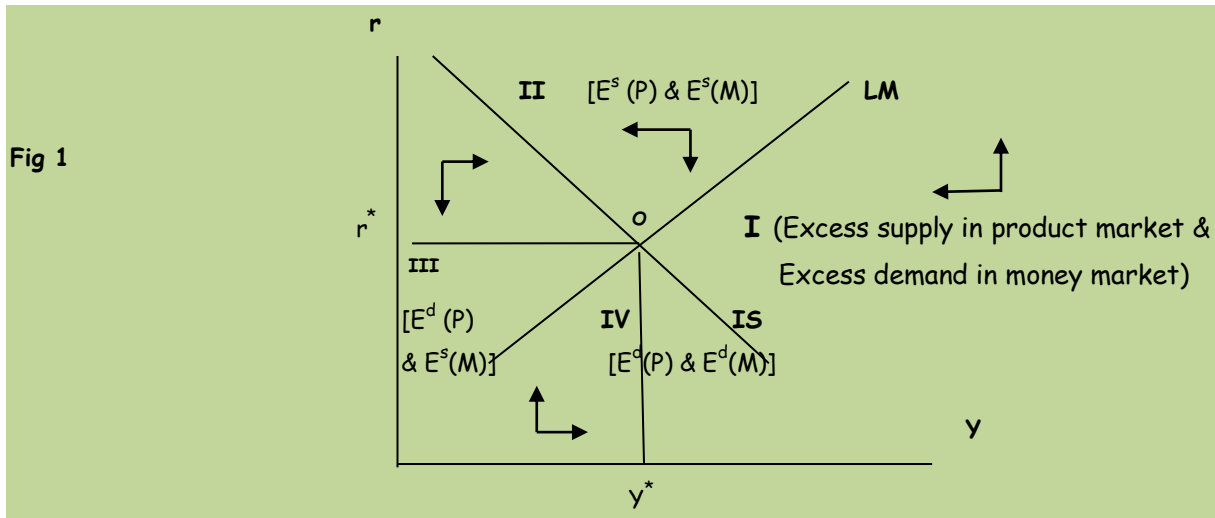


IS LM MODEL - INTERACTION-FISCAL & MONETARY POLICY

We have already studied the IS & LM curves in isolation, but for understanding the demand side of the Keynesian model, and the efficacy of fiscal and monetary policies, we must study them together. In fig 1, we draw both of the curves, and try to explain the nature of the equilibrium in both the product market and the money market.



In the above diagram, both the markets are in equilibrium at point O where the IS and the LM curves intersect. So, Y^* and r^* are the equilibrium income and interest rates respectively. At any point other than at O , at least one (or both) of the markets must be in disequilibrium. The question is: will such disequilibrium generate economic forces that tend to take the economy back to point O ? In other words, **is the equilibrium at O stable?**

For easy analysis, we have labelled the four areas created by the two curves I, II, III and IV. Area I lies to the right of both the IS and the LM curves. Therefore, for any given r , the actual value of Y is greater than what is required to keep the product and the money market in equilibrium. Where does that lead us to?

It means an excess supply in the product market. As far as the money market is concerned, it will imply just the opposite: an excess demand. Why? If Y is greater than what is required, there is a greater transaction demand for money, and hence an excess demand in the money market. Now, with excess supply in the product market, output will fall. With excess demand for money, people will try to sell bonds to get the additional cash, bond prices will decrease, and interest rate will rise. The arrows indicate the directions of movement of Y and r .

The same logic can be applied to points lying in each of the other three areas to have an idea of the directions of the arrows. The result is summarised in the table below for convenience.

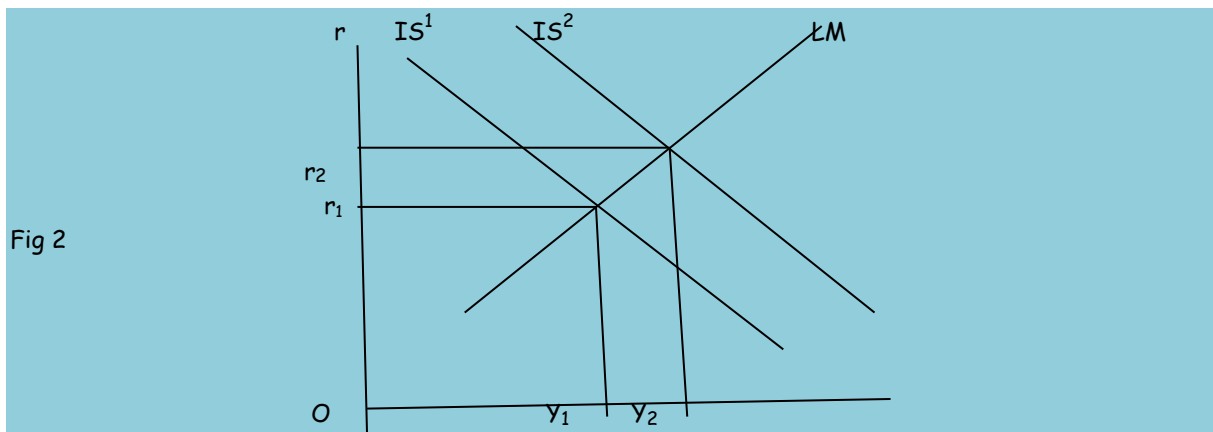
Position of the point		Quadrant	Direction of movement
To the right of the IS	To the right of the LM	I	Y falls, r rises
To the right of the IS	To the left of the LM	II	Y falls, r falls
To the left of the IS	To the left of the LM	III	Y rises, r falls
To the left of the IS	To the right of the LM	IV	Y rises, r rises

From the above, we can see that the market forces always pull the economy back towards the curves, and at least one of (Y, r) tends to the equilibrium value. This implies a stable equilibrium.

Fiscal and Monetary Policies

The national income level Y^* may not be a full employment one, inducing the government to adopt some policies to expand output and employment. We shall consider two such policies here - (a) an expansionary fiscal policy and (b) an expansionary monetary policy. We shall first consider the impact of an expansionary fiscal policy.

Expansionary fiscal policy: By an expansionary fiscal policy, we mean some budgetary policy like an increase in G or a decrease in tax rates and so on. This will **shift the IS curve to the right** (recall lesson 1 on IS), as G , tax rates etc are considered to be given when a particular IS is drawn. So, we have a situation as depicted in figure 2.



The initial equilibrium occurs at (Y_1, r_1) . After the government adopts an expansionary fiscal policy (say, an increase in G), IS shifts right to IS^2 and the new equilibrium pair is given by (Y_2, r_2) , where:

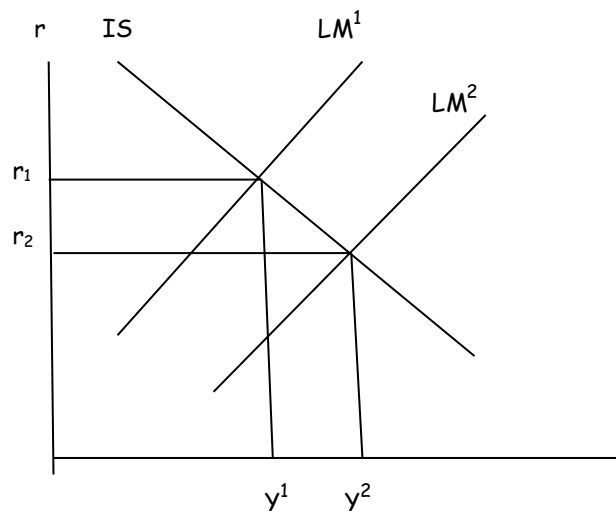
$$Y_2 > Y_1 \text{ and } r_2 > r_1$$

Let us briefly go through the process of change. With an increase in G , there is first a rise in Y at the same level of interest (reflected in the rightward shift of IS). However, this cannot be sustained as a higher level of Y and the same rate of interest lead to an excess demand in the money market (transaction demand rises but speculative demand remains the same). So, the following occur:

- Step 1: People try to sell bonds to get additional cash
- Step 2: There is a selling pressure in the bond market
- Step 3: Bond prices fall, that is, there is a rise in the interest rate r .
- Step 4: The rise in interest rate solves the problem of excess demand for money from two sources. First, there is a fall in private investment expenditure, leading to a fall in Y (along the new IS curve IS^2) leading to some decline in the transaction demand for money. Second, there is a fall in speculative demand as well (recall discussion on LM).
- Step 5: The process continues till r rises and Y falls sufficiently to reduce the demand for money to the original level (equal to the fixed supply of money).

Note: The reduction in private investment expenditure on account of the increase in G is called the "crowding out" effect. This ensures that the fiscal policy is less than 100% effective in this case.

Expansionary monetary policy: By an expansionary monetary policy, we mean some expansion in money supply. This will **shift the LM curve to the right** (recall lesson 2 on LM), as M is considered to be given when a particular LM is drawn. So, we have a situation as depicted in figure 3.



The initial equilibrium occurs at (Y_1, r_1) . After the Central Bank adopts an expansionary monetary policy (say, an increase in M), LM shifts right to LM^2 and the new equilibrium pair is given by (Y_2, r_2) , where:

$$Y_2 > Y_1 \text{ and } r_2 < r_1$$

Let us again briefly go through the process of change. With an increase in M, there is first an excess supply of money at the same level of Y and the same rate of interest (reflected in the rightward shift of LM, as the old LM is no longer a valid one). However, this cannot be sustained as we are off the IS curve. Now the initial excess supply of money causes a buying pressure in the bond market, a rise in bond prices and a fall in interest rate. This causes an along the curve movement along the IS, and a rise in Y (through a rise in investment expenditure). So, the following steps occur:

- Step 1: People try to buy bonds to dispose of additional cash
 - Step 2: There is a buying pressure in the bond market
 - Step 3: Bond prices rise, that is, there is a fall in the interest rate r.
 - Step 4: The fall in interest rate solves the problem of excess supply for money from two sources. First, there is a rise in private investment expenditure, leading to a rise in Y (along the old IS curve) leading to some rise in the transaction demand for money. Second, there is a rise in speculative demand as well (recall discussion on LM).
 - Step 5: The process continues till r falls and Y rises sufficiently to raise the demand for money to the new level (equal to the new supply of money).
- So equilibrium is re-established at a higher level of Y and a lower rate of r.
- Note: The monetary policy is also less than 100% effective.**