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The Long-Term Outlook for U.S. Fiscal Policy[1]

Under current policies, the federal budget for the United States is projected to be on an unsustainable path. Although there is considerable uncertainty about long-run fiscal projections, the budgetary effects of both the aging of the U.S. population and fast-rising health care costs are almost certain to cause federal spending to increase significantly faster than both nominal GDP and tax revenues under current policies. As a result, federal budget deficits would widen and the ratio of debt to GDP would mount rapidly. Avoiding the costs and risks associated with this scenario will necessarily entail federal spending restraint, higher taxes, or some combination thereof. In turn, the decisions that are made regarding federal budget and tax policies in order to achieve fiscal sustainability have the potential to affect the pace of long-run economic growth.

Long-Run Projection of the Federal Budget

Long-run projections of the federal budget depend on numerous assumptions about fiscal policy and other economic factors, and many reasonable assumptions are possible. That said, a good starting point for discussions of the long-term fiscal outlook is the projections made by the Congressional Budget Office (CBO).[2] The CBO's most recent long-run budget projections included one scenario that can be interpreted as reflecting a continuation of current underlying fiscal policy.[3] Key policy assumptions in this budget scenario include:

- Recent fiscal stimulus and financial stabilization programs are allowed to expire.
- The 2001-03 tax cut provisions are extended permanently and the thresholds for the alternative minimum tax (AMT) are indexed for inflation so that most taxpayers avoid paying taxes under the AMT.
- Medicare payments to physicians grow at rates greater than those scheduled under current law, consistent with outcomes since 2002. Other features of Medicare and Medicaid evolve as specified in current law.
- Social Security benefits and payroll taxes evolve as scheduled under current law.[4]
- Federal spending for programs other than Social Security, health-related programs, and interest payments move down to 10½ percent of GDP by 2012, about equal to its average level over the 20-year period prior to the recent recession and financial crisis.

Budget projections also rely on underlying assumptions about the future path of the economy. In this scenario, the CBO assumes that real GDP will rise at an average annual rate of 3½ percent over the next five years as the economy recovers from the recent recession. In the longer term, real GDP growth is assumed to slow in the longer term to 2¼ percent—the estimated rate of potential GDP growth. In the long run, average real interest rates are assumed to be 3 percent and the rate of inflation is 2 percent.

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[1] Eric Engen, Glenn Follette, and David López-Salido of the Federal Reserve Board staff contributed to this report.
[2] Congressional Budget Office, "The Long-Term Budget Outlook," June 2009.
[3] The potential budgetary effects of the health care legislation enacted in March 2010 are not included in these projections. However, the CBO has estimated that the net effects of these new policies on the budget deficit are essentially neutral over the next decade, while the longer term effects are highly uncertain.
[4] Social Security and Medicare benefits are both assumed to not be constrained by the exhaustion of their respective trust funds.

Under these fiscal policy and economic assumptions, projections of revenues and noninterest outlays through 2050 are shown in chart 1. After falling to about 15 percent of GDP in 2009 because of the recession and stimulus-related tax cuts, revenues are projected to move up above 18 percent of GDP by 2012, comparable with their average share over the past 40 years. Sustained growth in real incomes results in projected revenues drifting up slowly in subsequent years because of real tax-bracket creep; revenues reach 20 percent of GDP by 2050—about the same level as previous peaks in the late 1990s and during World War II. Meanwhile, as stimulus and other recession-related outlays wane, non-interest spending drops from its current share of almost 24 percent of GDP to close to 20 percent of GDP by 2012. However, in subsequent years, non-interest outlays are projected to march up steadily, rising to above 28 percent of GDP by 2050.

As shown in chart 2, Medicare and Medicaid are the most significant factors in the projected rise in spending over the long run, in part reflecting the assumption that the rate of growth in health-care costs per beneficiary will continue to exceed the rate of growth in per capita GDP.[5] The rapid aging of the population in the coming years also plays an important role in boosting federal health spending along with increasing outlays for Social Security.[6] All told, increases in federal spending for health care make up the bulk of the 8 percentage point increase in noninterest outlays relative to GDP over the next several decades. Total outlays for Medicare and Medicaid rise by about 7 percent of GDP from 2012 to 2050 while Social Security spending is expected to step up by 1 percent of GDP over this same period.[7]

As shown in chart 3, the federal budget is expected to show a widening primary deficit—the gap between noninterest outlays and total revenues—in the coming years. As the budgetary effects of the recent recession and financial crisis fade away, the primary budget deficit is expected to drop from about 10 percent of GDP last year to 2¼ percent by 2012. However, as an increasing share of the baby-boom generation retires and health-care costs continue to rise rapidly, the primary budget deficit is projected to widen to 3½ percent of GDP by 2020 and then climb to around 7 percent of GDP in 2035 and almost 9 percent of GDP by 2050. The total budget deficit—the primary deficit plus interest payments on the debt—rises even faster than the primary deficit as interest costs increase quickly.

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[5] The CBO's budget projections assume that "excess cost growth" in federal health care spending—that is, the difference between per capita health cost growth and per capita GDP growth—continues at its historical average (since 1975) of about 2 percent for another decade and then decreases slowly after that, eventually moving below 1 percent by 2080. As a result, the CBO assumes that excess cost growth for federal health spending will average about 1¼ percent over the period from 2020 to 2080.

[6] The U.S. population age 65 and older currently is equal to about 20 percent of the population between the ages of 20 and 64. As a growing proportion of the baby-boom generation continues to move into their retirement years, this population share of people age 65 and older will climb quickly, reaching more than 35 percent by 2035. From 2035 to 2050, this population share is expected to remain roughly constant.

[7] The effect of population aging alone contributes to a little more than one-half of the rise in the combined spending for these federal health and retirement benefits through 2035. Given the CBO's assumptions, excess health cost growth by itself contributes to about one-third of the growth in these outlays over the next 25 years. The interaction of excess health cost growth with population aging provides the remaining boost to federal spending by 2035. After 2035, excess health cost growth, along with its interaction effect with the larger share of the aged population, provides all of the further increases in federal health and retirement spending relative to GDP.

The ratio of federal debt held by the public to GDP—shown in chart 4—is projected to soar at an accelerating pace far above its previous peak during World War II. In this budget scenario, federal debt is estimated to rise above 100 percent of GDP by 2025 and climb to 180 percent of GDP by 2035. This path for federal debt is clearly unsustainable. Indeed, the CBO's budget projections do not incorporate any macroeconomic feedback effects arising from large accumulations of federal debt. If, as federal debt rose, long-term interest rates increased with consequent effects on capital formation that slowed the long-run rate of growth in real GDP, then the ratio of debt to GDP would rise even faster than shown in the CBO's projections.[8]

The Macroeconomic Effects of Rising Federal Debt

While the sizable increase in federal debt over the past two years has likely pushed long-term Treasury yields somewhat higher than they would be otherwise, the level of long-term yields remains relatively low probably because financial market participants' expectation that monetary policy will remain very accommodative for some time in an environment of exceptionally weak aggregate demand and significant uncertainty and also because of continued safe-haven demands for Treasury securities. However, as the economy and financial markets continue to recover and monetary policy moves back toward a more normal stance, long-term Treasury yields and other interest rates would be expected to rise.[9]

In the long run, higher real interest rates stemming from large and persistent increases in federal debt eventually would restrain capital formation and productivity growth and, in turn, slow the rate of growth in aggregate economic activity. Furthermore, to the extent that rising federal debt boosts the reliance of the United States on foreign borrowing, an increasing share of future U.S. income would be devoted to interest payments on federal debt held abroad, and a declining share of income would be available for domestic consumption and investment. Recent empirical evidence suggests that countries with high levels of debt relative to GDP tend to experience lower rates of economic growth. [10] However, economic theory and the available empirical evidence do not clearly indicate the threshold at which federal debt would begin to impose substantial costs on the U.S. economy.

[8] The debt-to-GDP ratio would rise faster both because the denominator of this ratio would be lower than projected and because slower GDP growth reduces revenues and higher interest rates increase debt service costs, which lead to wider projected deficits.

[9] From 2007 to 2015, the ratio of federal debt to GDP is projected to rise more than 30 percentage points. Using an estimate that a 1 percentage point increase in the debt-to-GDP ratio boosts the real 10-year Treasury yield by 3 basis points, the expansion of federal debt over this period is consistent with the 10-year yield rising about 100 basis points. This estimate is consistent with the increase in the real 10-year Treasury yield predicted by the staff's FRB/US model, and it also is comparable with empirical estimates using reduced-form regressions of this relationship by Engen and Hubbard ("Federal Government Debt and Interest Rates," *NBER Macroeconomics Annual*, 2004) and by Laubach ("New Evidence on the Interest Rate Effects of Budget Deficits and Debt," *Journal of European Economic Association*, 2009).

[10] Reinhart and Rogoff ("Growth in a Time of Debt," *American Economic Review*, 2010) use data for forty-four countries over about one hundred years and find evidence that if a country's government debt is above 90 percent of GDP then the median growth rate for real GDP falls by one percent. However, the relationship between government debt and real GDP growth is weak for debt-to-GDP ratios below this threshold of 90 percent of GDP.

Policy Adjustments to Achieve Fiscal Sustainability

A sufficient condition for achieving fiscal sustainability is that the ratio of federal debt to GDP remains stable. A simple rule of thumb is that fiscal policy would need to achieve and maintain primary budget balance in order to stabilize the federal debt as a share of GDP.[11] As noted earlier, the primary budget deficit is projected to be about 2¼ percent of GDP in 2015, with revenues equal to about 18½ percent of GDP and noninterest outlays at about 20¾ percent of GDP. If the primary budget gap was closed by that year solely by increasing revenues, then all sources of federal revenue would have to be increased by more than 13 percent (holding GDP constant).[12] Alternatively, if only spending adjustments were used to balance the primary budget then all federal noninterest outlays would have to be reduced by 12 percent relative to their level under current policies. These tax increases and spending reductions could each be smaller if a combination of these policy changes were used.

Nevertheless, even these significant policy changes to close the primary deficit by 2015 would not be enough to eliminate the primary deficit in succeeding years. Relative to the primary deficit projected for 2015 under current policies, the primary budget gap is expected to widen by another 1 percent of GDP in 2020 and then expand by 5 percent of GDP by 2035 and almost 7 percent of GDP by 2050. As a result, even if a balanced primary budget was achieved by 2015, greater spending restraint or larger tax hikes or some combination of these policies would still be necessary in subsequent years to offset the continuing upward pressures on the primary deficit. If these significant policy adjustments were put in place by 2015, the ratio of federal debt to GDP would still be around 70 percent. In order to reduce the debt-to-GDP ratio to a lower level, even more stringent fiscal policy adjustments would need to be imposed.

The Macroeconomic Effects of Fiscal Consolidation

At the present time, reducing government spending and raising taxes, while considerable slack in resource utilization still exists, would tend to offset the monetary policy stimulus currently in place and so could be counterproductive. Nonetheless, financial market participants and other economic agents are clearly concerned about whether policymakers will be willing either now or in the near future to make the hard decisions necessary to put government borrowing on a sustainable trajectory. In this context, legislation enacted in the near term that sets out a credible plan for putting fiscal policy on a sustainable trajectory over the intermediate and long term could plausibly have expansionary implications for near-term activity through two channels. First, it could assuage the concerns of financial market participants and others about the political

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[11] If the average nominal Treasury borrowing rate is equal to the growth rate of nominal GDP, then this rule-of-thumb holds exactly; see the appendix to this memo for a more detailed discussion of the budget conditions sufficient to achieve sustainability.

[12] As noted earlier, the budget projections presented here assumed that the 2001-2003 tax cuts and AMT relief would continue to be extended in future years. Alternatively, if it was assumed that all of these tax cuts were allowed to expire as scheduled this year and next then the CBO estimates that federal revenues would be about 2 percentage points higher as a share of GDP over the next decade. Under this scenario, revenues also would rise faster in subsequent years than they would otherwise, mostly because a growing portion of taxpayers would be subject to taxes under the AMT; by 2050, revenues would be 3½ percentage points higher as a share of GDP. Because the AMT is not indexed for inflation in this scenario, the portion of taxpayers affected by the AMT would rise from its current level of less than 3 percent to 45 percent in 2035 and then to more than 60 percent by 2050. Currently, policymakers show no apparent willingness to allow most of these tax cuts to expire.

will of fiscal policymakers to make these difficult choices, and thus would probably remove some of the perceived tail risk that the federal budget would continue on an unsustainable path for some time. Second, and related, it would cause financial market participants to revise downward their expectations of how high the debt-to-GDP ratio will be allowed to rise. As a result, far-term forward real interest rates would move down. Through both these mechanisms, a credible plan for fiscal consolidation enacted in the near term, but with implementation some years ahead, could reduce longer-term real yields immediately, and thus provide a near-term boost to interest-sensitive sectors of the economy.[13]

The policy choices that are ultimately made regarding both the size and composition of the federal budget, and of the tax programs necessary to finance that spending, will affect a wide range of economic incentives that will help shape future U.S. economic performance. As a result, it is difficult to assess comprehensively the macroeconomic implications of fiscal consolidation without having the specific components of a fiscal reform plan. In particular, higher taxes can affect incentives on both the supply and demand sides of labor and product markets, along with the incentives of households and businesses to save and invest. Moreover, there is general agreement that different taxes can play different roles in terms of creating economic distortions. Similarly, the effect on private economic activity of public spending reductions depends, to some extent, on the specific category of government expenditure targeted for reduction. Specifically, the distinction between transfer payments and government purchases is important in determining the reaction of labor supply and saving decisions. Of course, in forming a credible plan for long-run fiscal sustainability, fiscal policy makers will be faced with not only the economic implications of their policy choices but also the political implications of the plan for equity and other social goals.

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[13] Giavazzi and Pagano ("Can Severe Fiscal Contractions Be Expansionary? Tales of Two Small European Countries," *NBER Macroeconomics Annual*, 1990) were probably the first to present empirical evidence suggesting that large and decisive deficit reductions could be expansionary. Since then a growing number of studies have noted how significant deficit reduction policies in many countries have been accompanied by increases in economic growth. Most recently, Alesina and Ardagna ("Large Changes in Fiscal Policy: Taxes versus Spending," *NBER Tax Policy and the Economy*, 2010) confirm these results.

Appendix: Fiscal Sustainability and the Stability of Government Debt

A sufficient condition for achieving fiscal sustainability is that the ratio of federal debt to GDP remains stable.[14] The dynamics of government debt over time can be described by the following relationship. Let b_t represent the ratio of debt to GDP at the end of time period t, with p_t equal to the ratio of the primary budget deficit (that is, noninterest outlays minus total revenues) to GDP in time period t, i_t is the average nominal Treasury borrowing rate, and g_t is the growth rate of nominal GDP. The change in the debt-to-GDP ratio, $\Delta b_t = (b_t - b_{t-1})$, is closely approximated by:

$$\Delta b_t = p_t + (i_t - g_t)b_{t-1}$$

That is, the change in the ratio of debt to GDP is equal to the primary budget deficit plus the product of the difference between the nominal borrowing rate and the nominal GDP growth rate and the existing level of debt. As noted earlier, if the nominal Treasury borrowing rate is equal to the growth rate of nominal GDP ($i=g$), then the primary budget must be balanced ($p=0$) in order for the ratio of federal debt to GDP to be stable ($\Delta b=0$).

If the average borrowing rate for the Treasury is greater than the growth rate of nominal GDP (i.e., $i > g$), then the primary budget would have to run a small surplus (that is, $p<0$) in order to hold the debt-to-GDP ratio steady. Specifically, a stable ratio of debt to GDP requires that magnitude of the primary budget surplus is enough to offset the product of the difference between the nominal interest rate and the nominal rate of growth in real GDP and the debt-to-GDP ratio. Under the CBO's long-run economic assumptions that the average interest rate will be about ¾ percentage point higher than the rate of GDP growth in the long run, stabilizing the federal debt at about 70 percent of GDP would call for the primary budget to consistently run small surpluses equal to about ½ percent of GDP (that is, ¾ percent times 70 percent).

Alternatively, if the average Treasury borrowing rate is less than the growth rate of nominal GDP (that is, $i<g$) then a small primary deficit ($p>0$) could still be consistent with a stable ratio of debt to GDP. Over the long run in the United States, the historical average borrowing rate for the U.S. Treasury has been about 1 percentage point below the growth rate of nominal U.S. GDP. If this gap were to persist in the coming decades, then a small primary deficit of about ¾ percent of GDP could be consistent with a stable debt-to-GDP ratio of about 70 percent (that is, 1 percent times 70 percent).

Sometimes a sustainable fiscal deficit is described in terms of the total deficit rather than the primary deficit. Rearranging the debt equation above, and noting that the ratio of the total budget deficit to GDP, d_t, is equal to the ratio of the primary deficit to GDP plus the average interest rate times the debt-to-GDP ratio, $(p_t + i_t b_{t-1})$, then:

$$\Delta b_t = (p_t + i_t b_{t-1}) - g_t b_{t-1} = d_t - g_t b_{t-1}$$

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[14] Technically, fiscal sustainability is achieved if the government's intertemporal budget constraint is satisfied, which requires that the risk-adjusted present value of current and future primary budget surplus is equal to (or greater than) the value of current public debt. Stability of the debt-to-GDP ratio is a sufficient (but not necessary) condition for fiscal sustainability to be met. These conditions for fiscal sustainability are derived, for example, in Bohn ("The Sustainability of Budget Deficits in a Stochastic Economy," *Journal of Money, Credit, and Banking*, 1995).

If the nominal Treasury borrowing rate is equal to the growth rate of nominal GDP ($i=g$), and both these rates, for example, are equal to 4¼ percent (which is the long-run rate of nominal GDP growth assumed in the CBO's projection) and the debt-to-GDP ratio is about 70 percent, then a total deficit d_t of about 3 percent of GDP (i.e., 4¼ percent times 70 percent) would be consistent with a stable debt-to-GDP ratio.

Chart 1
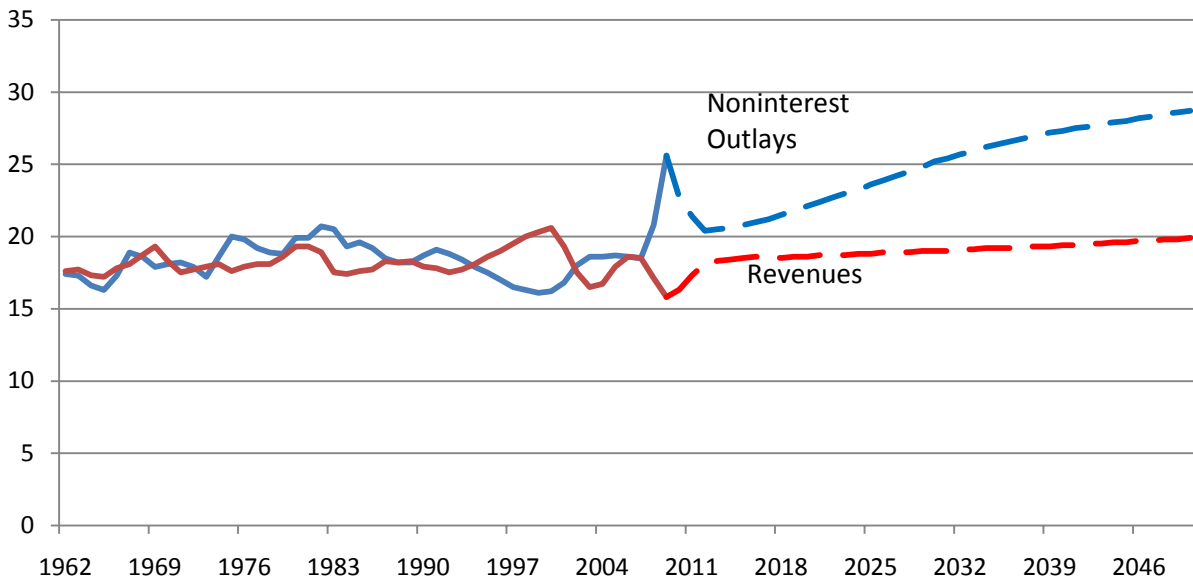**Federal Revenues and Noninterest Outlays**
1962-2050
(percent of GDP)

Chart 2
Categories of Federal Noninterest Outlays
1962-2050
(percent of GDP)

Chart 3
Federal Budget Deficits
1962-2050
(percent of GDP)

Chart 4
Federal Debt Held by the Public
1790-2050
(percent of GDP)