



THE FEDERAL BUDGET OUTLOOK AFTER COVID-19

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This policy brief shows that the COVID-19 pandemic and associated policy responses substantially raised federal deficits, but only on a temporary basis. We project that the debt-to-GDP ratio, currently 98 percent, will rise to 190 percent in 2050 under current law, compared to a pre-COVID baseline projection of 180 percent. Sharply lower projections of interest rates for the next dozen years help moderate future debt accumulation. Because of the macro-stabilization effects of fiscal tightening, and because low interest rates create “breathing room” for fiscal policy, we do not see the current debt status as necessitating any immediate offsetting response.

I. INTRODUCTION

The COVID-19 pandemic and the associated policy responses have had a significant impact on the budgets of federal, state, and local governments. This policy brief examines the impact of these events on the fiscal status of the federal government.²

Section II provides new projections of the federal budget outlook, with five main results. First, we document that the pandemic and the policy responses to it rapidly and substantially raised federal deficits, but only on a temporary basis. Spending and revenue are projected to return to pre-COVID baseline values relatively quickly.

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² Other countries are facing similar fiscal issues. The International Monetary Fund (2020) estimated that, as of July, the effects of COVID-related automatic and discretionary policy changes have increased cumulative deficits by 13.6 percent of GDP in advanced countries.

Second, the long-term fiscal outlook through 2050 has deteriorated somewhat. Under the Congressional Budget Office’s (CBO 2020f) assumptions for GDP growth and interest rates, we project that the debt-to-GDP ratio, currently 98 percent, will rise to 190 percent in 2050 under current law, compared to a pre-COVID baseline projection of 180 percent. CBO (2020f) obtains a similar projection—195 percent—using a slightly different set of assumptions.

Third, although the economic downturn and COVID-related legislation raise debt permanently, sharply lower projections of interest rates for the next dozen years help moderate future debt accumulation. Nevertheless, even during the period when interest rates are expected to be low, the projected debt-to-GDP ratio rises steadily due to substantial and rising primary deficits, driven largely by rising outlays on health-related programs and Social Security. As the economy grows and debt accumulates, the average interest rate on government debt is projected to rise and to exceed the nominal GDP growth rate by increasing amounts starting in the early 2040s.

Fourth, under a “current policy” projection that allows temporary tax provisions—such as those in the Tax Cut and Jobs Act of 2017—to be made permanent, the debt-to-GDP ratio would rise to 222 percent by 2050 and would continue rising thereafter. Fifth, the long-term projections are sensitive to interest rates. If interest rates remain very low (that is, at their projected level for 2025), rather than rising as in the CBO projections, the debt-to-GDP ratio would equal 157 percent in 2050 under current policy.

We discuss several aspects of these results—including how the current episode compares to past debt changes, the role of historically low interest rates, and recent Federal Reserve Board policies. Because of the macro-stabilization effects of fiscal tightening, and because low interest rates create “breathing room” for fiscal policy,³ we do not see the large, short-run debt accumulation resulting from the current pandemic as necessitating any immediate offsetting response. But the long-term projections show that significant fiscal imbalances remain and will eventually require attention.

Section III provides concluding remarks.

II. THE FEDERAL BUDGET OUTLOOK

We examine the fiscal outlook over 10- and 30-year horizons. While the shorter horizon conforms to that used by CBO in its standard budget analysis, the longer horizon provides additional insight about underlying budget trends and questions of fiscal sustainability.

Constructing Budget Baselines

TEN YEAR OUTLOOK

To provide perspective on both the current budget outlook and how it was affected by the COVID pandemic, we examine three baselines. The “pre-COVID baseline” is based entirely on current law projections that the Congressional Budget Office (CBO, 2020a) made in January, pre-dating any consideration of the impact of COVID on the economy.

The “current law” baseline is embodied in the CBO’s most recent 10-year budget projection (CBO 2020c). These projections—by law and convention—assume that Congress does (almost) nothing in the way of new programs or tax changes for the next 10 years.⁴ Current law projections serve an important purpose—they show where the government

³ Elmendorf and Sheiner (2017), Blanchard (2019a, 2019b)

⁴ But the projections do require that Congress increase or suspend the debt limit as needed to carry out the tax and spending programs in the baseline, that temporary entitlement programs (like SNAP and TANF) are reauthorized on schedule, and that outlays for discretionary spending programs remains constant in real terms over the decade, unless such authority is governed by a specific law. Also, current law projections assume that when the Social Security, Disability, and Medicare (part A) trust funds are exhausted, Congress will (a) authorize full payment of promised benefits and (b) cover any shortfalls with general revenue financed by federal borrowing.

is headed in the absence of almost any action. Another way to proceed, however, is to ask where the government is headed if policy makers continue to make choices like they have in the past. Constructing a baseline along these lines—typically characterized as “current policy”—clearly requires judgment calls to project the consequences of Congress following a “business as usual” approach.

Our current policy projections start with current law projections and make a series of adjustments (based on CBO data). These adjustments simply show the effects of what, in our judgment, can be viewed as a continuation of current policies. Given the wide array of provisions enacted in the last year due to the COVID pandemic, judgments about what constitutes current policy are particularly difficult under present circumstances, so we take a conservative approach and focus narrowly on items that are conventionally included in “current policy” estimates.

Specifically, we assume that, as it has done in the past, Congress makes temporary tax-cut provisions permanent, including the temporary provisions in the 2017 Tax Cuts and Jobs Act.⁵ We allow real non-defense discretionary spending to rise with population growth, rather than remaining constant over time, as CBO assumes, because maintaining current services for these programs is likely to require a population adjustment. In contrast, defense spending, which largely provides a non-rival public good, plausibly can maintain current services over the relatively short 10-year horizon without a population adjustment.⁶ We assume all CARES Act provisions are implemented and allowed to expire as scheduled and that the President’s payroll tax deferral has no effect on any budget outcome.

30-YEAR OUTLOOK

Looking only at the next ten years gives an incomplete picture of the fiscal outlook, even with adjustments made to characterize current policy. Projections covering 30 years are generally sufficient to capture most long-term trends. To generate the longer-term projections, we begin with budget and economic figures for 2030 (in the three baselines developed above) and project forward each part of the government budget. Except where noted below, the three baselines are based on similar assumptions after 2030.

First, following CBO (2020f), the nominal growth rate of GDP is set equal to 3.6 percent for 2031-40 and 3.5 percent for 2041-2050. Second, for Medicare and Old-Age, Survivors, and Disability Insurance (OASDI), we project all elements of spending and dedicated revenues (payroll taxes, income taxes on benefits, premiums and contributions from states) using the growth rates as a share of GDP in the intermediate projections in the 2020 Trustees Reports for the period between 2030 and 2050. Third, for Medicaid and the Children's Health Insurance Program (CHIP), we use the most recent long-term CBO (2020f) projections. Fourth, all other non-interest spending—“other” mandatory spending and discretionary spending—is assumed to remain constant as a share of GDP. Fifth, income taxes other than those tied to Social Security and Medicare benefits grow with “bracket creep” according to CBO’s most recent long-term projections. Sixth, all other revenues (corporate taxes, excise taxes, etc.) remain constant at their 2030 shares of GDP.

Seventh, “current law” and “current policy” average interest rates on the public debt follow the projections in the latest Long-Term Budget Outlook (CBO 2020f). To estimate net interest payments in years after 2030, we multiply the

⁵ Examples of major expiring provisions in the 2017 tax act include “100 percent bonus depreciation” (expensing of business investment in qualifying equipment), the marginal individual rate cuts, the increased standard deduction, the repeal of personal exemptions, the increased estate tax exemption, the cap on state and local tax deductions, and the 20 percent deduction for certain pass-through income. Examples of expiring provisions outside of the 2017 tax act include tax credits for biodiesel and alternative fuel mixtures and the deduction for mortgage insurance premiums.

⁶ The 10-year current-law projections for discretionary spending are uncertain because the law does not specify appropriations over the whole period. Thus, one might argue that not all non-defense discretionary spending requires a population adjustment, implying that our projections are too high. On the other hand, defense spending depends not just on maintaining current services but also responding to the actions of our political adversaries, and so our projections may be too low. There is no way to know for sure, so we follow rules-of-thumb that are both plausible and easy to understand.

average interest rate in a given year by the sum of (a) half of the primary deficit in that year and (b) outstanding government debt at the end of the previous year.⁷

In addition to projecting debt and deficits over the 30-year horizon, we also present estimates of the “fiscal gap,” an accounting measure that is intended to reflect the long-term budgetary status of the government.⁸ The fiscal gap answers the question: if one starts a policy change in a given year to reach a given fiscal target in a given future year, what is the size of the annual, constant-share-of-GDP increase in taxes or reductions in non-interest expenditures (or combination of the two) that would be required, holding projected economic performance unchanged? For example, one might ask what immediate and constant policy change would be needed to obtain some target debt-to-GDP in 2050.⁹ Or, one might ask what constant share-of-GDP change would be required, starting with a delay, say in 2025, or to achieve a net interest-to-GDP ratio of 2 percent by 2050.

Projections

ECONOMIC PROJECTIONS

Relative to the pre-COVID baseline, projected real GDP falls significantly early in the decade and is not projected to reach the pre-COVID baseline even by 2030 (Appendix Figure 1). The growth rate post-2030 is lower than under pre-COVID projections. The weaker economy, slower inflation, and aggressive Federal Reserve policy translate into sharply lower projections of interest rates for about a dozen years (Appendix Figure 2).¹⁰ The average interest rate falls to 1.1 percent by mid-decade before rising to its pre-COVID baseline value (2.9 percent) by 2034 and then rising further to 4.1 percent by 2050. That is, the projection implies that nominal interest rates will rise above the nominal GDP growth rate around 2042 and will exceed the growth rate by 0.5 percentage points by 2050. These economic projections help drive the budget outcomes discussed below.

⁷ Alternative projections of policy over a 30-year period naturally differ for a variety of reasons. In particular, the assumptions underlying our 30-year projections differ in several ways from those made by CBO (2020f) but the aggregate effects of their projections and ours are similar. CBO uses its own estimates for Social Security and Medicare, which project longer life spans and thus higher spending than the estimates we use, which come from the Trustees of those programs (scaled for differences in GDP projections). We allow other mandatory spending and discretionary spending to remain constant shares of GDP from 2030 to 2050. CBO has them declining somewhat. Despite these differences, both our projections and CBO’s generate primary deficits of 4.5 percent of GDP in 2050. We use interest rate estimates embedded in CBO (2020f) projections. (Although the projected interest rates reported in CBO (2020f, page 47) are larger than those reported above, the difference is due to different definitions. CBO reports effective interest rates as the ratio of net interest payments in a given year to debt at the end of the previous year. We report effective interest rates as the ratio of net interest payments in a given year to the sum of (a) half of the primary deficit in that year and (b) the debt at the end of the previous year. Finally, CBO generates a debt-to-GDP ratio of 195 percent in 2050, compared to our estimate of 190 percent under current law. CBO (2020f) compares its budget outlook to its 2019 Long-Term Budget Outlook (CBO 2019), which projects a 2049 debt-to-GDP ratio of 144 percent. We compare our current law baseline to CBO’s January 2020 long-term baseline—which was the most recent projection prior to the pandemic, and which projects a 2050 debt-to-GDP ratio of 180 percent.

⁸ Auerbach (1994). Appendix 1 describes the construction of the fiscal gap and how interest rates affect it. Auerbach et al. (2003) discuss the relationship between the fiscal gap, generational accounting, accrual accounting, and other ways of accounting for government. Note that estimates of the fiscal gap do not in any way imply that level reductions as a share of GDP are the best way to achieve a given fiscal target, rather than, say, level reductions as a share of primary deficits (which in the present circumstance would imply a growing path of primary deficit reductions). The fiscal gap measure just provides one convenient way to think about the magnitude of a fiscal shortfall, given a future fiscal goal.

⁹ Implementing the adjustments indicated by the fiscal gap does not stabilize debt after the target year—say 2050; it only adjusts tax and spending trajectories so that the debt hits a target by 2050. Under all the scenarios considered in this paper, the debt-to-GDP ratio would continue rising after hitting the specified target in a specified year.

¹⁰ Appendix Figure 2 shows effective interest rates, the ratio of net interest payments in a given year to the sum of (a) half of the primary deficit in that year and (b) debt outstanding at the beginning of the year.

EFFECTS OF COVID: COMPARING THE PRE-COVID BASELINE AND CURRENT LAW

Non-interest spending spiked in 2020 (Appendix Figure 3), mostly because of the CARES Act. Spending rose by 11 percent of GDP relative to the pre-COVID baseline but is projected to fall rapidly in subsequent years and to return to about its pre-COVID baseline projection of 20.8 percent by 2030. After that, non-interest spending under both the pre-COVID and current law baselines rises by about 2.3 percent of GDP through 2050. These spending increases are driven mainly by health care (Medicare, Medicaid, CHIPS, and exchange subsidies) and, to a lesser extent, Social Security.

Revenues, as a share of GDP, dip somewhat in 2020 and 2021 but regain pre-COVID shares of GDP by 2022 and essentially mimic pre-COVID shares thereafter (Appendix Figure 4). Of course, with post-COVID GDP lower than under the pre-COVID baseline, the projected level of revenues is still substantially below what had been expected in January. Revenues are projected to rise more slowly than non-interest spending, however. Between 2030 and 2050, projected revenues rise by less than 1 percent of GDP, reaching 18.6 percent of GDP under the both current law and the pre-COVID baselines, with the only changes over time due to bracket creep in the income tax and a slight increase in payroll tax revenues.

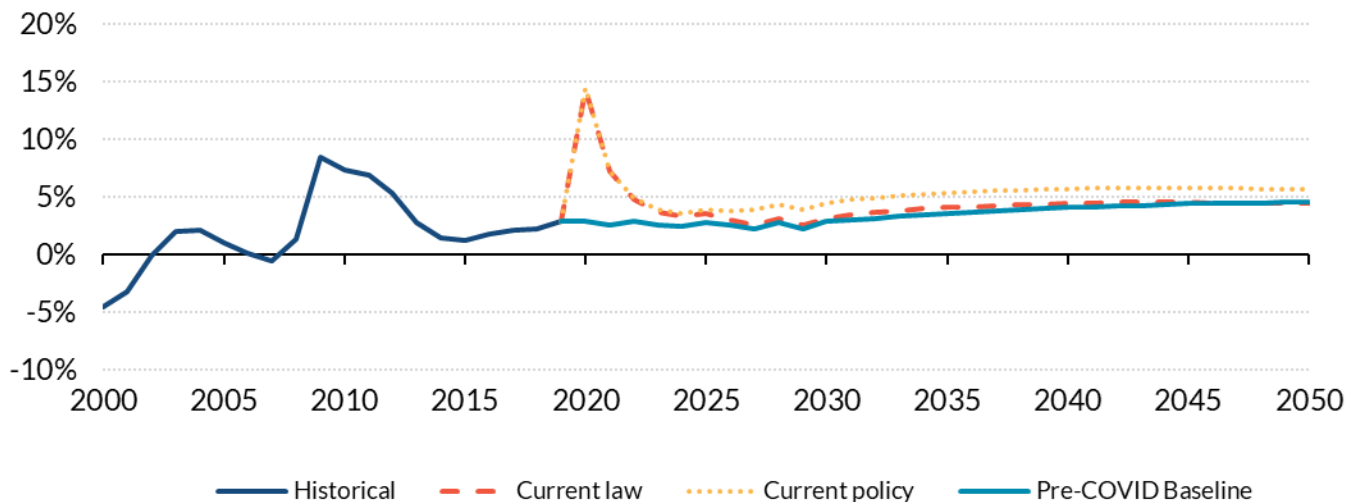
As a result of these changes, the primary deficit spikes in 2020—exceeding 14 percent of GDP—but then falls sharply in the next few years and then hews closely to its projected values under the pre-COVID baseline (Figure 1). The primary deficit rises gradually from 3.2 (2.9) percent of GDP in 2030 to 4.5 (4.6) percent of GDP in 2050 under the current-law (pre-COVID) baseline.

FIGURE 1

Primary Deficit

2000–2050

Share of GDP



Under the current law projections, interest payments plummet and then explode (Figure 2). Despite the increase in COVID-related debt, net interest payments fall from about 1.6 percent of GDP currently to 1.1 percent in 2024-5 because of the projected decline in interest rates. But as a result of economic growth and rising debt, both of which raise interest rates, interest payments rise to 2.2 percent of GDP in 2030 and continue rising over time, reaching 7.4 percent of GDP under current law in 2050, slightly higher than the 7.2 percent of GDP projected under the pre-COVID baseline. Both figures, however, far exceed the peak historical net interest level of 3.2 percent of GDP in 1991.

The unified deficit, combining the effects of primary deficits and interest payments, will reach 16 percent of GDP in 2020—more than 11 percent of GDP larger than was predicted in the pre-COVID baseline, and much higher than even

the peak deficit in the Great Recession—about 10 percent of GDP (Appendix Figure 5). The effect is projected to be temporary, however. Deficits are projected to decline sharply after 2020 and to return to their pre-COVID projected share of GDP by 2024. At that point, relative to the pre-COVID baseline, the projections imply that non-interest spending will be about 1 percent of GDP higher, net interest payments will be about 1 percent of GDP lower, and revenue will raise the same share of GDP. By the end of the decade, the deficit is projected to be 5.3 percent of GDP under current law.

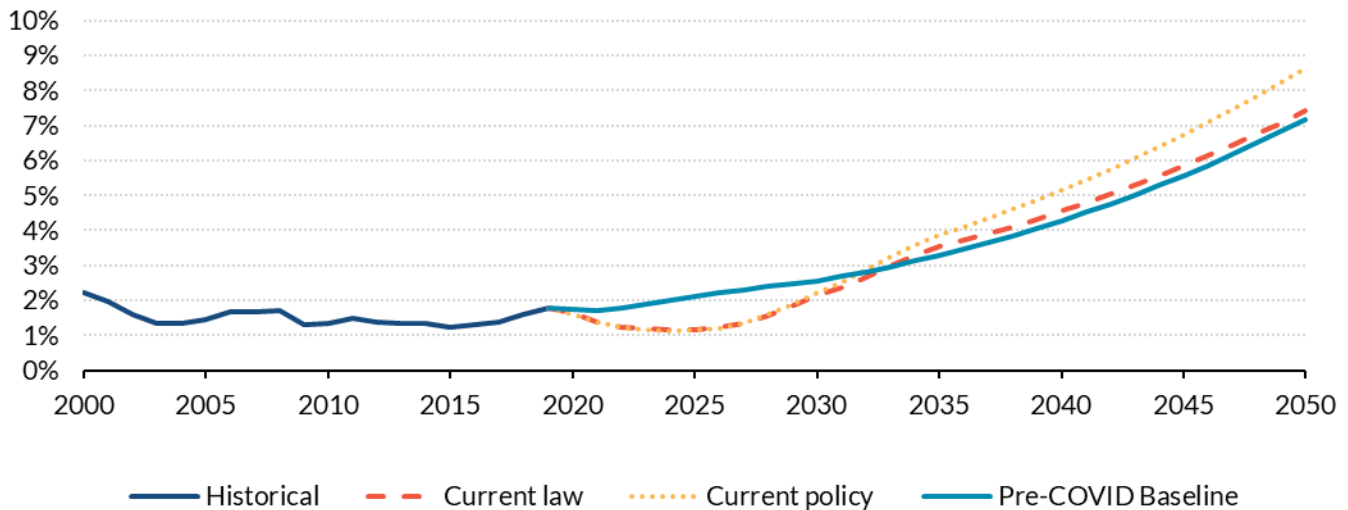
The projected 2020-2030 unified deficit rose from \$14.2 trillion in the pre-COVID baseline to \$16.3 trillion under current law. Excluding net interest, legislative changes added \$2.6 trillion to the projected deficit—more than the entire increase in deficits. The effects of macroeconomic changes added another \$1.3 trillion, and other changes accounted for \$0.4 trillion more. Despite these increases in spending and reductions in revenue, net interest payments are projected to decline by \$2.2 trillion because of sharply lower projected interest rates.

FIGURE 2

Net Interest

2000–2050

Share of GDP



After 2030, the unified deficit continues to rise under both the pre-COVID baseline and the current law scenario. By 2050, the unified deficit reaches almost 12 percent of GDP under both current law and the pre-COVID baseline.

Figure 3 shows the impact of COVID on the public debt. Before the pandemic, the US already had historically high debt as a share of GDP—the highest since just after the end of World War II. Under the pre-COVID baseline, the stock of outstanding public debt would have been 81 percent of GDP at the end of fiscal year 2020 and 82 percent by the end of fiscal year 2021. Now, analogous current law projections are 98 percent and 104 percent, respectively. Projected debt rises gradually for the rest of the decade, reaching 109 percent of GDP in 2030 under current law, compared to 98 percent under the pre-COVID baseline.

After 2030, rates of debt accumulation pick up, because of rising primary deficits and rising interest payments. By 2050, the debt rises to 190 percent of GDP under current law compared to 180 percent in the pre-COVID baseline. Essentially, the higher deficits incurred in 2020 and 2021 are carried forward on a long-term basis but since interest rates are lower than growth rates on average over the 2020-2050 period, the effect relative to GDP is slightly dissipated.

CURRENT LAW VERSUS CURRENT POLICY

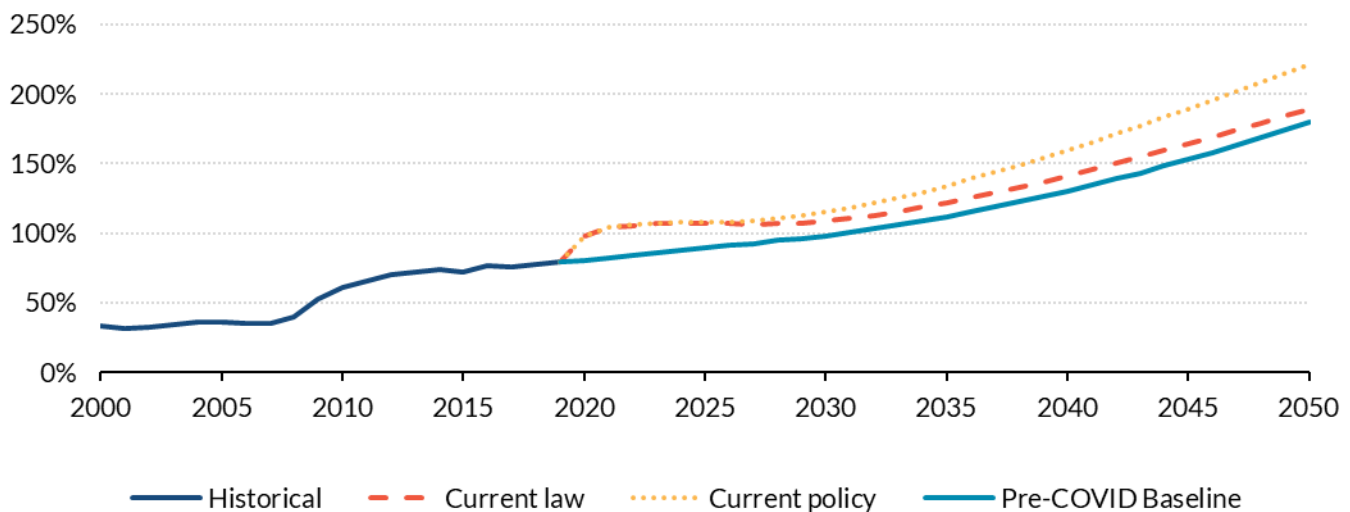
While comparing the pre-COVID baseline to current law shows the impact of the pandemic, comparing current law to current policy shows the impact of certain “business as usual” changes that Congress tends to make. These differences occur during the first 10 years, given our process for generating projections, but they have ramifications for longer-term outcomes. Making the temporary provisions of the Tax Cuts and Jobs Act permanent, along with modest adjustments to spending, would raise the 2050 debt-to-GDP ratio to 222 percent compared to 190 percent under current law. By 2050, revenues would be at 17.6 percent of GDP, compared to 18.6 percent under current law; the primary deficit would rise to 5.7 percent of GDP and interest payments would rise to 8.7 percent of GDP, compared to 4.5 and 7.4 percent, respectively, under current law. The current policy projections use the same interest rate assumptions as the current law projections; incorporating any upward impact of higher debt in the current policy projections on interest rates would raise debt by additional amounts.

FIGURE 3

Public Debt

2000–2050

Share of GDP



THE FISCAL GAP

Turning to the fiscal gap, under current law projections, obtaining a debt-to-GDP ratio in 2050 equal its 2020 level of 99 percent would (ignoring any macroeconomic feedback effects) require permanent tax increases or non-interest spending cuts totaling 3.2 percent of GDP starting in 2021 (Table 1). This would be the equivalent to a sustained tax increase equal to about 34 percent of income tax revenues, a 15 percent increase in all tax revenues, or a 14 percent reduction in average non-interest spending. The longer policy makers wait to implement change, the larger are the required changes, because the debt must be brought down to meet the assumed target over fewer years.

TABLE 1

Fiscal Gap (% GDP)



Target	Current Law			Current Policy		
	Begin 2021	Begin 2025	Begin 2030	Begin 2021	Begin 2025	Begin 2030
Debt = Current	3.19	3.54	4.24	4.23	4.74	5.73
NI = 3.2	3.79	4.21	5.06	4.81	5.40	6.55

Policy makers could choose a net-interest-to-GDP target instead of a debt target. To hold 2050 interest payments equal to 3.2 percent of GDP—the historical maximum for this ratio, obtained in 1991—would require policy changes equal to about 3.8 percent of GDP starting in 2021.

Under current policy, all the shortfalls are larger. Obtaining the current debt-to-GDP ratio would require policy changes equal to 4.2 percent of GDP starting in 2021. Holding net interest payments to their historical maximum share of GDP would require policy changes of 4.8 percent of GDP.

SENSITIVITY ANALYSIS

How future economic and budget outcomes evolve depends crucially on how the virus and the economy change over time. After the Great Recession, CBO (and many other forecasters) expected the economy to recover to close to its pre-recession path, which, in the end, did not happen. As a result of prolonged slower growth, CBO eventually significantly lowered its projections for potential GDP.¹¹ CBO's current GDP projection is that real GDP will be 1.1 percent lower in 2030 than prior to the pandemic.¹² If the economy's gap from the pre-COVID path is larger than projected, the fiscal outlook will likely be worse, with the obvious caveat that if interest rates fall enough, the overall fiscal position could be improved. However, projected rates are already very low already, so there is a limit on how much lower they can fall. To address the possibility that the economy may not recover as close to the pre-COVID path, we use CBO's interactive workbook to apply the agency's rules of thumb for the impact of alternative economic scenarios on budget projections and find that if the annual productivity growth rates were lower than projected by 0.5 percentage points for each of the next 10 years, the debt-to-GDP ratio would rise by an additional 12 percentage points by 2030.¹³ CBO (2020f) shows that if the annual growth rate of total factor productivity is 0.5 percentage points lower than projected, debt will rise to 239 percent of GDP in 2050 under current law, compared to the 195 percent figure in its baseline.

Appendix Figure 2 shows that projected rates reach a minimum in 2025, and then rise more or less steadily through 2050. In our alternative scenario, we assume that interest rates stay constant at their 2025 levels through 2050. Under this specification, the 2050 debt-to-GDP ratio reaches 134 percent under current law and 157 percent under current

¹¹ In its January 2009 budget outlook, CBO (<https://www.cbo.gov/sites/default/files/111th-congress-2009-2010/reports/01-07-outlook.pdf>) noted that its projection of potential output in 2018 had been revised downward by 1 percentage point. In 2014, (<https://www.cbo.gov/publication/45150>), CBO wrote that its projection of 2017 potential GDP had fallen by more than 7 percent since 2007.

¹² According to the January 2020 long-term budget outlook (CBO 2020a) 2030 GDP would have been 25,88 (in billions of 2019 dollars), while in the September 2020 LTBO (CBO 2020f), 2030 GDP is projected to equal 25,595 (in billions of 2019 dollars). In both sources, see "Economic Vars", line 44.

¹³ Congressional Budget Office (2020d).

policy. Net interest payments rise slowly, remaining below 1.4 percent of GDP, lower than their average value over the last 50 years. CBO (2020f) shows that if interest rates are 1 percentage point higher (lower) than predicted over the next 30 years, the debt-to-GDP ratio will be higher (lower) by 69 (46) percent of GDP by 2050 under current law.

Perspectives and interpretations

The sharp changes in the economy brought about by COVID and the associated policy responses raise several interesting issues for fiscal policy. First, the debt-to-GDP ratio is projected to rise by 25 percentage points between 2019 and 2021 and could rise by more if there is new legislation or a weaker-than-expected recovery. This increase is sizable but is not out of line with other debt build-ups over the past century. For instance, the coupling of World War I with the 1918 flu pandemic led to a debt-to-GDP increase of 30 percentage points over 3 years. World War II raised the debt-to-GDP ratio by 64 percentage points over 6 years. The Great Recession boosted the debt-to-GDP ratio by about 31 percentage points over 4 years.

Second, the previous peak in the debt-to-GDP ratio—106 percent—occurred just after World War II, following which the debt-to-GDP ratio gradually dwindled to 28 percent over the ensuing 35 years, an outcome that contains both good and bad news for the current long-term fiscal shortfall.¹⁴ Between 1945 and 1980, interest rates on government debt were often below the economic growth rate, which helped to reduce the debt-to-GDP ratio. Likewise, although economic growth is projected to be lower than during the earlier post-war period, so are interest rates, which as discussed above are projected to remain below growth rates for the next 30 years, providing the same help in reducing the debt-GDP ratio over time.

However, the federal government maintained balanced primary budgets on average over the 1945-1980 period. In contrast, we project sizable and growing primary deficits as a share of GDP even after the pandemic and its economic aftermath subside. These primary deficits are sufficiently large to cause debt to grow inexorably relative to GDP despite lower interest rates, and there is nothing in the forecast to suggest that this growth will slow even after 2050.

Approaching a balanced primary budget through reductions in spending would be much more challenging now than in the earlier post-war period, because of differences in demographics and budget composition. In 1945 and the years that followed, defense spending was an important part of the federal budget, expenditures on Social Security were small, and Medicare and Medicaid did not exist. In fiscal year 2019, the last pre-pandemic fiscal year, federal spending on defense was just 3.2 percent of GDP, while spending on the three major entitlement programs accounted for 10.5 percent of GDP and over half of non-interest federal spending. Moreover, spending on the entitlement programs is projected to grow faster than GDP over the next three decades, due to population aging and health care cost growth. At the same time, with greater inequality than during the period ending in 1980, there is stronger support for increased spending on social services. One may also conjecture that demand will increase for health insurance coverage, a stronger social safety net, and more redistribution, given the differential impact of both COVID illness itself and the associated economic burdens. In short, the upward pressure on federal spending is much stronger now than in the past.

Reducing the primary deficit through tax increases may prove difficult politically, but there is room to maneuver. As a share of GDP, federal revenues equaled 16 percent in 2020. If TCJA and other temporary provisions are extended in the usual manner, and revenues are projected to total just 17.0 percent over the 2020-2050 period. In the fifty years prior to 2020, revenues averaged 17.4 percent of GDP and reached a high of 20.8 percent in 2000.

Third, a key factor in the fiscal picture is the path of interest rates. The reduction in projected interest rates unambiguously improves the federal government's overall fiscal stance—because it is a net borrower. We can certainly borrow more and consume more with low interest rates and not hurt future generations (who can in turn borrow more

¹⁴ Gale (2019a, 2019b).

from later generations). But the optimality of this pattern may fall apart if interest rates subsequently rise, resulting in higher interest rates on higher levels of debt,¹⁵ particularly if this rise in interest rates is not accompanied by a sufficiently large increase in the rate of productivity growth.¹⁶

The path of interest rates will also depend in part on monetary policy. But the relevance of the Fed to the fiscal picture goes well beyond its role in the determination of interest rates. The Fed has sharply expanded its balance sheet since the onset of the pandemic, acquiring large quantities of the new government debt being issued.¹⁷ In addition, through facilities created under its emergency lending authority, it has taken on the debts of companies and state and local governments. Some have argued that these facilities, which were utilized in response to the financial crisis and expanded in scope in the current situation, signify a growing role of the Fed in conducting fiscal policy (e.g. Plosser 2012, Warsh 2020). Alternatively, however, the facilities can be viewed as an extension of the Fed's traditional lender of last resort role which reflect the relative shift in financial activity since the Fed's creation away from bank loans toward securities traded in capital markets (Labonte 2020). Moreover, the facilities can only address temporary interruptions to liquidity via loans. Addressing solvency issues, which requires fiscal spending authority, has been left to Congress and the Administration (Powell 2020).

Nonetheless, the previously sharp lines between monetary policy, fiscal policy, and debt management policy have arguably blurred somewhat in recent years (Greenwood, Hanson, Rudolph, and Summers 2014). With the Federal Reserve's adoption of paying interest on reserves held by banks, bank balance sheets have become functionally similar to Treasury bills.¹⁸ And there may be concerns over the extent to which the Treasury can use changes in the federal debt's maturity structure as a debt management tool while the Fed is pursuing its own policies to influence the term structure of interest rates. Finally, as the Fed's tool kit has expanded in recent years, so too may the pressure to use those tools to implement fiscal or debt management objectives (e.g. Plosser 2012, Warsh 2020).

III. CONCLUSION

The COVID-19 pandemic has had the biggest effect on the economy, at least in the short run, of any downturn since the Great Depression. The policies undertaken to deal with the crisis will have important implications for the length of the recession and the strength of the recovery. The pandemic will also affect the conduct of fiscal policy once the crisis is past, given the projection of rising debt, the long-lasting effects on the economy, and the effects of the crisis on U.S. political imperatives.

¹⁵ Ball, Elmendorf, and Mankiw (1998).

¹⁶ If the increase in interest rates is in response to higher productivity, the effect on debt sustainability is unclear (Sheiner 2018).

¹⁷ Data in CBO (2020c, table 2) imply that Fed holdings of public debt will rise by about 70 percent of the increase in public debt from 2019 to 2021.

¹⁸ Several international central banks also have the authority to pay interest on reserves.

APPENDIX: THE FISCAL GAP

The fiscal gap, say Δ , is given by:

$$(1) \quad \Delta = \frac{b_t - \left(\frac{1+g}{1+r}\right)^{(T-t)} b_T + \sum_{s=t+1}^T \left(\frac{1+g}{1+r}\right)^{(s-t)} d_s}{\sum_{s=t+1}^T \left(\frac{1+g}{1+r}\right)^{(s-t)}}$$

where g is the GDP growth rate, r is the government interest rate (both assumed to be constant), d_s is the primary deficit as a share of GDP in year s , b_t is the initial debt-GDP ratio, and b_T is the terminal target debt-GDP ratio.

To consider the impact of low interest rates on the size of the fiscal gap, it is useful to decompose the gap into three components, each divided by the denominator, based on terms in the numerator of expression (1): the present value of primary deficits, $\sum_{s=t+1}^T \left(\frac{1+g}{1+r}\right)^{(s-t)} d_s$; the debt service needed to maintain the initial debt-GDP ratio, $b_t \left[1 - \left(\frac{1+g}{1+r}\right)^{(T-t)}\right]$; and the resources needed to reduce the terminal debt-GDP ratio below the initial debt-GDP ratio, $\left(\frac{1+g}{1+r}\right)^{(T-t)} (b_t - b_T)$. Unless $r > g$, the debt service term does not increase the fiscal gap – maintaining the initial debt-GDP ratio requires no resources, because growth is at least sufficient to do so. Indeed, for $r < g$, maintaining the existing debt-GDP ratio reduces the fiscal gap. However, reducing the debt-GDP ratio over time requires more resources, the lower is r , because putting resources aside each year to accomplish this target benefits less from accruing interest.¹⁹ Finally, the impact of a lower value of r on the third component of the fiscal gap, $\sum_{s=t+1}^T \left(\frac{1+g}{1+r}\right)^{(s-t)} d_s / \sum_{s=t+1}^T \left(\frac{1+g}{1+r}\right)^{(s-t)}$, depends on whether primary deficits are generally rising or falling over time as a share of GDP. For example, if d_s is constant, this third component simply equals that constant primary deficit-GDP ratio and does not depend on r . In the current situation, where primary deficits are projected to rise over time as a share of GDP, lower interest rates increase the fiscal gap, because closing the gap implies accumulating primary surpluses in order to help cover primary deficits later on; lower interest rates increase the resources needed to do so.

¹⁹ That is, the term $\left(\frac{1+g}{1+r}\right)^{(T-t)} (b_t - b_T) / \sum_{s=t+1}^T \left(\frac{1+g}{1+r}\right)^{(s-t)} = (b_t - b_T) / \sum_{s=t+1}^T \left(\frac{1+g}{1+r}\right)^{(s-T)}$ is decreasing with respect to r .

FIGURE A.1

Real GDP 2020-2050

Billions (2019\$)

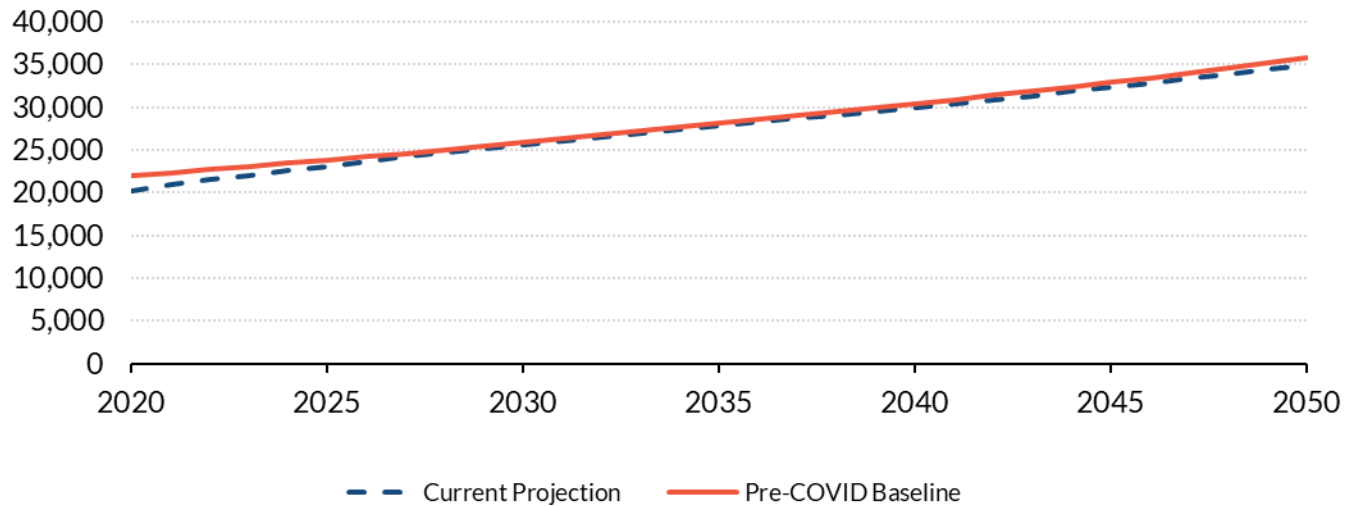


FIGURE A.2

Effective Interest Rate 2020-2050

Interest Rate

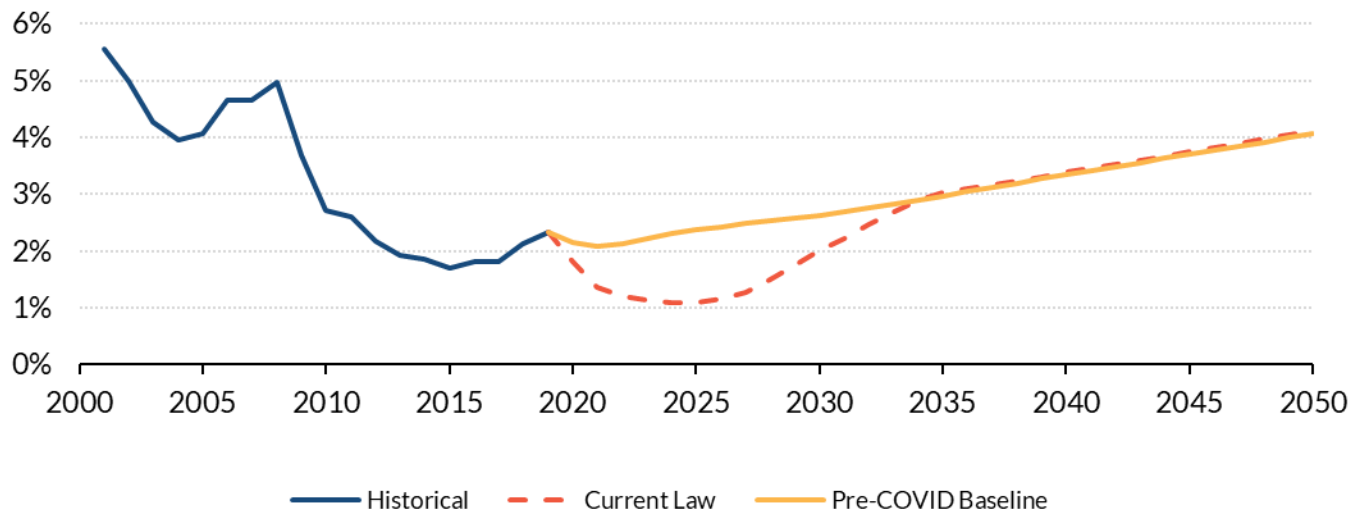


FIGURE A.3

Non-Interest Spending

2020-2050

Share of GDP

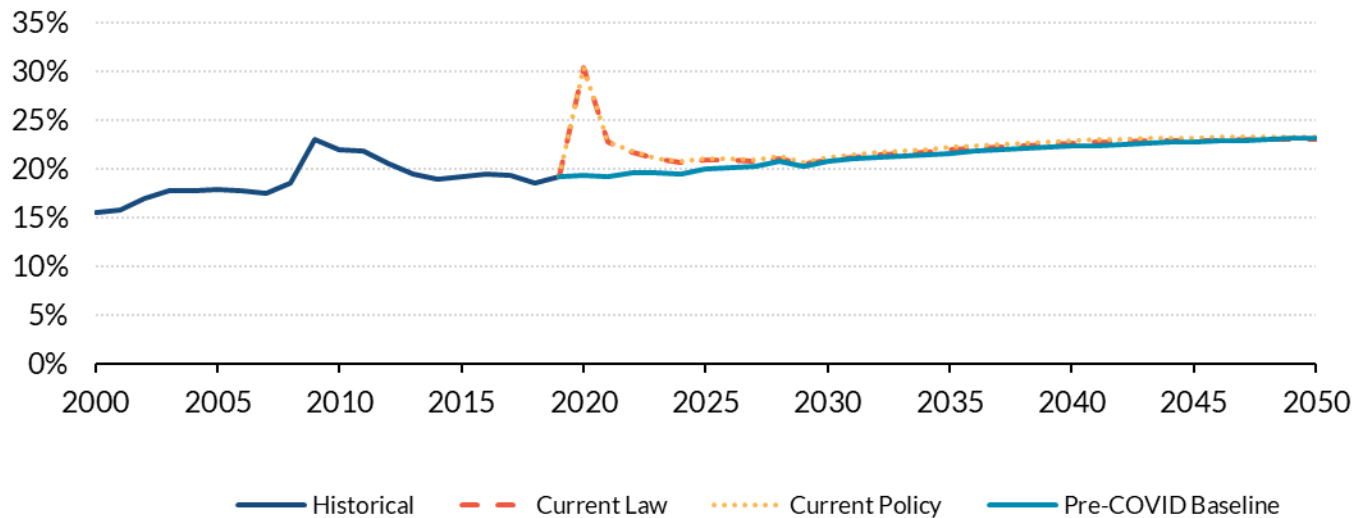


FIGURE A.4

Revenue

2020-2050

Share of GDP

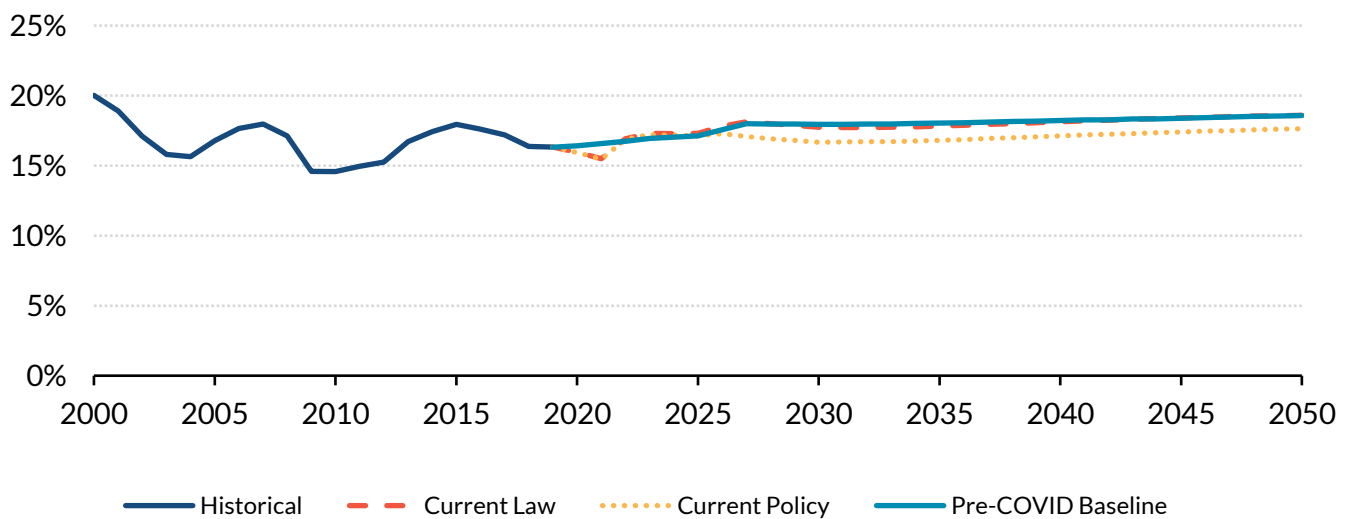
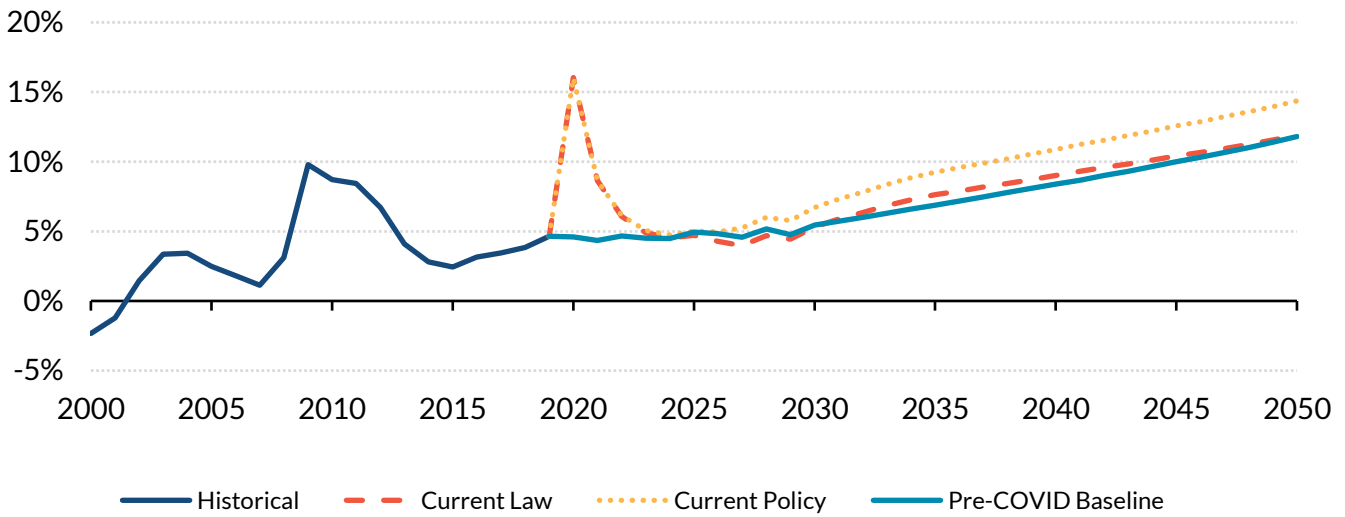


FIGURE A.5

Unified Deficit

2020–2050

Share of GDP



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