

## **If Not Now, When?**

### **New Estimates of the Federal Budget Outlook**

Alan J. Auerbach, William G. Gale, and Aaron Krupkin\*

February 2019

#### **ABSTRACT**

We provide estimates of the federal budget outlook based on new Congressional Budget Office (CBO) analysis. CBO projects a debt-to-GDP ratio of 93 percent by fiscal year 2029 under current law, up from 78 percent today. Under a “current policy” scenario similar to CBO’s alternative fiscal scenario – in which policymakers routinely extend temporary provisions, as they have in the past – we project a debt-to-GDP ratio above 106 percent by 2029, which would be the highest ratio in U.S. history. Notably, the projections include the only sustained period when the U.S. has had full-employment deficits around and above 4 percent of GDP. After the first decade, fiscal pressures mount, with the debt-to-GDP ratio rising to 193 percent by 2049 under current policy. To ensure the debt-to-GDP ratio 30 years from now does not exceed the current level would require a combination of immediate and permanent spending cuts and/or tax increases totaling 3.9 percent of GDP under current policy. In 2019, this represents about a 21 percent cut in non-interest spending or a 24 percent increase in tax revenues. Over the longer term, the required adjustment would be even larger.

\*Alan J. Auerbach is Robert D. Burch Professor of Economics and Law and Director, Robert D. Burch Center for Tax Policy and Public Finance, University of California, Berkeley, and Research Associate, National Bureau of Economic Research. William G. Gale is Arjay and Frances Fearing Miller Chair, Brookings; Codirector, Urban-Brookings Tax Policy Center; and author of *Fiscal Therapy: Curing America’s Debt Addiction and Investing in the Future* (Oxford 2019). Aaron Krupkin is Senior Research Analyst, Brookings and Urban-Brookings Tax Policy Center. The authors thank Olivier Blanchard, Victoria Johnson, Richard Kogan, Donald Marron, Mark Mazur, and Jay Shambaugh for helpful comments, Richard Kogan for his interest rate matrix, and Victoria Johnson for outstanding research assistance. All opinions and any mistakes are those of the authors and should not be attributed to the staff, officers, or trustees of any of the institutions with which they are affiliated.

## I. INTRODUCTION

This paper provides new estimates and perspectives on the federal budget outlook. The Congressional Budget Office (CBO) projects a debt-to-GDP ratio of 93 percent by fiscal year 2029 under current law, up from 78 percent today.<sup>1</sup>

We start with that projection and build on it in three ways. First, under a “current policy” scenario similar to CBO’s alternative fiscal scenario – in which policymakers routinely extend temporary provisions, as they have in the past – we project a debt-to-GDP ratio above 106 percent in 2029, which would be the highest ratio in U.S. history.

Second, we highlight that the currently strong economy is masking the underlying fiscal problem. If the CBO and current policy projections hold, the next ten years will include the first sustained period in U.S. history with sizable full-employment deficits, which will exceed 4 percent of GDP under current law and rise to 7 percent of GDP under current policy.

Third, after the coming decade, fiscal pressures mount, with the debt-to-GDP ratio rising to 193 percent under current policy by 2049. The fiscal gap is substantial; to ensure the debt-to-GDP ratio 30 years from now does not exceed the current level would require a combination of immediate and permanent spending cuts and/or tax increases totaling 3.9 percent of GDP. In 2019, this would be equivalent to a 21 percent cut in non-interest spending, a 47 percent increase in income tax revenues, or a 24 percent increase in all tax revenues. Over the longer term, the required adjustments are even larger.

Growth in annual net interest payments – due to projections of rising interest rates – accounts for a significant part of the rising debt projection. However, even if interest rates

---

<sup>1</sup> Congressional Budget Office (2019). Throughout this paper, years refer to fiscal years, which go from October 1 through September 30 for the federal government.

remain unchanged over the next 30 years, the debt-to-GDP ratio in 2049 would rise to 156 percent and the fiscal gap would be 3.2 percent of GDP. That is, there is a significant federal fiscal imbalance even if interest rates stay low. This is reflected in persistent and rising primary deficits, in the range of 3 to 5 percent of GDP over the next 30 years.

Sustained federal deficits and rising federal debt that are used to finance consumption or transfer payments in normal times (rather than to finance investments) create numerous problematic effects. First, they will reduce future national income. This can occur because deficits raise interest rates and crowd out future investment, reducing future production and income. But an increase in interest rates is not necessary to generate the decline in future national income. If a rise in deficits is financed by capital inflows (that are sufficiently large so that interest rates do not rise), future investment and production won't fall, but future national income – that is, Americans' claims on that production – will decline, as more of the proceeds of production will have to be directed to repay foreign creditors.

Sustained deficits and rising long-term debt also make it more difficult to garner political support to conduct routine policy, address major new priorities, or deal with the next recession or emergency. Third, in those ways and by requiring future tax increases or spending cuts, the fiscal trajectory imposes burdens on future generations. Fourth, the current fiscal trajectory raises the possibility of a financial crisis, even if such an outcome remains a low-probability event.

One of the arguments for more debt and less austerity during the Great Recession and the aftermath was summarized by Keynes: “The boom, not the slump, is the right time for austerity at the Treasury.”<sup>2</sup> Well, this is the boom. If policymakers do not address the fiscal imbalance now, it will only become a harder problem in the future, due both to the growing size of the

---

<sup>2</sup> Krugman (2011).

deficit and debt and the increased economic costs and political difficulty of enacting spending cuts or tax increases in less favorable times. Addressing the fiscal imbalance now does not necessarily require substantial, immediate cuts in spending or increases in taxes; it could instead be structured to provide gradual changes that are phased in over time.

Section II discusses the 10-year outlook. Section III discusses the outlook over longer horizons. Section IV discusses the findings and their implications.

## **II. THE 10-YEAR BUDGET OUTLOOK**

### **A. Current Law**

CBO is constrained in how it projects the budget. It is required to assume that expiring tax provisions are not extended, that mandatory programs are reauthorized as scheduled, and that discretionary spending follows the caps set forth in the Budget Control Act of 2011 (which were modified in subsequent legislation) through 2021 and remains constant in real terms thereafter. Figures 1 and 2 and Appendix Table 1 display deficits and debt under current law. CBO projects the current-law deficit will rise from 4.2 percent of GDP in 2019 to 4.4 percent in 2029.

Adjusted for timing changes, the deficit rises to 4.7 percent in 2029.<sup>3</sup> End-of-year debt rises from 78 percent of GDP to 93 percent of GDP over the same period.

### **B. Current Policy**

We construct alternative 10-year projections by starting with CBO's January 2019 current-law baseline (CBO 2019) and then making a series of adjustments. In many cases, we

---

<sup>3</sup> The Congressional Budget Office (2019, Table 1-26) shows that the deficit for fiscal year 2029 will be about \$91 billion lower than would otherwise be expected because October 1, 2028 (the beginning of fiscal year 2029) will fall on a weekend, thus pushing some October payments (mostly for Medicare) up to the end of September in the previous fiscal year. As a result, the deficit in 2028 will be about \$91 billion larger than otherwise expected. Of these \$91 billion in payments, \$61 billion applies to Medicare.

utilize estimates that CBO itself provides of alternative policy options. Appendix Table 1 outlines the size of the adjustments relative to the CBO baseline. We emphasize that these adjustments are not policy recommendations; they simply show the effects of what we view as a continuation of current policies.

We assume that major temporary tax-cut provisions are made permanent, including those in the 2017 tax act. This includes “100 percent bonus depreciation” (expensing of business investment in qualifying equipment) and the personal income tax cuts scheduled to expire after 2025.<sup>4</sup> We also assume that enacted tax provisions for which implementation has already been delayed will be permanently delayed (i.e., the provisions will be cancelled and never take effect). This includes certain postponed or suspended healthcare taxes in the Affordable Care Act (ACA), such as the medical device excise tax and the tax on high-premium insurance (the “Cadillac Tax”). With bipartisan support, the implementation of these taxes was postponed by two years in the Protecting Americans from Tax Hikes Act in December 2015 and by another two years in the Extension of Continuing Appropriations Act, 2018.<sup>5</sup>

On the spending side, CBO sets discretionary spending through 2021 at the levels created by the discretionary spending caps and sequestration procedures (as imposed in the Budget Control Act of 2011 and modified by the Bipartisan Budget Acts of 2013, 2015, and 2018) and then allows them rise with inflation. We allow defense spending to rise with inflation, starting in

---

<sup>4</sup> Examples of major expiring provisions in the 2017 tax act include the top marginal income tax rate of 37 percent, 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. See Congressional Budget Office (2018a) for more details.

<sup>5</sup> The revenue adjustments also affect refundable tax credits, which, in accordance with Congressional Budget Office (2019), is considered an effect on outlays.

2020, so that real defense expenditures remain constant at 2019 levels.<sup>6</sup> We allow non-defense discretionary spending to rise with the rate of inflation and the rate of population growth, so that real per-capita spending remains constant at 2019 levels. Both assumptions are meant to reflect a rough approximation of a budget that maintains current services. For defense, largely a non-rival public good, it seems reasonable to assume that current services can be maintained without regard to population over the short-term. For non-defense programs, it is more likely that maintaining current services requires a population adjustment.

Deficits and debt under current policy are reported in Figures 1 and 2 and in Appendix Table 1. Current-policy deficits rise from 4.2 percent of GDP in 2019 to 7.0 percent of GDP by 2029. The debt-to-GDP ratio grows from 78.3 percent at the end of 2019 to 106.4 percent by the end of 2029.

### C. Discussion

- **Deficits**

Over the next decade, deficits average 4.4 percent of GDP under current law and 6.0 percent of GDP under current policy. In the post-war period, the U.S. has had deficits of at least 4.4 percent of GDP in only a handful of years: a few years in the mid-1980s during a steep recession, in 1991-1992, and in 2009-2012 following the financial crisis and Great Recession. The deficit exceeded 6.0 percent of GDP only from 2009-2012.

The projected deficits are, on average, full-employment deficits, since cumulative actual GDP is projected to equal cumulative potential GDP over the period.<sup>7</sup> The average full-

---

<sup>6</sup> CBO (2019) uses a mix of the employment cost index and the GDP price index to measure inflation.

<sup>7</sup> Congressional Budget Office (2019). Projected automatic stabilizers average less than 0.1 percent of GDP over the decade.

employment deficit between 1965 and 2018 was just 2.7 percent of GDP.<sup>8</sup> Figure 3 shows previous and projected full-employment deficits. Under current law, the projected full-employment deficits are unprecedented in that they are persistently 4 percent of GDP or higher. Under current policy, the full-employment deficits rise significantly, reaching 7 percent by the end of the period. Unlike the temporary spikes in the full-employment deficit in prior episodes, the projected full-employment deficits are chronic. This gives a sense of how large the fiscal imbalance is.

The primary (ex-interest) deficit is positive under both current law and current policy and rises over time as a share of GDP under current policy (Figure 1), another sign of rising fiscal problems.

- **Debt**

At 78 percent of GDP, publicly held federal debt is already higher than at any time in U.S. history other than a seven-year period around World War II. From 1957 to 2007, the ratio never exceeded 50 percent and averaged just 36 percent of GDP. In 2007, the last year before the financial crisis and the Great Recession, the ratio was 35 percent.

The debt-to-GDP ratio rises by more than 28 percentage points from 2019 to 2029 under current policy. By 2029, the debt-to-GDP ratio under current policy is projected to be the highest ever, barely edging out a figure of 106.1 percent in 1946.

- **Spending**

Total spending under current policy rises from 20.8 percent of GDP in 2019 to 24.1 percent by 2029 (Table 1, Figure 4). By comparison, total spending averaged 20.4 percent of GDP from 1965 to 2018 (weighted by GDP) – a period over which the debt-to-GDP ratio rose

---

<sup>8</sup> This figure is a weighted average, where the weight is GDP. The unweighted average is 2.4 percent.

significantly. As a share of GDP, net interest, Social Security, and healthcare spending (Medicare, Medicaid, the Children’s Health Insurance Program, and exchange subsidies) are projected to rise; defense, non-defense discretionary, and other mandatory spending are slated to decline.

Net interest payments are projected to rise from 1.8 percent of GDP in 2019 to 3.4 percent in 2029. The rise is due to projections of growing debt and rising interest rates.<sup>9</sup> Notably, interest rates on government debt stay below the economic growth rate over the entire decade. From 1965-2018, by comparison, net interest averaged 1.9 percent of GDP.

Overall non-interest spending rises from 19.0 percent of GDP in 2019 to 20.7 percent by 2029 (Table 1, Figure 4), considerably above the average (weighted) value from 1965 to 2018, of about 18.6 percent.

Mandatory spending is projected to rise from 12.7 percent of GDP in 2019 to 14.8 percent in 2029, a big part of this growth due to Social Security (about 1.1 percent of GDP) and net Medicare spending (1.0 percent of GDP).<sup>10</sup> Among the remaining programs, Medicaid benefits, CHIP, and exchange subsidies rise by more than 0.3 percent of GDP, offset in part by a decline of about 0.3 percent of GDP in spending on other entitlements (Table 1, Figure 5).

Discretionary spending falls from 6.3 percent of GDP in 2019 to 5.8 percent in 2029, even under current policy. Within that category, defense spending declines from 3.1 percent in

---

<sup>9</sup> The three-month Treasury bill rate rises to 3.2 percent in 2021 compared to 2.6 percent in 2019. The 10-year Treasury note rate rises to 3.7 percent in 2021 compared to 3.3 percent in 2019. Various measures of the inflation rate such as the Consumer Price Index and Employment Cost Index are expected to rise around 0.3-0.4 percentage points over the same period; the remainder of the interest-rate increases represents changes in real interest rates. The 3-month interest rate is projected to be 2.8 percent in 2029. Note, though, that this moderation is in part attributable to the removal of fiscal stimulus under current law through the expiration of tax provisions and very low discretionary spending growth – factors not present under our current-policy scenario.

<sup>10</sup> About \$61 billion in Medicare spending is shifted from 2029 to 2028 due to the timing effects discussed in Footnote 3.



2019 to 2.8 percent in 2029, while non-defense discretionary spending falls from 3.2 percent of GDP in 2019 to 3.0 percent of GDP in 2029 (Table 1, Figure 5). All these shares are low relative to historical figures. Since 1965, the lowest discretionary spending share of GDP occurred in 1999, at 6.0 percent. The lowest share for defense spending was 2.9 percent of GDP in 1999-2001. The lowest non-defense discretionary spending share of GDP was 3.1 percent in 1999.

- **Revenues**

Revenues are projected to increase from 16.5 percent of GDP in 2019 to 17.0 percent of GDP in 2029 under current policy (Figure 4). (Under current law, revenues rise to 18.3 percent of GDP by 2029.) By comparison, revenues averaged 17.1 percent of GDP from 1965 to 2018 (weighted by GDP). As noted above, the ratio of debt to GDP rose significantly over this period. Notably, individual income tax revenues are projected to rise from 8.3 percent of GDP currently to 8.7 percent of GDP by 2029 under current policy. The increase in individual income tax revenues is paired with a small increase in corporate tax revenues from 1.2 percent of GDP in 2019 to 1.3 percent of GDP in 2029 and a smaller increase in payroll tax revenues. Even though corporate tax revenues are projected to increase as a share of GDP over the next decade, they will still be significantly lower than their average since 1965 (weighted) of 1.8 percent of GDP. Moreover, the increase does not reverse the several-decade trend of shrinking corporate tax revenues. Other revenues are projected to drop as a share of the economy over the 2019-2029 period.

#### D. 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 the revenues coming in. The Social Security (Old Age and Survivors Insurance) trust fund is currently scheduled to have to make forced adjustments by 2034 (according to the Social Security Trustees, 2032 according to CBO). The disability insurance (DI) trust fund is scheduled to have to make forced adjustments by 2032 (according to the Social Security Trustees, 2027 according to CBO).<sup>11</sup> The Medicare Part A (hospital insurance) fund appears, according to CBO and the 2018 Trustees Report, likely to hit a similar constraint by 2026.<sup>12</sup> Each of these dates may prompt at least limited fiscal action. In each case, legislators will be forced to override the rules regarding trust funds, make inter-fund transfers, reduce benefits, or raise taxes. In contrast, Medicare parts B (Supplementary Medical Insurance) and D (Prescription Drug Coverage) receive substantial general-revenue funding and do not have the constraint that spending can only be financed by trust fund payments.

Although low trust fund balances may require action, low balances and actions to address them relate to individual programs and the nature of their funding sources. They also provide an incomplete picture of the federal government's overall fiscal position over the longer term, an issue to which we now turn our attention.

---

<sup>11</sup> Board of Trustees (2018); Congressional Budget Office (2019).

<sup>12</sup> Boards of Trustees (2018); Congressional Budget Office (2019).

### III. THE LONG-TERM BUDGET OUTLOOK

Looking only at the next ten years gives an incomplete and overly optimistic picture of the fiscal outlook, even with adjustments made to characterize current policy. In this section, we examine the fiscal outlook over longer horizons.

#### A. Background

The “fiscal gap” is an accounting measure that is intended to reflect the long-term budgetary status of the government.<sup>13</sup> The fiscal gap answers the question: if one starts a policy change in a given year to reach a given debt-to-GDP target in a given future year, what is the size of the annual, constant-share-of-GDP increase in taxes and/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 the same debt-to-GDP in 2049 as exists today.<sup>14</sup> Or, one might ask what constant share-of-GDP change would be required, starting in 2025, to achieve a debt-to-GDP ratio of 60 percent by 2049.

For our base case, we use the current policy projections developed above for the first ten years, assume that policymakers start making fiscal adjustments in 2019, and set a debt-to-GDP target for the future equal to the ratio at the beginning of fiscal-year 2019, 77.8 percent.

We use long-term economic growth assumptions implied in CBO (2018b). Over the 2029-2048 period, the average nominal economic growth rate is 4.11 percent. CBO (2018b) does

---

<sup>13</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.

<sup>14</sup> Over an infinite planning horizon, this requirement is equivalent to assuming that the debt-to-GDP ratio does not explode (Auerbach 1994, 1997). For the current value of the national debt, we use publicly held debt. An alternative might be to subtract government financial assets from this debt measure, but the impact on our long-term calculations would be small (reducing the fiscal gaps by less than 0.1 percent of GDP).

not report growth rates after 2048, so we assume that the economy grows at the 2029-2048 average rate in subsequent years.

We assume the weighted average nominal interest rate on government debt rises gradually from 3.4 percent in 2029 to 3.9 percent in 2048, following CBO (2018b). After 2048, we gradually increase the interest rate to 5.0 percent by 2094, consistent with the long-term nominal interest rate projected by the Board of Trustees (2018), adjusted for differences in economic growth between the Trustees' Report and the CBO Long-Term Budget Outlook (CBO 2018b).

For Medicare and 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 in the intermediate projections in the 2018 Trustees Reports for the period between 2030 and 2094.<sup>15</sup> For Medicaid, CHIP, and exchange subsidies, we use growth rates implied by CBO's most recent long-term static projections<sup>16</sup> (CBO 2018) through 2048. After 2048, the growth rate follows CBO (2015), but the level is adjusted for the difference in average spending between CBO (2015) and CBO (2018b) for 2044-2048.<sup>17</sup>

We assume that all other revenues, all other mandatory spending, and all discretionary

---

<sup>15</sup> Details of the computations are available from the authors upon request. The 2018 Medicare Trustees Report is at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2018.pdf>. The 2018 OASDI Trustees Report is at <https://www.ssa.gov/OACT/TR/2018/tr2018.pdf>. Because \$61 billion of Medicare payments are shifted from 2029 to 2028 in Congressional Budget Office (2019), our default procedure would result in artificially low Medicare estimates after 2029. To compensate for the timing shift, we modify our procedure so that 2029 Medicare spending is based on the unadjusted baseline, but the 2030 estimate grows from the higher value implied by the timing-adjusted baseline for 2029.

<sup>16</sup> The static projections are based on macroeconomic forecasts for a constant debt-to-GDP ratio and constant marginal tax rates after 2028, that is, excluding the negative effects of economic policy during this period.

<sup>17</sup> Congressional Budget Office (2015) includes a 75-year projection, while Congressional Budget Office (2018b) only has a 30-year projection. Our procedure aims to extend the data in Congressional Budget Office (2018b) for the other 45 years. From 2044-2048, CBO's (2018b) projections for Medicaid, CHIP, and exchange subsidies as a share of GDP are about 5 percent larger than the projections in Congressional Budget Office (2015).

spending remain constant as their 2029 shares of GDP. This implicitly assumes that policymakers will make a series of (small) tax cuts and discretionary spending increases over time.

After 2094 (for our “permanent” calculations), all non-interest spending and all revenues are assumed to be constant as a share of GDP, in all the scenarios.

## B. Basic Projections

Under the base assumptions, we project that total spending will rise from 24.1 percent of GDP in 2029 to 29.4 percent of GDP by 2049. Most of this increase is due to interest payments, which rise from 3.4 percent of GDP in 2029 to 7.1 percent of GDP in 2049, at which point net interest payments will exceed outlays for Social Security benefits.

Non-interest spending will rise from 20.7 percent of GDP in 2029 to 22.4 percent of GDP in 2049 (Table 1, Figure 4). Healthcare spending will rise from 6.6 percent of GDP in 2029 to 8.1 percent of GDP in 2049, while Social Security will rise at a slower pace, from 5.9 percent of GDP in 2029 to 6.1 percent of GDP in 2049. As discussed above, we assume that discretionary spending and other mandatory spending remain constant as a share of GDP after 2029 (Table 1, Figure 5).

Revenues are projected to remain virtually constant as a share of GDP between 2029 and 2049 (Figure 4). As a result, under current policy, the deficit rises from 7.0 percent of GDP in 2029 to 12.3 percent by 2049 (Figure 6). Most of this increase is due to net interest payments. Still, the primary deficit rises from 3.6 percent of GDP in 2029 to 5.3 percent of GDP in 2049. Debt rises from 106 percent of GDP in 2029 to 193 percent by 2049 (Figure 2).

This pattern highlights a key difference between the current situation and previous high-debt episodes in U.S. history, which occurred mainly in wars or Depressions. In such war

episodes – the Civil War, World War I, and World War II – the debt-to-GDP ratio was cut in half roughly 10 to 15 years after the war ended. In the projections, however, the nation faces a built-in chronic imbalance between revenues and spending, due in considerable part to the aging of the population, rather than a temporary spike in spending due to a war or a temporary decline in revenue due to a Depression.

### C. Fiscal Gap Estimates

Table 2 shows that, under current policy, it would require immediate and permanent tax increases or spending cuts totaling 3.9 percent of GDP starting in 2019 to bring the debt-to-GDP ratio in 2049 down to 77.8 percent, the level at the end of 2018. In 2019, for example, this is equivalent to a 47 percent increase in income tax revenues, a 24 percent increase in all tax revenues, or a 21 percent reduction in all non-interest spending.

The rest of Table 2 shows sensitivity analyses.<sup>18</sup> Using the current-law baseline for the first ten years reduces the 2049 debt-to-GDP ratio by 55 percentage points and reduces the 2049 fiscal gap by 1.9 percent of GDP.<sup>19</sup>

As noted, the longer policymakers wait to make the adjustments, the larger the eventual adjustments will have to be. The required adjustments to meet a 2049 target would be about 0.3 percent of GDP larger if implementation were delayed until 2021 and 0.9 percent of GDP larger

---

<sup>18</sup> The results are roughly additive across scenarios. For example, the fiscal gap through 2049 of a scenario with current law for the first ten years, lower spending, higher revenue, and the illustrative scenario for Medicare could be approximated by the base case gap plus the incremental gaps to generate an approximate fiscal gap through 2049 of 1.30 percent of GDP ( $= 3.92 - 1.89 - 0.60 - 0.28 + 0.16$ , with rounding). A formal estimate that explicitly incorporates all those factors generates a fiscal gap of 1.34 percent of GDP. Kamin (2012) and Kogan, Ruffing, and Van de Water (2013) provide additional perspective on these assumptions.

<sup>19</sup> Congressional Budget Office (2019) reports a current-law debt-to-GDP ratio of 152 percent in 2049, compared to our estimate of 138 percent. Major differences between our current-law baseline and the extended CBO baseline include: we use Trustees Report data for Social Security and Medicare after 2029 instead of CBO data; we hold corporate tax revenues constant at 1.4 of GDP after 2029, while CBO allows corporate tax revenues to fall to 1.3 percent of GDP; and unlike in CBO's extended baseline, we do not incorporate the macroeconomic feedback effects of growing debt in our projections.

(relative to the baseline) if delayed until 2025.

The differences in the fiscal gaps implied by different Medicare scenarios are relatively small through 2049 (but rise in later years). Our base case uses the intermediate projections of the Medicare Trustees, which have for many years incorporated the assumption that Medicare growth will eventually slow in the future. Starting in the 2010 report, however, the Trustees' official Medicare projections have assumed a much stronger slowdown, due to provisions in the ACA. These assumptions, though they may be consistent with the impact of the bill's provisions should they remain in force over the long term, are not adopted by other forecasters, who have a more pessimistic outlook. The illustrative scenario in the Boards of Trustees (2018) and the extended baseline in CBO (2018b) include projections showing faster spending growth.

If baseline outlays for non-defense discretionary and other mandatory programs are held constant in real, per capita terms after 2029 and defense spending remains constant in real terms (instead of each item being a constant share of GDP), the 2049 debt-to-GDP ratio falls by 17 percentage points and the fiscal gap falls by about 0.6 percent of GDP.

If baseline income tax revenues (other than those on Social Security and Medicare benefits) grow with bracket creep and retirement withdrawals after 2029 (instead of remaining a constant share of GDP), the 2049 debt-to-GDP ratio falls by about 8 percentage points and the fiscal gap falls by about 0.3 percent of GDP.

Some analysts believe the economy has entered a new era of permanently lower interest rates.<sup>20</sup> To test the role of interest rates on the budget outlook, we estimated the impact of we believe to be an extremely optimistic scenario (for budgetary purposes) – namely, that a

---

<sup>20</sup> Elmendorf and Sheiner (2017); Summers (2016).

weighted average of nominal interest rates on all government debt stays constant at its implied 2019 value (2.4 percent) for the next 30 years.<sup>21</sup> This scenario reduces the 2049 debt-to-GDP ratio by 37 percentage points relative to the current policy baseline and reduces the fiscal gap by about 0.7 percent of GDP.<sup>22</sup> Thus, rising interest rates play a key role in the fiscal outlook, but the United States faces significant unfunded future liabilities (for Social Security, Medicare, etc.) even with a low-interest-rate path.<sup>23</sup>

Combining “optimistic” estimates gives a sense of what it would take to keep the debt-to-GDP ratio from rising very much over the next 30 years. If policymakers (a) followed current law projections for the next ten years, (b) let taxes rise with bracket creep in subsequent years, and (c) held defense spending constant in real terms and non-defense discretionary spending and other mandatory spending constant relative to the price level and population growth, the debt-to-GDP ratio in 2049 would be 113 percent. Note that this would require allowing all temporary tax provisions to expire, never cutting taxes, having no wars or military expansions over a generation, and allowing no increase in domestic spending per capita for three decades. If, in addition, interest rates were to stay constant, the 2049 debt-to-GDP ratio would be 86 percent.<sup>24</sup>

Table 3 shows fiscal gaps for various start dates, target dates, and target ratios. The first

---

<sup>21</sup> This interest rate is calculated by dividing the estimated net interest payments in 2019 from CBO (2019) by the debt at the end of 2018.

<sup>22</sup> The effects of holding interest rates constant at their current level are smaller compared to those reported in Auerbach, Gale, and Krupkin (2018) because interest rates in 2019 are projected to be higher than interest rates in 2018.

<sup>23</sup> Indeed, a strategy of providing full or partial pre-funding of such future liabilities would be made more difficult by low interest rates.

<sup>24</sup> CBO (2018b) provides another sensitivity analysis, noting that if annual total factor productivity growth rates were 0.5 percentage points higher than projected (1.7 percent rather than 1.2 percent), the debt-to-GDP ratio in 30 years would be about 29 percentage points lower than in the baseline.



row shows that the fiscal gap through 2094 is 5.3 percent of GDP; on a permanent basis, the required adjustment is 6.2 percent of GDP. With a debt target of 60 percent – the level proposed by two commissions<sup>25</sup> and in Gale (2019), the fiscal gap rises to about 4.4 percent of GDP through 2049. With a debt target of 36 percent of GDP – the average ratio between 1957 and 2007 – the fiscal gap is 5.3 percent through 2049. Delaying implementation makes the fiscal gaps larger.

#### **IV. DISCUSSION**

Over the next ten years, the nation is on course for routine trillion-dollar annual deficits, the highest debt-to-GDP ratio in its history, and large, permanent, rising full-employment deficits. Beyond the next decade, deficits and debt are projected to rise steadily, due to rising entitlement spending and net interest payments and, as of yet, an unwillingness to either reduce such outlays or provide the revenues needed to finance them. All of this is projected to occur even though interest rates will remain below the economy's growth rate.

Recent papers have argued that current debt levels are not a problem, in large part because interest rates are so low, but they are careful not to rule out problems from the projected sustained long-term debt build-up.

A recent, highly-publicized article by Olivier Blanchard notes that if the interest rate on government debt is smaller than the growth rate of the economy ( $r < g$ ) and if primary deficits (excluding interest) are small, the government can roll over debt and still have the debt-to-GDP ratio stay constant or fall.<sup>26</sup> Under those circumstances, there is no need to raise taxes or cut

---

<sup>25</sup> See Debt Reduction Task Force (2010) and Peterson-Pew Commission on Budget Reform (2009).

<sup>26</sup> Blanchard (2019).

spending in order to sustain a given debt level (though the impact of higher debt on the economy may nonetheless provide a reason to cut debt).

Although this is mathematically correct, it misses an important element of the current U.S. situation, as Blanchard acknowledges. Although  $r < g$ , U.S. primary deficits are large.<sup>27</sup> As a result, as shown Figure 2, rather than staying constant or falling over time, the debt-to-GDP ratio is projected to rise inexorably in the future, even if the economy stays strong and even if  $r$  remains below  $g$ . Indeed, in a Financial Times *Alphachat* podcast, Blanchard says very specifically that current U.S. deficits do not “make any sense.”<sup>28</sup>

Krugman (2019), even while acknowledging that rising long-term debt could be a problem, notes correctly that  $r < g$  implies that we can’t get a national debt spiral simply from interest payments. But this does not rule out a debt spiral from the combination of interest payments and primary deficits. While we would not necessarily describe the current projections as a “spiral,” they do show a steady, substantial, continuing increase in the debt-to-GDP ratio.

Furman and Summers (2019) are also careful to acknowledge that rising long-term debt could be problematic, but they nevertheless conclude that debt concerns need not be addressed currently. They argue that policymakers should pay for any new spending or revenue initiatives, unless there is a recession or an infrastructure initiative, but not try to reduce future deficits through active policy. This is a stronger fiscal constraint than what is being employed by proponents of ambitious new programs for healthcare and the environment. Still, their view

---

<sup>27</sup> The 2019 primary deficit is expected to be 2.4 percent of GDP. The last time the United States had full employment, in Fiscal Year 2001, the primary budget had a *surplus* of 3.2 percent, a turnaround of 5.6 percent of GDP from today, or almost \$1.2 trillion in the 2019 economy.

<sup>28</sup> Financial Times (2019).

downplays several advantages of making proactive choices on fiscal policy.

First, we currently face high and persistent primary deficits in a strong economy. As President Kennedy said, “The time to fix the roof is when the sun is shining.”<sup>29</sup> If we can’t undertake deficit-reducing measures even during good times, it will only be harder in the future if/when the economy falls into recession – automatically reducing revenue and raising spending – and aging patterns boost Social Security and Medicare outlays.

Second, the projected growing debt is not associated with achieving important economic objectives. When deficits finance government investment or anti-recession efforts, increased debt can boost the economy. But the debts we are accumulating do not involve these priorities. Indeed, federal investment in infrastructure and human capital is slated to decline as a share of GDP. As a result, government borrowing will reduce future national income *even if it does not raise interest rates*. Government borrowing tends to reduce national saving, the sum of saving by the private and public sector. Once current national saving falls, future national income will fall. This could happen through higher interest rates, which then choke off investment and reduce future production and income – the standard “crowd out” mechanism. Indeed, federal deficits, national saving, and national investment are highly correlated.

But suppose capital inflows from abroad are large enough to offset the entire decline in national saving caused by higher deficits. In that case, interest rates may not rise, and investment and future GDP may not fall, but future national *income* (e.g., GNP) will fall because, given the same amount of production, more of the proceeds must be directed to pay the foreigners who lent us the money.<sup>30</sup> If interest rates remain very low, borrowing from abroad can increase future

---

<sup>29</sup> Kennedy (1962).

<sup>30</sup> For example, Congressional Budget Office (2018a) estimates that the Tax Cut and Jobs Act will raise GDP

domestic consumption even as it reduces future national income. But if we finance our current debt trajectory with capital inflows and interest rates subsequently rise to exceed growth rates, the nation would be left with an enormous and expensive debt burden.

Third, if the future deficit path looked favorable, i.e., if our current primary deficits were thought to be temporary, the argument for simply letting them evolve would be stronger. But it is the future primary deficit projections that hang over the present and mean that we are going to have to address federal budget deficits sooner or later. Doing it when the economy is strong is far preferable to waiting until countercyclical fiscal stimulus may be needed.

Addressing the long-term fiscal issue now does not necessarily mean sharp immediate expenditure cuts or tax increases; rather, it may involve phasing-in changes for future spending and revenue in a gradual, though credible, manner. However, the longer we wait to act, the larger and more disruptive the eventual policy solutions will need to be, and it may be difficult to make future actions credible if they are not paired with at least some immediate measures.

Clearly, there is substantial uncertainty regarding budget projections. Nevertheless, a range of reasonable estimates implies an unsustainable fiscal path that will generate significant problems if not addressed. How should the presence of that uncertainty affect when and how we make policy changes?<sup>31</sup> One argument is that we should wait; after all, the fiscal problem could go away. However, uncertainty can cut both ways, and the greater the uncertainty, the more we should want to address at least part of the problem now. There are benefits to getting future deficits under control – including economic growth and fiscal flexibility, and the current economic climate provides a good opportunity to do so.

---

(production) by 0.5 percent in 2028 but that GNP (income) will rise by only 0.1 percent, with the difference accruing to foreign holders of U.S. capital.

<sup>31</sup> Auerbach (2014).

## REFERENCES

- Auerbach, Alan J. 1994. “The U.S. Fiscal Problem: Where We Are, How We Got Here, and Where We’re Going.” In *National Bureau of Economic Research Macroeconomics Annual 1994, Volume 9*, edited by Stanley Fischer and Julio Rotemberg, 141–175. Cambridge, MA: MIT Press.
- Auerbach, Alan J. 1997. “Quantifying the Current U.S. Fiscal Imbalance.” *National Tax Journal* 50 (3): 387–98.
- Auerbach, Alan J. 2014. “Fiscal Uncertainty and How to Deal with It.” Hutchins Center, Brookings Institution: Washington, DC.
- Auerbach, Alan J., William G. Gale, Peter R. Orszag, and Samara Potter. 2003. “Budget Blues: The Fiscal Outlook and Options for Reform.” In Aaron, Henry J., James Lindsay, and Pietro Nivola (eds.), *Agenda for the Nation*, 109–143. Brookings Institution, Washington, DC.
- Auerbach, Alan J., William G. Gale, and Aaron Krupkin. 2018. “The Federal Budget Outlook: We are Not Winning.” *Tax Notes*, July 30: 617-28.
- Blanchard, Olivier. 2019. “Public Debt and Low Interest Rates.” AEA Presidential Address, January 4, Atlanta, GA.
- Board of Trustees, Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds. 2018. *The 2018 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, Washington, DC.
- Boards of Trustees, Federal Hospital Insurance and Federal Supplemental Medical Insurance Trust Funds. 2018. *The 2018 Annual Report of the Board of Trustees of the Federal Hospital Insurance and Federal Supplemental Medical Insurance Trust Funds*. Federal Hospital Insurance and Federal Supplemental Medical Insurance Trust Funds, Washington, DC.
- Congressional Budget Office. 2015. “The 2015 Long-Term Budget Outlook.” Congressional Budget Office, Washington, DC.
- Congressional Budget Office. 2018a. “The Budget and Economic Outlook: 2018 to 2028.” Congressional Budget Office, Washington, DC.
- Congressional Budget Office. 2018b. “The 2018 Long Term Budget Outlook.” Congressional Budget Office, Washington, DC.
- Congressional Budget Office. 2019. “The Budget and Economic Outlook:2019 to 2029.” Congressional Budget Office, Washington, DC.
- Debt Reduction Task Force. 2010. “Restoring America’s Future: Reviving the Economy, Cutting

Spending and Debt, and Creating a Simple, Pro-Growth Tax System.” Bipartisan Policy Center, Washington, DC.

Elmendorf, Douglas, and Louise Sheiner. 2017. “Federal Budget Policy With an Aging Population and Persistently Low Interest Rates.” *Journal of Economic Perspectives* 31 (3): 175-94.

Financial Times. 2019. “Olivier Blanchard on debt: “Relax. Don’t Relax too Much, but Relax.” *Alphachat Podcast*, January 18.

Furman, Jason, and Lawrence H. Summers. 2019. “Who’s Afraid of Budget Deficits? How Washington Should End Its Debt Obsession.” *Foreign Affairs*, January 27.

Gale, William G. 2019. *Fiscal Therapy: Curing America’s Debt Addiction and Investing in the Future*. Oxford University Press.

Kamin, David. 2012. “Are We There Yet? On a Path to Closing America’s Long-Run Deficit.” *Tax Notes* 137 (3): 53-70.

Kennedy, John F. 1962. “Annual Message to Congress on the State of the Union.” Delivered on January 11.

Kogan, Richard, Kathy Ruffing, and Paul N. Van de Water. 2013. “Long-Term Budget Outlook Remains Challenging, But Recent Legislation Has Made It More Manageable.” Center on Budget and Policy Priorities, Washington, DC.

Krugman, Paul 2011. “Keynes Was Right.” *The New York Times*, December 29.

Krugman, Paul. 2019. “Melting Snowballs and the Winter of Debt.” *The New York Times*, January 9.

The Peterson-Pew Commission on Budget Reform. 2009. “Red Ink Rising: A Call to Action to Stem the Mounting Federal Debt.” December 2009.

Summers, Lawrence H. 2016. “The Age of Secular Stagnation.” *Foreign Affairs*, March/April 2016.

**Table 1. Spending Categories as a Percent of GDP in Select Years**

---

	2019	2029	2049
Healthcare	5.2	6.6	8.1
Social Security	4.8	5.9	6.1
Defense	3.1	2.8	2.8
Non-Defense Discretionary	3.2	3.0	3.0
Other Mandatory	2.6	2.4	2.4
Total Non-Interest Spending	19.0	20.7	22.4
Net Interest	1.8	3.4	7.1
Total Spending	20.8	24.1	29.4

**Table 2**  
**2049 Fiscal Gaps and Debt**

	2049 Debt (% of GDP)	2049 Fiscal Gap (% of GDP)	Required Percentage Change (in 2019 terms) if Just Through		
			Income Taxes	All Taxes	Non-Interest Spending
<b>Central Estimate</b>					
Current Policy Baseline <sup>1</sup>	193	3.92	47.4	23.7	-20.7
<b>Alternative Options (Individual Incremental Effects Relative to Current Policy Baseline)</b>					
Current Law for the First Ten Years	-55	-1.89			
Start in 2021	0	0.26			
Start in 2025	0	0.91			
CMS Illustrative Alternative Health Spending	5	0.16			
CBO Extended Baseline Health Spending	10	0.34			
NDDS and Other Mandatory Grows with Inflation and Population, Defense Grows with Inflation	-17	-0.60			
Income Tax Grows with Bracket Creep and Retirement Withdrawals	-8	-0.28			
Low Interest Rates	-37	-0.71			

Source: Authors' calculations

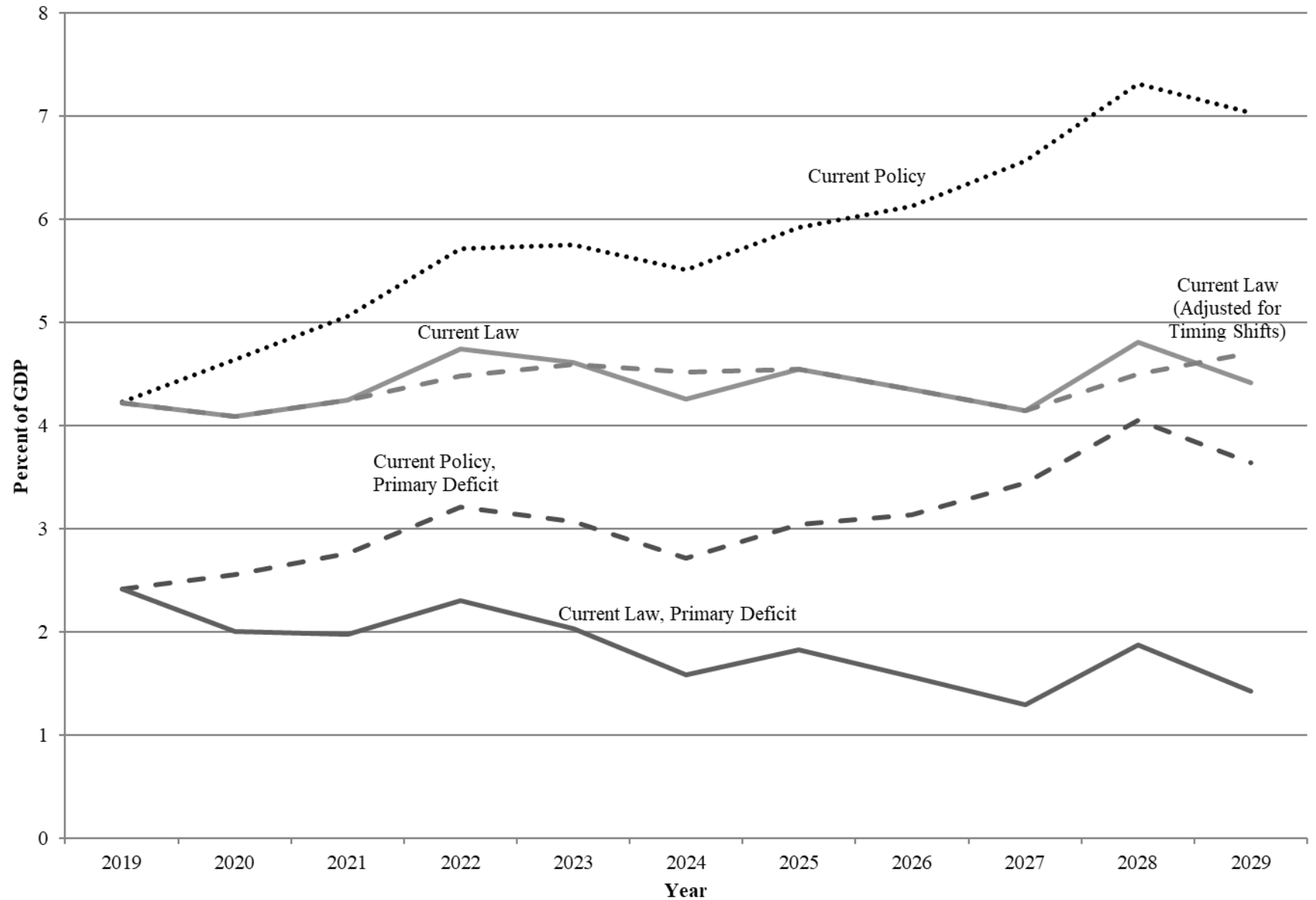
<sup>1</sup>Uses current policy for the first ten years and Boards of Trustees (2018) for Medicare



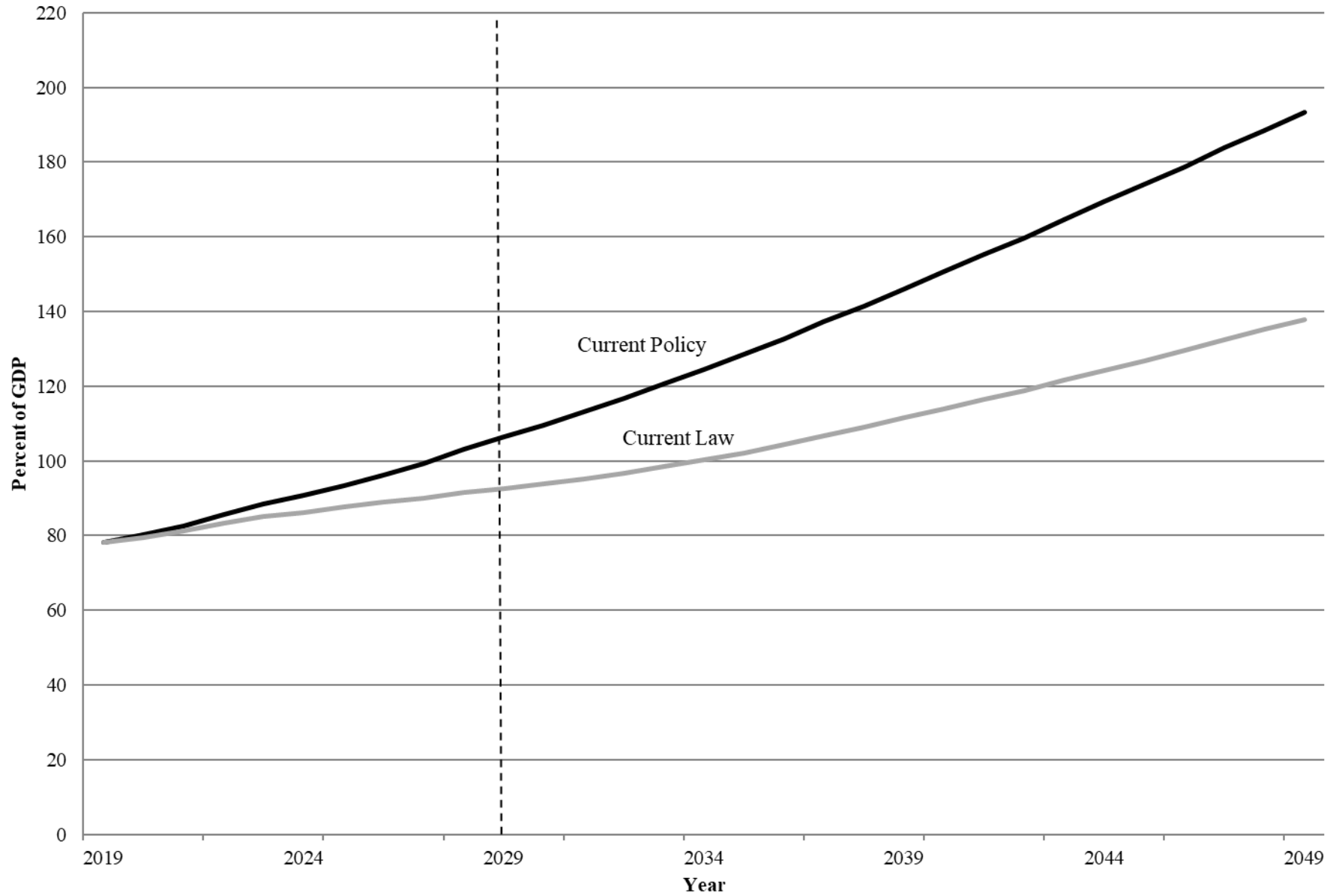
**Table 3**  
**Additional Fiscal Gap Estimates**

	<b>Through 2049</b>	<b>Through 2094</b>	<b>Permanent Gap</b>
Start Date: 2019			
Debt Target			
Current	3.92	5.27	6.24
60	4.42	5.44	n/a
36	5.28	5.73	n/a
Start Date: 2024			
Debt Target			
Current	4.64	5.62	6.35
60	5.23	5.80	n/a
36	6.24	6.11	n/a

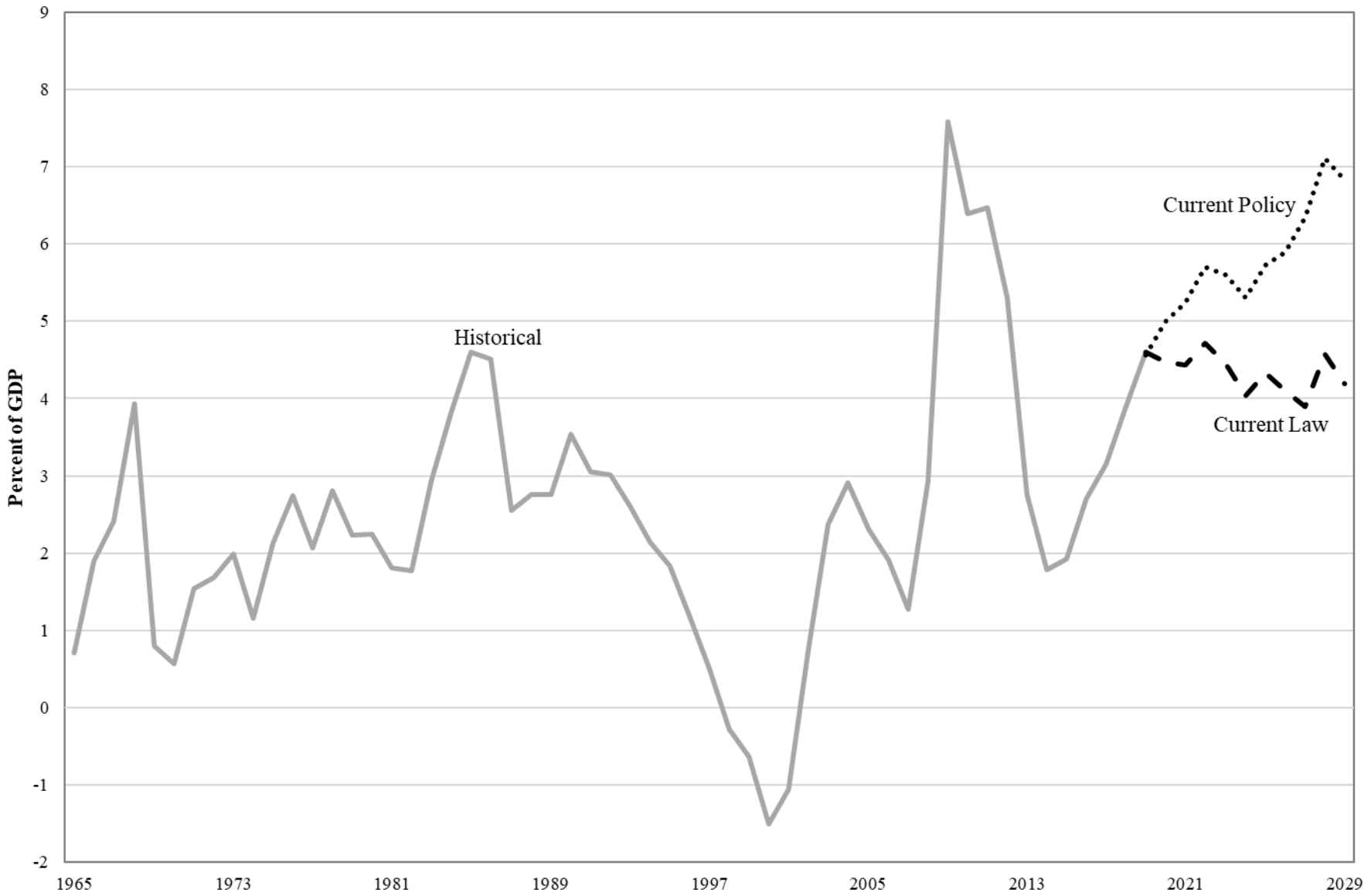
**Figure 1. Alternative Deficit Projections, 2019-2029**



**Figure 2. Debt to GDP, 2019-2049**

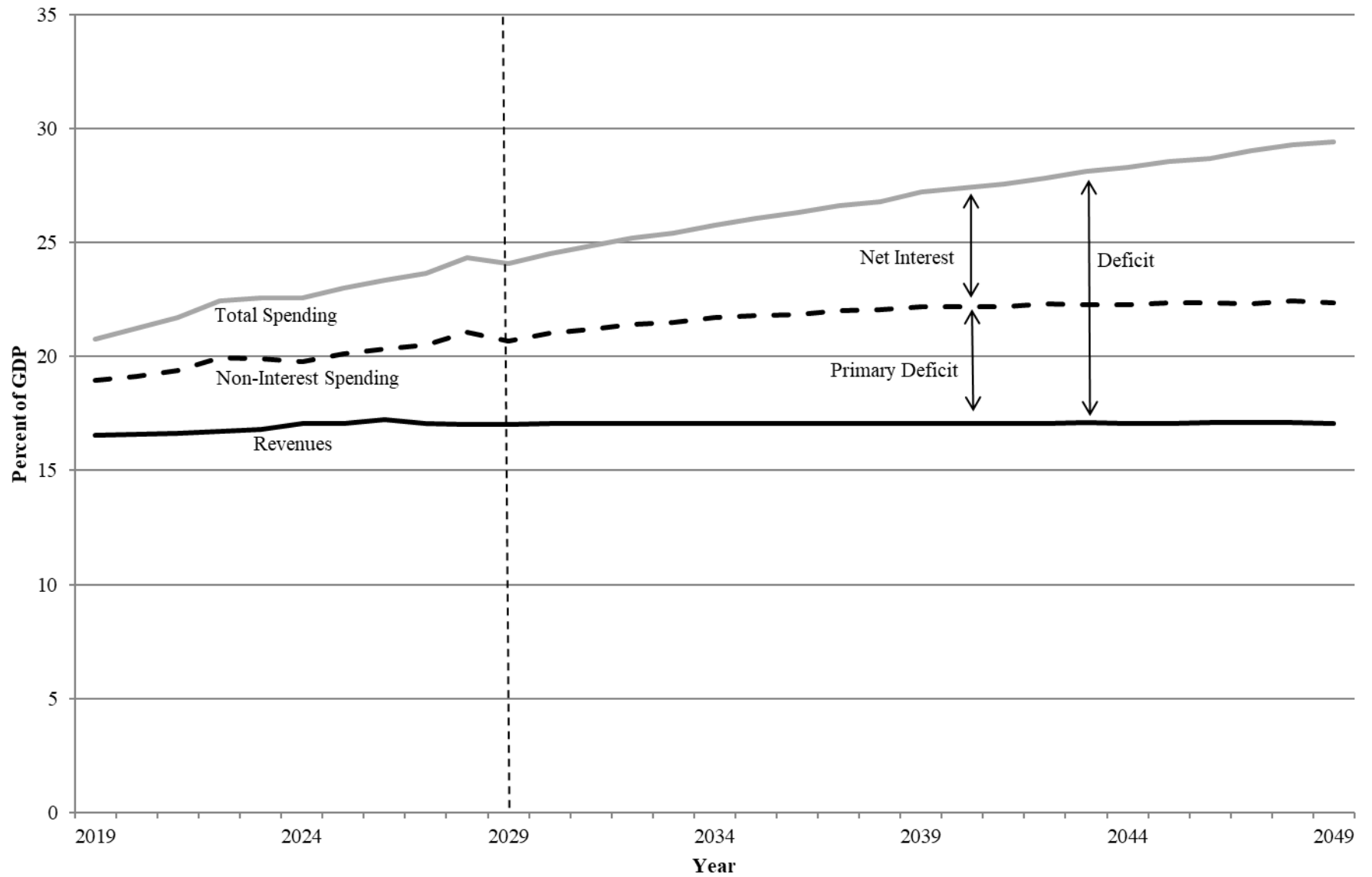


**Figure 3. Full-Employment Deficits, 1965-2029**

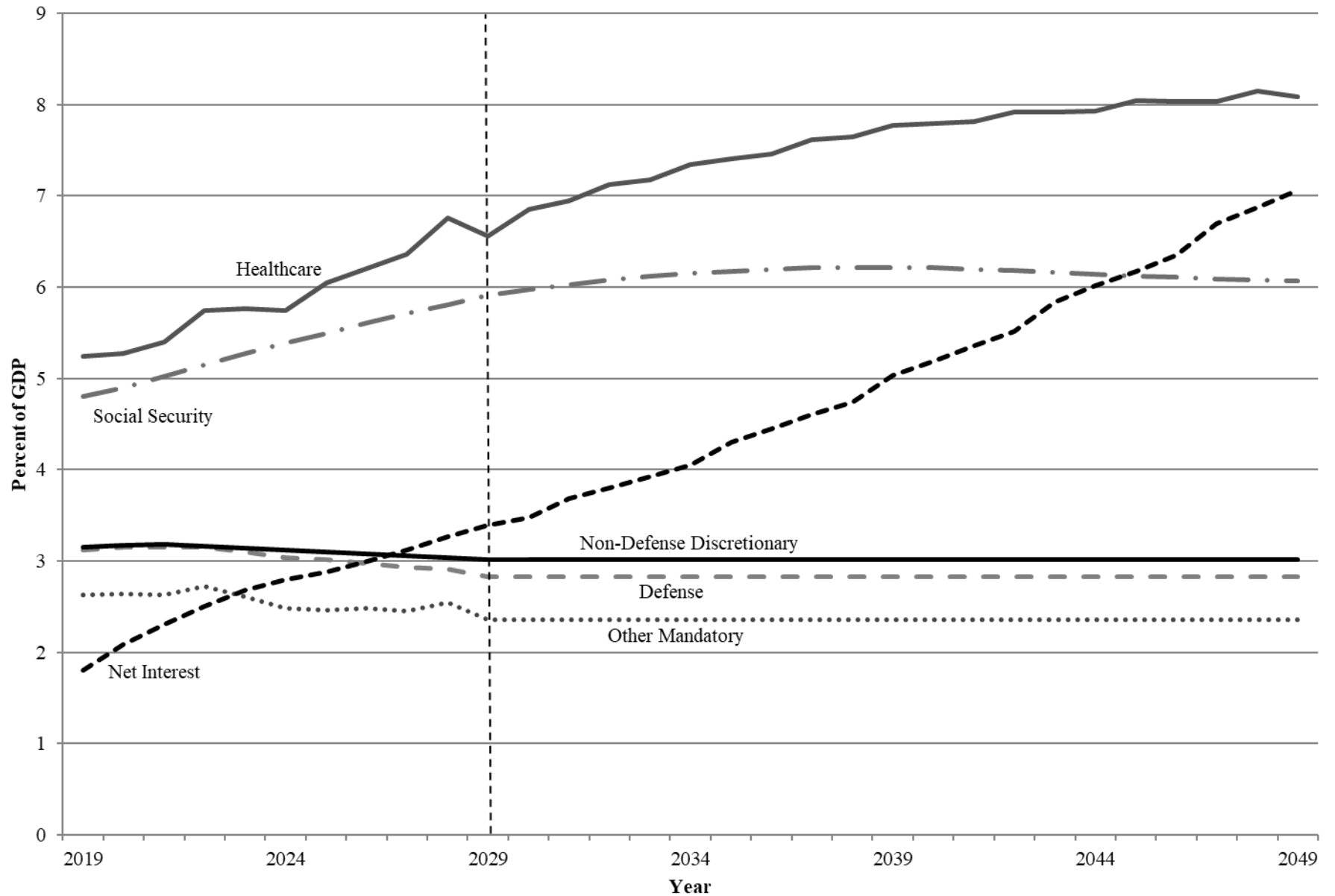


Source: Congressional Budget Office (2019a)

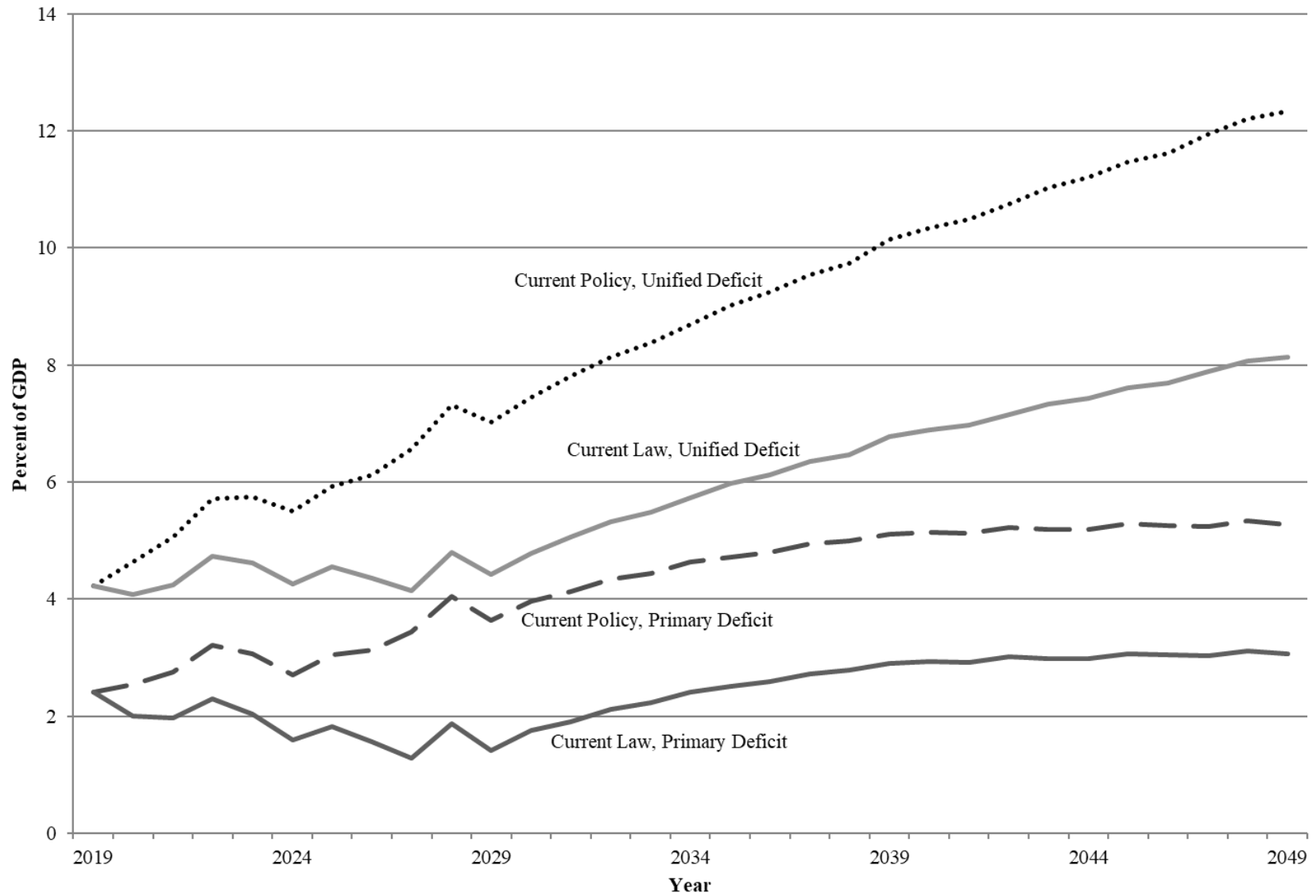
**Figure 4.**  
**Spending, Revenue, and Deficits under Current Policy, 2019-2049**



**Figure 5. Composition of Spending under Current Policy, 2019-2049**



**Figure 6. Primary and Unified Deficit Projections, 2019-2049**



**Appendix Table 1**  
**Federal Budget Deficit**  
**CBO Baseline and Extended Policy 2019-2029<sup>1, 2</sup>**

	Deficit (\$ billions)											
	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2020-29</u>
<b>CBO Baseline</b>	<b>897</b>	<b>903</b>	<b>974</b>	<b>1,128</b>	<b>1,139</b>	<b>1,091</b>	<b>1,212</b>	<b>1,204</b>	<b>1,192</b>	<b>1,435</b>	<b>1,370</b>	<b>11,648</b>
<b>as percent of nominal GDP</b>	<b>4.2</b>	<b>4.1</b>	<b>4.2</b>	<b>4.7</b>	<b>4.6</b>	<b>4.3</b>	<b>4.5</b>	<b>4.4</b>	<b>4.1</b>	<b>4.8</b>	<b>4.4</b>	<b>4.4</b>
<b>Adjustments for tax policy</b>												
Extend temporary provisions in the Tax Cuts and Jobs Act	0	3	4	4	14	24	38	130	276	288	300	1,080
Repeal certain postponed or suspended health taxes <sup>3</sup>	0	15	16	26	35	40	45	50	58	64	71	418
Extend other expiring tax provisions	0	1	4	5	7	9	11	13	14	17	20	101
Subtotal	0	18	24	35	57	73	94	192	348	368	390	1,600
Net interest <sup>4</sup>	0	0	1	2	4	6	9	13	22	34	48	140
<b>Total adjustments for tax policy</b>	<b>0</b>	<b>19</b>	<b>25</b>	<b>37</b>	<b>60</b>	<b>79</b>	<b>103</b>	<b>206</b>	<b>370</b>	<b>403</b>	<b>439</b>	<b>1,740</b>
<b>as percent of nominal GDP</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>	<b>0.3</b>	<b>0.4</b>	<b>0.7</b>	<b>1.3</b>	<b>1.3</b>	<b>1.4</b>	<b>0.7</b>
<b>Adjustments for spending policy</b>												
Increase non-defense discretionary spending with inflation and population	0	54	84	100	112	124	135	145	155	165	176	1,249
Increase defense with inflation	0	48	72	84	90	94	98	100	103	106	107	902
Spending adjustments associated with tax extenders	0	0	0	-1	-2	-3	-3	-3	13	13	13	27
Subtotal	0	103	156	182	200	215	229	242	271	283	296	2,177
Net interest <sup>4</sup>	0	2	6	12	19	26	34	42	53	64	76	336
<b>Total adjustments for spending policy</b>	<b>0</b>	<b>104</b>	<b>162</b>	<b>194</b>	<b>219</b>	<b>242</b>	<b>263</b>	<b>285</b>	<b>324</b>	<b>347</b>	<b>371</b>	<b>2,512</b>
<b>as percent of nominal GDP</b>	<b>0.0</b>	<b>0.5</b>	<b>0.7</b>	<b>0.8</b>	<b>0.9</b>	<b>0.9</b>	<b>1.0</b>	<b>1.0</b>	<b>1.1</b>	<b>1.2</b>	<b>1.2</b>	<b>1.0</b>
<b>Current Policy</b>	<b>898</b>	<b>1,026</b>	<b>1,161</b>	<b>1,359</b>	<b>1,418</b>	<b>1,411</b>	<b>1,578</b>	<b>1,695</b>	<b>1,887</b>	<b>2,185</b>	<b>2,180</b>	<b>15,901</b>
<b>as a percent of nominal GDP</b>	<b>4.2</b>	<b>4.6</b>	<b>5.1</b>	<b>5.7</b>	<b>5.7</b>	<b>5.5</b>	<b>5.9</b>	<b>6.1</b>	<b>6.6</b>	<b>7.3</b>	<b>7.0</b>	<b>6.0</b>
GDP	21,252	22,120	22,939	23,778	24,672	25,642	26,656	27,667	28,738	29,862	31,006	263,080

<sup>1</sup>Columns may not sum to total due to rounding.

<sup>2</sup>The source of these estimates is CBO (2019) "The Budget and Economic Outlook: 2019 to 2029."

<sup>3</sup>These include the Cadillac tax, the medical device tax, and the tax on health insurance providers.

<sup>4</sup>Net interest for tax extenders is proportionally allocated between the revenue and spending effects.