



The 2018 Long-Term Budget Outlook

Summary

At 78 percent of gross domestic product (GDP), federal debt held by the public is now at its highest level since shortly after 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; it would approach 100 percent of GDP by the end of the next decade and 152 percent by 2048 (see Table 1). That amount would be the highest in the nation's history by far. Moreover, if lawmakers changed current law to maintain certain policies now in place—preventing a significant increase in individual income taxes in 2026, for example—the result would be even larger increases in debt.¹ The prospect of large and growing debt poses substantial risks for the nation and presents policymakers with significant challenges.

In this report, CBO presents its projections of federal spending, 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 the spring of 2018.² 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 30-year 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 spending, revenues, deficits, and debt under the assumption that current laws generally remain unchanged. They also give lawmakers a point of comparison from which to measure the effects of proposed legislation.

Why Are Projected Deficits Rising?

In CBO's projections, the federal budget deficit, relative to the size of the economy, would grow substantially over the next several years, stabilize for a few years, and then grow again over the rest of the 30-year period. In total, deficits would rise from 3.9 percent of GDP in 2018 to 9.5 percent in 2048. (Adjusted to exclude the effects of timing shifts that occur because fiscal year 2018 began on a weekend, the budget deficit in 2018 would be higher, at 4.2 percent of GDP).³ Those large budget deficits would arise because spending would grow steadily under current law, and revenues would not keep pace with that spending growth (see Figure 1).

In particular, over the next 30 years, spending as a share of GDP would increase for Social Security, the major health care programs (primarily Medicare), and interest on the government's debt. In CBO's projections, most of the spending growth for Social Security and Medicare results from the aging of the population: As members of

1. CBO will analyze the effects of alternative fiscal scenarios in a forthcoming report.

2. CBO bases its long-term projections on its most recent 10-year budget projections. Typically, those projections are from the *Budget and Economic Outlook*; however, CBO made a number of relatively small changes to its baseline projections since the publication of that report in April. As a result, the long-term budget projections in this report are based on CBO's adjusted April 2018 baseline. For information on those underlying budget projections, see Congressional Budget Office, *An Analysis of the President's 2019 Budget* (May 2018), www.cbo.gov/publication/53884. For information on CBO's most recent economic projections, see Congressional Budget Office, *The Budget and Economic Outlook: 2018 to 2028* (April 2018), www.cbo.gov/publication/53651.

3. When the first day of the fiscal year (October 1) falls on a weekend, certain monthly payments (mostly for mandatory benefit programs such as Medicare, Supplemental Security Income, and certain programs for veterans) normally made on that day are shifted to the preceding fiscal year. Accordingly, for those benefit programs, only 11 months of payments will be made in that fiscal year rather than the usual 12, and the previous year will have one more payment. October 1 fell on a weekend in 2017, and that will happen again in 2022, 2023, and 2028. The resulting shifts in payments noticeably boost projected spending and deficits in 2022 and 2028; they reduce spending and the deficit in 2018 and 2024.

Table 1.

Key Projections in CBO's Extended Baseline

Percentage of Gross Domestic Product

	2018	Projected Annual Average		
		2019–2028	2029–2038	2039–2048
Revenues				
Individual income taxes	8.2	8.9	10.1	10.7
Payroll taxes	5.9	5.9	6.0	6.0
Corporate income taxes	1.2	1.5	1.4	1.4
Other ^a	1.4	1.2	1.3	1.5
Total Revenues	16.6	17.5	18.8	19.5
Outlays				
Mandatory				
Social Security	4.9	5.5	6.2	6.3
Major health care programs ^b	5.2	6.0	7.4	8.7
Other	2.6	2.5	2.3	2.1
Subtotal	12.6	13.9	15.9	17.2
Discretionary	6.3	5.7	5.4	5.5
Net interest	1.6	2.7	3.6	5.3
Total Outlays	20.6	22.4	24.9	27.9
Deficit	-3.9	-4.9	-6.1	-8.4
Debt Held by the Public at the End of the Period	78	96	118	152
Memorandum:				
Social Security				
Revenues ^c	4.4	4.5	4.6	4.5
Outlays ^d	4.9	5.5	6.2	6.3
Contribution to the Federal Deficit ^e	-0.4	-1.0	-1.6	-1.9
Medicare				
Revenues ^c	1.4	1.5	1.6	1.6
Outlays ^d	3.5	4.3	5.7	6.8
Offsetting Receipts	-0.6	-0.8	-1.0	-1.3
Contribution to the Federal Deficit ^e	-1.5	-2.1	-3.0	-3.9
Gross Domestic Product at the End of the Period (Trillions of dollars)	20.1	29.8	44.1	65.0

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.

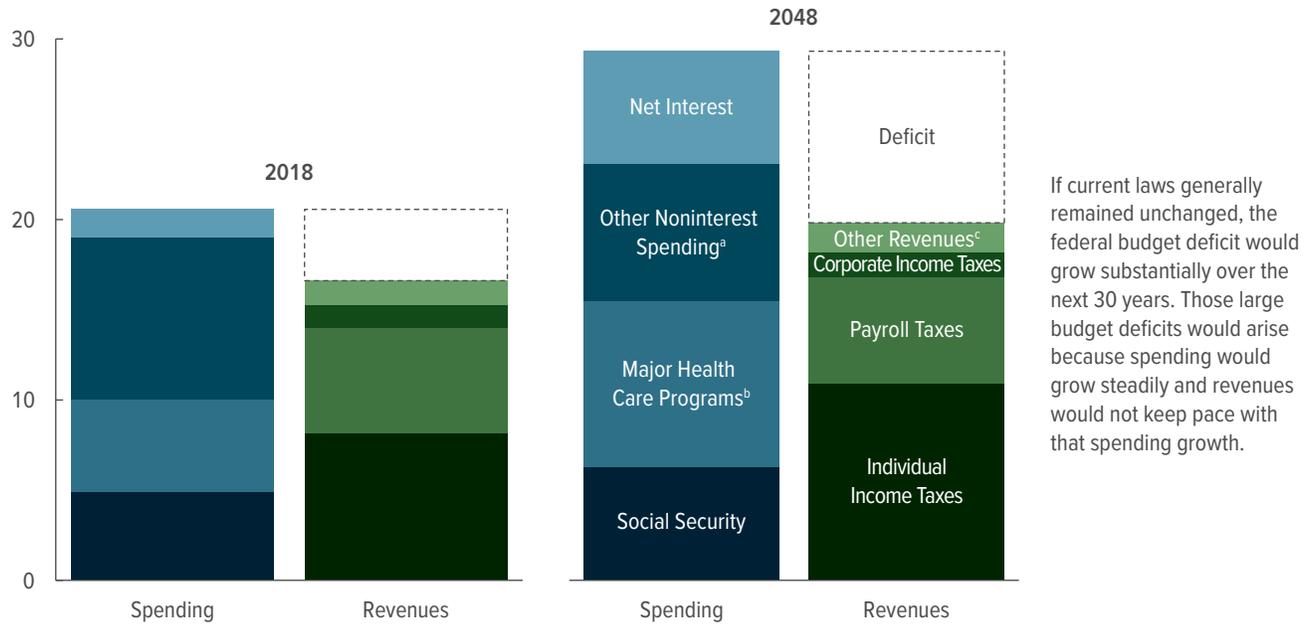
The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2028 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

- 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 all 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. Excludes interest credited to the trust funds.
- Excludes 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 because it excludes intragovernmental transactions, interest earned on balances, and outlays related to administration of the program.

Figure 1.

The Federal Budget in CBO’s Extended Baseline

Percentage of Gross Domestic Product



If current laws generally remained unchanged, the federal budget deficit would grow substantially over the next 30 years. Those large budget deficits would arise because spending would grow steadily and revenues would not keep pace with that spending growth.

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO’s 10-year baseline budget projections through 2028 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

- a. Consists of all federal spending other than that for Social Security, the major health care programs, and net interest.
- b. 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.
- 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.

the baby-boom generation (people born between 1946 and 1964) age and as life expectancy continues to rise, the percentage of the population age 65 or older will grow sharply, boosting the number of beneficiaries of those programs. Growth in spending on Medicare and the other major health care programs is also driven by rising health care costs per person. In addition, the federal government’s net interest costs are projected to climb sharply as a percentage of GDP as interest rates rise from their currently low levels and as debt accumulates.

That spending growth would be only partially offset by declining spending for other programs. Mandatory spending other than that for Social Security and the major health care programs—such as spending for federal employees’ pensions and for various income security programs—is projected to decrease as a percentage of

GDP. Discretionary spending is projected to decline in most years over the next decade and then roughly stabilize as a percentage of GDP. (Mandatory spending is generally governed by provisions of permanent law, whereas discretionary spending is controlled by annual appropriation acts.)

Revenues, in contrast, would take a different path. They are projected to be roughly flat over the next few years relative to GDP, rise slowly, and then jump in 2026. Revenues would sharply increase that year because most of the provisions of Public Law 115-97 (originally called the Tax Cuts and Jobs Act and called the 2017 tax act in this report) that directly affect the individual income tax rate are set to expire at the end of calendar year 2025. (The 2017 tax act lowered individual income taxes beginning in 2018.) Thereafter, revenues would continue

to rise relative to the size of the economy—although they would not keep pace with spending growth.

The projected growth in revenues beyond 2028 is largely attributable to increases in individual income tax receipts. Those receipts are projected to grow mainly because income would rise more quickly than the price index that is used to adjust tax brackets and other parameters of the tax system. As a result, more income would be pushed into higher tax brackets over time. (Because of provisions of the 2017 tax act, the effect of real bracket creep in this year's projections is slightly greater than the effect that CBO projected in prior years.) Combined receipts from all other sources are projected to increase slightly as a percentage of GDP.

What Might Happen If Current Laws Remained Unchanged?

Large and growing federal debt over the coming decades would hurt the economy and constrain future budget policy. The amount of debt that is projected under the extended baseline 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; limit lawmakers' ability to respond to unforeseen events; and increase the likelihood of a fiscal crisis. (In that event, investors would become unwilling to finance the government's borrowing unless they were compensated with very high interest rates.)

How Does CBO Make Its Long-Term Budget Projections?

CBO's extended baseline, produced once a year, shows the budget's long-term path under most of the same assumptions that the agency uses in constructing its 10-year baseline. Both baselines incorporate these assumptions: current laws will generally remain unchanged, mandatory programs will be extended after their authorizations lapse, and spending for Medicare and Social Security will continue as scheduled even if their trust funds are exhausted. CBO makes those assumptions to conform to statutory requirements.

Some projections, such as those for Social Security spending and collections of individual income taxes, incorporate detailed estimates of how people would be affected by particular elements of programs or by the tax code. Other projections reflect past trends and CBO's assessments of how those trends would evolve if current laws generally remained unchanged.⁴

CBO's budget projections are built on its demographic and economic projections. CBO estimates that the population will grow more slowly than it has in the past and will be older, on average. CBO also anticipates that if current laws generally did not change, real GDP—that is, GDP with the effects of inflation removed—would increase by 1.9 percent per year, on average, over the next 30 years. That rate is nearly 1 percentage point lower than the annual average growth rate of real GDP over the past 50 years. That expectation of slower economic growth in the future is attributable to several factors—most notably, slower growth of the labor force. Projected growth in output is also held down by the effects of changes in fiscal policy under current law—above all, by the reduction in private investment that is projected to result from rising federal deficits.

How Uncertain Are Those Projections?

If current laws governing taxes and spending remained generally the same, debt would rise as a percentage of GDP over the next 30 years, according to CBO's central estimate (the middle of the distribution of potential outcomes). That projection is very uncertain, however, so the agency examined in detail how debt would change if four key factors were higher or lower than their levels in the extended baseline. Those four factors are labor force participation, productivity in the economy, interest rates on federal debt, and health care costs per person. Other factors—such as an economic depression, a major war, or unexpected changes in rates of fertility, immigration, or mortality—also could affect the trajectory of debt. Taking into account a range of uncertainty around CBO's central projections of those four key inputs, CBO concludes that despite the considerable uncertainty of long-term projections, debt as a percentage of GDP would probably be greater—in all likelihood, much greater—than it is today if current laws remained generally unchanged.

How Large Would Changes in Spending or Revenues Need to Be to Reach Certain Goals for Federal Debt?

CBO estimated the size of changes that would be needed to achieve a chosen goal for federal debt. For example, if lawmakers wanted to reduce the amount of debt in 2048 to 41 percent of GDP (its average over the past 50 years), they might cut noninterest spending, increase revenues, or take a combination of both approaches to make changes

4. For more information about how CBO makes long-term projections about the economy and federal budget, see

Congressional Budget Office, *An Overview of CBOLT: The Congressional Budget Office Long-Term Model* (April 2018), www.cbo.gov/publication/53667.

that equaled 3.0 percent of GDP each year starting in 2019. (In dollar terms, that amount would total about \$630 billion in 2019.) If, instead, policymakers wanted debt in 2048 to equal its current share of GDP (78 percent), the necessary changes would be smaller (although still substantial), totaling 1.9 percent of GDP per year (or about \$400 billion in 2019). The longer lawmakers waited to act, the larger the policy changes would need to be to reach any particular goal for federal debt.

How Have CBO's Projections Changed Over the Past Year?

Compared with last year's projections, CBO's current projections of debt as a share of GDP are higher through 2041 and lower thereafter. CBO now projects that debt measured as a share of GDP would be 3 percentage points lower in 2047 than it projected last year. (The previous edition of this volume showed projections through 2047.)⁵ The increase in debt through 2041 stems primarily from tax and spending legislation enacted since then that boosted projected deficits through 2025—especially the 2017 tax act, the Bipartisan Budget Act of 2018 (P.L. 115-123), and the Consolidated Appropriations Act, 2018 (P.L. 115-141). In particular, the budgetary effects of the tax act are expected to peak during the middle of the next decade. In later years, the effects are expected to be modest, although their precise magnitudes are uncertain.

Deficits are smaller after 2025 than CBO projected last year because of lower projections as a share of GDP of noninterest spending and because of projections of revenues that are the same or higher than CBO estimated last year. The smaller deficits result in lower debt as a share of GDP after 2041 than CBO projected last year.

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. 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

If current laws generally remained unchanged, the federal budget deficit would grow substantially over the next few years. It would rise to 4.2 percent of GDP this year (up from 3.5 percent last year) and then climb to 5.1 percent

by 2022 (adjusted to exclude shifts in timing). The deficit would then continue to rise in dollar terms but stabilize as a percentage of GDP for the rest of the 10-year baseline period—although it would remain much higher than its 50-year average of 2.9 percent. In the following two decades, deficits would become notably larger again relative to the size of the economy as the gap between spending and revenues grew (see Figure 2). As a result, the deficit would rise from 4.8 percent of GDP in 2028 (adjusted to exclude shifts in timing) to 9.5 percent in 2048.

CBO projects that mandatory spending would rise significantly as a percentage of GDP under current law, driving up spending relative to revenues. The aging of the population will lead to increased outlays for Social Security and Medicare, mandatory programs that primarily benefit people 65 or older. Medicare outlays would also climb as a result of rising health care costs per person, in CBO's estimation. By 2048, under current law, federal spending through those two programs as well as Medicaid—the federal health care program for people with limited income and resources—for people age 65 or older would account for about half of all federal noninterest spending, compared with about two-fifths today. Moreover, because federal debt is projected to grow and interest rates are expected to rise from their currently low levels, 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 2028 (adjusted to exclude shifts in timing; that spending would be 24 percent if timing shifts were included) and to 29 percent by 2048. (Federal spending has averaged 20 percent of GDP over the past 50 years.)

Meanwhile, if current laws generally remained unchanged, revenues would remain near 16.6 percent of GDP for a few years (their current level), rise steadily to 17.5 percent by 2025, and then increase sharply in 2026 following the scheduled expiration of many provisions of the 2017 tax act.⁶ Revenues are projected to increase to 18.1 percent of GDP in that year and then rise to 18.5 percent by 2028. Beyond 2028, revenues would grow faster than the economy but more slowly

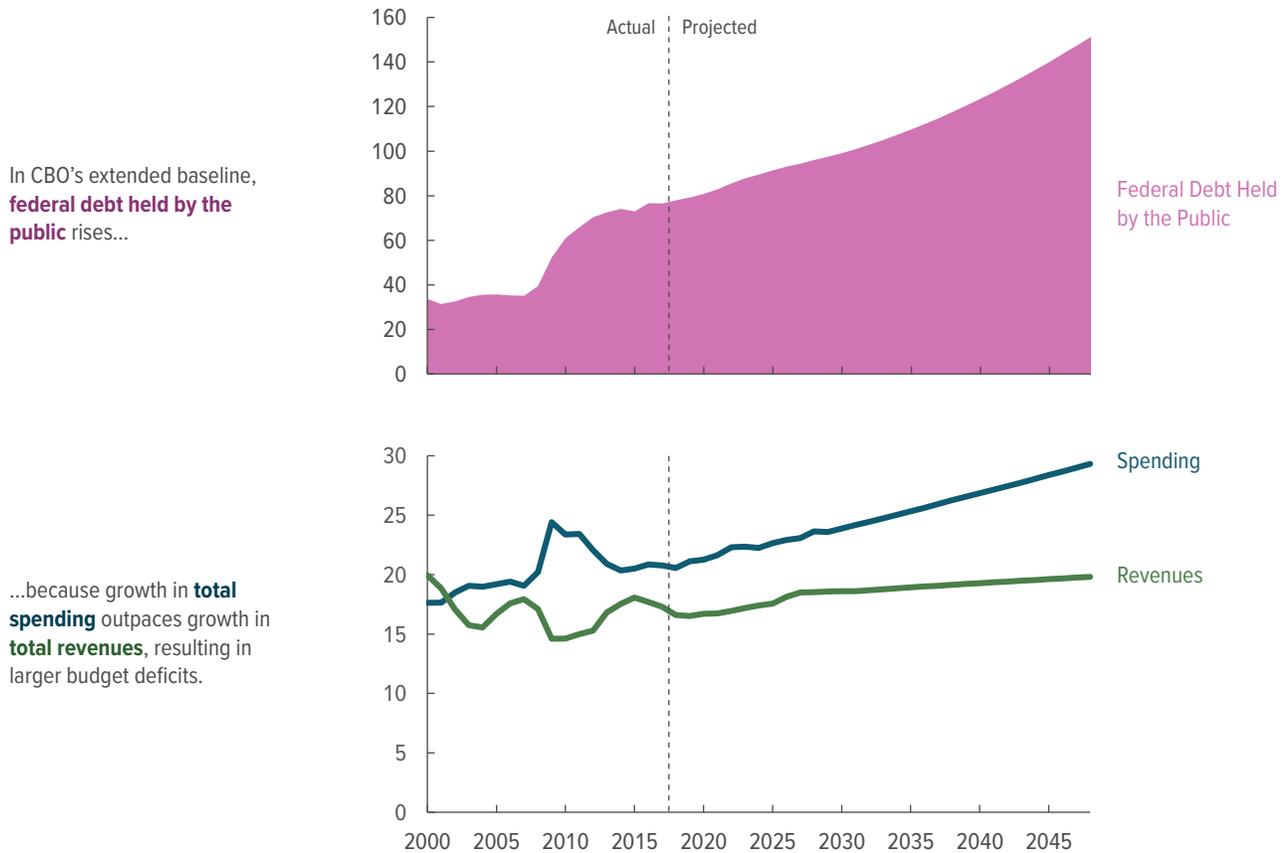
5. See Congressional Budget Office, *The 2017 Long-Term Budget Outlook* (March 2017), www.cbo.gov/publication/52480.

6. That law made many significant changes to the individual and corporate income tax systems. Those changes, on net, lowered taxes owed by most individuals and businesses beginning in calendar year 2018. Nearly all of the changes to individual income taxes are set to expire at the end of calendar year 2025.

Figure 2.

Federal Debt, Spending, and Revenues

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 2028 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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than spending. In part, revenues would rise because of real bracket creep, which pushes more income into higher tax brackets as people's income rises faster than inflation. In addition, revenues would grow rapidly from a new excise tax on certain employment-based health insurance plans if that law took effect, as scheduled, in 2022. All told, CBO projects, revenues would reach 19.8 percent of GDP in 2048. Although that share would exceed the 50-year average of about 17 percent, it would still fall short of projected spending.

Greater 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.⁷ Measuring debt as a percentage of GDP is useful for comparing amounts of debt in different

7. 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 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.

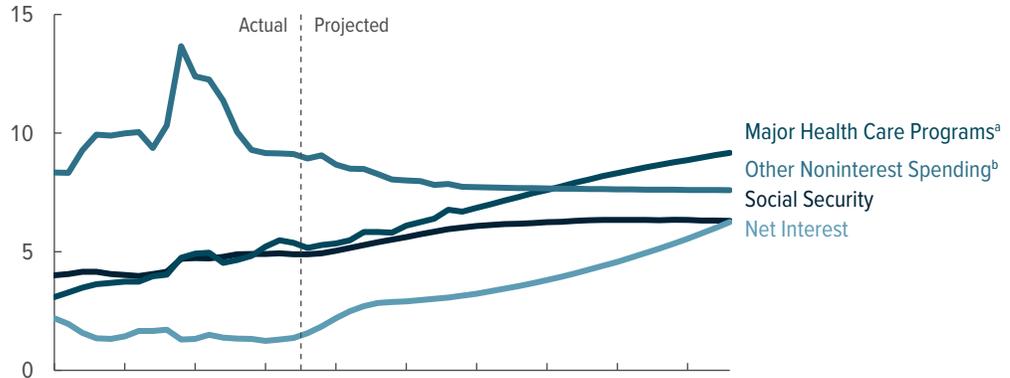
Figure 2.

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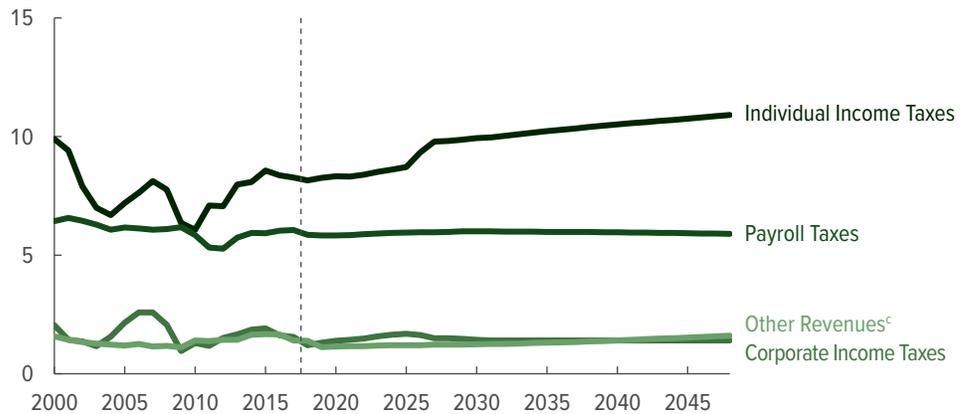
Federal Debt, Spending, and Revenues

Percentage of Gross Domestic Product

Spending on certain components of the budget—Social Security, the major health care programs, and net interest—is projected to rise relative to GDP; other spending, in total, is projected to decline.



Increases in individual income taxes account for most of the rise in total **revenues** relative to GDP. Receipts from all other sources, taken together, are projected to be slightly higher in 2048 than they are today.



- 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.

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, that debt stood at 35 percent of GDP, but deficits arising from the 2007–2009 recession and the resulting policy responses caused it to grow sharply over the next five years. By the end of 2012, debt as a share of GDP had doubled to

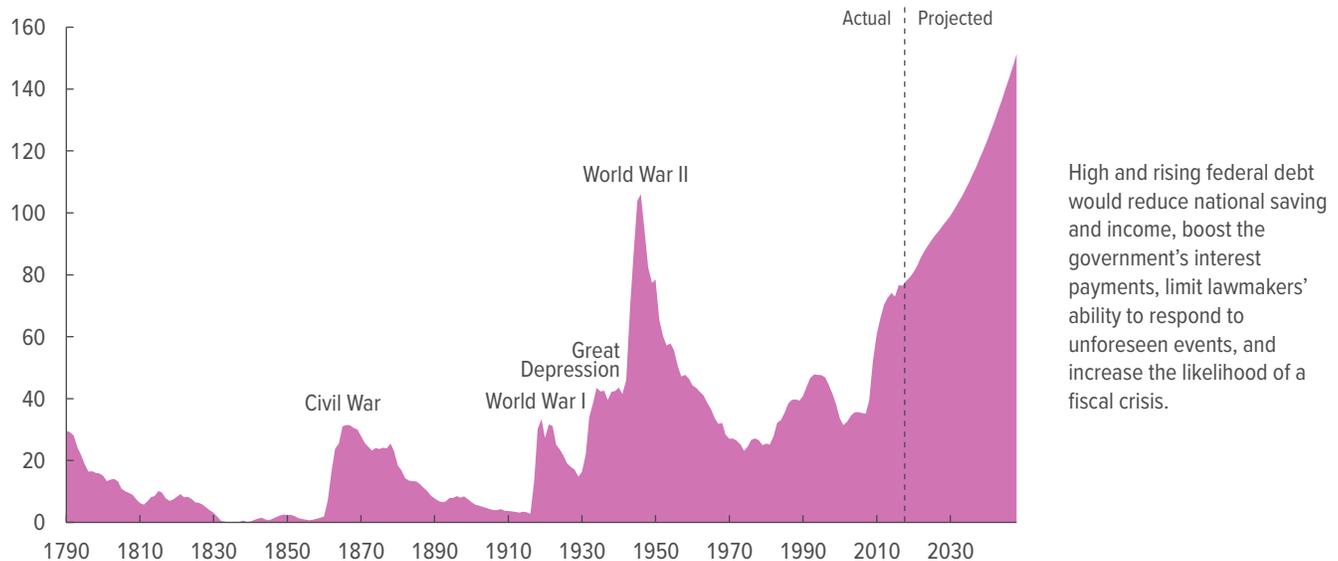
70 percent. Since then, the upward trajectory has generally continued, and debt is projected to reach 78 percent of GDP by the end of this year—a very high amount by historical standards. (For comparison, such debt has averaged 41 percent of GDP over the past 50 years.) During only one other period in 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 3).

If current laws generally remained unchanged, the gap between spending and revenues would grow substantially through 2022, stabilize for a few years, and then continue to widen. As a result, federal debt as a percentage of GDP would reach unprecedented levels. CBO projects that debt

Figure 3.

Federal Debt Held by the Public

Percentage of Gross Domestic Product



Source: Congressional Budget Office.

would rise to 96 percent of GDP by 2028, and six years later, in 2034, it would surpass the peak of 106 percent recorded in 1946. By 2048, federal debt would reach 152 percent of GDP—significantly larger than the average of the past five decades—and would be on track to grow even larger. Moreover, if lawmakers changed current laws to maintain certain policies now in place—preventing a significant increase in individual income taxes in 2026, for example—the result would be even larger increases in debt.

Consequences of a Large and Growing Federal Debt

The burgeoning federal debt over the coming decades would have these effects:

- Reduce national saving and income in the long term;
- Increase the government's interest costs, putting more pressure on the rest of the budget;
- Limit lawmakers' ability to respond to unforeseen events; and
- Increase the likelihood of a fiscal crisis, a situation in which the interest rate on federal debt rises abruptly, dramatically increasing the cost of government borrowing.

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 otherwise be the case. If the government borrowed more money, a greater amount of household and business saving would be used to buy Treasury securities, thus crowding out private investment. Both the government and private borrowers would face higher interest rates to compete for savings. Although those higher rates would strengthen the incentive to save, the increased government borrowing would exceed the rise in saving by households and businesses. As a result, total saving by all sectors of the economy (national saving) 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—such as factories and computers—workers would be less productive. Because productivity growth is the main driver of growth in people's real compensation, decreased investment also would reduce average compensation per hour, making people less inclined to work. CBO's extended baseline incorporates those economic effects as well as the feedback to the budget from negative effects on the economy.

Greater Pressure on the Budget From Higher Interest Costs

Current net interest costs are relatively small because interest rates have been so low. Under CBO's extended baseline, however, rising interest rates and increased federal borrowing boost net interest costs substantially. By 2045, those costs would surpass discretionary spending for the first time since 1962 (the earliest year for which relevant data are available).

Over the next few years, the unemployment rate is expected to decline and inflation is projected to rise. CBO expects the Federal Reserve to respond to those developments by continuing to raise the federal funds rate to keep inflation close to the central bank's long-term goal.⁸ In addition, long-term interest rates are projected to rise gradually relative to short-term rates as the term premium (the premium paid to bondholders for the extra risk associated with holding longer-term bonds) moves up from its recent low levels. The term premium is projected to rise as investors gain more confidence in global economic growth, the demand for long-term Treasury securities as a hedge against unexpected declines in inflation dissipates, and the Federal Reserve reduces its holdings of long-term assets. CBO projects that interest rates would eventually settle at levels consistent with factors such as productivity growth, the demand for investment, and federal deficits. Under the extended baseline, interest costs are much higher than they would be if deficits were smaller and interest rates were lower.

The higher the government's interest costs, the more difficult it would be to achieve any particular target for deficit reduction. That is because, in order to reduce the deficit, 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), people's incentives to work and save would diminish as tax rates rose.⁹ Alternatively, if policy changes included a reduction in federal spending for investment, both output and income would be lower than they would

have been if that spending had not been reduced.¹⁰ In contrast, if reductions in, say, Social Security benefits were made to lessen spending, people might feel compelled to work more to replace that lost income, thus increasing output.

Reduced Ability to Respond to Unforeseen Events

When outstanding debt is relatively small, the federal government is able to borrow money at lower rates to cover unexpected costs, such as those that arise from 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. A large debt also can compromise a country's national security by constraining military spending in times of international crisis or by limiting the government's ability to prepare for (or respond to) 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. The policy responses included increases in federal spending to stabilize the financial sector, boost investment in infrastructure, and add to income security programs, along with temporary decreases in business and payroll taxes. As a result, by 2012, federal debt as a percentage of GDP had doubled from its 2007 level.

If another recession or fiscal crisis occurred and if federal debt was at its current level or higher, the government might have a more difficult time implementing similar costly actions in response. As a result, 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 growing federal debt would increase the chance of a fiscal crisis in the United States—a situation in which it would become increasingly difficult to finance federal borrowing and investors would have to be compensated with continuously increasing interest

8. The federal funds rate is the interest rate financial institutions charge each other for overnight loans of their monetary reserves.

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

10. For more information, see Congressional Budget Office, *The Macroeconomic and Budgetary Effects of Federal Investment* (June 2016), www.cbo.gov/publication/51628.

rates.¹¹ Those concerns could perpetuate a cycle: Higher interest rates would increase concerns over repayment, which would continue to raise interest rates even further. Even in the absence of a full-blown crisis, such risks would lead to higher rates and borrowing costs for the U.S. government and the private sector.

In a fiscal crisis, dramatic increases in Treasury rates would reduce the market value of outstanding government securities, and the resulting losses—for mutual funds, pension funds, insurance companies, banks, and other holders of government debt—could be large enough to cause some financial institutions to fail. Because the United States currently benefits from the U.S. dollar being the world's reserve currency and because the federal government borrows in dollars, it is less likely that a sudden fiscal crisis would lead to a catastrophic financial crisis similar to those that befell Argentina, Greece, or Ireland. As one example, in the event of a dramatic increase in interest rates, the Federal Reserve could buy Treasury securities and thereby limit losses to bondholders. However, such moves, if extensive, would ultimately lead to high inflation, a sharp depreciation in the value of the dollar, or both.¹² Those developments would reduce the value of U.S. assets.

No one can accurately predict whether or when a fiscal crisis might occur in the United States or how it would unfold. In particular, the debt-to-GDP ratio has no identifiable tipping point to indicate that a crisis is likely or imminent. Nonetheless, a large and rising federal debt would almost certainly increase the risk of a fiscal crisis.

The likelihood of a fiscal crisis also depends on economic conditions. If investors anticipate continued economic growth and low interest rates, they are generally less concerned about the government's debt burden. Conversely, substantial debt can reinforce a more generalized concern about the 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 limited—and unappealing—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 implement 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 2028, 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 take into account the effects that projected fiscal policies—in particular, 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 the federal budget and the nation's economy. For example, the composition of the population influences the size of the labor force and the number of beneficiaries of Social Security and other federal programs. In CBO's projections, the U.S. population increases from 332 million at the beginning of this year to 392 million in 2048, expanding by 0.6 percent per year, on average. That annual rate of growth is slower than the rate of the past 50 years (0.9 percent). The share of the population age 65 or older also rises over the coming decades, maintaining a long-standing historical trend. By 2048, 22 percent of the population would be age 65 or older, compared with 16 percent today (see Figure 4).

To estimate growth in the U.S. population, CBO projects rates of fertility, immigration, and mortality. The total fertility rate is calculated as the sum of fertility rates for women between 15 and 49 in a given year and represents the average number of children that a woman would have in her lifetime.¹³ In general, that rate tends to decline during recessions and rebound during recoveries. Instead of rebounding after the

11. 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, Greece, and Ireland were forced to make difficult choices in the face of sharp increases in interest rates on government debt.

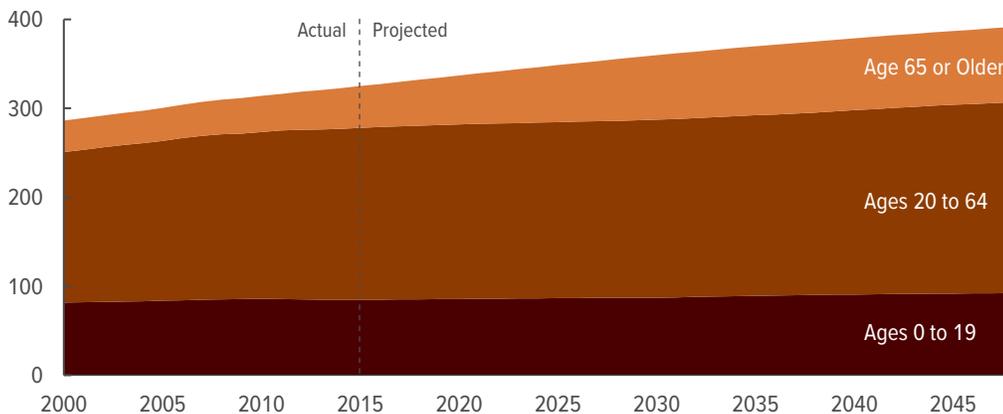
12. Over time, such currency debasement would erode the status of the U.S. dollar as the world's reserve currency.

13. The total fertility rate can also be defined as the average number of children that a woman would have if, in each year of her life, she experienced the birth rates observed or assumed for that year and if she survived her entire childbearing period.

Figure 4.

Population, by Age Group

Millions of People



The share of the population age 65 or older is projected to rise over the coming decades, maintaining a long-standing historical trend.

Source: Congressional Budget Office.

This figure shows actual data through calendar year 2015, the most recent year for which such data are available.

2007–2009 recession, however, the fertility rate fell. In 2007, the rate was 2.1 births per woman, but it declined to 1.9 by 2010 and has remained below that point since then. CBO expects the total fertility rate to be 1.9 for the next 30 years.¹⁴

Under current law, the rate of net annual immigration to the United States is expected to rise slightly over the next three decades. CBO projects that rate would inch up from an average of 3.1 per thousand people in the U.S. population over the next decade to 3.2 in 2048. That rate, which accounts for anyone who either enters or leaves the United States in any year, is slightly higher than the average net annual immigration rates since the end of the 2007–2009 recession. On balance, CBO projects that the increase in net annual immigration over the next decade would be mostly driven by higher numbers of legal permanent residents. The annual increase in the number of legal temporary and unauthorized immigrants is projected to be relatively steady over the next 10 years. Beyond 2028, the annual average rate of growth is the same for different categories of immigrants in CBO’s projections. Using that simplified approach, CBO projects that net annual immigration would grow at an average rate of 0.6 percent annually through 2048,

slightly faster than the average rate of growth in the U.S. population overall.¹⁵

Mortality rates are projected to improve over the next 30 years, on average. Those rates, which measure the number of deaths per thousand people in the population, are projected to decline at the same rates that were recorded for each age and sex group from 1950 to 2014. Improved, or lower, mortality rates mean higher life expectancy. CBO projects an average life expectancy at birth of 82.8 years in 2048, compared with 79.2 years in 2018.¹⁶ Similarly, CBO projects life expectancy at age 65 in 2048 to be 21.7 years, or 2.2 years longer than life expectancy at age 65 in 2018.

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 key economic

14. Recent data show that low total fertility rates have persisted since the recession, remaining below 1.9. See Brady E. Hamilton and others, *Births: Provisional Data for 2017*, Vital Statistics Rapid Release Report 4 (National Center for Health Statistics, May 2018), www.cdc.gov/nchs/nvss/vsrr/reports.htm.

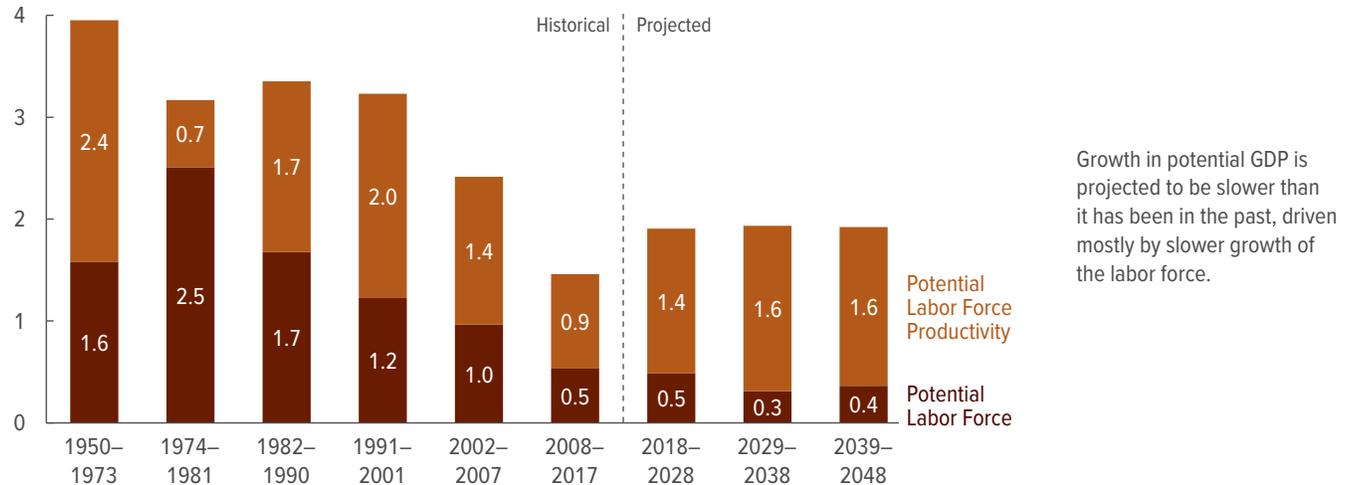
15. That rate is based on the Census Bureau’s projections for late in the coming decade. See Census Bureau, “2014 National Population Projections: Summary Tables,” Table 1, <https://go.usa.gov/xQAu>. The Census Bureau has recently released a new set of projections, but information from those projections has not been incorporated in this analysis. In those projections, the population is slightly smaller than the Census Bureau projected in 2014.

16. 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.

Figure 5.

Average Annual Growth of Real Potential GDP in CBO's Extended Baseline

Percent



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 ups and downs in the business cycle).

GDP = gross domestic product.

variables, such 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.

In CBO's projections, growth in potential (maximum sustainable) GDP in the future is slower than it has been over the past 50 years. Under its extended baseline, CBO projects an increase in real potential GDP of 1.9 percent per year, on average, over the next 30 years, compared with its historical growth rate of 2.8 percent. That slower economic growth is attributable to several factors—most notably, slower growth of the potential labor force (the labor force adjusted for ups and downs in the business cycle). In CBO's projections, the potential labor force grows by 0.4 percent per year, on average, through 2048 (see Figure 5); the average annual growth rate over the 1968–2017 period was 1.5 percent. That slower projected growth of the potential labor force mainly results from the aging of the population and the relative

stability (after rising for decades) in the share of women participating in the labor force.¹⁷

In CBO's projections, total factor productivity grows more slowly than its historical average, increasing by 1.2 percent per year, on average, from 2018 to 2048. That rate, which measures the average real output per unit of combined labor and capital services, is slower than the annual average of 1.5 percent since 1950. Factors influencing that projection include slower productivity growth over the past several decades (except during 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. Potential labor productivity—defined as real potential output per potential hour of labor—is likewise projected to grow more slowly than it has in the past, reflecting less

17. For more details about how CBO projects labor force participation rates, see Joshua Montes, *CBO's Projection of Labor Force Participation Rates*, Working Paper 2018-04 (Congressional Budget Office, March 2018), www.cbo.gov/publication/53616.

private investment in capital goods. Since 1950, labor productivity has expanded by 1.7 percent per year, on average; through 2048, that growth rate is projected to average 1.5 percent per year (see Figure 5).

Interest rates, in CBO's projections, rise as the economy continues to expand but remain lower than they have been historically. Slower growth of the labor force and lower inflation 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 economic projections, the interest rate on 10-year Treasury notes rises from 2.4 percent at the end of 2017 to 3.7 percent in 2028. That rate is projected to rise to 4.8 percent in 2048—1 percentage point below the 5.8 percent average recorded over the 1990–2007 period. (That period is used for comparison because it was characterized 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. (Interest rates generally are lower on shorter-term debt than on longer-term debt, and the average term to maturity of federal debt has been less than 10 years since the 1950s.) Based on projections of interest rate spreads and the term structure of rates on federal debt, the average interest rate on federal debt is projected to be about 0.4 percentage points lower than the interest rate on 10-year Treasury notes after 2028.¹⁸ As a result, in CBO's projections, the average interest rate on federal debt rises to 4.4 percent by 2048.

CBO's economic projections incorporate the macroeconomic 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 some private investment in productive capital in the long term. Less private investment in capital goods would make workers less productive, leading to lower wages and a smaller supply of labor. Furthermore, the extended baseline incorporates the economic effects of higher marginal tax rates. As more income is pushed into higher tax brackets over time, labor and capital

income face higher tax rates. Higher marginal tax rates on labor income would lessen 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.

Projected Spending Through 2048

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. From 1968 to 2017, federal outlays other than those for the government's net interest costs averaged 18 percent of GDP. The percentage was higher over the past decade, when noninterest spending averaged 20 percent of GDP, because of underlying demographic trends and because of temporary conditions in the economy (namely, the financial crisis, the weak recovery, and the federal policies that were created to address those circumstances). Under current law, noninterest outlays are projected to rise from 19 percent in 2018 to 20 percent in 2028 (adjusted to exclude shifts in timing; the share would be 21 percent if timing shifts were included). Over the next decade, mandatory spending (which includes spending on Social Security and the major health care programs, along with many smaller programs) is generally projected to increase as a share of the economy, and discretionary spending is generally projected to decrease.

After 2028, under the assumptions that govern the extended baseline, noninterest spending would continue to rise relative to the size of the economy, reaching 23 percent of GDP by 2048. (For a summary of CBO's assumptions about spending and revenues, see Table 2.) That increase would mostly result from larger outlays for the two biggest mandatory programs: Social Security and Medicare (see Figure 6).

Under current law, net interest costs would rise from 1.6 percent of GDP in 2018 to 3.1 percent in 2028, CBO projects, as debt accumulates and as interest rates increase from their currently low levels. By 2048, net interest costs would equal 6.3 percent of GDP, boosting total federal spending to 29 percent of GDP. Spending has exceeded that amount only once, for a three-year period during World War II. For those years, when

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

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 2028; 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 a rate of 1.0 between 2029 and 2048) ^a
Medicaid	As scheduled under current law through 2028; 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 a rate of 1.0 between 2029 and 2048)
Children's Health Insurance Program	As projected in CBO's baseline through 2028; 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 2028; 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 between 2029 and 2048)
Other Mandatory Spending	As scheduled under current law through 2028; 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 2023 and 2028 ^b
Discretionary Spending	As projected in CBO's baseline through 2028; 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
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 through 2028; constant as a percentage of GDP thereafter

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2028 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, *An Analysis of the President's 2019 Budget* (May 2018), www.cbo.gov/publication/53884.

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

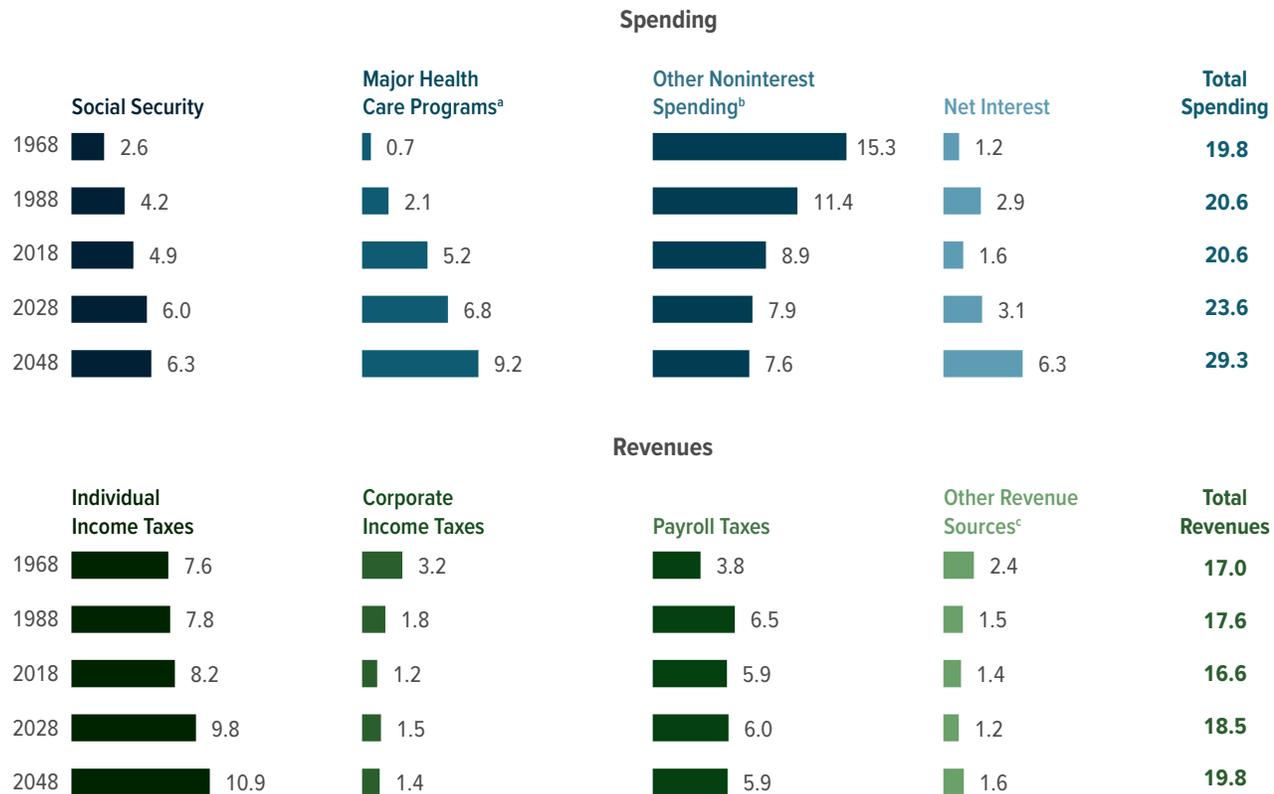
GDP = gross domestic product.

- 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 2028 would decline at the same rate at which it is projected to decline between 2023 and 2028 (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 2028 would remain the same (measured as a percentage of GDP) as the amount projected for 2028.
 - 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 6.

Spending and Revenues in the Past and 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 2028 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.

defense spending increased sharply, total federal spending topped 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 (see Figure 7). Spending for net interest would account for a much greater portion of total federal spending by 2048 than it does today, and spending on Social Security and the major health care programs would account for a much larger share of all federal non-interest spending.

Spending for Social Security and the Major Health Care Programs

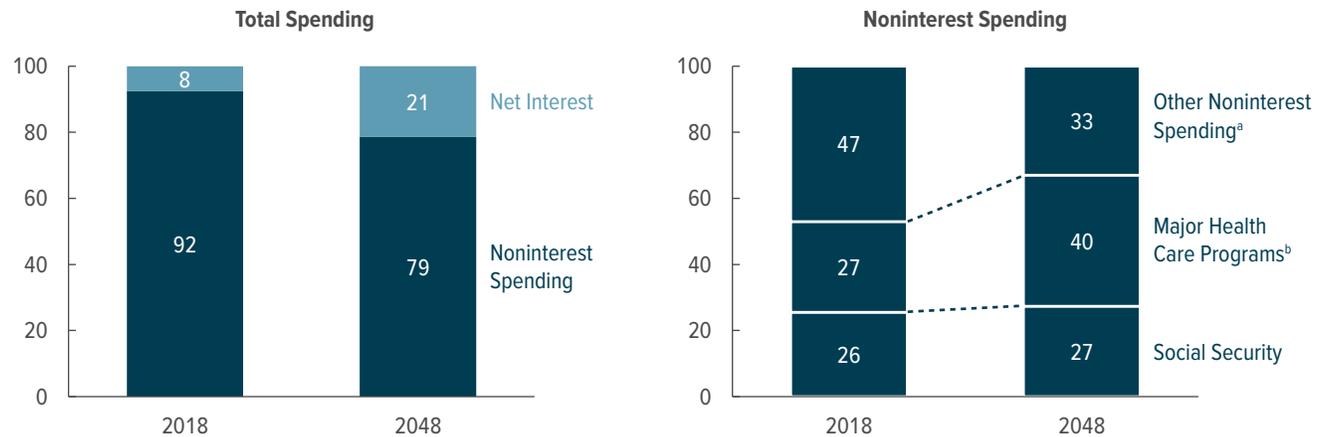
Mandatory programs have accounted for a rising share of the federal government’s noninterest spending over the past few decades. Most of the growth has occurred because Social Security and Medicare provide benefits mainly to people age 65 or older, a group that has been growing significantly.

Social Security. Created in 1935, Social Security is the largest single program in the federal budget. Its two components pay benefits to 62 million people in all.

Figure 7.

Composition of Federal Spending in CBO's Extended Baseline

Percent



Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2028 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

- a. Consists of all federal spending other than that for Social Security, the major health care programs, and net interest.
- b. 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.

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, continuing the trend of the past five decades. That spending would increase from 4.9 percent of GDP in 2018 to 6.3 percent in 2048 (see Figure 6 on page 15), and the number of beneficiaries would rise from 62 million to nearly 99 million. 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.¹⁹ That approach

is consistent with 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.²⁰

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.

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

19. The balances of the trust funds represent the total amount that the government is legally authorized to spend for those purposes. For more details 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 April 19, 2018), <http://go.usa.gov/cCXcG>.

20. 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) (2016)).

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.²¹ For Social Security, that difference is traditionally presented as a percentage of the present value of taxable payroll over 75 years.²²

Over the next 75 years, if current laws remained in place, the program’s actuarial shortfall would be 1.5 percent of GDP, or 4.4 percent of taxable payroll, CBO projects (see Table 3).²³ 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 2092 if payroll taxes were raised immediately and permanently by about 4.4 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.²⁴

21. A present value expresses a flow of past and future income or payments as a single amount 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 a 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.
22. 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 (\$128,400 in 2018).
23. The 75-year projection period used here begins in calendar year 2018 and ends in calendar year 2092. The Social Security trustees have estimated that the program’s 75-year actuarial shortfall would be 2.8 percent of taxable payroll, which is about 1.6 percentage points less than CBO’s projection. For details on the trustees’ projections, see Social Security Administration, *The 2018 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (June 2018), www.ssa.gov/oact/tr/2018.
24. 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. Estimates of the actuarial shortfall do not account for revenues or outlays after the 75-year projection period. Because shortfalls are smaller earlier in the 75-year projection period than they are later, 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 2092. Additionally, 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.

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 (2018 to 2042)	5.1	6.2	-1.0
50 Years (2018 to 2067)	4.8	6.2	-1.4
75 Years (2018 to 2092)	4.7	6.2	-1.5
As a Percentage of Taxable Payroll			
25 Years (2018 to 2042)	14.6	17.5	-2.9
50 Years (2018 to 2067)	14.0	18.0	-4.0
75 Years (2018 to 2092)	13.9	18.3	-4.4

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 2048, the projections incorporate macroeconomic feedback caused by rising federal debt and marginal tax rates. After 2048, 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 expresses that flow as a single amount 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.

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 2025 and the OASI trust fund would be exhausted in calendar year 2032. If their balances were combined, the OASDI trust funds would be exhausted in calendar year 2031, according to CBO’s estimate.

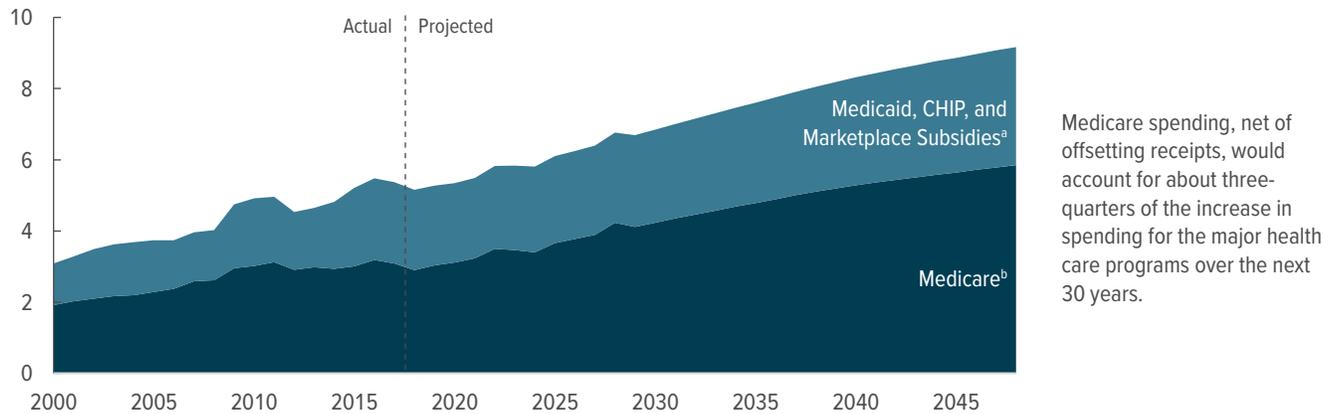
The Major Health Care Programs. Outlays for the major health care programs consist of spending for Medicare, Medicaid, and the Children’s Health Insurance Program (CHIP), as well as outlays to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act (ACA) and related spending.²⁵ Medicare, which provides health insurance to about

25. 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 ACA to stabilize premiums for health insurance purchased by individuals and small employers.

Figure 8.

Federal Spending on the Major Health Care Programs, by Category

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 2028 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.

- a. "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, as well as spending to stabilize premiums for health insurance purchased by individuals and small employers.
- b. Refers to net spending for Medicare, which accounts for offsetting receipts that are credited to the program. Those offsetting receipts are mostly premiums paid by beneficiaries to the government.

59 million people (most of whom are at least 65 years old), accounts for more than half of that spending.

CBO projects federal spending for the government's major health care programs for 2018 through 2028 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 amounts in the program's trust funds. For longer-term projections, considerable uncertainty surrounds the evolution of health care delivery and financing systems. That uncertainty leads CBO to employ a formulaic approach for its projections beyond 2028: 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 2018, net federal spending for the major health care programs is estimated to equal 5.2 percent of

GDP, CBO projects. If current laws generally remained in place, net outlays for those programs would increase to 9.2 percent in 2048, with Medicare spending, net of offsetting receipts (mostly premiums paid by enrollees), growing by about 3 percent of GDP, and spending on Medicaid and CHIP, combined with outlays for marketplace subsidies and related spending, growing by about 1 percent of GDP (see Figure 8).²⁶

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

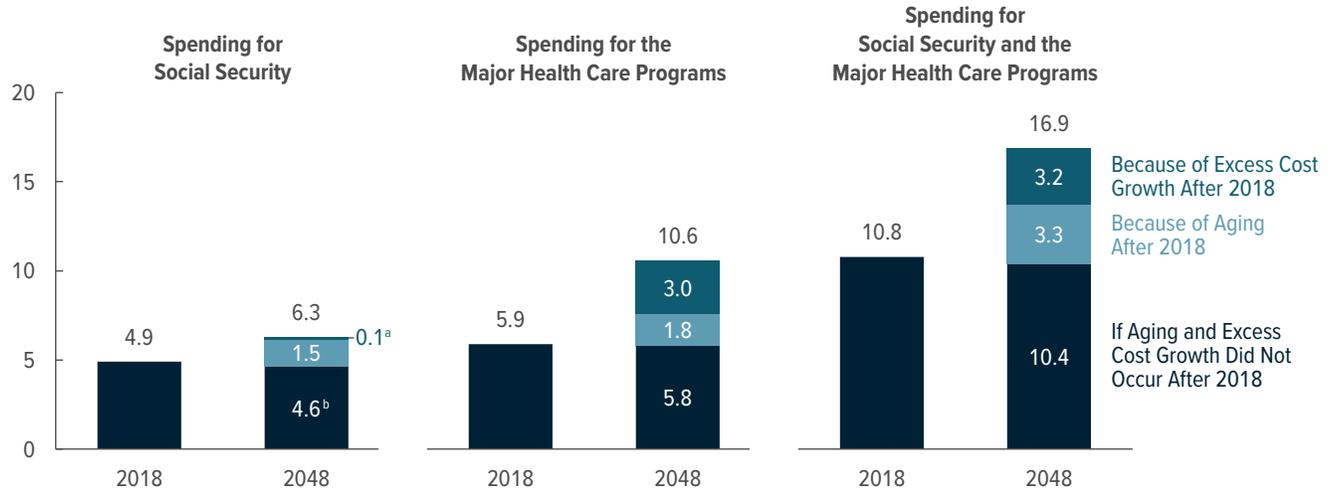
The aging of the population and rising health care costs per person are reasons for the sharp rise in projected spending for Social Security and the major federal health care programs over the next 30 years. The extent to which health care costs per person, adjusted for demographic changes, grow faster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

26. 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. Most of those outlays constitute federal subsidies for health insurance for low- and moderate-income households.

Figure 9.

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 2028 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. Those outlays have been adjusted to exclude the effects of shifting payments from one fiscal year into another so that those payments are not made on a weekend.

Excess cost growth refers to the extent to which the growth rate of nominal health care spending per person—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential gross domestic product per person. (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.

- a. Excess cost growth accounts for a small portion of the increase in spending for Social Security as a share of GDP in 2048 because greater spending on federal health care programs leads to larger deficits, which in turn slow the growth of GDP.
- b. If aging and excess cost growth did not occur after 2018, spending on Social Security as a share of GDP would be lower in 30 years, mainly because of the scheduled increase in the full retirement age for Social Security.

In developing its projections, if 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 2048 would be 0.4 percentage points below the 10.8 percent estimated for 2018 (adjusted to exclude shifts in timing).²⁷ In the extended baseline, however, that spending reaches 16.9 percent of GDP by 2048 (see Figure 9).²⁸ Aging accounts for an

increase of 3.3 percentage points, or roughly half of the difference. Excess cost growth, at an increase of 3.2 percentage points, accounts for the other half.

The Aging Population. In CBO’s projections, the aging of the baby-boom generation and continued gains in life expectancy increase the share of the population that is age 65 or older from 16 percent to 22 percent between 2018 and 2048.

Aging accounts for nearly all of the projected long-term increase in Social Security spending as a percentage of

27. Excluding aging and excess cost growth, spending on those programs as a percentage of GDP would be lower in 30 years, mainly because of the scheduled increase in the full retirement age for Social Security.

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

GDP.²⁹ 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.

Aging also contributes to the projected increase in the share of GDP taken up by spending for the major health care programs, particularly Medicare, which is the largest such program. Most beneficiaries qualify for Medicare at age 65. 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 2018–2048 period, aging explains about one-third of the increase in spending for the major health care programs as a share of GDP.

Rising Health Care Costs per Person. Even though growth in health care costs per person has slowed recently, over the next 30 years it is projected to still be faster than growth in potential GDP per person. In CBO's extended baseline, excess cost growth accounts for about two-thirds of the increase in spending for the major health care programs as a share of GDP between 2018 and 2048. 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 high as 15 percent (in 1968) and as low as 8 percent (in the late 1990s and early 2000s). Other noninterest spending in 2018 is estimated to equal 8.9 percent of GDP. Under the assumptions used for this analysis, that spending is projected to fall to 7.9 percent of GDP in 2028 and to 7.6 percent of GDP in 2048.

Discretionary Spending. About half of all discretionary spending 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 1968 and 2017, it declined from 13.1 percent to 6.3 percent. In CBO's baseline, discretionary outlays remain at about that level through next year before decreasing again, to 5.4 percent of GDP by 2028.

Through 2021, most discretionary funding is limited by caps on annual discretionary appropriations that were originally specified in the Budget Control Act of 2011 (P.L. 112-25, as amended). The Bipartisan Budget Act of 2018 increased limits on discretionary funding that otherwise would have been in place for 2018 and 2019. The subsequent decline in discretionary outlays relative to GDP reflects lower statutory limits on discretionary funding in 2020 and 2021 and the assumption (required by law) that discretionary funding will grow at the rate of inflation—which is slower than projected growth in GDP—beginning in 2022. After 2028, in CBO's extended baseline projections, discretionary spending is assumed to remain roughly constant as a percentage of GDP (see Figure 10).³⁰

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 because of higher spending in response to the severe recession.) That category of mandatory spending includes retirement programs for federal civilian and military employees, certain veterans' programs, the Supplemental Nutrition Assistance Program (SNAP), Supplemental Security

29. Excess cost growth accounts for a small portion of the increase in spending for Social Security as a share of GDP in 2048, 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.

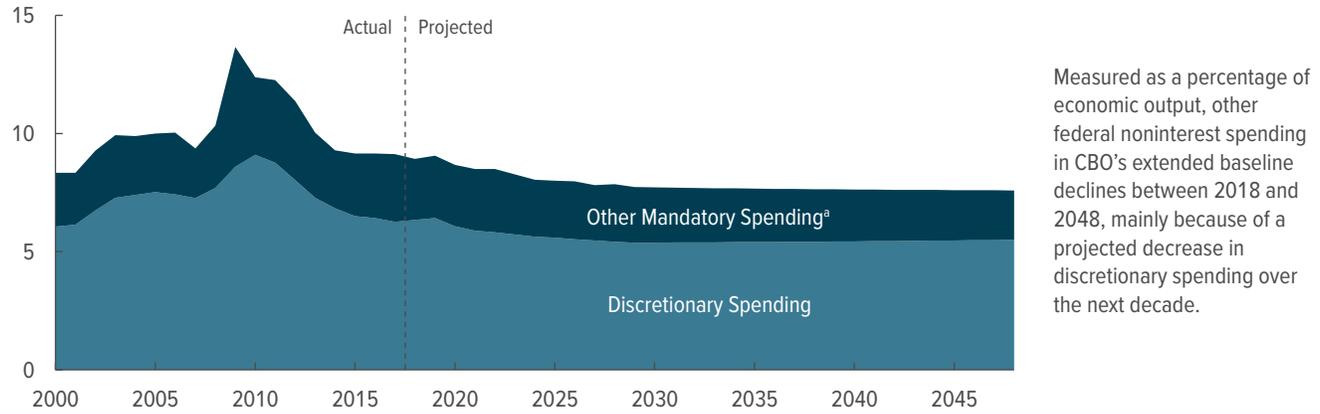
30. CBO assumed that discretionary spending after 2028 would remain constant as a percentage of GDP before the agency accounted for the effect on the economy of the fiscal policies projected under the extended baseline. Because CBO estimates that fiscal policy under the extended baseline would dampen economic growth, its projection of discretionary spending would not grow at precisely the same rate as GDP.

Although discretionary spending would decline relative to GDP from 2018 to 2028 in CBO's projections, historical evidence suggests that such a decline is unlikely to persist: Discretionary spending has historically been a larger share of economic output than it is projected to be in 2028. For that reason, CBO did not assume that the share would decline further.

Figure 10.

Other Federal Noninterest Spending 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 2028 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.

Income, unemployment compensation, and refundable tax credits.³¹

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 current laws generally remained unchanged, it would decline to 2.4 percent of GDP in 2028, CBO projects.³² That small decrease primarily reflects the effects of growth in average income on eligibility for some programs and refundable tax credits as well as reductions in the average payment per beneficiary (when measured relative to average income) for certain large programs.

In CBO’s extended baseline, other mandatory spending is projected to fall to 2.1 percent of GDP by 2048. In

part, that reduction reflects the effects 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 roughly in line with projections for such spending between 2023 and 2028.³³

Net Interest Costs

Over the past 50 years, the government’s net interest costs have averaged 2.0 percent of GDP, although they have been as high as 3.2 percent and as low as 1.2 percent. In CBO’s extended baseline, net interest costs are projected to roughly double as a share of the economy over the next decade—from 1.6 percent of GDP in 2018 to 3.1 percent by 2028—as greater federal borrowing boosts debt-service costs and as currently low interest

31. Refundable tax credits reduce a filer’s overall income tax liability; 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.

32. 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.

33. For the years after 2028, 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 is assumed to decline relative to GDP (excluding any effects that fiscal policy may have on the economy) after 2028 at the same rate at which it is projected to fall between 2023 and 2028 (excluding the decrease in spending for SNAP).

rates rise. In the extended baseline, those costs reach 6.3 percent of GDP by 2048, a higher amount than has ever been experienced (see Figure 6 on page 15). Those costs would exceed mandatory spending other than that for Social Security and the major health care programs in the next few years, exceed all discretionary spending by 2045, and be about equal to spending for Social Security by 2048.

In CBO's projections, deficits and debt rise because of the growing gap between spending and revenues, and higher interest costs are a major contributor to that growing gap. Between 2018 and 2048, more than half of the increase in spending as a percentage of GDP results from higher net interest costs. In large part, those rising interest costs 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. But greater federal borrowing places 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 2048

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

If current laws generally remained unchanged, revenues would increase as a share of GDP over the coming decade, CBO projects. Revenues would remain near 16.6 percent of GDP through 2021, rise steadily to 17.5 percent by 2025, and then increase sharply in 2026—to 18.1 percent of GDP—following the scheduled expiration of many temporary provisions of the 2017 tax act. By 2028, revenues are projected to total 18.5 percent of GDP.

For years beyond 2028, revenues are projected following the assumption that the rules for all tax sources will evolve as scheduled under current law.³⁴ Thus, under

34. The sole exception to the current-law assumption during the baseline period applies to expiring excise taxes dedicated to trust

CBO's extended baseline, revenues would continue to grow faster than GDP beyond 2028 and, two decades later, would total 19.8 percent of GDP. Increases in receipts from individual income taxes account for most of the projected rise of 3.2 percentage points in total revenues as a share of GDP over the next three decades. All told, receipts from all other sources combined are projected to increase slightly as a share of GDP (see Figure 6 on page 15).

The projected increase in total revenues through 2048 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 total revenues (see Table 4). If current laws remained generally unchanged, real bracket creep would continue to gradually push up taxes relative to income over the next three decades, CBO projects. That occurs because most income tax brackets, exemptions, and other tax thresholds are indexed only to inflation. When income grows faster than inflation, as generally happens during economic expansions, tax receipts grow faster than income.³⁵

Under current law, some provisions of tax law will expire and others will take effect during the next decade. In total, those changes lead to higher tax revenues in the extended baseline. The most significant change is the expiration, after calendar year 2025, of nearly all provisions in the 2017 tax act that affect individual income taxes. The expiration of those provisions boosts individual income tax receipts relative to GDP by 0.7 percentage points, CBO projects. In addition, a new tax on certain employment-based health insurance plans with high premiums is scheduled to take effect in 2022. Although the revenues raised by that tax would be small initially, rapid growth in health care costs would cause revenues from that tax to rise rapidly over subsequent decades. Also, some rules that allow businesses to accelerate

funds. The Deficit Control Act 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.

35. The 2017 tax act changed the measure of inflation used to index many parameters of the tax system to an alternative measure that grows more slowly. Consequently, the effect of real bracket creep is slightly greater than CBO projected in prior years.

Table 4.

Reasons for Growth in Total Revenues in CBO's Extended Baseline, 2018 to 2048

Percentage of Gross Domestic Product

Reason for Growth	2018–2028	2029–2048	Total, 2018–2048
Structural Features of the Individual Income Tax ^a	0.5	0.9	1.4
New and Expiring Tax Provisions	0.8	0.4	1.2
Aging and the Taxation of Retirement Income	0.2	0.1	0.3
Changes in the Distribution of Income (Effect on individual income taxes)	0.1	0.1	0.2
Changes in the Distribution of Income (Effect on payroll taxes)	-0.1	-0.1	-0.2
Other Factors	0.4	-0.1	0.3
Total Growth in Revenues Between 2018 and 2048	1.9	1.3	3.2

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2028 and then extending most of the concepts underlying those baseline projections for the rest of the long-term projection period.

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

deductions for investment expenses are scheduled to be phased out by the end of December 2027, increasing revenues as a result.

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. Those rising taxable distributions would also boost revenues relative to GDP, mainly between 2018 and 2028, CBO projects.

Earnings are projected to grow faster for higher-income people than for other people over the next 30 years. That trend would cause a larger share of income to be taxed at higher rates under the individual income tax, pushing up revenues relative to GDP by nearly 0.2 percentage points. That increase would be largely offset by a projected decrease of nearly the same amount in payroll tax receipts, as a greater share of earnings would be above the maximum amount subject to Social Security payroll taxes.

As a result of those factors, the effects of the tax system in 2048 would differ substantially from the effects today, both because of the changes in tax rules scheduled under current law and because of structural features in the tax code that gradually push up taxes relative to income. Average taxpayers at every income level would pay more of their income in taxes in 2048 than similar taxpayers do now, primarily because of real bracket creep. Effective marginal federal tax rates also would rise if current laws

generally stayed in place, so a larger share of each additional dollar of income that households earned would go to pay 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.³⁶ (For a discussion of the long-term economic effects of the 2017 tax act, see Box 1 on page 26.)

Uncertainty of 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 the amounts in its extended baseline if the agency varied four key factors in its analysis:³⁷

- The labor force participation rate,³⁸

36. Even though the marginal tax rate on capital income is projected to rise under current law, it would still be lower than in recent years.

37. 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.

38. 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.

Table 5.

Effective Marginal Federal Tax Rates in CBO's Extended Baseline

Percent	2018	2028	2048
Marginal Tax Rate on Labor Income	27.2	30.8	32.4
Marginal Tax Rate on Capital Income	14.7	16.5	17.0

Source: Congressional Budget Office.

The extended baseline generally reflects current law, following CBO's 10-year baseline budget projections through 2028 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, with weights proportional to their labor 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. The before- and after-tax rates of return used to calculate that effective tax rate are weighted averages of the rates for every combination of asset type, industry, form of organization, and source of financing; the weights used are the asset values of each combination.

- 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.

The degree of variation was based on historical movements and on possible future developments. The resulting estimates show that if CBO varied one factor at a time, federal debt held by the public after 30 years would range from 42 percentage points of GDP below the agency's central estimate—152 percent of GDP—to 60 percentage points above it.³⁹

If all four factors were varied simultaneously such that projected deficits increased, federal debt held by the public in 2048 would be about 96 percent of GDP above CBO's central estimate.⁴⁰ Conversely, if all four

39. 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/53919.

40. When CBO varied all factors simultaneously, it varied each factor by only 60 percent of the amount of variation in each factor individually. The agency used only part of the full range for each

factors were varied such that projected deficits decreased, debt after 30 years would be 67 percentage points below the central estimate (see Figure 11).

Those calculations do not cover the full range of possible outcomes, and they do not address other sources of uncertainty in the budget projections, such as the risk of an economic depression or a major war or catastrophe, or the possibility of unexpected changes in rates of birth, immigration, or mortality. Nonetheless, they show that the main implications of this report apply under a wide range of possible values for some key factors that influence federal spending and revenues. 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 that uncertainty into account in various ways as they make choices for fiscal policy.⁴¹ 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 in the absence of such uncertainty.

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

CBO estimated the size of changes in spending or revenues that would be needed if lawmakers wanted to achieve some specific targets for federal debt held by the public. CBO also assessed the extent to which the size of policy adjustments would change if such deficit reduction was delayed, and it examined the effects of waiting to resolve the long-term fiscal imbalance on different generations of the U.S. population.

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

If lawmakers set out to ensure that debt in 2048 matched its current level of 78 percent of GDP, they could achieve

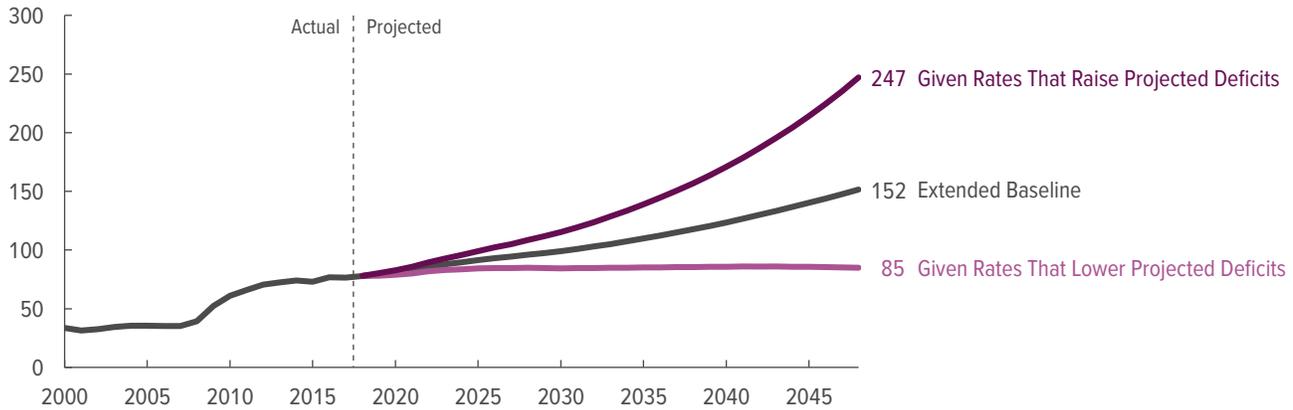
of the four factors because the chances of federal debt being above or below the estimates when all four factors are at the high or low ends of their ranges are much smaller than when each individual factor is at the high or low end of its range.

41. 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/p93enf>.

Figure 11.

Federal Debt Given Different Rates of Labor Force Participation, Productivity Growth, Federal Borrowing, and 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 2028 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 person—adjusted for demographic characteristics of the relevant populations—exceeds the growth rate of potential gross domestic product per person. (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 2019.

that result by cutting noninterest spending or raising revenues (or both) in each year beginning in 2019 by amounts totaling 1.9 percent of GDP (see Figure 12 on page 28). (In 2019, 1.9 percent of GDP would be about \$400 billion, or \$1,200 per person.) If the changes came entirely from revenues or entirely from spending, they would amount, roughly, to an 11 percent increase in revenues or a 10 percent cut in noninterest spending (in comparison with amounts in the extended baseline).

Increases in revenues or cuts 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. If lawmakers wanted

to lower the debt to 41 percent of GDP (its average over the past 50 years) by 2048, they could achieve that outcome by increasing revenues or cutting noninterest spending (relative to amounts under current law) or by adopting some combination of those two actions beginning in 2019 by amounts totaling 3.0 percent of GDP each year. (In 2019, 3.0 percent of GDP would be about \$630 billion, or \$1,900 per person.)

If lawmakers wanted to lower debt to its average over the past 50 years by increasing all revenues or by cutting all noninterest spending, the following changes would be necessary:

Box 1.

Effects of the 2017 Tax Act on the Long-Term Budget Outlook

The Congressional Budget Office's extended baseline generally reflects current law, including the economic and budgetary effects of changes to legislation enacted over the past year—notably, the 2017 tax act (Public Law 115-97, originally called the Tax Cuts and Jobs Act). Those long-term projections are consistent with CBO's prior estimates of the 2017 tax act's effects on the U.S. economy—including higher investment, employment, and output—over the 2018–2028 period.¹

Because various provisions of the 2017 tax act expire by the end of 2026, the economic and budgetary effects of the act as a whole are expected to peak during the early to middle part of the next decade. Beyond 2028, the effects of the major permanent provisions are expected to be modest, although their precise magnitudes are highly uncertain. CBO has not performed a detailed, quantitative analysis of the long-run effects of the 2017 tax act but is able to describe the qualitative effects of its most significant provisions.

Major Provisions of the 2017 Tax Act

The 2017 tax act has temporary and permanent provisions. For the next eight years, the major individual income tax changes are lower rates, a larger standard deduction, limits on the deductibility of mortgage interest and state and local taxes, elimination of personal exemptions, expansion of the child tax credit, changes to the treatment of “pass-through” business income, changes to the individual alternative minimum tax, and increases in the tax exemptions for property transferred at death and for certain gifts. For the next five years, the act allows businesses to immediately deduct the full cost of their investments for eligible equipment and software; that bonus-depreciation provision then phases out over the subsequent five years.

Following the expiration of most of the individual provisions at the end of 2025 and the phaseout of bonus depreciation by the end of 2026, the major permanent provisions of the act that continue are these:

- Lower corporate income taxes (a single rate of 21 percent);
- Higher thresholds for deducting the cost of a tangible asset in the year it is placed in service under section 179 of the tax code;
- Amortization of spending for research and experimentation;
- Limitations on net interest deductions and the use of net operating losses;
- Changes in the inflation adjustments for most tax parameters, including for income tax brackets;
- Elimination of the penalty for not having health insurance; and
- Changes in the taxation of foreign income and measures to reduce profit shifting.

Budgetary Effects Without Macroeconomic Feedback

The 2017 tax act has significant direct effects on CBO's budget projections. Those direct effects do not take into account any changes to the aggregate economy.

Budgetary Effects for 2018 to 2028. Before incorporating macroeconomic feedback, CBO estimated that the tax act would increase the primary deficit (that is, the deficit excluding the costs of servicing the debt) by a cumulative \$1.843 trillion from 2018 to 2028 as a result of higher deficits through 2026. Once the temporary provisions have expired and scheduled changes to certain business provisions have taken effect, the permanent provisions are projected to reduce, on net, the primary deficit in 2027 and 2028. Because of the increased deficits, debt-service costs are higher in every year by growing amounts, totaling \$471 billion over the period. The total direct effect on the deficit through 2028 would be \$2.314 trillion.

Budgetary Effects for 2029 to 2048. After 2028, CBO estimates, the permanent provisions of the act would continue to reduce the primary deficit, on net, over the next 20 years. In particular, the change in the inflation indexing of tax parameters and elimination of the penalty for not having health insurance (which causes fewer people to enroll in health insurance programs subsidized by the federal government) would reduce the deficit by more than the revenues lost through lower corporate taxes.

Economic Effects of the 2017 Tax Act

The largest effects on investment, employment, and output are estimated to occur in the early to middle part of the 2018–2028 period, when both individual and corporate income tax rates are lower and when other temporary provisions and investment incentives (notably, full bonus depreciation) are in place. Most of the tax act's positive effects on the growth of real (inflation-adjusted) gross domestic product (GDP) would occur in the first few years of CBO's projection period. The positive effects on the economy would diminish over the following several years and are expected to be modest after 2028.

Economic Effects for 2018 to 2028. The 2017 tax act would boost the level of real GDP by 0.7 percent, on average, through 2028, with a peak effect of 1.0 percent in 2022. By lowering the corporate income tax rate, the act would give businesses

1. See Congressional Budget Office, *The Budget and Economic Outlook: 2018 to 2028* (April 2018), Appendix B, www.cbo.gov/publication/53651.

Box 1.

Continued

Effects of the 2017 Tax Act on the Long-Term Budget Outlook

incentives to boost investment, and by decreasing individual income tax rates through 2025, it would give people incentives to increase their participation in the labor force and work more hours, expanding the labor supply and employment. Although some provisions of the tax act would deter residential investment, the overall effect on investment is estimated to be positive. However, private investment gains would be partially crowded out by higher federal deficits. Altogether, the largest positive effects on the economy would occur from 2022 to 2024 (before the individual income tax provisions expire at the close of 2025).

The effect of the tax act on real GDP is more modest over the following few years, and by 2028, real GDP would be 0.5 percent higher than it would have been otherwise. Between 2026 and 2028, investment would be boosted by the permanent reduction in the corporate income tax rate. However, the permanent change to amortization of research and experimentation expenses (instead of immediate expensing) would reduce the incentive for that type of investment.

The effects on the supply of labor are projected to be mixed. Marginal personal income tax rates would be higher after 2025 than under prior law because of the change in how various parameters of the tax system, including income tax brackets, are adjusted for inflation. That change would tend to reduce the supply of labor, as more income is pushed into higher tax brackets for a given amount of income growth because the new measure of inflation is expected to rise more slowly than the measure it replaced. In contrast, the permanent elimination of the penalty for not having health insurance would tend to increase the supply of labor, in part because under prior law the penalty rose as household income grew, causing it to act as a tax on income.

From 2026 to 2028, the pattern of the economic effects of the act reflects the transition from all the major provisions of the tax act being in place to only the permanent provisions remaining in effect. As a result, the positive effects on labor, investment, and real GDP would diminish. Nonetheless, those positive effects would be boosted by the reduction in the budget deficit by 2027 that results from the tax act, which makes additional resources available for private investment.

Furthermore, the tax act's international provisions are expected to change the reported location of profits in a way that boosts GDP through 2028, without changing the location of labor or capital. As a result, the provisions are expected to raise total factor productivity slightly over time.

Economic Effects for 2029 to 2048. In CBO's assessment, the various permanent provisions of the act would continue to boost the level of real GDP, on net, for a few years after 2028; over the longer term, the economic effects of the different provisions are expected to be modest, but the net effect is uncertain. The accelerated bracket creep resulting from the change in the indexing of tax parameters for inflation and the permanent change to amortization of research and experimentation expenses would tend to lower output by modestly reducing the supply of labor and capital, respectively. Elimination of the penalty for not having health insurance is expected to partially offset the negative effect on labor, and the permanent reduction in the corporate income tax rate and lower federal deficits would tend to increase output modestly by boosting investment.

The tax act's international provisions are expected to increase GDP slightly over the long term, although their overall economic effects are uncertain. Those effects would depend on how companies adjusted their international business structures and transactions and how foreign governments changed their tax rules in response.

Overall, the net impact on output would depend on the balance of all those effects. Individually and collectively, the effects become increasingly uncertain over the last 20 years of the projection period.

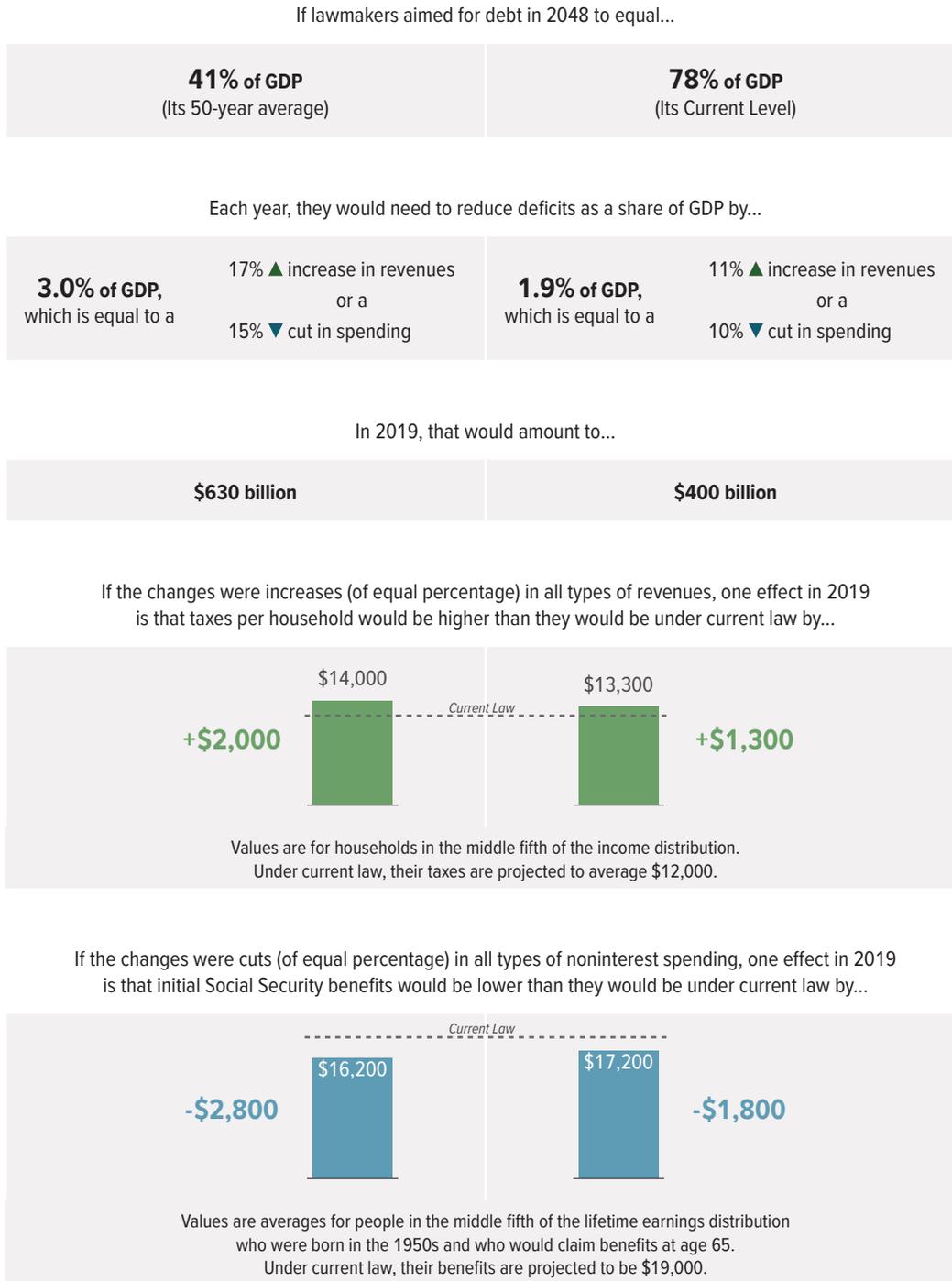
Budgetary Effects With Macroeconomic Feedback

CBO estimates that macroeconomic feedback from the tax act—that is, the ways in which the act would affect the budget by changing the overall economy—would subtract a total of \$571 billion from primary deficits over the 2018–2028 period. That reduction would mainly result from the act's boost to taxable income, which would increase revenues. With that macroeconomic feedback incorporated, CBO projects that the act would increase primary deficits by \$1.272 trillion through 2028. Incorporating the act's effects on debt-service costs from changes in federal borrowing and changes in interest rates would push the deficit to an estimated \$1.854 trillion over the 2018–2028 period.

The net effects of the tax act on real GDP and other economic variables are expected to be modest after 2028 but the magnitudes are uncertain (in part because a number of factors tend to offset each other). As a result, the macroeconomic feedback to federal spending and revenues is also expected to be small but uncertain in those years. Despite that uncertainty, the overall effects of the permanent provisions of the act, including their macroeconomic feedback, are projected to reduce the primary deficit somewhat from 2029 to 2048.

Figure 12.

The Size of Policy Changes Needed to Make Federal Debt Meet Two Possible Goals in 2048



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 2028 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 changes 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 specific details of the policy changes.

GDP = gross domestic product; n.a. = not applicable.

- If collections of the various types of revenues were increased proportionally, total revenues would need to rise by about 17 percent each year over the 2019–2048 period. On average, that adjustment would result in federal taxes that were about \$2,000 higher than they are under current law for households in the middle fifth of the income distribution in 2019.
- 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.

In all of those examples, the projected effects on debt include both the direct effects of the policy changes and the feedback to the federal budget that would result from faster economic growth. Those economic effects reflect the reduction in debt but do not reflect any assumptions about the specific details of the policy changes. For example, such changes could alter productivity growth and people's incentives to work and save, which would then affect overall economic output and have macroeconomic feedback effects on the federal budget.

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

The size of the policy changes that would be needed to achieve a particular goal for federal debt would depend, in part, on how quickly that goal was expected to be reached. Regardless of the chosen goal for federal debt, lawmakers would face trade-offs in deciding how quickly to implement policies designed to put federal debt on a sustainable path. The benefits of reducing the deficit sooner would 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 the new system.

Over the next few years, such policy changes would dampen overall demand for goods and services, thus decreasing output and employment relative to CBO's

projections under current law. However, that dampening effect would be temporary, CBO expects, because of the response of prices and interest rates to the 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 would be if 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, which 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 deficit-reduction policies, the economy probably would be affected less over the short term than would be the case if immediate changes were made.

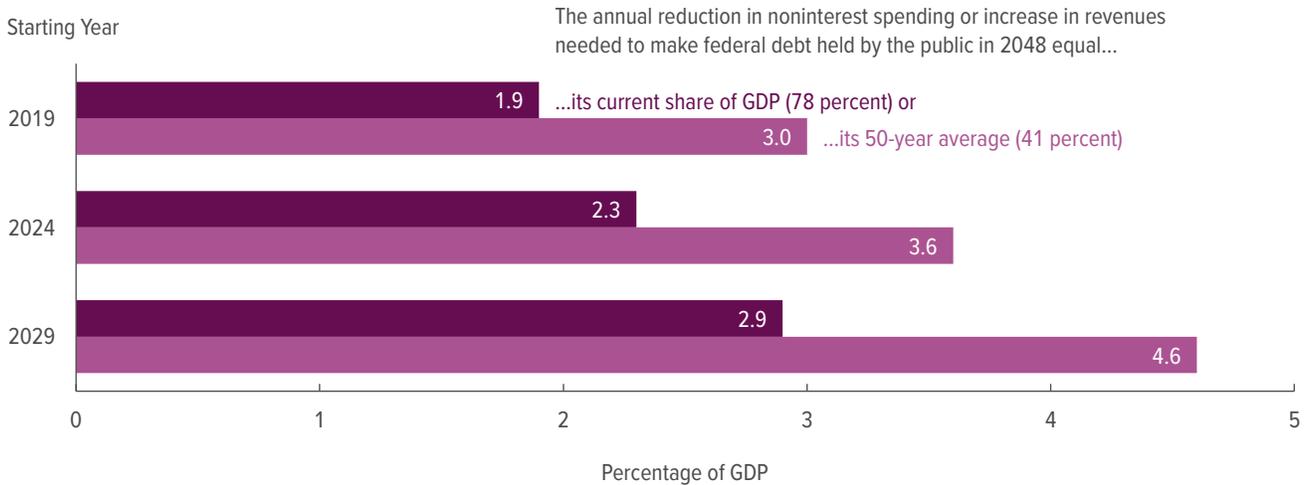
Faster or slower implementation of policies to reduce budget deficits would tend to impose different burdens on different generations. Reducing deficits sooner would probably require older workers and retirees to sacrifice more but would benefit younger workers and future generations. Reducing deficits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

CBO has analyzed those 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, if lawmakers sought to reduce debt as a share of GDP to its historical 50-year average of 41 percent in 2048 and if the necessary policy changes did not take effect until 2024, the annual deficit reduction would need to amount to 3.6 percent of GDP rather than the 3.0 percent that would accomplish the same goal if the changes were made in 2019 (see Figure 13). If lawmakers chose to wait another five years to implement the policies (having them take effect in 2029 instead), even larger changes would be necessary; the required annual deficit reduction in that case would amount to 4.6 percent of GDP.

Second, CBO studied the effects on various generations from waiting to resolve the long-term fiscal imbalance. In 2010, CBO compared economic outcomes under two policies. One would stabilize the debt-to-GDP ratio starting in a particular year; the other would wait

Figure 13.

How Timing Affects the Size of Policy Changes Needed to Make Federal Debt Meet Two Possible Goals in 2048



Source: Congressional Budget Office.

GDP = gross domestic product.

10 years to do so.⁴² That analysis suggested that people in generations born after the earlier implementation date would be worse off under the second option. However, people born more than 25 years before the earlier implementation date would be better off if action was delayed—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.⁴³

Even if lawmakers waited several years to implement policy changes to reduce deficits in the long term,

making decisions about them sooner would offer two main advantages. First, people would have more time to prepare. Second, policy changes that reduced the debt would hold down longer-term interest rates and could lessen uncertainty—thus enhancing businesses' and consumers' confidence. Those factors would boost output and employment in the near term.

Changes From Last Year's Long-Term Budget Outlook

Compared with last year's projections of federal debt, those presented in this report are higher through 2041 and slightly lower thereafter. Most of the increases in debt through 2041 stem from larger projected deficits through 2025 that arise from tax and spending legislation enacted since last March: the 2017 tax act, the Bipartisan Budget Act of 2018, and the Consolidated Appropriations Act, 2018. After 2025, deficits are smaller as a share of GDP than CBO projected last year because of lower projected noninterest spending and similar or higher projected revenues. Those lower deficits ultimately result in lower projected debt as a share of GDP. (Appendix A describes the differences in demographic and economic projections between last year's report and this year's, and Appendix B describes key revisions to the budgetary projections since last year that are summarized in this section.)

42. 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 costs 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.

43. 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.

As a percentage of GDP, noninterest spending is generally lower than the amount projected last year. That slowdown is driven by lower projected spending as a share of GDP for Social Security, the major health care programs, and other mandatory spending. Those declines are partially offset by increases in discretionary spending. Revenues are lower as a share of GDP through 2026, largely unchanged for most of the next two decades, and slightly higher by 2048. Those changes reflect provisions of the 2017 tax act.

Under the extended baseline, CBO projects that debt would reach 148 percent of GDP in 2047, which is lower than the amount the agency projected last year. Projected deficits as a share of GDP in this year's report are larger from 2018 through 2025 and smaller thereafter than those in last year's report. The budgetary changes needed to make federal debt 30 years from now

equal either today's level or the 50-year historical average (as a share of GDP) are similar to the changes CBO projected would be required in last year's report.

The 75-year actuarial deficit currently projected for Social Security is 1.5 percent of GDP (the same amount that CBO estimated last year) or 4.4 percent of taxable payroll (slightly smaller than last year's estimate of 4.5 percent). The projected actuarial deficit declined since last year because CBO boosted its projection of the share of earnings that are subject to Social Security payroll taxes over the next 30 years and because CBO projects slightly smaller benefits relative to GDP and taxable payroll and, over the next two decades, higher interest rates. Offsetting those changes is an adjustment to the 75-year period of analysis, which ends in 2092 in this report and thus includes an additional year of deficits.