

In this lab you will explore the impact of a change in the aggregate price level on the level of production (demand) in the IS-LM model.

Assume that the consumption function, investment function, and liquidity demand functions are such that:

Table 1

$$\begin{aligned} C &= c_0 + c_1(Y - T) \\ I &= a_0 - a_1 i \\ M^D &= P(b_0 Y - b_1 i) \end{aligned}$$

Follow the steps outlined below:

1. Start Netscape and open the following address:

<http://www.usna.edu/Users/econ/bcunning/lab1.xls>

When prompted, save the file to the hard drive AND remember where you save it.

2. Start Excel and open lab1.xls

In cells A1:B10, you will see listed numerical values for the exogenous variables and parameters of the model.

Cells D1:H18 contain information which is relevant for the goods market. Cells J1: L20 contain information which is relevant for the financial market.

We will begin with an analysis of the goods market.

1. Assume the interest rate is initially zero. Put this value in cell E2.
2. Use the relationships in Table 1, along with the national income accounting identity, to fill in cells E4:H18.
3. What level of real GDP satisfies the equilibrium condition ( $Y=Z$ )? On a graph with  $i$  on the vertical axis and  $Y$  on the horizontal, identify this point (draw this by hand).
4. Redo 1 through 3 assuming the interest rate is 25. What happened to investment? What happened to the equilibrium level of real GDP in the goods market?
5. Redo 1 through 3 assuming the interest rate is 50. What happened to investment? What happened to the equilibrium level of real GDP in the goods market?
6. Connect the dots on your graph. This is the IS curve.

Now lets move on to financial markets.

1. Assume output is initially 484. Put this value in cell K2.
2. Use the relationships in Table 1 to fill in cells K4:L21.
3. What level of interest rates satisfies the equilibrium condition ( $M^S=M^D$ )? On the same graph with  $i$  on the vertical axis and  $Y$  on the horizontal, identify this point.
4. Redo 1 through 3 assuming real GDP is 485. What happened to money demand? What happened to the equilibrium interest rate in the money market?
5. Redo 1 through 3 assuming real GDP is 486. What happened to money demand? What happened to the equilibrium interest rate in the money market?
6. Connect the new dots on your graph. This is the LM curve. You now have an IS-LM graph.
7. What level of interest rates and output causes BOTH goods markets and financial markets to reach equilibrium (use your graph for this)?

Last item: increase the price level to 10.010374 (replace the value in cell B11).

1. At a level of output of 484, what is the equilibrium level of interest rates ( $i$ ) in the money market?
2. At a level of output of 485, what is the equilibrium level of interest rates ( $i$ ) in the money market?
3. What has happened to the LM curve? Show this on your graph.
4. As the price level rises, what happens to the IS-LM equilibrium level of production? Draw this on a separate graph with  $P$  on the vertical axis and  $Y$  on the horizontal.