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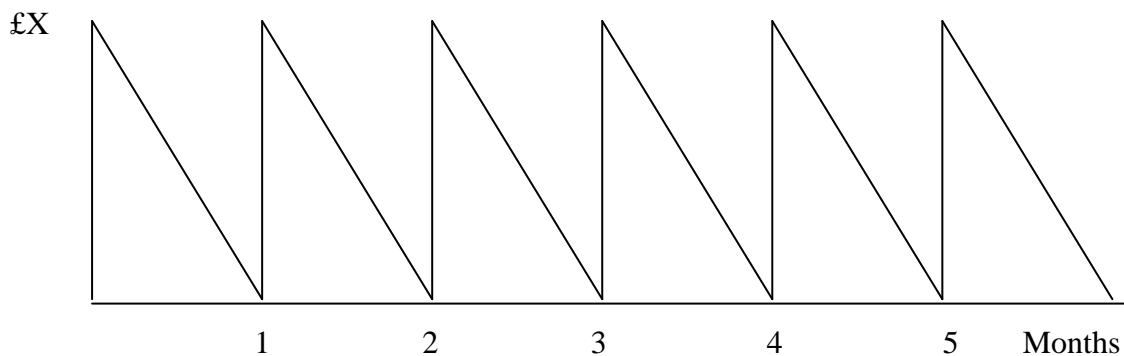
Week 19

The Demand for Money

We can think of the demand for money as arising from three motives that are related to the functions that money performs in the economy. These are: the transactions motive, the asset motive and the precautionary motive. The last of these suggests that people hold money if they are uncertain about future income or payments and so they will wish to hold money to meet unexpected payments or income shortfalls. But our main focus is on the other two motives.

Transactions demand

Because receipts and payments are not perfectly synchronised, people hold money as a “buffer stock”. If I am paid £X per month and I spend continuously, my profile of money holding looks as follows:



On average I am holding a money balance of $£\frac{1}{2}X$. We assume that money carries no interest and that transactions costs make it too expensive to continuously switch in and out of interest bearing assets.

In the classical monetary theory, the stock money demand is related to transactions through the following identity:

Where T is the number of transactions over the period and P is the average money amount of each transaction. The amount of money, M , necessary to support these transactions depends on the velocity of circulation, V . This is the number of times on average that each unit of money changes hands over the period.

The Quantity Theory of Money

In the classical theory V is regarded as a constant, or at least to be fairly stable. In addition we can relate monetary requirements to the level of national income, Y , rather than to the number of transactions, T . Thus we have: $MV = PY$, or:

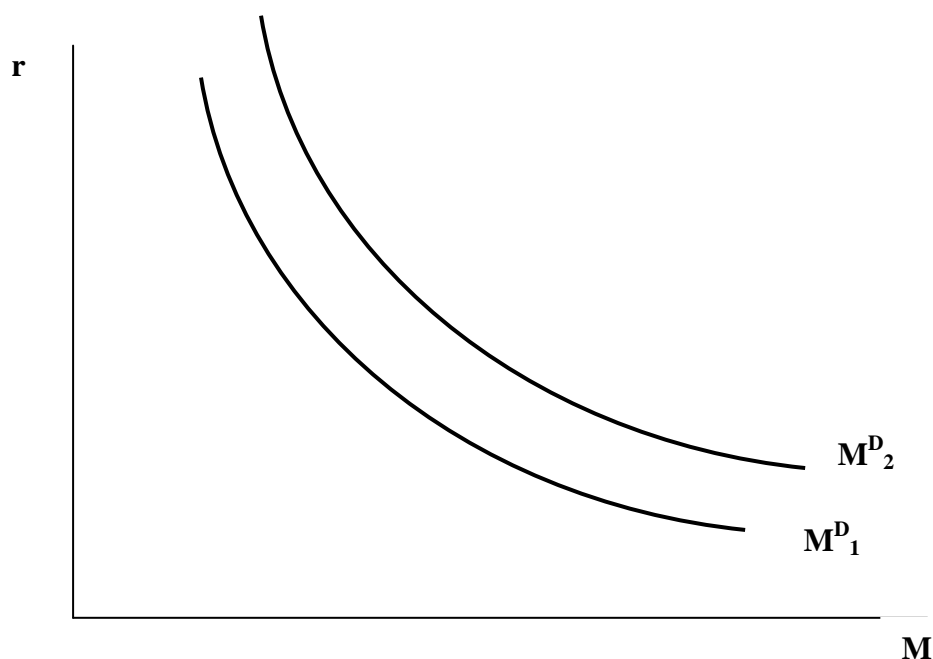
The demand for real money balances, M/P , depends on real national income and the (income) velocity of circulation.

The classical economists assumed that Y was fixed at full employment. So if V and Y are unchanging, any increase in M must be matched by an equal proportionate increase in P . So the Quantity Theory of Money has a simple and powerful prediction: an increase in the money supply will cause an equal proportionate increase in the price level.

Asset Demand

Money is a store of value but there are alternatives. We assume that the alternative asset is bonds. Money has zero interest but it is more convenient to hold and can more easily (or at lower cost) be exchanged for goods. When the interest rate is high, people will be more willing to economise on their holdings of money to obtain the interest they would get by switching some of it to bonds

The interest rate represents the opportunity cost of holding money. When the interest rate is low people will prefer to hold more money and fewer bonds. This schedule is sometimes known as liquidity preference.



We can now express the demand for real money balances as depending negatively on the interest rate and positively on national income (the transactions component).

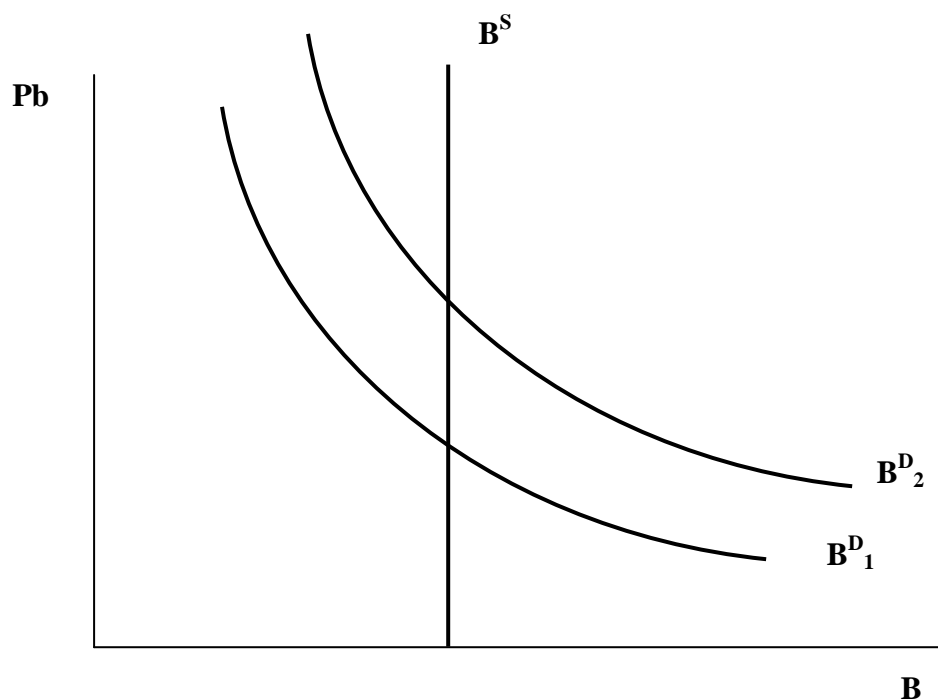
Here we use a linear function for convenience. Note that the demand for money curve is drawn for a given Y and P . If income increases, the demand for money shifts up e.g. from M^D_1 to M^D_2 .

The Bond Market

Bonds have a fixed “coupon” payment, c , per year. The price of a bond is P_b . If a bond is bought for price P_b and held for a year the interest rate is:

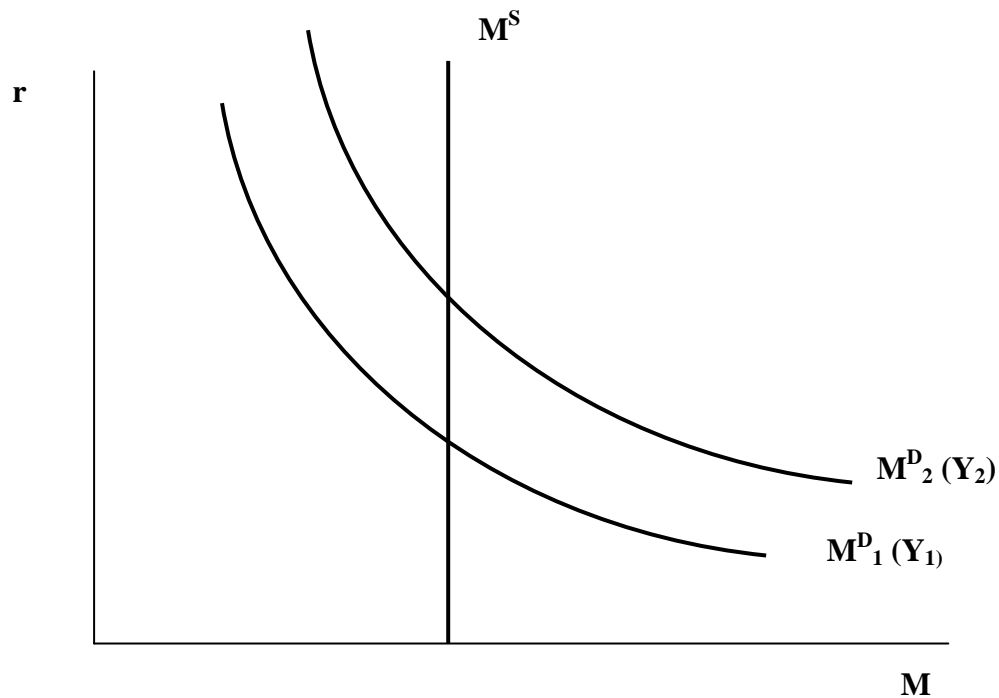
E.G if a bond is valued at $P_b = \text{£}200$ and it pays a coupon of $c = \text{£}10$ per year then the interest rate is 5 percent.

We assume that the stock of bonds is large compared with any additions to the stock, so we will treat it as fixed. The price of bonds is determined by supply and demand in the bond market

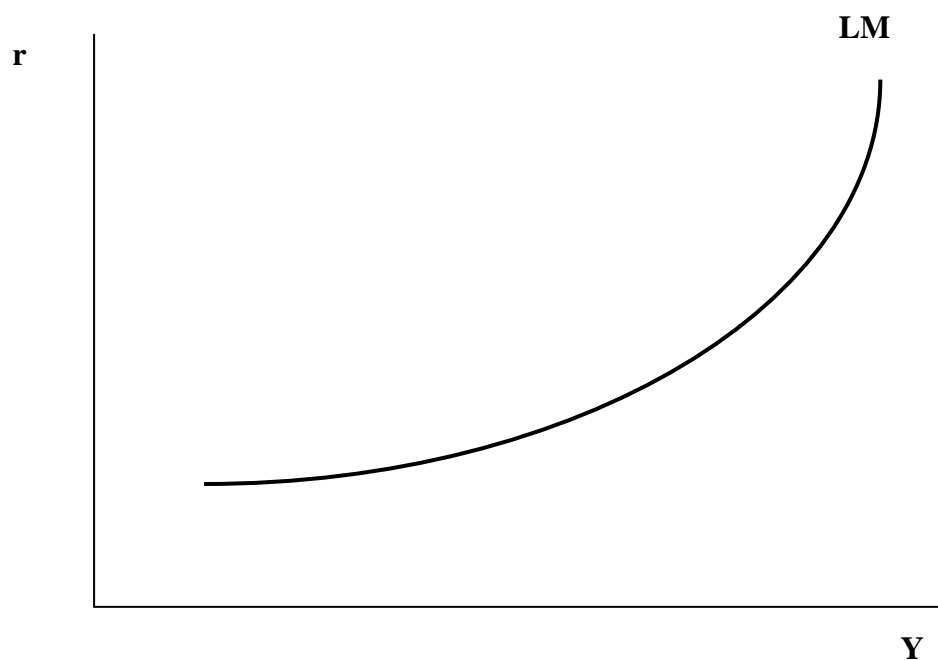


As the demand for bonds shifts up, e.g. from B^D_1 to B^D_2 , the price rises and the interest rate, $c/P_b = r$, falls.

Now suppose for a given money supply, income in the economy increased. People would want to hold more money to facilitate the higher level of transactions. They would try and exchange bonds for money. The demand for bonds would fall, raising the interest rate. The interest rate would continue to rise until people were just willing to hold the fixed amount of money in circulation (and the same quantity of bonds).



Hence for a given money supply, equilibrium in the money market can be represented by a series of points relating r and Y .



This is the LM curve; it represents points of equilibrium in the money market between Liquidity Preference and Money Supply. The higher the level of income, the higher the interest rate must be to ensure equilibrium between money demand (liquidity preference) and money supply.

Assume that the money stock is fixed by the Bank at $M^S = \bar{M}$. Money demand is:

Setting money supply and demand equal ($M^D = M^S = \bar{M}$), we have:

Rearranging, we can write:

The interest rate is determined by real national income (positively) and the real money supply (negatively).

Question: Why does an increase in the money supply reduce the interest rate? Trace out the implications through the bond market.

A Digression on Financial Markets

Here we have only one asset, bonds. But in reality there is a spectrum of assets with different maturities and different characteristics. One important issue is capital gains. In the case of the bond we have ignored the fact that a purchaser may expect a capital gain. In that case the total return will be higher, and purchaser will be influenced by future *expectations*.

Stock markets are important and volatile. The price of a share is related to the present value of the expected future returns (dividends and capital gains). These are especially volatile, as we have recently seen. The stock market price index is often seen as an indicator of optimism (high price) or pessimism (low price) about the future.

Financial investors will compare the returns across different assets and shift their portfolios towards those with the highest returns. This substitution (arbitrage) ties together the rates of return on different assets. But investors will also trade off risk against return, and so in equilibrium, the returns on risky assets will be higher than on 'safe' assets to reflect the risk premium.

Topic 4: FISCAL AND MONETARY POLICY IN A CLOSED ECONOMY

IS/LM Analysis

(Begg, Ch 20)

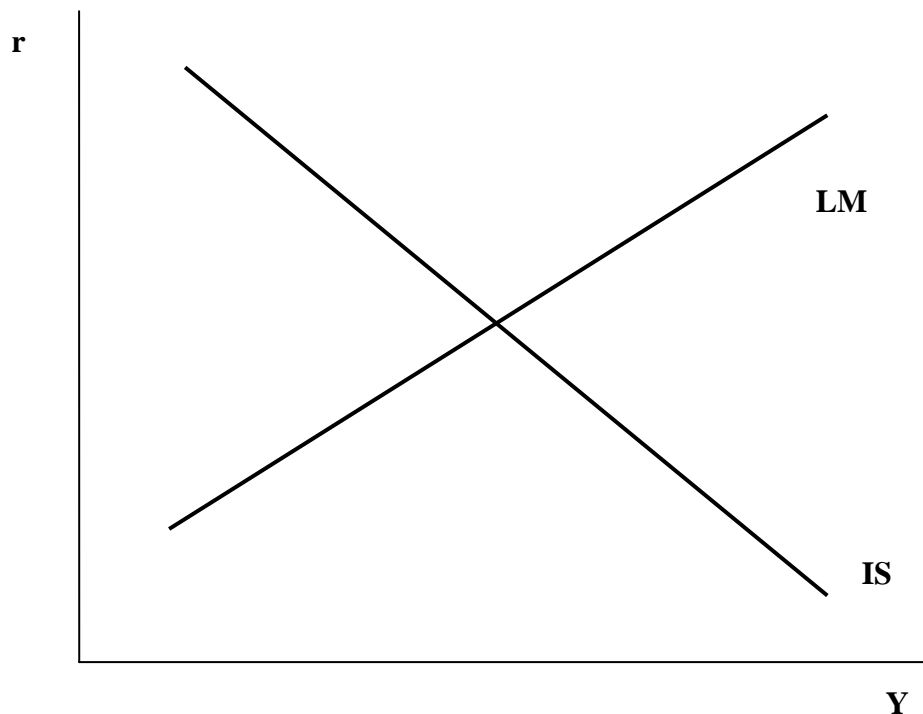
We have derived two schedules, the IS curve, which represents points of equilibrium in the goods market, and the LM curve, which represents points of equilibrium in the money market. By putting these two schedules together, we obtain overall equilibrium in the economy, to give unique values for the interest rate and national income. Note that here we are (still) assuming that the prices are given.

The IS curve:

$$Y = C + I + G; \quad Y = A + c(Y - T_d) + G + h - kr$$

The LM curve:

$$\frac{\bar{M}}{P} = -v_1 r + v_2 Y$$



To derive the equilibrium level of income substitute the expression for r , the LM curve into the expression for Y , the IS curve.

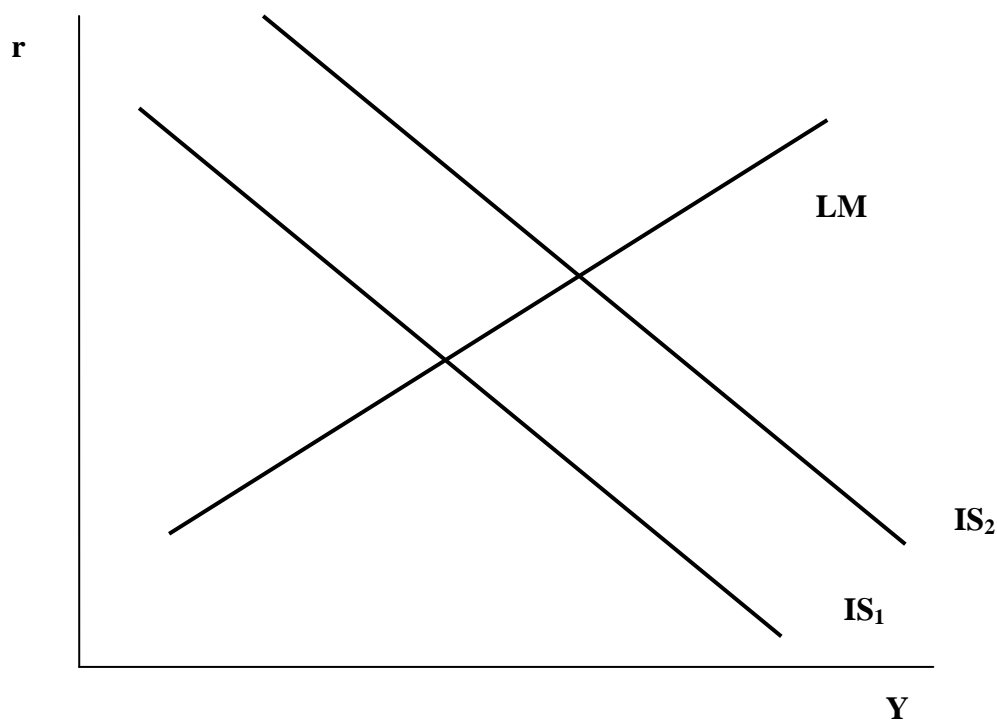
Rearranging

Both these terms are positive, so a rise in G or an increase in \bar{M} will cause a rise in national income. Note that:

- The expenditure multiplier is now smaller as a result of the interaction of goods and money markets.
- We could also derive an analogous expression for the interest rate (try this as an exercise). The result will be that an increase in G will raise the interest rate and an increase in \bar{M} will reduce it.

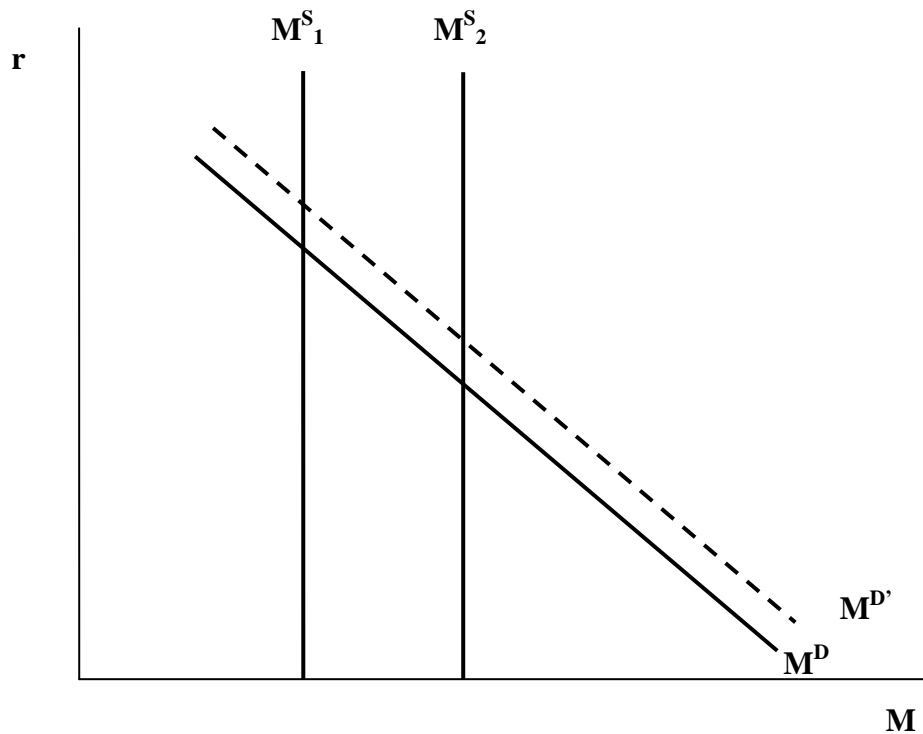
Fiscal policy

An increase G will shift the IS curve to the right, working through the expenditure multiplier. This leads to an increase in income and an increase in the interest rate.



Monetary policy

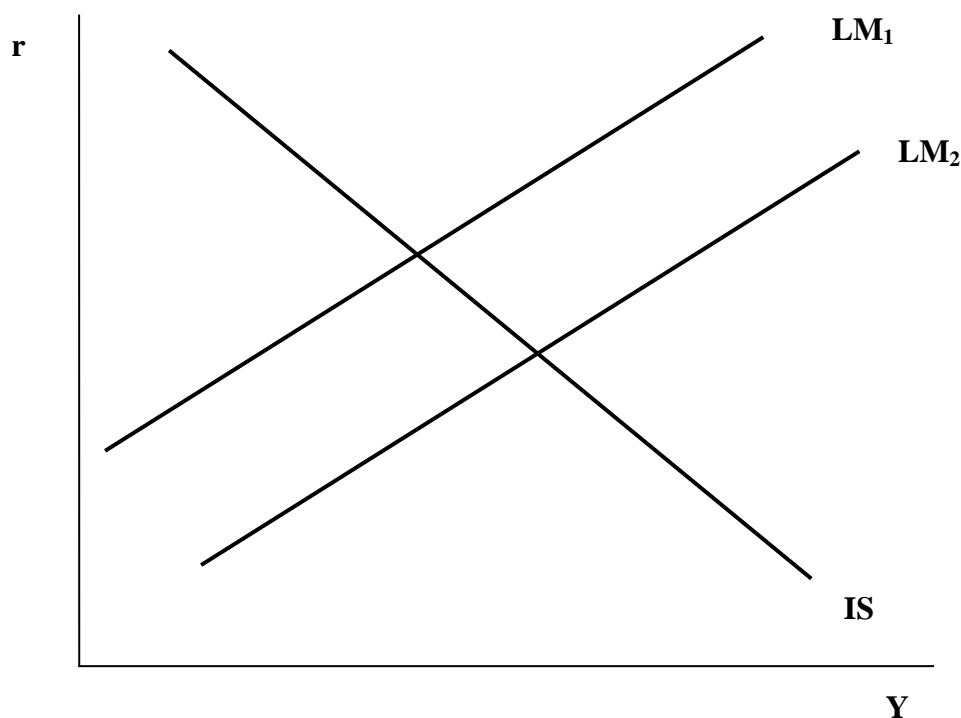
The Bank increases the money supply, e.g. by buying bonds and expanding cash or Bank of England deposits, leading to a multiple expansion of commercial bank deposits through the money multiplier. People try to shift into bonds, the price of bonds rises, the interest rate falls as the money supply increases.



With the larger money supply, money market equilibrium gives a lower interest rate for any given level of income. The LM curve has shifted to the right. The new IS/LM equilibrium gives a higher level of national income and a lower interest rate. Thus the increase in the money supply shifts the LM curve, moving along the downward sloping IS curve. Note that the increase in income will also have some offsetting effect by increasing the demand for money. The interest rate falls by less than if income had stayed at the original level.

Is this really what the Bank of England does? Under normal circumstances it sets the interest rate rather than fixing the money supply. But note that in order to make a change in the interest rate effective, the money supply must also be changed. In this case the change in the money supply is a side-effect of the choice of an interest rate target.

Why is this? In the late 1970s and early 1980s the Bank experimented with monetary targets. This was not very successful. This is because of (a) instability in the money multiplier, (b) instability in demand for money, (c) Goodhart's law. But above all, if the Bank seeks to influence economic activity then it is best to target the interest rate directly.



Effectiveness of Fiscal and Monetary Policy

Here there are two policy instruments but (at the moment) only one target—the level of national income. So either (or both) could be used.

If the IS curve is steep then (k is small) then monetary policy is not very effective. In the ‘Keynesian’ period up to 1971 fiscal policy was used more actively and monetary policy was accommodating. There may be a good reason why fiscal policy was more powerful at this time. Question: what is it?

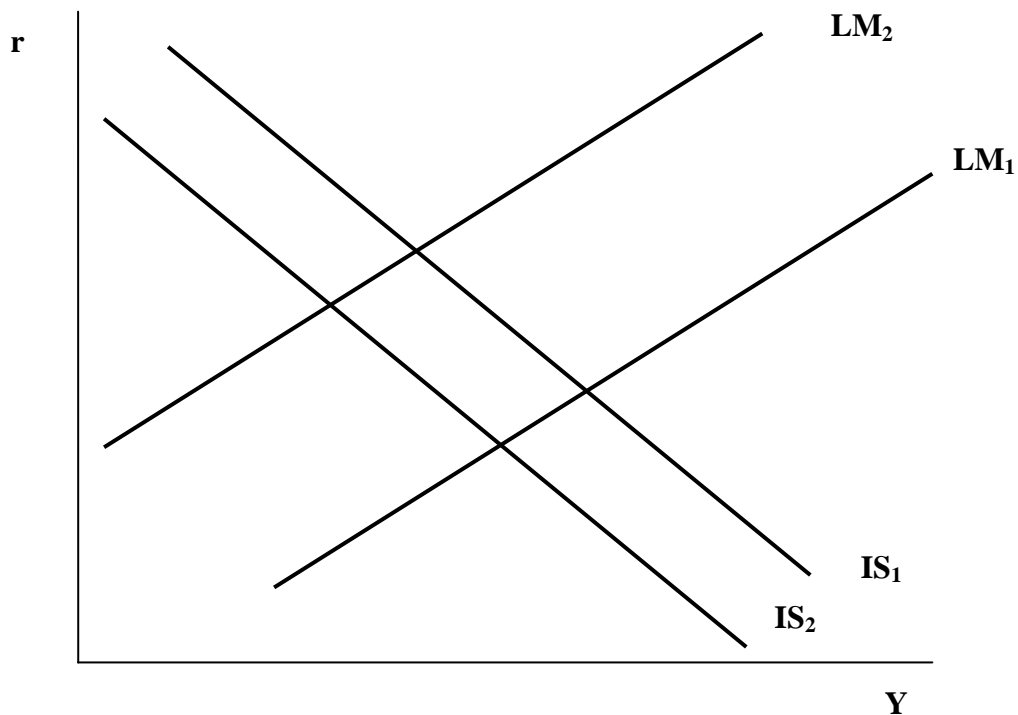
The 1970s and 1980s saw a revolution in economic policy. Monetarists argued that monetary policy was more powerful than the Keynesians had believed, and maybe it was. If the IS curve was relatively flat and the LM curve was relatively steep then monetary policy would have stronger effects. But the monetarists also believed that the effects monetary policy had long lags and so it is best to keep the money supply stable, to avoid creating instability.

Rules versus discretion: many economists argued that in order to keep inflation under control (and to avoid political business cycles) it was better to follow fixed rules for fiscal and monetary policy. That way, people could better anticipate what the authorities would do. But how could this be made credible?

Who does what? Until the early 1990s the government controlled both fiscal and monetary policy. In 1992 the Bank of England started to use an inflation target as its monetary policy rule. In 1997 the Bank was made independent (but still ultimately accountable to the Chancellor), to increase the credibility of the monetary rule.

The Global Financial Crisis.

The GFC shifted the LM curve to the left as the money multiplier fell. The worldwide shock led to a wave of pessimism leading to a fall in trade, investment and consumption.



IS and LM both shifted to the left, especially the latter. Interest rates rose and income began to fall.

Policy in the GFC

Governments and Central Banks reacted with both fiscal and monetary policies.

Monetary policy: The Bank of England developed policies to:

- Avert the collapse of the monetary system and stop the contraction of the money multiplier
- Pump in money and reduce interest rates—down to 0.5 percent.

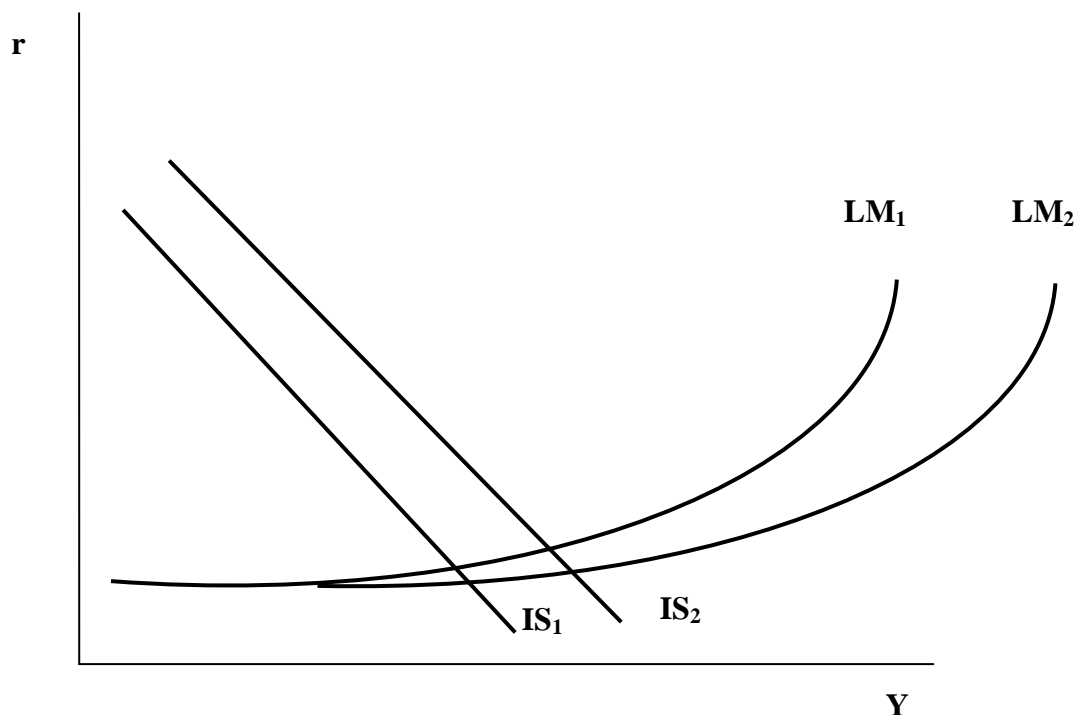
Fiscal policy: the government tried to stem the fall in economic activity by:

- Allowing built-in stabilisers to work (so the deficit increases).

- Additional fiscal stimulus measures, expanding G and reducing T_e (the deficit increases even more).

The limits to policy

Interest rates cannot go any lower (they cannot become negative). Some economists argue that we are in the ‘liquidity trap’. The LM curve becomes very flat and further monetary expansion cannot reduce interest rates. The Bank of England has adopted the strategy of ‘quantitative easing’: buying bonds to shore up the liquidity of the banking system, even though interest rates are very low.



In this situation monetary policy can't do much directly but fiscal policy should be powerful. Quantitative easing since Oct 08 is seen as helping to ‘grease the wheels’ of the banking system, especially to support loans to industry. This might have a direct effect (not through interest rates) on banks’ willingness to make loans to businesses.

Something similar happened in the Great Depression of the 1930s. There was a demand shock, followed by major bank failures, notably in the US and Germany. But fiscal policy was not proactive and monetary policy was not eased until a couple of years into the depression. Unemployment peaked at 25 percent in the US (1933) and 17 percent in the UK, (1932), and the recovery was slow.

So the lessons of policy failure in the 1930s have been applied in the GFC. But has it worked? My answer would be a qualified ‘yes’.