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Fiscal Policy with High Debt and Low Interest Rates

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Abstract: U.S. policymakers face a combination of high and rising federal debt and low current and projected interest rates on that debt. Rising future debt will reduce growth and impede efforts to enact new policy initiatives. Low interest rates reduce, but do not eliminate, these concerns. The federal fiscal outlook is unsustainable even with projected interest rates that remain below the growth rate for the next 30 years. Short-term policy responses should focus on investments that are preferably tax-financed rather than debt-financed. Most importantly, policymakers should enact a debt reduction plan that is gradually implemented over the medium- and long-term. This would avoid reducing aggregate demand significantly in the short-term and, if done well, could actually stimulate current consumption and production. It would stimulate growth in the long-term, provide fiscal insurance against higher interest rates or other adverse outcomes, give businesses and individuals clarity about future policy and time to adjust, and provide policymakers with assurance that they could consider new initiatives within a framework of sustainable fiscal policy.

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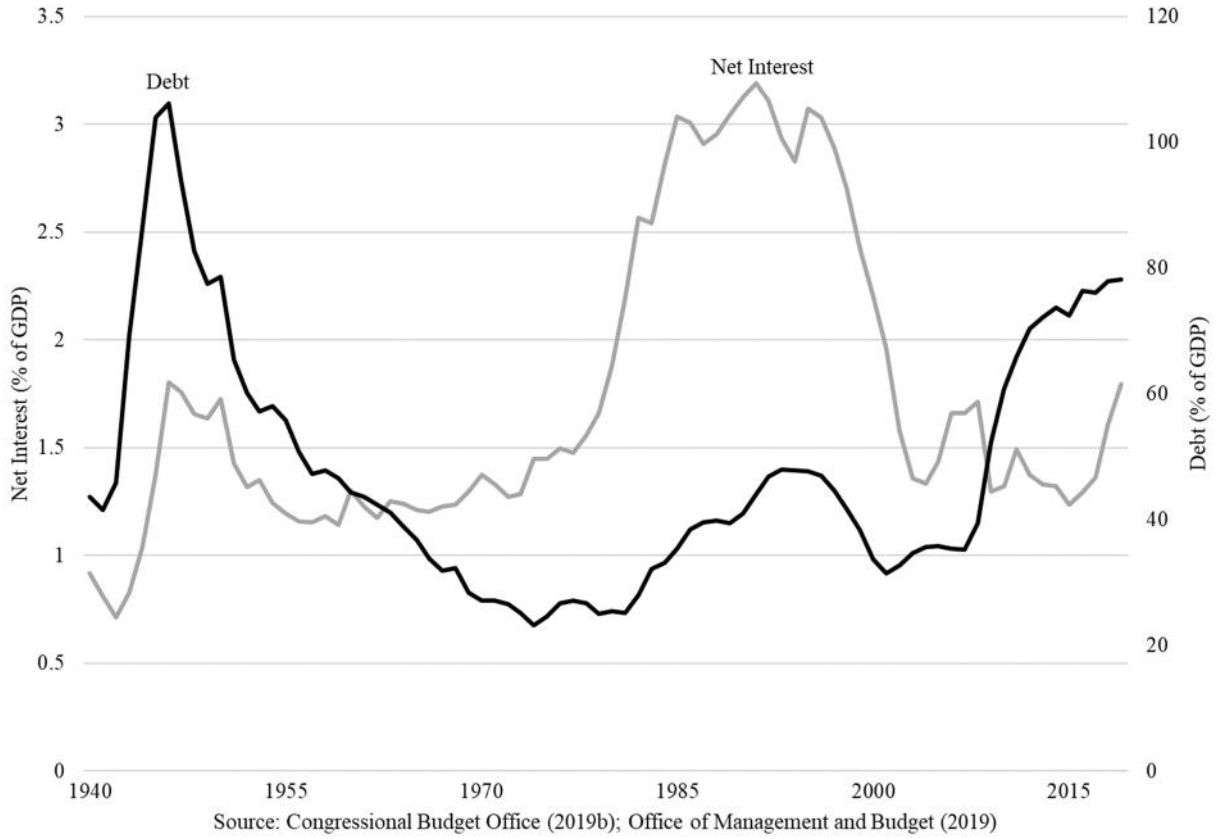
1. Introduction

U.S. policymakers face a combination of high and rising federal debt and low current and projected interest rates on that debt. Figure 1 shows that the debt-to-GDP ratio is at its highest level in U.S. history except for a few years around World War II and that government net interest payments (the product of debt and the average interest rate) are currently at their average historical level as a share of the economy.

Figure 1: Debt and Net Interest as a Share of GDP, 1940-2019



Rising future debt will slowly but surely make it harder to grow our economy, boost our living standards, respond to wars or recessions, address social needs, and maintain our role as a global leader.

Lower interest rates reduce these concerns, holding other factors constant (such as economic growth rates). At the very least, low interest rates undermine claims that current debt levels will cause a financial *crisis*. More generally, low rates reduce the fiscal cost of debt accumulation. To the extent that low interest rates indicate a reduced marginal private return to capital, the opportunity cost of government borrowing falls, making it more attractive to pursue new government programs, particularly investments.

However, low interest rates are not a "get out of jail free" card. Although interest rates are low, seemingly every other major aspect of the fiscal situation is problematic. The full-employment deficit is already high and is expected to remain at elevated levels in the absence of policy changes; in the past, it only spiked on a temporary basis. Short-term deficits will rise further if policymakers extend temporary tax and spending provisions, as they have done repeatedly in the past. Over the longer term, even if interest rates stay below the growth rate, interest payments will rise steadily to over 6 percent of the economy – as large as Social Security outlays – under standard assumptions. And even if interest rates stay constant, interest payments will rise because the debt is rising. Likewise, Social Security and health care outlays will continue to rise because of the aging of the population. These three program areas – interest payments, Social Security, and health care – will account for more than 100 percent of all federal spending growth as a share of GDP. In contrast, federal investments in infrastructure, R&D, and human capital are slated to decline. Meanwhile: several major federal trust funds – including Social Security and Medicare – are slated to exhaust their balances within the next 15 years;[1] the budget is largely on auto-pilot, with mandatory programs, which are not annually appropriated, accounting for an increasing share of federal outlays over time; and the political system seems broken, with political leaders unable to muster the co-operation and trust – or even the interest – that bipartisan fiscal agreements typically require. But the longer we wait to make policy changes, the larger and more abrupt those changes will need to be, unless interest rates stay at or close to their current levels for the next 30 years.[2]

Because of these considerations, low interest rates do not necessarily eliminate the unsustainability of the long-term fiscal position of the U.S. government. This point is explicitly recognized by those economists who argue most strongly for the salience of low interest rates for policy choices (Blanchard, 2019a, 2019b; Elmendorf, 2019; Elmendorf & Sheiner, 2017; Furman & Summers, 2019). Krugman (2019) and Furman and Summers (2019) argue against expanding even the *short-term* deficit, except for financing investments or fighting recessions.

Under what I view as standard assumptions, where future interest rates rise but remain below the growth rate for the whole projection period, the debt-to-GDP ratio is projected to rise more or less continually from its current level of 78 percent to 169 percent by 2049. To limit the debt-to-GDP ratio to 100 percent by 2049 would require permanent tax increases or spending cuts starting in 2021 equal to 2.3 percent of GDP. If policy adjustments are delayed to 2029, the required annual change would equal 3.2 percent of GDP. Even if interest rates remain constant

[1] CBO (2019b, 2019c) projects exhaustion over the next 15 years for the trust funds for Social Security, Disability Insurance, Medicare Part A, Highways, and Pension benefit and Guaranty Corporation Multi-Employer Fund.
[2] Other exacerbating factors include: The Fed's efforts to unwind its portfolio of Treasury debt; rising debt issued by the States; the low U.S. saving rate compared to many other countries; declines in foreigners' willingness to hold federal debt; efforts by other countries and leading corporations to develop new payment systems that could threaten the dollar's role as the world's reserve currency. None of these factors is decisive, in and of itself, but none of them helps the fiscal situation, either.

over the next 30 years, the debt would rise to 134 percent of GDP and the required permanent policy adjustment to limit the debt-to-GDP ratio to 100 percent would be about 1.3 percent of GDP.

Finally, while lower interest rates improve the federal government's overall fiscal stance – because it is a net borrower – they come with two additional caveats. First, we can certainly borrow more and consume more with low interest rates and not hurt future generations (who can in turn borrow more from later generations), but the optimality of this pattern falls apart if interest rates subsequently rise and we are left with higher interest rates on higher levels of debt. Second, low interest rates raise the present value of future spending obligations, like those for Social Security and Medicare. In the past, policymakers have chosen to pre-fund a certain share of these obligations. With lower interest rates, any level of pre-funding will be more difficult to achieve; i.e., it will require higher taxes or lower spending than with higher interest rates. Policymakers will have to choose between imposing higher burdens to reach a given level of pre-funding or pre-funding these programs to a lesser extent than in the past.[3]

How should policymakers respond? They should not try to reduce the short-term deficit. That is not the problem; the long-term projection is. In addition, cutting current deficits would likely reduce aggregate demand, a change that monetary policy may be hard-pressed to offset, given low interest rates.

Policymakers should also enact new investment programs. We need more infrastructure, research and development, and human capital, even apart from the fiscal stance. I conclude that it would be preferable – based on fiscal and economic growth considerations – to fund these projects with taxes rather than deficits. But, if given the choice between deficit-financed investments and no investments, policymakers should choose the former.

In contrast, except for anti-recession purposes, policymakers should not enact deficit-financed spending for non-investment programs, though they should embrace a broad definition of what constitutes an investment, to include programs that make people more productive by providing child care, job training, and related items.

Finally, policymakers should *enact* in the near term a plan that is *implemented* on a gradual, phased -in basis and substantially reduces long-term deficits and debt from future projected values. This approach would avoid reducing current aggregate demand significantly. Indeed, if done well, it could *boost* current spending and production. It would help the economy in the long-term and thereby reduce burdens on members of future generations, many of whom will not

[3] When the Social Security or Medicare trust fund runs an annual surplus, the excess funds are invested in bonds at the Treasury. The interest rate that the Treasury Department pays to these programs depends on recent average yields on federal debt. As a result, lower interest rates reduce the returns that the trust funds receive and thus make it more costly to achieve a given level of pre-funding. (In a similar fashion, low rates of return make it more difficult for pension funds to finance future obligations.)

be better off than their parents. It would provide some fiscal insurance against interest rate jumps or other adverse fiscal outcomes; with debt already at high levels relative to GDP and projected to rise, the budget is more sensitive to interest rate fluctuations now than it has been in the past.

A gradual phase-in would provide time for businesses, investors, and citizens to adjust their plans and would reduce political backlash. Finally, a debt reduction plan would give economic agents more certainty about future policy and offer policymakers assurance that they could undertake new initiatives within a framework of sustainable fiscal policy.

To move into specific examples, policymakers should consider three sets of policies.

- Some gradual debt-reduction policies could stimulate consumption and production *now*. Enacting a consumption tax (value-added tax) whose rates rose gradually over time would stimulate current consumption as customers spent more today to avoid higher future prices. Likewise, introducing a carbon tax with rates that rise over time could stimulate current production, as producers choose to use more fossil fuels now while they are still relatively inexpensive.[4] Both policies could generate significant long-term revenues.

- Some gradual debt-reduction policies are needed in their own right. Making Social Security sustainable is one example. Another is boosting healthcare coverage and reducing costs (by creating a public option on the exchanges, converting Medicare to a premium support plan, allowing Medicare to negotiate drug prices and formulary, and limiting the tax subsidy for health insurance for families with above median-cost plans).

- In addition to debt reduction, policymakers should initiate substantial new investment programs in infrastructure and R&D (1 percent of GDP) and in children, families, and human capital (another 1 percent of GDP). These changes can be financed by closing income tax loopholes and converting the corporate tax to a 25 percent cash flow levy.

All these policies could be phased in gradually, and together they would be sufficient to stabilize debt below 100 percent of GDP over the long-term. (They would reduce 2049 debt to 60 percent of GDP if initiated in 2021).[5] Even if policymakers adopt a different way to reduce long-term debt and make new investments in America, enacting a reasonable, gradual debt reduction plan would be a major improvement over the current situation.

[4] Both the consumption tax and carbon tax could be accompanied by other policy changes that would offset the regressivity of the taxes. Phasing in a carbon taxes need not create a "Green Paradox" situation where imposing future carbon taxes raises overall greenhouse gas emissions. See Sinn (2012); Williams (2016).
[5] For more details on the effects of these policies, see Gale (2019).

These conclusions are guided by several overarching themes. First, the nation faces two intertwined problems: the rising long-term debt profile and the way we tax and spend. Government spending is too oriented toward consumption relative to investment, the latter broadly defined to include human capital. Likewise, our tax system could be fairer and more efficient and could produce more revenue. Offering a debt reduction plan provides an opportunity to address simultaneously the debt problem and the structure and composition of taxes and spending.

Second, the economy is more important than the budget. Saving the budget but hurting the economy would be a pyrrhic victory. This seems to be a particularly salient issue currently. Normally, in an economy with unemployment at a 60-year low and the full employment deficit for several years projected to be at least 5 percent of GDP, the obvious prescription would be significant, fairly rapid fiscal consolidation – tax increases, spending cuts. With current low interest rates, low inflation, and concerns about weak growth even amidst remarkably accommodative monetary and fiscal policy, however, it would be prudent to make any fiscal adjustments gradually.

Third, historical patterns can inform the current fiscal situation. In many ways, we are in uncharted territory. We have never had to address the projected *permanent* imbalances between spending and taxes that we face now. In some ways, though, the closest historical antecedent to our current status occurred after World War II, when the United States faced even higher debt as a share of the economy than today, and even lower interest rates. But the cause of the debt (wartime spending) and the composition of government spending (low entitlement outlays) were very different then. In any case, the debt-to-GDP ratio fell rapidly as military spending fell and *the nation essentially ran balanced primary budgets from 1947-80*. In contrast, we are currently projected to run permanent, substantial primary deficits.

Finally, apart from all the specific arguments, a broader view might be constructive. Although the interest rate on government debt has been less than the economic growth rate more often than not historically in the United States (Blanchard 2019a, 2019b) and in other countries (Mauro, Romeu, Binder, & Zaman, 2015), it appears to be a long-standing convention that governments do voluntarily run up their debt. In 2007, for example, before the financial crisis raised debt levels everywhere, only two OECD countries (Greece and Italy) had general government net financial liabilities, relative to GDP, in excess of the current value for the United States (OECD, 2019). Keeping a lid on debt may be simply an outdated, prudish norm that does not apply to the economic situation facing the United States today. Alternatively, there might be very good reasons for this behavior – the desire to maintain "fiscal space," a concern that high debt reduces growth and imposes burdens on future generations, etc. – and therefore some wisdom embedded in those established government practices.

The rest of the paper develops the points above in more detail. Section 2 reviews the fiscal

outlook under varying assumptions about interest rates, to provide context and outline where we are headed. Section 3 explains why the projections are worrisome and discusses the economic effects of rising debt and deficits. Section 4 presents estimates of the fiscal gap, the size of policy changes needed to reach particular fiscal targets. Section 5 discusses in more detail how policymakers should respond. Section 6 concludes. (Appendix A provides details of the budget projections. Appendix B explains the flaws in three separate claims that debt does not matter.)

2. Where Are We Headed?

I develop 30-year budget projections under what I view as a continuation of "current policies." (See Appendix A for details). The key long-term assumptions relate to growth rates and interest rates. I follow the Congressional Budget Office (CBO) (2019c) in setting the nominal annual growth rate to average 4.0 percent after 2029 and the average nominal interest rate on government debt to rise gradually from 2.4 percent in 2019 to 3.9 percent in 2049. This 150-basis-point increase – which I call the "standard" scenario – (a) keeps the interest rate below the growth rate throughout the entire period and (b) is consistent with the effects of rising government debt (of the magnitude shown in the projections below that use this interest rate path) found in several studies.[6]

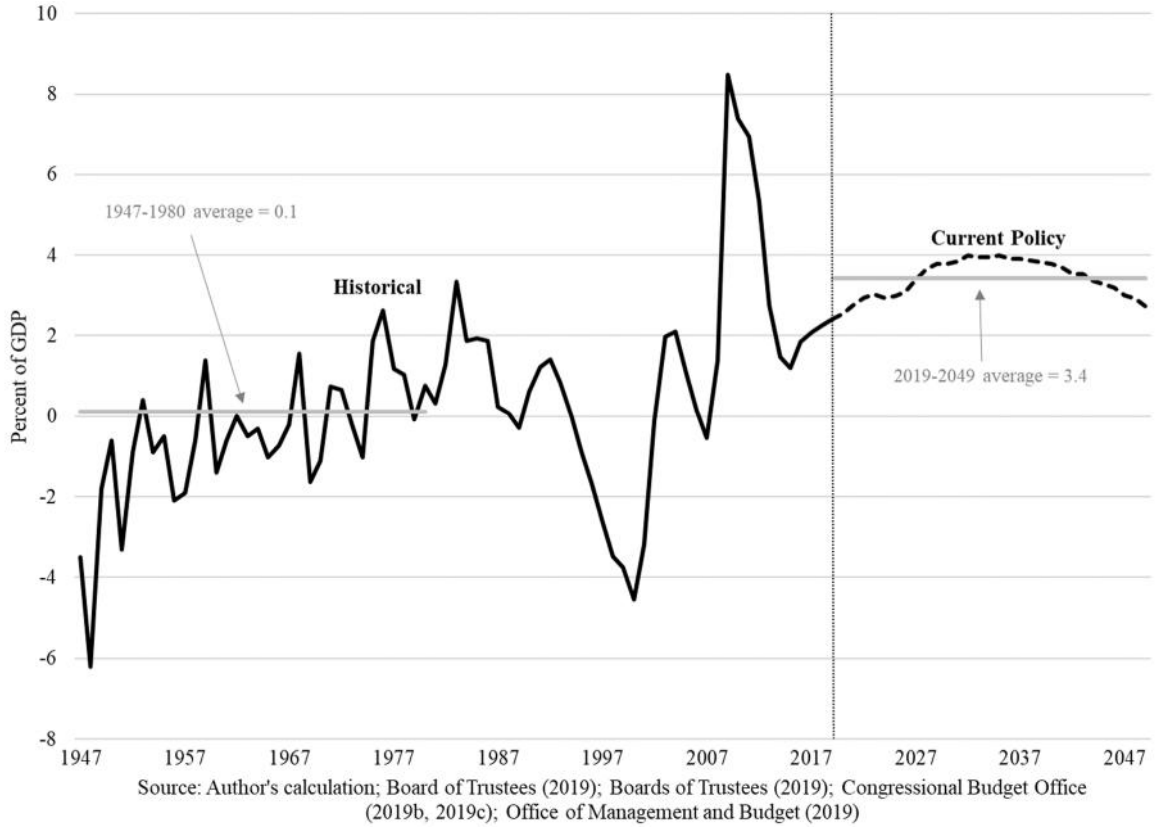
Because the fiscal outlook depends sensitively on interest rates and because financial market indicators currently imply lower future interest rates than CBO does, I also consider a "flat" scenario, where the average interest rate on government debt is constant through 2049 at its 2019 value of 2.4 percent.[7] To be clear, I regard this as an extremely optimistic scenario, and I include it to highlight the effects of low interest rate projections on the fiscal outlook.

The budget outlook can be described in a series of graphs. Figure 2 shows that primary deficits (which exclude interest payments) will rise from 2.4 percent of GDP currently to 3.8 percent of GDP by 2029, then remain relatively constant through 2039, after which they fall to 2.7 percent of GDP by 2049. The main point of Figure 2 is that the federal budget is out of balance on a long-term basis, even ignoring interest rates and interest payments. In contrast, in the generation following World War II, the government ran primary surpluses more often than not and the primary budget averaged a deficit of just 0.1 percent of GDP from 1947-80.

[6] See Engen and Hubbard (2005); Gale and Orszag (2004); Gamber and Seliski (2019); Krishnamurthy and Jorgenson (2012); Laubach (2009); and Tedeschi (2019). These studies show that a 1 percentage point increase in federal debt as a share of GDP raises interest rates by 2 to 3 basis points.

[7] Using interest rate forecasts based on current financial market data may not be appropriate in a budget projection because those forecasts presumably include a positive probability that some sort of budget deal is reached before the budget period ends, which is inconsistent with the assumptions in the budget projection.

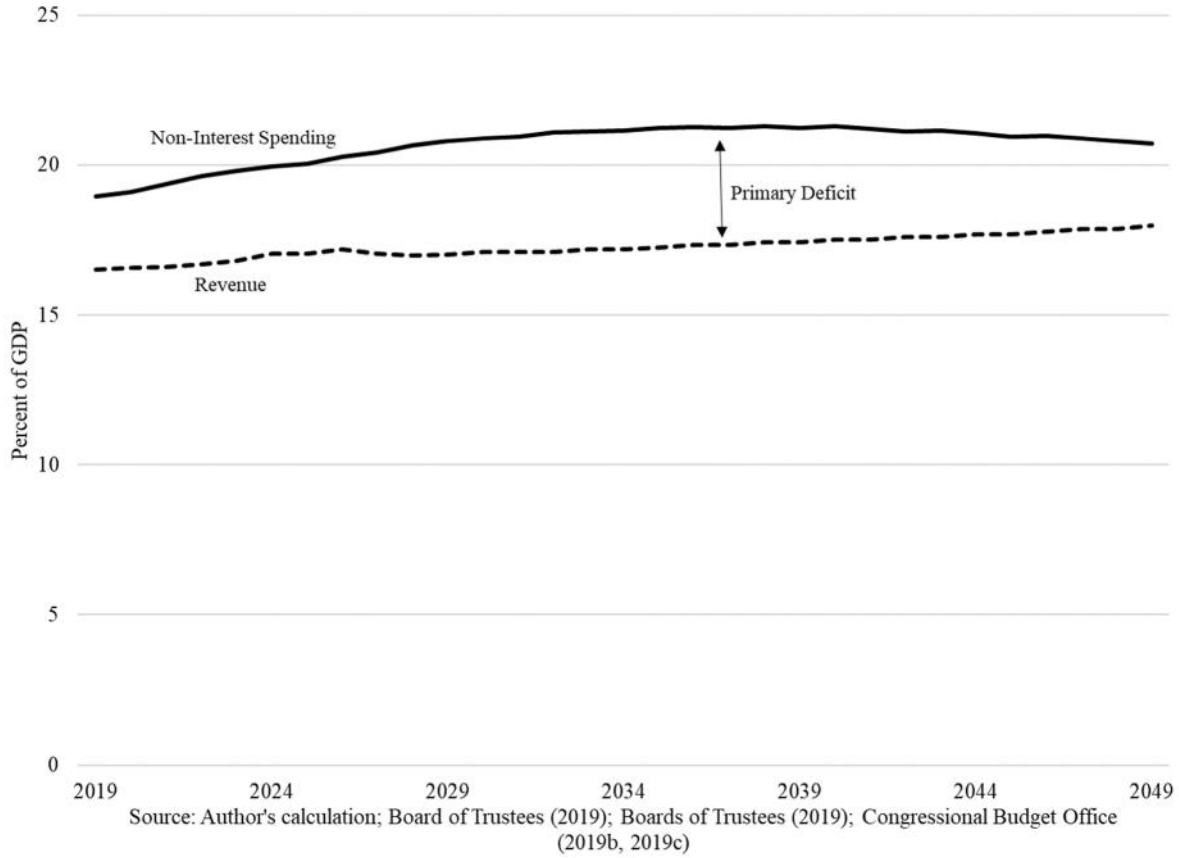
Figure 2: Primary Deficit (+) or Surplus (-) as a Share of GDP, 1947-2019



Source: Author's calculation; Board of Trustees (2019); Boards of Trustees (2019); Congressional Budget Office (2019b, 2019c); Office of Management and Budget (2019)

The persistent primary deficits are best interpreted as the result of a long-term, sizable mismatch between what Americans want from their government and what they are willing to contribute, rather than as a "spending" problem or a "tax" problem. Figure 3 shows that non-interest spending is projected to be substantially higher throughout the next 30 years (20.8 percent of GDP) than its average since 1965, 18.2 percent of GDP. Notably, there are no new spending initiatives built into the projections, which simply show the playing out of commitments that political leaders made in the past. Given the aging of the population, it is virtually inevitable that government spending will rise. Projected revenues average 17.4 percent of GDP over the next 30 years, equal to their post-1965 average.

Figure 3: Primary Deficit as a Share of GDP, 2019-2049



Source: Author's calculation; Board of Trustees (2019); Boards of Trustees (2019); Congressional Budget Office (2019b, 2019c)

Figure 4 provides more details on the changing level and *composition* of non-interest spending, assuming there are no new spending programs for the next 30 years. Spending on Social Security and health care will rise, accounting for more than 100 percent of the increase in non-interest spending as a share of GDP. Outlays on all other non-interest categories will fall. Non-defense discretionary spending includes most of the federal government's investment projects in infrastructure, research, and education. Other mandatory spending contains most of the government's safety net initiatives. These two categories and defense spending are all slated to fall by between 19 percent and 31 percent relative to GDP over the next 30 years.

Figure 4: Non-Interest Spending Projections, 2019-2049

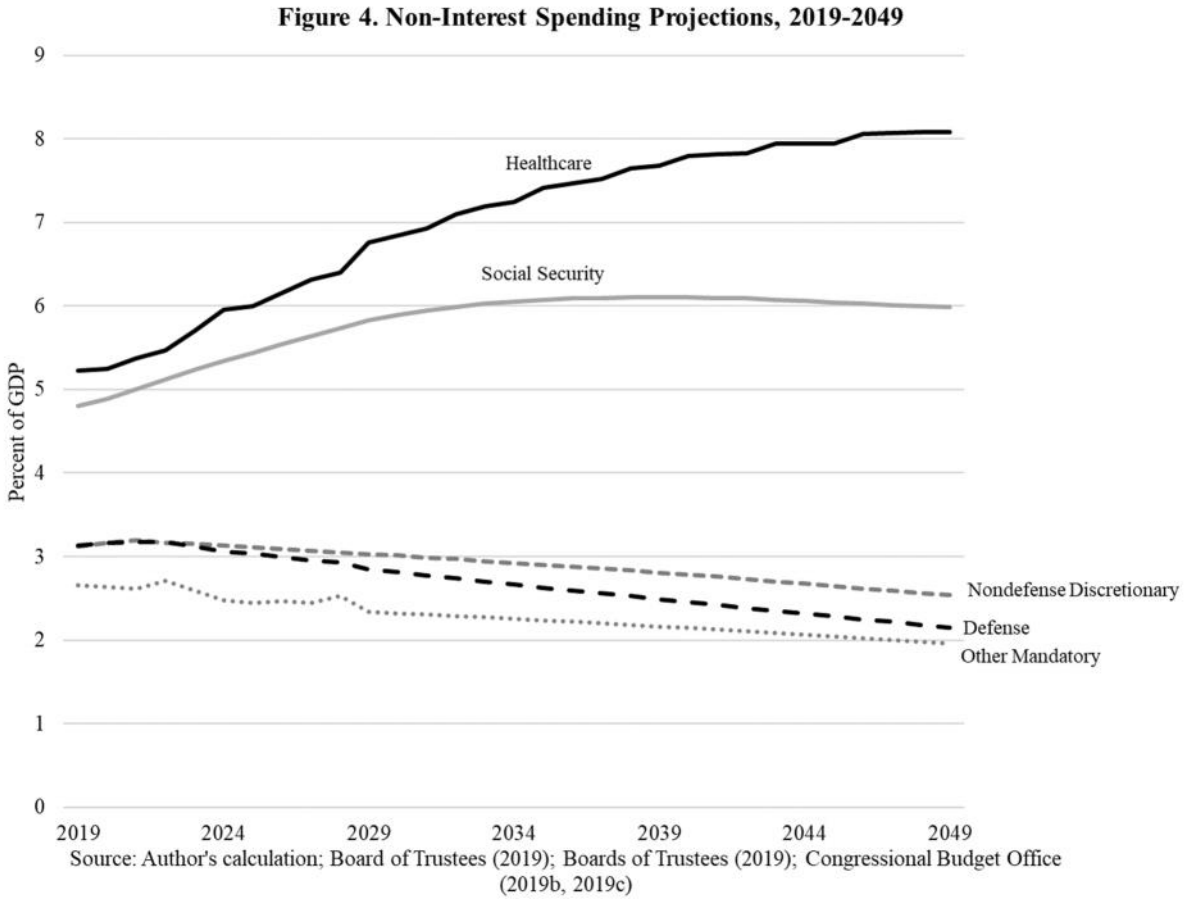
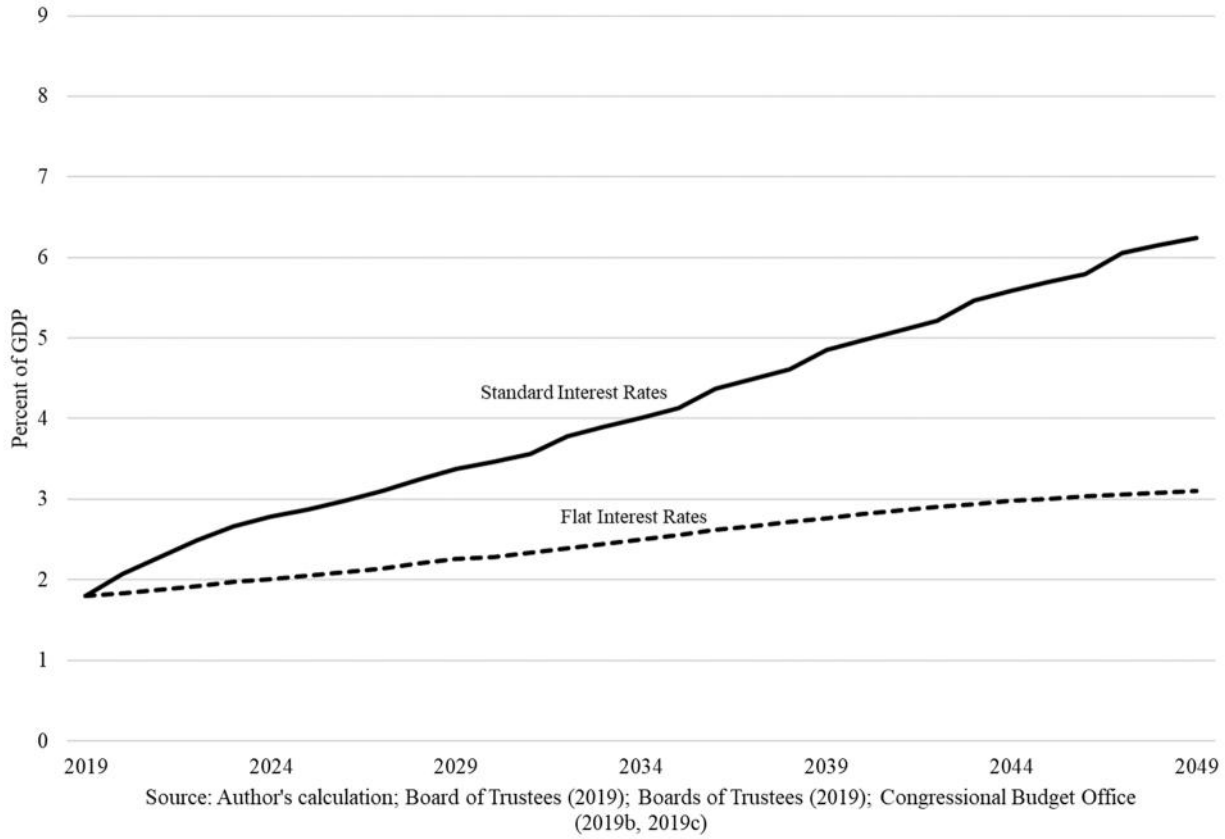


Figure 5 shows that the interest rate scenario makes an enormous difference to budget projections. With "standard" rates, interest payments rise from 1.8 percent of GDP in 2019 to 3.4 percent of GDP in 2029, and to 6.2 percent of GDP in 2049. If interest rates remain at today's low levels, interest payments rise at a much slower pace, to 2.3 percent of GDP in 2029 and 3.1 percent of GDP in 2049. By comparison, interest payments averaged 1.8 percent of GDP from 1947 to 2019 and equaled 1.6 percent of GDP in 2018. In 1991, interest payments reached their historical peak of 3.2 percent of GDP. Thus, under the optimistic scenario ("flat" rates), interest payments are projected to rise almost to their historical maximum; under "standard" rates, interest payments will skyrocket to almost double their previous peak.

Figure 5: Net Interest as a Share of GDP, 2019-2049



Source: Author's calculation; Board of Trustees (2019); Boards of Trustees (2019); Congressional Budget Office (2019b, 2019c)

Figure 6 combines the primary deficit and interest payments to show projections for the federal deficit. As before, interest rate assumptions matter significantly. With standard interest rates, the deficit rises from 4.2 percent of GDP currently to 7.2 percent in 2029 and to 9.0 percent of GDP by 2049. With flat interest rates, the deficit still rises to about 6.1 percent of GDP by 2029 and 6.6 percent by 2040, after which it drops to 5.8 percent of GDP by 2049. The deficit falls somewhat in the out-years because of the very strong and restrictive assumptions about discretionary spending and other mandatory outlays described above.

Figure 6: Deficit as a Share of GDP, 2019-2049

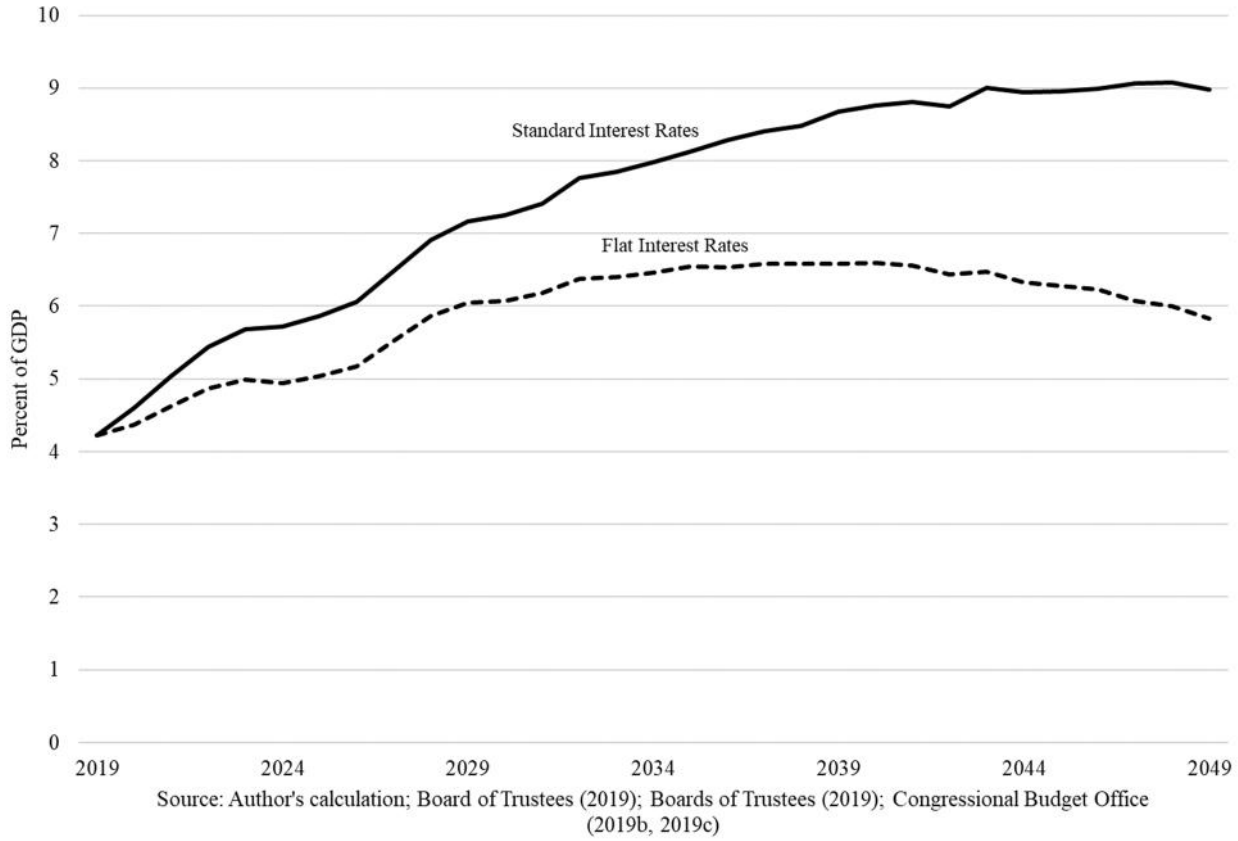
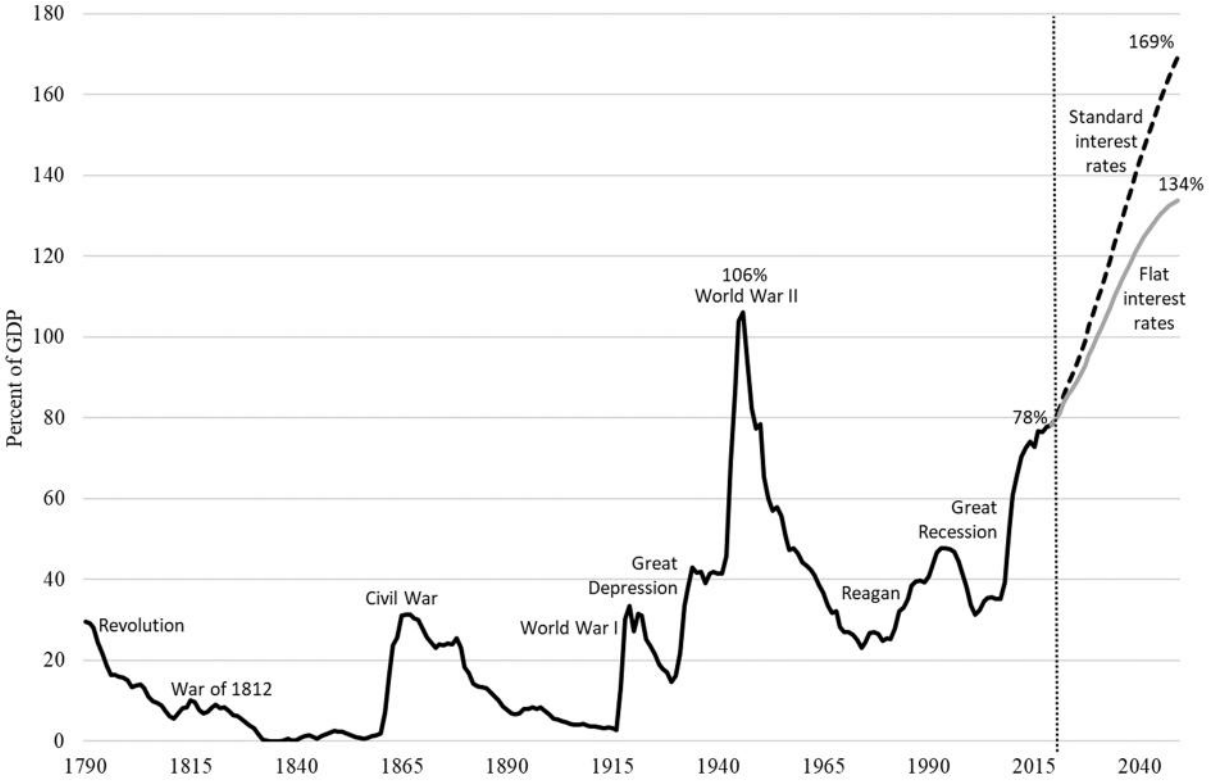


Figure 7 shows historical and projected figures for debt as a share of GDP. With standard interest rates, debt rises from 78 percent of GDP in 2019 to 106 percent of GDP in 2029 and 169 percent of GDP by 2049. With flat rates, debt rises much more slowly, but it still rises inexorably and to all-time high levels. The debt rises from 78 percent of GDP in 2019 to 98 percent of GDP in 2029 and to 134 percent of GDP in 2049.

Figure 7: Debt-to-GDP, 1790-2049



Source: Author's calculation; Board of Trustees (2019); Boards of Trustees (2019); Congressional Budget Office (2010, 2019b, 2019c); Office of Management and Budget (2019)

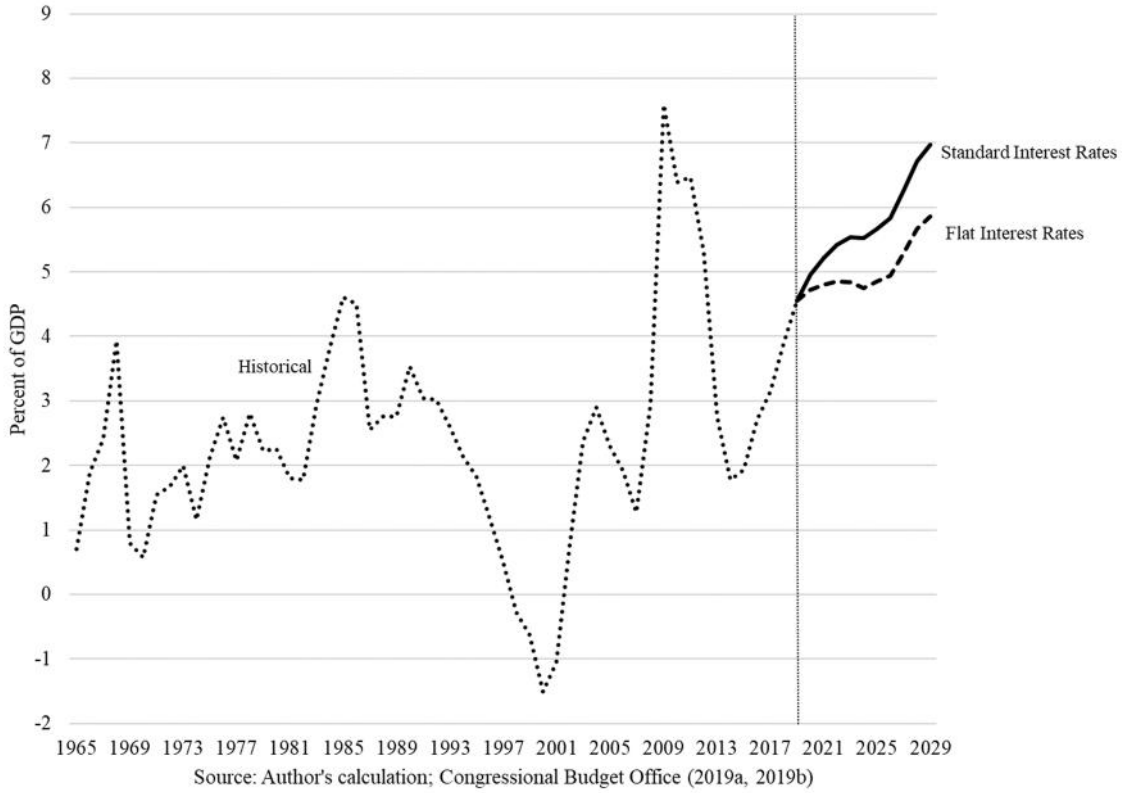
Several aspects of the debt projection are salient. First, the projected fiscal shortfall differs from those in the past in important ways. From the nation's founding until about 1980, debt as a share of the economy rose only when we were at war or in recession, and it only rose temporarily. After the war or recession ended, debt fell rapidly. Starting in 1981, Ronald Reagan's tax cuts and defense spending increases raised debt during peacetime prosperity. A series of largely bipartisan tax increases and budget deals from 1992 to 1997 helped turn persistent deficits into surpluses by the end of the century. Since 2000, tax cuts and spending increases under Presidents George W. Bush, Barack Obama, and Donald Trump, along with the Great Recession, greatly boosted current and projected levels of future debt.

The current economic and budget projections are different from those in the past. Relative to pre-1980 debt, current projected debt-to-GDP ratios are higher, and the trend is permanent. There is no war or recession that will end and let the budget adjust. Relative to the early 1980s, we now face a much higher initial debt level and the headwinds generated by demographics. In 1981, debt was only one-third as large as it is today relative to GDP, and 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.

The experience after World War II is particularly informative. After the war, the debt-to-GDP ratio fell more or less continually, from 106 percent of GDP in 1944 to about 26 percent of GDP in 1980. Part of the reason was low interest rates and strong growth, but another factor was that primary deficits were quite small (averaging just 0.1 percent of GDP from 1947 to 1980). Currently, however, as discussed above, primary deficits are projected to average 3.4 percent of GDP over the next 30 years, even under optimistic assumptions (Figure 2). While we don't need to cut the debt to 1980 levels, we do need to stabilize it at a reasonable amount. That will require significant reductions in the primary deficit.

Second, long-term projections are sometimes dismissed on the grounds that they are subject to substantial uncertainty (Krugman, 2012). But it is not necessary to focus on the long-term to see the fiscal imbalance. Figure 8 shows that the *current* full-employment deficit is already high at almost 5 percent and will remain high – and actually rise – over the next decade, assuming that policymakers extend temporary tax and spending provisions, as they have done in the past (see Appendix A). Historically, full-employment deficits have been much lower (averaging 2.8 percent of GDP since 1965) and only spiked temporarily.

Figure 8: Full-Employment Deficit as a Share of GDP, 1965-2029



Source: Author's calculation; Congressional Budget Office (2019a, 2019b)

Another short-term indicator of concern is that, according to the International Monetary Fund (IMF), the United States is one of only a handful of advanced countries projected to experience a

rise in their debt-to-GDP ratio over the next five years and indeed will experience the largest increase among those countries (International Monetary Fund, 2019).[8]

Third, it is worth emphasizing that the projections above are based on relatively optimistic economic and policy assumptions. The economy grows steadily; interest rates stay below the economic growth rate; there are no unusual or deep recessions; and climate change does not impose any extra burden on the economy. Defense spending grows only with inflation – there are no new wars. There are no new major spending initiatives, and domestic spending other than for Social Security and health care falls significantly relative to the size of the economy. One way to show how optimistic the assumptions are is to note that, under plausible alternative assumptions, CBO (2019c) estimates the debt-to-GDP ratio would be 219 percent, compared to 169 percent in the estimates here.

3. Effects of Rising Debt and Deficits

If left unaddressed, rising deficits and debt will cause significant, long-term economic problems, curtailing growth and limiting the rise of living standards for our children and grandchildren. They will also hamper the government's ability to address other issues and will reduce America's global standing. Despite public controversy about fiscal policy, there is a well-established consensus – even with current projections keeping the government interest rate (r) below the economic growth rate (g) and even among those who advocate not addressing the long-term fiscal situation now – that following our current fiscal path would do long-term damage to the economy and is unsustainable.[9]

3.1. Debt and the Economy

Not all debt is bad. As Alexander Hamilton explained in the 1790s, debt helps the government establish credit and trade with other nations. It gives investors a safe and liquid asset, provided the government stays solvent.[10] It helps nations finance their responses to emergencies, such as recessions or wars, and it helps finance investments in people or projects that will raise future living standards. And, of course, deficits can provide a boost when the economy falls into

[8] Short-term projections are based on officially announced budgets, adjusted for differences between the national authorities and the IMF staff regarding macroeconomic assumptions. The medium-term fiscal projections incorporate policy measures that are judged by the IMF staff as likely to be implemented.

[9] See Blanchard (2019a, 2019b); Furman and Summers (2019); Elmendorf (2019); Elmendorf and Sheiner (2017). All conventional economic models suggest that high and rising debt-to-GDP ratios will hamper long-term growth. A 2013 survey of leading academic economists of varying political affiliations asked for reactions to this statement: "Sustained tax and spending policies that boost consumption in ways that reduce the saving rate are likely to lower long-run living standards." More than two-thirds strongly agreed or agreed. The rest either were uncertain or had no opinion. Remarkably, no one disagreed (IGM Forum, 2013).

[10] To be clear, however, the desirability of issuing safe, liquid assets is a justification for gross issuance of debt, not a reason for the government to run deficits. The government could increase the supply of safe, liquid assets and invest the funds in a broad-based market portfolio. That is, saying that the government should issue safe, liquid assets is different from saying that the government should postpone paying for its current programs and instead should raise burdens on future generations.

recession.

In short, the effects of fiscal policies on the economy depend not only on the *timing* and *size* of the deficits but also *on the specific policies that generated those deficits*. The concern about the projected long-term debt build-up, then, is not just about the debt, per se; it is also about the way we are taxing and spending. The path we are on produces a rising debt-to-GDP ratio that essentially is financing increased transfer payments to the elderly (Figure 4, Figure 7). Meanwhile, public investment in infrastructure, scientific research, and human capital are projected to decline as a share of GDP, as are safety net expenditures that can help low-income families lead more productive lives.

Following this path will reduce future national income. If the government borrows to provide a tax cut or spending benefit, government saving falls by the full amount of the borrowing, while recipients save some (but typically not all) of the tax cut or the spending benefit. As a result, national saving – the sum of private and public saving – falls. Once national saving falls, future national income will fall; it is only a question of how. If it generates higher interest rates, government borrowing will crowd out domestic investment, and future output will be lower than it otherwise would have been. Even if interest rates don't rise at all, future national income still falls. The increase in government borrowing would be financed, in this case, by increased borrowing from abroad. That allows the country to maintain its current investment and output path, but it still causes future *income* to decline, since a larger share of that output would be diverted to repaying foreign capital holders.[11]

There is abundant empirical evidence consistent with these views – that sustained deficits and high debt reduce national saving, investment, and growth, and raise capital inflows interest rates.[12] These effects can be substantial. Extrapolating from the empirical and simulation literatures, a reduction of 60 percentage points in the debt-to-GDP ratio (e.g., from 160 percent to 100 percent) would raise the real annual growth *rate* by 0.6 to 1.2 percentage points according to a study by IMF researchers (Woo & Kumar, 2015). It would reduce the long-term GNP *level* by estimates that range from 4.0 percent (CBO, 2016a), to 5.7 percent (Elmendorf & Mankiw, 1999), and 4.2-10.5 percent according to another CBO study (Page & Santoro, 2010), depending on how other policies change.

[11] Gross domestic product (GDP) measures the output produced in the country. Gross national product (GNP) measures the income that accrues to Americans. GNP equals GDP less the income earned in the United States by foreigners plus the foreign income earned by Americans.

[12] For the impact of debt on growth and investment, see Baum, Checherita-Westphal, and Rother (2012); Caner, Grennes, and Koehler-Geib (2010); Cecchetti, Mohanty, and Zampolli (2011); Chudik, Mohaddes, Pesaran, and Raissi (2015); Wilson et al. (2012); and Woo and Kumar (2015). For debt and interest rates, see Engen and Hubbard (2005); Gale and Orszag (2004); Gamber and Seliski (2019); Krishnamurthy and Vissing-Jorgensen (2012); Laubach (2009); and Tedeschi (2019). For debt and capital flows, see Chinn and Ito (2005, 2008); Chinn et al. (2011); and Huntley (2014).

Likewise, in my recent book, *Fiscal Therapy*, I propose a series of policy changes that would reduce the debt-to-GDP ratio to 60 percent by 2050, compared to a 180 percent figure that would be reached under the assumptions in the analysis (Gale, 2019). Analysts at the Penn-Wharton Budget Model (PWBM) estimate that these changes would raise GDP by 7 percent and GNP by 8 percent (Ricco, Prisinzano, & Shin, 2019). This implies that a reduction in the debt-to-GDP ratio of 60 percentage points, coupled with similar policies, would raise long-term GDP by 3.5 percent and GNP by 4 percent.

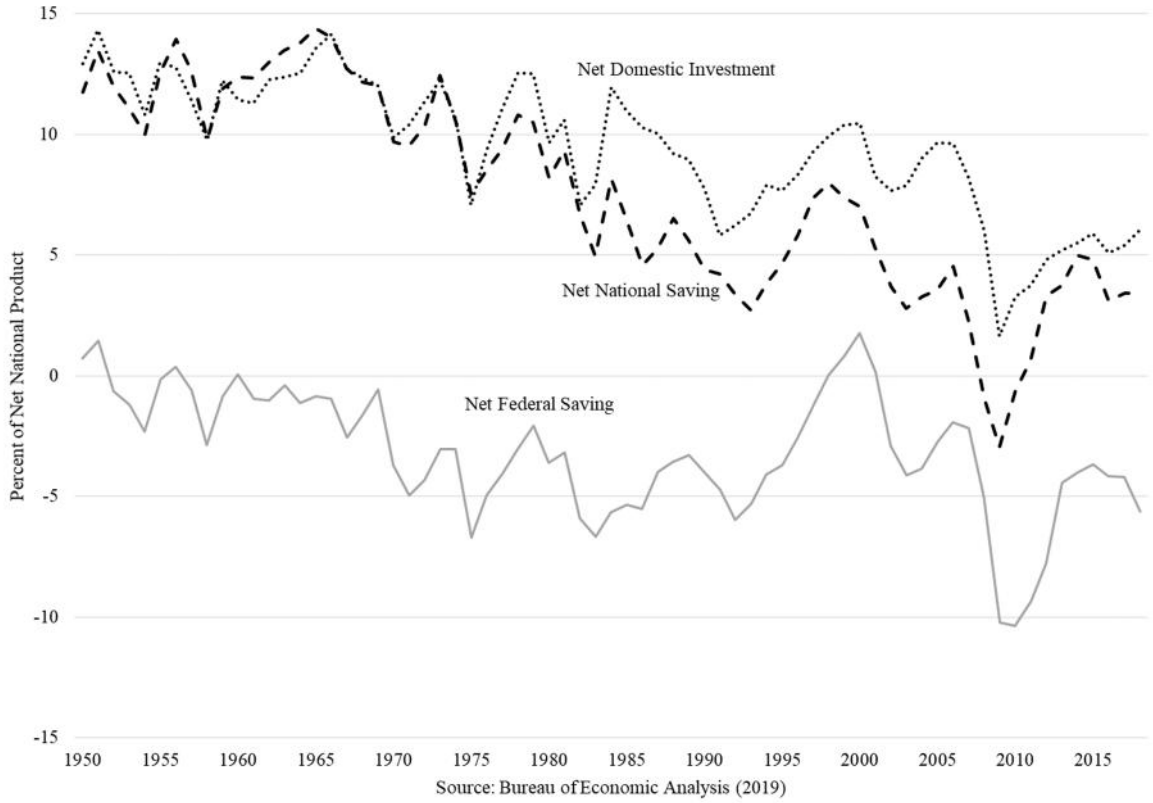
All these estimates are based on extrapolating the effects of large changes in debt from evidence on the effects of smaller changes in debt. Thus, the usual cautions about out-of-sample predictions apply. If anything, though, the extrapolations are likely to understate the effects of large debt changes.[13]

Notably, short-term empirical patterns tell the same story as the long-term simulations. Figure 9, for example, shows that between 1950 and 2018, annual federal saving (that is, the opposite of the federal deficit) correlates closely with national saving and national investment. *Controlling for the business cycle* (by including the unemployment rate), raising deficits by 1 percent of the economy reduces both national saving and national investment by about 1 percent of the economy.[14] Note that $r < g$ for much of this period (Blanchard 2019a, 2019b).

[13] The data suggest that while low levels of debt do not necessarily hamper economic performance and may even bolster the economy, high debt tends to reduce economic growth, suggesting the marginal effect of added debt on the economy may be nonlinear, and it may be rising with higher levels of debt. See Baum, Checherita-Westphal, and Rother (2013); Caner, Grennes, and Koehler-Geib (2010); Cechetti, Mohanty, and Zampolli (2011); Chudik et al. (2015); Reinhart, Reinhart, and Rogoff (2012); Wilson et al. (2012); and Woo and Kumar (2015).

[14] This statement is based on linear regressions using annual data on GDP and net national product (NNP) from 1950 to 2018 (Bureau of Economic Analysis, 2019), controlling for the unemployment rate. The impact of federal saving/NNP on national saving/NNP is 1.37 and the impact on investment/NNP is 0.89. All the effects are highly statistically significant. Similar findings hold using GDP instead of NNP.

Figure 9: National Saving, Federal Saving, and Net Domestic Investment, 1950-2018



Blanchard (2019a, 2019b) emphasizes that, although sustained deficits would crowd out investment and reduce future national *income*, increased deficits would bring about higher *consumption and welfare* for all generations as long as $r < g$.[15] That implies that we can borrow and consume more if interest rates stay low forever. But if we accumulate a lot of debt and then rates rise, we will face added burdens. This is the "Deficit Gamble" that Ball, Elmendorf, and Mankiw (1998) describe.

Of course, it is impossible to know the future path of interest rates with certainty. But Blanchard (2019b) argues that the situation will remain "manageable" as long as interest rates do not rise much above the growth rate. I would note that the interpretation of "manageable" is subjective. As shown above, even if $r < g$ for the next 30 years under the "standard" interest rate projection, net interest payments rise to more than 6 percent of GDP by 2049. It would be reasonable to conjecture that many people would find that situation problematic. If the interest rate were to rise above the growth rate, interest payments would be even higher.

[15]Blanchard (2019a, 2019b) distinguishes two interest rates – on government debt and on risky private capital. In his model, for increased debt unambiguously to make all generations better off, both rates must be below the growth rate.

3.2. Debt and Financial Crisis

In recent decades, prominent economists and leading Wall Street figures of both political parties have expressed concern that America could experience a kind of "hard landing" or crisis, similar to what happened in Greece.[16] Nevertheless, I doubt that we'll see a sudden scenario in the United States in the foreseeable future, for several reasons. Current low interest rates indicate that markets are absorbing recent increases in government debt without fear of future capital flight or default. We undoubtedly have the resources to pay our debt for decades to come. We issue bonds in our own currency (as do Britain and Japan), giving us an important lever of control over our debt, and the dollar is the world's reserve currency.[17] The United States remains the world's safest place to invest; even after the financial crisis that began here in 2007 and spread across the world, investors flooded U.S. markets in search of safe assets, helping to keep interest rates low.

To be sure, policymakers could create an emergency by forcing a default on the country's debt, as right-wing leaders and commentators threatened to bring about during the debt ceiling standoffs in 2011 and 2013 (Bartlett, 2013; Weisman, 2013). An intentional default would be a big mistake. A financial crisis would turn out poorly, of course, and it would make the need to address the fiscal challenge even more compelling.

But I believe that focusing on the potential for a crisis is misleading, in two ways. First, it seems like an extremely remote possibility. Second, it implicitly suggests that the potential to cause a crisis is the reason we should care about debt. In contrast, the key point in my view is that even if a crisis does not materialize, 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 plenty damaging.

3.3. Intergenerational Burdens

Besides its impact on overall macroeconomic performance, issuing debt shifts the burden of financing government to future generations (assuming the increase in debt is financing government consumption or transfer payments that will largely raise private consumption as opposed to investments that will pay dividends in the future). There is a natural tendency to think that future generations will be better off than we are, and therefore that pushing the debt forward would simply be asking more affluent people than ourselves to bear the burden. It is not clear, however, how much better off future generations will be relative to current generations. Absolute income mobility has been declining over the last few decades (Figure 10). Among people born in

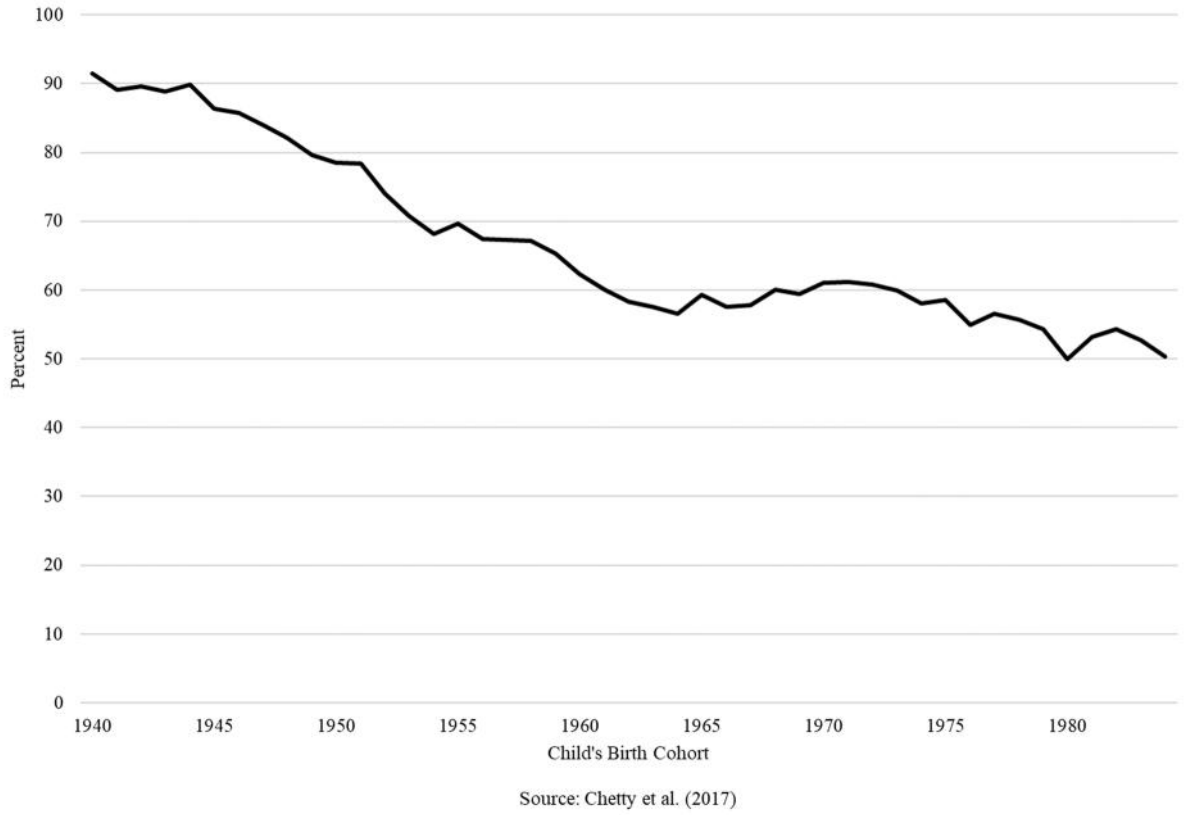
[16] If a crisis were to arise, it could spread quickly. Global financial markets can respond to events virtually instantaneously, and policymakers can lose control of things just as quickly. As Rudiger Dornbusch (1997) said of Mexico's financial crisis of the 1990s, "The crisis takes a much longer time coming than you think, and then it happens much faster than you would have thought… It took forever and then it took a night."

[17] The rise of cryptocurrencies and efforts to avoid U.S. trade sanctions may be creating threats to the use of the dollar as a reserve currency (Michaels, 2019; Scheck & Hope, 2019).

1940, more than 90 percent had higher real income as (young) adults than their parents did.

Among those born in 1980, only slightly more than half had higher real income than their parents (Chetty et al., 2017). If that pattern continues, many members of future generations will be worse off in absolute terms than their parents and thus will be less well-prepared to address a higher debt burden than earlier generations.

Figure 10: Percent of Children Earning More than Their Parents



Source: Chetty et al. (2017)

3.4. Debt and Politics

High and rising debt can affect political choices as well. In the face of fiscal pressures, policymakers will naturally be less willing to raise debt or deficits further and perhaps more willing to impose PAYGO requirements on new programs (Romer & Romer, 2017). This will make it harder to enact new initiatives that respond to economic, social, military, or other needs. For example, countries with low debt-to-GDP ratios at the beginning of a financial crisis tend to have smaller declines in output than countries with higher debt loads. The reason is that countries with low debt-to-GDP ratios are more willing to enact expansionary policies (Romer & Romer,

2019).[18]

Another dimension of the impact of debt on political choices occurs through the effects of rising interest payments, which will require either higher taxes, cuts in other spending, or acceptance of higher deficits. This concern is particularly salient under the standard interest rate scenario, where interest payments rise from 1.8 percent of GDP in 2019 to 6.2 percent in 2049. By 2049, even with $r < g$ throughout the entire projection period, interest payments would exceed the sum of all discretionary spending. The explosive growth in interest payments, assuming no policy changes, highlights the importance of getting the debt under control sooner rather than later.

More broadly, high debt may reduce America's global standing in political and military terms. The precise mechanism through which this might occur is unclear, but the general idea is that economic strength and political strength go hand in hand.[19]

4. Fiscal Targets and The Fiscal Gap

4.1. Alternative Targets

Determining optimal fiscal policy is a task fraught with uncertainty. While it is hard to argue that the current debt path is optimal, it is even more difficult to ascertain what would be optimal.

The long-term solution should be a stable situation – defined either in terms of debt or interest payments, relative to GDP. But economic theory offers such a wide range of plausible estimates for the optimal debt-to-GDP ratio that it difficult to reach conclusions based on first principles (Aiyagari & McGrattan, 1997; Blanchard 2019a; Peterman & Sager, 2017). Empirically, there are three natural benchmarks to consider. The current ratio is about 78 percent. The maximum historical ratio was 106 percent, during the second World War. The average ratio from the 50 years between 1957 and 2007 was 36 percent. This period, which might be described as "normal," begins after debt as a share of the economy was cut in half relative to World War II levels and ends before the financial crisis.

Both objective and subjective factors influence the determination of the optimal level. Objectively, the more that debt hurts long-term growth, the lower the optimal level. A key

[18] Indeed, some have argued that a conservative government would want to run up debt specifically to constrain the choices of future governments (Persson & Svensson, 1989).

[19] For example, in 2011, the Chairman of the Joint Chiefs of Staff, Admiral Mike Mullen, said "the single, biggest threat to our national security is our debt." See Marshall (2011). As Harvard's Benjamin Friedman (1988) noted 30 years ago, "World power and influence have historically accrued to creditor countries. It is not coincidental that America emerged as a world power simultaneously with our transition from a debtor nation . . . to a creditor supplying investment capital to the rest of the world." Adam Posen (2014), president of the Peterson Institute for International Economics, argues that unsustainable fiscal policy will make it harder for the United States to maintain its standing in global trade talks and disputes.

parameter is the relation between interest rates and growth rates. Higher interest rates raise the cost of financing and reduce the optimal debt level. Faster economic growth – through productivity growth or labor force expansion – raises the optimal debt-to-GDP ratio, just like a family that expects its future income to rise can responsibly assume more debt.

If $r < g$, the government can rollover *existing debt* without raising the debt-to-GDP ratio (Blanchard, 2019a). That, by itself, does not solve the fiscal problem, however. Because U.S. projected primary deficits are positive and large (Figure 2), the U.S. debt-to-GDP ratio is projected to rise continually, as noted above, even with $r < g$.

Blanchard (2019a) highlights conditions – essentially, that the relevant interest rate be below the growth rate – under which a sustained increase in deficits and debt could make all generations better off. If those conditions do not hold, however – and it is impossible to be certain they will hold in the future – the key subjective issue is how much of the debt burden each generation should bear. Generally, the costs of debt reduction come before the benefits fully kick in, since the benefits, namely higher economic growth, accumulate slowly over time. As a result, society's willingness to assume current costs for future gains will affect the optimal choice of debt. Deciding which individuals within each generation should bear the burden of debt is a related question that serves to link debates about trends in income inequality and economic opportunity with debates about fiscal consolidation.

The arguments for a higher optimal debt-to-GDP ratio in the future compared to various points in the past focus on two points: (a) the interest rate on government debt is projected to be less than the economic growth throughout the projection period and (b) the projected baseline debt levels are already so high, making transitions to lower debt levels more expensive. The arguments against letting the ratio rise too high include the effects described in the previous section.

As an alternative metric to the debt-to-GDP ratio, it is not unreasonable to focus on interest payments as a share of GDP. Interest payments, as mentioned above, were 1.6 percent of GDP in 2018, averaged 1.8 percent of GDP since 1947, and peaked in 1991 at about 3.2 percent of GDP. One caveat, however, is that using an interest-payment-to-GDP target could require abrupt changes in the budget. For example, a change in the interest rate would have a much larger impact on interest payments as a share of the economy than on the debt-to-GDP ratio.[20]

[20] For example, consider an economy in steady state with debt/GDP = 100 percent, r=.02, g=.04, and the primary deficit =2 percent of GDP. Interest payments would equal 2 percent of GDP. The deficit (interest payments plus the primary deficit) would equal 4 percent of GDP. If r rose to .03, interest payments would rise to 3 percent of GDP. Stabilizing debt/GDP at its previous value of 100 percent would require reducing the primary deficit by 1 percent of GDP via tax increases or spending cuts. In contrast, stabilizing interest payments at the previous value of 2 percent of GDP would require cutting the debt-to-GDP ratio to 66.7 percent -- that is, it would require raising taxes or cutting spending by 33.3 percent of GDP. Even if the interest rate target were phased in over several years, the required adjustments would be substantially larger than those required by maintaining a debt-to-GDP target.

4.2. Fiscal Gap Estimates

The "fiscal gap" measures how much policy would have to change on net for the government to reach a given fiscal target (debt-to-GDP or interest payments-to-GDP) by a particular year, given the date when the initiatives are first implemented.[21] For example, with standard interest rates, achieving a debt target of 60 percent of GDP by 2049 would require a combination of permanent tax increases and spending cuts that equal 3.8 percent of GDP per year if the changes start in 2021 (Table 1). This would equal about $800 billion per year in 2019 dollars, with the dollar figure rising at the same rate as GDP in future years. There are many ways to make those changes, but they all involve enormous changes in policy. In 2019, for example, $800 billion represents a 46 percent increase in income tax revenues, a 23 percent increase in all federal taxes, or a 20 percent cut in all non-interest federal spending.

Increasing the debt target reduces the fiscal gap. With a 2049 debt target of 100 percent of GDP and standard interest rates, the fiscal gap is 2.3 percent of GDP; if the target is 140 percent of GDP, the fiscal gap is 0.8 percent of GDP.

Delaying action generally increases the fiscal gap (even though $r < g$). With standard interest rates, the fiscal gap is 2.7 percent of GDP for a debt goal of 100 percent of GDP if policy changes do not begin until 2025, or 3.2 percent if changes begin in 2029, compared to 2.3 percent if they start in 2021.

As noted, the target could be in terms of interest payments instead of debt. To keep interest payments in 2049 no higher than their historical peak of 3.2 percent of GDP would require policy adjustments equal to 2.8 percent of GDP if policy changes begin in 2021.

The interest rate assumption has a huge impact on the fiscal estimates. With flat interest rates, the fiscal gap falls to 3.0 percent of GDP with a 60 percent target (compared to 3.8 percent under standard rates) and 1.3 percent of GDP with a 100 percent target (compared to 2.3 percent under standard rates). If action is delayed until 2029, the fiscal gap rises, but only slightly – to 1.6 percent of GDP.

With a 140-percent-of-GDP debt target or a 3.2-percent-of-GDP interest payment target, the fiscal gap is *negative* – that is, policymakers could expand deficits under this scenario and still reach the target for debt or interest payments.

Long-term budget projections are, of course, uncertain. CBO (2019c) provides a sense of the range of the uncertainty, noting that if interest rates turn out to be 1 percentage point higher (lower) than currently projected, while still using their baseline assumptions for primary

[21] The fiscal gap methodology was developed by Auerbach (1994) and has been used extensively. For a recent example, see Auerbach, Gale, and Krupkin (2018, 2019).

spending and revenues, the debt-to-GDP ratio in 2049 would be 55 percentage points higher (37 percentage points lower). Likewise, if total factor productivity growth were 0.5 percentage points higher (lower) than currently projected, the debt-to-GDP ratio would be 38 percentage points lower (41 percentage points higher). To be clear, these are very large deviations in values for interest rates and productivity, relative to their projected values, so the sensitivity analyses suggests that rising future deficits are extremely likely to occur.

5. Fiscal Policy in the Short- and Long-Run

5.1. Short-Term Policy

Current deficits are certainly not optimal in any first-best sense. Full-employment deficits of 5 percent of GDP are, and should be, rare. As John Maynard Keynes said, "the boom, not the slump, is the right time for austerity at Treasury." Yet, perhaps surprisingly, the case for adjusting short-term deficits from their current path is weak, unless there is a recession, in which case short-term expansionary policy is appropriate.

The case for *cutting* short-term deficits is almost nil, in my view. Admittedly, cutting the current deficit would reduce future debt accumulation, holding the economy constant. But with the economy perhaps becoming fragile and interest rates already low, there is not much room for monetary policy to respond to the reduction in aggregate demand that would come from reducing current deficits. In any case, the current deficit is not the problem; the long-term path is.

The case for raising short-term deficits to finance new *investments* is based on the ideas that (a) we need new investment in infrastructure, research and development, and social policy initiatives that generate human capital, (b) the macroeconomy may need a boost in the near future, and (c) lower interest rates make more government investment projects beneficial and make deficit financing more attractive.[22]

There are some natural caveats to expanding deficit-financed investment, however. First, the government still needs to be able to identify and implement high-value investments. Low interest rates do not justify "bridges to nowhere." The social opportunity cost of the funds is related to the market return on capital, not the government borrowing rate, and it should account for the irreversibility of investments (Auerbach, 2019). Second, both CBO and PWBM estimate that a tax-funded infrastructure program would boost the economy more than a deficit-financed program (Congressional Budget Office, 2016b; Penn-Wharton Budget Model, 2018). Thus, I support a stronger investment program right now and would prefer that it be funded, but –

[22] There are issues regarding what constitutes an investment, and whether that includes only traditional items like infrastructure, research and development, and human capital, or if it is extended to include programs that provide nutrition, child support, job training, etc. I favor the broader definition on economic grounds but recognize the political complications that arise when investment is defined broadly.

consistent with the ideas that short-term deficit is not the problem and that the nation needs new investments – I would support a well-designed investment program that is deficit-financed in the short-term.

Like most other people, I do not advocate for deficit-financed increases in non-investment spending currently, even with $r < g$. In the absence of a recession, almost no one seems to think that we should increase deficit-financed spending on non-investment items, even among those who emphasize the role of low interest rates. Krugman (2019) notes that "You don't have to be a deficit scold or debt-worrier to believe that really big progressive programs will require major new revenue sources." Furman and Summers (2019) argue for PAYGO to apply to non-investment spending. Sarin and Summers (2019a, 2019b) argue for substantial tax increases on the wealthy, presumably to finance new spending, not to reduce deficits.

At one level, this consensus is not surprising, given the size of the current and projected deficits. On the other hand, it is puzzling given the emphasis placed on low interest rates. After all, the conditions in Blanchard (2019a) – and earlier in Diamond (1965) – under which low interest rates imply that higher deficits are optimal for current and future generations assume that all government spending is non-investment.

A related question is whether Congress should impose PAYGO rules – which require that new tax cuts or spending increases be "paid for" with other policy changes. The argument in favor is straightforward: as Furman and Summers (2019) put it, if you find yourself in a hole, you should stop digging. And, it is always appropriate to make it salient for political leaders that programs eventually must be paid for.

But there are arguments against PAYGO rules as well. First, they make it very hard to do anything new, but they give existing programs a free pass on accountability. The argument in favor of PAYGO is often stated as a variant of "anything worth doing is worth paying for." If that is true, it is not clear why it should not apply to existing programs. Second, the long-term projections above are very close to being consistent with PAYGO; that is, PAYGO itself does very little to alter the long-term path from the projections. Third, the political parties may be more willing to negotiate a long-term fiscal agreement if PAYGO did not exist, that is, if both sides could act (or could credibly threaten to act) recklessly with regard to short-term spending and tax cuts.

5.2. Long-Term Policy

There is widespread agreement that the long-term budget outlook is unsustainable – even if interest rates stay below the economic growth rate – and needs to be addressed at some point. The debate is whether we should be doing anything about it now. To be clear, "doing anything" means *enacting* a set of changes in the near term that are *implemented* over the medium- and long-term. It does not mean cutting debt immediately.

Clearly, the future fiscal situation depends significantly on interest rates – and of course on other factors including the state of the economy and policy makers' choices. The question is, essentially, whether we should buy any partial insurance now – via a phased-in debt reduction package – against potentially adverse future fiscal outcomes.

Elmendorf (2019) acknowledges that the long-term fiscal outlook is unsustainable and must be addressed at some point, but argues against enacting a gradual, long-term budget package in the near term. With lower interest rates, he notes, the nation can carry more debt than previously thought. Moreover, he is concerned that implementing a gradual, long-term debt reduction package would hurt the short-term economy by reducing current aggregate demand and interest rates, which would both make a recession more likely and make it harder for monetary authorities to respond to a recession.[23] Similarly, Furman and Summers (2019) argue that "if the debt becomes a problem, interest rates will rise…but even if that happens, it is not likely to cost so much that it would be worth paying a definite cost today, to prevent the small chance of a problem in the future." In short, there is a long-term problem, but these authors argue it is not worth trying to fix it currently. It would be better to let the problem ride.

This could be called the "St. Augustine" approach: "Give me chastity and continency, only not yet." (Pusey, 1909-14; Tax Policy Center, 2019). If so, the St. Augustine view begs for a "Hillel" response: "If not now, when?" (Hillel). After all, the economy has been strong in recent years and full employment deficits are high. As President Kennedy said, "the time to fix the roof is when the sun is shining." If the answer is "when interest rates rise" (as Furman and Summers, 2019 note above), this is a slippery slope. Certainly, if *r* rose to levels above *g*, some sort of long-term fiscal containment would be clearly needed, because the debt-to-GDP ratio would rise even more rapidly than shown above. But if *r* remains below *g* and net interest payments rise to exceed 6 percent of GDP, as in the standard interest rate scenario, when should deficit reduction begin?

An even stronger view could be extracted from Rachel and Summers (2019), who present evidence that rising public debt has helped the economy in the recent past and is boosting the economy now. I have not yet seen anyone argue that the current projected long-term debt path will be *necessary* to bolster an economy suffering from long-term secular stagnation, but that seems to be a possible implication of their findings.

My own views align with a different statement by Furman and Summers (2019): "The optimal policy from an economic standpoint would be to gradually phase in spending cuts or tax increases at a rate that would prevent perpetual growth in the national debt as a share of the

[23] He also argues that (1) in the current political environment, most of the fiscal adjustment would come on the spending side, when he believes it would more appropriate to have more of adjustment come on the revenue side, and (2) focusing on deficit reduction would take policymakers' attention away from other key issues.

economy but that would avoid doing serious harm to economic demand along the way." Although they immediately dismiss their idea as too "nuanced" for the political system, (a) that does not mean the idea is wrong, and (b) I do not see why it is too complex. Social Security reform in 1983, for example, phased in a variety of gradual changes, including to the full retirement age, a change that is still being implemented.

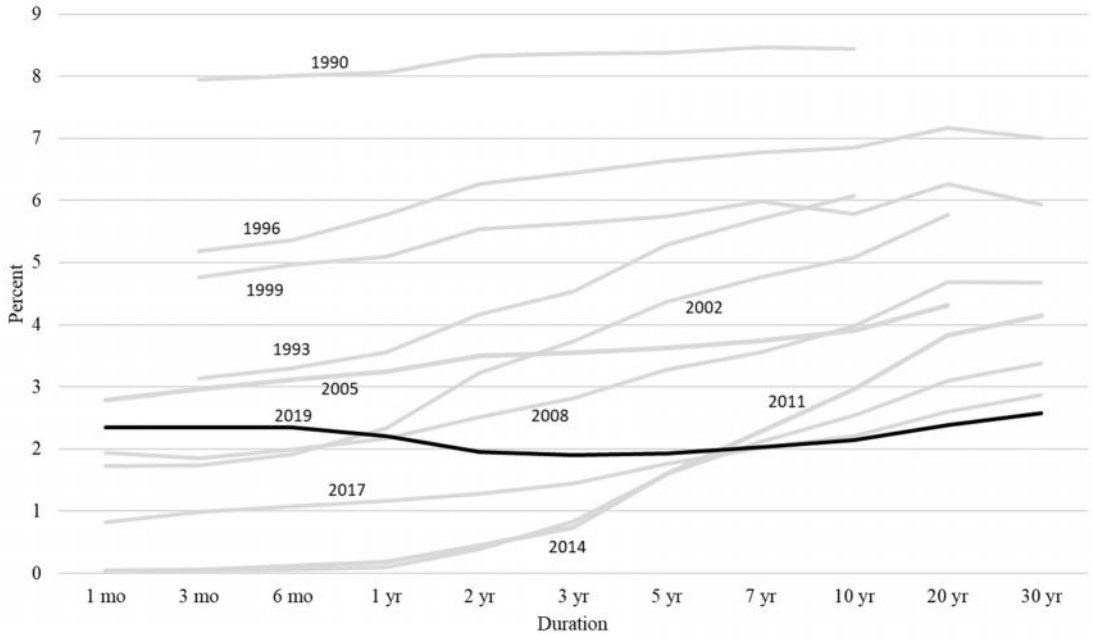
The main cost of enacting a gradual, long-term debt reduction plan seems to be that it could hurt the current economy if the changes took place too quickly. In principle, that seems like an easy problem to address, by phasing in the changes slowly. Of course, when policymakers enacted deficit reductions in 2011 and 2013 in the midst of weak economies, they imposed the changes immediately, which was a mistake. The "gradual" part of a debt-reduction plan matters.

The benefits of having a plan in place seem clear. First, it would be a first step toward dealing with a long-term problem that everyone acknowledges exists. As Furman and Summers (2019) note, "since economists aren't sure just how costly large deficits are, it would be prudent to keep government debt in check in case they turn out to be more harmful than expected." Second, it provides a form of insurance, should interest rates begin to rise. There is no guarantee that *r* will stay low, especially given the projected increase in debt. Given the already high and rising level of debt relative to GDP, the federal budget has rarely been more vulnerable to interest rate shocks. Third, it would provide policymakers with some assurance about the fiscal path and thus allow them to address new problems or issues from a framework that is fiscally stable. Fourth, it would reduce fiscal policy uncertainty and provide time for businesses, investors, and taxpayers to adjust their behavior to new rules. The last point is particularly important because abrupt changes are likely to generate backlash and thus may be more likely to be undone by future policy actions.

Another way to "buy insurance" against interest rate fluctuations would be to lengthen the maturity structure of the federal debt. Currently, about 30 percent of privately-held public debt will mature within a year, 70 percent within five years, and 90 percent within ten years ("Table FD-5," 2019). Issuing more bonds with longer maturities as the size of the debt rises makes sense conceptually and matches the historical pattern. Doing so can help reduce the sensitivity of the budget to short-term interest rate risk. In the past, the argument against lengthening the maturity was that it would raise interest payments, given long-term interest rates are typically higher than short-term rates. Currently, however, the yield curve is relatively flat, which makes lengthening the average maturity of federal debt more palatable (Figure 11). But it is also important to consider the implications of changing the maturity on the overall financial system and on the Fed's ability to conduct quantitative easing, should the economy turn down again.[24]

[24] For more complete discussion of these issues, see the excellent contributions in Wessel (2015).

Figure 11: Yield Curve, Closest to May 31 or June 1, Selected Years 1990-2019



Source: U.S. Treasury (2019)

Notes: These rates are commonly referred to as "Constant Maturity Treasury" rates, or CMTs. 30-year rate for 6/1/90 was 8.43. 30-year rate for 6/1/93 was 6.88.

6. Conclusion

Policymakers face a combination of high and rising debt but relatively low interest rates. Low rates help mitigate the costs of debt, but the long-term fiscal outlook is troublesome even if interest rates stay below the growth rate for the next 30 years. In a similar situation after World War II, the United States ran extremely small primary deficits on average for three decades. In contrast, future primary deficits are projected to be both sustained and persistent, and interest payments are projected to rise inexorably. To address the fiscal imbalance, policymakers should enact now a gradual, phased-in, long-term plan that would reduce primary deficits substantially over time and eventually stabilize the debt-to-GDP ratio at a plausible level.

Table 1. Fiscal Gaps and Net Interest through 2049 with Various Debt Targets and Interest Rates, Starting in 2021 (Percent of GDP)

	Fiscal Gaps		Net Interest in 2049 Under Target	
	Standard Interest Rates	Flat Interest Rates	Standard Interest Rates	Flat Interest Rates
Debt target = 60%	3.8	3.0	2.1	1.4
Debt target = 100%	2.3	1.3	3.7	2.3
Start in 2025	2.7	1.4	–	–
Start in 2029	3.2	1.6	–	–
Debt target = 140%	0.8	-0.5	5.2	3.2
Net Interest = 3.2 percent of GDP in 2049	2.8	-0.4	3.2	3.2
Memorandum:				
Baseline 2049 debt	169	134	–	–
Baseline 2049 net interest	6.2	3.1	–	–
Debt goal associated with 3.2 percent of GDP net interest	88	138	–	–

Appendix A

Constructing a "Current Policy" Budget Baseline

Constructing a budget projection is part art and part science. The Congressional Budget Offices "current law" projections essentially assume that Congress does (almost) nothing in the future. For example, the projections assume that temporary tax changes expire as scheduled, mandatory programs are reauthorized as scheduled, and 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 (CBO, 2019a, 2019b).[25]

In contrast, I construct a "current policy" baseline that shows where the budget is headed if we stay on what, in my judgment, is our current path (Appendix Table 1). This is essentially what would happen if Congress follows a "business as usual" approach. My projections start with CBO's current law estimates and make a series of adjustments. These adjustments are not policy recommendations; they simply show the effects of what I view as a continuation of current policies. In many cases, I utilize estimates that CBO itself provides of alternative policy options.

I assume that, as it has done in the past, Congress makes major temporary tax-cut provisions permanent, including the temporary provisions in the 2017 tax act.[26] I 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 the medical device excise tax and the tax on high-premium insurance (the "Cadillac Tax") that were enacted as part of the Affordable Care Act. 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.[27]

On the spending side, as mentioned above, 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. I allow defense spending to rise with inflation, starting in 2020, so that real defense expenditures remain constant at 2019 levels.[28] I allow non-

[25] The "current law" scenario does assume that the debt limit is raised as needed.
[26] Examples of major expiring provisions in the 2017 tax act include "100 percent bonus depreciation" (expensing of business investment in qualifying equipment), the marginal individual rate cuts, the increased standard deduction, the repeal of personal exemptions, the increased estate tax exemption, the cap on state and local tax deductions, and the 20 percent deduction for certain pass-through income. Examples of expiring provisions outside of the 2017 tax act include tax credits for biodiesel and alternative fuel mixtures and the deduction for mortgage insurance premiums.
[27] The revenue adjustments also affect refundable tax credits, which, in accordance with CBO (2019a, 2019b), is considered an effect on outlays.
[28] CBO (2019a, 2019b) uses a mix of the employment cost index and the GDP price index to measure inflation.

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 its 2019 level. 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.

In aggregate, my ten-year current policy baseline follows the Congressional Budget Office's (2019b) alternative fiscal scenario, except for the population adjustment I make for non-defense discretionary spending.

CBO (2019b) explains that the deficit for fiscal year 2029 will be about $93 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 larger than otherwise expected. Of these $93 billion in payments, $64 billion applies to Medicare. Similar adjustments affect spending in fiscal years 2022-2024. Figures in this paper display the adjusted baselines that exclude the effects of these timing shifts.[29]

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. After the initial ten years, I use long-term economic growth assumptions implied in CBO (2019c) without macroeconomic feedback. Over the 2030-2049 period, the average nominal economic growth rate is about 4.0 percent.

For Medicare and OASDI, I 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 2019 Trustees Reports for the period between 2030 and 2049 (The Board of Trustees, 2019; The Boards of Trustees, 2019).[30] To account for the timing shifts discussed above, Medicare spending in 2030 is based on the growth rate of spending between 2029 and 2030 according to Boards of Trustees (2019) applied to the adjusted Medicare estimate for 2029 from CBO (2019b). For Medicaid, CHIP, and exchange subsidies, I use growth rates implied by CBO's most recent long-term static projections (CBO 2019c) through 2049.[31]

As in the first ten years, I hold non-defense discretionary spending constant in real per capita terms and defense spending constant in real terms after 2029. I also hold mandatory spending for programs other than Social Security, Medicare, Medicaid, CHIP, and exchange subsidies

[29] For simplicity, I use the same nominal adjustment for the timing shifts in each scenario.
[30] Details of the computations are available from the authors upon request.
[31] The static projections are based on macroeconomic forecasts for a constant debt-to-GDP ratio and constant marginal tax rates after 2029, that is, excluding the negative effects of economic policy during this period.

constant in real per capita terms.

On the revenue side, I allow income taxes other than those outlined above on Social Security and Medicare benefits to grow with “bracket creep” according to CBO (2019c). I assume that all other revenues (corporate taxes, excise taxes, etc.) remain constant at their 2029 shares of GDP.

I examine two alternative interest rate paths. In the standard approach, I follow the weighted average nominal interest rates on government debt without macroeconomic feedback according to CBO (2019c) through 2049. Under this path, the weighted average nominal interest rate on government debt rises gradually from 2.4 percent in 2019, to 3.4 percent in 2029, to 3.9 percent in 2049.

In the alternative path (“flat interest rates”), the weighted average nominal interest rate on government debt is constant over the 30-year projection period at its 2019 value of 2.4 percent.

Appendix Table 1. Budget Category Assumptions

	10-Year Window	Beyond
Interest Rate	as implied in CBO 10-year outlook	CBO Long-Term Budget Outlook
Growth Rate	as reported in CBO 10-year outlook	CBO Long-Term Budget Outlook
Income Tax	current law + extension of temporary tax provisions and TCJA provisions	current law + extension of temporary tax provisions and TCJA provisions
Corporate Tax	current law + extension of temporary tax provisions and TCJA provisions	constant share of GDP
Payroll taxes	current law	grows using assumptions in the Social Security Trustees report
Other taxes	current law + repeal of certain healthcare taxes	constant share of GDP
OASDI benefits	current law	grows using assumptions in the Social Security Trustees report
Medicare	current law	grows using assumptions in the Medicare Trustees report
Medicaid, CHIP, and Exchange Subsidies	current law	grows using assumptions in CBO Long-Term Budget Outlook
Other Mandatory	current law	grows with inflation and population
Defense	grows with inflation	grows with inflation
Non-Defense Discretionary	grows with inflation and population	grows with inflation and population
Net Interest	as reported in CBO 10-year outlook + adjustments from above policy changes	calculated from debt and interest rate

Appendix B:

Dispelling Some Canards about Debt and the Economy

Despite a broad consensus that the long-term fiscal path described in Section 2 is worrisome or inappropriate, even with $r < g$, there are a few false or misleading claims that merit specific responses.

1. We owe it to ourselves, so it is not a problem.

The first false claim is that public debt is not a problem because "we owe it to ourselves." By this statement, people mean that public debt is money that one generation borrows and owes to another. How, they ask, can the nation become poorer by owing money to ourselves?

The answer is that the historical evidence discussed above on how deficits affect growth, saving, investment, and interest rates refers – at least in the US case – to debt that we, indeed, largely owed to ourselves. Those deficits and debt affected economic performance, through the channels described above. In addition, future generations will have to finance that debt via higher taxes or lower spending, and those steps will cause pain, especially if we design the policies poorly.

Also, we increasingly do not owe it to ourselves; we also owe it to investors around the world. At the end of 2018, foreign investors held 38 percent of US federal government debt, an amount equal to 30 percent of our annual GDP ("The depth and breadth," 2017). Those figures are substantially higher than in 1980, when foreign investors held about 18 percent of US public debt.

2. We issue debt in our own currency, so there is not a problem.

Another argument suggesting that our fiscal situation is not a problem is that we print and borrow in our own currency and so can never be forced to default. For instance, in 2011 Warren Buffet said, "the United States is not going to have a debt crisis as long as we keep issuing our debts in our own currency" (Wood, 2011). However, this does not mean that a fiscal problem cannot happen; in 1976, the government of the United Kingdom, which issues its own currency and borrows in its own currency, was forced to borrow $3.9 billion from the International Monetary Fund when the pound rapidly fell in value ("Sterling devalued," 2019).

The key issue is the costs and benefits of additional debt accumulation, not the limits of federal borrowing. In a recent University of Chicago survey of prominent economists, not one agreed that a country that issues debt in its own currency does not have to worry about deficits (IGM Forum, 2019). Even adherents to modern monetary theory, in post-survey comments, believed that a government that printed its own currency needed to be concerned with its level of debt (Mitchell, 2019).

3. Ricardian Equivalence says that our rising debt profile does not matter.

There is a school of thought that says that deficits do not reduce growth under certain conditions. In particular, the theory behind so-called "Ricardian Equivalence" is that a deficit that is created by a temporary lump-sum tax cut today and then followed by a temporary lump-sum tax increase in the future will not have any impact on national saving, investment, growth, or interest rates. The reason is that taxpayers will anticipate that their future tax liabilities will rise by the exact amount (in present value) of the tax cut they receive, and so they will save the entire tax cut in order to pay the future tax increase. Thus, the reduction in government saving due to the tax cut would be exactly offset by the increase in private saving, and there would be no change in national saving. Ricardian Equivalence is named after the nineteenth-century British economist David Ricardo, who did not actually believe in the idea but raised it as a conceptual possibility. It was revived intellectually by Harvard economist Robert Barro (1974) in a famous (in academia, at least) article. While the theory is intellectually elegant, there is significant evidence against it (Bernheim, 1989; Elmendorf & Mankiw, 1999), and, in any case, it does not apply to the situation facing the country – namely, rising long-term deficits and debt to-GDP ratios that finance government and private consumption. Virtually all economists, including Barro (2012), agree that if current budget projections play out, they will cause long-term economic harm.

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