

Exercise 6

IS-LM Model

- The IS-LM Model is a general equilibrium model, which means that.....
 There are.....markets, which are.....
 The price that clears these markets is.....
 The IS curve represents a.....relationship betweenand.....This is because.....

 The LM curve represents a.....relationship betweenand.....This is because.....

 Each point on the IS curve is an equilibrium in the.....market.
 Therefore, we have the equilibrium condition:
 Each point on the LM curve is an equilibrium in the.....market.
 Therefore, we have the equilibrium condition:

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

Variable	IS Curve	LM Curve
$i \uparrow$		
$G \downarrow$		
$T \downarrow$		
$G \& T \uparrow$ equally		
$M \downarrow$		
$P \downarrow$		

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

$$\begin{array}{llll}
 C = C_0 + C_1(Y - T) & I = I_0 - I_1 \cdot i & G = G_0 & T = T_0 \\
 L(i, Y) = L_Y \cdot Y - L_i \cdot i & M = M_0 & P = P_0 &
 \end{array}$$

Answer the following questions.

- What are I_1 , L_Y , and L_i ?
- Why are I_1 and L_i negative?
- 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.)

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.)

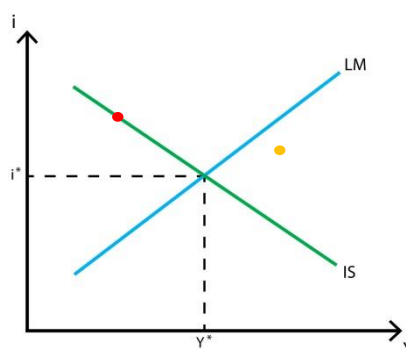
5. From Question 4.4, we can see that the slope of IS curve depends on two factors. Explain how each of these factors affects the slope of the IS curve. We also can see that the slope of LM curve depends on two factors. Explain how each of these factors affects the slope of the LM curve.

6. What is the Crowding-Out Effect?

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.

8. Use the graph below 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.

9.2 Investment is NOT sensitive to changes in interest rate.

9.3 Money demand is very sensitive to changes in interest rate.

9.4 Money demand is very sensitive to changes in income (Y).

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

$$C = 100 + 0.5(Y_d) \quad I = 80 - 100(i) \quad G = 40 \quad T = 40$$

$$L(i, Y) = 0.5(Y) - 200(i) \quad M = 400 \quad P = 2$$

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.