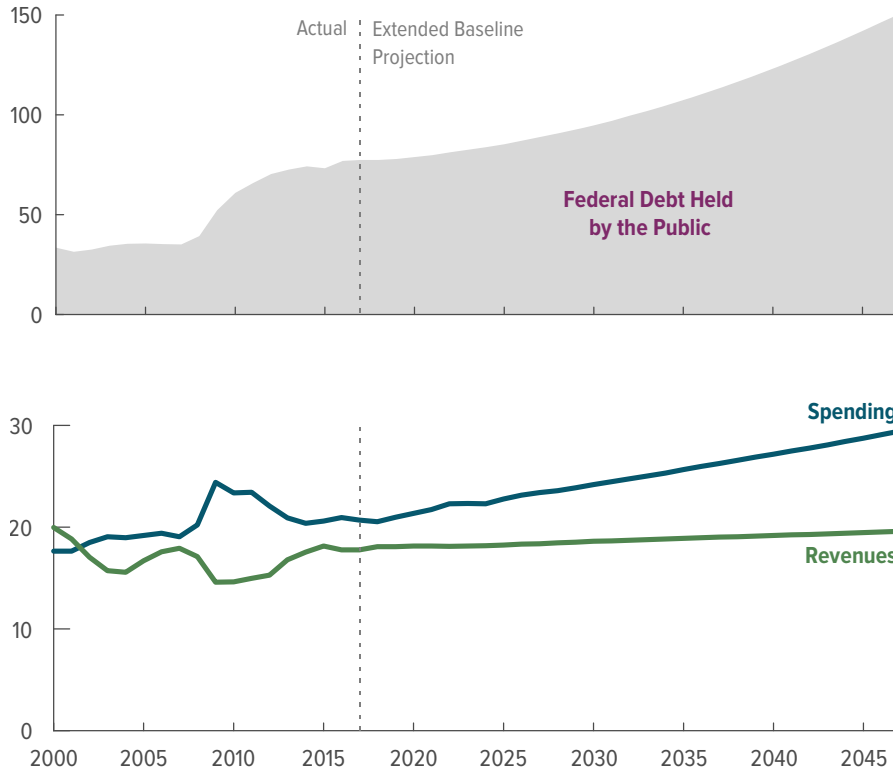
- Reduce national saving and income in the long term;
- Increase the government's interest costs, putting more pressure on the rest of the budget;

2. When the federal government borrows in financial markets, it competes with other participants for financial resources and, in the long term, crowds out private investment, thus reducing economic output and income. By contrast, federal debt held by trust funds and other government accounts represents internal transactions of the government and does not directly affect financial markets. (Together, that debt and debt held by the public make up another measure: 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. They include fluctuations in the government's cash balance as well as the cash flows of the financing accounts used for federal credit programs.

Figure 1.

Federal Debt, Spending, and Revenues

Percentage of Gross Domestic Product



In CBO's extended baseline, **federal debt held by the public** rises . . .

. . . because growth in **total spending** outpaces growth in **total revenues**, resulting in larger budget deficits.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

GDP = gross domestic product.

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- Limit lawmakers' ability to respond to unforeseen events; and
- Raise the likelihood of a fiscal crisis.

Less National Saving and Lower Income. Large federal budget deficits over the long term would reduce investment, resulting in lower national income and higher interest rates than would be the case otherwise. If the government borrowed more, more of people's savings would be used to buy Treasury securities, and thus private investment would be crowded out. Although both the government and private borrowers would face higher interest rates to compete for savings, and those rates would strengthen people's incentive to save, the increased government borrowing would exceed the rise in saving by households and businesses. Therefore, national saving—total saving by all sectors of the economy—would be

lower, as would private investment and economic output. (Private investment would be affected less than national saving because higher interest rates tend to attract more foreign capital to the United States and induce U.S. savers to keep more of their money at home.) With less investment in capital goods—factories and computers, for example—workers would be less productive. Because productivity growth is the main driver of growth in people's compensation, decreased investment also would reduce average compensation per hour, offering people less incentive to work. CBO's extended baseline incorporates the economic effects of rising deficits as well as the feedback to the budget from negative effects on the economy.³

3. See Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), Chapter 6, www.cbo.gov/publication/51580.

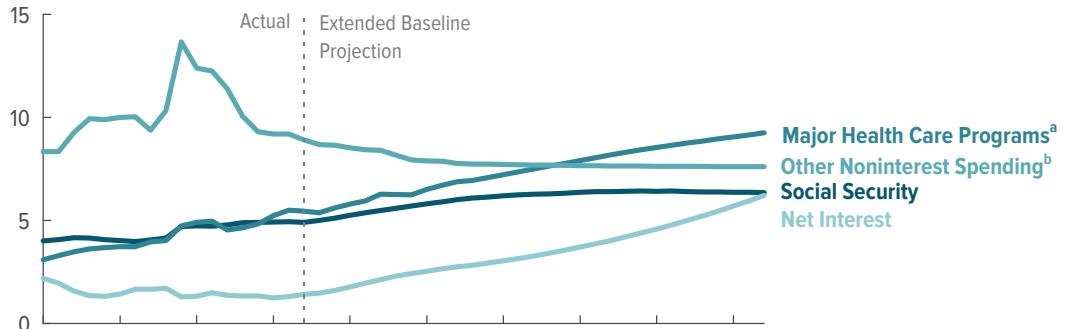
Figure 1.

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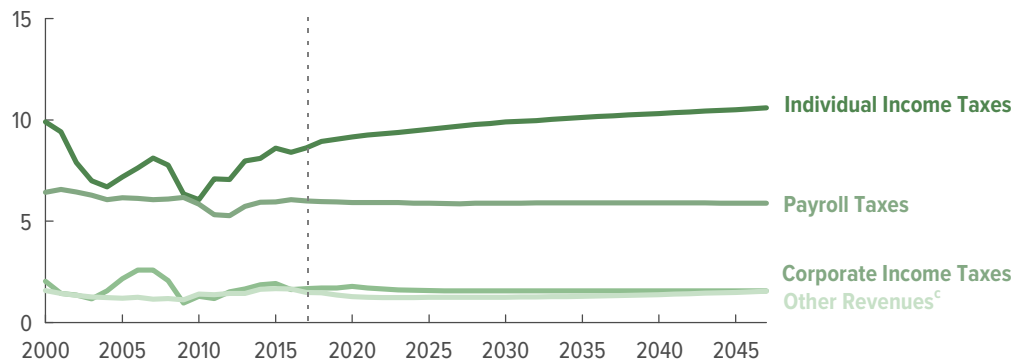
Federal Debt, Spending, and Revenues

Percentage of Gross Domestic Product

Certain **components of spending**—Social Security, the major health care programs, and net interest—are projected to rise in relation to GDP; other spending, in total, is projected to decline.



A projected boost in one **type of revenues**—individual income taxes—accounts for the rise in total revenues in relation to GDP. Receipts from all other sources, taken together, are projected to decline slightly.



- a. Consists of spending for Medicare (net of premiums and other offsetting receipts), Medicaid, and the Children’s Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.
- b. Consists of all federal spending other than that for Social Security, the major health care programs, and net interest.
- c. Consists of excise taxes, remittances to the Treasury from the Federal Reserve System, customs duties, estate and gift taxes, and miscellaneous fees and fines.

Pressure on the Budget Arising From Higher Interest Costs. Under CBO’s extended baseline, rising interest rates and increased federal borrowing boost net interest costs substantially, such that by 2044 they surpass discretionary spending for the first time since 1962, the earliest year for which relevant data are available. (Current net interest costs are relatively small because interest rates have been so low.) As slack in the economy continues to diminish, CBO projects that the Federal Reserve will continue to reduce support for economic growth and that interest rates would rise to levels consistent with factors such as productivity growth, the demand for investment, and federal deficits. Interest costs under the extended baseline are much higher than they would be with smaller deficits and lower interest rates.

lower budget deficits: Tax increases, spending reductions, or both would have to be greater. Such policy changes could affect the economy and people’s well-being. If, for example, policy changes included an increase in marginal tax rates (the rates that apply to an additional dollar of income), the larger that increase, the more people’s incentives to work and save would diminish.⁴ Alternatively, if policy changes included a reduction in federal spending for investment, the greater that reduction, the more both output and income would be reduced.⁵ In contrast, if reductions in benefits were used to lower spending,

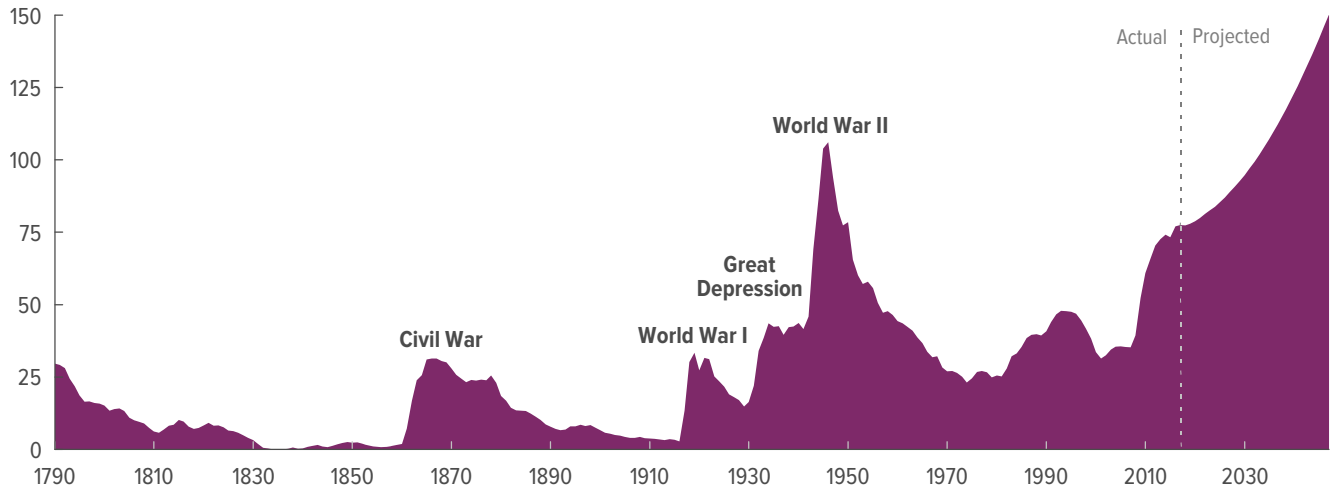
The higher the government’s interest costs, the more difficult it would be to achieve any particular target for

4. See Congressional Budget Office, *How the Supply of Labor Responds to Changes in Fiscal Policy* (October 2012), www.cbo.gov/publication/43674.
 5. For more information, see Congressional Budget Office, *The Macroeconomic and Budgetary Effects of Federal Investment* (June 2016), www.cbo.gov/publication/51628.

Figure 2.

Federal Debt Held by the Public

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.

people might feel compelled to work more to replace lost income, thus increasing output.

Reduced Ability to Respond to Domestic and International Problems. When outstanding debt is relatively small, the federal government is better able to borrow money to cover unexpected costs, such as those that attend recessions, financial crises, natural disasters, or wars. By contrast, when outstanding debt is large, the government has less flexibility to address financial and economic crises.⁶ A large debt also can compromise a country's national security by constraining military spending in times of international crisis or by limiting its ability to prepare for such a crisis.

At the outset of the 2007–2009 recession, when federal debt held by the public was below 40 percent of GDP, lawmakers had the flexibility necessary to respond to

the financial crisis. The recession resulted in lower output and income, which caused sharp declines in tax revenues and increases in mandatory spending.⁷ The policy responses included increases in federal spending to stabilize the financial sector, boost infrastructure investment, and add to social safety-net programs, along with temporary cuts in business and payroll taxes. As a result, over the course of five years, federal debt as a percentage of GDP more than doubled from its 2007 level.

If federal debt stayed the same as it is today or increased further, the government might have a more difficult time undertaking similar costly actions to respond to recessions or fiscal crises, so such events 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 high and rising debt could weaken U.S. international leadership.

Greater Chance of a Fiscal Crisis. A large and continuously growing federal debt would increase the chance of a fiscal crisis in the United States. Specifically, investors

6. See, for example, Carmen M. Reinhart and Vincent R. Reinhart, "After the Fall," *Macroeconomic Challenges: The Decade Ahead* (Federal Reserve Bank of Kansas City, 2010), <http://tinyurl.com/Intnp6j> (PDF, 1.6 MB); and 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>. Also see Luc Laeven and Fabian Valencia, *Systemic Banking Crises Database: An Update*, Working Paper 12/163 (International Monetary Fund, June 2012), <http://tinyurl.com/p2clvmy>.

7. In general, spending for mandatory programs is determined by setting eligibility rules, benefit formulas, and other parameters. In that way, mandatory spending differs from discretionary spending, which is controlled by annual appropriation acts.

might become less willing to finance federal borrowing unless they were compensated with high returns. If so, interest rates on federal debt would rise abruptly, dramatically increasing the cost of government borrowing.⁸ That increase would reduce the market value of outstanding government securities, and investors could lose money. The resulting losses for mutual funds, pension funds, insurance companies, banks, and other holders of government debt might be large enough to cause some financial institutions to fail, creating a fiscal crisis. An additional result would be a higher cost for private-sector borrowing because uncertainty about the government's responses could reduce confidence in the viability of private-sector enterprises.

It is impossible for anyone to accurately predict whether or when such a fiscal crisis might occur in the United States. In particular, the debt-to-GDP ratio has no identifiable tipping point to indicate 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 conditions in the economy. If investors expect continued growth, they are generally less concerned about the government's debt burden. Conversely, substantial debt can reinforce more generalized concern about an economy. Thus, fiscal crises around the world often have begun during recessions and, in turn, have exacerbated them.

If a fiscal crisis occurred in the United States, policymakers would have only limited—and unattractive—options for responding. The government would need to undertake some combination of three approaches: restructure the debt (that is, seek to modify the contractual terms of existing obligations), use monetary policy to raise inflation above expectations, or adopt large and abrupt spending cuts or tax increases.

Demographic and Economic Trends That Underlie CBO's Long-Term Projections

Demographic and economic projections are key determinants of the long-term budget outlook. Through 2027,

the projections in this report are the same as those that underlie CBO's 10-year baseline; for later years, the agency projects conditions according to its assessment of long-term trends. (Appendix A describes CBO's demographic and economic projections.) In addition, the economic projections account for the effects that projected fiscal policies—increased federal borrowing and rising effective marginal tax rates—would have on the economy. Such effects would result in a smaller labor supply, a smaller stock of capital, and lower output than would otherwise be the case.

Demographic Projections

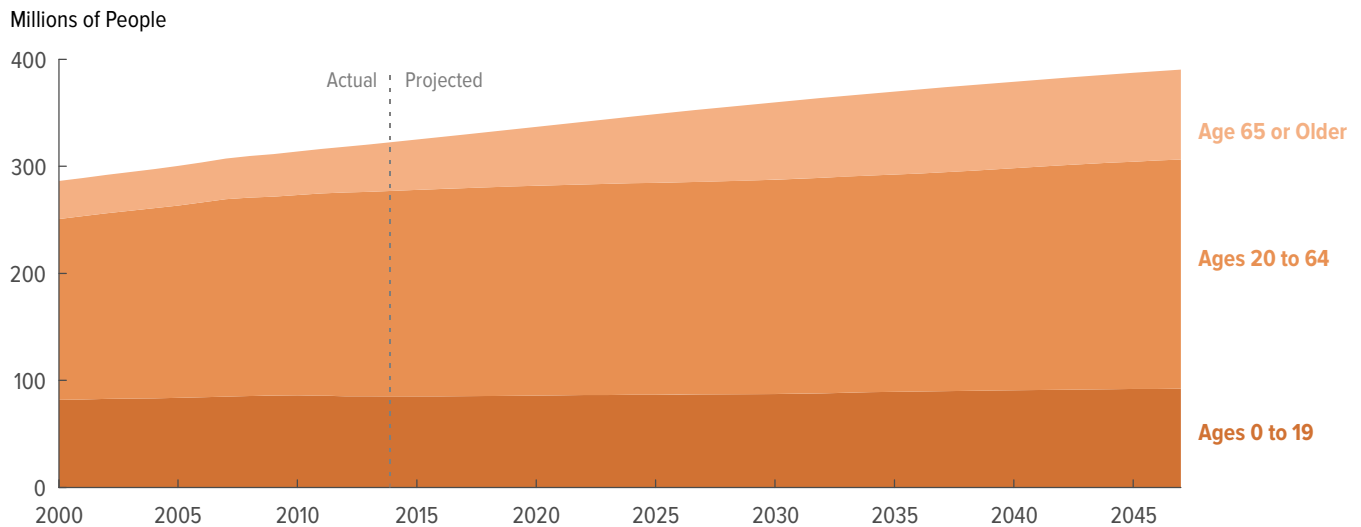
The size and age profile of the U.S. population affect both the federal budget and the nation's economy. For example, the composition of the population influences both the size of the labor force and the number of beneficiaries of Social Security and other federal programs. CBO projects that the U.S. population will increase from 330 million at the beginning of this year to 390 million in 2047, expanding by 0.6 percent per year, on average. That is slower than the 0.9 percent annual growth rate of the past 50 years. The population also will become older, on average, over the coming decades, maintaining a long-standing historical trend. By 2047, 22 percent of the population will be age 65 or older, CBO anticipates, compared with 15 percent today (see Figure 3).

To arrive at estimates of growth in the U.S. population, CBO projects rates of fertility, immigration, and mortality. In general, the total fertility rate tends to decline during a recession and rebound during a recovery. (The total fertility rate is the average number of children that a woman would have in her lifetime if, at each age of her life, she experienced the birth rate observed or assumed for that year and if she survived her entire childbearing period.) Instead of rebounding after the 2007–2009 recession, however, the fertility rate fell (in 2007 it was 2.1 births per woman), and since then it has remained below 1.9—the rate that CBO projects for the next 30 years.

Under current law, CBO projects, the rate of net annual immigration to the United States per thousand people in the U.S. population would rise from 3.2 in 2017 to 3.3 in 2047. Those rates, which account for anyone who either enters or leaves the United States in any year, are similar to average annual net immigration rates since the end of the 2007–2009 recession. CBO's projection of total net immigration for the next decade is informed by

8. For more information, see Congressional Budget Office, *Federal Debt and the Risk of a Fiscal Crisis* (July 2010), www.cbo.gov/publication/21625. That report points out, for example, that during past fiscal crises, Argentina, Ireland, and Greece were forced to make difficult choices in the face of sharp increases in interest rates on government debt.

Figure 3.

Population, by Age Group

Source: Congressional Budget Office.

This figure shows actual data through calendar year 2014, the most recent year for which such data are available.

the agency's economic projections and by recent demographic trends, both of which have notable implications for projections of unauthorized immigration. On balance, CBO projects, under current law, the net annual increase in the number of unauthorized immigrants in the United States would be roughly constant over the next 10 years. Net annual increases in the number of other types of immigrants also are projected to be relatively steady over the next decade. Beyond that, CBO uses a simplified approach to arrive at its projections: After 2026, net immigration grows at an average rate that reflects the Census Bureau's projections for late in the coming decade.⁹

Mortality rates—the number of deaths per thousand people in the population—for specific age and sex groups are projected to improve over the next 30 years, on average, at the same rate that was recorded for each group from 1950 to 2013. CBO projects an average life expectancy at birth of 82.8 years in 2047, compared with 79.2 years in 2017.¹⁰ Similarly, CBO projects that life expectancy at age 65 in 2047 will be 21.5 years, or 2.1 years longer than life expectancy at age 65 in 2017.

9. See Census Bureau, "2014 National Population Projections: Summary Tables," Table 1, <http://go.usa.gov/x9Jyh>.

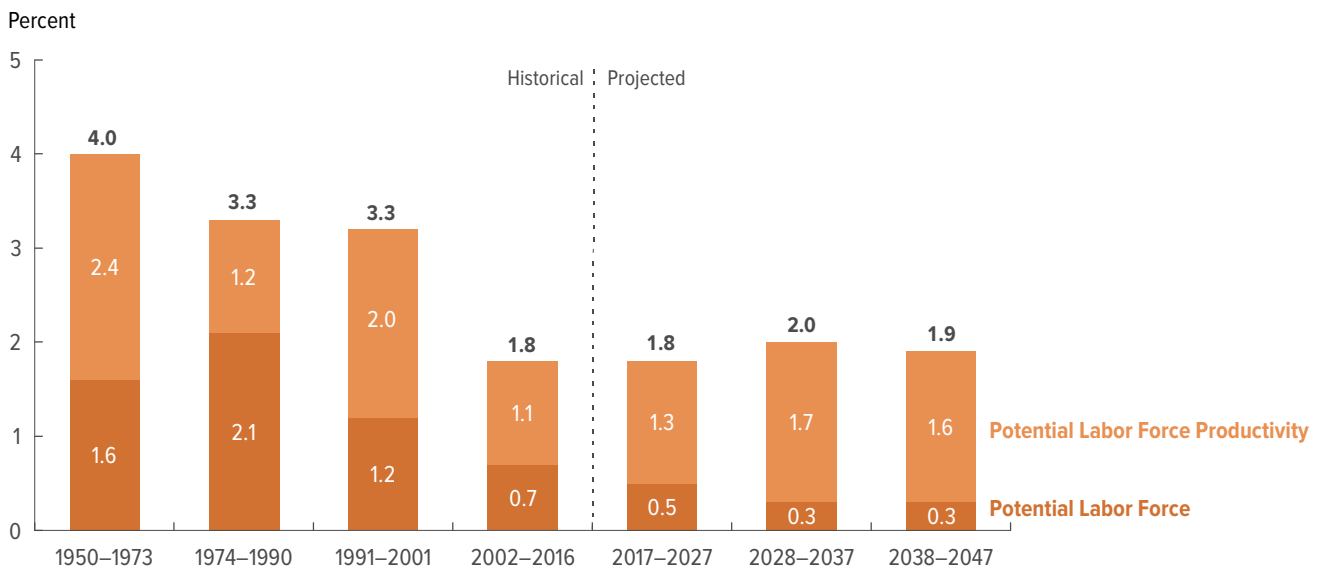
10. Life expectancy as used here is period life expectancy, which is the amount of time that a person in a given year would expect to survive beyond his or her current age on the basis of that year's mortality rates for various ages.

Economic Projections

The performance of the U.S. economy in coming decades will affect the federal government's spending, revenues, and debt accumulation. CBO makes its economic projections by projecting trends in such key economic variables as the size and composition of the labor force, capital accumulation, productivity, inflation, and interest rates. The agency also considers ways in which fiscal policy influences economic activity.

CBO projects that potential (maximum sustainable) growth in GDP in the future will be slower than it has been over the past 50 years. Under its extended baseline, CBO projects an increase in real (inflation-adjusted) potential GDP of 1.9 percent per year, on average, over the next 30 years, compared with 2.9 percent over the past 50 years. That slower economic growth is attributable to several factors, notably the slower growth of the potential labor force (the labor force adjusted for movements in the business cycle). In CBO's projections, the potential labor force grows by 0.4 percent per year, on average, for the next 30 years (see Figure 4); the average annual growth rate over the 1967–2016 period was 1.5 percent. That slower projected growth in the potential labor force is mainly a result of the aging of the population and the relative stability in the participation of women in the labor force after decades of increases.

Figure 4.

CBO's Estimates of Average Annual Growth of Real Potential GDP

Source: Congressional Budget Office.

Real potential GDP is the maximum sustainable output of the economy adjusted to remove the effects of inflation. The two contributing factors are potential labor force productivity (the ratio of potential GDP to the potential labor force) and the potential labor force (the labor force adjusted for movements in the business cycle).

GDP = gross domestic product.

In CBO's projections, total factor productivity—the average real output per unit of combined labor and capital services—grows more slowly than its historical average, increasing by 1.2 percent per year, on average, from 2017 to 2047. That rate is slower than the annual average of 1.4 percent since 1950. Factors influencing that projection include slower productivity growth over the past several decades (with the exception of a period of rapid growth in the late 1990s and early 2000s), modest growth in labor quality (a measure of workers' skills), and a projected reduction in federal investment as a share of GDP.

CBO anticipates that interest rates will rise as the economy grows but still will be lower than the average of the past few decades. Over the long term, interest rates are projected to be consistent with factors such as labor force growth, productivity growth, the demand for investment, and federal deficits. According to CBO's projections, slower growth of the labor force and lower inflation will push interest rates down from their historical levels, and those factors are projected to outweigh the effects of rising federal debt and other factors that tend to push interest rates up. In CBO's latest 10-year economic projections, for example, the interest rate on 10-year Treasury notes rises from 2.1 percent at the end of 2016 to

3.6 percent in 2027. Under the extended baseline, the rate is projected to rise to 4.7 percent in 2047—about 1 percentage point below the 5.8 percent average recorded over the 1990–2007 period. (CBO uses that period for comparison because it was characterized both by fairly stable expectations for inflation and by a lack of significant financial crises or severe economic downturns.)

The average interest rate on all federal debt held by the public tends to be lower than the rate on 10-year Treasury notes. (In general, interest rates are lower on shorter-term debt than on longer-term debt, and since the 1950s, the average maturity of federal debt has been less than 10 years.) On the basis of projections of interest rate spreads and the term structure of federal debt, under CBO's extended baseline, the average interest rate on federal debt is about 0.3 percentage points lower than the interest rate on 10-year Treasury notes.¹¹ As a result, in CBO's projections, the average rate on federal debt rises to 4.4 percent in 2047.

11. Term structure is the relationship between interest rates or bond yields and different terms of maturities.

CBO's economic projections incorporate the macro-economic effects of federal tax and spending policies. In particular, the agency projects that increased borrowing by the federal government under current law generally would crowd out private investment in productive capital in the long term. Furthermore, less private investment in capital goods would make workers less productive, leading to lower wages and a smaller supply of labor. Higher marginal tax rates on labor income also would reduce people's incentive to work, and the increase in the marginal tax rate on capital income would reduce their incentive to save. All told, less private domestic investment and a smaller labor supply would result in lower economic output and income than would otherwise be the case.¹²

Projected Spending Through 2047

Spending for all of the government's programs and activities, combined with net interest costs, is projected to account for a larger percentage of GDP in coming years than it has, on average, over the past 50 years. Over that period, federal outlays other than those for the government's net interest costs have averaged 18 percent of GDP. Since 2009, by contrast, noninterest spending has been above that average, both because of underlying demographic trends and because of temporary conditions in the economy (namely, the financial crisis, the ensuing weak recovery, and the federal policies that were created to address those circumstances). Noninterest spending spiked to 23 percent of GDP in 2009 but then declined to about 19 percent by 2014 as the economy recovered. Noninterest outlays have remained close to that percentage since 2014 and, under current law, are projected to rise to 21 percent over the next decade. During that time, CBO projects, mandatory spending (which includes Social Security and the major health care programs, along with some smaller programs) would generally increase as a share of the economy, and discretionary spending would decrease.

After 2027, under the assumptions that govern the extended baseline, noninterest spending would continue to rise in relation to the size of the economy, reaching 23.2 percent of GDP by 2047. (Table 2 summarizes CBO's policy assumptions.) That increase would mostly

result from larger outlays for the two largest mandatory programs: Social Security and Medicare (see Figure 5). All in all, total mandatory spending is projected to rise to 17.8 percent of GDP in 2047, 1.8 percentage points less than the total amount of projected revenues.

CBO also projects that, under current law, net interest costs would rise from 1.4 percent of GDP in 2017 to 2.7 percent 10 years from now as interest rates increase from their current low levels and as debt accumulates. By 2047, net interest costs would be 6.2 percent of GDP, raising total federal spending to more than 29 percent of GDP. Such spending constituted a larger share of the economy only for a single three-year period during World War II, when defense spending increased sharply. For those years, it exceeded 40 percent.

CBO projects that the growth in spending for Social Security, the major health care programs, and net interest would continue to reshape the spending patterns of the U.S. government, in the following ways:

- Today, spending on Social Security and the major health care programs constitutes 54 percent of all federal noninterest spending, more than the average of 37 percent over the past 50 years. If current laws generally stayed the same, that figure would increase to 67 percent by 2047 (see Figure 6 on page 13). (Although Social Security spending alone would claim a larger portion of noninterest spending in 30 years than it does today, in CBO's extended baseline, that share peaks in 2028 and then declines as people in the baby-boom generation die.)
- All other spending—including all discretionary spending and other mandatory spending—would fall from 46 percent of noninterest outlays today to 33 percent in 2047. In comparison, such spending averaged 63 percent of noninterest outlays over the past 50 years.
- Net interest costs would account for a much greater portion of total federal spending over the next three decades if current laws stayed in place. In CBO's projections, rising interest rates and federal debt push net interest costs to 21 percent of total federal spending by 2047, up from 7 percent today and more than twice the average of 10 percent over the past 50 years.

12. For more information on how federal deficits affect private investment and the supply of labor, see Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), Chapter 6, www.cbo.gov/publication/51580.

Table 2.

Assumptions About Spending and Revenues Underlying CBO's Extended Baseline

Assumptions About Spending	
Social Security	As scheduled under current law ^a
Medicare	As scheduled under current law through 2027; thereafter, projected spending depends on the estimated number of beneficiaries and health care costs per beneficiary (for which excess cost growth is projected to move smoothly to an annual rate of 1.0 percent between 2028 and 2047) ^a
Medicaid	As scheduled under current law through 2027; thereafter, projected spending depends on the estimated number of beneficiaries and health care costs per beneficiary (for which excess cost growth is projected to move smoothly to an annual rate of 1.0 percent between 2028 and 2047)
Children's Health Insurance Program	As projected in CBO's baseline through 2027; remaining constant as a percentage of GDP thereafter
Subsidies for Health Insurance Purchased Through the Marketplaces Established Under the Affordable Care Act	As scheduled under current law through 2027; thereafter, projected spending depends on the estimated number of beneficiaries, an additional indexing factor for subsidies, and excess cost growth for private health insurance premiums (which is projected to move smoothly to an annual rate of 1.0 percent between 2028 and 2047)
Other Mandatory Spending	As scheduled under current law through 2027; thereafter, 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 at roughly the same annual rate at which it is projected to decline between 2022 and 2027 ^b
Discretionary Spending	As projected in CBO's baseline through 2027; remaining roughly constant as a percentage of GDP thereafter ^c
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; remaining constant as a percentage of GDP after 2027
Excise Taxes	As scheduled under current law ^d
Estate and Gift Taxes	As scheduled under current law
Other Sources of Revenues	As scheduled under current law; remaining constant as a percentage of GDP after 2027

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

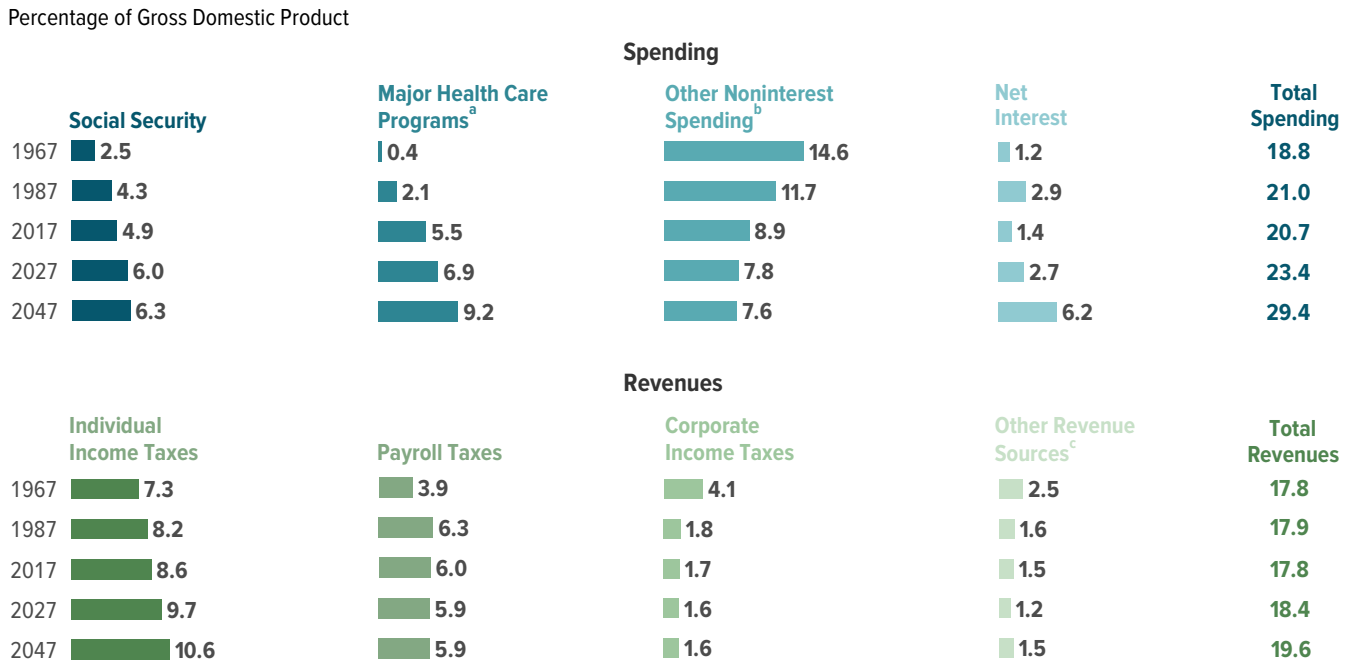
For CBO's most recent 10-year baseline projections, see Congressional Budget Office, *The Budget and Economic Outlook: 2017 to 2027* (January 2017), www.cbo.gov/publication/52370.

Excess cost growth refers to the extent to which the growth rate of nominal health care spending per capita—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential GDP per capita. (Potential GDP is the maximum sustainable output of the economy.)

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.
 - b. In that projection, GDP includes the macroeconomic effects of the policies underlying the extended baseline. If it did not, the rest of other mandatory spending after 2027 would decline at the same rate at which it is projected to decline between 2022 and 2027 (excluding the decline in spending for the Supplemental Nutrition Assistance Program).
 - c. In that projection, GDP includes the macroeconomic effects of the policies underlying the extended baseline. If it did not, discretionary spending after 2027 would remain the same (measured as a percentage of GDP) as projected for 2027.
 - d. The exception to the current-law assumption applies to expiring excise taxes dedicated to trust funds. The Balanced Budget and Emergency Deficit Control Act of 1985 requires CBO's baseline to reflect the assumption that those taxes would be extended at their current rates. That law does not stipulate that the baseline include the extension of other expiring tax provisions, even if they have been routinely extended in the past.
-

Figure 5.
Spending and Revenues in the Past and Under CBO’s Extended Baseline



Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO’s 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

- a. Consists of spending for Medicare (net of premiums and other offsetting receipts), Medicaid, and the Children’s Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.
- b. Consists of all federal spending other than that for Social Security, the major health care programs, and net interest.
- c. Consists of excise taxes, remittances to the Treasury from the Federal Reserve System, customs duties, estate and gift taxes, and miscellaneous fees and fines.

Spending for Social Security and Major Health Care Programs

Mandatory programs have accounted for a rising share of the federal government’s noninterest spending over the past few decades, exceeding 60 percent for the past several years. Much of the growth has occurred because Social Security and Medicare—the government’s two largest mandatory programs—provide benefits mainly to people age 65 or older, a group that has been growing significantly. On average, federal outlays for Social Security and Medicare made up almost 40 percent of total non-interest spending during the past 10 years, compared with 16 percent 50 years ago.

Social Security. Social Security, which was created in 1935, is the largest single program in the federal budget. Its two components pay benefits to more than 61 million beneficiaries in all. The larger of the two, Old-Age and Survivors Insurance (OASI), pays benefits to retired workers, to their eligible dependents, and to some survivors of deceased workers. The smaller program, Disability

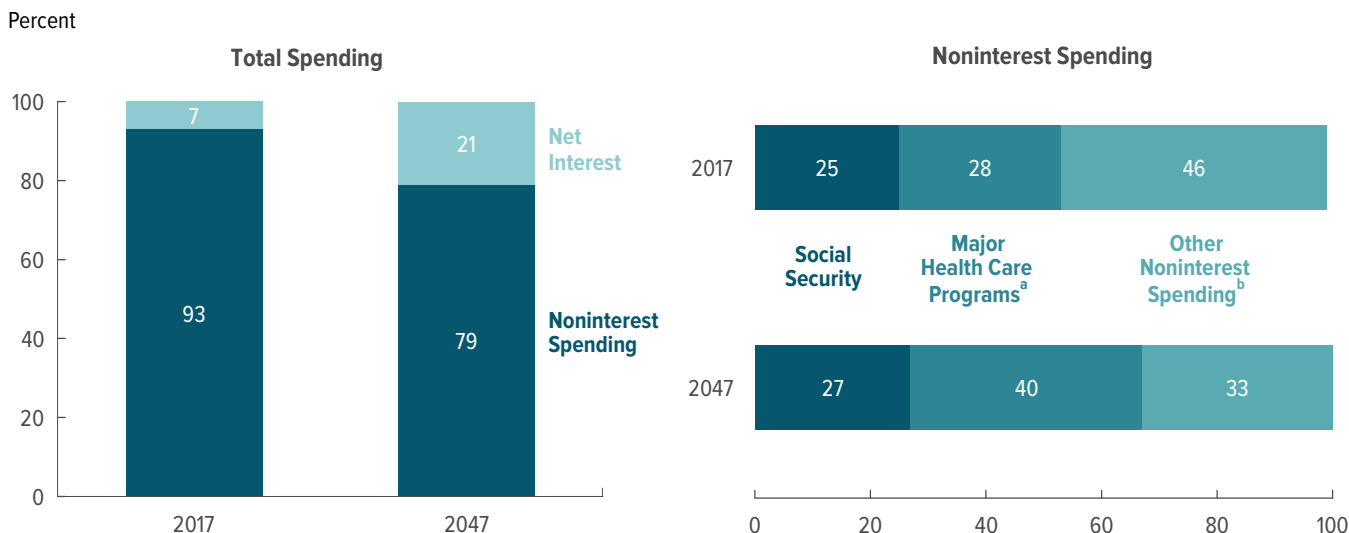
Insurance (DI), makes payments to disabled workers and to their dependents until those workers are old enough to claim full retirement benefits under OASI.

Under current law, CBO projects, spending for Social Security would increase noticeably as a share of the economy—from 4.9 percent of GDP in 2017 to 6.3 percent in 2047 (see Figure 5). In CBO’s extended baseline projections, Social Security is assumed to pay benefits as scheduled under current law, regardless of the status of the program’s trust funds.¹³ That approach is consistent with

13. The balances of the trust funds represent the total amount that the government is legally authorized to spend for those purposes. For more about the legal issues related to exhaustion of a trust fund, see Noah P. Meyerson, *Social Security: What Would Happen If the Trust Funds Ran Out?* Report for Congress RL33514 (Congressional Research Service, August 28, 2014), available from U.S. House of Representatives, Committee on Ways and Means, *2014 Green Book*, Chapter 1: Social Security, “Social Security Congressional Research Service Reports” (accessed March 25, 2017), <http://go.usa.gov/cCXcG>.

Figure 6.

Composition of Federal Spending Under CBO’s Extended Baseline



Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO’s 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

- a. Consists of spending for Medicare (net of premiums and other offsetting receipts), Medicaid, and the Children’s Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.
- b. Consists of all federal spending other than that for Social Security, the major health care programs, and net interest.

a statutory requirement that CBO’s 10-year baseline projections incorporate the assumption that funding for such programs is adequate to make all payments required by law.¹⁴

The Social Security program is funded by dedicated tax revenues from two sources. Currently, 96 percent comes from a payroll tax; the rest is collected from income taxes on Social Security benefits. Revenues from the payroll tax and the tax on benefits are credited to the Old-Age and Survivors Insurance Trust Fund and the Disability Insurance Trust Fund, which finance the program’s benefits.¹⁵

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 year’s worth of benefits at the end of the period.¹⁶ For Social Security, that difference is traditionally presented as a percentage of the present value of taxable payroll over 75 years.¹⁷

Over the next 75 years, if current laws remained in place, the program’s actuarial shortfall would be 4.5 percent

14. Sec. 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985 (Deficit Control Act), Public Law 99-177 (codified at 2 U.S.C. §907(b)(1) (2012)).

15. For more information, see Congressional Budget Office, *CBO’s 2016 Long-Term Projections for Social Security: Additional Information* (December 2016), www.cbo.gov/publication/52298, and *The 2016 Long-Term Budget Outlook* (July 2016), Chapter 2, www.cbo.gov/publication/51580.

16. A present value is a single number that expresses a flow of past and future income (in taxes) or payments (in benefits) in terms of an equivalent lump sum received or paid at a specific time. The value depends on the rate of interest, known as the discount rate, used to translate past and future cash flows into current dollars at that time. 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.

17. Taxable payroll is the total amount of earnings (wages and self-employment income) for employment covered by Social Security that is below the applicable annual taxable maximum.

Table 3.

Financial Measures for Social Security

Projection Period (Calendar years)	Income Rate	Cost Rate	Actuarial Balance (Difference)
As a Percentage of Gross Domestic Product			
25 Years (2017 to 2041)	5.1	6.3	-1.1
50 Years (2017 to 2066)	4.8	6.3	-1.4
75 Years (2017 to 2091)	4.7	6.3	-1.5
As a Percentage of Taxable Payroll			
25 Years (2017 to 2041)	14.7	17.9	-3.3
50 Years (2017 to 2066)	14.0	18.1	-4.1
75 Years (2017 to 2091)	13.9	18.4	-4.5

Source: Congressional Budget Office.

These projections incorporate the assumption that spending for Social Security continues as scheduled even if its trust funds are exhausted. Through 2047, the projections incorporate macroeconomic feedback caused by rising federal debt and marginal tax rates. After 2047, they do not account for such feedback.

Over each projection period, the income rate is the present value of annual tax revenues plus the initial trust fund balance, and the cost rate is the present value of annual outlays plus the present value of a year's worth of benefits as a reserve at the end of the period, each divided by the present value of gross domestic product or taxable payroll. (The present value of a flow of revenues or outlays over time is a single number that expresses that flow in terms of an equivalent sum received or paid at a specific time. The present value depends on a rate of interest, known as the discount rate, that is used to translate past and future cash flows into current dollars.) The actuarial balance is the difference between the income and cost rates.

of taxable payroll, or 1.5 percent of GDP, CBO projects (see Table 3).¹⁸ According to CBO's projections, therefore, it would be possible to pay the benefits prescribed by current law and maintain the necessary trust fund balances through 2091 only if payroll taxes were raised immediately and permanently by about 4.5 percent of taxable payroll, if scheduled benefits were reduced by an equivalent amount, or if some combination of tax increases and spending reductions of equal present value was adopted.¹⁹

Another commonly used measure of Social Security's sustainability is a trust fund's date of exhaustion. CBO projects that, under current law, the DI trust fund would be exhausted in fiscal year 2023 and the OASI trust fund would be exhausted in calendar year 2031. If their balances were combined, the OASDI trust funds would be exhausted in calendar year 2030, according to CBO's estimate.

Major Health Care Programs. Outlays for the major health care programs consist of spending for Medicare, Medicaid, and the Children's Health Insurance Program (CHIP), as well as subsidies for health insurance

18. The 75-year projection period used here begins in calendar year 2017 and ends in calendar year 2091. The Social Security trustees have estimated that the program's 75-year actuarial shortfall (for the period 2016 through 2090) would be 2.7 percent of taxable payroll, 1.8 percentage points less than CBO's projection. For details on the trustees' projections, see Social Security Administration, *The 2016 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (June 2016), www.ssa.gov/oact/tr/2016. For a discussion of the factors leading to differences between CBO's projections and those of the trustees, see testimony of Keith Hall, Director, Congressional Budget Office, before the Subcommittee on Social Security of the House Committee on Ways and Means, *Comparing CBO's Long-Term Projections With Those of the Social Security Trustees* (September 21, 2016), www.cbo.gov/publication/51988.

19. The calculation of the actuarial balance excludes the effects of any macroeconomic feedback that would result from an increase in taxes or a reduction in benefits. The estimates of the actuarial shortfall do not account for revenues or outlays after the 75-year projection period. A policy that either increased revenues or reduced outlays by the same percentage of taxable payroll each year that would be required to eliminate the 75-year shortfall would not necessarily place Social Security on a permanently stable financial path. Because shortfalls are smaller earlier in the 75-year projection period than they are later on, such a policy would create surpluses in the next several decades but result in deficits later and leave the system financially unbalanced after calendar year 2091.

purchased through the marketplaces established under the Affordable Care Act and related spending.²⁰ Medicare, which provides health insurance to about 58 million people, most of whom are at least 65 years old, accounts for more than half of that spending.²¹

CBO projects federal spending for the government's major health care programs for 2017 through 2027 under the assumption that the laws governing those programs will, in general, remain unchanged. As with Social Security, CBO assumes that Medicare will pay benefits as scheduled under current law, regardless of the status of the program's trust funds. For projections beyond 2027, considerable uncertainty surrounds the evolution of the health care delivery and financing systems. That circumstance leads CBO to employ a formulaic approach: It combines estimates of the number of expected beneficiaries of the government's health care programs with mechanical estimates of the growth in spending per beneficiary.

Over the past five decades, spending for the major health care programs has steadily grown faster than the economy, and that trend continues in CBO's extended baseline. In 2017, net federal spending for the major health care programs will amount to 5.5 percent of GDP, CBO estimates. If current laws generally remained in place, net outlays for those programs would increase to 9.2 percent in 2047, distributed as follows:

- Medicare spending, net of offsetting receipts (mostly premiums paid by enrollees), would increase from 3.1 percent of GDP today to 6.1 percent in 2047, and it would account for more than three-quarters of the increase in spending for major health care programs over the next 30 years (see Figure 7).
- Spending on Medicaid and CHIP, combined with outlays for the marketplace subsidies and related spending, would rise from 2.4 percent of GDP today to 3.2 percent in 2047.²²

20. Spending related to subsidies for insurance purchased through the marketplaces includes spending for subsidies for insurance provided through the Basic Health Program and spending for the risk-adjustment and reinsurance programs that were established by the Affordable Care Act to stabilize premiums for health insurance purchased by individuals and small employers.

21. For more on the major health care programs, see Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), Chapter 3, www.cbo.gov/publication/51580.

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

The aging of the population and excess cost growth are reasons for the sharp rise projected for spending on Social Security and the major federal health care programs over the next 30 years.²³ (Excess cost growth is the extent to which health care costs per capita, as adjusted for demographic changes, grow faster than potential GDP per capita.)

If, in developing its projections, CBO had set the shares of the population by age at today's proportions and had set excess cost growth at zero, spending on those programs as a share of GDP in 2047 would be 0.4 percentage points below the 11.0 percent estimated for 2017.²⁴ In the extended baseline, however, that spending reaches 16.9 percent of GDP by 2047 (see Figure 8). Aging accounts for an increase of 3.5 percentage points, or roughly 55 percent of the difference. Excess cost growth, at an increase of 2.9 percentage points, accounts for the rest.

The Aging Population. The retirement of the baby-boom generation and continued gains in life expectancy will increase the share of the population that is age 65 or older from 15 percent to 22 percent between 2017 and 2047.

Aging accounts for nearly all of the projected long-term increase in Social Security spending as a percentage of GDP.²⁵ Because of growth in the share of the population that is 65 or older, a larger segment of the population will consist of Social Security beneficiaries, and their benefits will require greater federal spending.

22. In CBO's projections, the outlays for subsidies for insurance purchased through the marketplaces and related spending are presented in combination with outlays for Medicaid and CHIP—all constitute federal subsidies for health insurance for low- and moderate-income households.

23. This analysis of causes of spending growth includes gross spending on Medicare.

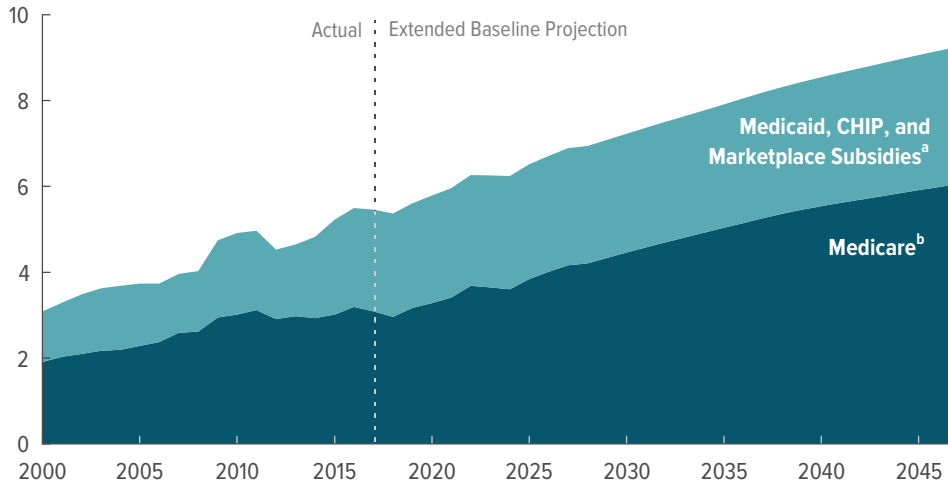
24. Without aging or excess cost growth, spending on those programs would be lower in 30 years as a percentage of GDP mostly because of the scheduled increase in the full retirement age for Social Security.

25. Excess cost growth accounts for a small portion of the increase in spending for Social Security as a share of GDP in 2047, amounting to about 0.1 percent of GDP, because greater spending on federal health care programs leads to larger deficits, which in turn slow the growth of GDP.

Figure 7.

Federal Spending on the Major Health Care Programs, by Category

Percentage of Gross Domestic Product



The projected rise in federal spending for the major health care programs results from the aging of the population and the expectation that health care costs per person will continue to grow more quickly than potential GDP per person.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

CHIP = Children's Health Insurance Program; GDP = gross domestic product.

- "Marketplace Subsidies" refers to spending to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and insurance provided through the Basic Health Program and spending to stabilize premiums for health insurance purchased by individuals and small employers.
- Refers to net spending for Medicare, which accounts for offsetting receipts that are credited to the program. Those offsetting receipts are mostly premium payments made by beneficiaries to the government.

Aging also contributes to the projected increase in the share of GDP taken up by spending for major health care programs, particularly Medicare, which is the largest such program. Most beneficiaries become eligible for Medicare at age 65, and as that group becomes larger and older, on average, Medicare spending will increase because the number of beneficiaries will rise and because people tend to require more health care as they age. In CBO's projections for the 2017–2047 period, aging explains 40 percent of the increase in spending for major health care programs as a share of GDP.

Rising Health Care Spending per Person. Even though growth in health care spending per capita, adjusted for demographic changes, has slowed recently, CBO projects that over the next 30 years it will still be faster than growth in potential GDP per capita. In CBO's extended baseline, excess cost growth accounts for 60 percent of the increase in spending for the major health care

programs as a share of GDP between 2017 and 2047. Such cost growth also leads to greater federal debt, which slows the growth of GDP and slightly raises projected spending as a share of GDP.

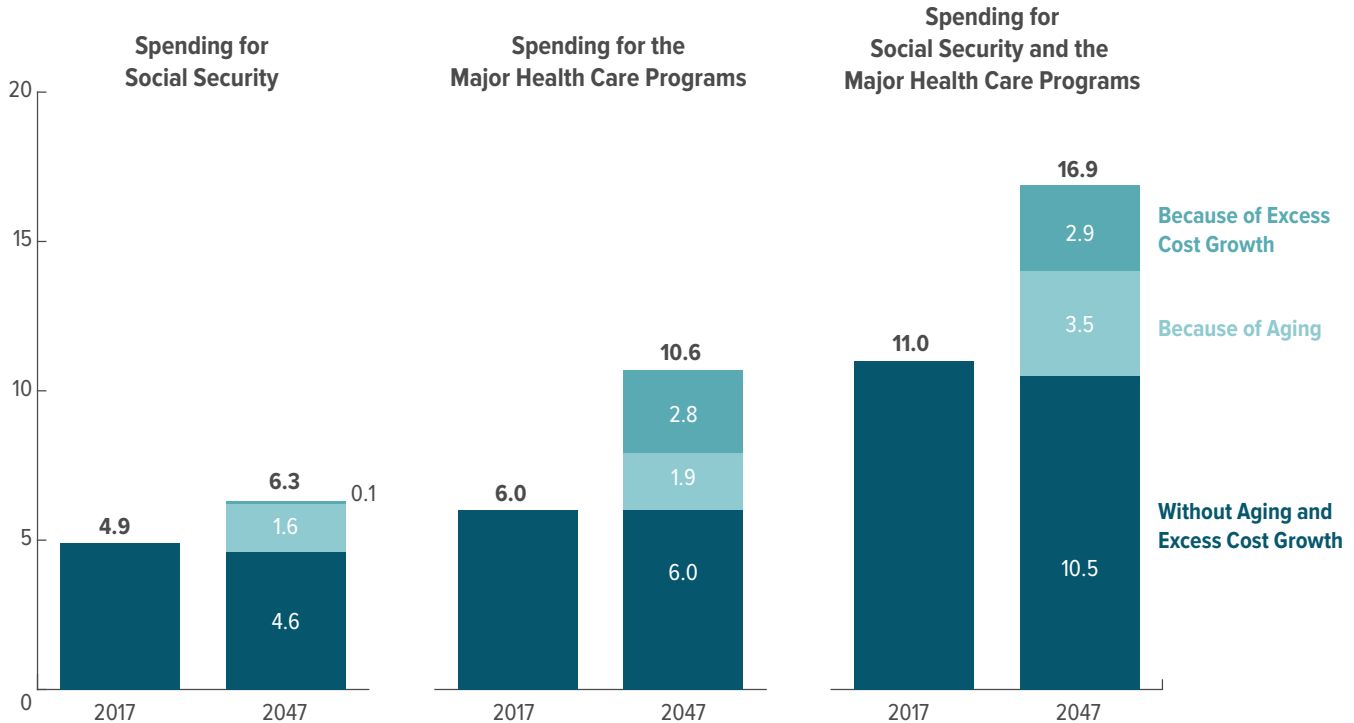
Other Noninterest Spending

In the extended baseline, total federal spending for everything other than Social Security, the major health care programs, and net interest declines to a smaller percentage of GDP than has been the case for more than 70 years. During the past 50 years, such spending has averaged 11 percent of GDP, but it has been as much as 15 percent (in 1968) and as little as 8 percent (in the late 1990s and early 2000s). CBO estimates that other noninterest spending in 2017 will equal 8.9 percent of GDP. Under the assumptions used for this analysis, that spending is projected to fall to 7.8 percent of GDP in 2027 and to 7.6 percent of GDP in 2047.

Figure 8.

Causes of Projected Spending Growth in Social Security and the Major Health Care Programs in CBO’s Extended Baseline

Percentage of Gross Domestic Product



Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO’s 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Outlays for the major health care programs consist of gross spending for Medicare (which does not account for offsetting receipts that are credited to the program), Medicaid, and the Children’s Health Insurance Program, as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

Excess cost growth refers to the extent to which the growth rate of nominal health care spending per capita—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential gross domestic product per capita. (Potential gross domestic product is the maximum sustainable output of the economy.)

This figure highlights the most important effects of aging and excess cost growth. Other effects, such as the effect of aging on the number of Social Security Disability Insurance beneficiaries, are smaller.

Discretionary Spending. Spending that occurs through the annual appropriation process is known as discretionary spending. About half is dedicated to national defense, and the rest is for an array of federally funded investments and activities, including education, transportation, housing assistance, veterans’ health care, health-related research and public programs, administration of justice, and international affairs.

Over the past half century, discretionary spending has diminished markedly as a percentage of GDP: Between

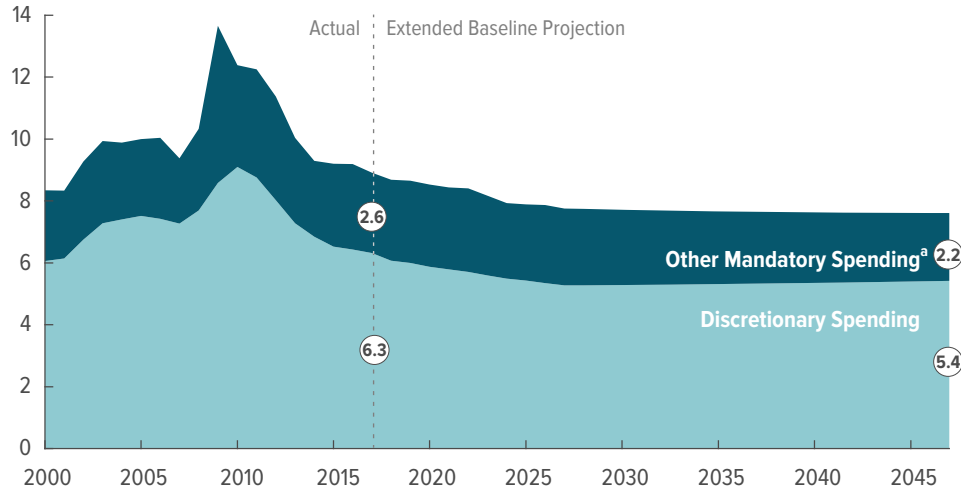
1967 and 2016, it declined from 12.7 percent to 6.4 percent of GDP.²⁶ In CBO’s baseline, discretionary outlays continue to decline over the next 10 years—falling to 5.3 percent of GDP in 2027—in part because of the constraints on discretionary funding imposed by the Budget Control Act of 2011 (as amended). After 2027, in CBO’s extended baseline projections, discretionary

26. For more discussion of the past 50 years of discretionary spending, see Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), Chapter 4, www.cbo.gov/publication/51580.

Figure 9.

Other Federal Noninterest Spending Under CBO's Extended Baseline

Percentage of Gross Domestic Product



Measured as a percentage of economic output, other federal noninterest spending in CBO's extended baseline declines between 2017 and 2047. The majority of that drop stems from a projected decline in discretionary spending over the next decade.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

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

spending remains roughly constant as a percentage of GDP (see Figure 9).²⁷

Other Mandatory Spending. Since the mid-1960s, mandatory spending other than that for Social Security and the major health care programs has generally remained between 2 percent and 4 percent of GDP. (An exception was the spike to 5.1 percent in 2009 in response to the recession.) That category of mandatory spending includes, for example, retirement programs for federal civilian and military employees, certain veterans' programs, the Supplemental Nutrition Assistance Program (SNAP), Supplemental Security Income, unemployment compensation, and refundable tax credits.²⁸

Other mandatory spending is projected to decline slightly as a share of the economy over the next 10 years. That category accounts for 2.6 percent of GDP today and, if

27. CBO assumed that after 2027 discretionary spending would remain constant as a percentage of GDP before the agency accounted for the effect on the economy of the fiscal policies projected under the extended baseline. CBO estimates that fiscal policy under the extended baseline would dampen economic growth, so its projection of discretionary spending does not grow at precisely the same rate as GDP.

current laws generally remained unchanged, it would decline to 2.5 percent of GDP in 2027, CBO projects.²⁹ That small decline primarily reflects the effect of growth in average income on eligibility for some programs and refundable tax credits as well as reductions in the average payment per beneficiary for certain large programs when measured relative to average income.

In CBO's extended baseline, other mandatory spending is projected to fall to 2.2 percent of GDP by 2047. That decline in part reflects the effect of further growth in income on eligibility for refundable tax credits. It also reflects the assumption that other mandatory spending, excluding outlays for such tax credits, would decline

28. Refundable tax credits reduce a filer's income tax liability overall; if the credit exceeds the rest of the filer's income tax liability, the government pays all or some portion of that excess to the taxpayer (and the payment is treated as an outlay in the budget). See Congressional Budget Office, *Refundable Tax Credits* (January 2013), www.cbo.gov/publication/43767.

29. Sec. 257(b)(2) of the Deficit Control Act, which governs CBO's baseline projections, makes exceptions regarding current law for some programs, such as SNAP, that have expiring authorizations but that are assumed to continue as currently authorized.

roughly in line with projections for such spending between 2022 and 2027.³⁰

Net Interest Costs

The government's net interest costs are projected to nearly double as a share of the economy over the next decade—from 1.4 percent of GDP in 2017 to 2.7 percent by 2027—as currently low interest rates rise and as greater federal borrowing leads directly to greater debt-service costs. In the extended baseline, those costs reach 6.2 percent of GDP by 2047 (see Figure 5 on page 12). Under that projection, deficits and debt rise because spending growth outpaces revenue growth, and interest costs are a major contributor to spending growth: For example, more than half of the increase in spending as a percentage of GDP between 2017 and 2047 results from higher net interest costs. In large part, those rising interest costs would stem from increases in interest rates that reflect long-term economic trends, which CBO projects would occur even if debt did not rise beyond its current level. Greater federal borrowing would place additional upward pressure on interest rates and thus on interest costs. Moreover, growth in net interest costs and growth in debt reinforce one another: Rising interest costs would boost deficits and debt, and rising debt would push up interest costs.

Projected Revenues Through 2047

In CBO's extended baseline, revenues are projected to constitute a larger share of GDP than they have, on average, in recent decades. Over the past 50 years, the average has been about 17 percent, but it has fluctuated between 15 percent and 20 percent of GDP because of changes in tax laws and interactions between those laws and economic conditions.

CBO projects that, if current laws generally remained unchanged, revenues would increase as a share of GDP

over the coming decade—rising from 17.8 percent to 18.4 percent. The projected growth is mainly in the form of receipts from individual income taxes, partially offset by a decrease in remittances from the Federal Reserve and, to a lesser extent, by decreases in payroll and corporate income tax receipts.

For years beyond 2027, CBO's extended baseline is constructed under the assumption that the rules for all tax sources will evolve as scheduled under current law.³¹ Revenues therefore would continue to grow faster than GDP beyond 2027, and two decades later, total revenues would be 19.6 percent of GDP. Increases in receipts from individual income taxes more than account for the projected rise of 1.8 percentage points in total revenues as a share of GDP over the next 30 years. All told, receipts from all other sources combined are projected to decline slightly as a share of GDP (see Figure 5 on page 12). CBO's extended baseline includes the following projections:

- Individual income tax receipts increase by 2.0 percentage points relative to GDP over the next 30 years, from 8.6 percent to 10.6 percent of GDP;
- Payroll taxes decline slightly from today's 6.0 percent to 5.9 percent of GDP in 2047;
- Corporate income tax receipts decline by 0.1 percentage point over the next 30 years, from 1.7 percent of GDP to 1.6 percent; and
- Receipts from all other revenue sources fluctuate slightly, but begin and end the period at 1.5 percent of GDP.

The projected increase in total revenues through 2047 reflects structural features of the income tax system, new and expiring tax provisions, demographic trends, changes in the distribution of income, and other factors.

Structural features of the income tax system are the largest contributor to the increase in revenues (see Table 4).

30. For the years after 2027, mandatory spending excluding that for Social Security, the major health care programs, and refundable tax credits was not projected in detail 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. Except for the outlays for refundable tax credits, such spending was assumed to decline in relation to GDP (excluding any effect that fiscal policy may have on the economy) after 2027 at the same rate at which it is projected to fall between 2022 and 2027 (excluding the decline in spending for SNAP).

31. The sole exception to the current-law assumption during the baseline period applies to expiring excise taxes dedicated to trust funds. The Balanced Budget and Emergency Deficit Control Act of 1985 requires CBO's baseline to reflect the assumption that those taxes would be extended at their current rates. That law does not stipulate that the baseline include the extension of other expiring tax provisions, even if lawmakers have routinely extended them before.

Table 4.

**Sources of Growth in Total Revenues,
2017 to 2047, in CBO's Extended Baseline**

Source of Growth	Percentage of GDP
Structural Features of the Individual Income Tax ^a	1.1
New and Expiring Tax Provisions	0.7
Aging and the Taxation of Retirement Income	0.4
Changes in the Distribution of Income	0.1
Other Factors	-0.4
Total	1.8

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

GDP = gross domestic product.

a. Includes real bracket creep, which occurs as more income is pushed into higher tax brackets because people's income rises faster than inflation.

CBO projects that, if current laws remained generally unchanged, real bracket creep would continue to gradually push up taxes relative to income over the next three decades. That phenomenon occurs because most income tax brackets, exemptions, and other tax thresholds are indexed only to inflation. If income grows faster than inflation, as generally occurs when the economy is growing, tax receipts grow faster than income.

Under current law, some new provisions of tax law will take effect and others will expire during the next decade. Specifically, a new tax on certain employment-based health insurance plans with high premiums is scheduled to take effect in 2020. Although the revenue raised by that tax would be modest initially, rapid growth in health care costs would cause revenues from that tax to rise rapidly over the decades after it took effect. In addition, some rules that allow businesses with large amounts of investment to accelerate deductions are scheduled to be phased out by the end of December 2019. All in all, those changes lead to higher tax revenues in the extended baseline.

As the population ages, distributions from tax-deferred retirement accounts (including individual retirement accounts, 401(k) plans, and traditional defined benefit pension plans) will tend to grow more rapidly than GDP. CBO projects that those rising taxable distributions

would boost revenues relative to GDP. Most of that increase would occur in the 2017–2027 period.

Over the next 10 years, in CBO's projections, earnings grow faster for higher-income people than for others, causing a larger share of income to be taxed at higher rates under the individual income tax. That increase would be partially offset by a projected decrease in payroll tax receipts, as a greater share of earnings would be above the maximum amount subject to Social Security payroll taxes. CBO projects no changes in the distribution of earnings after 2027.

Even if lawmakers enacted no changes in tax law, the effects of the tax system in 2047 would differ substantially from today's. Average taxpayers at every income level would pay more of their income in taxes than similar taxpayers do now, primarily because of real bracket creep. Effective marginal tax rates also would rise if current laws generally stayed in place, so a larger share of each additional dollar of income that households earn would go to taxes (see Table 5). 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, thus dampening economic activity, in CBO's estimation.

Uncertainty in CBO's Long-Term Projections

Even if future tax and spending policies did not vary from those specified in current law, budgetary outcomes would undoubtedly differ from those in CBO's baseline projections because of unexpected changes in the economy, demographics, and other factors. To illustrate the uncertainty of its projections, CBO examined the extent to which federal debt as a percentage of GDP would differ from its extended baseline if the agency varied four types of economic and budgetary factors in its analysis:³²

- The labor force participation rate;
- The growth rate of total factor productivity;
- Interest rates on federal debt held by the public; and
- Excess cost growth for Medicare and Medicaid spending.

32. For additional details about this analytical approach, see Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), Chapter 7, www.cbo.gov/publication/51580.

Table 5.

Effective Marginal Federal Tax Rates Under CBO's Extended Baseline

Percent	2017	2027	2047
Marginal Tax Rate on Labor Income	29.8	31.1	32.9
Marginal Tax Rate on Capital Income	15.5	18.1	19.1

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The effective marginal tax rate on labor income is the share of an additional dollar of such income that is paid in federal individual income taxes and payroll taxes, averaged among taxpayers, using weights based on each taxpayer's income. The effective marginal tax rate on capital income is the share of the return on an additional dollar of investment made in a particular year that will be paid in taxes over the life of that investment. Rates are calculated for different assets and industries and then averaged over all assets and industries with the shares of total asset values used as weights.

The degree of variation was based on historic movements and on possible future developments. The resulting estimates show that if CBO varied just one factor at a time, federal debt held by the public after 30 years would range from 41 percentage points of GDP below the agency's central estimate of 150 percent of GDP to 63 percentage points above it.³³

If all four factors were varied simultaneously in a way that increased projected deficits, but were varied only by 60 percent of the amount of the variation in each factor individually, federal debt held by the public at the end of the period would be about 94 percentage points of GDP above CBO's central estimate. Conversely, if all four factors were varied in a way that lowered deficits but, again, by only 60 percent as much as in the individual cases, debt after 30 years would be 65 percentage points below the central estimate (see Figure 10).

Those calculations do not cover the full range of possible outcomes, nor do they address other sources of uncertainty in the budget projections, such as the risk of an

33. CBO's estimates of federal debt with each factor varied individually are presented in the supplemental data accompanying this report at www.cbo.gov/publication/52480.

economic depression or a major war or catastrophe, or the possibility of unexpected changes in birth rates, immigration rates, or mortality rates.³⁴ Nonetheless, they show that the main implication of this report applies under a wide range of possible values for some key factors that influence federal spending and revenues. That is, in 30 years, if current laws remained generally unchanged, federal debt—which is already high by historical standards—would probably be at least as high as it is today and would most likely be much higher.

Policymakers could take uncertainty into account in various ways as they make choices for fiscal policy.³⁵ For example, they might design policies that reduced the budgetary implications of certain unexpected events. Or they might decide to provide a buffer against events with negative budgetary implications by aiming for lower debt than they would if such uncertainty did not exist.

Illustrative Changes to the Deficit

CBO examined, from several perspectives, the extent to which various changes in law would affect the long-term fiscal imbalance:

- It estimated the magnitude of a change in spending or revenues that would be needed if lawmakers wished to achieve some specific level of federal debt held by the public.
- It assessed the extent to which the size of policy adjustments would change if such deficit reduction was delayed, and it examined the effects on various generations of waiting to resolve the long-term fiscal imbalance.
- It estimated how different deficit paths would affect debt and the economy in 2047.
- It analyzed the effect of limiting Social Security benefits to amounts that were payable from dedicated funding.

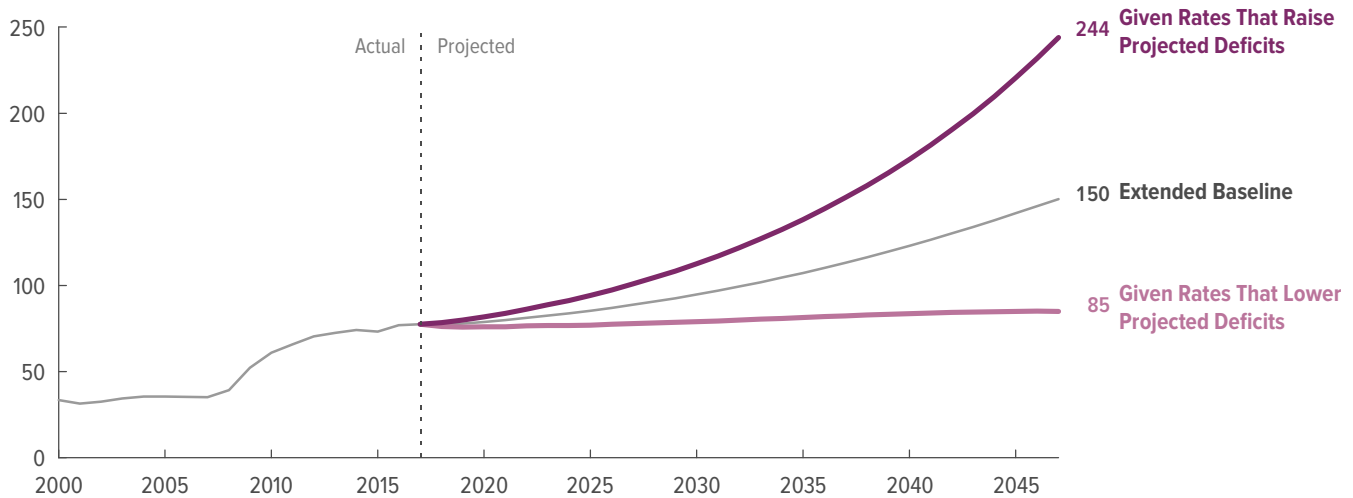
34. For further discussion on sources of uncertainty, see Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), Chapter 7, www.cbo.gov/publication/51580.

35. See Alan J. Auerbach and Kevin Hassett, "Uncertainty and the Design of Long-Run Fiscal Policy," in Auerbach and Ronald D. Lee, eds., *Demographic Change and Fiscal Policy* (Cambridge University Press, 2001), pp. 73–92, <http://tinyurl.com/p93enfp>.

Figure 10.

Federal Debt Given Different Labor Force Participation Rates, Productivity Growth Rates, Federal Borrowing Rates, and Rates of Excess Cost Growth for Federal Spending on Medicare and Medicaid

Percentage of Gross Domestic Product



Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

Federal debt refers to debt held by the public. Values are CBO's central estimates from ranges determined by alternative assessments of two factors: how much deficits crowd out investment in capital goods such as factories and computers (because a larger portion of private saving 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.

The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are age 16 or older and either working or actively seeking work.

Productivity growth is the growth of total factor productivity—that is, the growth of real (inflation-adjusted) output that is not explained by the growth of labor and capital.

The federal borrowing rate is the interest rate on the federal debt.

Excess cost growth refers to the extent to which the growth rate of nominal health care spending per capita—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential gross domestic product per capita. (Potential gross domestic product is the maximum sustainable output of the economy.)

For this figure, CBO used values for four factors with a deviation from the extended baseline that was about 60 percent as large as the deviation the agency used when it varied each factor separately. The alternative projections for the four factors begin in 2018.

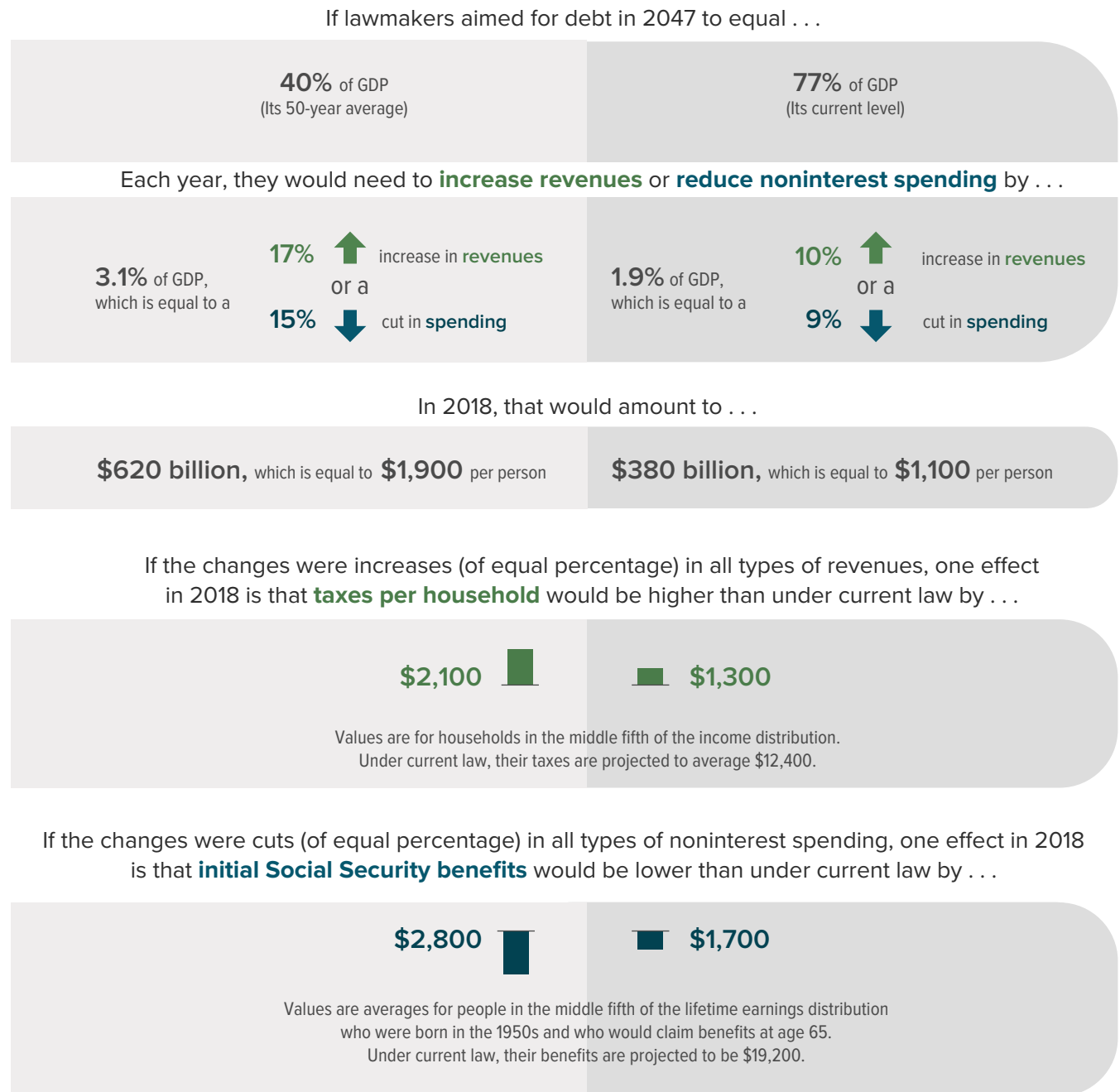
The Size of Policy Changes Needed to Meet Various Goals for Deficit Reduction

Suppose that lawmakers set out to ensure that debt in 2047 matched the current level of 77 percent of GDP. That result could be achieved by cutting noninterest spending or raising revenues, or both, in each year beginning in 2018, by amounts totaling 1.9 percent of GDP (see Figure 11). (In 2018, that 1.9 percent of GDP would be about \$380 billion, or \$1,100 per person.) If the changes came entirely from revenues or entirely from spending, they would amount, roughly, to a 10 percent increase in revenues or a 9 percent cut in noninterest spending in comparison with the extended baseline.

The projected effects of such actions on debt include both the direct effects of the policy change and the feedback to the federal budget that would be attributable to faster economic growth. Those economic effects reflect the reduction in the debt but do not reflect any assumptions about the specifics of the policy changes. Such changes, for example, could alter productivity growth and incentives to work and save, which would then affect overall economic output and have feedback effects on the federal budget.

Figure 11.

The Size of Policy Changes Needed to Make Federal Debt Meet Two Possible Goals in 2047



Source: Congressional Budget Office.

In this figure, the indicated sizes of the policy changes are relative to CBO’s extended baseline, which generally reflects current law, following CBO’s 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period. The projected effects of the policy changes on debt include the direct effects of the policy change and the feedback to the federal budget that would be attributable to faster economic growth. The effects on growth and the feedback to the federal budget reflect the positive economic effects of lowering the debt but do not reflect any assumptions about the specifics of the policy changes.

GDP = gross domestic product.

Increases in revenues or reductions in noninterest spending would need to be larger than 1.9 percent of GDP to reduce debt to the percentages of GDP that are more typical of those in recent decades. Suppose that lawmakers wanted to return the debt to 40 percent of GDP (its average over the past 50 years) by 2047. One way to achieve that would be to increase revenues or cut noninterest spending (in relation to current law), or to adopt some combination of those two actions, beginning in 2018 by amounts totaling 3.1 percent of GDP each year. (In 2018, 3.1 percent of GDP would be about \$620 billion, or \$1,900 per person.) Again, the projected effects on debt include both the direct effects of the specified policy changes and the resulting macroeconomic feedback to the budget. Those positive economic effects reflect the reduction in the debt but do not reflect any assumptions about the specifics of the policy changes.

If lawmakers wanted to meet that goal for deficit reduction either by increasing all revenues or by cutting all noninterest spending, the following changes would be necessary:

- If collections of all types of revenues were increased by the same proportion, revenues would need to increase by about 17 percent each year in the 2018–2047 period. On average, that would result in federal taxes that were about \$2,100 higher than they are under current law for households in the middle fifth of the income distribution in 2018.
- If all types of noninterest spending were cut by an equal percentage, spending overall would need to decrease by about 15 percent in each of the next 30 years. For example, such cuts would lower initial annual Social Security benefits by about \$2,800, on average, for people in the middle fifth of the lifetime earnings distribution who were born in the 1950s and who first claimed benefits at age 65.

The Timing of Policy Changes Needed to Meet Various Goals

The magnitude of the policy changes that would be needed to achieve a particular goal for federal debt depends, in part, on how quickly that goal was expected to be reached. Regardless of the chosen goal for federal debt, lawmakers face trade-offs when they are deciding how quickly to implement policies that are designed to put federal debt on a sustainable path. The benefits of

reducing the deficit sooner include a smaller accumulated debt, smaller policy changes required to achieve long-term outcomes, and less uncertainty about the policies lawmakers would adopt. However, if lawmakers implemented spending cuts or tax increases too quickly, people might have insufficient time to plan for or adjust to a new system.

Over the next few years, such policy changes also would dampen overall demand for goods and services, thus decreasing output and employment relative to CBO's projections under current law. However, that effect would be temporary, CBO expects, because of the response of prices and longer-term interest rates both to reductions in demand and to the resulting actions by the Federal Reserve. Those responses to changing demand would be stronger over the next few years than they had been in the past few years when the economy was weaker.

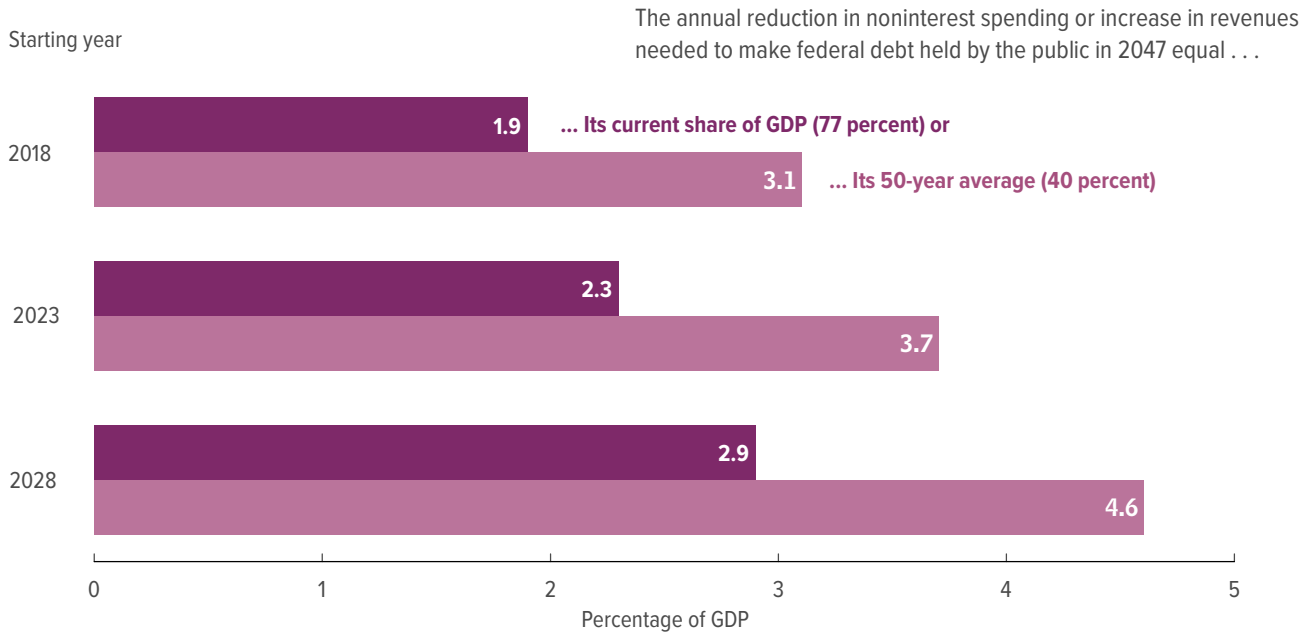
By contrast, if policymakers waited several years to reduce federal spending or increase taxes, more debt would accumulate over the long term, and that would slow long-term growth in output and income. Thus, reaching any chosen target for debt would require larger changes. Nonetheless, if policymakers waited several years to enact new policies, the economy probably would be affected less over the short term than would be the case if immediate changes were made.

Faster or slower implementation of policies to reduce budget deficits also would tend to impose different burdens on different generations. Reducing deficits sooner would probably require current older workers and retirees to sacrifice more but would benefit younger workers and future generations. Reducing deficits later would require smaller sacrifices from older people but greater ones from younger workers and future generations.

CBO has analyzed such a collection of trade-offs in two ways. First, it estimated the extent to which the size of policy adjustments would change if deficit reduction was delayed. For example, suppose that lawmakers sought to reduce debt as a share of GDP to its historical 50-year average of 40 percent in 2047. If the necessary policy changes did not take effect until 2023, the annual deficit reduction would need to amount to 3.7 percent of GDP rather than the 3.1 percent of GDP that would accomplish the same goal if the changes were made in 2018 (see Figure 12). If lawmakers chose to wait another five

Figure 12.

How Timing Affects the Size of Policy Changes Needed to Make Federal Debt Meet Two Possible Goals in 2047



Source: Congressional Budget Office.

GDP = gross domestic product.

years, even larger changes would be necessary; they would amount to 4.6 percent of GDP.

CBO also studied the effects on various generations of the U.S. population that would arise from waiting to resolve the long-term fiscal imbalance. In 2010, CBO compared economic outcomes under two policies.³⁶ One would stabilize the debt-to-GDP ratio starting in a particular year; the other would wait 10 years to do so. That analysis suggested that people in generations born after the earlier implementation date would be worse off under the second option. People born more than 25 years before the earlier implementation, however, would be better off

with delayed action—largely because they would partly or entirely avoid the policy changes needed to stabilize the debt. Generations born between those two groups could either gain or lose from delayed action, depending on the details of the policy changes.³⁷

Even if lawmakers waited several years to implement policy changes to reduce deficits in the long term, making decisions about them sooner would offer advantages. With decisions reached sooner, people would have more time to prepare. Also, policy changes that reduced debt would hold down longer-term interest rates and could reduce uncertainty and enhance businesses' and consumers' confidence. Those factors would boost output and employment in the near term.

How Different Deficit Paths Would Affect Federal Debt

CBO also analyzed the effects of policies that would result in cumulative deficits (excluding interest payments

36. See 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 a projection of slower growth in debt than CBO now projects, so the estimated effects of a similar policy today would be close, but not identical, to the effects estimated in that analysis. For a different approach to analyzing the cost of debt reduction for different generations, see Felix Reichling and Shinichi Nishiyama, *The Costs to Different Generations of Policies That Close the Fiscal Gap*, Working Paper 2015-10 (Congressional Budget Office, December 2015), www.cbo.gov/publication/51097.

37. Those conclusions do not incorporate the possible negative effects of a fiscal crisis or effects that might arise from the government's reduced flexibility to respond to unexpected challenges.

and macroeconomic feedback) that would be smaller or larger through 2027 by \$2 trillion or by \$4 trillion, compared with the amounts projected under CBO's extended baseline. After that year, deficits would be reduced or increased by the same percentage of GDP as they were in 2027.

How Smaller Deficits Would Affect Federal Debt. CBO estimates that—after accounting for the positive long-run economic effects of reducing debt—a deficit reduction of \$2 trillion or \$4 trillion over 10 years would lead to federal debt as a share of GDP that was still greater than the historical 50-year average: For the −\$2 trillion path, federal debt would equal 104 percent of GDP in 2047, well above today's 77 percent (see Figure 13). The −\$4 trillion path would result in federal debt amounting to 63 percent of GDP in 2047, which is lower than the current level but still above the historical average.

CBO also analyzed how those efforts at deficit reduction would affect the economy. One measure that can be used to assess economic effects is 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. Under both the −\$2 trillion path and the −\$4 trillion path to deficit reduction, real GNP per capita would be slightly lower over the next few years but higher in 2047 than under the extended baseline. Interest rates on federal debt would be lower in the long term.

How Greater Deficits Would Affect Federal Debt. CBO also assessed the effects of larger budget deficits so that cumulative deficits (excluding interest payments and macroeconomic feedback) would be \$2 trillion or \$4 trillion greater through 2027 than they would be under the extended baseline.

On those paths—after accounting for the economic effects of the increase in debt—federal debt would be substantially higher than CBO projects in the extended baseline. For the +\$2 trillion path, federal debt would equal 202 percent of GDP in 2047; the +\$4 trillion path would result in federal debt exceeding 250 percent of GDP in that year. For either path, real GNP per capita would be slightly higher over the next few years but lower

in 2047 than under the extended baseline. Interest rates on federal debt would be higher over the long term. The +\$4 trillion path would have larger effects than the +\$2 trillion path would on both real GNP and interest rates.³⁸

How Limiting Social Security Benefits to Amounts Payable From Dedicated Funding Would Affect Federal Debt

The extended baseline reflects the assumption that the Social Security Administration will pay benefits as scheduled under current law, regardless of the status of the program's trust funds. However, if the trust funds' balance declined to zero and current revenues were insufficient to cover benefits specified in law, the Social Security Administration would no longer be permitted to pay beneficiaries the full amounts to which they were entitled when payments were due because other laws prohibit officials from making expenditures in excess of available funds. It would be left to the courts or to the Congress to resolve the potential conflict.³⁹

Although it is unclear how much the payments for specific beneficiaries would be reduced if total benefits were limited to the amounts payable from dedicated funding, CBO estimated the amount of the total reduction in annual benefits that would be necessary for outlays to match revenues in each year after the trust funds were exhausted. The required reduction would amount to 28 percent in 2031 and greater percentages in later years in relation to the amounts in CBO's extended baseline.

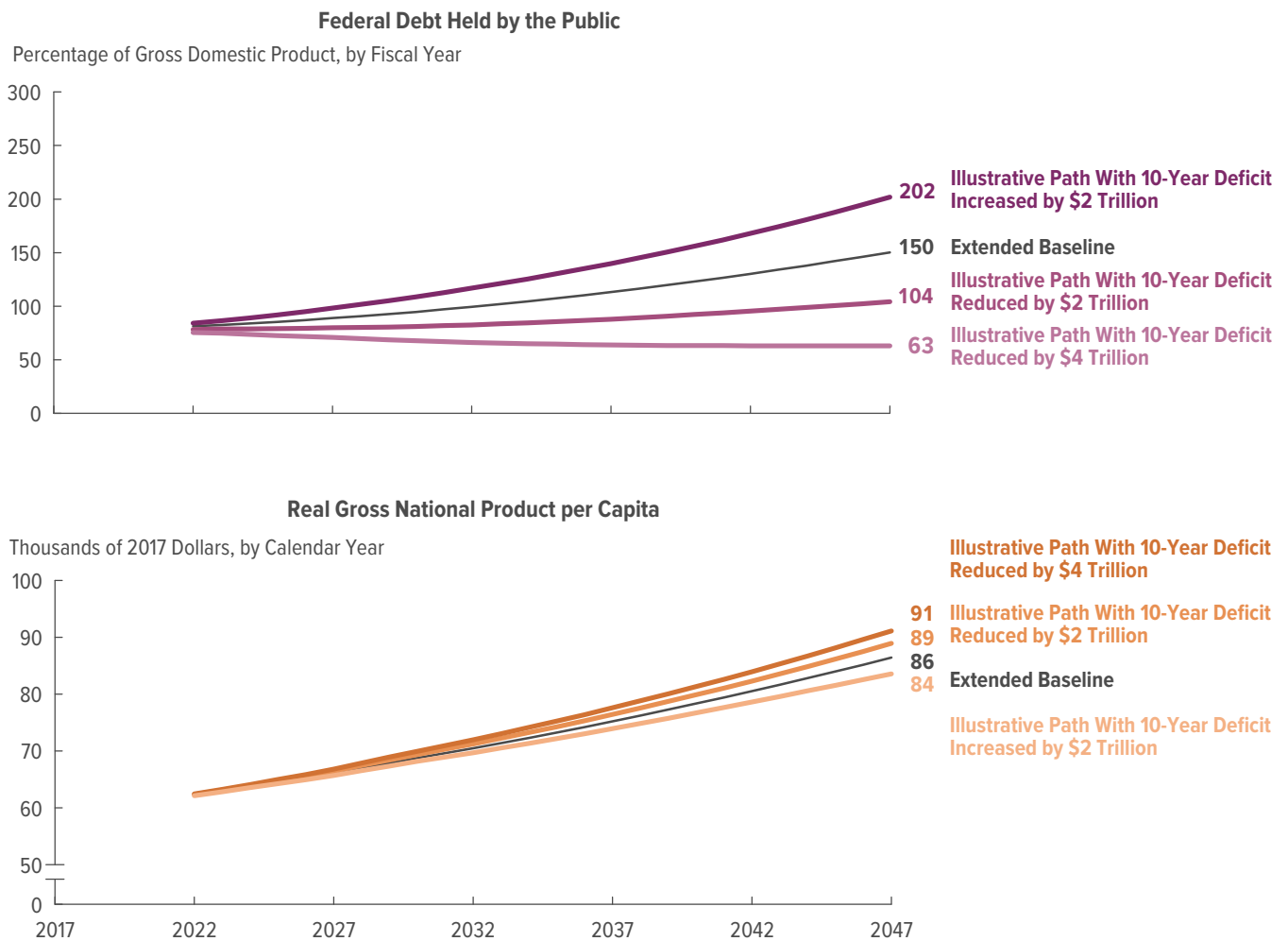
Such reductions would lower federal deficits and debt, which would lead to greater output and lower interest rates than CBO projects under the extended baseline.

38. Because CBO's model uses historical data as a basis for its estimates, in the agency's judgment the model cannot reliably estimate budget and economic outcomes after debt reaches 250 percent. For that reason, the results under the +\$4 trillion path are not shown in Figure 13.

39. See Noah P. Meyerson, *Social Security: What Would Happen If the Trust Funds Ran Out?* Report for Congress RL33514 (Congressional Research Service, August 2014), available from the U.S. House of Representatives, Committee on Ways and Means, *2014 Green Book*, Chapter 1: Social Security, "Social Security Congressional Research Service Reports" (accessed March 25, 2017), <http://go.usa.gov/cCXcG>.

Figure 13.

Federal Debt and Output per Capita Under CBO’s Extended Baseline and Illustrative Budgetary Paths



Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO’s 10-year baseline budget projections through 2027 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

The \$2 trillion and \$4 trillion changes in the illustrative paths represent cumulative changes in deficits relative to CBO’s baseline between 2018 and 2027, excluding interest payments on federal debt and before macroeconomic feedback is taken into account.

The estimates of federal debt held by the public include macroeconomic feedback.

Real (inflation-adjusted) gross national product differs from real gross domestic product, the more commonly used 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.

This figure displays only long-term effects. Results over the next few years are discussed in the text.

With those macroeconomic effects incorporated into its analysis, CBO projects, the debt-to-GDP ratio would stand at 111 percent in 2047, 39 percentage points below the current extended baseline projection—but still well above the current level.⁴⁰

40. CBO’s estimates of the macroeconomic and budgetary outcomes with payable benefits are based on the assumptions that people would not change their decisions regarding consumption, saving, or work in anticipation of receiving lower Social Security benefits and that they would not change their decisions about saving or work after such receipt.

Changes From Last Year's Long-Term Budget Outlook

The long-term projections of federal deficits and resulting debt presented in this report are generally similar to those the agency published in 2016.⁴¹ This year's projections account for the effects of recent legislative and economic developments since last year as well as technical changes in CBO's projections. As a percentage of GDP, noninterest spending and, to a lesser degree, revenues are generally higher than projected last year. Net interest costs as a percentage of GDP are lower in most years than in last year's projections because of lower projected interest rates. (Appendix A describes the differences in demographic and economic projections from last year's report. Appendix B describes key revisions to the budgetary projections since last year.)

Under the extended baseline, CBO projects that debt would reach 146 percent of GDP in 2046, slightly higher than it projected last year. The projected deficits as a share of GDP in this year's report are smaller from 2018 through 2037 and larger thereafter than those in last

year's report. Larger budgetary changes would be required to make federal debt 30 years from now equal either today's level or the 50-year historical average, as a share of GDP, than CBO projected last year.

The actuarial shortfall for the Social Security trust funds is projected to be smaller than CBO projected last year. CBO now estimates that, under current law, the 75-year actuarial deficit for Social Security would be 4.5 percent of taxable payroll, compared with the previous 4.7 percent. That change reflects several factors, including an increased projection of the share of wages that are taxable for Social Security and higher projected labor force participation rates. Partially offsetting those changes are some factors that increase the actuarial deficit. Applying lower interest rates in the present-value calculations increases the extent to which future years with larger deficits are weighted in the projections. In addition, a smaller projected population reduces the number of workers paying payroll taxes relative to the number receiving benefits, and a lower projection of productivity reduces projected wages and payroll tax receipts more than it decreases projected spending. As a percentage of GDP, the actuarial deficit would be 1.5 percent; last year's projection was 1.6 percent.

41. See Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), www.cbo.gov/publication/51580.