Fiscal Policy, Deficits, and Debt

Fiscal policy refers to the economic impact of changes to government spending (including state and local governments) and taxation. These notes discuss how it is conducted, and the relationship among it, budget deficits, and government debt.

The basics

Tax cuts or increased government spending are known as *expansionary fiscal policy*, while tax increases or spending cuts are known as *contractionary fiscal policy*. Expansionary fiscal policy shifts aggregate demand to the right, resulting in higher inflation and output in the short run. Contractionary fiscal policy shifts AD to the left, resulting in lower output and inflation.

Graph: AS/AD

Fiscal policy is quite heterogeneous. A dollar of spending on education may, for example, have very different short and long-term effects compared to a dollar in defense spending or a dollar in tax cuts.

Multipliers

A lot of attention is paid to *multipliers* for fiscal policy. We focus on two. The first is the *government spending multiplier*. This is the change in aggregate output (measured by GDP), for each additional dollar in government spending. We expect this to be positive most of the time, suggesting that government spending boosts output. The second is the *tax multiplier*.

This is the change in aggregate output for each additional dollar of taxation. We expect this to usually be negative, suggesting that tax increases reduce aggregate output.

Estimating the multipliers associated with fiscal policy is an important part of evaluating whether it is a good idea. But it isn't the only part. Fiscal policy may have other benefits and harms beyond the short-run impact on the economy. We may also consider how they affect inequality, debt, environmental quality, etc. when fully evaluating a policy.

We begin by considering why these are called multipliers. Consider the following process:

1. The government spends $100. Recall the national income accounting identity:

$$Y \equiv C + I + G + X - M \tag{1}$$

Because government expenditures (G) appear on the right hand side, a $100 increase in G increases Y by the same amount if other components of Y are unaffected.

2. Government expenditures, however, become income for people who supply the products or labor to the government. Because they now have higher income, they might consume and invest more (including housing) due to higher government expenditures. This further increases Y, multiplying the initial impact from #1.

3. The additional consumption and investment from #2 then becomes income for other people. They then increase their consumption and investment, further multiplying the impact. This process then continues.

This process may lead to a government spending multiplier that is larger than one. Many Introductory texts use extreme assumptions that result in a multiplier as high as ten. This is not realistic.

The actual size of the multipliers is mostly a question for the data. Here, the evidence is mixed. The following quote from macroeconomist Valerie Ramey provides a good starting point:[1]

> I will conclude that the U.S. aggregate multiplier for a temporary, deficit financed increase in government purchases (that enter separately in the utility function and

[1]: Ramey, V. 2011. "Can Government Purchases Stimulate the Economy?" *Journal of Economic Literature*, 49(3): 673-685.

> have no direct effect on private sector production functions) is probably between 0.8 and 1.5. Reasonable people can argue, however, that the data do not reject 0.5 or 2.

The Ramey quote raises a few questions:

1. Why might the government spending multiplier be less than one? For this to be the case, increases in G must reduce some other component of GDP (C, I, or X-M). This is possible. Our AS/AD model shows that increasing G raises inflation. This might deter some households from consuming as much as before. Later, we will see that increasing G might also raise interest rates, deterring consumption and investment.

2. Why is the government spending multiplier hard to estimate? Expansionary fiscal policy is often implemented during economic downturns. Statistically, we observe a negative correlation between it and GDP growth. But it would be a mistake to conclude that expansionary fiscal policy causes lower GDP. Causation is harder to untangle. Doing so is beyond the scope of this class, but is the type of training that Economics majors see later on.[2]

Here is some evidence from the *Washington Post* which discusses a recent paper by three economists, Daniel Riera-Crichton (Bates), Carlos Vegh, and Guillermo Vuletin on how the multiplier depends on the business cycle:[3]

> Riera-Crichton, Vegh, and Vuletin took this analysis a step further. They focused squarely on countries that, between 1986 and 2008, had both been in a recession and increased spending. This last point is critical. Stimulus, remember, is supposed to be countercyclical: the government spends more when the economy shrinks. But historically-speaking, countries have actually cut spending about half the time that they've been in a slump. So counting all that austerity as "stimulus," as most do, gives us a misleadingly low estimate of the multiplier, something like 1.3. But it turns out, based on this new better sample, that the multiplier is really around 2.3 during a garden-variety recession, and 3.1 during a severe one

3. Why is there such a range of estimates? This is partly related to #2. But it is also because there is not a single government spending multiplier It varies by country and by economic

[2]One approach is to look at increases in government spending that are not related to the economy. World War II spending is one example.

[3]O'Brien, M. October 7, 2014. "Austerity has been an even bigger disaster than we thought." *Washington Post*

conditions. We will not consider all of the reasons for this. But one important explanation is the state of the business cycle. Recall that the AS curve is fairly flat for low levels of output, but gets very steep for high levels of output. As a result, the government spending multiplier is higher for low levels of output. For very high levels of output, it must be close to zero. This is because once all labor is employed, and all capital is being used, there is no way to further increase production. Put another way, the worse the recession, the more effective fiscal policy becomes.

Graph: AS/AD

What about the tax multiplier? Note that when taxes fall by \$1, there is no direct effect on output. Taxes do not appear in (**??**). So the process begins in Step #2 of our example. There can still be an impact. Lower taxes raise households' disposable income, which can then lead to higher consumption and investment. But the tax multiplier is usually smaller in magnitude than the government spending multiplier.

Deficits and Debt

The *budget deficit* is the difference between what the government spends and what it collects in taxes: $G - T$. When this is positive, the government must borrow in order to pay for its spending. A *budget surplus* is the opposite, defined as $T - G$. One type of government spending is the interest payments that it pays on its existing. When these are excluded from $G - T$, it is called a "primary" budget deficit.

Governments typically borrow using bond markets. In the United States, government debt primarily takes the form of Treasury bonds. Suppose, for example, that the government runs a \$1 trillion budget deficit. To pay for its spending, it will do the following:

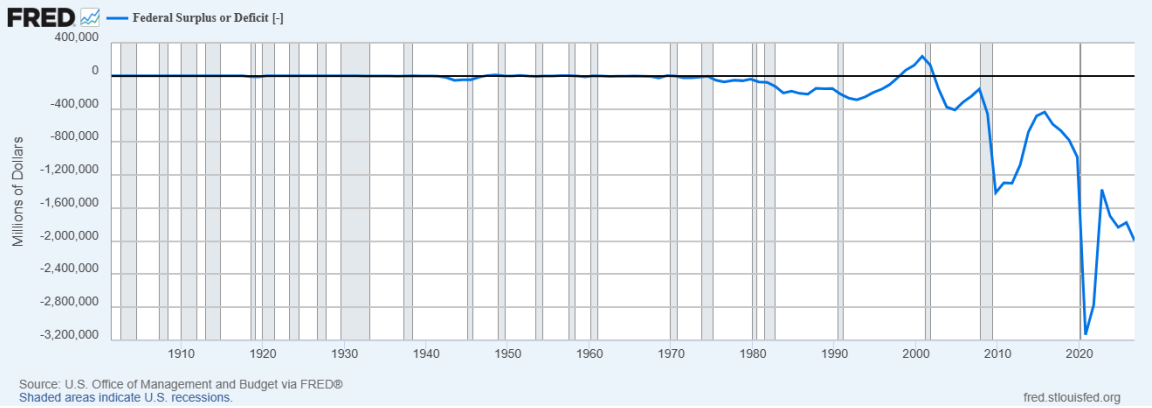
1. The Treasury Department will auction off as many Treasury Bonds as it takes to raise the \$1 trillion. The Department of the Treasury will auction off bonds of different duration. Suppose that it chooses to do so using only 1-year bonds. Suppose each bond promises to pay \$1000 in one year. If each bond sells for \$9000, then the government will have to sell $\frac{1{,}000{,}000{,}000{,}000}{9000} = 111,000,000$ bonds.

2. In one year, the government must pay back $1.11 trillion in maturing bonds. The extra $111 billion is the interest on the debt. The corresponding interest rate is 11.1%. Notice that it is calculated indirectly in bond markets.

3. The government could pay for the maturing bonds through tax revenue. In practice, it will roll over its debt by issuing a new batch of Treasury bonds.

A country's *sovereign debt* (commonly called "the national debt" in the U.S.) is the accumulation of budget deficits, including interest payments. Figure **??** displays the budget deficit (negative values) for the U.S. Federal government:

Figure 1: Nominal U.S. Federal Budget Deficit



The $3.1 trillion figure for 2020 is a record high. It resulted from increased spending (G) during the pandemic as well as decreased tax revenue (T) because fewer people were working. Figure **??** shows the U.S. national debt which, as of the third quarter of 2026 was $39.2 trillion.

Figure 2: Nominal U.S. Federal Debt

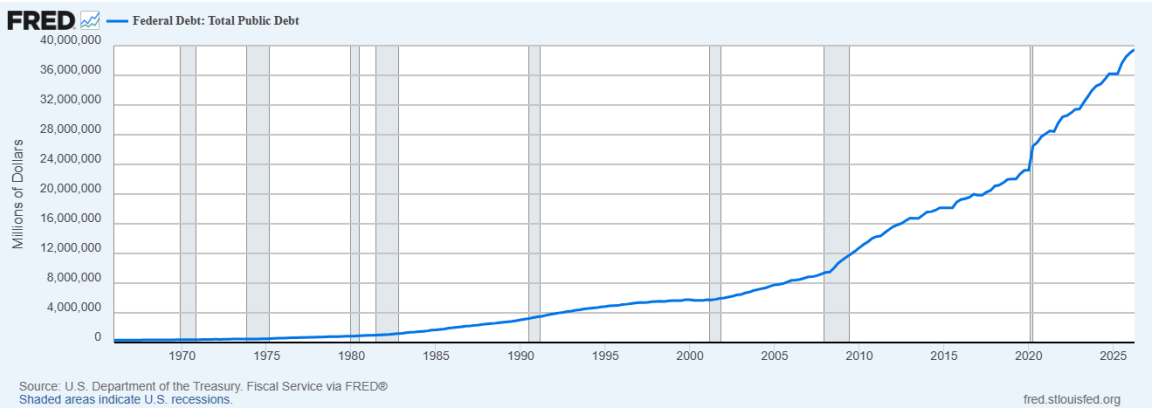


Figure **??** reports the total Federal debt. But this is not a good way to think about the U.S.

fiscal outlook and citing it as cause for concern often demonstrates a lack of understanding of the issue. There are a couple of problems:

1. Suppose that a household has $1 million in debt. Is this a lot? The answer depends. For most households, it is. But for a billionaire, it is not. To make the measure of debt real, we divide by income (GDP). By using nominal GDP, this also deals with the issue of inflation.

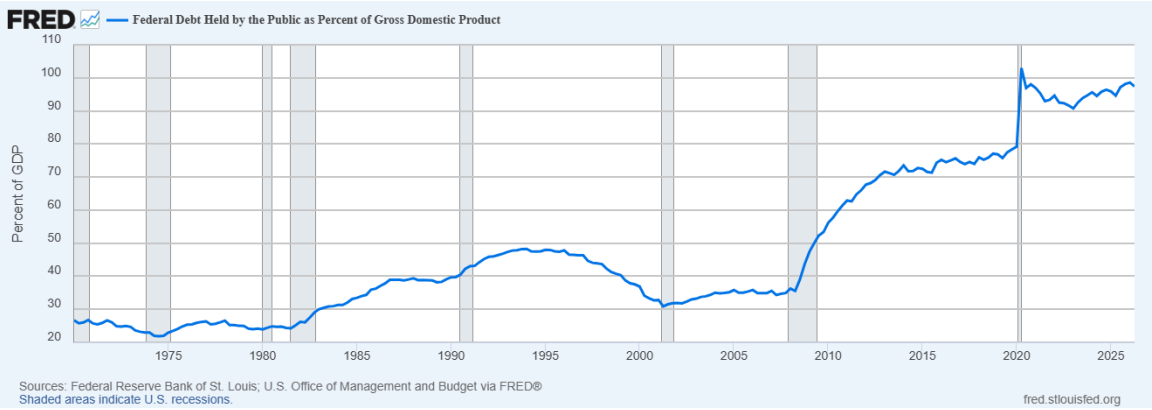
2. It turns out that one of the biggest holders of U.S. government debt is the Federal government itself. Some government programs, including Social security (a public pension program) and Medicare (a public health insurance option for retirees) traditionally collected more in revenue (known as "payroll taxes") than they paid out in benefits. These surpluses were placed in "trust funds" which are really just stocks of Treasury bonds.

This represents the government owing money to itself, which is an accounting concept that economists prefer to ignore. We thus take this out of the debt. What is left is the "debt held by the public," in contrast to the "total public debt." The nomenclature can be confusing. As of the third quarter of 2020, the debt held by the public was $31.7 trillion in contrast to the $39.2 total public debt.

There are other measures as well. The Federal Reserve is also a holder of trillions of dollars in Treasuries. Other measures subtract these from the debt. Still others take out government financial assets, such as student loan debt, to get net debt.

Figure **??** reports the debt held by the public as a share of GDP:

Figure 3: Real U.S. Federal Debt



In 3Q2026, this figure hit 97.7%, on par with levels seen shortly after World War II when the government borrowed heavily to finance the war. The Congressional Budget Office projects this figure to reach 120.2% by 2026.

When is Government Debt a Problem?

We will focus on two potentially adverse effects of high levels of debt. The first considers how debt can cause higher inflation and interest rates that can theoretically turn the government spending multiplier negative. This is known as "crowding out."

To see this effect, recall that most investment and some consumption is financed through private borrowing. If interest rates increase, then households and firms may choose to lower their consumption and investment.

For simplicity, imagine that there is a single bond market. The demand for bonds represents everyone willing to lend money by purchasing bonds. The supply side includes both private firms looking to borrow by issuing bonds and the government which also borrows by issuing bonds.

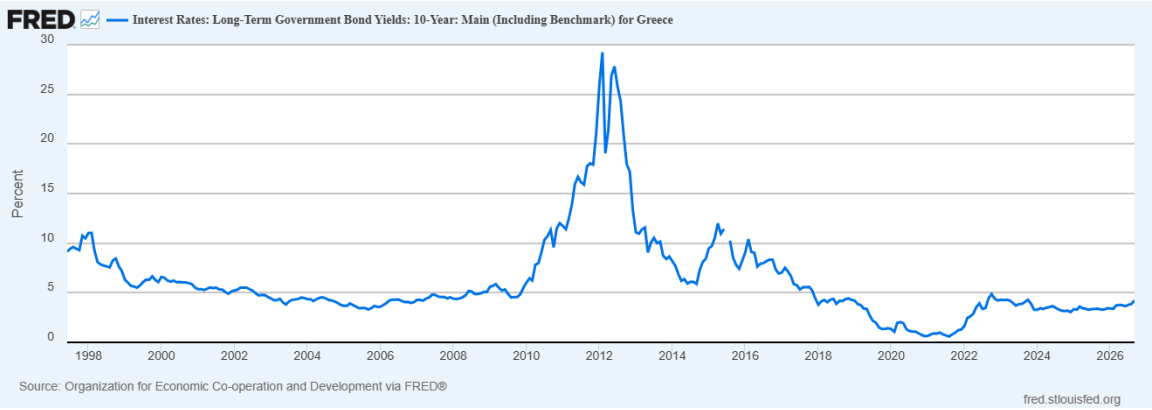
Graph: The Bond Market

When the national debt becomes very large, so does the supply of bonds. Basic supply and demand then suggests that bonds become cheaper. Remember that when bond prices fall, interest rates rise. Private firms looking to borrow, and households looking to finance homes and cars, then face higher interest rates. They may respond by lowering investment and consumption, reducing aggregate output.

Crowding out can have major effects on an economy. Figure **??** shows interest rates in Greece, a country with extremely high levels of sovereign debt. In 2012, interest rates reached

29%.[4] Given such high interest rates, it is quite plausible that additional Greek spending would have reduced output.

Figure 4: Greek Interest Rates



Whether high U.S. debt levels are yet reducing U.S. macroeconomic performance is far less clear. For now, the evidence suggest that any effect is still small.

Sovereign Debt Crises

The worst consequence of high levels of debt are sovereign debt crises. These occur when a government cannot roll over its debt because it cannot find buyers for new issues of debt. This occurs because potential buyers worry about the government's ability to pay back its debt.

There is no clear threshold for when a sovereign crisis occurs, Some countries have endured them at debt levels lower than 100%. On the other hand, Japan's debt to GDP ratio is over 200% by some measures and there are no signs of a sovereign debt crisis. As of November 2025, there are also no signs of such a crisis in the U.S.

A sovereign debt crisis can have catastrophic effects. A country facing one (almost always) has a large budget deficit and can no longer borrow to finance it. Much like Shepherd's Pie day at the Commons, it is faced with a set of bad choices.

1. Default. This is when a government declines to pay off its creditors. This often brings bad consequences. The government may not be able to borrow for a period of time. In 2012, Greece feared expulsion from the European Union when it defaulted. In the 1920s, a German

[4]This is a nominal interest rate which also includes inflation. But Greece uses the Euro, a currency which has experienced low inflation. The 29% figure is thus not due to inflation.

default resulted in a French military invasion. This latter outcome is rare. Furthermore, even when default occurs, it does not solve the problem of the outstanding budget deficit.

2. Contractionary fiscal policy. The government can balance its budget by raising taxes or cutting spending (sometimes known as "austerity.") But this shifts AD to the left. Sovereign debt crises typically occur during recessions and this option makes the downturn worse.

3. Monetary Expansion. Increasing the money supply is another way a government can raise revenue. The problem is that during a sovereign debt crisis, the shortfall can be so severe that a hyperinflation, often defined as the price level rising by more than 100-fold in a single year, can result. This is not a realistic outcome for the U.S. The most famous example is Germany in the 1920s where a massive monetary expansion cerated hyperinflation.[5]

The U.S. Fiscal Outlook

In discussing the national debt, we focused on debt held by the public as a share of GDP. But another important metric is how this figure is expected to evolve in coming years. In the U.S., the Congressional Budget Office makes such forecasts at least twice a year.

Figures **??** and **??** show its projections of the deficit and debt as of January 2025.

Notice that the CBO projects that the pandemic increased debt by about 20% of GDP. This is a significant economic cost. It will for example, constrain, future spending or require higher taxes. This does not mean that fiscal stimulus during the pandemic was bad policy. Rather it is part of the trade-off that must be analyzed.

Also note that the slope of the debt forecast, An upward slope suggests that the fiscal trajectory may not be sustainable, in that future tax increases or spending cuts may be needed.

Finally, a sustainable fiscal path does not mean that deficits must go to zero. Rather it means that the budget deficit (as a share of GDP) must be less, on average, than the GDP growth rate. Because long-term U.S. GDP is expected to be about 2%, this means that sustainability requires that the budget deficit should average no more than 2% of GDP (currently about $600 billion).

[5]The other time hyperinflation comes up in this class is on exams. For some reason, when a student has no idea on an exam question, they start writing about hyperinflation. AD shifts to the right and "hyperinflation" occurs. Four workers exit the labor force, leading to "hyperinflation." I am assuming these students don't read footnotes on page10 of the notes.

Figure 5: CBO Deficit Forecast

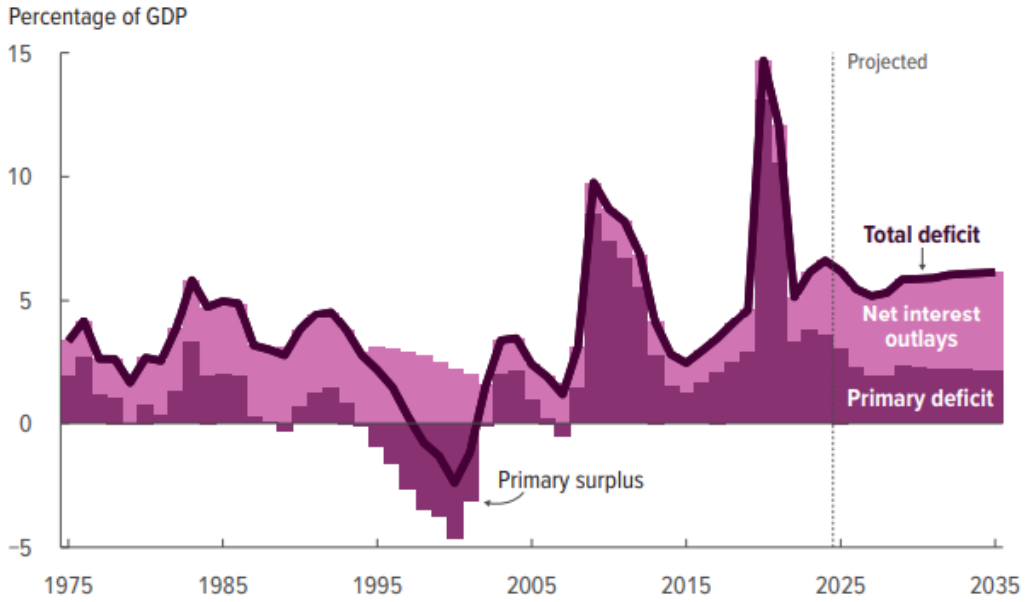
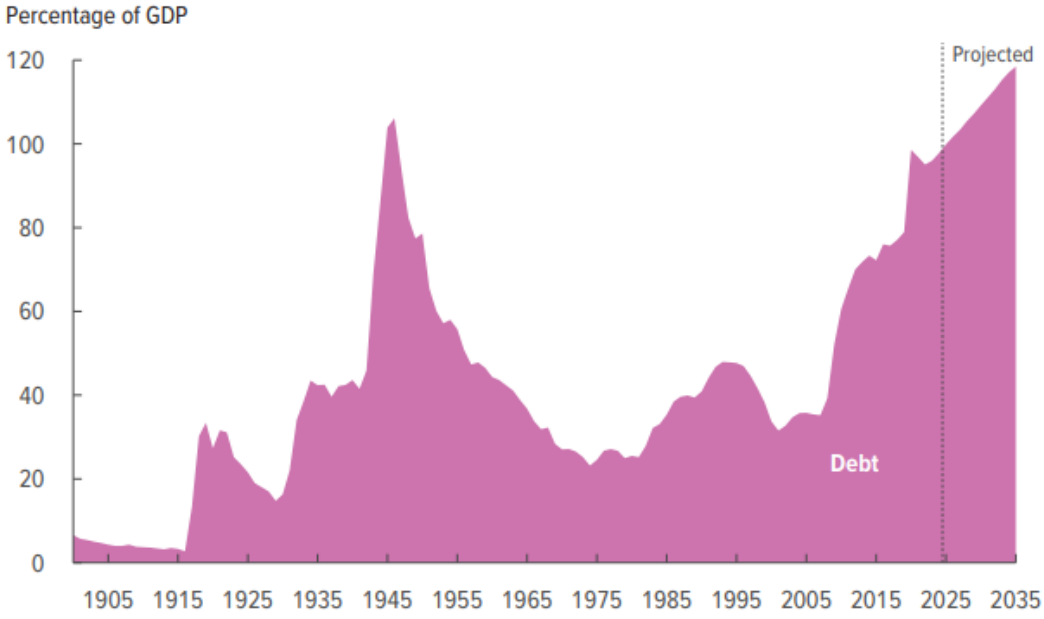


Figure 6: CBO Debt Forecast



Also, there is no expectation that the U.S. government will ever pay back its debt. Instead, we expect that it will roll it over indefinitely.

State and Local Fiscal Policy

Like the U.S. Federal government, states and local governments also tax and spend. The key difference is that these governments have a much more limited ability to borrow. As a result, their fiscal policy is often *countercyclical*, in that they raise taxes and cut spending during downturns, making them worse. This was a major problem during the Great Recession in 2008.