

Welcome to The Power of Macroeconomics. Lecture Eight: Budget Deficits and the Public Debt. The purpose of this lesson is to examine the economic consequences of chronic budget deficits. And the potential dangers of an upward spiraling government debt.

Historically, classical economics have argued that such budget deficits are bad, and should be avoided, except in wartime. In contrast, Keynesians believe that, at least during recessions, budget deficits are a necessary byproduct of an expansionary fiscal policy.

Nonetheless, both classical and Keynesian economists agree that chronic budget deficits, such as the nation has been experiencing, are undesirable. The important policy question is this. How big a danger are these chronic deficits and a collateral soaring national debt?

In this lesson, we are going to look at the dark side of using discretionary fiscal policy. The deficits and debt that can occur when the government uses the fiscal policy level to boost aggregate demand. To begin, let's put our discussion in its appropriate Keynesian context.

As we have learned, Keynesian economics focuses on the use of fiscal policy to solve our macroeconomic problems. As we have also learned, the policy guidelines are quite simple.

Use fiscal stimulus, increased government spending or tax cuts, to fight recession and unemployment. Use fiscal restraint, reduced spending, or increased taxes, to fight inflation.

One problem with this Keynesian strategy, however, is that it implies that federal expenditures and receipts will not always be

equal. Indeed, when the government engages in fiscal stimulus, it typically is engaging in deficit spending. A situation in which the government borrows funds to pay for spending that exceeds tax revenues. The size of the resulting budget deficit is captured in this formula. Budget deficit equals government spending minus tax revenues.

More generally, a budget surplus occurs when all taxes and other revenues exceed government expenditures for the year. When revenues and expenditures are equal in the increasingly rare instance, the government has a balanced budget.

Now, when the government incurs a budget deficit, it must borrow from the public to pay its bills. In this case, it issues bonds, and the government debt, or the national or public debt, as it is also called, is simply the total dollar value of the bonds owned by the public. Put another way, this debt is simply the accumulated budget deficits minus the accumulated surpluses. And, note that this debt is held, not only by banks, households, and businesses in the US but, also by foreign investors as well. Now here's the punchline. Whatever the merits of Keynesian economics, the practice of using discretionary fiscal policy has produced precious few budget surpluses since the 1930s. This has been especially true since the 1970s.

In thinking about the size of our national debt, the first thing we want to do is to establish a benchmark of comparison. In this regard, economists like to compare the debt to the size of the nation's gross domestic product or GDP.

The reason is simple. In the abstract, a five trillion dollar national debt is a very large number.

However, such a debt would pose a far more crushing burden to a small nation such as Thailand than it does to the United States. Accordingly, comparing the debt to the GDP, gives us a measure of a nation's ability to produce and therefore its ability to pay off its debt.

Now, a second important way to think about the size of the national debt is to distinguish between the real and nominal budget deficits. This distinction is important because it allows us to measure how inflation in any given year reduces the effective burden of the debt.

To see this, let's define our terms and then do an example. The real deficit in any given year is the actual or nominal deficit adjusted for inflation's effect on the debt. In particular the real deficit equals the nominal deficit minus the inflation rate times the total debt. So, if the nominal deficit is \$100 billion, inflation is 10%, and the total debt is \$5 trillion. What's the real deficit? If you said minus \$400 billion you're right. Here's the math.

Inflation rate of 10% times the existing debt of \$5 trillion is \$500 billion. Subtract this from the nominal deficit of \$100 billion. And you get a real deficit of minus \$400 billion.

Now here's the point. Even though there is a nominal deficit inflation has eroded the actual burden of the total debt. This suggests that one way the government can lower the burden of the national debt is by increasing the inflation rate.

Perhaps needless to say, this is a controversial strategy to reduce the debt. And one must hasten to add, that such a strategy can only work if the inflation is unanticipated. Otherwise bond holders will demand a higher interest rate to compensate

for the anticipated inflation and thereby drive up the nominal deficit through higher interest payments.

A third, indeed a very crucial distinction to make in thinking about budget deficits. Is between the structural deficit and the cyclical or passive deficit. The structural deficit is that part of the actual budget deficit that would exist even if the economy were at full employment. It is due to the existing structure of tax and spending programs. Accordingly, the structural part of the budget is thought of as active. It is determined by discretionary fiscal policies, such as those covering tax rates, public works projects, and education and defense spending.

In contrast, the cyclical or passive deficit is that part of the actual budget deficit attributable to a recessionary economy. It results, at least partly, from the government's automatic stabilizers. Those increased income transfers that kick in during a recession, on such things as unemployment compensation, food stamps, and other welfare benefits. However, the cyclical deficit results primarily from the shortfall of tax revenues that arises when the government's resources are underutilized. Such as in the downward portion of the business cycle.

Hence, the cyclical deficit. You better understand the nature of the cyclical deficit. Let's digress for a moment and talk a little more about automatic stabilizers and income transfers. Income transfers are payments to the individuals by the government for which no current goods or services are exchanged. They include payments for entitlement programs like Social Security, welfare, and unemployment benefits. At least some of these income

transfers, particularly, welfare and unemployment, are part of the government's automatic stabilizer system.

Where, automatic stabilizers are defined as federal revenues or expenditures that automatically respond to changes in the GDP in a counter-cyclical way. Take a look at this table to better understand how income transfers can affect the economy. Here we see that when the unemployment rate increases by a percentage point the budget deficit increases. This is because even as government spending for items such as food stamps and unemployment benefits are rising. Government tax revenues are falling. In this case, government spending is acting counter-cyclically, helping to offset the recession. But the table also shows that an increase in inflation can also widen the budget deficit. This is at least partly because some income transfer programs like Social Security are indexed to inflation. The broader point is that neither the president nor the congress has complete control over the federal deficit. And that's one major reason why the distinction between the structural and cyclical deficits is so important.

Fix our ideas about these two types of deficits let's actually calculate them in an example. Suppose the gross domestic product is \$10 trillion. Budget deficit is \$100 billion. And the unemployment rate is 7% or 1% above the assumed full employment rate. Propose further that the marginal tax rate is 30%. Meaning that, for every additional dollar that the GDP grows, the government will collect 30 additional cents in taxes. How can we calculate which portion of the 100 billion dollar deficit is structural and which portion is cyclical?

Let me give you a hint. We need Okun's law to help us.

Do you remember what that law is? Remember that Okun's Law says that a 1% fall in the unemployment rate will lead to a 2% increase in GDP. So, for step one of this example, try using Okun's Law to calculate the increasing GDP that would result if the unemployment rate were to fall from 7% to the full employment rate of 6%. If the unemployment rate falls by 1%, by Okun's law, real GDP must increase by 2% times \$10 trillion, for a total of \$200 billion.

Now, in step two we have to calculate the additional tax revenues the government would collect from this increase in GDP. How much is that?

At our assumed marginal tax rate of 30%, the additional \$200 billion of GDP income, would generate an additional \$60 billion in tax revenues. Knowing this, what part of the total \$100 billion deficit is structural, and what part is cyclical? In this case, the structural deficit clearly is \$40 billion. Because that's how much of the deficit that would remain at full employment. That of course means that this cyclical deficit must be \$60 billion.

You can see now why this distinction is so important. It helps policymakers distinguish between long-term changes in the budget caused by discretionary policies versus short run changes caused by the business cycle.

In doing so, this distinction helps provide policy guide to tackling the deficit problem. For example, since we can grow our way out of a cyclical deficit simply by reaching full employment, expansionary fiscal or monetary policies may well be appropriate in a sluggish economy. In fact, such a Keynesian policy

prescription, would've been quite inappropriate way back in 1958. At that time, in the middle of a recession, the Eisenhower Administration was running a deficit. Totally cyclical in nature, of \$10 billion. Vice President Richard Nixon was deeply concerned that a stagnating economy would make him vulnerable in the upcoming 1960 Presidential election. Accordingly, Nixon vigorously advocated an expansionary tax cut to stimulate the economy. However President Eisenhower wanted to balance the budget before he left office and rejected such a tax cut for fear it would balloon the deficit.

Absent any stimulus the economy limped into the presidential election season. John F Kennedy seized on the slogan. Let's get the country moving again, and Kennedy squeaked by Nixon in one of the tightest presidential races in history. Now, here's the irony. If Eisenhower had listened to Nixon and cut taxes, the result would not only have been strong economic growth. Eisenhower would have left office basking in the glow of a budget surplus of about \$5 billion, more than enough to have paid for Nixon's tax cut. This is because the additional economic growth would have generated billions of dollars of additional tax revenues. President Bill Clinton's campaign for reelection in 1996 offers a final example of why understanding the difference between the structural and cyclical deficits can be useful. In the 1996 campaign, Clinton proclaimed that policies such as his deficit reduction act of 1993, had been successful in reducing the budget deficit by more than half.

However, Clinton's Republican critics argued that it was mainly the recovery from recession that was responsible for the

improvement. Some of these critics even claim that it was George Bush who deserved most of the credit since the economic recovery began well before Clinton ever took office. So let's look at the facts.

Between 1992 and 1996, the federal deficit declined by \$146 billion. From \$290 billion to \$144 billion, and yes that is more than a 50% reduction. But how much of this deficit reduction was structural? Let's look at some estimates of the changing structural deficit, calculated by the Congressional Budget Office.

According to the CBO, the structural deficit declined by \$70 billion between 1992 and 1996. From \$224 billion to \$154 billion. This means that, of the \$146 billion in deficit reduction, about half of that was due to Clinton Administration policies. And the other half was due to improved economic conditions. This discussion, in turn, leads to a final important point. Calculation of the structural deficit, is clearly determined by what economists assume the full employment, natural rate of unemployment to be. In particular, the structural deficit will be lower if we assume the economy can sustain a 4% rate of unemployment without increasing inflation. As opposed to, say, a 6% rate.

In fact, using Okun's Law, and again assuming a \$10 trillion GDP, we can calculate the difference in the assumed structural deficit for these two different unemployment rate scenarios to be \$120 billion.

But of course, you see the fiscal policy problem here. Suppose we believe that the 4% unemployment rate is the correct assumption for full employment output. And that the economy is

currently at 6% with a budget deficit of \$120 billion. Based on that 4% assumption, we must conclude that the budget deficit is purely cyclical in nature.

So what change in fiscal policy would a Keynesian economist recommend facing such a large cyclical deficit? And, what would happen if the natural rate of unemployment actually turned out to really be 6%?

A Keynesian would clearly argue for an expansionary fiscal policy. Both to close a perceived recessionary gap and eliminate the perceived purely cyclical deficit. If however, it turns out that the natural rate of unemployment was actually 6%. The Keynesian expansion would not only not eliminate the cyclical deficit, which as it turns out was purely structural. It would also result in an even bigger deficit and a bad case of demand-pull inflation.

Lets turn now to a discussion of the various economic problems created by chronic budget deficits and a growing government debt. To begin this discussion we have to first recognize that the kind of problems the deficit and debt may cause is in large part determined by how the deficit is financed. In this regard there are three major ways the government can finance a deficit. Raising taxes, borrowing money or printing money. Best way to draw this distinction is again by example. Suppose then that the budget is initially in balance and that the government undertakes an expansionary fiscal policy to close a recessionary gap. Suppose further that this expansionary policy involves a net increase of government expenditures of \$25 billion. How should these expenditures be financed? The raise taxes option is interesting

because at first glance, you might ask yourself, how can the economy expand if taxes and expenditures are going up by the same amount? It's a good question, and the answer lies in the dynamics of the marginal propensity to consume that we discussed in a previous lesson.

Think about it this way. If the government raises taxes by \$25 billion to cover the increase in government expenditures, and the marginal propensity to consume is, say, 0.8, consumption will only fall by \$20 billion, or 0.8 times \$25 billion.

This means that even after the tax hike, the net increase in aggregate expenditures is still \$5 billion. Now, given that the marginal propensity to consume is 0.8, we also know from a previous lesson that the multiplier will be five. So, if you multiply this \$5 billion increase in aggregate expenditures, by our multiplier of five, you get a total economic expansion of \$25 billion. Which, perhaps curiously, is exactly equal to the original outlay of government expenditures.

Macroeconomists refer to this phenomenon as the balanced budget multiplier. This multiplier has a value of one. Because, when you simultaneously increase government expenditures, and increase taxes by the same amount. You get an economic expansion exactly equal to the increase in government expenditures.

While the balance budget multiplier approach to financing a deficit may sound like a great way to conduct expansionary fiscal policy without increasing the budget deficit, this macroeconomic technique is, however, rarely used. The reason is that raising taxes is politically unpopular, and favorable politics of raising

taxes Typically means that the government has to resort to one of two other means to finance the deficit: borrowing money or printing money. Both of which create their own problems. With the borrow money option, the U.S. Treasury sells IOUs in the form of bonds or treasury bills directly to the private capital markets.

And uses the proceeds of the sales to finance the deficit. Note that in this case the Federal Reserve is out of the loop. Note also that the US Treasury is competing directly in the capital markets with private corporations, which may also be seeking to sell bonds and stocks in order to raise capital to invest in new plant equipment. In order to compete for these scarce investment dollars, the Treasury typically must raise the interest rate it is offering in order to attract enough funds. This is because in the borrow money option, running a deficit is largely a zero sum game. Money used to finance the deficit is money that would otherwise have been borrowed and spent.

By corporations and businesses on private investment. In this case, deficit spending by the government is said to crowd out private investment. As we learned in lecture six, crowding out is the offsetting effect on private expenditures, caused by the government's sale of bonds to finance expansionary fiscal policy. This crowding out effect, which is one of the most important concepts in macroeconomics, is illustrated by these two figures. In the left-hand figure, the increase in investment demand by the government shifts the demand curve from ID one to ID two. This raises the interest rate, and reduces private investment, as is made clear by the left-hand figure. In this figure, if the economy

starts at point A and moves to point B, crowding out will be equal to H_1 minus H_2 . But if the economy starts at C in a recession and moves to B, crowding out need not occur. The broader point here is that crowding out applies only to structural deficits. If the cyclical deficit rises because of a recession, the logic of crowding out simply does not apply.

Why? Because a recession causes the decline in the demand for money and leads to lower interest rates. And the Federal Reserve tends to loosen monetary policy in a recession. This point is important because it underscores the observation that there is no automatic link between deficits and investment. Now here's a pretty hard question, and you use the Keynesian model to more fully illustrate how the crowding out effect might reduce the actual effectiveness of fiscal policy. In this Keynesian model, the initial equilibrium is at y , where the aggregate expenditure curve AE, crosses the aggregate production curve AP. However, expansionary fiscal policy shifts the aggregated expenditure curve up to AE_1 . This leads to a new equilibrium of y_1 . However, because the government has had to borrow money from the private capital markets to finance these expenditures, interest rates rise. This reduces investment and a resulting contractionary effect shifts the aggregate expenditure curve back down from AE_1 to AE_2 . The final equilibrium at Y_2 , the net economic expansion equals Y_2 minus Y . The same time the partial crowding out of private investment maybe measured by Y_1 minus Y_2 .

This is on the basis of this kind of analysis that critics of discretionary Keynesian fiscal policy have argued that it is a very

weak policy tool. In fact, monetarists tend to take the view that crowding out is almost complete so that fiscal policy is completely ineffective. Keynesians, on the other hand, typically argue that crowding out is minimal. At least in theory, it's possible to avoid crowding out all together with the print money option. With this option, the Federal Reserve is said to accommodate the Treasury's expansionary fiscal policy. In particular, the Fed simply buys the Treasury's securities itself rather than letting the securities be sold in the open capital markets. Pay for these deficit financing treasury securities, the Federal Reserve simply prints new money. Problem with this option, of course, is that the increase in the money supply can cause inflation. An undesirable result, in and of itself. Moreover, if such inflation drives interest rates up and private investment down, as it likely do do, the end result of the print money option may be a crowding out effect as well.

The above discussion in mind, let's turn now to the pros and cons of budget defecits as set forth by the two major competing camps. Deficit hawks review deficits and a rising government debt as a serious threat and the deficit doves would take the position that such deficits and debt are relatively harmless.

Let's start then, with the deficit hawk argument that chronic budget deficits have not only been responsible for crowding out private investment, but also for America's huge trade deficits over the last several decades.

These problems are illustrated in this figure As government deficits drive interest rates up in boxes 1 and 2, we observe crowding out in box 3. However, the plot thickens when we get to

box 4. Here higher U.S. interest rates attract foreign investors. But, in order for these investors to invest, they must exchange their foreign currencies for dollars. This not only leads to an increase US external debt in box 5, it also drives up the value of the dollar in box 6. So what do you think happens in boxes 7, 8, and 9? That's right, a stronger U.S. dollar makes U.S. exports less competitive and exports decrease in box seven even as imports increase in box eight. The result is a larger trade deficit in box nine. And that's why the budget and trade deficits are often referred to as the twin deficits. Unfortunately a trade deficit means a nation is not exporting enough to pay for its imports. The difference can be paid for either by borrowing from abroad or by selling US assets. In fact to finance its trade deficit, the United States has had to sell off assets such as factories, shopping centers, hotels, golf courses, and farms to foreign investors.

Over the longer run deficit hawks warn that this mortgaging of America, will reduce both the rate of economic growth. And the level of real income of Americans.

Let's look more closely now at how the government debt effects economic growth and living standards over the longer run. To address this issue, we draw the distinction between the external and internal debt. Discuss the inefficiency of levying taxes to pay interest on the debt and examine the impact on the debt of the productivity and capital accumulation. Deficit doves argue that national debt is not really a serious matter because most of the debt is internal. So, we owe it to ourself.

Nonetheless, the deficit hawks counter that since 1960, the fraction of the total U.S. debt held externally has more than quadrupled, and this large external debt now exposes America to significant economic and political dangers.

On the economic front, paying interest on the external debt acts like a tax on US citizens by foreigners. Such a debtor's tax reduces domestic consumption, savings and investment. And thereby reduces the economy's long and short term growth rates. On a political front, the holding of large amounts of America's debt by foreigners exposes American public policy to undue political pressures.

It's not just the external debt that deficit hawks object to, however, the hawks even a large internal debt is unacceptable. And, for four reasons. First, an internal debt requires payments of interest to bondholders. This in turn means higher taxes and as micro economics teaches us, such taxes inevitably distort allocation of national resources and lead to an efficiency loss. Second, paying interest on the internal debt unfairly redistributes income from the poor and middle class to the rich. This happens because government bondholders as a group tend to be wealthier than taxpayers as a group. Third, paying interest on the debt uses hundreds of billions of dollars each year, and this money could otherwise be spent on providing taxpayers with more education, health care, and other government services. In this regard, the deficit hawks point out that the size of the interest payments to service the debt, relative to total tax revenues, has been steadily rising. In an argument popularized in the early 1990s by presidential candidate Ross Perot. The deficit hawks

warn that if this trend continues, we will eventually wind up using all available tax revenues simply to service the debt. Finally the deficit hawks argue that the accumulation of such a large debt places an unreasonable burden on future generations. Which must pay this debt off. The same time, the doves point out any debt that occurred now as a result of public investment will provide benefits, not just a burden, to future generations. This argument leads to our next bone of contention between the deficit hawks and doves, the impact of the deficit on investment and productivity.

Deficit doves like professor Robert Eisner argue that the productivity of the private sector depends critically on public investment in a wide variety of public goods and services. From education, training and basic research. The public infrastructure such as roads, bridges and even the information super highway. Therefore, in some cases running deficits can actually increase the productivity of the private sector and thereby boost both economic growth and real national income. Nonsense say the deficit hawks.

Far too many government expenditures are made on what the late senator William Proxmeyer once called wasting assets rather than productive capital. For the deficit hawks, roads and bridges, and more education may well increase productivity and stimulate economic growth. However, wasting assets such as fighter planes, tanks and inefficient social welfare programs simply do not.

At the same time, these deficit hawks point out there is a wealth of empirical evidence suggesting that public sector investment is less productive than private sector investment.

Thus when deficit spending crowds out private sector investment, it reduces the rate of long term economic growth because it substitutes less productive government expenditures for more productive private investment. A line of argument against chronic budget deficits is that a large and growing public debt makes it politically difficult to use the necessary discretionary fiscal policies during a recession.

For example in 1991 and 1992, the Federal Reserve substantially reduced interest rates to stimulate the sluggish economy. However, this expansionary monetary policy was slow to expand output and reduce unemployment. At that time, had the public debt not been at historic highs, it would have been much more politically feasible to engage in expansionary fiscal policy as well, by reducing taxes or increasing spending. But, the growing debt problem rules out this stimulus on political grounds. To conclude this lesson, let's summarize now the major arguments pro and con in the budget deficit debate and discuss their policy implications.

On the one hand, the deficit hawks warn that chronic budget deficits increase the trade deficit, crowd out private investment and reduce economic growth. These hawks likewise warn that the growing national debt is unfairly burdening future generations and exposing America to dangerous political pressures from foreign governments. Moreover, servicing the interest payments

on this debt redistributes income from the poor and middle-class to the rich.

In contrast, the deficit doves see the deficit primarily as a stimulus to economic growth and reject both the crowding out and trade deficit arguments. They see the national debt as productive investment in public goods and infrastructure. They view the debt as manageable relative to the size of our economy and they believe that since we owe it largely to ourselves, it's not a problem. Accordingly, the deficit doves advocate a more cautious approach to deficit reduction. Perhaps the most widely debated policy response has been a balanced budget amendment.

Such a constitutional amendment would compel Congress to annually balance its budget. What impact do you think such an amendment might have on the use of discretionary fiscal policy? A balanced budget amendment would make it almost impossible to use discretionary fiscal policy and that's why most economists oppose the idea. The biggest problem is that such an amendment would force the government to balance the budget during a recession by either increasing taxes or cutting spending. From a Keynesian perspective, we know of course that the likely result would be to plunge the economy deeper into recession.