

# The Sound of Silence: Ignoring the US Fiscal Problem

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July 2024

## ABSTRACT

We examine the federal fiscal outlook in light of the most recent Congressional Budget Office (CBO) projections. While the CBO projects that the ratio of federal debt to GDP will rise from 97% at end of 2023 to 179% in 2054 under current law, we show that under current-policy adjustments (including extending the temporary provisions of the 2017 Tax Cuts and Jobs Act and maintaining government services), debt would rise to 229% in 2054. Under either projection, net interest payments rise to exceed either Social Security or Medicare outlays by 2054 and debt would be expected to continue to rise relative to the economy thereafter. By any measure, the federal budget trajectory is unsustainable and will eventually require federal action. Under current-law projections, the 2023 debt-to-GDP ratio could be sustained in 2054 with immediate and permanent spending cuts or tax increases equaling 2.65% of GDP – equivalent to a 30 percent increase in income tax revenues or a 25% cut in spending other than Social Security, Medicare, and interest payments – or with larger changes enacted later. Under current-policy projections, the required reductions are substantially larger. How quickly actions are needed will depend on many factors, including the path of interest rates.

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## **I. Introduction**

In light of recent economic trends and the most recent Congressional Budget Office projections,<sup>1</sup> we offer new estimates of the medium- and long-term fiscal outlook, updating our previous work, most recently in Auerbach and Gale.<sup>2</sup>

The basic story has two components. First, Federal non-interest spending and revenues are out of balance. This generates persistent and sizable primary deficits that are relatively constant as a share of GDP over time. Second, net interest payments rise steadily and substantially relative to GDP due to high pre-existing debt, persistent primary deficits, and gradually increasing interest rates. Together, these two patterns generate rising unified deficits and public debt as a share of GDP.

Under current law for the next 10 years, the CBO's projections imply that primary deficits will average 2.6% of GDP. Net interest payments will rise from 2.4% of GDP to 4.1% in 2034, which would represent an all-time high. The unified deficit and the cyclically-adjusted deficit are about 6.7% and 6.5% of GDP, respectively, over this period. Debt will rise from 97% of GDP at the end of 2023 to 122% by 2034, another all-time high.

Over the following two decades, the projected trends are even less auspicious. Sizable primary deficits persist indefinitely. The average nominal interest rate on government debt rises to exceed the nominal economic growth rate by 2041, setting off the possibility of explosive debt dynamics. By 2054, relative to GDP, annual net interest payments reach 6.6%, the unified deficit reaches 9.3%, and the public debt stands at 179%. All these figures would be all-time highs (except for deficits during World War II, the 2008 financial crisis, and in the first two years of the Covid-19 pandemic) and would continue to grow after 2054.

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<sup>1</sup> CBO, "An Update to the Budget and Economic Outlook: 2024 to 2034" (June 18, 2024).

<sup>2</sup> Alan J. Auerbach and William G. Gale, "The Federal Budget Outlook: Update for 2024," The Brookings Institution (March 7, 2024).

Budget outcomes would be even worse under “current-policy” projections that incorporate more realistic policy choices than those required by the baseline calculations. Making temporary tax provisions – such as those in the Tax Cut and Jobs Act of 2017 – permanent would drive the debt-to-GDP ratio to 217% by 2054. In addition, making plausible assumptions about future discretionary spending, to maintain current services per capita in domestic spending, would drive the debt-to-GDP ratio to 229% by 2054.

Fiscal gap calculations indicate the magnitude of the changes required to meet a future fiscal target. For example, starting from the current-law baseline, we estimate that to keep the debt-to-GDP ratio at its 2023 level (97%) in 2054 would require a combination of permanent spending cuts or tax increases equaling 2.65% of GDP if implemented starting in 2025. This represents about \$746 billion in today’s economy, or about 30% of current income tax revenues, 15% of all current tax revenues, 13% of current non-interest spending, or 25% of current non-interest spending other than Social Security and Medicare. Delaying the implementation of the actions would raise the size of the intervention needed.

The 10-year fiscal outlook has worsened in the few months since our last update, largely because of increased government spending adopted in the Spring, which to a considerable extent carries over into projections for future years, and also because of increases in projected near-term interest rates and debt service costs. The long-term outlook has also worsened, especially under the current policy scenario, where the recent increase in the estimated cost of extending the 2017 tax cuts plays a role.<sup>3</sup>

Long-term budget projections, of course, are sensitive to parameter choices in general, and to interest rate projections in particular. But it would take enormous and unlikely favorable

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<sup>3</sup> CBO, “Budgetary Outcomes Under Alternative Assumptions about Spending and Revenues” (May 8, 2024).

variation from baseline parameters to put fiscal policy on a sustainable course.

Section II describes the construction of different budget baselines. Section III summarizes how projections for gross domestic product (GDP) and interest rates have changed over the past year. Section IV examines the 10- and 30-year current-law budget projections as of June 2024 and compares them to the February 2024 baseline. Section V estimates the effects of current-policy adjustments relative to current law. Section VI discusses cyclically-adjusted deficits and sensitivity analysis. Section VII calculates fiscal gaps under various scenarios. Section VIII concludes with a discussion of a variety of perspectives on and interpretations of the budget outlook.

## **II. Constructing Budget Baselines**

### A. Ten-year outlook

To provide perspective on both the current budget outlook and how it has changed over the past few months, we examine three baselines.<sup>4</sup> The “February 2024 current-law” baseline is based entirely on projections that the Congressional Budget Office made in February 2024 for both the 10-year and long-term outlooks.<sup>5</sup> The “June 2024 current-law” 10-year baseline comes from the most recent budget projections.<sup>6</sup> In order to compare the June baseline to the February baseline over a 30-year period, we incorporate the most recent long-term projections, published in the March 2024 Long Term Budget Outlook,<sup>7</sup> by scaling them according to the 2034 values published in June.<sup>8</sup>

These projections – by law and convention – assume that Congress does (almost) nothing

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<sup>4</sup> Appendix Tables 1, 2, and 3 provide details on the key budgetary aggregates – in billions of dollars and as a percentage of GDP – in the three baselines.

<sup>5</sup> CBO, “The Budget and Economic Outlook: 2024 to 2034” (February 7, 2024).

<sup>6</sup> CBO, *supra* note 1.

<sup>7</sup> CBO, “The Long-Term Budget Outlook: 2024 to 2054” (March 20, 2024).

<sup>8</sup> CBO, *supra* note 1.

in the way of new programs or tax changes for the next 10 years. Current-law projections serve an important purpose – they show where the government is headed in the absence of almost any action.<sup>9</sup>

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 “2024 current policy” – clearly requires judgment calls to project the consequences of Congress following a “business as usual” approach. Our current-policy projections start with the June 2024 current-law projections and make a series of adjustments (based largely 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 few years due to the COVID-19 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.

To adjust taxes, we assume that, as it has often done in the past, Congress makes temporary tax-cut provisions permanent, including the temporary provisions in the 2017 Tax Cuts and Jobs Act.<sup>10</sup>

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<sup>9</sup> The current-law projections do assume that Congress increases or suspends 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 remain 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.

<sup>10</sup> CBO, *supra* note 3, tables 2 and 3 (May 8, 2024). Some of the expirations in TCJA have already begun. For example, 100 percent bonus depreciation (i.e., expensing) of business investment in qualifying equipment only applied through January 1, 2023, and is currently being phased down. Likewise, R&D expenses, which were previously expensed, now face an amortization schedule. The vast bulk of the individual income tax provisions expire at the end of 2025. CBO provides estimates for extending individual income tax provisions, higher estate and gift tax exemptions, and changes to the tax treatment of investment costs, as well as an estimate for maintaining certain business tax provisions altered by TCJA

We project non-defense discretionary spending to be constant on a real, per-capita basis at its 2024 level. This accounts for the fact that 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. As such, we do not adjust the projected values of defense spending. This non-adjustment may well be optimistic (from a budget perspective), given the situations in the Ukraine, the Middle East, and elsewhere.

We assume all provisions of COVID-era legislation are allowed to expire as scheduled. We calculate the added net interest payments based on CBO data.<sup>11</sup>

#### B. 30-year outlook

Looking only at the next 10 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. The long-term current-law (February and June 2024) and current-policy projections use data from CBO for GDP, revenues, and outlays for Social Security and health-related programs.<sup>12</sup>

For the current-policy projections, we keep all mandatory spending estimates consistent with the current-law baseline. For revenues and discretionary spending, we start with the 2034 value under the current-policy scenario and have it grow at the same rate as in the current-law baseline; i.e., their paths differ only because of the different 2034 starting values. These specifications, and the current-policy adjustments during the first 10 years, cause primary deficits

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<sup>11</sup> For revenue changes through 2034, we calculate the change in net interest payments using the information on added interest payments reported in CBO, *supra* note 1. For changes in non-discretionary defense spending, we calculate changes in net interest using the calculated average nominal government interest rate.

<sup>12</sup> CBO, *supra* note 5; and CBO, *supra* note 7.

to differ from the current-law baseline during years after 2034.

To calculate the change in net interest payments for 2034-2054, we first calculate, using parameters from the current-law baseline, the average interest rate on government debt, defined as the ratio of (a) net interest payments in a given year to (b) the sum of (i) half of the primary deficit in that year plus (ii) debt at the end of the previous year. Then, in the current-policy projections, we apply this interest rate to changes in the primary deficit to calculate net interest payments, the unified deficit (as the primary deficit plus net interest), and the debt (as the previous year's debt plus the current year's unified deficit).

### **III. Economic Projections**

While the February and June current-law baseline projections use different long-term outlooks, GDP projections are unchanged. This means we are able to directly compare the share of different categories as a share of GDP. Figure 1 shows that the June 2024 current-law baseline projects interest rates to be higher in the short run, consistent with the recent rise in interest rates, but, starting in 2036, projected rates are slightly lower than in the February 2024 projections.

Over the longer term, a key assumption is related to the relationship between the average nominal government interest rate and the nominal economic growth rate. Figure 2 shows that the average nominal interest rate is projected to rise gradually and remain below the nominal growth rate for about 17 years, and then to exceed the growth rate starting in 2041. (Presumably, this growth in the interest rate in CBO's economic forecast is at least partially attributable to the rising debt-GDP ratio.) In the 2024 current-law baseline, the average nominal government interest rate exceeds the nominal economic growth rate by 0.27 percentage points in 2054. These economic projections help drive the budget outcomes discussed below.

### **IV. Current-Law Baselines: February 2024 and June 2024**

## A. The June 2024 Current-Law Baseline

Under the June 2024 current-law baseline, revenues are 17.4% of GDP in 2024. After falling from their 2022 value of 19.6%, revenues slowly rise to 17.9% in 2034 and eventually to 18.8% of GDP in 2054 (Figure 3). Income tax revenues increase after 2025 due to the expiration of provisions in the Tax Cuts and Jobs Act of 2017 and in the long term due to bracket creep.

Non-interest spending is 20% of GDP in 2024, staying relatively constant through 2034 and subsequently rising to 21% of GDP in 2054 (Figure 4). About 76% of this increase is due to rising outlays for mandatory programs such as Social Security and health-related programs (Medicare, Medicaid, CHIPS, and exchange subsidies).

The primary deficit is 2.8% of GDP in 2024, declines somewhat over most of the rest of the 2020s, and then rises back to 2.7% in 2054 (Figure 5). This long uninterrupted stretch of large primary deficits suggests that the government budget is fundamentally out of balance.

Net interest payments grow steadily as a share of the economy over the next 10 years, from 3.2% of GDP in 2024 to 4.1% in 2034 and 6.6% by 2054 (Figure 6). By comparison, the peak historical share of net interest in the economy was 3.2% in 1991.

Unified deficits, which combine the effects of primary deficits and net interest payments, rise gradually from 6.0% of GDP in 2024, to 6.7% in 2034, and 9.3% in 2054 under current law (Figure 7). Over the next 30 years, net interest is projected not only to rise faster than other programs but to become the biggest single expenditure item (Figure 8a).

Indeed, as Figure 9 shows, with relatively constant primary deficits, essentially the entire increase in the unified deficit through 2054 is due to increases in net interest payments, which rise, in turn, because of both higher debt levels and higher interest rates on that debt.

Debt is projected to be 100% at the end of 2024 and 122% at the end of 2034 (Figure 10).



After 2034, debt accumulates more rapidly and reaches 179% in 2054, due to both rising primary deficits and rising interest payments.

#### B. Comparisons with the February 2024 Current-Law Baseline

Over the period from 2025 to 2034, the June 2024 current-law baseline includes an additional \$2.1 trillion in projected outlays and a \$0.2 trillion in revenues. Most of the increase in projected outlays, \$1.6 trillion, is due to laws enacted since the CBO published the February 2024 current law baseline. More specifically, the increase in spending accounts for aid to Ukraine, Israel, and the Indo-Pacific region, which grows with inflation each year in the baseline. The updated baseline also includes a \$1.1 trillion dollar increase in projected outlays from technical changes, including additional student debt relief (which was not the result of new legislation) and a \$0.6 trillion decrease in projected outlays from economic changes.

Over the 30-year horizon, the June 2024 projections show an increase in debt relative to the February 2024 projections. Projected debt in 2054 is 179% of GDP in the June 2024 current-law baseline and 172% in the February 2024 current-law baseline. The difference arises because of the spending and revenue changes noted above.

#### **V. Current Law Versus Current Policy**

While comparing the June 2024 current-law baseline to the February 2024 current-law baseline shows the continuing impact of policies and economic developments, comparing the June 2024 current-law baseline to June 2024 current-policy projections 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 as well because we assume that the differences persist.

Making the temporary provisions of the Tax Cuts and Jobs Act permanent, extending

other expiring tax provisions, and providing modest adjustments to spending causes the primary deficit to diverge sharply from its current-law values starting in 2025. The long-term effects are quite substantial. By 2054, revenues would be just 17.3% of GDP, compared to 18.8% under current law (Figure 3); the primary deficit would rise to 4.5% of GDP and interest payments would rise to 8.4% of GDP, compared to 2.7% and 6.3%, respectively, under current law (Figures 5 and 6). Under current policy, the 2054 debt-to-GDP ratio would be 229% compared to 179% under current law (Figure 10). 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.

## **VI. Extensions and Sensitivity Analysis**

### **A. Cyclically-Adjusted Deficits**

Figure 11 shows that projected actual GDP and potential GDP are close to each other in the second half of the decade, consistent with the CBO convention of not including business cycle fluctuations in its economic forecast once short-term adjustments have played out. The ratio of actual to projected GDP over that period is 0.996. Using the approximate relationship between the output gap and the size of automatic stabilizers reported by, we report historical and projected future cyclically-adjusted deficits in Figure 12.<sup>13</sup> Projected cyclically-adjusted deficits would be high and persistent relative to historical values outside the Great Recession and the COVID pandemic. At the end of the decade, we estimate a cyclically adjusted deficit equal to

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<sup>13</sup>CBO, “Automatic Stabilizers in the Federal Budget: 2023 to 2033” (June 7, 2023) reports the cyclically adjusted deficit, the output gap, and the size of automatic stabilizers (all as a share of GDP) for historical data from 1965-2022 and for projected data for 2023-2033. Regressing the size of automatic stabilizers on the output gap yields a coefficient of about 0.4 (with a t-statistic of about 50), for a sample using the historical data, the projected data, or the combined data (with or without a constant term, which is estimated very precisely to be zero). We use the historical data on cyclically adjusted deficits for 2000-2021. For 2023-2034 we use CBO, *supra* note 1, data on actual GDP in 2023, projected GDP for 2024-2034 and estimates of potential GDP for 2024-2034. We estimate the output gap for each year, apply the coefficient noted above to generate the size of automatic stabilizers in that year, which we subtract from the projected unified deficit to generate an estimate of the cyclically-adjusted deficit.

6.5% of GDP.

## B. Variation in Economic Parameters

The projections above are sensitive to a variety of economic parameters. We report the sensitivity of the budget projections over a 10-year horizon for the February 2024 baseline using the CBO workbook,<sup>14</sup> and over a 30-year horizon for the March 2024 Long Term Budget Outlook.<sup>15</sup>

As CBO reports,<sup>16</sup> if annual productivity growth rates were lower than projected by 0.1 percentage points for each of the next 10 years, the debt-to-GDP ratio would rise by 2.3% of GDP by 2034 under current law. If labor force growth rates were 0.1 percentage points lower than predicted over the next 10 years, the debt-to-GDP ratio would increase by 1.1% of GDP by 2034 under current law. If interest rates were 0.1 percentage point higher than predicted over the next 10 years, the debt-to-GDP ratio would be higher by 0.8% of GDP by 2034 under current law. If both interest rates and inflation were higher by 0.1 percentage point, debt-to-GDP would fall by 0.6% of GDP by 2034 under current law—the increase in GDP would outweigh the higher debt service payments.

CBO reports sensitivity analysis over a 30-year period.<sup>17</sup> For example, if total factor productivity in the non-farm business sector were 0.5 percentage points higher than in the baseline, federal debt would be 42 percent of GDP lower by 2054 relative to the current-law projections. If the average nominal government interest rate were boosted by a differential starting at 5 basis points in 2024 and rising by 5 basis points each year (before macroeconomic

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<sup>14</sup> CBO, “Workbook for how Changes in Economic Conditions Might Affect the Federal Budget: 2024 to 2034” (April 9, 2024).

<sup>15</sup> CBO, “The Long-Term Budget Outlook Under Alternative Assumptions about Spending and Revenues” (May 21, 2024).

<sup>16</sup> CBO, *supra* note 14.

<sup>17</sup> CBO *supra* note 15.

responses), 2054 debt would increase by 51% of GDP, again relative to the current-law projections. If a dollar of public debt crowds out twice as much private investment as CBO typically assumes (that is, 66 cents per dollar instead of the typical 33 cents assumption), the debt-to-GDP ratio would increase by more than 71 percentage points relative to the June 2024 current law baseline by 2054.

As an extreme example of how results might differ at the 30-year horizon, we estimate a scenario under current law where the average nominal interest rate paid by the government remains constant through 2054 at the 2024 level projected in the June 2024 outlook. In that scenario, debt rises to 167% of GDP by 2054 and net interest payments rise to 5.4% of GDP. These figures are lower than the 179% debt-to-GDP ratio and 6.7% net interest-to-GDP ratio projected under the current-law baseline with rising interest rates, but they are still substantially higher than the current values of debt and net interest.

### C. Trust Funds

The federal government runs several trust funds, most notably for Social Security (Old-Age and Survivors Insurance), Disability Insurance, Medicare (two separate funds), civilian and military retirement, and transportation spending. All the projections highlighted above integrate the trust funds into the overall budget. These projections also assume that scheduled benefit payments will be made even if trust fund balances run to zero. However, many of the trust funds are not legally allowed to pay out benefits that draw their balances below zero.

This is not just an academic concern. This trust fund constraint was one of the proximate causes of Social Security reform in 1983; the trust fund literally had almost run out of money, an eventuality that would have required cuts in promised benefits so that they would not exceed incoming revenue.

In the current projections, the Social Security (Old-Age and Survivors Insurance) Trust Fund is scheduled to be depleted by 2033 according to CBO,<sup>18</sup> and 2033 according to the Social Security trustees.<sup>19</sup> The Disability Insurance Trust Fund is not scheduled to be depleted within the 30-year budget window according to CBO,<sup>20</sup> and it is projected to be able to adequately pay full benefits through the 75-year projection period, according to the Social Security trustees. The budget projections above assume that Social Security continues to pay scheduled benefits (i.e., what retirees have earned) even when the combined OASDI trust fund is exhausted, which is projected to occur in 2034.

According to the CBO,<sup>21</sup> the Medicare Part A (Hospital Insurance) Trust Fund appears likely to hit a similar constraint by 2035; according to the Medicare Trustees the constraint will occur in 2036.<sup>22</sup> Each of those dates may prompt at least limited fiscal action. In each case, legislators will be forced to reduce benefits, raise taxes, make interfund transfers, or allow for general revenue funding. In contrast, the Medicare Part B (Supplementary Medical Insurance) and Part D (Prescription Drug Coverage) trust funds are designed to receive substantial general revenue funding and do not have the constraint that spending can be financed only by trust fund payments.

## **VII. Fiscal Gap**

In addition to projecting debt and deficits over the 30-year horizon, we also present

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<sup>18</sup> CBO, *supra* note 7.

<sup>19</sup> Board of Trustees, Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds, “2024 Annual Report of the Boards of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds” (May 6, 2024).

<sup>20</sup> CBO, *supra* note 7.

<sup>21</sup> CBO, *supra* note 7.

<sup>22</sup> Board of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Trust Funds “2024 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds” (May 6, 2024).

estimates of the “fiscal gap,” an accounting measure that is intended to reflect the long-term budgetary status of the government.<sup>23</sup> 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-share-of-GDP policy change would be needed to obtain some debt-to-GDP target in 2054.<sup>24</sup> Or, one might ask what constant share-of-GDP change would be required, starting in 2030 to achieve a real net interest-to-GDP ratio of 2% by 2054.

Results are presented in Table 1. We begin with current-law projections and policy actions beginning in 2025. Under those circumstances, obtaining a debt-to-GDP ratio in 2054 equal its 2023 level of approximately 97% would (ignoring any macroeconomic feedback effects) require permanent tax increases or non-interest spending cuts equaling 2.65% of GDP. This would equal about \$746 billion in today’s economy and would be the equivalent to a sustained tax increase equal to about 30% of current income tax revenues or 15% of all current tax revenues, or a 13% reduction in current non-interest spending, or a 25% reduction in all non-interest spending other than Social Security and Medicare.

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<sup>23</sup> Auerbach (1994). 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) or some other pattern over time. The fiscal gap measure just provides one convenient way to think about the magnitude of a fiscal shortfall, given a future fiscal goal.

<sup>24</sup> Implementing the adjustments indicated by the fiscal gap does not stabilize debt after the target year; it only adjusts tax and spending trajectories so that the debt hits a target by the target year (e.g., 2053). 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.

Policy makers could choose a net-interest-to-GDP target instead of a debt target. To hold 2054 interest payments equal to 3.2% of GDP – the historical maximum for this ratio, obtained in 1991 – would require policy changes equal to about 2.99% of GDP starting in 2025 under current law.

Furman and Summers argue that real net interest payments of 2% of GDP would be an appropriate target to stay below to ensure fiscal sustainability.<sup>25</sup> To achieve that goal by 2054 would require fiscal retrenchment of 0.36% of GDP. Furman and Summers also suggest that 150% would be an appropriate debt-to-GDP ratio to stay below. To achieve that target by 2054 would require spending cuts or tax increases equal to 0.93% of GDP.

As Table 1 shows, all the required policy changes to reach a given target would be larger under the current-policy scenario. Likewise, the fiscal gaps are larger if policy makers delay action, because the debt must be brought down to meet the assumed target over fewer years.<sup>26</sup>

### **VIII. Perspectives**<sup>27</sup>

If projected trends continue, the US will soon be in uncharted fiscal waters. From the nation’s founding until about 1980, debt as a share of the economy rose only when we were at war or in recession, and it only rose temporarily. After the war or recession ended, the debt-GDP ratio fell rapidly as policy makers ran primary surpluses and interest rates stayed low.

Starting in 1981, Ronald Reagan’s tax cuts and defense spending increases raised the

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<sup>25</sup> Jason Furman and Lawrence Summers “A Reconsideration of Fiscal Policy in the Era of Low Interest Rates,” Harvard University and Peterson Institute for International Economics (unpublished manuscript November 30, 2020).

<sup>26</sup> Note that delaying the adjustments would still increase the size of the required adjustment even if the debt were to be brought down over 30 years, if the target date were moved later, because of the growing deficit-GDP ratio.

<sup>27</sup> This section is based in part on Auerbach, Gale, and Krupkin, “Revisiting the Federal Budget Outlook,” *Tax Notes* (August 5, 2019); Auerbach, et al., “The COVID Pandemic and the Federal Budget,” *Brookings Papers on Economic Activity* (Fall 2020); Auerbach and Gale, “The COVID Pandemic and the Federal Budget,” *The Brookings Institution* (August 4, 2022); Gale, *Fiscal Therapy: Curing America’s Debt Addiction and Investing in the Future* (2019); and Gale, “Fiscal Policy with High Debt and Low Interest Rates,” in *Maintaining the Strength of American Capitalism* (2019).

debt-GDP ratio during peacetime prosperity. A series of tax increases and budget deals from 1990 to 1997 along with the “peace dividend” associated with the breakup of the Soviet Union helped turn persistent deficits into surpluses by the end of the century.

Since 2000, however, policy makers appear largely to have gradually lost interest in addressing long-term fiscal issues, even as economic events also pushed deficits higher. Tax cuts and spending increases under George W. Bush and Donald Trump raised deficits. The Great Recession and the associated temporary stimulus under Barack Obama boosted debt further. The pandemic and associated fiscal responses caused debt to rise again. The Biden Administration has advocated and obtained several additional pieces of legislation that boost deficits further. The debt-to-GDP ratio rose from 39% in 2008 to 70% by 2012 and from 79% in 2019 to 100% in 2020 and has hovered just under that level since then, due to strong growth and low interest rates.

The 21 percentage-point rise in the debt-to-GDP ratio during the pandemic was sizable but not unprecedented. The ratio rose by 30 percentage points over three years during the coupling of World War I with the 1918 flu pandemic and it rose by 64 percentage points over six years during World War II. And as noted above, the ratio rose by 31 percentage points in four years during and after The Great Recession.

But the current economic and budget situation is different than in the past. Relative to pre-1980 debt, current projected debt-to-GDP ratios are higher, and the upward trend in this ratio is permanent. There is no war or recession that will end and let the budget adjust downward.

Relative to the early 1980s or even more recent periods, we now face a much higher initial debt level and the headwinds generated by demographics. As a share of GDP, debt was just over a quarter as large in 1981 as it is today (and was less than 40% as large as today just 15



years ago). During previous decades, the economy benefitted from the steady influx of baby boomers and women into the labor market. Now, boomers are retiring en masse and women's labor force participation has plateaued, suggesting that future growth prospects are dimming. Higher immigration could help reduce this problem, but is a fraught issue, politically.

Policymakers have never had to address the projected permanent imbalances between non-interest spending and taxes, coupled with such high pre-existing debt. The closest historical antecedent occurred after World War II, when the United States faced a debt-to-GDP ratio of 106%. The ratio gradually dwindled to 25% over the ensuing 35 years, aided by three factors between 1945 and 1980: defense spending declined precipitously as a share of GDP, interest rates on government debt were often below the economic growth rate, and the federal government maintained balanced primary budgets on average over the 1945-1980 period. In contrast, we project sizable and permanent primary deficits as a share of GDP. These primary deficits are sufficiently large to cause debt to grow inexorably relative to GDP through 2054 despite low (but rising) interest rates, and there is nothing in the projections to suggest that primary deficits or interest rates will fall after 2054.

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 2023, federal spending on defense was just 3.0% of GDP, while spending on the three major entitlement programs accounted for 10.7% of GDP and more than half of non-interest federal spending. Moreover, spending on 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. If TCJA and other temporary provisions are extended, revenues are projected to average 16.9% between 2024 and 2054, smaller than the previous fifty years prior to 2024 when revenues averaged 17.4% of GDP, and well below the value of 19.6% reached in 2022.

Future interest rates are a key determinant of the fiscal outlook. Lower rates unambiguously reduce net interest payments – which, as documented above, are projected to grow rapidly – and improve the federal government’s overall fiscal stance – because it is a net borrower. But if borrowing rises when interest rates are low, and interest rates subsequently rise, the result will be higher interest rates on higher levels of debt,<sup>28</sup> particularly if the rise in interest rates is not accompanied by a sufficiently large increase in the rate of productivity growth.<sup>29</sup>

Moreover, as emphasized by Mian, Sufi, and Straub,<sup>30</sup> the feasibility of the government’s fiscal trajectory depends in part on how additional borrowing influences the interest rate investors are willing to accept. The CBO projections already incorporate feedback from rising

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<sup>28</sup> Laurence Ball, Douglas Elmendorf and N. Gregory Mankiw, “The Deficit Gamble,” *Journal of Money, Credit, and Banking* Vol 30 p.699 (1998).

<sup>29</sup> Louise Sheiner, “Effects of Low Productivity Growth on Fiscal Sustainability in the United States,” Peterson Institute for International Economics Working Paper No 18-9 (August 2018).

<sup>30</sup> Atif Mian, Ludwig Straub, and Amir Sufi, “A Goldilocks Theory of Fiscal Deficits,” NBER Working Paper 29707 (January 2022).

debt to interest rates based on their historical relationship, but there is nothing to ensure that this relationship will not worsen as the debt-GDP ratio heads beyond historical experience.

Although it seems unlikely that the economics of rising US debt will create a crisis anytime soon, policymakers could create an emergency by forcing a default on the country's debt, as some Congressional Republicans threatened to bring about during the debt ceiling standoffs in 2011 and 2013 and also more recently.<sup>31</sup> An intentional debt default would turn out poorly, of course, and would make it harder, not easier, to address the fiscal situation, because it would raise the interest rates that the government had to pay. But even if politicians do not manufacture a crisis, the United States still faces a debt problem. It's just one that's growing gradually. This may be less exciting than a crisis, but it can still be very damaging. And, of course, another fiscal challenge like those of the Great Recession and the Covid-19 pandemic could make the problem's growth much less gradual and its challenges more immediate

Recent actions have worsened the 10-year budget outlook and slightly increased the long-term fiscal gap as well. While these changes do not appreciably worsen the fiscal path, that path was already unsustainable and remains so, and will eventually require federal action. How quickly those actions are needed will depend on many factors, including the path of interest rates, the performance of the economy, and political developments at home and abroad.

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<sup>31</sup> Bruce Bartlett, "The Dangers of Debt Limit Brinksmanship," *Tax Notes*, Sept. 30, 2013, p. 1601; and Jonathan Weisman, "House Vote Sidesteps an Ultimatum on Debt," *The New York Times*, Jan. 23, 2013. Alan Rappeport, "In Debt Limit Fight, Republicans Won't Say What Spending Cuts They Want," *The New York Times*, Jan. 23, 2023.

Figure 1. Average Nominal Government Interest Rate, 2023-2054

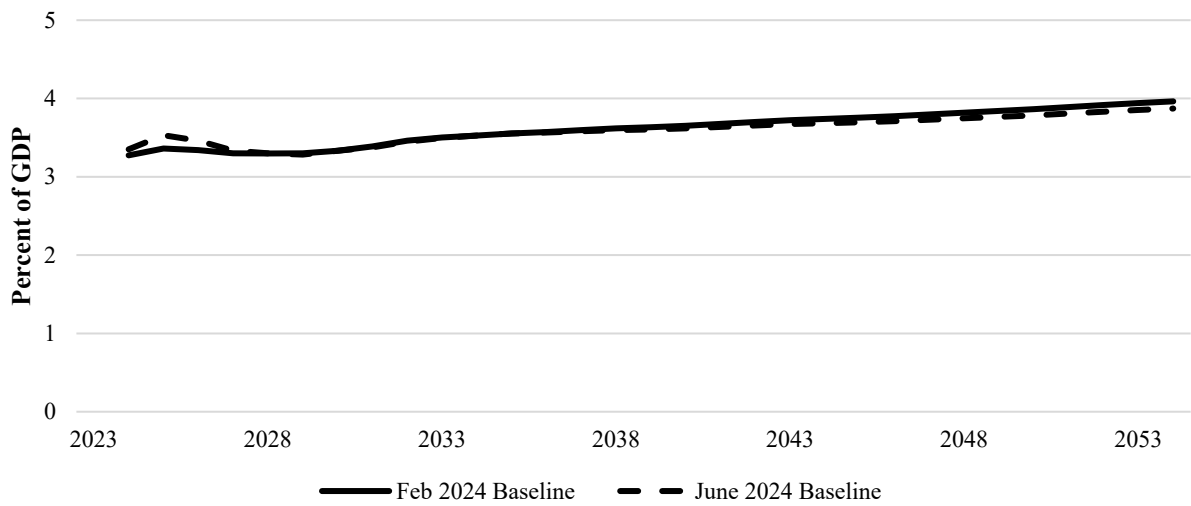


Figure 2. Nominal Average Government Interest Rate and GDP Growth, 2024 - 2054

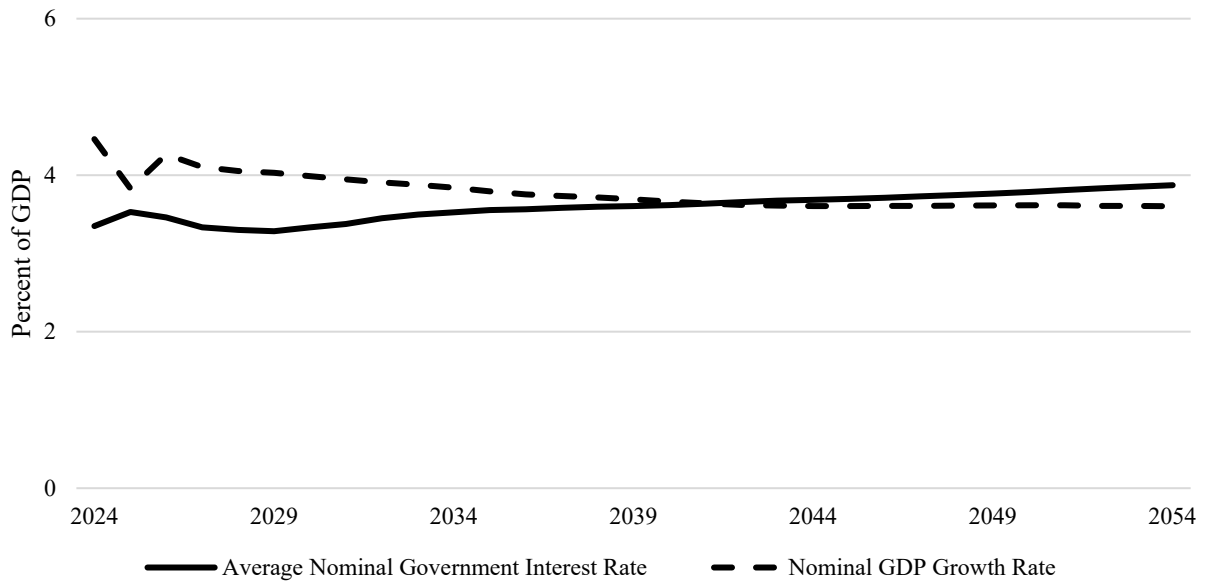


Figure 3. Total Revenue, 2000 - 2054

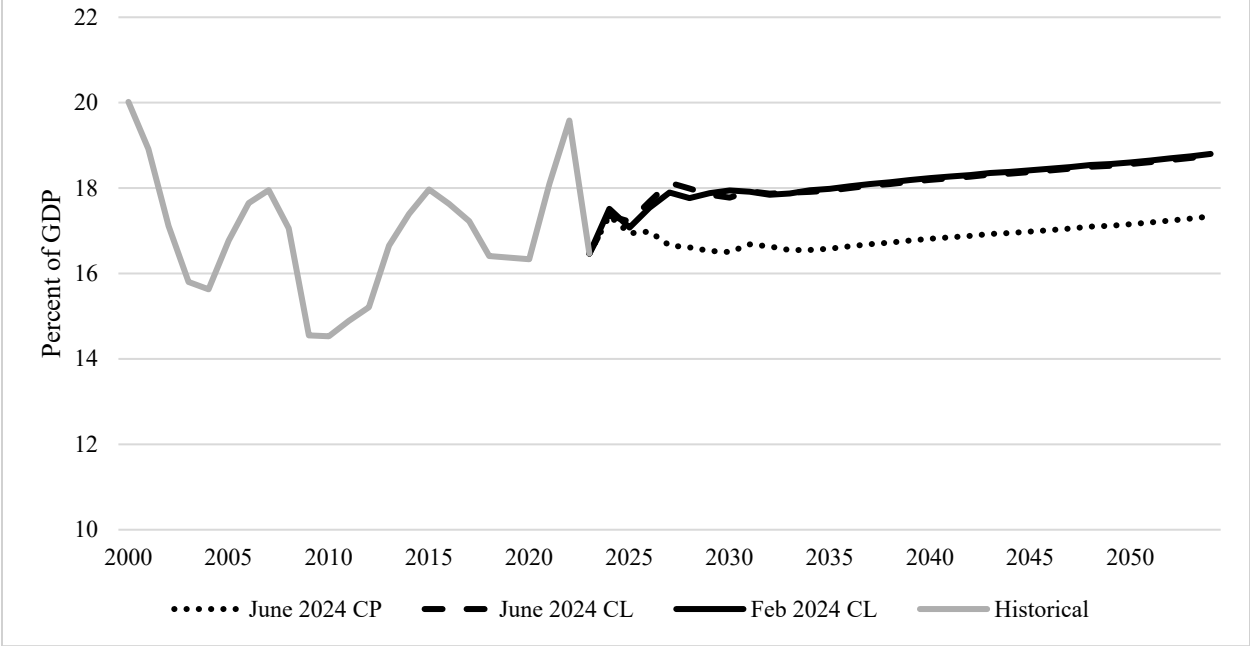


Figure 4. Non-Interest Spending, 2000 - 2054

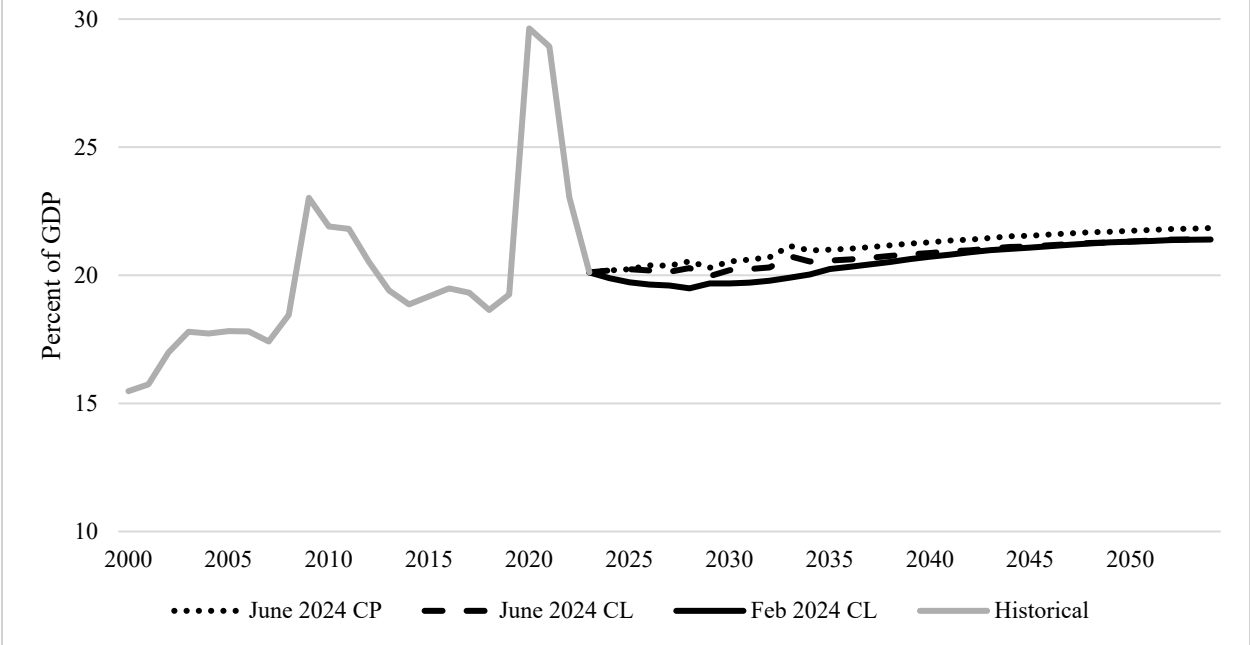


Figure 5. Primary Deficit, 2000 - 2054

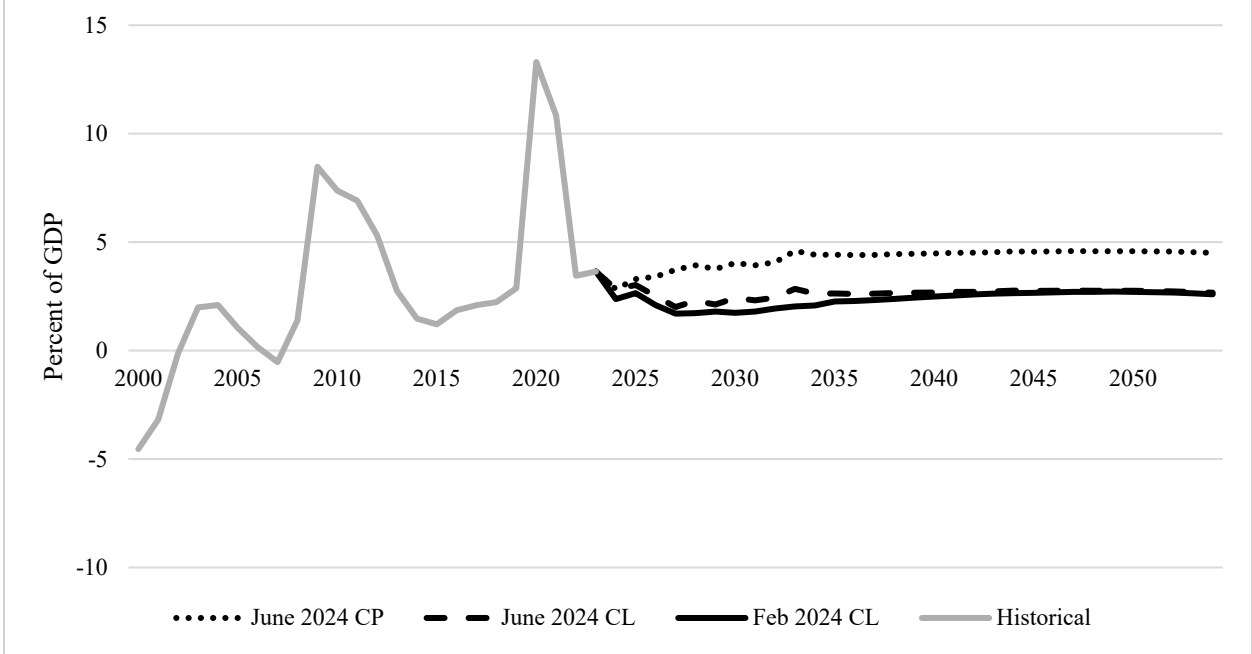


Figure 6. Net Interest Spending, 2000 - 2054

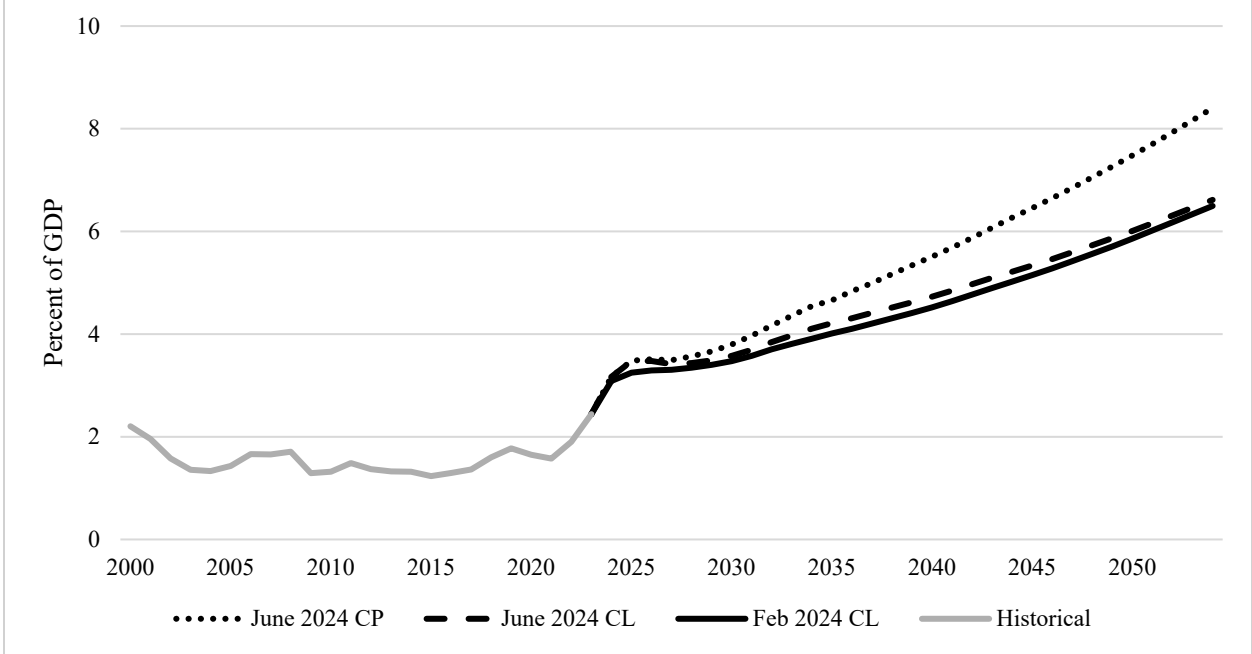


Figure 7. Unified Deficit, 2000 - 2054

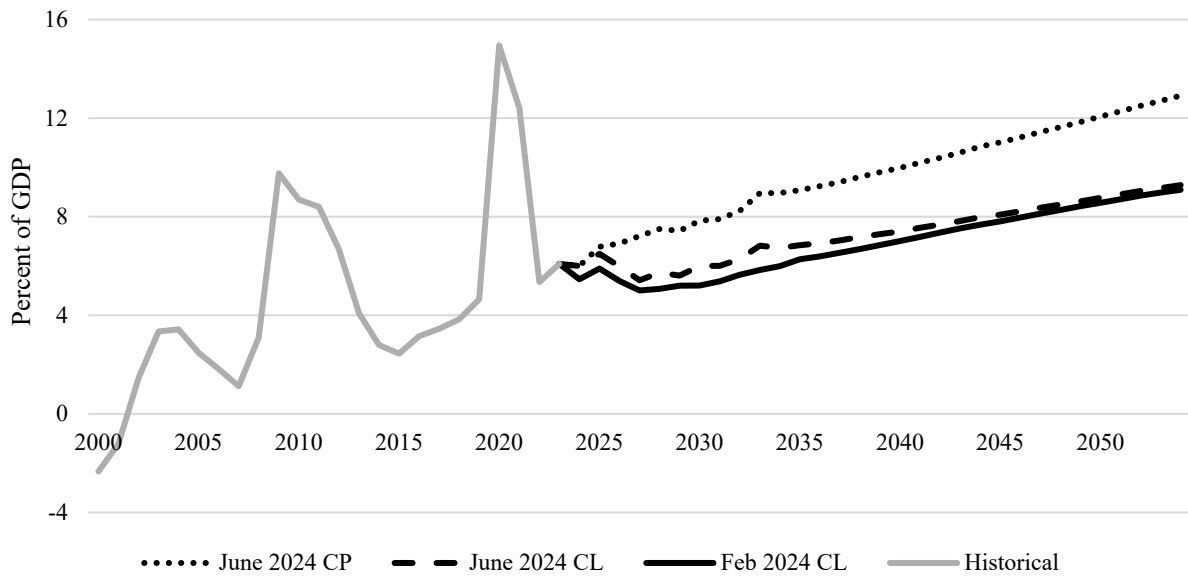


Figure 8. Major Spending Categories, 2023 - 2054

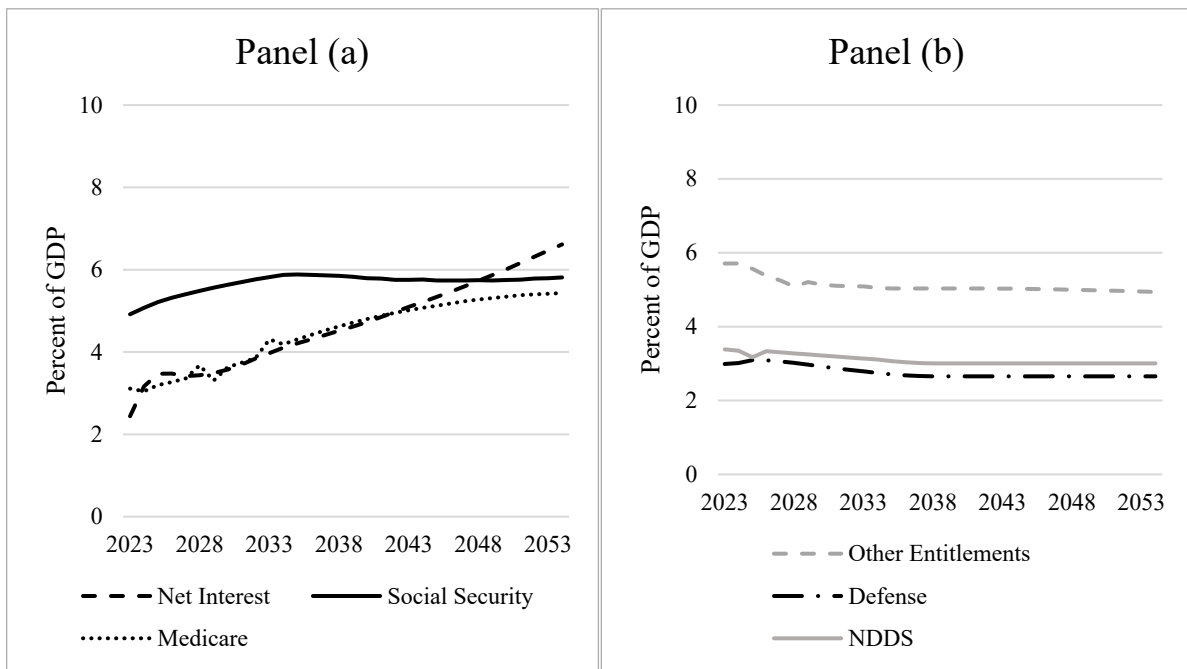


Figure 9. Primary and Unified Deficit, 2023-2054

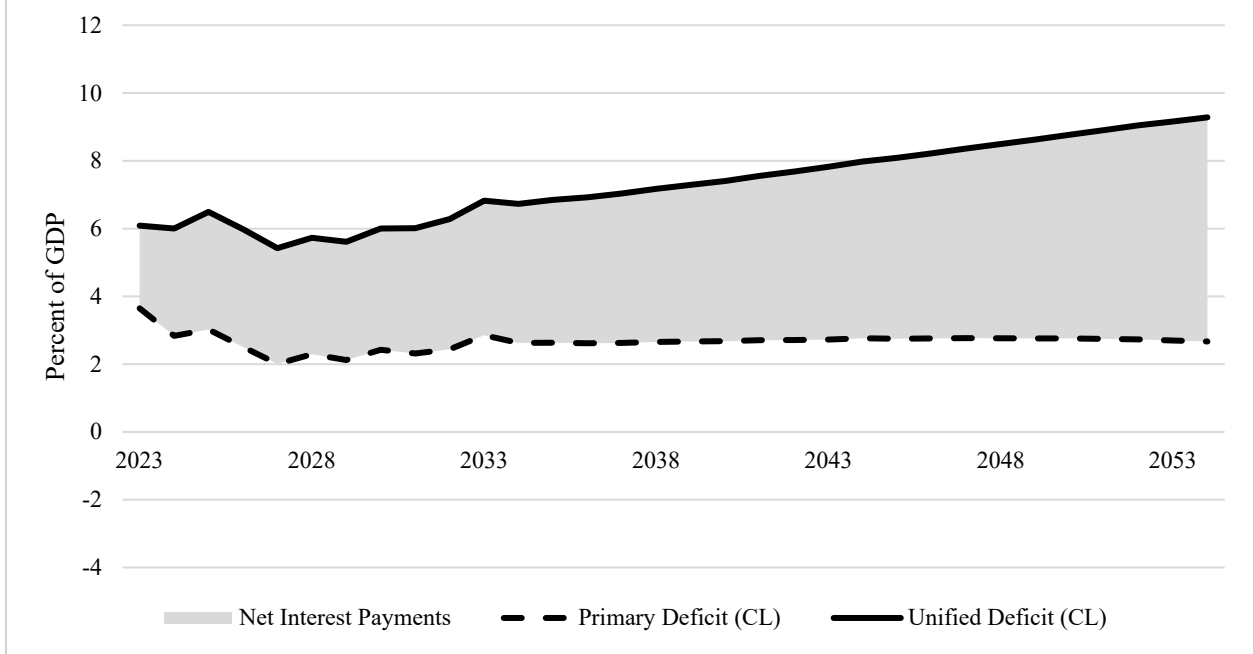


Figure 10. Public Debt, 2000 - 2054

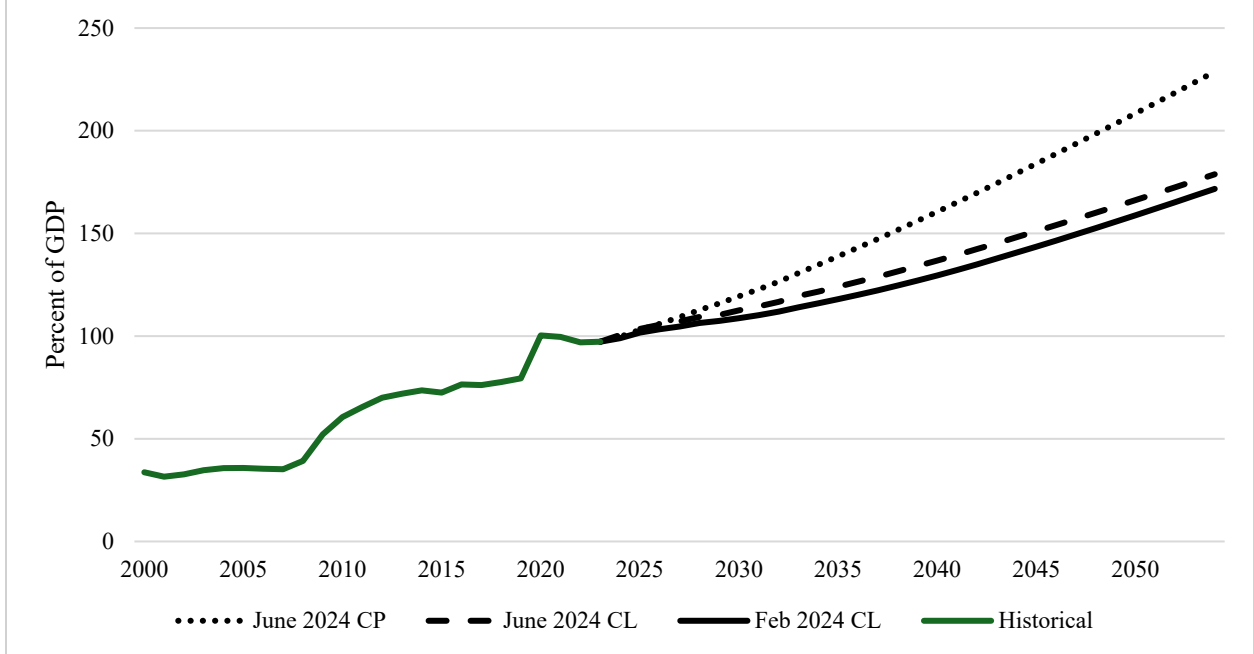




Figure 11. Real and Real Potential GDP, 2023 - 2034

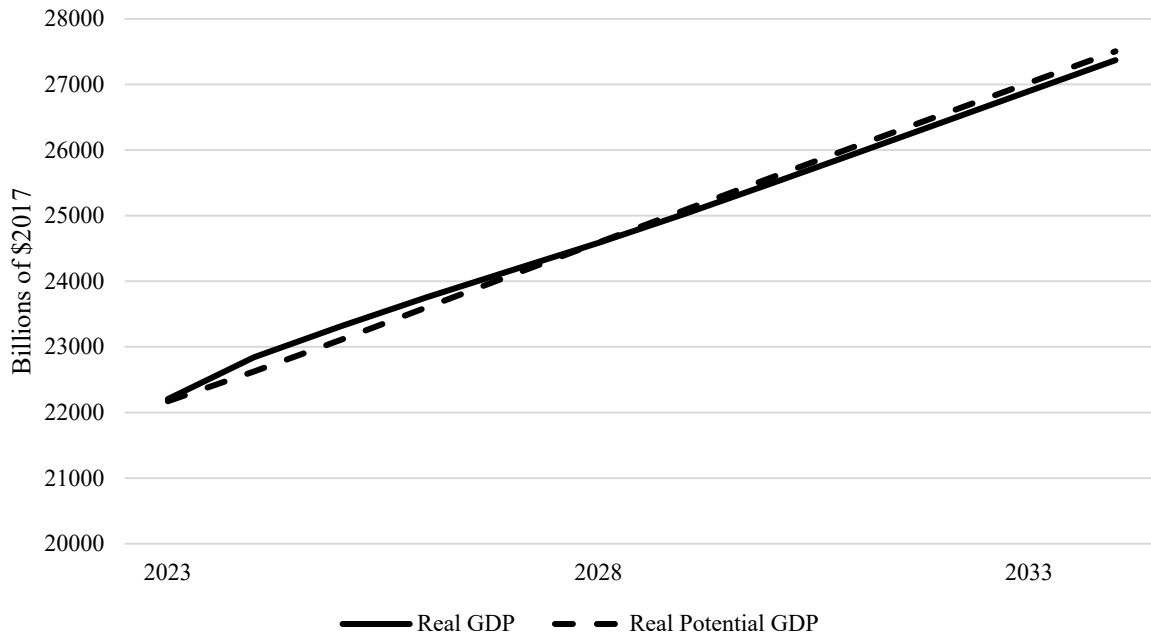


Figure 12. Cyclically Adjusted and Unified Deficit, 2000 - 2034

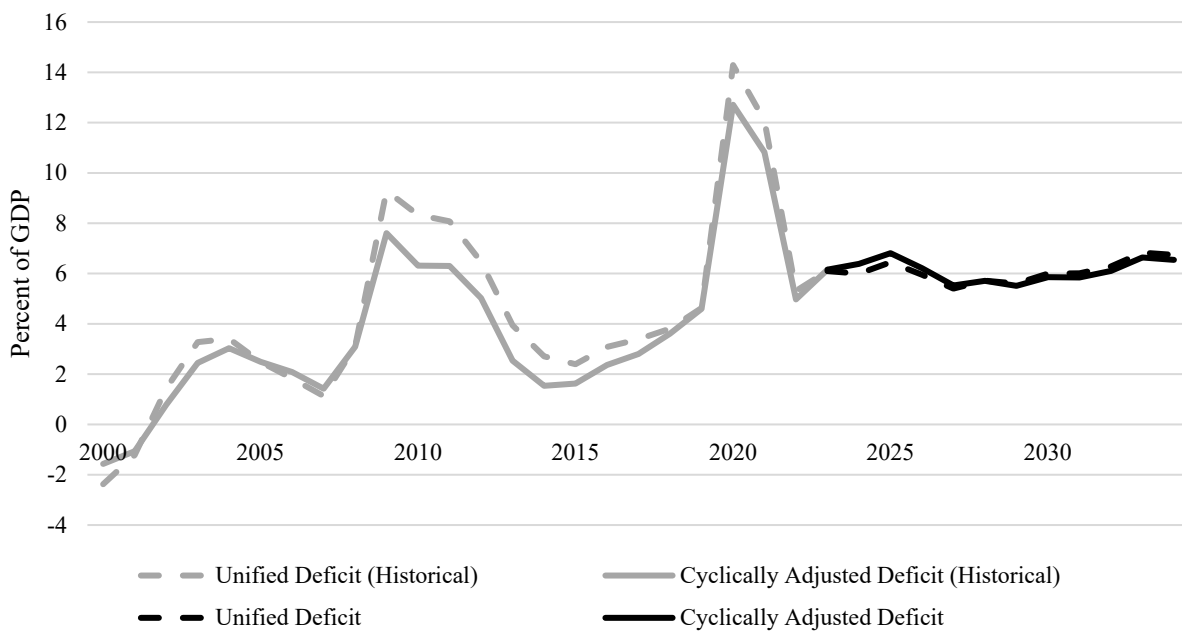


Table 1. Fiscal Gaps to Reach 2054 Targets

<i>Target</i>	<i>Current law beginning</i>		<i>Current policy beginning</i>	
	<i>2025</i>	<i>2030</i>	<i>2025</i>	<i>2030</i>
Debt = 97% of GDP	2.65	3.14	4.30	5.12
Debt = 150% of GDP	0.93	1.15	2.58	3.12
Net Interest = 3.2% of GDP	2.99	3.57	4.67	5.58
(Net Interest/GDP) – Inflation = 2%	0.36	0.43	2.01	2.23

Table A1: February 2024 Current Law Baseline

Year	Total Revenue	Non-Interest Spending	Primary Deficit	Net Interest	Total Spending	Unified Deficit	Public Debt
2023	4,439.3 (16.458)	5,420.9 (20.097)	981.7 (3.639)	659.3 (2.444)	6,080.2 (22.541)	1,640.9 (6.083)	26,239.5 (97.278)
2024	4,935.0 (17.515)	5,603.4 (19.887)	668.4 (2.372)	870.1 (3.088)	6,473.5 (22.975)	1,538.5 (5.460)	27,898.2 (99.012)
2025	4,996.1 (17.077)	5,770.7 (19.725)	774.6 (2.648)	950.8 (3.250)	6,721.5 (22.975)	1,725.4 (5.897)	29,751.4 (101.692)
2026	5,350.6 (17.541)	5,989.6 (19.636)	639.0 (2.095)	1,004.7 (3.294)	6,994.3 (22.929)	1,643.7 (5.389)	31,517.2 (103.323)
2027	5,682.5 (17.895)	6,223.9 (19.599)	541.3 (1.705)	1,049.2 (3.304)	7,273.0 (22.903)	1,590.5 (5.009)	33,235.2 (104.659)
2028	5,870.1 (17.765)	6,440.3 (19.491)	570.2 (1.726)	1,105.4 (3.345)	7,545.7 (22.836)	1,675.6 (5.071)	35,143.3 (106.356)
2029	6,146.6 (17.881)	6,765.0 (19.680)	618.4 (1.799)	1,169.7 (3.403)	7,934.7 (23.083)	1,788.1 (5.202)	36,918.5 (107.400)
2030	6,414.2 (17.944)	7,035.4 (19.682)	621.2 (1.738)	1,240.9 (3.472)	8,276.4 (23.153)	1,862.2 (5.209)	38,870.8 (108.742)
2031	6,655.9 (17.913)	7,325.4 (19.715)	669.5 (1.802)	1,328.3 (3.575)	8,653.7 (23.290)	1,997.7 (5.377)	40,947.3 (110.202)
2032	6,889.7 (17.845)	7,639.6 (19.787)	749.8 (1.942)	1,430.3 (3.705)	9,069.9 (23.491)	2,180.1 (5.647)	43,203.5 (111.899)
2033	7,168.2 (17.873)	7,983.7 (19.906)	815.5 (2.033)	1,527.5 (3.809)	9,511.2 (23.715)	2,343.0 (5.842)	45,741.4 (114.050)
2034	7,474.4 (17.948)	8,341.9 (20.031)	867.5 (2.083)	1,628.3 (3.910)	9,970.2 (23.941)	2,495.8 (5.993)	48,302.8 (115.985)
2035	7,772.4 (17.981)	8,750.1 (20.243)	977.8 (2.262)	1,733.8 (4.011)	10,483.9 (24.254)	2,711.5 (6.273)	51,000.0 (117.986)
2036	8,091.2 (18.041)	9,118.3 (20.331)	1,027.0 (2.290)	1,840.2 (4.103)	10,958.4 (24.434)	2,867.2 (6.393)	53,858.9 (120.089)
2037	8,418.0 (18.094)	9,502.5 (20.425)	1,084.5 (2.331)	1,956.8 (4.206)	11,459.3 (24.631)	3,041.3 (6.537)	56,895.8 (122.294)

2038	8,750.6 (18.135)	9,900.0 (20.517)	1,149.4 (2.382)	2,079.2 (4.309)	11,979.2 (24.826)	3,228.6 (6.691)	60,124.2 (124.603)
2039	9,099.6 (18.187)	10,322.4 (20.631)	1,222.8 (2.444)	2,206.5 (4.410)	12,528.9 (25.041)	3,429.3 (6.854)	63,553.7 (127.022)
2040	9,456.3 (18.232)	10,750.8 (20.728)	1,294.6 (2.496)	2,344.9 (4.521)	13,095.7 (25.249)	3,639.5 (7.017)	67,193.2 (129.551)
2041	9,820.3 (18.269)	11,185.7 (20.809)	1,365.3 (2.540)	2,494.7 (4.641)	13,680.4 (25.450)	3,860.1 (7.181)	71,053.5 (132.183)
2042	10,196.3 (18.306)	11,640.0 (20.898)	1,443.7 (2.592)	2,656.3 (4.769)	14,296.3 (25.667)	4,100.0 (7.361)	75,153.2 (134.927)
2043	10,591.5 (18.353)	12,109.3 (20.983)	1,517.8 (2.630)	2,826.6 (4.898)	14,935.9 (25.881)	4,344.4 (7.528)	79,498.4 (137.755)
2044	10,988.4 (18.378)	12,574.1 (21.030)	1,585.7 (2.652)	3,002.7 (5.022)	15,576.8 (26.052)	4,588.4 (7.674)	84,085.9 (140.633)
2045	11,408.0 (18.416)	13,059.5 (21.082)	1,651.5 (2.666)	3,189.6 (5.149)	16,249.2 (26.231)	4,841.1 (7.815)	88,926.5 (143.554)
2046	11,843.7 (18.454)	13,566.3 (21.138)	1,722.6 (2.684)	3,389.3 (5.281)	16,955.6 (26.419)	5,111.9 (7.965)	94,038.0 (146.523)
2047	12,296.3 (18.492)	14,094.3 (21.196)	1,798.0 (2.704)	3,604.7 (5.421)	17,699.0 (26.617)	5,402.7 (8.125)	99,441.3 (149.547)
2048	12,773.4 (18.540)	14,637.7 (21.246)	1,864.3 (2.706)	3,833.4 (5.564)	18,471.1 (26.810)	5,697.7 (8.270)	105,139.2 (152.605)
2049	13,251.3 (18.563)	15,195.2 (21.286)	1,943.8 (2.723)	4,075.4 (5.709)	19,270.6 (26.995)	6,019.2 (8.432)	111,158.9 (155.716)
2050	13,759.3 (18.602)	15,762.4 (21.310)	2,003.0 (2.708)	4,334.5 (5.860)	20,096.8 (27.170)	6,337.5 (8.568)	117,495.9 (158.849)
2051	14,291.3 (18.647)	16,354.4 (21.339)	2,063.2 (2.692)	4,612.3 (6.018)	20,966.7 (27.357)	6,675.4 (8.710)	124,170.8 (162.016)
2052	14,847.4 (18.698)	16,973.1 (21.375)	2,125.7 (2.677)	4,905.7 (6.178)	21,878.9 (27.553)	7,031.4 (8.855)	131,201.0 (165.227)
2053	15,420.8 (18.744)	17,592.7 (21.384)	2,171.9 (2.640)	5,214.3 (6.338)	22,807.0 (27.722)	7,386.3 (8.978)	138,588.0 (168.454)
2054	16,024.1 (18.800)	18,236.8 (21.396)	2,212.7 (2.596)	5,536.8 (6.496)	23,773.7 (27.892)	7,749.5 (9.092)	146,337.8 (171.688)

Table A2: June 2024 Current Law Baseline

Year	Total Revenue	Non-Interest Spending	Primary Deficit	Net Interest	Total Spending	Unified Deficit	Public Debt
2023	4,440.9 (16.464)	5,424.6 (20.111)	983.7 (3.647)	658.3 (2.440)	6,082.9 (22.551)	1,642.0 (6.087)	26,235.6 (97.263)
2024	4,889.8 (17.354)	5,688.6 (20.189)	798.8 (2.835)	892.3 (3.167)	6,580.9 (23.356)	1,691.1 (6.002)	28,327.7 (100.535)
2025	5,037.6 (17.219)	5,921.7 (20.241)	884.0 (3.022)	1,015.7 (3.472)	6,937.4 (23.713)	1,899.7 (6.493)	30,268.5 (103.461)
2026	5,393.6 (17.682)	6,158.3 (20.189)	764.7 (2.507)	1,060.7 (3.477)	7,219.1 (23.666)	1,825.5 (5.984)	32,192.9 (105.537)
2027	5,756.1 (18.126)	6,394.1 (20.135)	638.0 (2.009)	1,083.9 (3.413)	7,478.1 (23.548)	1,722.0 (5.422)	34,027.4 (107.153)
2028	5,943.9 (17.988)	6,701.3 (20.281)	757.4 (2.292)	1,135.6 (3.437)	7,836.9 (23.717)	1,893.0 (5.729)	36,140.7 (109.375)
2029	6,133.4 (17.843)	6,863.5 (19.967)	730.1 (2.124)	1,198.8 (3.487)	8,062.3 (23.454)	1,928.8 (5.611)	37,901.1 (110.258)
2030	6,354.0 (17.775)	7,221.1 (20.201)	867.1 (2.426)	1,277.9 (3.575)	8,499.0 (23.776)	2,145.0 (6.001)	40,234.8 (112.558)
2031	6,661.1 (17.927)	7,521.4 (20.242)	860.2 (2.315)	1,372.8 (3.695)	8,894.2 (23.937)	2,233.0 (6.010)	42,532.2 (114.466)
2032	6,899.4 (17.870)	7,840.9 (20.308)	941.5 (2.439)	1,483.5 (3.842)	9,324.4 (24.151)	2,425.0 (6.281)	45,031.9 (116.636)
2033	7,176.0 (17.893)	8,319.5 (20.744)	1,143.5 (2.851)	1,594.3 (3.975)	9,913.7 (24.719)	2,737.7 (6.826)	47,955.9 (119.573)
2034	7,458.7 (17.910)	8,552.1 (20.535)	1,093.3 (2.625)	1,710.2 (4.106)	10,262.3 (24.642)	2,803.5 (6.732)	50,670.4 (121.669)
2035	7,755.9 (17.943)	8,893.9 (20.575)	1,138.0 (2.633)	1,820.9 (4.213)	10,714.9 (24.788)	2,958.9 (6.845)	53,616.7 (124.038)
2036	8,074.0 (18.003)	9,246.9 (20.618)	1,172.9 (2.615)	1,932.1 (4.308)	11,179.0 (24.926)	3,105.0 (6.923)	56,712.8 (126.453)
2037	8,400.2 (18.056)	9,621.5 (20.681)	1,221.4 (2.625)	2,053.2 (4.413)	11,674.7 (25.094)	3,274.5 (7.038)	59,984.3 (128.932)
2038	8,732.1 (18.096)	10,014.3 (20.754)	1,282.2 (2.657)	2,180.2 (4.518)	12,194.4 (25.272)	3,462.4 (7.175)	63,447.7 (131.490)
2039	9,080.3 (18.148)	10,416.5 (20.819)	1,336.2 (2.671)	2,311.6 (4.620)	12,728.1 (25.439)	3,647.8 (7.291)	67,097.1 (134.103)

2040	9,436.1 (18.193)	10,824.6 (20.870)	1,388.5 (2.677)	2,452.9 (4.729)	13,277.4 (25.600)	3,841.3 (7.406)	70,939.3 (136.774)
2041	9,799.4 (18.230)	11,254.0 (20.936)	1,454.6 (2.706)	2,606.0 (4.848)	13,860.0 (25.784)	4,060.5 (7.554)	75,001.8 (139.528)
2042	10,174.6 (18.267)	11,684.2 (20.977)	1,509.6 (2.710)	2,769.9 (4.973)	14,454.0 (25.950)	4,279.4 (7.683)	79,282.3 (142.341)
2043	10,569.0 (18.314)	12,142.8 (21.041)	1,573.8 (2.727)	2,941.4 (5.097)	15,084.2 (26.138)	4,515.2 (7.824)	83,799.2 (145.207)
2044	10,965.0 (18.339)	12,618.7 (21.105)	1,653.7 (2.766)	3,117.8 (5.214)	15,736.5 (26.319)	4,771.5 (7.980)	88,572.5 (148.137)
2045	11,383.7 (18.377)	13,087.6 (21.127)	1,703.9 (2.751)	3,305.6 (5.336)	16,393.2 (26.464)	5,009.5 (8.087)	93,583.0 (151.072)
2046	11,818.6 (18.415)	13,590.0 (21.175)	1,771.5 (2.760)	3,505.7 (5.462)	17,095.8 (26.637)	5,277.2 (8.222)	98,862.4 (154.039)
2047	12,270.1 (18.453)	14,110.5 (21.220)	1,840.3 (2.768)	3,720.9 (5.596)	17,831.3 (26.816)	5,561.2 (8.363)	104,424.3 (157.041)
2048	12,746.2 (18.501)	14,649.1 (21.263)	1,902.9 (2.762)	3,948.6 (5.731)	18,597.6 (26.994)	5,851.5 (8.493)	110,277.1 (160.063)
2049	13,223.2 (18.524)	15,191.6 (21.281)	1,968.4 (2.757)	4,189.5 (5.869)	19,381.1 (27.150)	6,157.9 (8.626)	116,438.2 (163.111)
2050	13,730.1 (18.562)	15,769.8 (21.320)	2,039.7 (2.758)	4,445.8 (6.011)	20,215.7 (27.331)	6,485.6 (8.768)	122,924.7 (166.189)
2051	14,260.9 (18.607)	16,365.3 (21.353)	2,104.4 (2.746)	4,721.7 (6.161)	21,086.9 (27.514)	6,826.1 (8.907)	129,753.0 (169.300)
2052	14,815.8 (18.658)	16,985.7 (21.391)	2,170.0 (2.733)	5,012.9 (6.313)	21,998.7 (27.704)	7,182.9 (9.046)	136,937.8 (172.453)
2053	15,388.1 (18.704)	17,606.8 (21.401)	2,218.7 (2.697)	5,319.1 (6.465)	22,925.9 (27.866)	7,537.8 (9.162)	144,478.5 (175.613)
2054	15,990.1 (18.760)	18,263.9 (21.428)	2,273.8 (2.668)	5,637.8 (6.614)	23,901.7 (28.042)	7,911.6 (9.282)	152,392.3 (178.791)

Table A3: June 2024 Current Policy Baselines

Year	Total Revenue	Non-Interest Spending	Primary Deficit	Net Interest	Total Spending	Unified Deficit	Public Debt
2023	4,440.9 (16.464)	5,424.6 (20.111)	983.7 (3.647)	658.3 (2.440)	6,082.9 (22.551)	1,642.0 (6.087)	26,235.6 (97.263)
2024	4,889.8 (17.354)	5,688.6 (20.189)	798.8 (2.835)	892.3 (3.167)	6,580.9 (23.356)	1,691.1 (6.002)	28,076.8 (99.644)
2025	4,956.6 (16.942)	5,921.7 (20.241)	965.0 (3.299)	1,019.0 (3.483)	6,940.7 (23.724)	1,984.0 (6.782)	30,141.5 (103.027)
2026	5,180.6 (16.983)	6,219.8 (20.390)	1,039.2 (3.407)	1,071.2 (3.512)	7,291.0 (23.902)	2,110.4 (6.918)	32,325.7 (105.972)
2027	5,289.1 (16.655)	6,471.2 (20.378)	1,182.1 (3.723)	1,108.5 (3.491)	7,579.7 (23.869)	2,290.6 (7.213)	34,693.8 (109.251)
2028	5,488.9 (16.611)	6,788.8 (20.545)	1,300.0 (3.934)	1,178.8 (3.567)	7,967.6 (24.113)	2,478.7 (7.501)	37,236.1 (112.690)
2029	5,681.4 (16.528)	6,975.7 (20.293)	1,294.2 (3.765)	1,259.1 (3.663)	8,234.8 (23.956)	2,553.4 (7.428)	39,841.3 (115.902)
2030	5,899.0 (16.503)	7,342.4 (20.540)	1,443.3 (4.038)	1,357.4 (3.797)	8,699.7 (24.338)	2,800.7 (7.835)	42,677.4 (119.391)
2031	6,198.1 (16.681)	7,658.9 (20.612)	1,460.8 (3.931)	1,475.0 (3.970)	9,133.9 (24.582)	2,935.8 (7.901)	45,635.8 (122.819)
2032	6,422.4 (16.634)	7,993.4 (20.703)	1,571.0 (4.069)	1,609.1 (4.168)	9,602.5 (24.871)	3,180.2 (8.237)	48,834.1 (126.484)
2033	6,636.0 (16.546)	8,479.3 (21.142)	1,843.3 (4.596)	1,748.0 (4.358)	10,227.4 (25.501)	3,591.3 (8.955)	52,407.1 (130.672)
2034	6,892.7 (16.551)	8,731.9 (20.967)	1,839.1 (4.416)	1,892.7 (4.545)	10,624.6 (25.512)	3,731.9 (8.961)	56,120.8 (134.757)
2035	7,167.4 (16.581)	9,078.0 (21.001)	1,910.6 (4.420)	2,012.5 (4.656)	11,090.5 (25.657)	3,923.1 (9.076)	60,031.3 (138.878)
2036	7,461.3 (16.637)	9,435.9 (21.039)	1,974.6 (4.403)	2,168.4 (4.835)	11,604.3 (25.874)	4,143.0 (9.238)	64,165.4 (143.070)
2037	7,762.7 (16.685)	9,816.3 (21.099)	2,053.5 (4.414)	2,323.9 (4.995)	12,140.1 (26.094)	4,377.4 (9.409)	68,539.7 (147.321)
2038	8,069.4 (16.723)	10,215.6 (21.171)	2,146.1 (4.448)	2,493.3 (5.167)	12,708.9 (26.338)	4,639.5 (9.615)	73,180.3 (151.660)

2039	8,391.3 (16.771)	10,625.3 (21.236)	2,234.0 (4.465)	2,671.8 (5.340)	13,297.1 (26.576)	4,905.8 (9.805)	78,087.7 (156.069)
2040	8,720.1 (16.813)	11,041.0 (21.287)	2,320.9 (4.475)	2,857.2 (5.509)	13,898.1 (26.796)	5,178.1 (9.984)	83,266.6 (160.542)
2041	9,055.8 (16.847)	11,478.3 (21.353)	2,422.5 (4.507)	3,056.6 (5.686)	14,534.9 (27.040)	5,479.1 (10.193)	88,747.7 (165.100)
2042	9,402.5 (16.881)	11,916.5 (21.395)	2,514.1 (4.514)	3,272.8 (5.876)	15,189.3 (27.270)	5,786.8 (10.389)	94,535.6 (169.726)
2043	9,767.0 (16.924)	12,383.5 (21.458)	2,616.6 (4.534)	3,504.3 (6.072)	15,887.9 (27.531)	6,120.9 (10.606)	100,658.3 (174.421)
2044	10,133.0 (16.947)	12,868.2 (21.522)	2,735.2 (4.575)	3,748.0 (6.268)	16,616.2 (27.790)	6,483.2 (10.843)	107,143.2 (179.196)
2045	10,519.9 (16.982)	13,346.0 (21.545)	2,826.2 (4.562)	3,999.4 (6.456)	17,345.5 (28.001)	6,825.6 (11.019)	113,969.8 (183.982)
2046	10,921.7 (17.017)	13,857.8 (21.592)	2,936.1 (4.575)	4,267.2 (6.649)	18,125.1 (28.241)	7,203.3 (11.224)	121,175.4 (188.806)
2047	11,339.0 (17.052)	14,387.9 (21.638)	3,048.9 (4.585)	4,553.4 (6.848)	18,941.3 (28.485)	7,602.3 (11.433)	128,778.3 (193.666)
2048	11,778.9 (17.097)	14,936.5 (21.680)	3,157.6 (4.583)	4,861.0 (7.056)	19,797.5 (28.735)	8,018.6 (11.639)	136,798.3 (198.558)
2049	12,219.8 (17.118)	15,489.4 (21.698)	3,269.7 (4.580)	5,187.3 (7.267)	20,676.7 (28.965)	8,456.9 (11.847)	145,258.3 (203.483)
2050	12,688.2 (17.154)	16,078.4 (21.737)	3,390.2 (4.583)	5,533.5 (7.481)	21,611.9 (29.218)	8,923.7 (12.064)	154,183.0 (208.448)
2051	13,178.7 (17.195)	16,685.0 (21.770)	3,506.3 (4.575)	5,902.3 (7.701)	22,587.3 (29.472)	9,408.6 (12.276)	163,593.8 (213.455)
2052	13,691.5 (17.242)	17,317.0 (21.808)	3,625.5 (4.566)	6,299.5 (7.933)	23,616.5 (29.742)	9,925.1 (12.499)	173,520.8 (218.523)
2053	14,220.4 (17.285)	17,950.0 (21.818)	3,729.7 (4.533)	6,719.7 (8.168)	24,669.8 (29.986)	10,449.4 (12.701)	183,973.1 (223.618)
2054	14,776.7 (17.336)	18,619.5 (21.845)	3,842.8 (4.508)	7,162.7 (8.403)	25,782.2 (30.248)	11,005.5 (12.912)	194,980.7 (228.757)