

THEORY OF INTEREST

From the point of factors of production capital has two concepts – i) money capital or loan capital and ii) real capital.

If the producer uses his savings in the production process or if he takes loan, the amount of money thus used is known as **money capital or loan capital**. If he uses this money for purchasing machineries to be used in the prodn process then the machineries are called **real capital**.

Definitions

In simple words, interest means the reward for the use of capital, money capital or real capital. It is also called the income of the owner of capital for lending it.

In other words, it is the price paid by the borrower of capital to its lender.

Interest is the price paid for the use of capital in any market.

Interest is a reward for parting with liquidity for a specified period.

Gross Interest and Net Interest

Gross Interest

Gross interest refers to the entire payments made by the borrower to the lender on a certain amount of loan received for a period of time. It includes not only the payment for the use of money capital but also for risks, inconvenience and management.

Thus,

Gross Interest = Net Interest + Risk bearing + Reward for management + reward for inconvenience.

Net Interest

Net interest is the payment purely made for the use of money. Net interest rate is determined by the forces of demand and supply of

funds or money. It generally relates to public and is comparatively low to gross interest.

Nominal Interest Rate and Real Interest Rate

The **nominal interest rate** (or **money interest rate**) is the percentage increase in money you pay the lender for the use of the money you borrowed. For instance, imagine that you borrowed Rs100 from your bank one year ago at 8% interest on your loan. When you repay the loan, you must repay the Rs100 you borrowed plus Rs8 in interest—a total of Rs108.

But the nominal interest rate doesn't take inflation into account. In other words, it is unadjusted for inflation. Inflation is a rise in the general price level. A 5% inflation rate means that an average basket of goods you purchased this year is 5% more expensive when compared to last year. This leads to the concept of the **real**, or inflation-adjusted, **interest rate**. The real interest rate measures the percentage increase in purchasing power the lender receives when the borrower repays the loan with interest. In our earlier example, the lender earned 8% or Rs8 on the Rs100 loan. However, because inflation was 5% over the same time period, the lender actually earned only 3% in real purchasing power or Rs3 on the Rs100 loan.

Thus real interest rate is nominal interest rate minus the rate of inflation.

$r = i - \pi$, where r : real interest rate, i : nominal interest rate, π : rate of inflation

This is Fisher's equation

Causes of Difference in Rates of Interest

1. Nature of Security

Interest rate varies with the type of property pledged behind the security. Loans borrowed against the security of gold carry less interest rate than loans against the security of immovable property like land or house.

2. Credit-Worthiness of the Borrower

Interest also depends upon the credit standing of the borrowers. It is because of this reason that persons of known integrity and credibility can get loans on easy terms.

3. Liquidity

Rate of interest also varies with the degree of liquidity of the asset offered as security against the loan. The greater the liquidity of the assets offered as security against the loan the lower will be the rate of interest and vice-versa.

4. Period of Loan

Rate of interest also depends upon the period of loan. Long-term rate of interest is higher than the short term. In a long term loan, money gets locked up for a longer duration. Naturally, the lender wants to be compensated by a higher rate of interest.

5. Amount of Loan

Rate of interest stands in an inverse relation to the amount of loan. The greater the amount of loan, the lower is the rate of interest and vice versa.

6. Difference Due to Distance

Distance between the lender and the borrower also causes difference between rates of interest. People are willing to invest their capital at a lower rate of interest in ventures nearer home than at a long distance.

7. Differences in Productivity

Productivity of capital differs from venture to venture. For highly productive ventures, people will be willing to borrow at a higher rate of interest and vice-versa.

8. Market Imperfections

Differences in the interest rate also originate from market imperfections that may be found in a loan market.

Can Interest be Zero?

There is a wide spread controversy among the economists whether the interest can be zero or not. Some economists opined that if marginal productivity of capital is zero and there is no saving and investment in the country, interest will be zero. But other economists refuted this version and remarked that in nature every economy is dynamic and marginal productivity of capital cannot be zero. Thus, there is no possibility for the rate of interest to be zero. A borrower has to pay some minimum amount of interest to the lender for the use of money capital. **Therefore, rate of interest can never be zero.**

There exist controversies among the economists regarding the determination of interest rate.

Four important theories for determining the rate of interest are i) Classical Theory

ii) Loanable Funds Theory

iii) Liquidity Preference Theory of Keynes

iv) Hicks Hansen Theory

Classical Theory of Interest

The economists like Ricardo, J. S. Mill, Marshall and Pigou developed the classical theory of interest which is also known as the capital theory of interest or the saving-investment theory of interest or the real theory of interest. According to this theory, interest is a real phenomenon and the rate of interest is determined exclusively by the real factors, i.e., the supply of and demand for capital under perfect competition. The supply of capital is governed by thrift (i.e. saving) or time preference and the demand for capital is influenced by the productivity of capital.

Assumptions

(i) Perfect competition exists in the factor market.

This assumption has the following implications:

(a) The equilibrium rate of interest is determined by the competitive forces of demand and supply in the capital market.

(b) Interest rate is flexible, i.e., it freely moves to whatever level the demand and supply forces dictate.

(ii) The theory assumes full employment of resources.

This assumption has the following implications:

(a) Saving involves sacrifice of abstaining from or postponing of consumption and interest is the reward for abstinence or waiting; it is only when all resources are fully employed, higher rate of interest is paid to induce people to save or abstain from consumption or postpone consumption

(b) Income level is assumed to be constant; it is at the full employment level that income and output do not change and become constant.

(c) The assumptions of full employment and given level of income lead to the further assumption that the demand and supply schedules of capital are independent and do not influence each other; it is only

when income changes as a result of a change in investment, that saving changes in consequence.

(iii) Economic agents act rationally, i.e., they are motivated by self-interest and want to maximise economic benefit.

(iv) The price level is assumed to be constant. If it changes then the economic agents do not suffer money illusion, i.e., savers and investors react to changes in the real interest rates and not the changes in the money interest rates.

(v) Money is neutral and serves only as a medium of exchange and not as a store of value.

Supply of and Demand for Capital

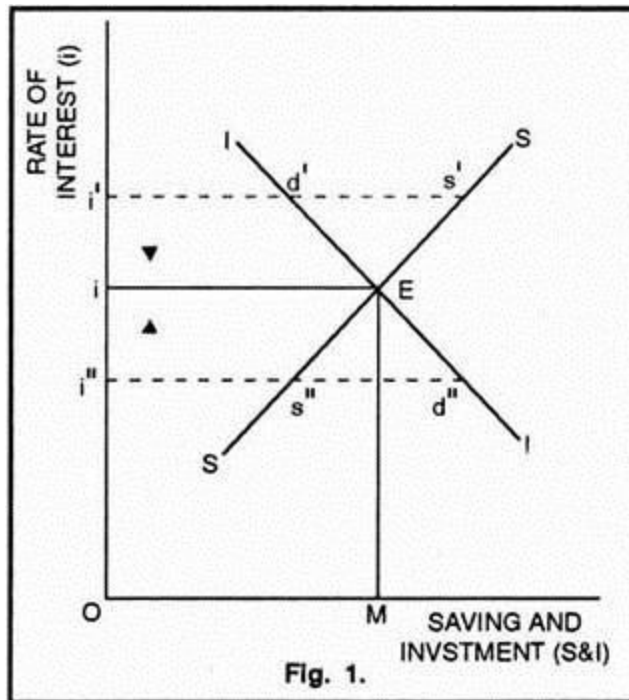
Supply of Capital

The supply of capital depends upon savings which, in turn, depend upon a number of psychological, economic and institutional factors broadly classified as – (a) the will to save, (b) the power to save, and (c) the facilities to save. Saving means curtailment of consumption or postponement of the present consumption. Thus, saving involves a sacrifice, abstinence or waiting. The rate of interest is considered to be the reward for abstinence or waiting.

It is an inducement for the act of saving or foregoing the present consumption. In deciding between the present consumption (which involves no saving) and the future consumption (which requires saving), the individual has to take into consideration the opportunity cost of each alternative and the opportunity cost is measured by the rate of interest.

For example, if the current rate of interest is 5% then by consuming Re. 1 of income now, the individual is foregoing the consumption of Rs. 1.05 one year later. Thus, the higher the current rate of interest, the greater the opportunity cost of present consumption as compared to the future consumption, and, as a result, greater the inducement to save out of the present income.

Hence, saving is interest elastic and there is a positive relationship between the rate of interest and saving. The supply curve of capital or the saving schedule (SS curve in Figure 1) slopes upward to the right which indicates that higher the rate of interest, larger will be the savings and greater will be the supply of capital and vice versa.



Demand for Capital

Capital is demanded by the investors because it is productive and brings profits to them. The demand for capital or investment demand depends, on the one hand, on the productivity of capital, i.e., returns on investment, and on the other hand, on the rate of interest, i. e., the cost of investment. Productivity of capital is subject to the law of diminishing returns.

Additional units of capital are less productive than the earlier units; with the investment of more and more capital, the marginal productivity of capital declines. The producer will continue his investment of capital as long as the productivity of capital is more than the rate of interest and will stop further investment when the productivity of capital equals the rate of interest. This shows that at

higher rates of interest, the producers demand less capital and at lower rates of interest, they demand more capital.

Thus, the demand for capital is inversely related to the rate of interest. The demand curve for capital or the investment schedule (II curve in Figure I) slopes downward to the right which indicates that higher the rate of interest, smaller the demand for capital.

Determination of Rate of Interest

Assuming the income level to be given, the rate of interest is determined by the intersection of the demand curve and the supply curve of capital.

In Figure 1, the II curve (demand curve for capital) intersects the SS curve (supply curve of capital) at point E. The equilibrium rate of interest is O_i and OM is the quantity of capital demanded and supplied at this rate. In other words, at the equilibrium rate of interest, i.e., O_i , saving = investment = OM.

Any deviation from the equilibrium rate of interest (O_i) will be unstable. If, at any time, the rate of interest rises to O_i' the supply of capital exceeds the demand for capital ($i' s' > i' d'$). As a result of this excess of capital supply, the rate of interest will fall to its equilibrium level (O_i). Similarly, if the rate of interest falls to O_i'' , the demand for capital exceeds the supply of capital ($i'' d'' > i'' s''$). As a result of this excess of capital demand, the rate of interest rises to its equilibrium level (O_i).

Features of Classical Theory

1. Capital Theory of Interest

In the classical theory, interest is defined as reward for the use of capital and the rate of interest is determined by the demand and supply of capital. The supply of capital is a positive and the demand for capital is a negative function of the rate of interest.

2. Real Theory

The classical theory is concerned with the real rate of interest which is determined purely by the real factors of saving and investment. The concept of real rate of interest can be defined as the money or market rate of interest less the anticipated rate of inflation. If it is assumed (as the classical theory does) that the price level is constant and everyone anticipates that it will remain constant, then the real and money rates of interest are equal.

3. Flow Theory

The theory is stated in flow terms. Total saving and total investment have been considered as flows per unit of time. In other words, the supply of saving is regarded as a flow of funds into the capital market and the demand for investment as a flow of funds off the capital market. The equilibrium of the capital market requires the equilibrium between the flows of saving and investment.

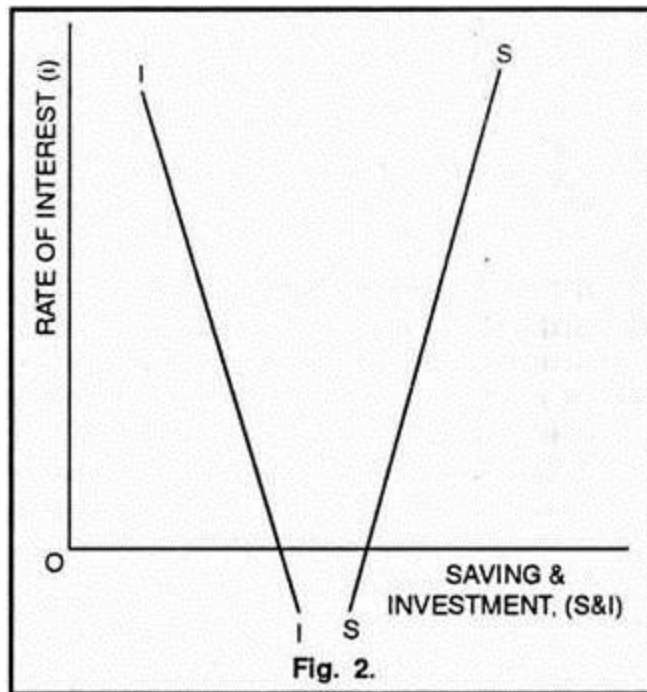
4. Equilibrating Mechanism

According to the classical theory, the rate of interest is the equilibrating force between saving and investment. Whenever there is disequilibrium between saving and investment, the equilibrium is restored through changes in the rate of interest. If at any time, saving exceeds investment ($i' s' > i' d'$ at Oi' rate of interest in Figure 1), the rate of interest falls and brings equality between saving and investment. On the other hand, if investment exceeds saving ($i'' d'' > i'' s''$ at Oi'' rate of interest), the rate of interest rises and brings equality between saving and investment.

5. Positive Rate of Interest

An important feature of the classical theory of interest is that it assumes a positive real rate of interest. The theory implicitly requires that the demand and supply curves of capital intersect at a positive real rate of interest. If, for example, the two curves do not intersect at a positive rate of interest (as shown in Figure 2), then, at zero rate of interest, there will be excess supply of capital ($O_s > O_d$). This is a

situation of general glut which implies that equilibrium is inconsistent with full employment.



Criticisms of Classical Theory

The classical theory of interest has been criticized by Keynes on many grounds:

1. Interest not a Reward for Saving

Keynes has criticized the classical view that interest is the reward for saving or capital on the following grounds:

(a) An individual can get interest by lending money which he has not saved but has inherited from his forefathers.

(b) If a person hoards his savings in the form of cash, he earns no interest,

(c) Savings depend not only on the rate of interest but also on the level of income, hence interest cannot be a reward for saving,

(d) Keynes regards interest as a monetary phenomenon and defines the rate of interest as a reward for parting with liquidity (or cash balances) rather than a reward for saving.

2. Saving and Investment not Interest Elastic

The classical theory assumes that saving and investment are interest elastic, i.e., sensitive to changes in the rate of interest. But it is not always so. In reality, investment depends more on marginal efficiency of capital and future expectations than on the rate of interest, particularly during periods of depression.

Similarly, savings are rarely interest elastic. People may save without any rise in the rate of interest, or may save even if the rate of interest falls to zero. In fact, savings are more influenced by the level of income than by the rate of interest.

3. Rate of Interest not Equilibrating Force

According to the classical economists, the equality between saving and investment is maintained by the interest rate adjustment mechanism. Keynes objected to this view and gave a different mechanism for restoring the equality. According to him, income, and not rate of interest, is the equilibrating force between saving and investment. Whenever saving exceeds investment, income level declines. As a result, saving falls and becomes equal to investment. Similarly, if investment exceeds saving, income level rises, saving increases and becomes equal to investment.

4. Role of Money Ignored

The classical theory of interest assumes money to be neutral, merely acting as a medium of exchange. It ignores the role of money as a store of value, i.e., it does not take in to consideration the possibility that saving may be hoarded. It also completely ignores the important role the quantity of money, the created money and the bank credit can play in the determination of the rate of interest. All these factors make the classical theory unrealistic and irrelevant in the modern dynamic world.

5. Unrealistic Assumption of Full Employment

The classical theory is unrealistic because it operates under the special conditions of full employment. Normally, less-than full employment, and not full employment, conditions prevail in the actual world.

According to Keynes, when there are unemployed resources in the economy, people need not be paid for abstaining from consumption (i.e., for saving). The problem in such an economy is to put idle resources to use rather than to withdraw already employed resources from their existing employment. Hence, under unemployment conditions, interest cannot be a reward for abstinence or waiting.

6. Discrepancy between Market and Natural Rates

The classical economists assume that discrepancy between the natural (real) and market (money) rates of interest is merely a chance and cannot exist for a long time. But, according to Wicksell, Keynes and other monetary economists, the market rate of interest normally deviates from the natural rate of interest and this deviation is due to the influence of monetary factors like creation and destruction of bank credit.

7. Narrow View of Supply of Capital

The classical economists included only saving in the supply of capital. But in reality, the supply of capital comprises of dishoarded money. Moreover, newly created money and bank credit also form important sources of supply of capital.

8. Narrow View of Demand for Capital

According to the classical theory, the demand for capital comes only from the investors for meeting investment expenditures. It completely ignores the fact that loans are also taken for consumption purposes.

9. Indeterminate Theory

Keynes criticised the classical theory of investment on the ground that it is indeterminate. According to the classical theory, the rate of interest is determined by the intersection of saving and investment curves. The position of the saving curve depends upon the level of income; saving curve shifts to the right if income increases and vice versa.

Thus, we cannot know the rate of interest unless we already know the income level. But, we cannot know income level without first knowing

the volume of investment and the knowledge of the volume of investment requires the prior knowledge of the rate of interest. Thus, the classical theory of interest offers no solution; it cannot tell what the rate of interest will be unless we already know the rate of interest.

Loanable Funds Theory

The neo-classical theory of interest or loanable funds theory of interest owes its origin to the Swedish economist Knut Wicksell.

According to this theory, rate of interest is determined by **the demand for and supply of loanable funds**. In this regard this theory is more realistic and broader than the classical theory of interest.

Demand for Loanable Funds

Loanable funds theory differs from the classical theory in the explanation of demand for loanable funds.

According to this theory demand for loanable funds arises **for the following three purposes viz.; Investment, hoarding and dissaving**

1. Investment (I)

The main source of demand for loanable funds is the demand for investment. Investment refers to the expenditure for the purchase of making of new capital goods including inventories. The price of obtaining such funds for the purpose of these investments depends on the rate of interest. An entrepreneur while deciding upon the investment is to compare the expected return from an investment with the rate of interest. If the rate of interest is low, the demand for loanable funds for investment purposes will be high and vice-versa. This shows that there is an inverse relationship between the demands for loanable funds for investment to the rate of interest.

2. Hoarding (H)

The demand for loanable funds is also made up by those people who want to hoard it as idle cash balances to satisfy their desire for liquidity. The demand for loanable funds for hoarding purpose is a decreasing function of the rate of interest. At low rate of interest demand for loanable funds for hoarding will be more and vice-versa.

3. Dissaving (DS)

Dissaving's is opposite to an act of savings. This demand comes from the people at that time when they want to spend beyond their current income. Like hoarding it is also a decreasing function of interest rate.

Supply of Loanable Funds

The supply of loanable funds is derived from the basic four sources - **savings, dishoarding, disinvestment and bank credit.**

1. Savings (S)

Savings constitute the most important source of the supply of loanable funds. Savings is the difference between the income and expenditure. Since, income is assumed to remain unchanged, so the amount of savings varies with the rate of interest. Individuals as well as business firms will save more at a higher rate of interest and vice-versa.

2. Dishoarding (DH)

Dishoarding is another important source of the supply of loanable funds. Generally, individuals may dishoard money from the past hoardings at a higher rate of interest. Thus, at a higher interest rate, idle cash balances of the past become the active balances at present and become available for investment. If the rate of interest is low dishoarding would be negligible.

3. Disinvestment (DI)

Disinvestment occurs when the existing stock of capital is allowed to wear out without being replaced by new capital equipment. Disinvestment will be high when the present interest rate provides

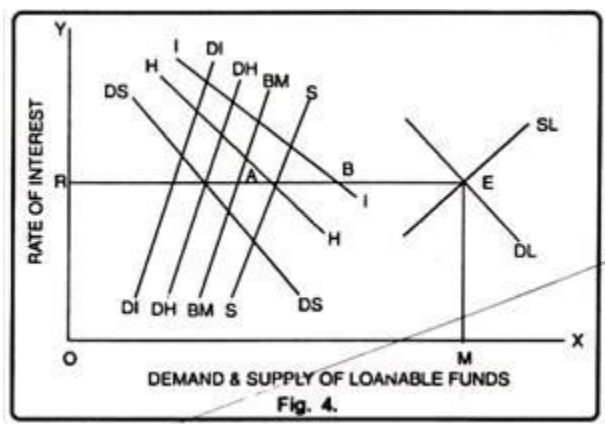
better returns in comparison to present earnings. Thus, high rate of interest leads to higher disinvestment and so on.

4. Bank Money (BM)

Banking system constitutes another source of the supply of loanable funds. The banks advance loans to the businessmen through the process of credit creation. The money created by the banks adds to the supply of loanable funds.

Determination of Rate of Interest

According to loanable funds theory, equilibrium rate of interest is that which brings equality between the demand for and supply of loanable funds. In other words, equilibrium interest rate is determined at a point where the demand for loanable funds curve intersects the supply curve of loanable funds. It can be shown with the help of a Figure 4.



The rate of interest is determined at the point of intersection of the two curves—the supply of loanable funds curve (SL) and the demand for loanable funds curve, DL. Fig. 4 shows that the equilibrium rate of interest is EM; at this rate, the demand for loanable funds is equal to the supply of loanable funds i.e. OM.

Criticism

Although loanable funds theory is superior to classical theory, yet, critics have criticised it on the following grounds

1. Full Employment

Keynes opined that loanable funds theory is based on the unrealistic assumption of full employment. As such, this theory also suffers from the defects as the classical theory does.

2. Indeterminate

Like classical theory, loanable funds theory is also indeterminate. This theory assumes that savings and income both are independent. But savings depend on income. As the income changes savings also change and so does the supply of loanable funds.

3. Impracticable

This theory assumes savings, hoarding, investment etc. to be related to interest rate. But in actual practice investment is not only affected by interest rate but also by the marginal efficiency of capital whose effect has been ignored.

4. Unsatisfactory Integration of Real and Monetary Factors

This theory makes an attempt to integrate the monetary as well as real factors as the determinants of interest rate. But, the critics have maintained that these factors cannot be integrated in the form of the schedule as is evident from the framework of this theory.

5. Constancy of National Income

Loanable funds theory rests on the assumption that the level of national income remains unchanged. In reality, due to the change in investment, income level also changes accordingly.

Improvement over the Classical Theory

Loanable funds theory is considered to be an improvement over the classical theory on the following aspects:

1. Loanable funds theory recognizes the importance of hoarding as a factor affecting the interest rate which the classical theory has completely overlooked.
2. Loanable funds theory links together liquidity preference, quantity of money, savings and investment.
3. Loanable funds theory takes into consideration the role of bank credit which acts as a very important source of loanable funds.

Keynesian Liquidity Preference Theory of Interest Rate Determination

The determinants of the equilibrium interest rate in the classical model are the **'real'** factors of the supply of saving and the demand for investment. On the other hand, in the Keynesian analysis, determinants of the interest rate are the **'monetary'** factors alone.

Keynes' analysis concentrates on the demand for and supply of money as the determinants of interest rate. According to Keynes, the rate of interest is purely **"a monetary phenomenon."** Interest is the price paid for borrowed funds. People like to keep cash with them rather than investing cash in assets. Thus, there is a preference for liquid cash.

People, out of their income, intend to save a part. **How much of their resources will be held in the form of cash and how much will be spent depends upon what Keynes calls liquidity preference.** Cash being the most liquid asset, people prefer cash. And interest is the reward for parting with liquidity. **However, the rate of interest in the Keynesian theory is determined by the demand for money and supply of money.**

Demand for Money

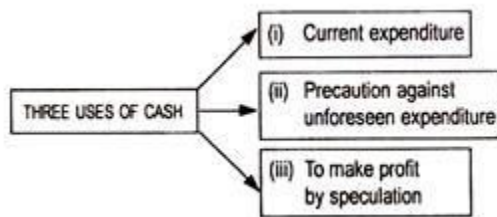
Demand for money is not to be confused with the demand for a commodity that people 'consume'. But since money is not consumed, the demand for money is a demand to hold an asset.

The desire for liquidity or demand for money arises because of three motives:

(a) Transaction motive

(b) Precautionary motive

(c) Speculative motive



(a) Transaction Demand for Money

Money is needed for day-to-day transactions. As there is a gap between the receipt of income and spending, money is demanded. Incomes are earned usually at the end of each month or fortnight or week but individuals spend their incomes to meet day-to-day transactions.

Since payments or spending are made throughout a period and receipts or incomes are received after a period of time, an individual needs '**active balance**' in the form of cash to finance his transactions. This is known as transaction demand for money or need-based money—which directly depends on the level of income of an individual and businesses.

People with higher incomes keep more liquid money at hand to meet their need-based transactions. In other words, transaction demand for money is an increasing function of money income.

Symbolically,

$$T_{dm} = f(Y)$$

Where, T_{dm} stands for transaction demand for money and Y stands for money income.

(b) Precautionary Demand for Money

Future is uncertain. That is why people hold cash balances to meet unforeseen contingencies, like sickness, death, accidents, danger of unemployment, etc. The amount of money held under this motive, called '**Idle balance**', also depends on the level of money income of an individual.

People with higher incomes can afford to keep more liquid money to meet such emergencies. This means that this kind of demand for money is also an increasing function of money income. The relationship between precautionary demand for money (P_{dm}) and the volume of income is normally a direct one.

Thus,

$$P_{dm} = f(Y)$$

(c) Speculative Demand for Money

This sort of demand for money is really Keynes' contribution. The speculative motive refers to the desire to hold one's assets in liquid form to take advantages of market movements regarding the uncertainty and expectation of future changes in the rate of interest.

The cash held under this motive is used to make speculative gains by dealing in bonds and securities whose prices and rate of interest fluctuate inversely. If bond prices are expected to rise (or the rate of interest is expected to fall) people will now buy bonds and sell when their prices rise to have a capital gain. In such a situation, bond is more attractive than cash.

Contrarily, if bond prices are expected to fall (or the rate of interest is expected to rise) in future, people will now sell bonds to avoid capital

loss. In such a situation, cash is more attractive than bond. Thus, at a low rate of interest, liquidity preference is high and, at a high rate of interest, securities are attractive. Now it is clear that the speculative demand for money (S_{dm}) varies inversely with the rate of interest.

Thus,

$$S_{dm} = f(r)$$

Where, r is the rate of interest.

Total Demand for Money

The total demand for money (D_M) is the sum of all three types of demand for money. That is, $D_m = T_{dm} + P_{dm} + S_{dm}$. Therefore, $D_m = f(Y, r)$. The demand for money has a negative slope because of the inverse relationship between the speculative demand for money and the rate of interest for a given level of Y .

However, the negative sloping liquidity preference curve becomes perfectly elastic at a low rate of interest. According to Keynes, there is a floor interest rate, r_{min} , below which the rate of interest cannot fall. This minimum rate of interest indicates absolute liquidity preference of the people i.e. demand for liquidity is infinitely elastic. This is what Keynes called '**liquidity trap**'. In the figure below, D_m is the liquidity preference curve. At minimum rate of interest, r_{min} , the curve is perfectly elastic. However, there is a ceiling of interest rate, say r_{max} , above which it cannot rise. Thus, interest rate fluctuates between r_{max} and r_{min} .

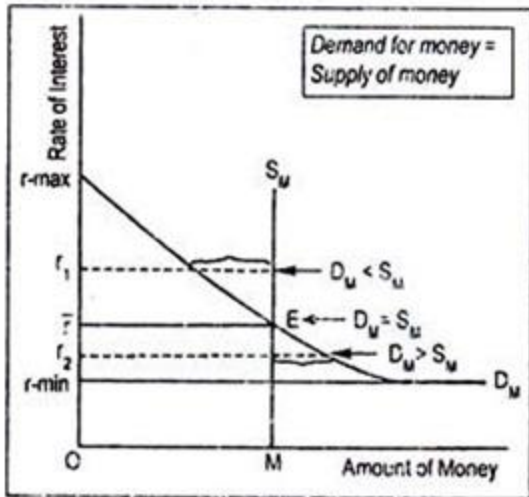


Fig. 6.20: Keynesian Theory

Money Supply

The supply of money in a particular period depends upon the policy of the central bank of a country. Money supply curve, S_M , has been drawn perfectly inelastic as it is institutionally given.

Determination of Interest Rate

According to Keynes, the rate of interest is determined by the demand for money and the supply of money. OM is the total amount of money supplied by the central bank. At point E , demand for money becomes equal to the supply of money. Thus, the equilibrium interest rate is determined at or . Now, suppose that the rate of interest is greater than or . In such a situation, supply of money will exceed the demand for money. People will purchase more securities. Consequently, its price will rise and interest rate will fall until demand for money becomes equal to the supply of money. On the other hand, if the rate of interest becomes less than or , demand for money will exceed supply of money, people will sell their securities. Price of securities will tumble and rate of interest will rise until we reach point E .

Thus, the rate of interest is determined by the monetary variables only.

Limitations

Firstly, like the classical and neo-classical theories, Keynes' theory is an indeterminate one. Keynes charged the classical theory on the ground that it assumed the level of employment fixed.

Same criticism applies to the Keynesian theory since it assumes a given level of income. Keynes' theory suggests that D_m and S_M determine the rate of interest. Without knowing the level of income we cannot know the transaction demand for money as well as the speculative demand for money. Obviously, as income changes, liquidity preference schedule changes—leading to a change in the interest rate.

Therefore, one cannot, determine the rate of interest until the level of income is known and the level of income cannot be determined until the rate of interest is known. Hence indeterminacy. Hicks and Hansen solved this problem in their IS-LM analysis by determining simultaneously the rate of interest and the level of income.

It is indeed true also that the neo-classical authors or the propounders of the loanable funds theory earlier made attempt to integrate both the real factors and the monetary factors in the interest rate determination but not with great successes. Such defects had been greatly removed by the neo-Keynesian economists—J.R. Hicks and A.H. Hansen.

Secondly, Keynes committed an error in rejecting real factors as the determinants of interest rate determination.

Thirdly, Keynes' theory gives a choice between holding risky bonds and riskless cash. An individual holds either bond or cash and never both. In the real world, it is the uncertainty or risk that induces an individual to hold both. This gap in Keynes' theory has been filled up by James Tobin. In fact, today people make a choice between a variety of assets.

Conclusion

Despite these criticisms, Keynes' liquidity preference theory tells a lot on income, output and employment of a country. His basic purpose was to demonstrate that a capitalist economy can never reach full employment due to the existence of liquidity trap.

Though the liquidity trap has been overemphasized by Keynes yet he demolished the classical conclusion the goal of full employment. Further, his theory has an important policy implication. A central bank is incapable of reviving a capitalistic economy during depression because of liquidity trap. In other words, monetary policy is useless during depressionary phase of an economy; fiscal policy is the way out.

Hicks Hansen Theory of Interest Rate Determination

An adequate theory to be determinate must take into consideration both the real and monetary factors that influence the interest rate.

Hicks has utilized the Keynesian tools in a method of presentation which shows that productivity, thrift, liquidity preference and money supply are all necessary elements in a comprehensive and determinate interest theory.

According to Hansen, "An equilibrium condition is reached when the desired volume of cash balances equals the quantity of money, when the marginal efficiency of capital is equal to the rate of interest and finally, when the volume of investment is equal to the normal or desired volume of saving. And these factors are inter-related." Thus in the modern theory of interest rate, saving, investment, liquidity preference and the quantity of money are integrated at various levels of income for a synthesis of the loanable funds theory with the liquidity preference theory.

The four variables of the two formulations have been combined to construct two new curves, the IS curve representing flow variable of the

loanable funds formulation (or the real factors of the classical theory) and the LM curve representing the stock variables of liquidity preference formulation. The equilibrium between IS and LM curves provides a determinate solution.

The IS Curve

The IS curve has been derived from the loanable funds formulation. It is a curve which explains the relationship between a family of saving schedules and investment schedules. In other words, this curve shows the equality of saving and investment at various combinations of the levels of income and the rates of interest. In Figure 8 (A), the saving curve S in relation to income is drawn in a fixed position, since the influence of interest on saving is assumed to be negligible.

The saving curve shows that saving increases as income increases, viz., saving is an increasing function of income. Investment, on the other hand, depends on the rate of interest and the level of income. Given a level of interest rate, the level of investment rises with the level of income. At a 5 per cent rate of interest, the investment curve is I_2 . If the rate of interest is reduced to 4 per cent, the investment curve will shift upward to I_3 .

The rate of investment will have to be raised to reduce the marginal efficiency of capital to equality with the lower rate of interest. Thus the investment curve I_3 shows more investment at every level of income. Similarly when the interest rate is raised to 6 per cent, the investment curve will shift downward to I_1 . The reduction in the rate of investment is essential to raise the marginal efficiency of capital to equality with the higher interest rate. In Figure 8 (B), just below Figure 8 (A), we derive the IS curve by marking the level of income at various interest rates. Each point on this IS curve represents a level of income at which saving equals investment at various interest rates.

The rate of interest is represented on the vertical axis and the level of income on the horizontal axis. If the rate of interest is 6 per cent, the S curve intersects the I_1 curve at E which determines OY_1 income. From this income level which equals Rs100crores we draw a dashed line downward to intersect the extended line from 6 per cent at point A. At

interest rate 5 per cent, the S curve intersects the I_2 curve at E_2 so as to determine OY_2 income (Rs200 crores).

In the lower Figure 8 (B), the point B corresponds to 5 per cent interest rate and Rs200crores income level. Similarly, the point C corresponds to the equilibrium of S and I_3 at 4 per cent interest rate. By connecting these points A, B and C with a line, we get the IS curve. The IS curve slopes downward from left to right because as the interest rate falls, investment increases and so does income.

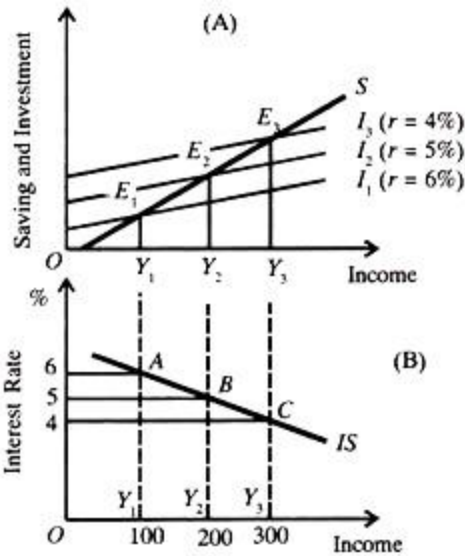


Fig. 8

The LM Curve

The LM curve shows all combinations of interest rates and levels of income at which the demand for and supply of money are equal. The LM curve is derived from the Keynesian formulation of liquidity preference schedules and the schedule of supply of money.

A family of liquidity preference curves L_1Y_1 , L_2Y_2 and L_3Y_3 is drawn at income levels of Rs100crores, Rs200crores and Rs300crores respectively in Figure 9 (A). These curves together with the perfectly inelastic money supply curve MQ give us the LM curve.

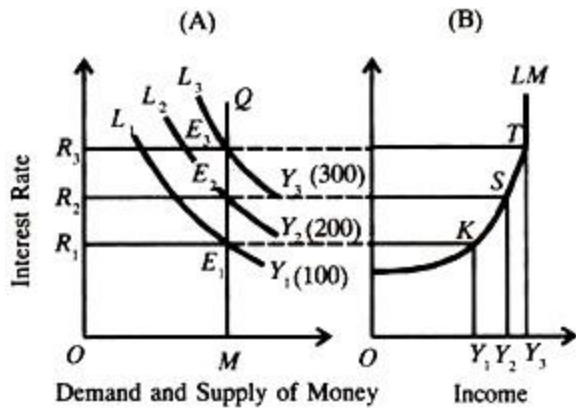


Fig. 9

The LM curve consists of a series of points, each point representing an interest-income level at which the demand for money (L) equals the supply of money (M). If the income level is Y (Rs. 100 crores), the demand for money (L_1Y_1) equals the money supply (QM) at interest rate OR_1 . At the Y_2 (Rs. 200 crores.) income level, the L_2Y_2 and the QM curves equal at OR_2 interest rate. Similarly at the Y_3 (Rs. 300 crores) income level, the L_3Y_3 and QM curves equal at OR_3 interest rate.

The supply of money, the liquidity preference, the level of income and the rate of interest provide data for the LM curve shown in Figure 9 (B). Suppose the level of income is Y_t (Rs. 100 crores), as marked out on the income axis in Figure 9 (B).

The income of Rs. 100 crores generates a demand for money represented by the liquidity preference curve L_1Y_1 . From the point \hat{E} , where the L_1Y_1 curve intersects the QM curve, extends a dashed line horizontally to the right so as to meet the line drawn upward from Y_1 at K in Figure 9 (B). Points S and T can also be determined in a similar manner. By connecting these points K , S and T with a line, we get the LM curve. This curve relates different income levels to various interest rates, but it does not show what the rate of interest will be.

The LM curve slopes upward from left to right because given the quantity of money, an increasing preference for liquidity manifests itself in a higher rate of interest. It also becomes gradually perfectly inelastic shown as the vertical portion from T above on the LM curve in Panel (B) of Figure 9. This is because at higher income levels the demand for

transaction and precautionary motives increases so that little is left to satisfy the demand for speculative motive out of a given supply of money.

We may also note that at the extreme left the LM curve is perfectly elastic in relation to the rate of interest. This is shown as the horizontal portion of the LM curve which starts from the vertical axis in Panel (B) of Figure 9. With the decline in the level of income, the demand for transactions and precautionary motives also declines.

Thus a larger amount is available in the form of idle balances but it does not lead to the lowering of the interest rate because we have reached the limit to which the rate of interest will fall. This lower limit to which the rate of interest will fall is the Keynesian liquidity trap already explained above in Keynes's theory of interest.

Determination of the Rate of Interest

The IS and LM curves relate to income levels and interest rates. Taken by themselves they cannot tell us either about the level of income or the rate of interest. It is only their intersection that determines the rate of interest. This is illustrated in Figure 10 where the LM and IS curves intersect at point E and OR rate of interest is determined corresponding to the income level OY.

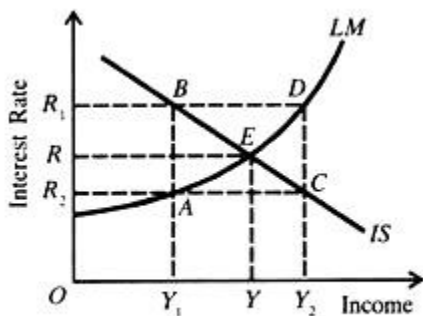


Fig. 10

The income level and the interest rate lead to simultaneous equilibrium in the real (saving-investment) market and the money (demand and supply of money) market. This general equilibrium position persists at a point of time. If there is any deviation from this equilibrium position,

certain forces will act and react in such a manner that the equilibrium will be restored. At the income level OY_t the rate of interest in the real market is Y_1B and it is $Y A$ in the money market. When the former rate is higher than the latter rate ($Y_1B > Y_1A$), the businessmen will borrow at a lower rate from the money market and invest the borrowed funds at a higher rate in the capital market.

This will tend to raise the level of income to OY via the investment multiplier and the equilibrium level of OR interest rate will be reached. On the other hand, at the income level OY_2 the rate of interest in the real market is less than the interest rate in the money market ($Y_2C < Y_2D$). In this situation, the businessmen will try to discharge debts in the money market rather than invest in the capital market. As a result, investment will fall and reduce income by the multiplier to OY and the equilibrium rate of interest OR will be established,

Shifts or changes in the IS curve or the LM curve or in both change the equilibrium position and the rate of interest is determined accordingly. These are illustrated in Figure 11. Let IS and LM be the original curves. They intersect at E where OR interest rate is determined at OY income level. If the investment demand schedule shifts upward, or the saving schedule shifts downward, the curve IS would shift to the right as IS_1 curve.

Given the LM curve, equilibrium will take place at E_1 . The rate of interest would be OR_1 and the income level OY_1 . If the quantity of money is increased or the liquidity preference curve is lowered, the LM curve would shift to the right as LM_1 . It intersects IS_1 curve at point E_2 .

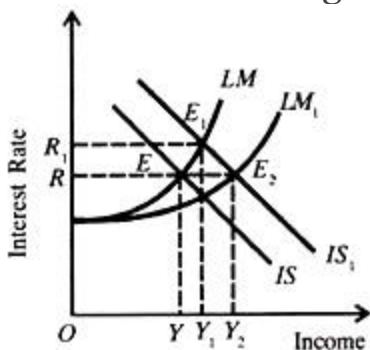


Fig. 11

The new equilibrium rate of interest is OR and the income level is OY_2 . Thus with a given LM curve, when the IS curve shifts to the right income increases and along with it the rate of interest also rises. Given the IS curve, when the LM curve shifts to the right, income increases but the rate of interest falls.

The Hicks-Hansen analysis is thus an integrated and determinate theory of interest in which the two determinates, the IS and LM curves, based on productivity, thrift, liquidity preference and the supply of money, all play their parts in the determination of the rate of interest.

Criticisms

1. **Static Theory.** It is a static theory that explains the short-run behaviour of the economy. Thus it fails to explain how the economy behaves in the long run.

2. **Interest Rate not Flexible.** The theory is based on the assumption that the interest rate is flexible and varies with changes in LM or/and IS curves. But it may not always happen if the interest rate happens to be rigid because the adjustment mechanism will not take place.

3. **Investment not Interest Elastic.** The theory assumes that investment is interest elastic. But if investment is interest inelastic, as is generally the case in practice, then the Hicks-Hansen theory does not hold good.

4. **Highly Artificial.** According to Don Patinkin, the Hicks-Hansen theory is highly artificial and oversimplified because it divides the economy into real and monetary sectors. In reality, the real and monetary sectors of the economy are so interrelated and interdependent that they act and react on each other.

5. **Closed Model.** According to Prof. Rowan, the Hicks-Hansen theory is a closed model which does not take into consideration the effect of international trade. This restricts its usefulness for the study of policy.

6. **Price Level Exogenous Variable.** The price level is treated as an exogenous variable in this model. This is unrealistic because price changes play an important role in the determination of income and

interest rates in an economy. Despite these weaknesses, this theory does not undermine the utility of the IS-LM technique in explaining the determination of interest rate in an economy.