

Fiscal Policy and the Multipliers

Use of the multipliers helps to explain the rationale and effectiveness of fiscal policy. To understand how this works, you should first have an understanding of a few different terms.

Fiscal policy is the use of government expenditures and taxation to achieve particular macroeconomic goals. We will assume the goal of fiscal policy is to make sure that actual real GDP is equal to full employment (or potential) GDP. (Remember full employment GDP is the amount of GDP when the economy is operating at the natural rate of unemployment [natural rate of unemployment occurs when there is only structural and frictional unemployment]).

The economy can be in three different states. If actual GDP is equal to full employment GDP we say the economy is in equilibrium. If actual GDP is greater than full employment GDP, we say there is an inflationary (or expansionary) gap. If actual GDP is less than full employment GDP, we say there is a recessionary gap. If you believe that fiscal policy can be effective, you are likely a subscriber to the “Keynesian” school of macroeconomics. Remember, Classical economists felt that wage flexibility would allow the economy to be self regulating and that fiscal policy would be useless and inflationary.

When we have an inflationary gap, the government should use contractionary fiscal policy to correct the gap. Contractionary policy will decrease actual GDP (and control inflation). Contractionary policy entails reducing government expenditures or increasing net taxes (net taxes = taxes - transfer payments; net taxes will increase when taxes increase or when transfer payments decrease).

When there is a recessionary gap, the government should use expansionary fiscal policy to correct the gap. Expansionary policy will increase actual GDP. Expansionary policy entails increasing government expenditures or decreasing net taxes (net taxes decrease when taxes decrease or transfer payments increase).

What are the multipliers and how are they used? The multipliers measure the ultimate impact of an increase in autonomous spending on real GDP. A simple way of looking at this is to remember that any increase in spending becomes one individual’s income, and it multiplies through the economy in that manner. For example, suppose the government decides to increase expenditures on goods and services by \$500. Suppose further that the marginal propensity to consume (MPC) is .80. (*The MPC measures the percentage increase in consumption that results from an increase in disposable income (income minus taxes). For example, if the MPC is .80, that means if income increases by \$500, consumption expenditures increase by \$400. If the MPC is .90 and disposable income increases by \$1,000, consumption will increase by \$900. Since income can be either spent on consumption or savings, it follows that the marginal propensity to save (MPS, which measures the percentage increase in savings resulting from an increase in disposable income) plus the MPC is equal to 1. $MPC + MPS = 1$, therefore $1 - MPC = MPS$ or $1 - MPS = MPC$).* When the government increases spending by \$500, the initial increase in GDP is \$500. However, this \$500 in expenditures becomes someone’s income, when their income increases by \$500, they will spend \$400 on consumption (thus GDP has increased by \$900 so far); this \$400 becomes another’s increase in income and they will spend \$320 on consumption (total GDP increase so far is \$1,220); this becomes an increase of \$320 in someone else’s income, and they spend \$256 on consumption (bringing the GDP increase to \$1,576). This will continue in the same manner until the money is exhausted.

How do you calculate and use the multipliers? There are actually three multipliers, although most attention is paid to only two of these. The three multipliers are the simple spending multiplier, the tax multiplier, and the balanced budget multiplier. Fiscal policy is most effective when it is not offset by a change in taxes (in other words when we utilize deficit spending). When an increase in government spending is paid for by a proportionate increase in taxes we say the budget is “balanced” and the balanced budget multiplier applies. The balanced budget multiplier is always equal to 1.

The simple multiplier is equal to $1/MPS$. If the MPC is .90, the MPS is .10, and the simple multiplier is 10. If the MPS is .20, the MPC is .80, and the simple multiplier is 5.

The tax multiplier is equal to $(-MPC/MPS)$. Its absolute value is always one less than the simple multiplier and it is always negative. If the MPC is .90, the MPS is .10, the tax multiplier is calculated as $(-.90/.10)$ and is equal

to -9. If the MPS is .20, the MPC is .80, and the tax multiplier is $(-.80/.20)$ and is equal to -4. The tax multiplier is different than the simple multiplier because net taxes affect disposable income which affects consumption spending. It has a different impact because if disposable income increases, the first thing that happens to the increase in income is that some portion of it is used for savings.

Here are a couple of examples. Suppose that actual GDP is \$600 and full employment GDP is \$680, and the MPC is .90. Because full employment GDP is greater than actual GDP we have a recessionary gap of \$80. In this scenario the government should enact expansionary fiscal policies to increase actual GDP by \$80. How can they do this? They can either increase government expenditures or decrease net taxes.

Lets first see how they need to increase government expenditures to increase actual GDP by \$80. Since the MPC is .90, the simple multiplier is 10. The change in government spending multiplied by the simple multiplier is equal to the change in GDP (Change in G * simple multiplier = Change GDP). $G * 10 = 80$; therefore $G = 80/10$, $G = 8$. Therefore if the government increases spending by 8, the increase in GDP will be 80.

What if they change net taxes? They will need to either decrease taxes or increase transfer payments. Since the MPC is .90 and the MPS is .10, the tax multiplier is -9. The change in net taxes multiplied by the tax multiplier is equal to the change in GDP (Change in net taxes * tax multiplier = Change GDP). $NT * -9 = 80$; therefore $NT = 80/-9$, $NT = -8.888$. This means the government could decrease taxes by 8.888 or increase transfer payment by 8.888 in order to increase GDP by \$80.

Now suppose that actual GDP is \$750 and full employment GDP is \$650 and the MPS is .20. Because actual GDP is greater than full employment GDP we have an inflationary gap of \$100. In this scenario the government should enact contractionary fiscal policies to decrease actual GDP by \$100. This can be done with either a decrease in government expenditures or an increase in net taxes.

If they decide to decrease government expenditures, how much will they need to decrease them to decrease GDP by \$100? Since the MPS is .20, the MPC is .80 and the simple multiplier is 5. The change in government spending multiplied by the simple multiplier is equal to the change in GDP (Change in G * simple multiplier = Change GDP). $G * 5 = -100$; $G = (-100/5)$; $G = -20$. Therefore the government would need to reduce expenditures by \$20 in order to decrease GDP by \$100.

Lets change taxes instead. Since the MPS is .20 and the MPC is .80, the tax multiplier is -4. The change in net taxes multiplied by the tax multiplier is equal to the change in GDP (Change in net taxes * tax multiplier = Change GDP). $NT * -4 = -100$; $NT = (-100/-4)$; $NT = 25$. Therefore the government needs to increase net taxes by \$25 in order to decrease GDP by \$100. This can be achieved by increasing taxes by \$25 or decreasing transfer payments by \$25.