

1. The IS-LM model is a general equilibrium model, which means that there exists a common “price” that clears two or more markets
 There are 2 Markets, which are the goods and services market and the money market
 The price that clears these markets is the interest rate
 The IS curve represents a negative relationship between i and Y in the commodity market
 This is because the curve is from the closed-economy Keynesian cross

 The LM curve represents a positive Relationship between i And Y in the money market
 This is because the LM curve is a LOCUS of “points”
 Each point on the IS curve is an equilibrium in the money market
 Therefore, we have the equilibrium condition: real money = real money supply

 2. Ceteris Paribus (other things equal), how will each variable affect each curve - shift (to which direction?) or movement?

Variable	IS curve	LM curve
$i \uparrow$	Reduction in Y flat IS curve	Money demand drops Flat LM curve
$G \downarrow$	Government decreases it's spending which means that production decreases to match the demand	Government spending decreases
$T \downarrow$	Decrease in demand and in production IS shifts to the right	Decrease in demand and in production
$G \& T \uparrow$ equally	Shift in IS curve	Shift in LM curve
$M \downarrow$		Shift down to the right
$P \downarrow$		Interest rate falls to induce higher real money demand Shifts down and to the right

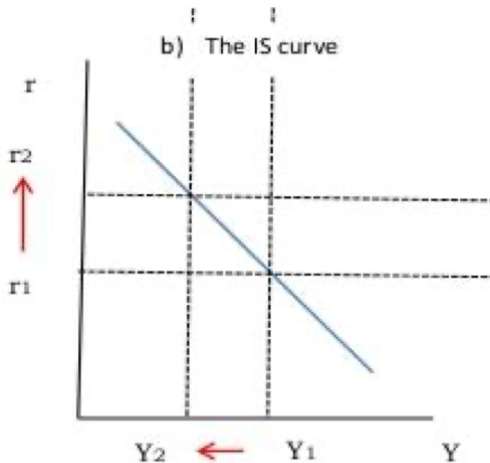
3. Explain, together with diagrams, how we can derive the IS curve from Keynesian Cross, and how we can derive the LM curve from the money market

IS curve from Keynesian Cross

$$Y = C + I + G$$

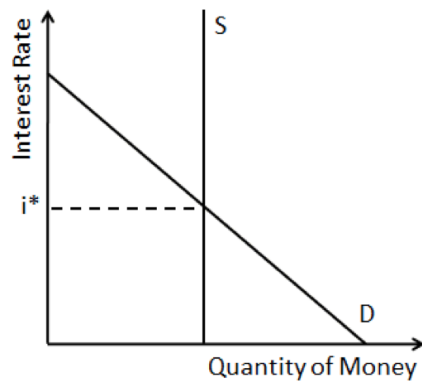
$$Y_1 = C(Y-T) + I(i_1) + G$$

$$Y_2 = C(y-T) + I(i_2) + G$$



LM curve through the money market

Real money demand (M_d) = Real money supply (M_s)



4. Assume a closed economy with the government. The economy has the following parameters:

$$C = C_0 + C_1(Y - T)$$

$$I = I_0 - I_1 \cdot i$$

$$G = G_0$$

$$T = T_0$$

$$L(i, Y) = L_Y \cdot Y - L_i \cdot i$$

$$M = M_0$$

$$P = P_0$$

Answer the following equations:

4.1 **What are I_1 , L_Y , and L_i ?**

L_i is how much M_d changes when i changes

4.2 **Why are I_1 and L_i negative?**

It's negative because the I_1 is because the money demand is not sensitive to i

4.3 **Derive the IS equation that shows how i and Y are related.**

(Hint: Start with the equilibrium condition $Y = AE$. Then, substitute relevant variables into the expression. Lastly, rearrange i to the LHS and everything else on the RHS.)

$$Y = C + I + G$$

$$Y_1 = C(Y-T) + I(i_1) + G$$

$$Y_2 = C(y-T) + I(i_2) + G$$

4.4

Find the slope of the IS curve.

(Hint: The coefficient before Y is the slope of IS.)

4.5

Derive the LM equation that shows how i and Y are related.

(Hint: Start with the equilibrium condition $M_d = M_s$. Then, substitute relevant variables into the expression. Lastly, rearrange i to the LHS and everything else on the RHS.)

4.6

Find the slope of the LM curve.

(Hint: The coefficient before Y is the slope of LM.)

5. From question 4.4, we can see that the slope of the IS curve depends on two factors, explaining how each of these factors affects the slope of the IS curve. We also can see that the slope of the LM curve depends on two factors. Explain how each of these factors affects the slope of the LM curve.

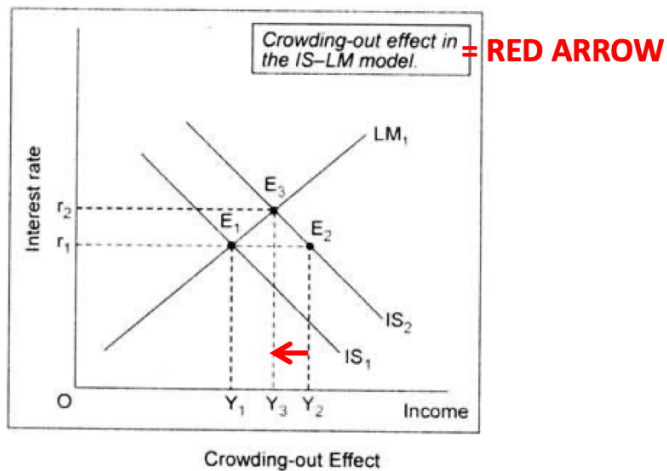
IS curve = 1. The sensitivity of investment to changes in interest rate, there is a decrease in interest rate causes a large increase in investment 2. The multiplier is large, then an increase in investment causes a large increase in output

LM curve = demand for money to buy goods and services and higher demand for money drives up interest rate

6. What is the crowding-out effect?

Public sector spending (G) reduces or eliminates private sector spending (I)

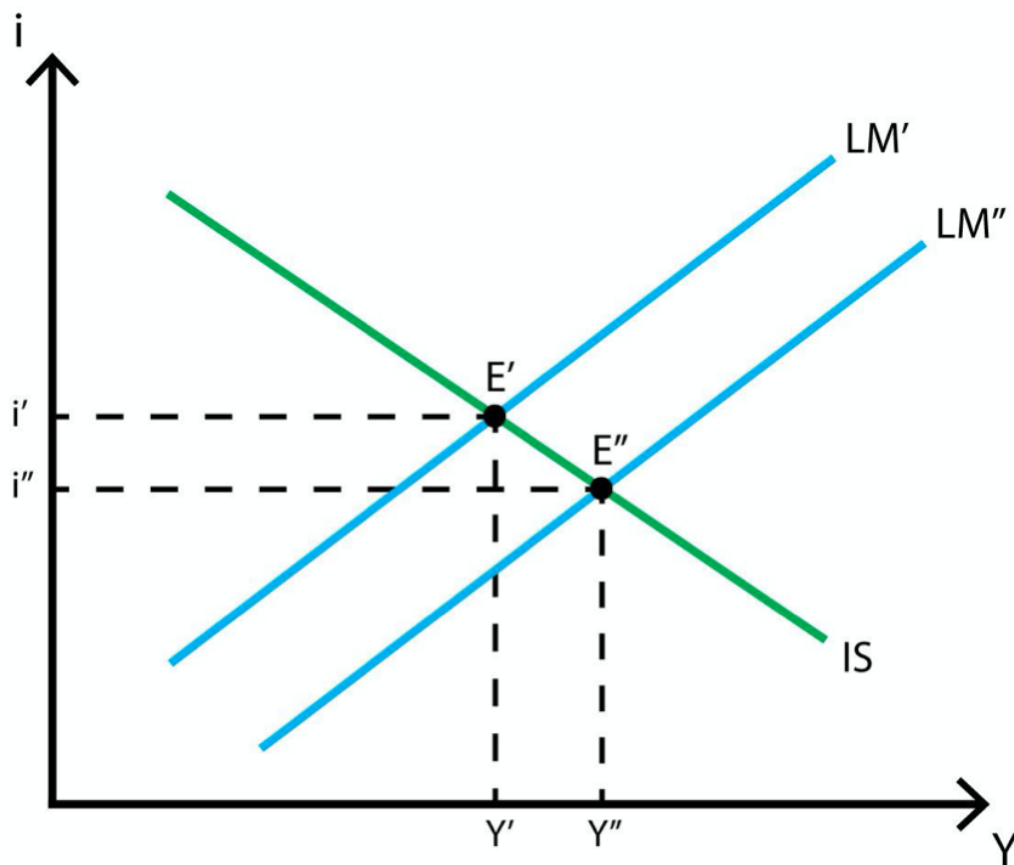
Suppose that the government increases its spending i.e. expansionary fiscal policy. Use the IS-LM diagram to explain how the economy moves to the new general equilibrium and the crowding-out effect



7. Suppose the central bank decreases its money supply, i.e. contractionary monetary policy. Use the IS-LM diagram to explain how the economy moves to the new general equilibrium

If the central bank decreases money supply (M) the bond issuers will increase the interest rate

(i). The new equilibrium, is lower output but higher interest rate/



8. Use the graph to answer the following questions

8.1 at the red point, which market is in equilibrium, and which is not?

8.2 explain how the goods and money markets at the orange point will adjust towards the general equilibrium (Y^*, i^*)

9. The government is worried about the effectiveness of its policies. You are to advise which policy - fiscal or monetary - should be used in each of the following cases

9.1 consumers have high MPC - fiscal

9.2 investment is NOT sensitive to changes in interest rate - fiscal

9.3 money demand is very sensitive to changes in interest rate ' - monetary

9.4 money demand is very sensitive to changes in income (Y) - fiscal

10. Assume a closed economy with the government. The economy has the following parameters

$$\begin{array}{llll} C = 100 + 0.5(Y_d) & I = 80 - 100(i) & G = 40 & T = 40 \\ L(i, Y) = 0.5(Y) - 200(i) & & M = 400 & P = 2 \end{array}$$

Answer the following questions:

10.1 derive the IS equation

10.2 derive the LM equation

10.3 find the general equilibrium output and interest rate