

The 2021 Long-Term Budget Outlook

Overview

By the end of fiscal year 2021, federal debt held by the public is projected to equal 102 percent of gross domestic product (GDP). If current laws governing taxes and spending generally remained unchanged, debt would persist near that level through 2028 before rising further. By 2031, debt would equal 107 percent of GDP, its highest level in the nation's history, the Congressional Budget Office projects.

Debt would continue to increase thereafter, exceeding 200 percent of GDP by 2051 (see Figure 1).¹ That amount of debt would be the highest by far in the nation's history, and it would be on track to increase further.

Debt that is high and rising as a percentage of GDP boosts federal and private borrowing costs, slows the growth of economic output, and increases interest payments abroad. A growing debt burden could increase the risk of a fiscal crisis and higher inflation as well as undermine confidence in the U.S. dollar, making it more costly to finance public and private activity in international markets.

What CBO's Projections Represent

The long-term projections of federal spending, revenues, deficits, and debt in this report are consistent with the baseline budget projections and the economic forecast for the 2021–2031 period that CBO published in February 2021.² Those projections incorporate the assumptions that current laws (enacted as of January 12,

2021) governing federal taxes and spending generally remain in place and that the federal government provides no significant additional emergency funding or aid in response to the 2020–2021 coronavirus pandemic. The projections incorporate the budgetary and economic effects of the pandemic and associated measures taken to limit in-person interactions. They also reflect the economic and budgetary effects of laws enacted as of January 12, 2021, that contain provisions to address the public health emergency and to support households, businesses, and state and local governments.³ In CBO's assessment, the economic effects of those provisions partially offset the deterioration in economic conditions caused by the pandemic.⁴

CBO's long-term projections extend most of the concepts underlying its 10-year projections for an additional 20 years.⁵ Together, those projections constitute the agency's *extended baseline* projections (see Appendix C for more details about the analytic methods underlying CBO's long-term projections).

CBO's 10-year and extended baseline projections are not predictions of budgetary outcomes. Rather, they represent the agency's assessment of future spending, revenues, deficits, and debt under these assumptions:

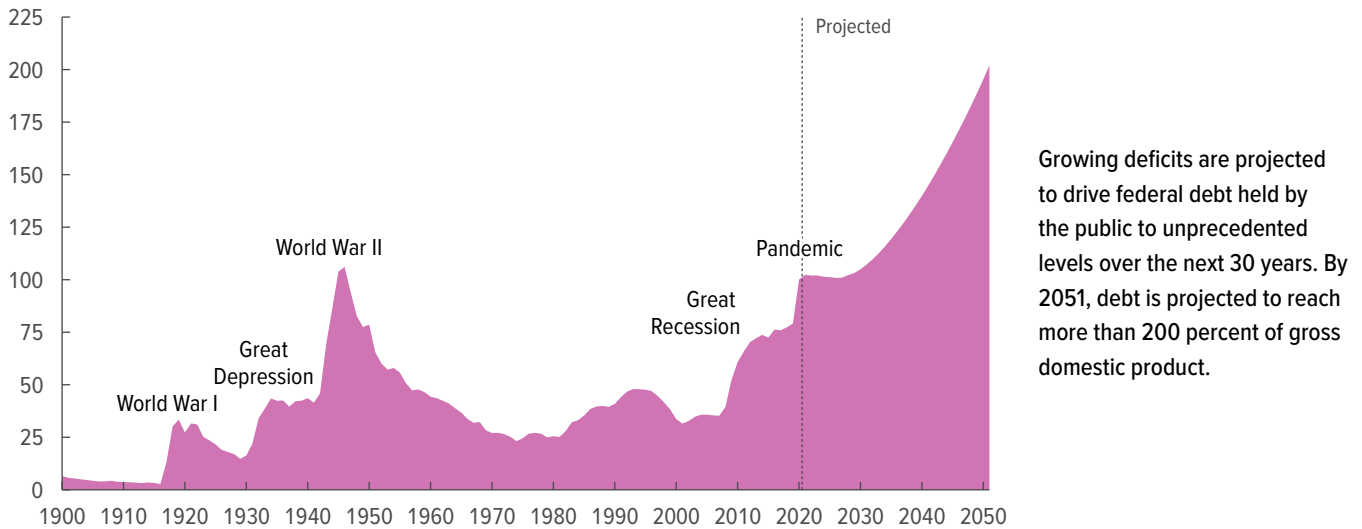
1. Budgetary values, such as the ratio of debt or deficits to gross domestic product, are calculated on a fiscal year basis; economic variables, such as interest rates, are calculated on a calendar year basis.
2. See Congressional Budget Office, *The Budget and Economic Outlook: 2021 to 2031* (February 2021), www.cbo.gov/publication/56970, *An Overview of the Economic Outlook: 2021 to 2031* (February 2021), www.cbo.gov/publication/56965, *Additional Information About the Economic Outlook: 2021 to 2031* (February 2021), www.cbo.gov/publication/56989, and *Additional Information About the Budget Outlook: 2021 to 2031* (forthcoming on March 5, 2021), www.cbo.gov/publication/56996.

3. Provisions enacted in response to the pandemic were included in the Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020 (Public Law 116-123), the Families First Coronavirus Response Act (P.L. 116-127), the Coronavirus Aid, Relief, and Economic Security Act (P.L. 116-136), the Paycheck Protection Program and Health Care Enhancement Act (P.L. 116-139), the Paycheck Protection Program Flexibility Act of 2020 (P.L. 116-142), and divisions M, N, and EE of the Consolidated Appropriations Act, 2021 (P.L. 116-260).
4. See Congressional Budget Office, *The Effects of Pandemic-Related Legislation on Output* (September 2020), www.cbo.gov/publication/56537.
5. CBO's projections are also based on assumptions about the Federal Reserve's implementation of monetary policy. See Board of Governors of the Federal Reserve System, "Federal Open Market Committee Announces Approval of Updates to Its Statement on Longer-Run Goals and Monetary Policy Strategy" (press release, August 27, 2020), <https://go.usa.gov/xGXXn>.

Figure 1.

Federal Debt Held by the Public, 1900 to 2051

Percentage of Gross Domestic Product



Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

- Current laws affecting revenues and spending generally remain unchanged;
- Some programs—for example, the Supplemental Nutrition Assistance Program (SNAP)—are nevertheless extended after their authorizations lapse; and
- Spending for Medicare and Social Security continues as scheduled even after their trust funds are exhausted.

CBO produces its baseline projections under those assumptions, as specified in law. CBO's baseline projections give lawmakers a point of comparison from which to measure the effects of policy options or proposed legislation.

In most years, the agency examines budgetary outcomes under both the extended baseline and an extended alternative fiscal scenario. Under the alternative fiscal scenario, current laws would be changed to maintain certain policies that are now in place (such as current income tax rates). In addition, in most years, CBO examines the size of changes in spending or revenues (or both) that would be needed if lawmakers wanted to achieve some specific targets for federal debt held by the public. In order to release this report when it would be most useful to the Congress, CBO presents budgetary outcomes for the extended baseline only.

Why Federal Debt Has Recently Grown

In the first quarter of 2020, the coronavirus pandemic ended the longest economic expansion in U.S. history and triggered the deepest downturn in output and employment since the demobilization following World War II. Increased spending and decreased revenues associated with the pandemic and ensuing recession boosted federal debt held by the public to 100 percent of GDP in 2020, up from 79 percent at the end of 2019.

Federal debt held by the public is projected to total 102 percent of GDP by the end of this fiscal year (see Table 1). By historical standards, that amount of debt is very large. Over the past 50 years, debt has averaged 44 percent of GDP. It has exceeded 102 percent of GDP in only two years in U.S. history—1945 and 1946, when debt reached 104 percent and 106 percent of GDP, respectively, following the surge in federal spending as a result of World War II.

Why Debt Is Projected to Continue to Grow

Debt as a percentage of GDP is projected to increase in most years as the government incurs budget deficits that are large relative to the size of the economy (see Figure 2). If current laws generally remained unchanged, federal budget deficits would be substantially larger over the next 30 years than they were, on average, over the past 50 years. In CBO's projections, deficits drop below

Table 1.

Key Projections in CBO's Extended Baseline

Percentage of Gross Domestic Product

	2021	Projected Annual Average		
		2022–2031	2032–2041	2042–2051
Revenues				
Individual income taxes	7.7	9.1	9.6	10.1
Payroll taxes	6.0	5.9	5.8	5.7
Corporate income taxes	0.7	1.3	1.2	1.2
Other ^a	1.4	1.3	1.1	1.3
Total Revenues	16.0	17.5	17.7	18.2
Outlays				
Mandatory				
Social Security	5.2	5.6	6.1	6.3
Major health care programs ^b	5.8	6.3	7.8	9.0
Other	6.3	2.3	2.1	2.0
Subtotal	17.3	14.2	16.1	17.2
Discretionary	7.6	6.1	5.5	5.5
Net interest	1.4	1.6	4.0	7.0
Total Outlays	26.3	21.9	25.6	29.7
Deficit	-10.3	-4.4	-7.9	-11.5
Debt Held by the Public at the End of the Period	102	107	145	202
Memorandum:				
Social Security				
Revenues ^c	4.6	4.5	4.5	4.4
Outlays ^d	5.2	5.6	6.1	6.3
Contribution to the Federal Deficit^e	-0.6	-1.1	-1.6	-1.9
Medicare				
Revenues ^c	1.5	1.5	1.6	1.6
Outlays ^d	3.8	4.7	6.2	7.4
Offsetting receipts	-0.6	-0.8	-1.1	-1.4
Contribution to the Federal Deficit^e	-1.7	-2.4	-3.5	-4.4
Gross Domestic Product at the End of the Period (Trillions of dollars)	22.0	32.9	46.8	66.0

Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

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

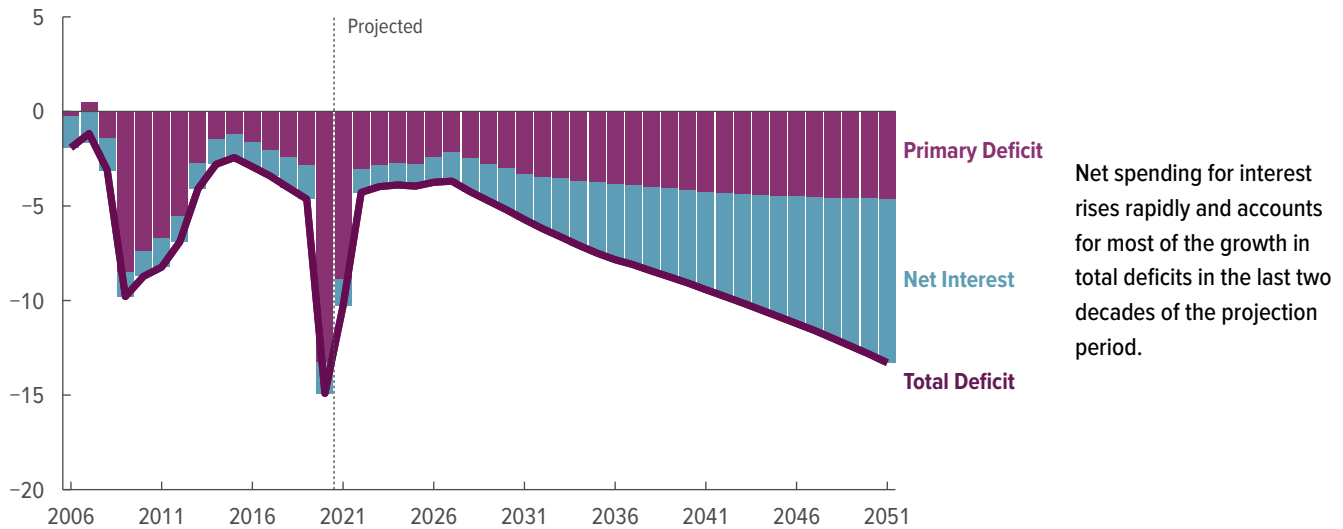
The extended baseline projections, which generally reflect current law, follow CBO's 10-year baseline budget projections and then extend most of the concepts underlying those projections for the rest of the long-term projection period.

- 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 2.

Total Deficits, Primary Deficits, and Net Interest

Percentage of Gross Domestic Product



Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

Primary deficits or surpluses exclude net spending for interest.

4.0 percent of GDP for a few years and then rise again through 2031. After 2031, deficits continue to rise as mandatory spending—in particular, outlays for the major health care programs—and interest payments on federal debt grow faster than revenues (see Figure 3).⁶ That growth in deficits causes projected debt to rise as a percentage of GDP over the 2032–2051 period, reaching 202 percent in 2051.

Deficits From 2021 to 2031. At an estimated 10.3 percent of GDP, the deficit in 2021 would be the second largest since 1945, exceeded only by the 14.9 percent shortfall recorded last year. In CBO’s projections, deficits decline to 4.0 percent of GDP or less from 2023 to 2027 before increasing again, reaching 5.7 percent of GDP in 2031. That level is almost twice the average over the past half-century (3.3 percent of GDP).

The decline in deficits as a percentage of GDP through 2024 is caused primarily by decreases in pandemic-related spending and the recovery from the economic downturn caused by the pandemic. In addition, net spending for interest, relative to the size of the economy, generally declines in the first half of the decade as interest

rates, which have recently fallen, remain low. From 2025 to 2027, deficits average 3.8 percent of GDP as revenues increase, partially driven by the scheduled increases in taxes at the end of calendar year 2025.

Larger deficits in the last few years of the decade result from increases in spending that outpace increases in revenues. In particular:

- Mandatory spending increases as a percentage of GDP. Those increases stem both from the aging of the population, which causes the number of participants in Social Security and Medicare to grow faster than the overall population, and from growth in federal health care costs per beneficiary that exceeds the growth in GDP per capita.
- Net spending for interest as a percentage of GDP is projected to increase over the remainder of the decade as interest rates rise and federal debt remains high.

In contrast, discretionary spending is projected to decrease as a percentage of GDP over the decade.⁷ (Under the rules that govern the construction of CBO’s

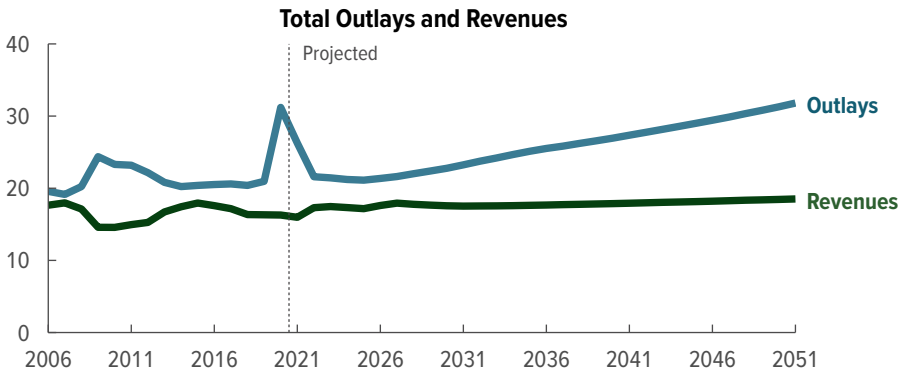
6. Mandatory, or direct, spending includes outlays for some federal benefit programs and for certain other payments to people, businesses, nonprofit institutions, and state and local governments. Such outlays are generally governed by statutory criteria and are not normally constrained by the annual appropriation process.

7. Discretionary spending encompasses an array of federal activities that are funded through or controlled by appropriations. That category includes most defense spending, outlays for highway programs, and spending for many other nondefense activities, such as elementary and secondary education, housing assistance, international affairs, and the administration of justice.

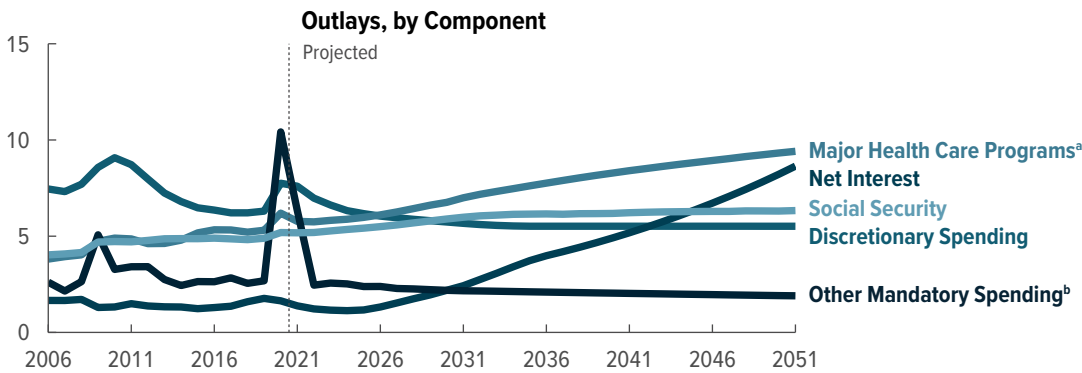
Figure 3.

Outlays and Revenues

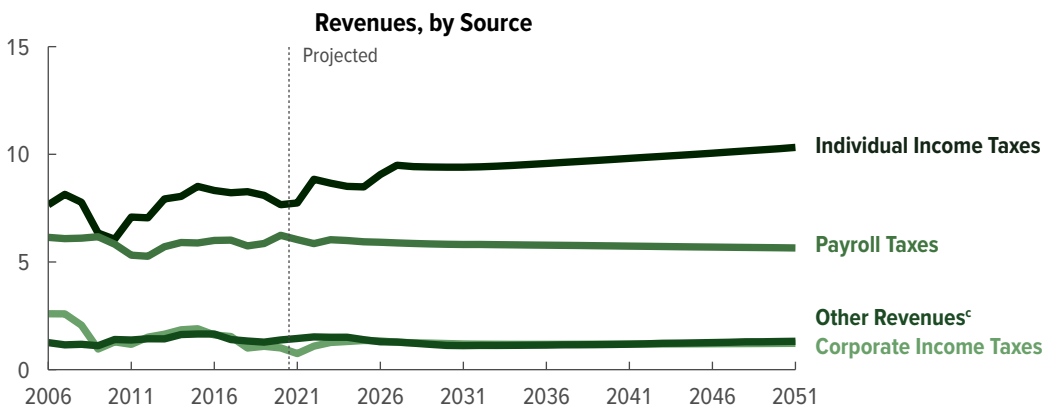
Percentage of Gross Domestic Product



In most years, growth in outlays is projected to outpace growth in revenues, resulting in widening budget deficits.



Over the long term, net spending for interest and outlays for the major health care programs and Social Security are projected to rise in relation 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 about the same in 2051 as they are today.

Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

GDP = gross domestic product.

- 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 mandatory spending other than that for Social Security and the major health care programs. It includes the refundable portions of the earned income tax credit, the child tax credit, and the American Opportunity Tax Credit.
- 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.

baseline, discretionary spending beginning in 2022 is projected to keep pace with future inflation, but GDP is projected to grow faster.)

Primary deficits—which exclude net spending for interest—fall from 8.9 percent of GDP in 2021 to lower levels in the following years, ending the period at 3.3 percent of GDP in 2031.

Deficits From 2032 to 2051. Deficits are projected to grow from 6.2 percent of GDP in 2032 to 13.3 percent by 2051. That growth is largely driven by increases in interest costs. Although primary deficits grow over that period, from 3.5 percent of GDP in 2032 to 4.6 percent of GDP in 2051, that increase is small relative to the increase in net spending for interest (see Figure 2 on page 8). CBO projects that rising federal debt and higher interest rates would combine to more than triple net spending for interest over that last two decades of the projection period. Over that 20-year period, total deficits average 9.7 percent of GDP, which is much higher than their 50-year average of 3.3 percent of GDP.

After 2031, in CBO's projections, mandatory spending continues to increase faster than economic output. CBO assumes that in 2032, the annual rate of growth in discretionary spending would begin to increase such that, in five years' time, it would equal the growth rate of nominal GDP. That growth is faster than the increase in discretionary spending over the 2026–2031 period, when CBO is mandated by law to assume that discretionary spending will grow at the rate of inflation. Revenues also rise after 2031—although not as quickly as mandatory spending—driven by real bracket creep (the process in which an ever-larger proportion of income becomes subject to higher tax rates as income rises faster than inflation).

Consequences of High and Rising Federal Debt

If federal debt as a percentage of GDP continued to rise at the pace that CBO projects it would under current law, in the long term the economy would be affected in two significant ways:

- That debt path would raise borrowing costs, reduce business investment, and slow the growth of economic output over time,⁸ and

8. When the federal government borrows in financial markets, it competes with other participants for funds. That competition

- Rising interest costs associated with that debt would increase interest payments to foreign holders of U.S. debt.

Persistently rising debt as a percentage of GDP would also pose significant risks to the fiscal and economic outlook, although financial markets currently do not reflect those concerns. In particular, that debt path would have these economic and financial effects:

- It would increase the risk of a fiscal crisis—that is, a situation in which investors lose confidence in the U.S. government's ability to service and repay its debt, causing interest rates to increase abruptly, inflation to spiral upward, or other disruptions—and
- It would increase the likelihood of less abrupt, but still significant, adverse effects, such as expectations of higher rates of inflation, an erosion of confidence in the U.S. dollar as an international reserve currency, and more difficulty in financing public and private activity in international markets.

In addition, high and rising debt makes government financing more vulnerable to increases in interest rates because costs to service that debt rise more for a given increase in interest rates when debt is higher than when it is lower. High and rising debt also might cause policymakers to feel constrained from implementing deficit-financed fiscal policy to respond to unforeseen events or for other purposes, such as to promote economic activity or strengthen national defense.

Not all effects of higher debt and a higher projected path for debt would be unfavorable. Policies that increase deficits can provide support to the economy during challenging times, such as the current pandemic. Also, over time, a higher debt path would boost interest rates above what they otherwise would be, promoting private saving and giving the Federal Reserve more flexibility in implementing monetary policy.

can crowd out private investment, reducing economic output and income in the long term. 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. For more discussion, see Congressional Budget Office, *Federal Debt: A Primer* (March 2020), www.cbo.gov/publication/56165. Several factors not directly included in 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.

Moreover, the effects on economic outcomes would depend on the types of policies that generate the higher deficits and debt. For example, increased high-quality and effective federal investment would boost private-sector productivity and output (though it would only partially mitigate the adverse consequences of greater borrowing).⁹ However, in CBO's projections, the increasing deficits and debt result primarily from increases in noninvestment spending. Notably, net outlays for interest are a significant component of the increase in spending over the next 30 years. In addition, federal spending for Social Security, Medicare, and Medicaid for people age 65 or older would account for about half of all federal noninterest spending by 2051, rising from about one-third in 2021.

Addressing high and rising debt sooner rather than later means that smaller policy changes would be required to achieve long-term objectives. The benefits of reducing deficits sooner include a smaller accumulated debt and therefore less risk to long-term economic growth and stability. The risk of reducing deficits sooner is that changes in spending or in taxes might lead to economic and financial disruptions if people have insufficient time to plan for or adjust to the new measures or if such changes occurred during a time of economic weakness.

How lawmakers respond to high and rising debt determines who would bear the burden of particular changes in spending or taxes and who would realize the economic benefits.¹⁰ In general, if policymakers postponed fiscal tightening and if debt as a share of GDP continued to rise, then future generations would bear more of the burden of the changes necessary to stabilize debt. Earlier generations—most notably, people in those generations who have higher income and more wealth—would bear less of the burden. Within any given generation, who

bears the burden of the changes necessary to stabilize the debt would depend on the policies implemented.

Effects Incorporated in CBO's Extended Baseline Projections

The high and rising path of federal borrowing in CBO's extended baseline projections would have adverse economic consequences over the longer term. Although interest rates remain low for an extended time in those projections, the eventual rise in rates together with the larger amount of debt would lead to an increase in interest costs over the next 30 years. CBO's extended baseline projections and the accompanying economic projections reflect the effects of those rising costs on investment and on national income.

Crowding Out of Private Investment. When the government borrows in financial markets, it does so from people and businesses whose savings would otherwise finance private investment, such as factories and computers. Although an increase in government borrowing strengthens people's incentive to save—in part by boosting interest rates—the resulting rise in private saving is not as large as the increase in government borrowing; therefore, national saving, or the amount of domestic resources available for private investment, declines.¹¹ Private investment falls by less than national saving does in response to larger government deficits, however, because the higher interest rates that are likely to result from increased federal borrowing tend to attract more foreign capital to the United States.

If investment in capital goods declined, workers would, on average, have less capital to use in their jobs. As a result, they would be less productive, they would receive lower compensation, and they would thus be less inclined to work. Those effects would increase over time as federal borrowing grew. If federal borrowing declined, however, those effects would decrease.

9. The macroeconomic effects of increased federal investment spending can be different for different types of investment and also depend on how that spending was financed. For a detailed discussion, see Congressional Budget Office, *The Macroeconomic and Budgetary Effects of Federal Investment* (June 2016), www.cbo.gov/publication/51628.

10. See Congressional Budget Office, *Economic Impacts of Waiting to Resolve the Long-Term Budget Imbalance* (December 2010), www.cbo.gov/publication/21959; and Shinichi Nishiyama and Felix Reichling, *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.

11. In CBO's assessment, another reason that an increase in government borrowing strengthens people's incentive to save is that some of them expect policymakers to raise taxes or cut spending in the future to cover the cost of paying interest on the additional federal debt. As a result, some of those people increase their saving to prepare for paying higher taxes or receiving lower benefits. For further discussion of that effect and the estimated effect of federal borrowing on private investment, see Jonathan Huntley, *The Long-Run Effects of Federal Budget Deficits on National Saving and Private Domestic Investment*, Working Paper 2014-02 (Congressional Budget Office, February 2014), www.cbo.gov/publication/45140.

Rising Interest Payments. The projected increase in interest costs over the next 30 years is partly attributable to a projected rise in interest rates. Because debt is already high, even moderate increases in interest rates would lead to significantly higher interest costs. Moreover, federal borrowing is projected to rise significantly, further driving up interest costs. That increase in interest costs would not happen immediately, however, because the lower interest rates associated with the economic downturn caused by the pandemic and the Federal Reserve's response to it would initially offset the effect of the rising amount of debt.

CBO expects interest rates to rise as the economy recovers and then continues to expand, particularly in the latter half of the coming decade. The agency expects the interest rate on 10-year Treasury notes to average 1.6 percent over the 2021–2025 period and 3.0 percent over the 2026–2031 period. After 2031, the interest rate on 10-year Treasury notes is projected to rise steadily, reaching 4.9 percent by 2051. (Though higher than current rates, the projected interest rates are lower than they have been historically.)

In CBO's extended baseline projections, net outlays for interest grow from 1.4 percent of GDP in 2021 to 2.4 percent in 2031 and then continue to rise over the next two decades, reaching 8.6 percent by 2051. Those higher outlays would include an increase in payments to foreign investors (who currently hold 33 percent of federal debt held by the public), which would reduce the nation's net international income.

A larger amount of debt makes the United States' fiscal position more vulnerable to an increase in interest rates than it would be if the amount was smaller. In CBO's projections, the average interest rate on federal debt initially decreases from 1.4 percent in 2021 to 1.2 percent in 2024 and then increases to 4.6 percent by 2051. The change in interest rates accounts for about one-quarter of the projected growth in debt as a share of GDP over the 2021–2051 period. (The cost of financing the primary deficits projected over that period at current interest rates accounts for the remaining three-quarters of that increase.) Therefore, even though rising interest rates have a sizable effect on the fiscal outlook, rising debt levels would substantially boost interest costs even if rates remained unchanged.

Greater Risk of a Fiscal Crisis

High and rising federal debt increases the likelihood of a fiscal crisis. Such a crisis can occur as investors' confidence

in the U.S. government's fiscal position erodes, undermining the value of Treasury securities and driving up interest rates on federal debt because investors would demand higher yields to purchase those securities. Concerns about the government's fiscal position could lead to a sudden and potentially spiraling increase in people's expectations of inflation, a large drop in the value of the dollar, or a loss of confidence in the government's ability or commitment to repay its debt in full. The risk of a fiscal crisis appears to be low in the short run despite the higher deficits and debt stemming from the pandemic. That risk is also mitigated in the short run by certain characteristics of the U.S. financial system, including independent monetary policy, government debt issued in U.S. dollars, and a central place in the global financial system. Nonetheless, the much higher debt over time would raise the risk of a fiscal crisis in the years ahead.

In a fiscal crisis, dramatic increases in Treasury rates would reduce the market value of outstanding government securities, and the resulting losses incurred by holders of those securities—including mutual funds, pension funds, insurance companies, and banks—could be large enough to cause some financial institutions to fail. A fiscal crisis could thus lead to a financial crisis. Because the United States plays a central role in the international financial system, such a crisis could spread globally.

Policymakers would have several options to respond to a fiscal crisis. Each option would have economic and distributional consequences, though, and choosing among them would involve difficult trade-offs. One policy option would be to dramatically cut noninterest spending or increase taxes, which could have adverse effects on the economy in the short run. A second option would be for the Federal Reserve to fund deficits through the purchase of Treasury securities. That option, if extensively pursued, would ultimately raise inflation (relative to prior inflation expectations), thereby reducing the real (inflation-adjusted) cost of financing outstanding debt. Such an action could lead to depreciation of the dollar and undermine its role in international currency markets, which in turn could lead to even higher inflation and declines in real wealth and purchasing power. A third option would be to restructure the debt (that is, modify the contractual terms of existing obligations) so that repayment was feasible. (Restructuring the debt is generally viewed as less likely because it would undermine investors' confidence in the government's commitment to repay its debt in full.) Coordinating fiscal and monetary policies in times of crisis could also present significant challenges.

The risk of a fiscal crisis depends on factors beyond the amount of federal debt. Ultimately, what matters is the cost of servicing the debt and the ability to refinance it as needed. Among the factors affecting that ability and cost are investors' expectations about the budget and economic outlook, which can change over time, and about domestic and international financial conditions, including interest rates and exchange rates. Furthermore, the relationships between those factors and the risk of a crisis are uncertain and can shift—depending, in part, on the state of the economy. In CBO's assessment, the debt-to-GDP ratio has no set tipping point at which a crisis becomes likely or imminent; nor is there an identifiable set point at which interest costs as a percentage of GDP become unsustainable. Indeed, the agency cannot reliably quantify the probability that a fiscal crisis might occur. Thus, the distribution of possible outcomes that CBO considered in preparing its baseline projections does not include the potential budgetary and economic outcomes of a fiscal crisis.

The risk of a fiscal crisis in the near term is not currently apparent in financial markets, even though the pandemic and the government's response to it have increased the federal deficit; there is still great uncertainty about the speed and scope of a recovery. However, financial markets do not always fully reflect risks on the horizon and, more importantly, the risk of a fiscal crisis could change suddenly in the wake of subsequent unexpected events. For example, a sudden rise in interest rates could lead investors to become concerned about the government's fiscal position over the long term as their uncertainty grew about whether the rise was temporary or signaled a long-term trend.

Risks of Other Disruptions

Even in the absence of an abrupt fiscal crisis, high and rising debt could have persistent adverse effects on the economy beyond those incorporated in CBO's extended baseline projections, including a gradual decline in the value of Treasury securities and other domestic assets. High and rising debt could lead to increases in inflation expectations. Increases in federal borrowing could also lead to an erosion of confidence in the U.S. dollar as an international reserve currency. Among other effects, such developments would make it more difficult to finance public and private activity. Moreover, the increased dependence on foreign investors could pose other challenges, such as making U.S. financial markets more vulnerable to a change in the valuation of U.S. assets by participants in global markets.

The projected amount of debt increases the risk that interest costs would be substantially greater than projected—even without a fiscal crisis—if interest rates were higher than those underlying CBO's extended baseline projections. Alternatively, a lower borrowing rate would result in smaller interest costs than those in CBO's extended baseline projections. (For further discussion of the sensitivity of federal debt to interest rates, see "Sensitivity of Budget Projections to Changes in Underlying Economic Factors" below.)

High and rising debt (and the large deficits that result) might also constrain policymakers' choices about fiscal policy in the future. As the federal government increased its borrowing, ever-larger cuts in primary deficits would be required to achieve particular targets for deficits or debt. As a result, policymakers could feel constrained from using deficit-financed fiscal policy to respond to unforeseen events or for other purposes (to promote economic activity or further other goals, for example), a situation that might not occur if debt and deficits were lower (or the increase was smaller). High debt could also undermine national security if it compromised the international geopolitical role of the United States or if policymakers felt constrained from increasing national security spending to prepare for or respond to an international crisis.

Risks also arise from the interaction of fiscal and monetary policy in response to higher debt. For example, the Federal Reserve's large-scale purchases of Treasury securities and other financial assets in response to the pandemic pose risks to the outlook for interest rates. CBO expects the Federal Reserve's holdings of Treasury securities, measured as a share of GDP, to begin declining in 2024, which would put modest upward pressure on long-term interest rates. There is some risk, however, that participants in financial markets could react adversely to the Federal Reserve's efforts to taper its holdings of such assets by sharply reducing their demand for Treasury securities, which would cause long-term interest rates to rise rapidly. It is also possible that concern about such an adverse reaction by financial market participants could cause the Federal Reserve to delay reducing its holdings of Treasury securities, which would result in lower long-term interest rates for longer than CBO projects in its baseline.

Demographic and Economic Projections Underlying CBO's Long-Term Budget Projections

CBO's projections of demographic and economic trends are key determinants of the long-term budget outlook

(see Appendix A). Through 2031, those projections reflect the agency's assessment of long-term demographic and economic trends as well as the near-term effects of the pandemic and associated social distancing measures. In addition, they include the agency's estimates of the economic effects of legislation enacted in response to the pandemic. In CBO's assessment, that legislation will partially offset the deterioration in economic conditions caused by the pandemic.¹² For years beyond 2031, the agency's demographic and economic projections are based on its assessment of long-term trends.

CBO integrates economic and budgetary projections in various ways. For example, the economic projections reflect how increases in spending and revenues would affect the economy over the long run. In addition, the budgetary projections reflect how changes in the economy would affect the budget over the long run.¹³

Demographic Projections

The size and age profile of the U.S. population affect the nation's economy and the federal budget. For example, both of those factors influence the number of people in the labor force and the number of beneficiaries of Social Security and other federal programs.¹⁴ In CBO's projections, the U.S. population increases from 335 million at the beginning of 2021 to 375 million in 2051, expanding by 0.4 percent per year, on average. That rate is slower than the average annual rate of growth over the past 50 years (0.9 percent). The share of the population that is age 65 or older also expands over the coming decades, continuing a long-standing historical trend (see Figure 4). By 2051, 22 percent of the population will be 65 or older, whereas today that share is 17 percent. To estimate the growth of the U.S. population, CBO projects rates of fertility, net immigration, and mortality.

Economic Projections

The performance of the U.S. economy in coming decades will affect the federal government's spending, revenues, and accumulation of debt. CBO makes its

long-term economic projections by assessing trends in key economic variables, such as the size of the labor force, productivity growth, and interest rates. The agency also considers the ways in which factors like climate change and fiscal policy influence economic activity.

In CBO's extended baseline projections, growth in potential (or maximum sustainable) GDP over the next 30 years is slower than it has been over the past 70 years (see Figure 5). From 2021 to 2051, real potential GDP increases at an average rate of 1.6 percent per year, whereas it grew at an average annual rate of 3.1 percent from 1951 to 2020.

Size of the Labor Force. That slower growth in potential GDP is attributable to several factors—most notably, slower growth of the potential labor force (the labor force adjusted for fluctuations in the business cycle). In CBO's projections, the potential labor force grows by 0.3 percent per year, on average, through 2051; over the past 50 years, its average annual rate of growth was 1.4 percent. Slowing population growth and the aging of the population account for most of that slowdown.

Productivity Growth. Potential labor force productivity (that is, potential output per member of the potential labor force) is expected to grow at an annual average rate of 1.3 percent over the 2021–2051 period, slower than its average rate of 1.5 percent over the past 30 years.

Growth of labor force productivity is largely determined by two factors. One factor is the accumulation of capital, such as structures and equipment, intellectual property products (such as computer software), and residential housing. Capital accumulation is projected to grow slowly over the coming 30 years, in part because increased federal borrowing is projected to crowd out private investment.

The second factor is the growth of total factor productivity (TFP)—real output per unit of combined labor and capital in the various sectors of the economy. Most TFP growth occurs in the nonfarm business sector, which accounts for about three-quarters of economic activity. Several trends and developments underlie CBO's projection of TFP, including trends in labor quality (workers' educational attainment and experience), federal investment, and climate change. Because a large portion of the labor force is already highly educated, CBO does not expect average educational attainment and labor quality to grow as fast as they have over the past 30 years.

12. See Congressional Budget Office, *The Effects of Pandemic-Related Legislation on Output* (September 2020), www.cbo.gov/publication/56537.

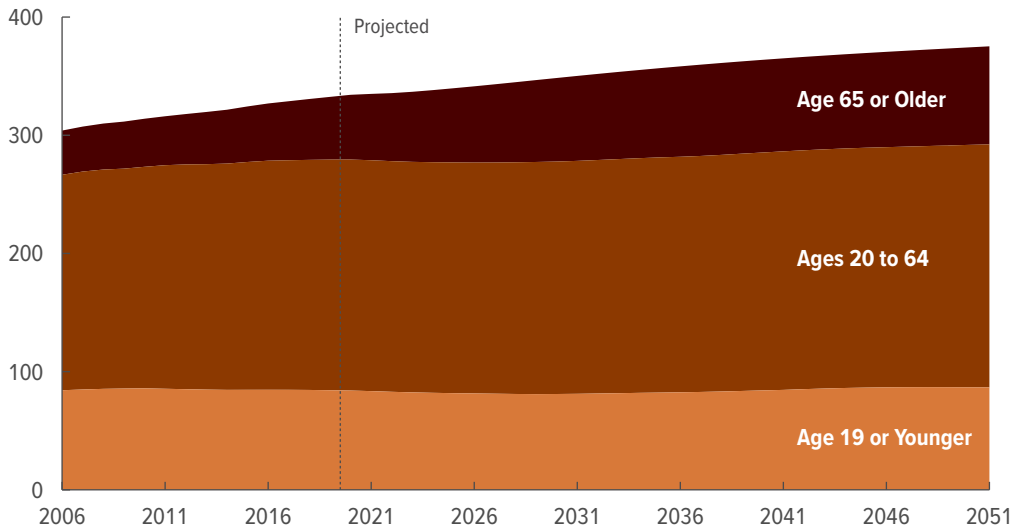
13. See Congressional Budget Office, *An Overview of CBOLT: The Congressional Budget Office Long-Term Model* (April 2018), www.cbo.gov/publication/53667.

14. The labor force refers to the number of people age 16 or older in the civilian noninstitutionalized population who have jobs or who are available for work and are actively seeking jobs.

Figure 4.

Population, by Age Group

Millions of People



CBO projects that the population will become older, on average, throughout the projection period as the share of the population age 65 or older continues to grow.

Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

Actual data are shown through calendar year 2018, the most recent year for which such data are available.

Federal investment is also projected to grow more slowly than it has in the past because spending on social programs and debt service constitute an increasing share of future federal outlays in CBO’s baseline projections. The agency also expects the effects of climate change, on net, to reduce TFP growth over the next 30 years. Collectively those developments would lead to slower TFP growth over that period than over the past 30 years, although growth of TFP is projected to accelerate from its historically slow rate in recent years.

Effects of Climate Change on GDP. In the agency’s assessment, climate change will, on net, reduce GDP. CBO expects climate change to affect GDP in a variety of ways, some of which will increase output and some of which will reduce it. For example, longer growing seasons in northern states are expected to increase agricultural output, but increased instances of extreme heat in other regions are expected to reduce agricultural output. In addition, stronger hurricanes and bigger storm surges caused by rising sea levels are expected to decrease economic output, on net, by reducing the nation’s capital stock, including structures and equipment.

On net, climate change lowers CBO’s projected level of real GDP in 2051 by 1.0 percent from what it would have been if climatic conditions from 2021 to 2051 were

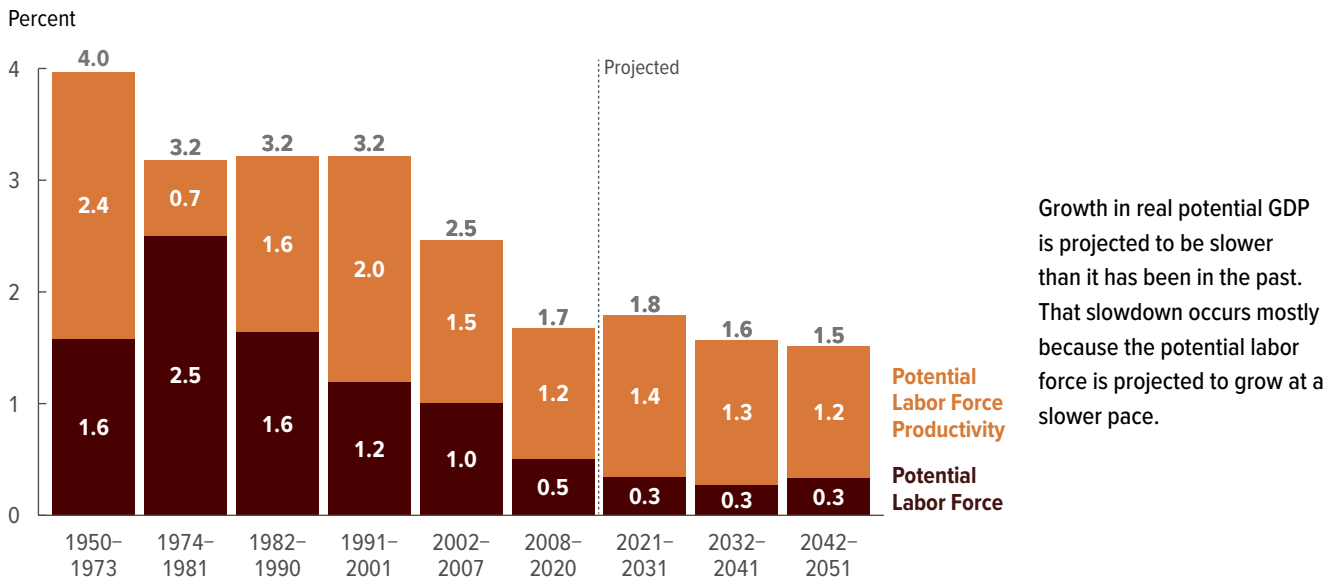
the same as they were at the end of the 20th century.¹⁵ That projection is in the middle of a wide range of possible outcomes, reflecting a variety of economic and scientific uncertainties. The agency also expects climate change to have various effects on the United States that are not directly reflected in economic output.

Interest Rates. CBO expects interest rates to rise throughout the projection period but to remain lower than they have been historically. Notably, the interest rate on 10-year Treasury notes rises from 1.1 percent in 2021 to 3.4 percent in 2031 and 4.9 percent in 2051—about one-half of one percentage point below the 5.4 percent average recorded over the 1995–2004 period. Several factors, including slower growth of the labor force, slower productivity growth, and lower inflation than in the past, are expected to keep interest rates below their historical levels; in CBO’s projections, the effects of those three factors and others outweigh the effects of

15. For additional information on the methods CBO used to estimate the effects of climate change on GDP, see Evan Herrstadt and Terry Dinan, *CBO’s Projection of the Effect of Climate Change on U.S. Economic Output*, Working Paper 2020-06 (Congressional Budget Office, September 2020), www.cbo.gov/publication/56505.

Figure 5.

Average Annual Growth of Real Potential GDP



Growth in real potential GDP is projected to be slower than it has been in the past. That slowdown occurs mostly because the potential labor force is projected to grow at a slower pace.

Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Potential GDP is the maximum sustainable output of the economy. Growth in real potential GDP is the sum of growth in the potential labor force and growth in potential labor force productivity. The potential labor force is the labor force (that is, the number of people in the civilian noninstitutionalized population who are age 16 or older and who are either working or actively seeking work), adjusted to remove the effects of fluctuations in the business cycle. Potential labor force productivity is the ratio of real potential GDP to the potential labor force.

The bars show average annual growth rates over the specified periods.

GDP = gross domestic product.

rising federal debt and other factors that tend to push interest rates above their historical levels.¹⁶

Over the past decade, interest rates on Treasury securities have remained relatively low compared with rates in prior decades, despite the historically large amount of federal borrowing. And interest rates have been low recently, even with the increased borrowing to fund fiscal actions in response to the pandemic. Those low rates over the past decade and more recently partly reflect actions taken by the Federal Reserve.

CBO revised its projections of interest rates downward several times in recent years. For example, the average interest rate on federal debt from 2021 to 2031 is projected to be 1.6 percent, which is 3.3 percentage points lower than what the agency projected for that period

in June 2010. Similarly, the average real interest rate on federal debt is now projected to be -0.7 percent, which is 3.2 percentage points lower than CBO’s 2010 projection. Those downward revisions lower the projected costs of federal borrowing under current law and reduce the estimated scale of changes in fiscal policy that would be necessary to stabilize debt as a share of GDP.

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 are generally lower on shorter-term debt than on longer-term debt because shorter-term debt is less risky, and the average term to maturity for federal debt has been less than 10 years since the 1950s.) On the basis of projections of interest rate spreads, CBO expects the average interest rate on federal debt to be 0.3 percentage points lower than the interest rate on 10-year Treasury notes after 2036. As a result, in the agency’s projections, the average interest rate on federal debt rises from 2.4 percent in 2031 to 4.6 percent by 2051.

16. See Edward N. Gamber, *The Historical Decline in Real Interest Rates and Its Implications for CBO’s Projections*, Working Paper 2020-09 (Congressional Budget Office, December 2020), www.cbo.gov/publication/56891.



Effects of Fiscal Policy. CBO’s economic projections incorporate the effects of projected federal deficits as well as changes in federal tax and spending policies under current law. In particular, the agency projects that borrowing by the federal government would crowd out some private investment in capital over time. Over the next few years, that crowding out of private investment would be much smaller than it would be otherwise because economic conditions brought about by the pandemic will cause short-term interest rates to remain near zero, CBO projects. As the economy expands and interest rates rise, the crowding out of private investment would increase, causing output to be lower in the long term than it would be otherwise, especially in the last two decades of the projection period. Less private investment and less capital would also make workers less productive, leading to lower wages, which would reduce people’s incentive to work and thus lead to a smaller supply of labor.

The agency also incorporates the economic effects of higher marginal tax rates in its extended baseline projections.¹⁷ Under current law, tax rates on individual income are scheduled to rise at the end of 2025. Moreover, as more income is pushed into higher tax brackets over time, labor and capital income face higher tax rates.¹⁸ Higher marginal tax rates on labor income would reduce people’s after-tax wages and thus lessen their incentive to work. Similarly, an increase in the marginal tax rate on capital income would reduce people’s incentives to save and invest, resulting in a smaller stock of capital, which would reduce labor productivity and put downward pressure on wages. All told, less private investment and a smaller labor supply would decrease economic output and income.

Projected Spending Through 2051

Spending by the government is projected to represent a larger percentage of GDP in coming years than it did, on average, during the 50 years before the pandemic. Excluding net spending for interest, federal outlays averaged about 18 percent of GDP from 1970 to 2019. That number reached 29.6 percent of GDP in 2020 because of increased spending in response to the pandemic and a decrease in nominal GDP from the previous year. Under current law, noninterest outlays as a share of GDP are

projected to fall over the next few years as the effects of legislation related to the pandemic wane, and they are projected to be 20.8 percent in 2031. After 2031, under the assumptions that govern the extended baseline, non-interest spending rises relative to the size of the economy, reaching 23.2 percent of GDP by 2051.

Net interest costs are projected to decline in the first few years of the projection period, as the average interest rates on debt held by the public remain low and the effects of those lower rates initially more than offset the effects of the accumulating debt. After several years, though, rising average interest rates on federal debt, along with projected increases in the amount of that debt, cause net interest costs to increase. Those costs more than triple over the last two decades of the projection period, reaching 8.6 percent of GDP in 2051 and boosting total federal spending to 31.8 percent of GDP in that year. Spending has exceeded that level only once, for a three-year period during World War II. In those years, when defense spending increased sharply, total federal spending topped 40 percent of GDP.

Moreover, CBO projects that growth in spending for Social Security, the major health care programs, and interest would reshape the spending patterns of the U.S. government by 2051 (see Figure 6). Net interest costs would account for a much greater portion of total federal spending in 2051 than they did in 2019, and combined spending on Social Security and the major health care programs would account for a much larger share of all federal noninterest spending.

Spending for Social Security and the Major Health Care Programs

Much of the growth in spending for Social Security and the major health care programs over the past few decades has occurred because the number of people age 65 or older—the group that receives most of the benefits provided by Social Security and Medicare—has been growing significantly. In CBO’s extended baseline, the aging of the population continues to drive up outlays for Social Security and Medicare. Outlays for Medicare also climb because, in CBO’s estimation, health care costs per person will continue to rise.

Social Security. Social Security comprises two parts: Old-Age and Survivors Insurance (OASI) and Disability Insurance (DI). OASI pays benefits to retired workers, their eligible dependents, and some survivors of deceased workers. DI pays benefits to disabled workers and their

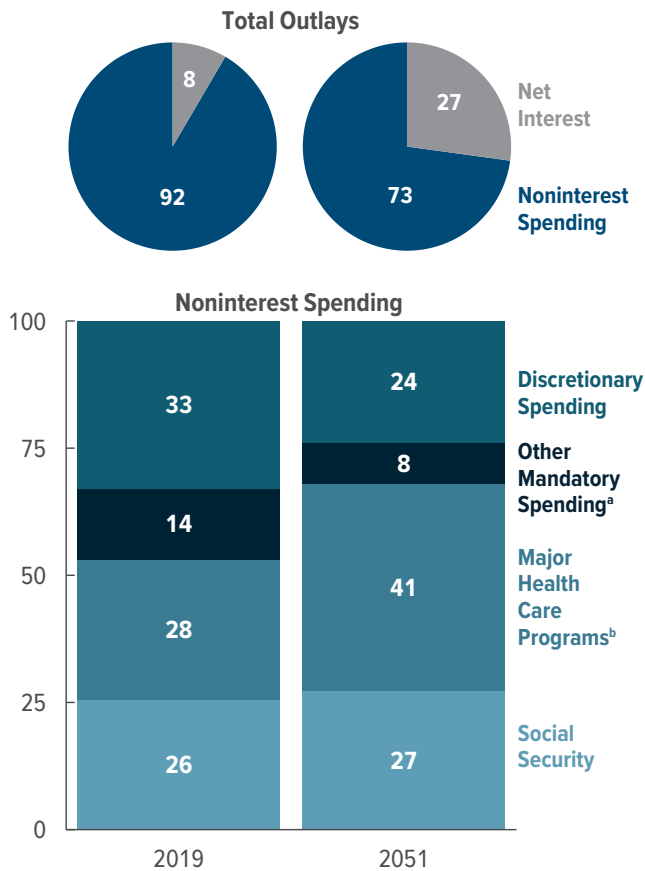
17. The marginal tax rate is the percentage of an additional dollar of income from labor or capital that is paid in taxes.

18. See Congressional Budget Office, “How Income Growth Affects Tax Revenues in CBO’s Long-Term Budget Projections” (presentation, June 2019), www.cbo.gov/publication/55368.

Figure 6.

Composition of Federal Outlays

Percent



Net spending for interest would, under current law, account for a greater portion of total federal spending in 2051 than it did in 2019 (before the coronavirus pandemic), and spending on the major health care programs would account for a much larger share of all federal noninterest spending.

Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

- a. Consists of all mandatory spending other than that for Social Security and the major health care programs. It includes the refundable portions of the earned income tax credit, the child tax credit, and the American Opportunity Tax Credit.
- 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.

dependents until those workers are old enough to claim full retirement benefits under OASI.

In CBO’s projections, spending for Social Security increases as a share of the economy, continuing the trend

of the past five decades. The number of Social Security beneficiaries rises from about 66 million in 2021 to 97 million in 2051, and spending for the program increases from 5.2 percent of GDP to 6.3 percent over that period (see Figure 7). Those projections reflect the assumption that Social Security will continue 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 of the funding 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. In CBO’s extended baseline projections, dedicated tax revenues for the combined trust funds decline from 4.6 percent of GDP in 2021 to 4.4 percent of GDP in 2051.

A commonly used measure of Social Security’s sustainability is the trust funds’ dates of exhaustion. CBO projects that under current law, the OASI trust fund would be exhausted in calendar year 2032 and the DI trust fund would be exhausted in calendar year 2035. If their balances were combined, the Old-Age, Survivors, and Disability Insurance (OASDI) trust funds would be exhausted in calendar year 2032, CBO estimates. The total reduction in annual benefits necessary for the trust funds’ outlays to match their revenues in each year after the two trust funds were exhausted would be about 25 percent in 2033 and would rise to about 30 percent in 2051, in CBO’s estimation.

Major Health Care Programs. Outlays for the major health care programs consist of spending for Medicare,

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 the exhaustion of a trust fund, see Barry F. Huston, *Social Security: What Would Happen If the Trust Funds Ran Out?* Report RL33514, version 31 (Congressional Research Service, July 29, 2020), <https://go.usa.gov/xEtaw>.

20. Sec. 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985 (Deficit Control Act), P.L. 99-177 (codified at 2 U.S.C. §907(b)(1) (2016)).



Figure 7.

Outlays and Revenues in Selected Years

Percentage of Gross Domestic Product



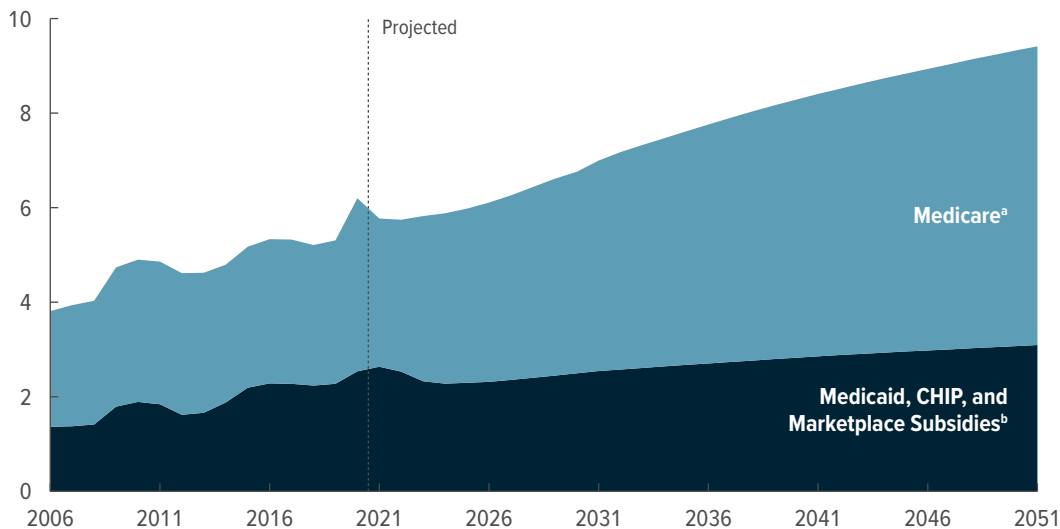
Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

- 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 mandatory spending other than that for Social Security and the major health care programs. It includes the refundable portions of the earned income tax credit, the child tax credit, and the American Opportunity Tax Credit.
- 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.

Figure 8.

Federal Outlays for the Major Health Care Programs, by Category

Percentage of Gross Domestic Product



Medicare spending is projected to account for more than four-fifths of the increase in spending for the major health care programs over the next 30 years.

Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

CHIP = Children's Health Insurance Program.

a. Includes the effects of premiums and other offsetting receipts.

b. "Marketplace Subsidies" refers to spending to subsidize health insurance purchased through the marketplaces established under the Affordable Care Act and related spending.

Medicaid, and the Children's Health Insurance Program (CHIP), as well as outlays for premium tax credits and related spending.²¹ Spending on Medicare, which provides health insurance to 64 million people (most of whom are at least 65 years old), accounts for over half of that spending in 2021.

CBO projects federal spending for the government's major health care programs under the assumption that the laws governing those programs will, in general, remain unchanged. The agency assumes that Medicare will pay benefits as scheduled under current law (the same assumption it makes for Social Security), regardless of the amounts in the program's trust funds.

Over the past five decades, spending for the major health care programs has grown faster than the economy, and that trend persists in CBO's extended baseline. In 2021,

net federal spending for the major health care programs is estimated to equal 5.8 percent of GDP. In the agency's projections, net outlays for those programs increase to 9.4 percent in 2051: Medicare spending, net of offsetting receipts (mostly premiums paid by enrollees), grows by 3.2 percentage points of GDP, and spending on Medicaid and CHIP, combined with outlays for premium tax credits and related spending, grows by 0.5 percentage points of GDP (see Figure 8).²²

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 the primary reasons for the sharp rise in projected spending for Social Security and the major health care programs over the next 30 years. In CBO's extended baseline projections, combined spending for Social Security and the major health care programs grows

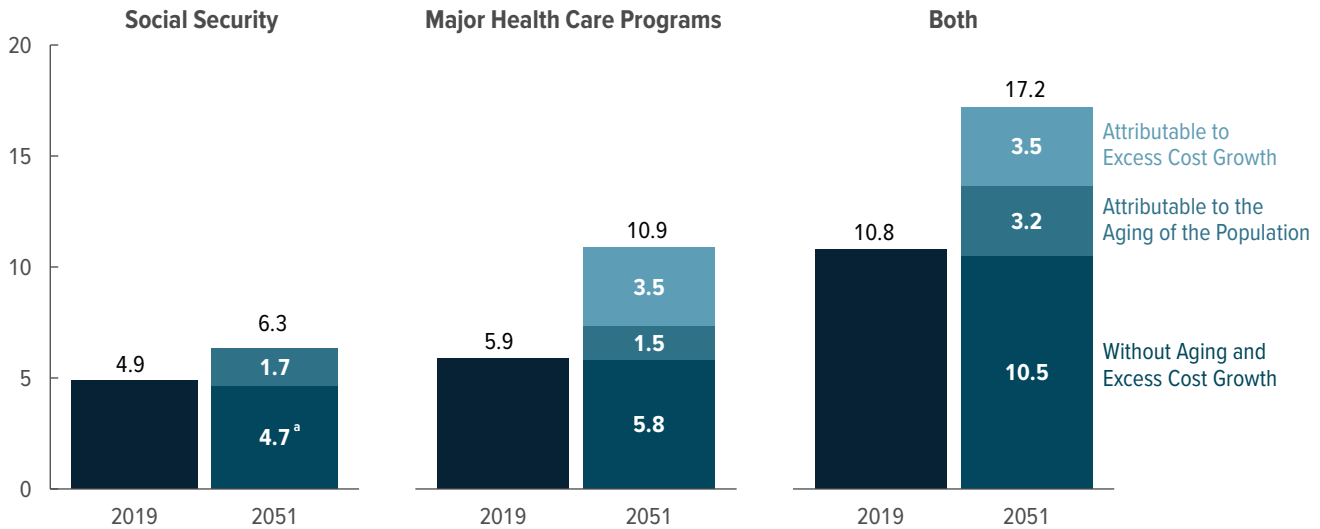
21. Premium tax credits are federal subsidies for health insurance purchased through the marketplaces established by the Affordable Care Act. Related spending consists almost entirely of payments for risk adjustment and the Basic Health Program (an optional state program that covers low-income residents outside of the health insurance marketplaces).

22. In CBO's projections, the outlays for subsidies for insurance purchased through the marketplaces and related spending are combined with outlays for Medicaid and CHIP. Federal subsidies for health insurance for low- and moderate-income households account for most of those outlays.

Figure 9.

Outlays for Social Security and the Major Health Care Programs in 2019 and 2051

Percentage of Gross Domestic Product



Much of the growth in combined spending for Social Security and the major health care programs results from the aging of the population. Growth in spending for the major health care programs is also driven by excess cost growth—the extent to which the growth rate of health care costs per person (adjusted for demographic changes) exceeds the growth rate of potential GDP (the economy’s maximum sustainable output) per person.

Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

Spending for the major health care programs consists of gross spending for Medicare (which does not account for premiums or 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.

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

GDP = gross domestic product.

a. If aging did not occur, spending on Social Security as a share of GDP would be lower in 2051 than it was in 2019, mainly because of the scheduled increases in the full retirement age for Social Security.

from 10.8 percent of GDP in 2019 to 17.2 percent in 2051 (see Figure 9).²³ The aging of the population and rising health care costs per person each account for about half of that increase.

In CBO’s estimation, if the population was not aging and health care costs per person (adjusted for demographic changes) grew with potential GDP per person—that is, more slowly than the agency currently projects—spending on Social Security and the major health care programs as a share of GDP would be slightly lower in 2051 than in 2019.

Aging of the Population. The increase in Social Security spending attributable to the aging of the population is greater than the amount of the projected increase in Social Security spending as a percentage of GDP. In other words, if not for the aging of the population, spending on Social Security as a share of the economy would decline from 4.9 percent of GDP in 2019 to 4.7 percent of GDP in 2051. That is mainly because of the scheduled increases in the full retirement age for Social Security, which reduce the lifetime benefits for affected beneficiaries.²⁴

23. This analysis of the causes of spending growth encompasses gross spending on Medicare and does not reflect receipts credited to the program from premiums and other sources.

24. For more details about the full retirement age for Social Security, see Zhe Li, *The Social Security Retirement Age*, Report R44670, version 12 (Congressional Research Service, January 8, 2021), <https://go.usa.gov/xGnEx>.



Over the 2019–2051 period, spending attributable to the aging of the population accounts for about one-third of the projected increase in total spending for the major health care programs, relative to GDP. That impact of aging stems mostly from the effects of aging on spending for Medicare because it is the largest such program and most beneficiaries qualify for it at age 65. As that group becomes larger and, on average, older, Medicare spending will increase, not only because the number of beneficiaries will rise but also because people tend to require more health care as they age.

Rising Health Care Costs per Person. Even though growth in health care costs per person (adjusted for demographic changes) has slowed recently, over the next 30 years such costs are projected to continue to grow faster than potential GDP per person—1 percent faster for Medicare and 1.3 percent faster for Medicaid, on average. In CBO’s extended baseline projections, that growth in health care costs per person accounts for about two-thirds of the increase in spending, measured as a share of GDP, for the major health care programs between 2019 and 2051.

Other Noninterest Spending

In CBO’s extended baseline projections, total federal spending for all programs and activities other than Social Security, the major health care programs, and interest declines as a share of GDP from a historically high level in 2020 to its lowest level in more than 70 years. Over the past 50 years, such spending has averaged 11 percent of GDP. Before 2020, it had been as high as 15 percent (in the late 1960s) and as low as 8 percent (in the late 1990s and early 2000s).

Other noninterest spending is projected to decrease in 2021 to 13.9 percent of GDP. As the effects on the budget of the laws enacted in response to the pandemic dissipate, CBO projects that such spending would fall to 7.8 percent of GDP in 2031 and to 7.4 percent of GDP in 2051 (see Figure 7 on page 19). Discretionary spending is projected to decline in relation to GDP over the next 10 years and is assumed to stay roughly constant from 2032 to 2051. Other mandatory spending (which excludes outlays for Social Security and the major health care programs) is projected to generally decline relative to GDP over the next 30 years.

Discretionary Spending. About half of all discretionary spending is dedicated to national defense, and the rest is

for an array of federally funded activities and programs, including education, transportation, housing assistance, veterans’ health care, health-related research and public health programs, the administration of justice, and international affairs.

Over the past half-century, discretionary outlays decreased from 11.5 percent of GDP in 1970 to 6.3 percent of GDP in 2019. In 2020, those outlays increased to 7.8 percent of GDP because of policies put in place to counter the pandemic-related economic disruption. In the agency’s baseline projections, those outlays decrease steadily from 7.6 percent of GDP in 2021 to 5.7 percent in 2031.

Through 2021, most discretionary funding is limited by caps on annual discretionary appropriations that were specified in the Bipartisan Budget Act of 2019 (P.L. 116-37). In CBO’s projections, the decline in discretionary outlays relative to GDP over the following 10 years reflects CBO’s assumption (required by law for its 10-year baseline projections) that discretionary funding will grow at the rate of inflation—which is slower than the projected growth of nominal GDP—beginning in 2022.²⁵

After 2031, in CBO’s projections, discretionary spending transitions over a five-year period from growing with the rate of inflation to growing with nominal GDP. Beyond 2036, the agency’s extended baseline projections reflect the assumption that discretionary spending will grow with nominal GDP and remain constant at 5.5 percent of GDP through 2051 (see Figure 10).²⁶

Other Mandatory Spending. Since the mid-1960s, mandatory spending, excluding that for Social Security and the major health care programs, has generally

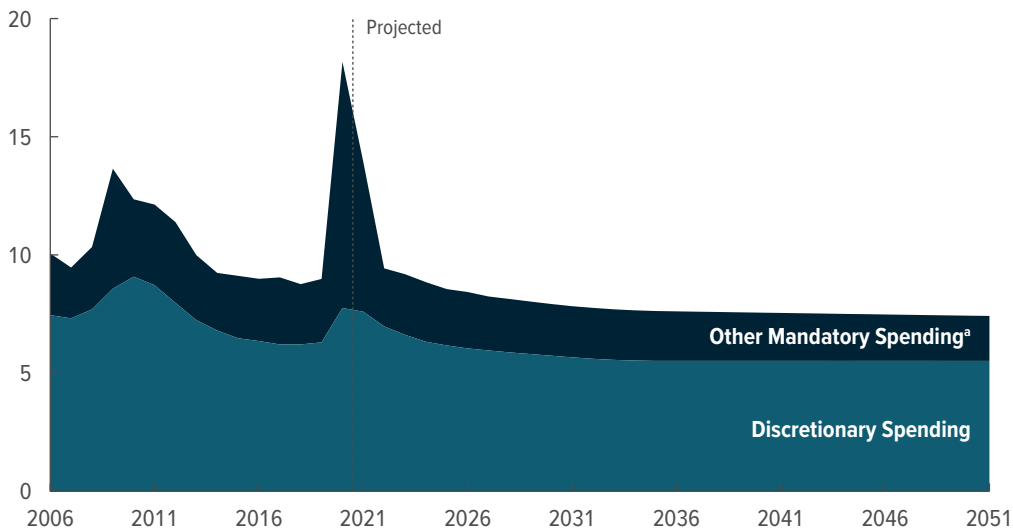
25. In accordance with section 257 of the Deficit Control Act, CBO projects budget authority over the 10-year period by applying the specified inflation rate to the most recent appropriations for discretionary accounts. Because of the unusual size and nature of the emergency funding provided in recently enacted legislation in response to the pandemic, CBO, in consultation with the House and Senate Committees on the Budget, deviated from the standard procedures for constructing its current extended baseline and did not extrapolate the discretionary budget authority provided by the laws enacted in response to the pandemic after March 6, 2020.

26. Although discretionary spending declines in relation to GDP from 2021 to 2031 in CBO’s projections, the agency does not project that it would decline further. That is because discretionary spending has historically been a larger share of economic output than it is projected to be in 2031.

Figure 10.

Other Federal Noninterest Outlays

Percentage of Gross Domestic Product



Over the long term, other federal noninterest spending, measured as a percentage of economic output, declines in CBO's projections.

Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

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

remained between 2 percent and 4 percent of GDP. That category of spending includes spending for SNAP, unemployment compensation, retirement programs for federal civilian and military employees, certain veterans' programs, Supplemental Security Income, and certain refundable tax credits.²⁷

Other mandatory spending is projected to equal 6.3 percent of GDP in 2021. Such spending equaled 10.4 percent of GDP in 2020, an increase from 2.7 percent in 2019 that is mainly attributable to policies enacted in response to the pandemic and associated economic downturn. For the rest of the 10-year period, such spending generally declines as a share of the economy, reaching 2.2 percent of GDP in 2031.²⁸ The projected decline occurs in part because benefit amounts for many

of those programs are adjusted for inflation each year, and inflation in CBO's economic forecast is estimated to be less than the rate of growth in nominal GDP.

In CBO's extended baseline projections, other mandatory spending falls to 1.9 percent of GDP by 2051. That reduction is partly attributable to growth in income, which decreases the number of people who qualify for refundable tax credits. That reduction also reflects the assumption that after 2031 other mandatory spending, excluding outlays for such tax credits, declines at roughly the same rate by which it is projected to fall between 2026 and 2030 in the baseline the agency published in March 2020.²⁹

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. Over the next three years, in CBO's projections, net interest costs decrease from 1.4 percent of GDP in 2021 to 1.1 percent in 2024 because of continued low

27. 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.

28. 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.

29. In CBO's assessment, the pandemic and associated economic downturn will not affect the growth rate of other mandatory spending between 2031 and 2051.

interest rates as well as rising GDP. Those costs increase to 2.4 percent by 2031 as federal debt grows and interest rates rise. Net interest costs reach 8.6 percent of GDP by 2051—higher than they have ever been (see Figure 7 on page 19). If net interest costs followed that projected path, they would exceed other mandatory spending by 2030, exceed all discretionary spending by 2043, and surpass spending for Social Security by 2045.

Over the long term, deficits and debt rise in the agency's projections because of the widening gap between spending and revenues. Higher interest costs are a major contributor to the widening of that gap. Net interest costs are projected to equal about one-third of the total deficit in the 2021–2031 period and about three-fifths of it from 2042 to 2051. Those rising interest costs largely result from increases in interest rates that reflect long-term economic trends, which CBO projects would occur even if debt did not grow beyond its current level. But greater federal borrowing places additional upward pressure on interest rates and thus on interest costs. Moreover, growth in interest costs and growth in debt reinforce one another: Rising interest costs boost deficits and debt, and rising debt pushes up interest costs.

Projected Revenues Through 2051

In CBO's extended baseline projections, revenues measured as a share of GDP are generally higher than they have been, on average, in recent decades. Revenues have averaged 17.3 percent of GDP over the past 50 years, but they have fluctuated between 15 percent and 20 percent of GDP over that period because of changes in tax laws and interactions between those laws and economic conditions.

CBO's revenue projections are based on the assumption that the rules for all tax sources (individual income taxes, corporate income taxes, payroll taxes, and other taxes) will change as scheduled under current law.³⁰ CBO projects a continued decline in revenues as a percentage of GDP in 2021, reflecting the economic disruption caused by the pandemic and the federal government's response to it, including the enactment of legislation. After declining from 16.3 percent in 2020 to 16.0 percent in 2021, total revenues as a share of GDP are projected to

reach 17.2 percent in 2025. Largely because of scheduled increases in taxes resulting from the expiration of certain provisions of the 2017 tax act that affect individual income taxes, revenues are projected to rise after 2025, reaching 17.9 percent of GDP by 2027. From 2028 to 2031, revenues grow more slowly than GDP. In the agency's extended baseline projections, revenues grow faster than GDP after 2031 and total 18.5 percent of GDP in 2051.

Increases in receipts from individual income taxes account for most of the projected 2.5 percentage-point rise in total revenues as a share of GDP from 2021 to 2051. Revenues from corporate income taxes also rise relative to GDP over that period, whereas revenues from payroll taxes and other sources decline (see Figure 7 on page 19).

Reasons for the Growth in Revenues

The underlying causes of the projected increase in total revenues as a share of GDP over the 30-year period are real bracket creep in the individual income tax system, scheduled increases in taxes, and other factors (see Figure 11).

Real Bracket Creep. The largest contributor to the increase in total revenues over the next three decades is real bracket creep, which occurs when income grows faster than inflation, as typically happens during economic expansions. If current laws generally remained unchanged, real bracket creep would continue to gradually push up taxes in relation to income through 2051, CBO projects, thereby increasing tax receipts. Even though most income tax brackets, exemptions, credits, and other tax thresholds are indexed to inflation, more income is pushed into higher tax brackets, and credits are phased out when income growth exceeds the rate of inflation.³¹ Between 2031 and 2051, the share of income taxed at the top rate of 39.6 percent would rise by 1 percentage point—and the share of income excluded from taxation would fall by 3 percentage points—because of real bracket creep (see Figure 12).³²

30. The sole exception is expiring excise taxes dedicated to trust funds. The Deficit Control Act requires CBO's baseline to reflect the assumption that those taxes would be extended at their current rates. That law does not stipulate that the baseline include the extension of other expiring tax provisions, even if lawmakers have routinely extended them in the past.

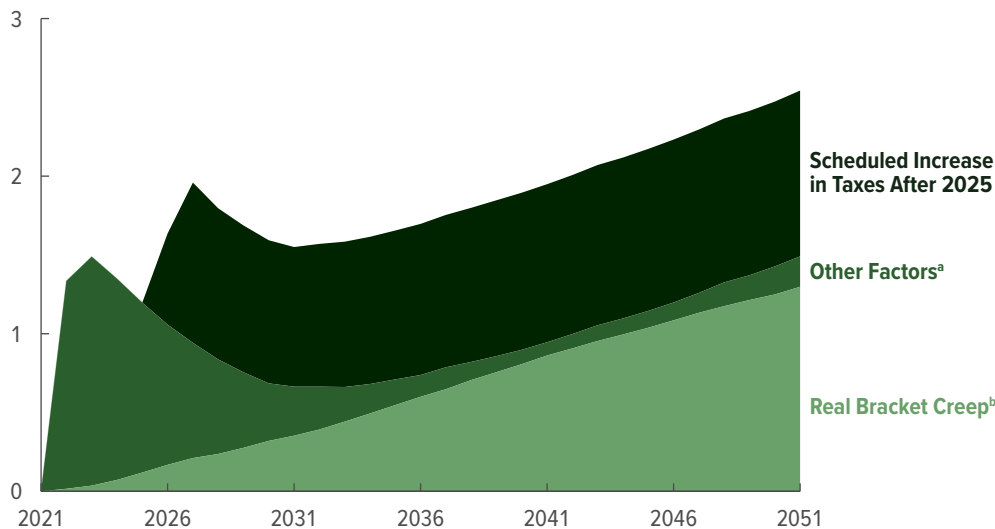
31. Some parameters of the tax system, including the amount of the child tax credit, are fixed in nominal (current-year) dollars and are not adjusted for inflation.

32. For more details, see Congressional Budget Office, "How Income Growth Affects Tax Revenues in CBO's Long-Term Budget Projections" (presentation, June 2019), www.cbo.gov/publication/55368.

Figure 11.

Changes in Revenues

Percentage of Gross Domestic Product



Revenues, measured as a percentage of gross domestic product, are projected to rise in the near term as the economy recovers from the disruption caused by the coronavirus pandemic and as temporary legislation enacted in response to the pandemic expires. Projected revenues rise sharply following the expiration at the end of 2025 of certain temporary provisions of the 2017 tax act.

Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

- a. Other factors include temporary tax provisions enacted in response to the pandemic, which reduce revenues in 2020 and 2021, as well as factors that affect revenues over the longer term, such as changes in the distribution of wages and growth in nontaxable compensation resulting from rising health care costs.
- b. Real bracket creep is the process in which, as income rises faster than inflation, a larger proportion of income becomes subject to higher tax rates.

Scheduled Increases in Taxes After 2025. Another factor pushing up taxes relative to income is the scheduled expiration after calendar year 2025 of nearly all provisions of the 2017 tax act that affect individual income taxes. The provisions that are scheduled to expire include lower statutory tax rates, the higher standard deduction, the repeal of personal exemptions, and the expansion of the child tax credit.³³ Those expirations would cause tax liabilities to rise in calendar year 2026, boosting individual income tax receipts relative to GDP by 0.9 percentage points for the 2021–2031 period.

Other Factors. Many other factors affect revenues—but to a lesser extent—in the extended baseline projections. Initially, temporary tax provisions enacted in response to the pandemic and associated economic disruption are expected to significantly reduce receipts in 2021. The expiration of those temporary provisions is projected to boost receipts in 2022 and beyond.

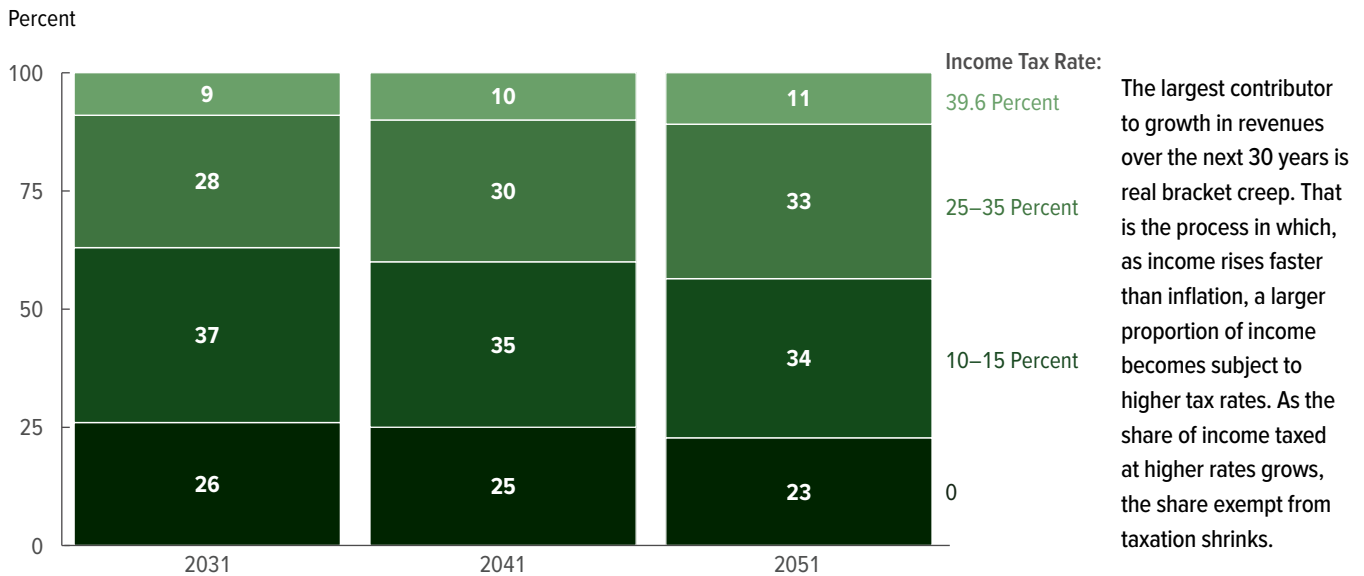
A different set of factors affects revenues over the longer term. One of those factors is the change in the distribution of earnings. Earnings are projected to grow faster for higher-earning people than for other people in the long term. That trend would cause a larger share of individual earnings to be taxed at higher rates. However, the resulting increase in individual income tax revenues would be largely offset by a decrease of nearly the same amount in payroll tax receipts, CBO projects, because the share of earnings above the maximum amount subject to Social Security payroll taxes would grow. (Workers do not accrue additional Social Security benefits for earnings above the maximum taxable amount. For a given total amount of earnings, therefore, an increase in the share above the limit would reduce overall future benefit payments.)

A second factor is growth in health care costs, which is projected to reduce revenues as a share of GDP over the next three decades. The share of employees' compensation that is paid in the form of wages and salaries, which are subject to income and payroll taxes, is projected to decline because of rising spending on fringe benefits (such as employment-based health insurance), which are not taxable. That shift in compensation would decrease

33. Rules allowing accelerated depreciation deductions for certain business investments, which are scheduled to phase out between 2022 and 2027, are not included here.

Figure 12.

Shares of Income Taxed at Different Rates Under the Individual Income Tax System



Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

In this figure, income refers to adjusted gross income—that is, income from all sources not specifically excluded by the tax code, minus certain deductions. The income tax rate is the statutory rate specified under the individual income tax system. The lowest statutory tax rate is zero (because of deductions and exemptions).

taxable income—and thus revenues from both income and payroll taxes—relative to GDP.

Sensitivity of Budget Projections to Changes in Underlying Economic Factors

CBO’s budget projections depend on its forecasts of economic factors, including productivity growth and interest rates. To assess the sensitivity of its budget projections to those forecasts, CBO has analyzed how the projections would differ if those forecasts were higher or lower than it anticipates (see Figure 13).

Growth of Total Factor Productivity

CBO examined the sensitivity of its projection of federal debt to changes in the growth rate of total factor productivity in the nonfarm business sector. The agency projected economic and budgetary outcomes using rates of growth for nonfarm business TFP that were 0.5 percentage points higher and 0.5 percentage points lower than the rate underlying the extended baseline projections.³⁴ That range reflects the variation of about three-quarters

of a percentage point in average TFP growth over 30-year periods between 1950 and the present, plus one-quarter of a percentage point representing additional sources of variation that may not be reflected in the historical data.

- If nonfarm business productivity grew 0.5 percentage points faster than CBO projects, federal debt held by the public would be 156 percent of GDP in 2051 rather than 202 percent, as it is in the extended baseline projection.
- If nonfarm business productivity grew 0.5 percentage points more slowly than projected, federal debt held by the public would be 252 percent of GDP in 2051.

Interest Rates on Federal Debt Held by the Public

CBO also examined the sensitivity of its projection of federal debt to changes in interest rates. The agency projected economic and budgetary outcomes under two scenarios in which federal borrowing rates are higher and lower, respectively, by a differential that increases by 5 basis points per year (before accounting for

34. CBO’s analyses of sensitivity to productivity growth started with a change in the parameter for total factor productivity growth

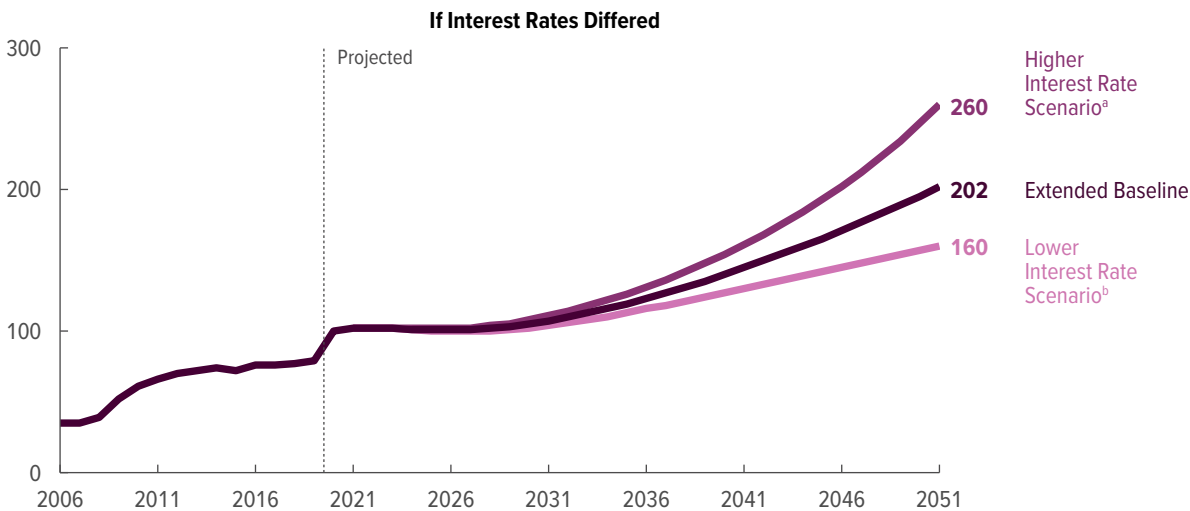
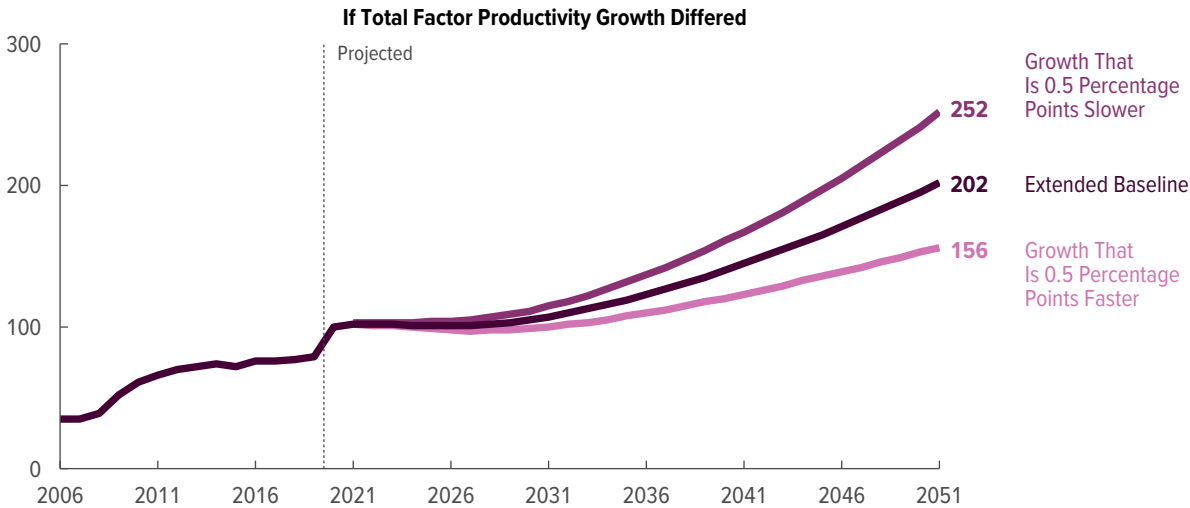
and then accounted for the effects of that change on capital and other macroeconomic factors in the alternative projections.



Figure 13.

Federal Debt If Total Factor Productivity Growth or Interest Rates Differed From the Values Underlying CBO’s Projections

Percentage of Gross Domestic Product



Data source: Congressional Budget Office. See www.cbo.gov/publication/56977#data.

Total factor productivity growth is the growth of real output (output adjusted to remove the effects of changes in prices) per unit of combined labor and capital services in the nonfarm business sector. The interest rate is the effective rate on federal debt.

The extended baseline projections, which generally reflect current law, follow CBO’s 10-year baseline budget projections and then extend most of the concepts underlying those projections for the rest of the long-term projection period.

- a. In this scenario, the effective interest rate on federal debt is higher than the rate underlying CBO’s extended baseline by a differential that starts at 5 basis points in 2021 and increases by 5 basis points each year (before macroeconomic effects are accounted for)—that is, the interest rate is 5 basis points higher than the baseline rate in 2021, 10 basis points higher than the baseline rate in 2022, 15 basis points higher than the baseline rate in 2023, and so on. (A basis point is one one-hundredth of a percentage point.)
- b. In this scenario, the effective interest rate on federal debt is lower than the rate underlying CBO’s extended baseline by a differential that starts at 5 basis points in 2021 and increases by 5 basis points each year (before macroeconomic effects are accounted for)—that is, the interest rate is 5 basis points lower than the baseline rate in 2021, 10 basis points lower than the baseline rate in 2022, 15 basis points lower than the baseline rate in 2023, and so on.



macroeconomic effects) relative to the rates underlying the agency's extended baseline.³⁵

- If federal borrowing rates were higher by a differential that starts at 5 basis points in 2021 and increases by 5 basis points each year (before macroeconomic effects are accounted for), federal debt held by the public would be 260 percent of GDP in 2051 rather than the 202 percent in the extended baseline projection.³⁶
- If federal borrowing rates were lower by a differential that starts at 5 basis points in 2021 and increases by 5 basis points each year (before macroeconomic effects are accounted for), federal debt held by the public would be 160 percent of GDP in 2051.³⁷

Uncertainty of CBO's Long-Term Projections

Budget projections are inherently uncertain. 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 extended baseline projections because of unexpected changes in demographics, the economy, and other factors. In 2019, CBO analyzed how its budget projections would change if a set of key factors—several demographic and economic factors and the growth of health care costs—together deviated from the paths underlying those projections.³⁸

35. CBO's analyses of sensitivity to interest rates started with a change in the average federal borrowing rate while using the same 10-year Treasury rate. Then the analyses accounted for the effects on capital and other macroeconomic factors in the alternative projections, which affected both rates. For instance, increasing interest rates would lead to higher debt-service payments that would crowd out private investment, causing the average federal borrowing rate to rise further—reaching 6.6 percent in 2051, compared with 4.6 percent in the extended baseline. Similarly, for the scenario in which interest rates on debt are reduced, lower debt-service payments would crowd out less private investment and would cause the federal borrowing rate to decrease further—reaching 2.7 percent in 2051.

36. In this scenario, the interest rate is 5 basis points higher than the baseline rate in 2021, 10 basis points higher than the baseline rate in 2022, 15 basis points higher than the baseline rate in 2023, and so on. (A basis point is one one-hundredth of a percentage point.)

37. In this scenario, the interest rate is 5 basis points lower than the baseline rate in 2021, 10 basis points lower than the baseline rate in 2022, 15 basis points lower than the baseline rate in 2023, and so on.

38. See Congressional Budget Office, *The 2019 Long-Term Budget Outlook* (June 2019), www.cbo.gov/publication/55331.

Demographic and economic projections over 30 years are subject to high degrees of uncertainty because small changes in some factors, compounding over many years, can greatly affect projected budgetary outcomes decades in the future. Furthermore, the pandemic's potential effects on long-term trends are unknown, so the projections in this report are subject to an unusually high degree of uncertainty. That uncertainty stems from many sources, including changes to demographics (how the pandemic will affect rates of fertility, net immigration, and mortality), the economy (how the pandemic will affect economic growth and interest rates), and health care expenditures (how the pandemic will shift the demand for and supply of health care services). Uncertainty also surrounds the effectiveness of monetary and fiscal policy and the response of global financial markets to the substantial projected increases in public deficits and debt. The agency expects to examine the uncertainty surrounding its projections in greater depth in the next report in this series.

Changes From Last Year's Long-Term Budget Outlook

CBO's projection of federal debt as a share of GDP is slightly lower in most years over the next three decades than it was in last year's projections. In the agency's current extended baseline projections, federal debt rises from 102 percent of GDP in 2021 to 195 percent in 2050. The amount for 2021 is 2 percentage points lower than what CBO projected last year, whereas the amount for 2050 is the same. (See Appendix B for more information about the changes in CBO's long-term budget projections since last year.)

Compared with last year's projections, the current projection of total spending as a percentage of GDP is higher in 2021, lower in the near term, and similar during the period thereafter. In addition, the agency's projections of revenues as a percentage of GDP are higher in the next few years and similar thereafter. As a result of those revisions, projected deficits as a percentage of GDP are now higher in 2021 than previously anticipated, generally smaller in the near term, and then similar thereafter. CBO also projects that the OASI trust fund and the DI trust fund would be exhausted later than the agency expected last year—by one year and nine years, respectively. In addition, CBO changed the way it analyzes the sensitivity of its budget projections to changes in the average interest rate on federal debt held by the public.