Macro ECONOMICS

B.A PART2

PAPER3

Effectiveness of Fiscal Policy:

Recall that the IS curve describes equilibrium in the goods market. The IS curve slopes downward because as the rate of interest falls investment spending increases causing rise in aggregate demand that leads to the increase in real national income (i.e., GDP).

Expansionary fiscal policy may be either in the form of increase in government expenditure or cut in taxes. In both these forms of fiscal stimulus, the IS curve shifts to the right. In our previous Fig. 20.6 of IS-LM curve model we have explained that given the normal upward sloping LM curve increase in government expenditure leads to increase in output or real national income less than that under Keynesian government expenditure multiplier (i.e., less than $\Delta G \times 1/1 - MPC$) because of the rise in interest rate.

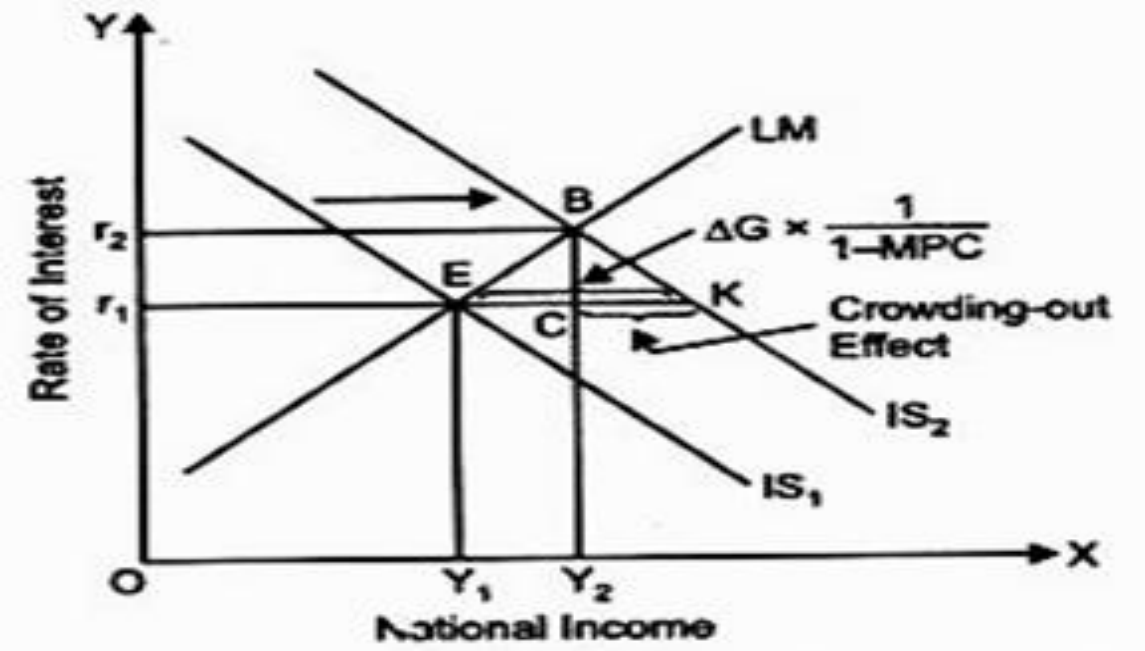

Fig. 20.6. *Expansionary Fiscal Policy : Impact of Increase in Government Expenditure on Interest Rate and Income*

This increase in rate of interest causes private investment to fall that is, increase in government expenditure crowds out some private investment. When the LM curve is more steep, that is, when interest responsiveness of demand for money is less, a given increase in government expenditure will have large crowding-out effect as shown in Fig. 20.12. Initially, the IS and LM curves intersect at point E_1 and determine Y_1 national income and r_1 rate of interest of (The given LM curve is relatively steep).

Now suppose under the expansionary fiscal policy the government increases its expenditure so that there is a shift in the IS_1 curve to the right to IS_2. This new IS_2 curve intersects the given steep LM curve at point E_2 and, as will be seen from Figure 20.12, rate of interest rises to r_2 and the real national income increases from Y_1 to Y_2.

A larger income equal to Y_2Y_3 or KH has been wiped out due to crowding-out effect of rise in interest rate on investment. To conclude, in case of lower interest-responsiveness of demand for money

expansionary fiscal policy is not very effective in bringing about a sufficient increase in real national income.

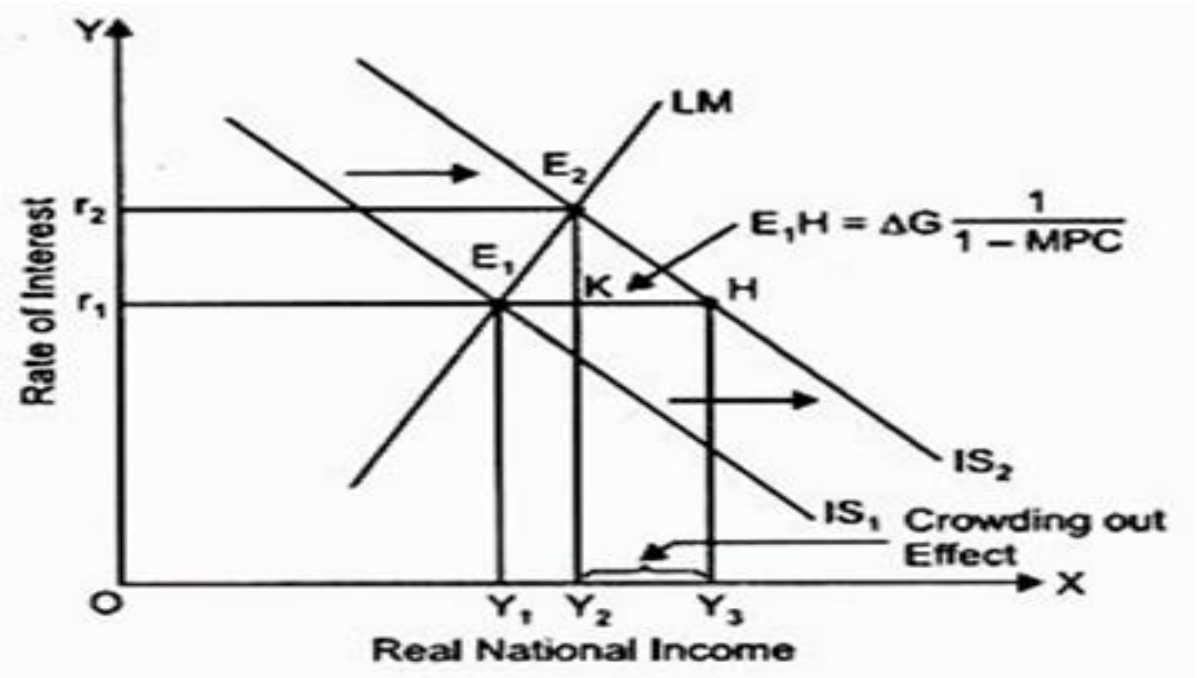

Fig. 20.12. *Large crowding-out effect in case of steep LM curve and as a result, increase in government expenditure causes only a small increase in real national income.*

Horizontal LM Curve:

Note that contrary to Figure 20.12 where due to steep upward-sloping LM curve, increase in government expenditure on national income has less than full Keynesian multiplier effect on the equilibrium level of national income due to large crowding-out effect of rise in rate of interest, there is no crowding-out effect when there is infinite interest responsiveness of demand for money and the LM curve is horizontal which occurs when the economy is in the liquidity trap.

In this case of horizontal LM curve shown in Fig. 20.13 increase in the government expenditure causing a shift in the IS curve to the right to IS_2 position. As will be seen from Figure 20.13, rate of interest of remains fixed and as a result there is no crowding out effect and the national

income increases by the full multiplier effect of increase in government expenditure that is by ΔG x 1/1 – MPC.

It may however be noted that the horizontal LM curve depicting liquidity trap in the demand for money in which case there is no crowding out effect of fiscal stimulus is an extreme case that may occur when there is severe depression in the economy.

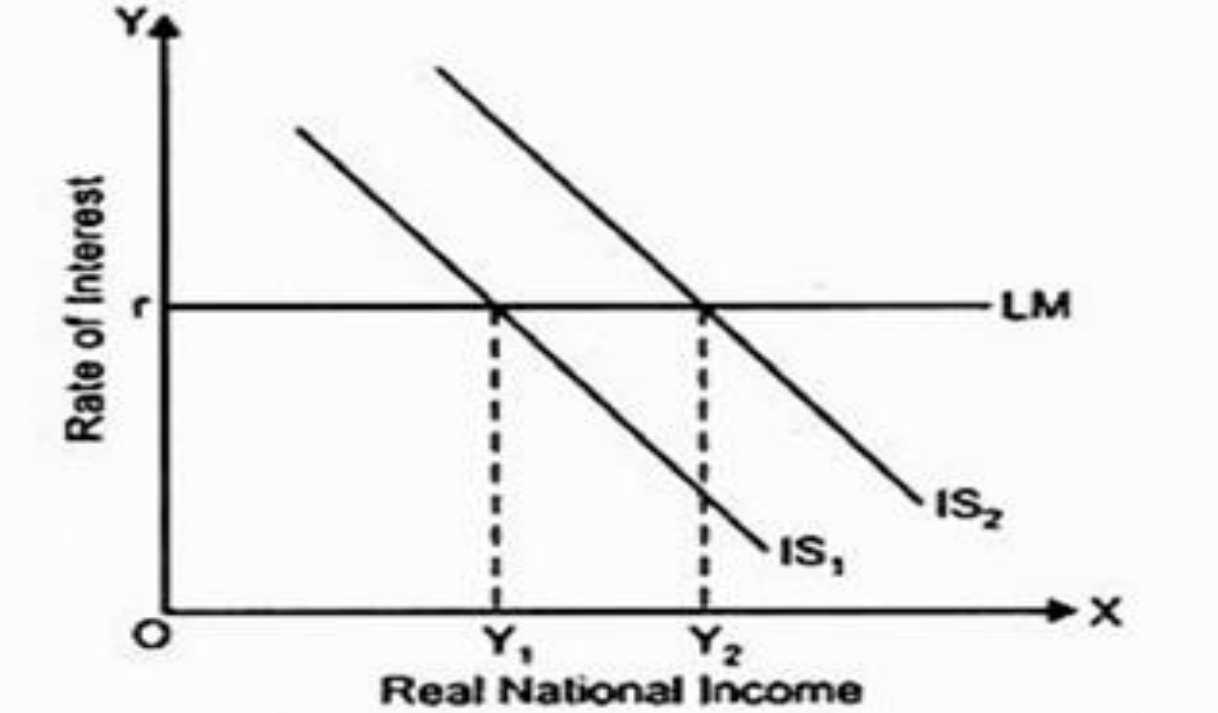

Fig. 20.13. *With a horizontal LM curve when there is no crowding out effect, expansionary fiscal policy has maximum effect on natural income.*

The Classical Case of Zero Interest-Responsiveness of Demand for Money and Crowding-Out Effect:

Expansionary fiscal policy, that is, increase in government expenditure or cut in taxes has no effect on the level of real income when the LM curve is vertical, that is, interest- responsiveness of demand for money is zero. This is a classical case where fiscal stimulus provided by increase

in government spending increases only the interest rate which crowds out private investment equal to the increase in government expenditure times the multiplier, that is, $\Delta G \times 1/1 - MPC$.

As a result, level of national income remains unaffected. Thus, with a vertical LM curve (i.e., zero interest -responsiveness of demand for money), there is full or complete crowding out. This is shown in Fig. 20.14 where a vertical LM curve is drawn at the level of national income Y_1. Initially, the IS_1 curve intersects the vertical LM curve so that in equilibrium rate of interest is r_1 and real national income is Y_1.

Now suppose the government adopts expansionary fiscal policy and increases its expenditure shifting the IS curve to IS_2. However, the new equilibrium between IS_2 curve and the given vertical LM curve is at point E_2. In this new equilibrium situation rate of interest has risen from r_1 to r_2, the level of real national income remains unchanged at Y_1.

This means rise in interest rate has completely wiped out the expansionary effect on the level of real national income by crowding out private investment. In this case crowding-out of private investment equals the increase in government expenditure times its multiplier (i.e. $\Delta G \times 1/1 - MPC$) and therefore leaves real national income unaffected.

Numerous historical episodes show that the crowding-out effect is neither complete nor full, nor is it non-existent, it is only partial as shown in the Figure 20.6 depending upon the degree of steepness of LM curve. Whether crowding out is zero, complete or partial depends on the interest- responsiveness of demand for money, that is, slope of the LM curve.

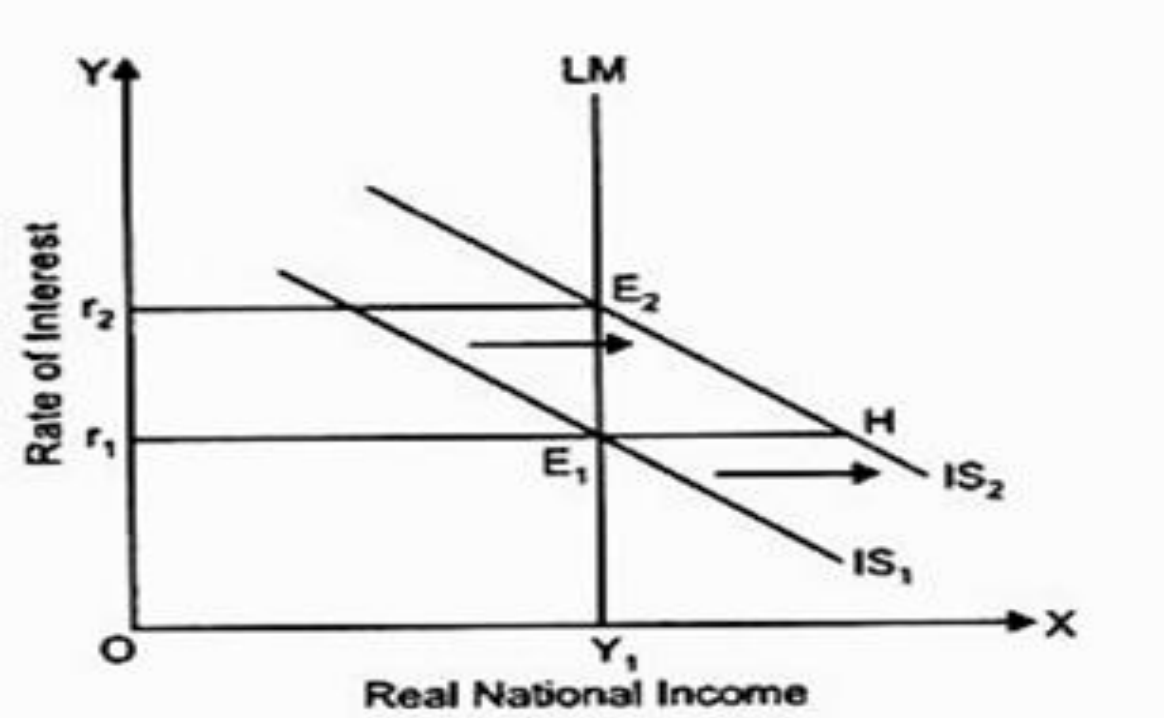

Fig. 20.14. *Full Crowding-Out of Fiscal Stimulus: The Classical Case*

The Importance of Crowding-Out Effect Expansionary Fiscal Policy:

We have seen above that the increase in real national income (i.e., multiplier effect) as a result of expansionary fiscal policy (e.g., increase in government expenditure) depends on interest elasticity of demand for money (that is, slope of LM curve). Three points are worth considering about the effect of fiscal stimulus on real national income.

First, in our analysis of IS-LM curves model, we have assumed that prices remain constant and the existing level of aggregate output (i.e., real national income) is below the full-employment level. In this situation there is a scope for increase in output or real national income and therefore when the government expands its expenditure causing increase in aggregate demand, the firms increase their output and

employment. In this case the magnitude of fiscal multiplier is quite large.

However, in a fully employed economy crowding out of fiscal stimulus occurs through a different route. When there is full employment in the economy, increase in aggregate demand leads to the rise in price level as the economy moves up along an upward-sloping short-run aggregate supply curve.

Now, the rise in price level, nominal money supply remaining constant, reduces the real money supply, that is, M/P decreases. The reduction in money supply shifts the LM curve to the left raising the interest rate to rise until the initial increase in aggregate demand as a result of expansion in government expenditure is fully wiped out.

This case is depicted in Fig. 20.15 where initially IS_1 and LM_1 curves intersect at point E_1 and determine level of national income Y which is a full-employment level. Now, the increase in government expenditure causes IS curve to shift to the right IS_2, the economy moves to point E_2.

Since with a shift in IS curve to IS_2 aggregate demand increases along an upward sloping short-run aggregate supply curve, this will lead to the rise in price level resulting in decline in real money supply. This decline in real money supply will bring about a leftward shift in the LM curve to the left to LM_2 position and raise the interest rate to r_2 so that the initial increase in national income is fully crowded out. As a result, expansionary fiscal policy fails to raise level of real national income and has therefore zero multiplier effect.

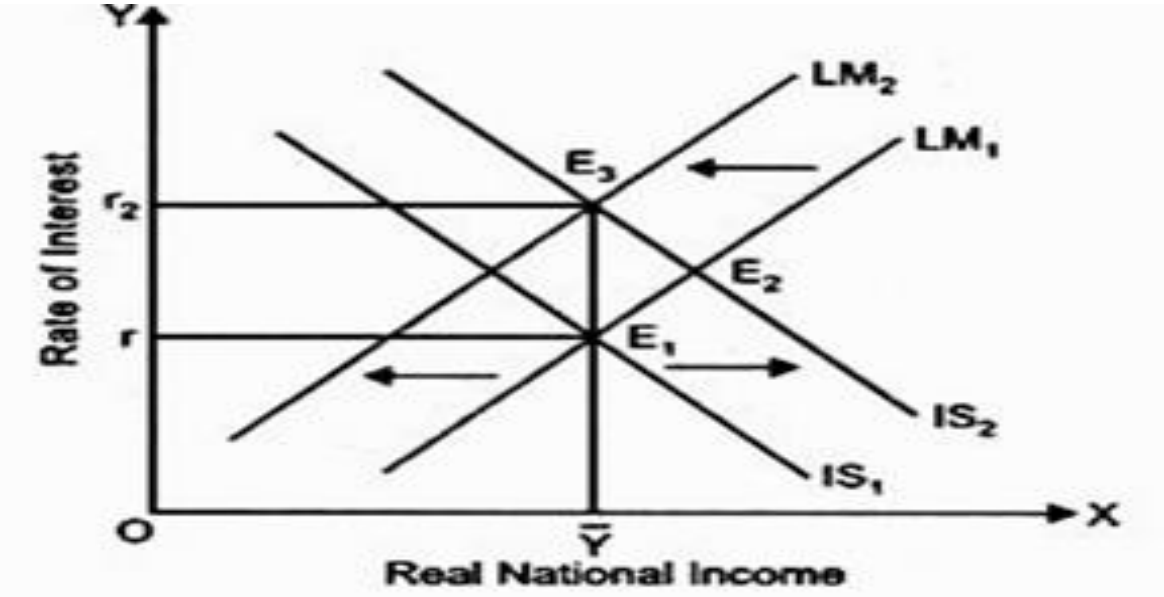

Fig. 20.15. *Full Crowding-Out of Fiscal Stimulus in Case of Existing Full Employment of Resources*

The second case occurs when there is unemployment of resources in the economy and the LM curve slopes upward to the right. In this case fiscal stimulus through increase in government expenditure will raise interest rate but level of real national income will also increase. Due to unemployment resources, there will not be much increase in price level when aggregate demand increases.

As a result, crowding-effect of fiscal stimulus is only partial, and there is net increase in national income. Therefore, in this case there is some multiplier effect of expansionary fiscal policy though it is less than the Keynesian multiplier effect (i.e., $\Delta G.1/1 - MPC$). This case is depicted in Fig. 20.16 where initially IS_1 and LM curves intersect at point E_1.

Expansionary fiscal policy with its multiplier effect shifts IS curve to IS_2 equal to the horizontal distance E_1 H. With the given LM curve and the new IS_2 curve the new equilibrium is reached at point E_2 and, as will be seen from the Figure 20.16, the national income increases from Y_1 to Y_2, the income equal to KH has been wiped out due to crowding-out effect of rise in interest rate from r_1 to r_2.

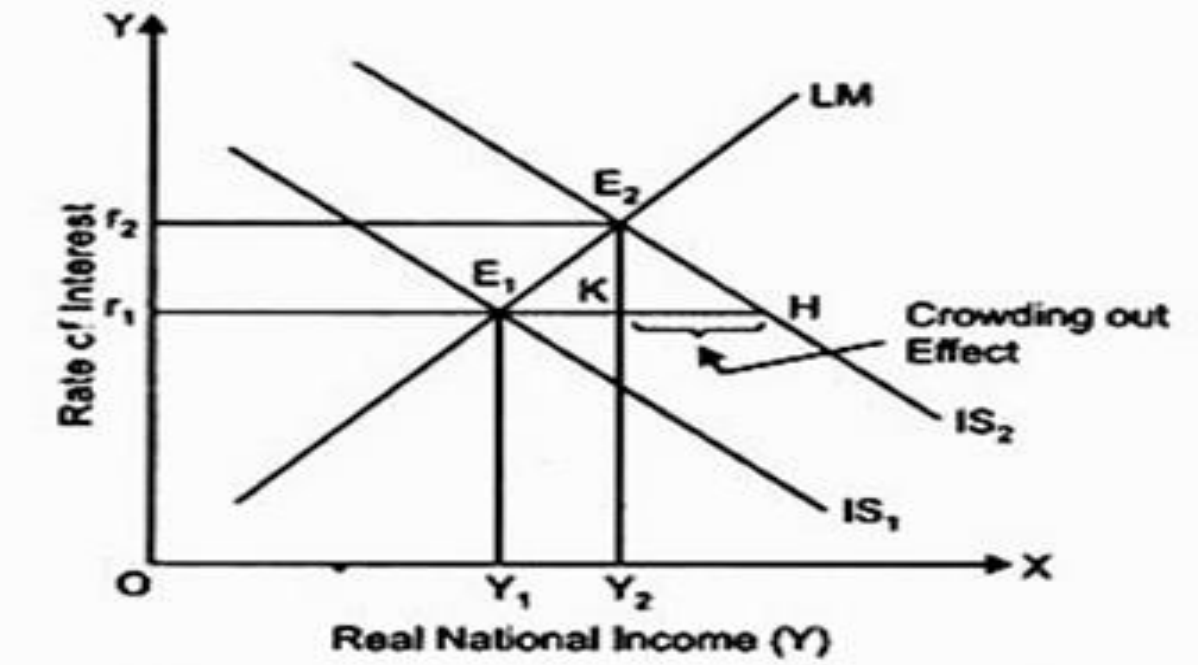

Fig. 20.16. *In case of unemployment of resources, there is partial crowding out and expansionary fiscal policy has some multiplier effect*

However, there is further effect of expansionary fiscal policy. With the net increase in national income from Y_1 to Y_2 resulting from the shift in IS curve from IS_1 to IS_2 the level of saving will increase. This increase in saving enables the economy to finance a large budget deficit with smaller amount of government borrowing which would ensure interest rate will not rise much and as a result crowding-out effect of expansionary fiscal policy on private investment will be smaller.

Monetary Accommodation:

The third case occurs when there is unemployment in the economy so that there is possibility of increases in output as a result of increase in aggregate demand. In this case interest rate need not rise when there is increase in government spending shifting IS curve to the right but at the same time the Central Bank of the country raises the money supply to prevent the rise in interest as a result of increase is government spending. This is called monetary accommodation by the Central Bank.

Thus, “Monetary policy is accommodating when in the course of fiscal expansion, the money supply is increased to prevent interest rates from rising”. In this case of sufficient monetary accommodation, rate of interest does not rise, and therefore there is no crowding-out effect on private investments, the expansionary fiscal policy brings about increase in national income equal to increase in government expenditure times the Keynesian multiplier (i. e., $\Delta G \times 1/1 - MPC$).

This case of monetary accommodation of fiscal expansion is depicted in Fig. 20.17 in which it will be seen that initially equilibrium is at point E_1 where IS_1 and LM_1 curves intersect determine Y_1 level of income and r_1 rate of interest. Now, fiscal stimulus by the government shifts the IS curve to IS_2 and given the LM_1 curve, equilibrium will be at point E_2 where rate of interest rises to r_2 which would crowd out private investment.

To prevent this crowding out, the Central Bank adopts the monetary accommodation policy and for this it increases money supply sufficiently so that LM curve shifts to the right to LM_2 which intersects IS_2 curve at point E_3 so that interest remains at the initial level r_1 and income increases to Y_2.

Thus the increase in income equal to E_1 E_3 or Y_1 Y_2 that occurs equals the increase in government expenditure times the Keynesian multiplier (i.e., $\Delta G. 1/1\text{-}MPC$); crowding out having been eliminated by expansion in money supply by the Central Bank.

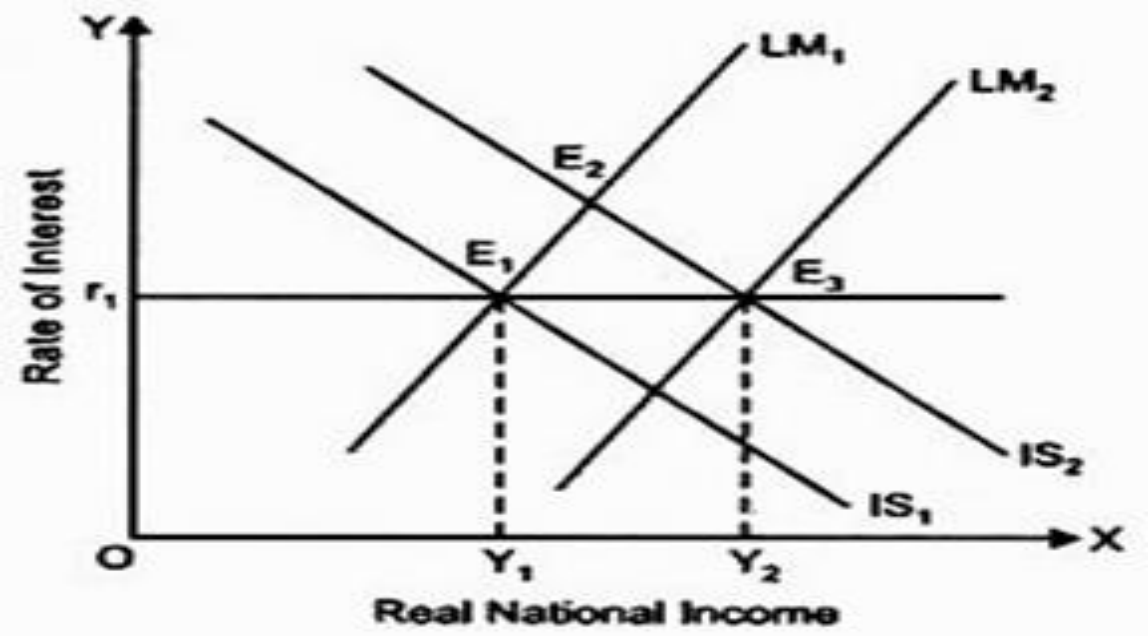

Fig. 20.17. *Monetary Accommodation of Expansionary Fiscal Policy*

It may be noted that in 2008-09 and 2009-10 when due to global financial crisis, India faced the problem of large slowdown of the economy, the Indian government adopted fiscal stimulus measures such as raising its expenditure through borrowing on a large scale from the market and cut rates of many indirect taxes to prevent sharp slowdown of the Indian economy, the Reserve Bank of India adopted accommodative monetary policy so that rate of interest does not rise.

To this end, the RBI greatly reduced its repo rate (the ratio at which it lends to the commercial banks) and also lowered the cash reserve ratio (CRR) of the banks so that more finds are available with them to lend to the business firms for investment and consumption purposes, such as housing loans, car loans at lower rate of interest. This policy succeeded and India achieved 6.7 per cent growth in the crisis year 2008- 09 and 8.6 per cent in 2009-10.