

10.13: The Spending Multiplier in the Income-Expenditure Model

Learning Objectives

- Explain and demonstrate the multiplier graphically using the income-expenditure model

In our initial discussion of Keynesian economics in the module on Keynesian and neoclassical economics, you learned about the spending (or expenditure) multiplier. Remember that a change in any category of expenditure ($C + I + G + X - M$) can have a more than proportional impact on GDP. The idea behind the multiplier is that the change in GDP is more than the change in expenditure. In its simplest form, the calculation for this is

$$\text{Spending Multiplier} = \frac{1}{1 - \text{MPS}}$$

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Showing the Spending Multiplier Graphically Using the Income-Expenditure Model

We can show the expenditure multiplier graphically using the income-expenditure model. The original level of aggregate expenditure is shown by the AE_0 line and yields an equilibrium level of GDP at Y_0 . Consider an increase in AE to AE_1 , which is shown by a parallel shift in the AE line. This could be caused by an increase in autonomous consumption, investment, government spending or net exports. The vertical distance between the two AE lines is the increase in aggregate expenditure. The new equilibrium level of GDP occurs at Y_1 . It should be clear that the increase in GDP from Y_0 to Y_1 is greater than the increase in expenditure from AE_0 to AE_1 .

The spending multiplier is defined as the ratio of the change in GDP (ΔY) to the change in autonomous expenditure (ΔAE). Since the change in GDP is greater change in AE, the multiplier is greater than one. Suppose the equilibrium level of GDP is \$700 billion. If government spending increases by \$50 billion, GDP rises from is \$700 billion (at Y_0) to Y_1 \$800 billion (at Y_1). Thus, the change in GDP is $\$800 - \$700 = \$100$ billion. In this example, the multiplier would be $\$100/\$50 = 2$.

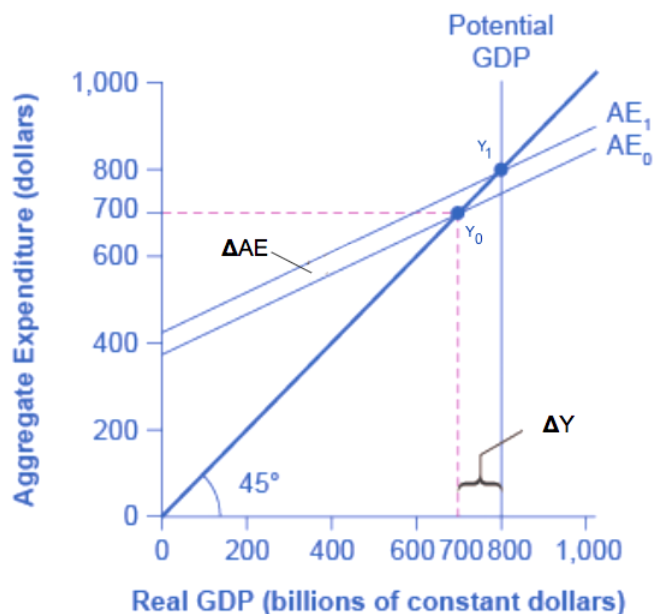


Figure 1. The Multiplier Effect in the Expenditure-Output Model. The power of the multiplier effect is that an increase in expenditure has a larger increase on the equilibrium output. The increase in expenditure is the vertical increase from AE_0 to AE_1 . However, the increase in equilibrium output, shown on the horizontal axis, is clearly larger. Thus, the spending multiplier, $\Delta Y/\Delta AE$, is greater than one.

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