**JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR**

# Faculty of Education and Methodology

**Faculty Name**- JV'n  Dr. Md Meraj Alam

**Program**- BA (Hons) Economics 2nd Semester

**Course – Macroeconomics II**

**Digital session name** – Money Market Equilibrium: Derivation of LM Curve

**Derivation of the LM Curve:**

The LM curve can be derived from the Keynesian theory from its analysis of money market equilibrium. According to Keynes, demand for money to hold depends upon transactions motive and speculative motive.

It is the money held for transactions motive which is a function of income. The greater the level of income, the greater the amount of money held for transactions motive and therefore higher the level of money demand curve.

The demand for money depends on the level of income because they have to finance their expenditure, that is, their transactions of buying goods and services. The demand for money also depends on the rate of interest which is the cost of holding money. This is because by holding money rather than lending it and buying other financial assets, one has to forgo interest.

**Thus demand for money ($M^d$) can be expressed as:**

Md – L(Y, r)

Where $M^d$ stands for demand for money, Y for real income and r for rate of interest. Thus, we can draw a family of money demand curves at various levels of income. Now, the

intersection of these various money demand curves corresponding to different income levels with the supply curve of money fixed by the monetary authority would gives us the LM curve.

The LM curve relates the level of income with the rate of interest which is determined by money-market equilibrium corresponding to different levels of demand for money. The LM curve tells what the various rates of interest will be (given the quantity of money and the family of demand curves for money) at different levels of income.

But the money demand curve or what Keynes calls the liquidity preference curve alone cannot tell us what exactly the rate of interest will be. In Fig. 24.2 (a) and (b) we have derived the LM curve from a family of demand curves for money.
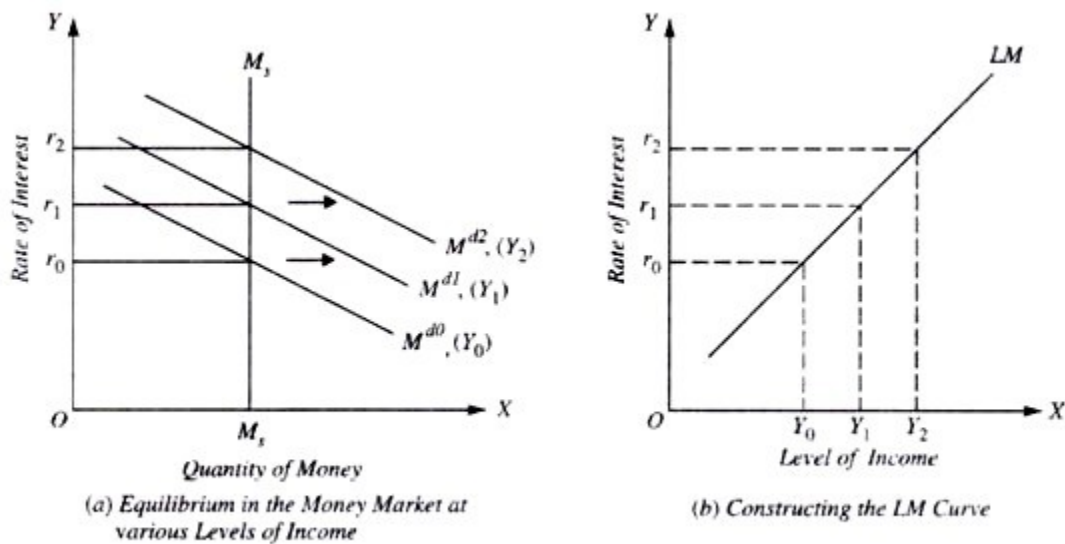


(a) Equilibrium in the Money Market at
various Levels of Income

(b) Constructing the LM Curve

**Fig. 24.2.** *Derivation of LM Curve*

As income increases, money demand curve shifts outward and therefore the rate of interest which equates supply of money, with demand for money rises. In Fig. 24.2 (b) we measure income on the X-axis and plot the income level corresponding to the various interest rates determined at those income levels through money market equilibrium by the equality of demand for and the supply of money in Fig. 24.2 (a).

**Slope of LM Curve:**

It will be noticed from Fig. 24.2 (b) that the LM curve slopes upward to the right. This is because with higher levels of income, demand curve for money ($M^d$) is higher and consequently the money- market equilibrium, that is, the equality of the given money supply with money demand curve occurs at a higher rate of interest. This implies that rate of interest varies directly with income.

It is important to know the factors on which the slope of the LM curve depends. There are two factors on which the slope of the LM curve depends. First, the responsiveness of demand for money (i.e., liquidity preference) to the changes in income. As the income increases, say from $Y_0$ to $Y_1$ the demand curve for money shifts from $Md_0$ to $Md_1$ that is, with an increase in income, demand for money would increase for being held for transactions motive, $M^d$ or $L_1 = f(Y)$.

This extra demand for money would disturb the money market equilibrium and for the equilibrium to be restored the rate of interest will rise to the level where the given money supply curve intersects the new demand curve corresponding to the higher income level.

It is worth noting that in the new equilibrium position, with the given stock of money supply, money held under the transactions motive will increase whereas the money held for speculative motive will decline.

The greater the extent to which demand for money for transactions motive increases with the increase in income, the greater the decline in the supply of money available for speculative motive and, given the demand for money for speculative motive, the higher the rise in tie rate of interest and consequently the steeper the LM curve, $r = f(M_2 L_2)$ where $r$ is the rate of interest, $M_2$ is the stock of money available for speculative motive and $L_2$ is the money demand or liquidity preference for speculative motive.

The second factor which determines the slope of the LM curve is the elasticity or responsiveness of demand for money (i.e., liquidity preference for speculative motive) to the changes in rate of interest. The lower the elasticity of liquidity preference for speculative motive with respect to the changes in the rate of interest, the steeper will be the LM curve.

On the other hand, if the elasticity of liquidity preference (money demand-function) to the changes in the rate of interest is high, the LM curve will be flatter or less steep.

**Course Outcome:** The goal of this paper will be to expose the students to the basic principles of macroeconomics. The emphasis will be on thinking like an economist and course will illustrate how economic concepts can be applied to analyse real-life situations. In this course, the students are introduced to money and interest, theories of inflation, rate of interest, trade cycle and growth models.