Directorate of Distance & Continuing Education

Manonmaniam Sundaranar University

Tirunelveli- 627 012, Tamil Nadu.

B.A. ECONOMICS

(Third Year)

MONETARY ECONOMICS

(JMEC51)

Compiled by

Dr. K. AJITHA
Assistant Professor of Economics
Manonmaniam Sundaranar University
Tirunelveli – 627 012

Subject Experts:

Dr. D. Amutha Associate Professor and Head Department of Economics S.T. Mary's College (Autonomous) Thoothukudi	**Dr. C. A. Sham Shankar** Associate Professor and Head Department of Economics ST. Hindu College Nagercoil
Dr. S. Sarasudevi Associate Professor Department of Economics Rani Anna Government College for Women Tirunelveli	**Dr. V. Raja Rajeswari** Associate Professor Department of Economics Sri KGS Arts College Srivaikundam, Thoothukudi District
Dr. M. Neeladevi Associate Professor Department of Economics V.O.C College Thoothukudi	**Dr. P. Mary Thangam** Assistant Professor Department of Economics Sarah Turker College (Autonomous) Tirunelveli
Dr. R. Rajan Babu Assistant Professor Department of Economics ST. Hindu College Nagercoil	**Dr. V. Arockia Amuthan** Assistant Professor Department of Economics Nazareth Margoschis College Pillaiyanmanai, Thoothukudi
Dr. S. Sasikumar Assistant Professor Department of Economics ST. Xavier's College (Autonomous) Palayamkottai, Tirunelveli	**Dr. G. Gnana Elpinston** Assistant Professor Department of Economics Nesamony Memorial Christian College Marthandam

Course Coordinator:

Dr. G. Monikanda Prasad

Course Material Compiled by:

Dr. K. Ajitha

Assistant Professor of Economics

Manonmaniam Sundaranar University

Tirunelveli – 627 012

MONETARY ECONOMICS

Course Objectives:

1. To understand the theories that governs and its application.
2. To explains working of the monetary system and its uses.
3. To know the role of commercial banks after nationalization and its operations.
4. To compare the monetarism and Keynesianism.
5. To identify the role of central banks and its operations.

UNIT	CONTENTS
I	**Money** Definition, Function, Importance Forms of Money – Supply of Money (M_1, M_2, M_3, M_4) – Crypto Currencies.
II	**Demand for Money** Demand for Money: Classical, Keynesian and Baumol's Inventory Theoretic Approach – James Tobin' Portfolio Approach – Milton Friedman's Reformulated Quantity Theory.
III	**Monetarism and Keynesianism** Monetarism Vs Keynesianism – Comparison – Determinant of Money Supply – Money Multiplier – Supply Side policies of Inflation.
IV	**Commercial Banks** Commercial Banks – Credit Creation – Role of Commercial Banks after Nationalisation – RBI's role in Commercial Banks – Narasimhan Committee Report.
V	**Monetary Stability and Central Bank** Inflation and Deflation: Definition, Types, Causes and Effects – Demand pull and Cost Push Inflation – Central Bank Functions – Reserve Bank of India (RBI) – Monetary Policy and its operations in India.

Textbooks

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Table of Content

UNIT – I

MONEY

1.1. Introduction

Economists have considered various aspects of money, such as the reason for its existence, changes in its form, and its role in economic growth and development. Income and wealth are often considered synonymous to money but while they may be expressed in terms of money they are not the same thing. We therefore need to define money by its use in an exchange economy, in terms of its specific functions within the financial system. By specifying precisely what it does, we can distinguish money from all other assets in the financial system. We also need to know how money comes into existence and what causes it to change over time. This requires an analysis of its nature, role and origin.

1.2. Definition:

Having considered the various functions performed by money, the question arises as to what things are included and what things are excluded in money. Money needs to be defined precisely.

Legal Definition

We could have a legal definition where money is defined in purely legal terms that is, money is what the law states it to be.

Money supply, like money demand, is a stock variable. The total stock of money in circulation among the public at a particular point of time is called money supply. RBI publishes figures for four alternative measures of money supply, viz. M_1, M_2, M_3 and M_4.

They are defined as follows M_1 = CU + DD

M_2 = M_1 + Savings deposits with Post Office savings banks

M3 = M_1 + Net time deposits of commercial banks

M_4 = M_3 + Total deposits with Post Office savings organisations (excluding National Savings Certificates)

Where, CU is currency (notes plus coins) held by the public and DD is net demand deposits held by commercial banks. The word 'net' implies that only deposits of the public held by the banks are to be included in money supply. The interbank deposits, which a commercial bank holds in other commercial

banks, are not to be regarded as part of money supply. M_1 and M_2 are known as narrow money. M_3 and M_4 are known as broad money. These measures are in decreasing order of liquidity. M_1 is most liquid and easiest for transactions whereas M_4 is least liquid of all. M_3 is the most commonly used measure of money supply. It is also known as aggregate monetary resources.

Functional Definition

The functional definition of money includes in it all those things that perform the functions of money and excludes all others. Since the derivative or secondary functions of money can be performed by a variety of assets, all economists agree that money supply should include all those things that are in fact generally acceptable in payment of debt and as payment for goods and services. A thing that is generally acceptable in payment and generally used as a medium of payments is MONEY whatever its legal status may be

Narrow and Broad Definition of Money

The narrow definition of money is based on the function of money as a medium of exchange and includes in it only currency and chequable deposits. There may be other assets which have a high degree of moneyness or liquidity, but are not generally acceptable in payment or there is a delay or cost involved in exchanging them for money. These assets which are widely used as a store of value like saving and fixed deposits at banks are called NEAR MONEYS and are frequently included only in a broader definition of money. Since all assets possess the quality of moneyness to some degree, any broad definition is likely to have troublesome borderline cases.

1.3. Functions Of Money

The first and foremost role of money is that it acts as a medium of exchange. Barter exchanges become extremely difficult in a large economy because of the high costs people would have to incur looking for suitable persons to exchange their surpluses. Money also acts as a convenient unit of account. The value of all goods and services can be expressed in monetary units. When we say that the value of a certain wristwatch is Rs. 500 we mean that the wristwatch can be exchanged for 500 units of money, where a unit of money is rupee in this case. If the price of a pencil is Rs. 2 and that of a pen is Rs. 10 we can calculate the relative price of a pen with respect to a pencil, viz. a

pen is worth 10 ÷ 2 = 5 pencils. The same notion can be used to calculate the value of money itself with respect to other commodities. In the above example, a rupee is worth 1 ÷ 2 = 0.5 pencil or 1 ÷ 10 = 0.1 pen. Thus if prices of all commodities increase in terms of money i.e., there is a general increase in the price level, the value of money in terms of any commodity must have decreased in the sense that a unit of money can now purchase less of any commodity. We call it a deterioration in the purchasing power of money. A barter system has other deficiencies. It is difficult to carry forward one's wealth under the barter system. Suppose you have an endowment of rice which you do not wish to consume today entirely. You may regard this stock of surplus rice as an asset which you may wish to consume, or even sell off, for acquiring other commodities at some future date. But rice is a perishable item and cannot be stored beyond a certain period. Also, holding the stock of rice requires a lot of space. You may have to spend considerable time and resources looking for people with a demand for rice when you wish to exchange your stock for buying other commodities. This problem can be solved if you sell your rice for money. Money is not perishable and its storage costs are also considerably lower. It is also acceptable to anyone at any point of time. Thus money can act as a store of value for individuals. Wealth can be stored in the form of money for future use. However, to perform this function well, the value of money must be sufficiently stable. A rising price level may erode the purchasing power of money. It may be noted that any asset other than money can also act as a store of value, e.g. gold, landed property, houses or even bonds (to be introduced shortly). However, they may not be easily convertible to other commodities and do not have universal acceptability. Some countries have made an attempt to move towards an economy which use less of cash and more of digital transactions. A cashless society describes an economic state whereby financial transactions are not connected with money in the form of physical bank notes or coins but rather through the transfer of digital information (usually an electronic representation of money) between the transacting parties. In India government has been consistently investing in various reforms for greater financial inclusion. During the last few years' initiatives such as Jan Dhan accounts, Aadhar enabled payment

systems, e –Wallets, National financial Switch (NFS) and others have strengthened the government resolve to go cashless. Today, financial inclusion is seen as a realistic dream because of mobile and smart phone penetration across the country.

Money performs four specific functions, each of which obviates one of the difficulties of pure barter. These functions are to serve as 1) a medium of exchange 2) a unit of value 3) a standard of deferred payments and 4) a store of value. The first two are called the primary functions of money. The last two are called the derivative or secondary functions because they are derived from the primary functions.

1). Money as a medium Of exchange:

One of the unique function and in fact an essential and primary distinguishing characteristic of money is that it is anything generally acceptable as a means of payment in the settlement of all transactions, including debt. It is a commonly used medium of exchange or means of transferring generalized purchasing power. It is a device to permit people to exchange goods and services without need for conversion into anything before being spent. Hence, ATM cards, property, gold, FDR's are not money. However, faith or belief or confidence in its general acceptability is very important. The assets which are generally acceptable in exchange may vary from one country to another or from one period to another within the same country.

Money saves time and energy and allows people to buy what they want, how much, at the best bargain or terms, at the time they think best. By economizing on the use of scarce real resources, money promotes transactional or operational efficiency. In addition, it promotes allocational efficiency by making it possible to exploit potential gains from specialization in trade and production. It also leads to emergence of specialized markets in all types of goods and services. By giving freedom of choice to individuals as a bearer of options, it thereby promotes economic welfare. By separating the act of sale and purchase, it replaces bilateral trading with multilateral trading leading to specialization and division of labor. As one moves from a barter exchange economy to one of monetary exchange, the length of transaction

period and the total trading cost decrease. The use of money for similar transactions also enhances competition. A monetary economy eliminates the problem of double coincidence of wants.

2). Money as a Unit of Account / Unit of Value / Standard / measure of value:

This is the second primary function of money where the monetary unit is the unit in terms of which the value of all goods and services are measured and expressed. It therefore helps in determining the price or the number of monetary units each good or service would exchange for, making it possible to compare prices and have relative prices. It simplifies the problem of measuring the exchange value of commodities and makes accounting of national income, costs, profits assets and liabilities possible. It permits rational economic calculations and transmits economic information about market preferences of consumers to producers and makes possible specialization and division of labor. Unlike physical units which are inter temporally and inter regionally constant, the value of money is inversely related to the price level and hence does not remain constant in terms of the goods and services you can buy with it, making money a poor unit of account.

3). Money as a Standard of Deferred Payment or Unit of Contract

Money serves as the standard or unit in terms of which deferred or future payments like interest, rent, salaries, pensions etc. are stated. This is concomitant with the first two functions because the person who pays cash later quotes money price as a unit of account. These contracts are for the payment of principal and interest on debt where future payments are stated in terms of monetary units. Money is a satisfactory standard of deferred payment if and only if its purchasing power, that is, the value of money remains constant.

4). Money as a store of value

This function is also concomitant with the other functions and since money as a medium of exchange, separates the act of sales and purchase, the two are made at different points of time, i.e. you can sell now, get money, store that money and purchase later. What you store is generalized power that can be used any time. This is particularly relevant in a money using economy

where income and expenditure are discontinuous i.e. wages, interest, salary etc. are got at one point of time and spent over the month till the next receipt. Therefore, money is stored in the form of generalizing purchasing power. As a store of value, money scores over physical assets which may involve storage costs, deteriorate or become obsolescent or have transaction or brokerage costs since they are not acceptable in exchange for goods and services. Money is also a good store of value because it is perfectly liquid.

1.4. Supply of Money (M_1, M_2, M_3, M_4)

In a modern economy, money is a complex phenomenon. By and large it is regarded as something which is generally used as a means of payment and accepted for the settlement of debts. The supply of money is a stock at a particular point of time, though it conveys the idea of a flow over time. The term 'the supply of money' is synonymous with such terms as 'money stock', 'stock of money', 'money supply' and 'quantity of money'. The supply of money at any moment is the total amount of money in the economy. There are three alternative views regarding the definition or measures of money supply. The most common view is associated with the traditional and Keynesian thinking which stresses the medium of exchange function of money. According to this view, money supply is defined as currency with the public and demand deposits with commercial banks. Demand deposits are savings and current accounts of depositors in a commercial bank. They are the liquid form of money because depositors can draw cheques for any amount lying in their accounts and the bank has to make immediate payment on demand. Demand deposits with commercial banks plus currency with the public are together denoted as M_1, the money supply. This is regarded as a narrower definition of the money supply.

The second definition is broader and is associated with the modern quantity theorists headed by Friedman. Professor Friedman defines the money supply at any moment of time as "literally the number of dollars people are carrying around in their pockets, the number of dollars they have to their credit at banks or dollars they have to their credit at banks in the form of demand deposits, and also commercial bank time deposits". Time deposits are fixed

deposits of customers in a commercial bank. Such deposits earn a fixed rate of interest varying with the time period for which the amount is deposited. Money can be withdrawn before the expiry of that period by paying a penal rate of interest to the bank.

So time deposits possess liquidity and are included in the money supply by Friedman. Thus this definition includes M_1 plus time deposits of commercial banks in the supply of money. This wider definition is characterised as M_2 in America and M_3 in Britain and India. The third definition is the broadest and is associated with Gurley and Shaw. They include in the supply of money, M_2 plus deposits of savings banks, building societies, loan associations, and deposits of other credit and financial institutions.

The choice between these alternative definitions of the money supply depends on two considerations. One a particular choice of definition may facilitate or blur the analysis of the various motives for holding cash; and two from the point of view of monetary policy, an appropriate definition should include the area over which the monetary authorities can have direct influence. If these two criteria are applied, none of the three definitions is wholly satisfactory.

The first definition of money supply may be analytically better because M_1 is a sure medium of exchange. But M_1 is an inferior store of value because it earns no rate of interest, as is earned by time deposits. Further, the central bank can have control over a narrower area if only demand deposits are included in the money supply.

The second definition that includes time deposits (M_2) in the supply of money is less satisfactory analytically because "in a highly developed financial structure, it is important to consider separately the motives for holding means of payment and time deposits". Unlike demand deposits, time deposits are not a prefect liquid form of money.

This is because the amount lying in them can be withdrawn immediately by cheques. Normally, it cannot be withdrawn before the due date of expiry of deposit. In case a depositor wants his money earlier, he has to give a notice to the bank which allows the withdrawal after charging a penal interest rate from the depositor.

Thus time deposits lack perfect liquidity and cannot be included in the money supply. But this definition is more appropriate from the point of view of monetary policy because the central bank can exercise control over a wider area that includes both demand and time deposits held by commercial banks. The third definition of money supply that includes M_2 plus deposits of non-bank financial institutions is unsatisfactory on both the criteria. Firstly, they do not serve the medium of exchange function of money. Secondly, they almost remain outside the area of control of the central bank. The only advantage they possess is that they are highly liquid store of value. Despite this merit, deposits of nonbank financial institutions are not included in the definition of money supply.

1.5. Determinants of Money Supply

There are two theories of the determination of the money supply. According to the first view, the money supply is determined exogenously by the central bank. The second view holds that the money supply is determined endogenously by changes in the economic activities which affect people's desire to hold currency relative to deposits, the rate of interest, etc. Thus the determinants of money supply are both exogenous and endogenous which can be described broadly as: the minimum cash reserve ratio, the level of bank reserves, and the desire of the people to hold currency relative to deposits. The last two determinants together are called the monetary base or the high powered money.

1. The Required Reserve Ratio:

The Required reserve ratio (or the minimum cash reserve ratio or the reserve deposit ratio) is an important determinant of the money supply. An increase in the required reserve ratio reduces the supply of money with commercial banks and a decrease in required reserve ratio increases the money supply. The Required reserve ratio is the ratio of cash to current and time deposit liabilities which is determined by law. Every commercial bank is required to keep a certain percentage of these liabilities in the form of deposits with the central bank of the country. But notes or cash held by commercial banks in their tills are not included in the minimum required reserve ratio.

But the short-term assets along with the cash are regarded as the liquid assets of a commercial bank. In India the statutory liquidity ratio (SLR) has been fixed by law as an additional measure to determine the money supply.
The SLR is called secondary reserve ratio in other countries while the required reserve ratio is referred to as the primary ratio. The raising of the statutory liquidity ratio (SLR) has the effect of reducing the money supply with commercial banks for lending purposes, and the lowering of the statutory liquidity ratio (SLR) tends to increase the money supply with banks for advances.

2. The Level of Bank Reserves:

The level of bank reserves is another determinant of the money supply. Commercial bank reserves consist of reserves on deposits with the central bank and currency in their tills or vaults. It is the central bank of the country that influences the reserves of commercial banks in order to determine the supply of money. The central bank requires all commercial banks to hold reserves equal to a fixed percentage of both time and demand deposits.
These are legal minimum or required reserves. Required reserves (RR) are determined by the required reserve ratio (RRr) and the level of deposits (D) of a commercial bank RR=RR r× D. If deposits are Rs 80 lakhs and required reserve ratio is 20 percent, then the required reserves will be 20% x 80=Rs 16 lakhs. If the reserve ratio is reduced to 10 per cent, the required reserves will also be reduced to Rs 8 lakhs.
Thus the higher the reserve ratio, the higher the required reserves to be kept by a bank, and vice versa. But it is the excess reserves (ER) which are important for the determination of the money supply. Excess reserves are the difference between total reserves (TR) and required reserves (RR) ER=TR-RR. If total reserves are Rs 80 lakhs and required reserves are Rs 16 lakhs, then the excess reserves are Rs 64 lakhs (Rs 80 Lakhs – 16 lakhs). When required reserves are reduced to Rs 8 lakhs, the excess reserves increase to Rs 72 lakhs. It is the excess reserves of a commercial bank which influence the size of its deposit liabilities. A commercial bank advances loans equal to its excess reserves which are an important component of the money supply. To determine the supply of money with a commercial bank, the central bank

influences its reserves by adopting open market operations and discount rate policy. Open market operations refer to the purchase and sale of government securities and other types of assets like bills, securities, bonds, etc., both government and private in the open market. When the central bank buys or sells securities in the open market, the level of bank reserves expands or contracts. The purchase of securities by the central bank is paid for with cheques to the holders of securities who, in turn, deposit them in commercial banks, thereby increasing the level of bank reserves. The opposite is the case when the central bank sells securities to the public and banks which make payments to the central bank through cash and cheques, thereby reducing the level of bank reserves.

The discount rate policy affects the money supply by influencing the cost and supply of bank credit to commercial banks. The discount rate, known as the bank rate in India, is the interest rate at which commercial banks borrow from the central bank. A high discount rate means that commercial banks get less amount by selling securities to the central bank. The commercial banks, in turn, raise their lending rates to the public, thereby making advances dearer for them. Thus there will be contraction of credit and the level of commercial bank reserves. Opposite is the case when the bank rate is lowered. It tends to expand credit and the consequent bank reserves. It should be noted that commercial bank reserves are affected significantly only when open market operations and discount rate policy supplement each other. Otherwise, their effectiveness as determinants of bank reserves and consequently of money supply is limited.

3. Public's Desire to Hold Currency and Deposits:

People's desire to hold currency (or cash) relative to deposit in commercial banks also determines the money supply. If people are in the habit of keeping less in cash and more in deposits with the commercial banks, the money supply will be large. This is because banks can create more money with larger deposits. On the contrary, if people do not have banking habits and prefers to keep their money holdings in cash, credit creation by banks will be less and the money supply will be at a low level.

4. High Powered Money and the Money Multiplier:

The current practice is to explain the determinants of the money supply in terms of the monetary base or high-powered money. High-powered money is the sum of commercial bank reserves and currency (notes and coins) held by the public. High-powered money is the base for the expansion of bank deposits and creation of the money supply. The supply of money varies directly with changes in the monetary base, and inversely with the currency and reserve ratios.

5. Other Factors:

The money supply is a function not only of the high-powered money determined by the monetary authorities, but of interest rates, income and other factors. The latter factors change the proportion of money balances that the public holds as cash. Changes in business activity can change the behaviour of banks and the public and thus affect the money supply. Hence the money supply is not only an exogenous controllable item but also an endogenously determined item.

Conclusion:

We have discussed above the factors which determine money supply through the creation of bank credit. But money supply and bank credit are indirectly related to each other. When the money supply increases, a part of it is saved in banks depending upon the depositors' propensity to save. These savings become deposits of commercial banks who, in turn, lend after meeting the statutory reserve requirements. Thus with every increase in the money supply, the bank credit goes up.

But it may not happen in exactly the same proportion due to the following factors:

(a) The marginal propensity to save does not remain constant. It varies from time to time depending on changes in income levels, prices, and subjective factors.

(b) Banks may also create more or less credit due to the operation of leakages in the credit creation process.

(c) The velocity of circulation of money also affects the money supply. If the velocity of money circulation increases, the bank credit may not fall

even after a decrease in the money supply. The central bank has little control over the velocity of money which may adversely affect bank credit.

1.6. Measures of Money Supply in India:

There are four measures of money supply in India which are denoted by M_1 M_2 M_3, and M_4. This classification was introduced by the Reserve Bank of India (RBI) in April 1977. Prior to this till March 1968, the RBI published only one measure of the money supply, M or defined as currency and demand deposits with the public. This was in keeping with the traditional and Keynesian views of the narrow measure of the money supply.

From April 1968, the Reserve Bank of India also started publishing another measure of the money supply which it called Aggregate Monetary Resources (AMR). This included M_1 plus time deposits of banks held by the public. This was a broad measure of money supply which was in line with Friedman's view. But since April 1977, the RBI has been publishing data on four measures of the money supply which are discussed as under:

M_1:

The first measure of money supply consists of:

(i) Currency with the public which includes notes and coins of all denominations in circulation excluding cash on hand with banks;

(ii) Demand deposits with commercial and cooperative banks, excluding inter-bank deposits; and

(iii) 'Other deposits' with RBI which include current deposits of foreign central banks, financial institutions and quasi-financial institutions such as Industrial Development Bank of India (IDBI), Industrial Finance Corporation of India (IFCI), International Monetary Fund (IMF), International Bank for Reconstruction Development (IBRD) etc. The RBI characterises M_1 as narrow money.

M_2:

The second measure of money supply is M_2 which consists of plus post office savings bank deposits. Since savings bank deposits of commercial and cooperative banks are included in the money supply, it is essential to include post office savings bank deposits. The majority of people in rural and urban

India have preference for post office deposits from the safety viewpoint than bank deposits.

M_3:

The third measure of money supply in India is M_3 which consists of M_1 plus time deposits with commercial and cooperative banks, excluding interbank time deposits. The RBI calls M_3 as broad money.

M_4:

The fourth measure of money supply is M_4 which consists of M_3 plus total post office deposits comprising time deposits and demand deposits as well. This is the broadest measure of money supply. Of the four inter-related measures of money supply for which the RBI publishes data, it is M_3 which is of special significance. It is M_3 which is taken into account in formulating macroeconomic objectives of the economy every year. Since M_1 is narrow money and includes only demand deposits of banks along with currency held by the public, it overlooks the importance of time deposits in policy making. That is why, the RBI prefers M_3 which includes total deposits of banks and currency with the public in credit budgeting for its credit policy. It is on the estimates of increase in M_3 that the effects of money supply on prices and growth of national income are estimated. In fact M_3 is an empirical measure of money supply in India, as is the practice in developed countries. The Chakravarty Committee also recommended the use of M_3 for monetary targeting.

1.7. Crypto Currencies:

Cryptocurrency is not a type of currency that can be used in the real world. It can be used to perform transactions only in the digital world. So, in order to buy/sell using a cryptocurrency, it has to be converted from a digital form to some existing currency that is used in the real world. For example, Dollars, Rupees, etc. Cryptocurrencies don't have a central issuing authority instead using a decentralized system to record transactions and issue new units. Cryptocurrency is a digital payment system that does not rely on banks to verify transactions. Cryptocurrency payments exist purely as digital entries

to an online database. When cryptocurrency funds are transferred, the transactions are recorded in a public ledger.

- In cryptocurrency, “coins” (which are publicly agreed-on records of ownership) are generated or produced by "miners".
- These miners are people who run programs on ASIC (Application Specific Integrated Circuit) devices made specifically to solve proof-of-work puzzles.
- The work behind mining coins gives them value, while the scarcity of coins and demand for them causes their value to fluctuate.
- Cryptocurrencies can be used for buying goods just like fiat currency.
- Cryptocurrencies use encryption to verify and protect transactions.
- It does not exist in physical form and is not typically issued by any central authority.
- They use decentralized control in contrast to central bank digital currency.

Drawbacks to Cryptocurrencies, Including:

1. **Volatility:** Crypto currencies can be highly volatile, with prices fluctuating rapidly and unpredictably.
2. **Lack of Regulation:** Cryptocurrencies are not yet fully regulated by governments, which can lead to uncertainty and potential risk for users.
3. **Limited Acceptance:** While the number of merchants accepting cryptocurrencies is growing, they are still not widely accepted as a form of payment.
4. **Hacking and Fraud:** Cryptocurrencies are vulnerable to hacking and fraud, and there have been numerous high-profile incidents of theft and scams in the cryptocurrency world.
5. Overall, cryptocurrencies offer a range of features that make them a unique and innovative form of digital currency. However, they also come with potential risks and challenges that users must be aware of before investing in or using them.

Check Your Progress:

Q.No	Short Questions	LOCF Mapping		
1.	Explain the primary functions of money in an economic system.	K2	CO1	PO1
2.	Categorize the different types of money.	K2	CO2	PO1
3.	Explain the concept of money supply and its significance in the economy.	K2	CO3	PO2
4.	Distinguish between M1 and M2 measures of money supply.	K3	CO3	PO2
5.	Examine the limitations and risks associated with crypto currencies.	K4	CO4	PO4
Q.No	**Essay Type Questions**	**LOCF Mapping**		
1.	Discuss the different forms of money and importance of money in economic development.	K2	CO1	PO1
2.	Describe the various measures of money supply and analyze their significance in monetary policy.	K4	CO4	PO3
3.	Analyze the role of money supply in economic stability and inflation control.	K4	CO4	PO3
4.	Evaluate the impact of crypto currencies on traditional monetary systems and banking structures.	K5	CO5	PO4
5.	Design a comparative analysis between traditional money and crypto currencies, highlighting their advantages and challenges in modern economies.	K6	CO5	PO6

UNIT – II

DEMAND FOR MONEY

2.1. Demand for Money Quantity theories of money

Demand for money is a prominent issue in macroeconomics due to the important role that monetary demand plays in the determination of the price level, interest income. Demand for money arises from two important functions of money. The first is that money acts as a medium of exchange and second is a store of value. Thus individuals and businessman wish to hold money partly in cash and partly in the form of assets. In fact, people demand for money is not for nominal money holdings but real money balances, because if people are merely concerned with nominal money holdings irrespective of the price level, they said to suffer from money illusion. In this unit we will discuss the relationship between money supply and general prices, which is mainly dealt by the two approaches of the quantity theory of money, viz., Fisher approach and Cambridge approach. Both the approaches suggest that an increase in money supply result in proportionate increase in the price level. People hold money because it has purchasing power its ability to buy goods and services. This amount varies across persons depending upon his income, preferences, interest rate, etc. The demand for money is the demand for real balances or (M/P). When there is an increase in the general price level (p), nominal money balances (M) has to be increased in proportion to the rise in the price level ceteris paribus, to keep real balances constant. However, in recent years Baumol, Tobin and Friedman have put forward new theories of demand for money.

2.2. Quantity theory of Money: Fisher Approach

The transactions version of the quantity theory of money was provided by the American economist Irving Fisher in his book- The Purchasing Power of Money (1911). According to Fisher, “Other things remaining unchanged, as the quantity of money in circulation increases, the price level also increases in direct proportion and the value of money decreases and vice versa”.

Fisher’s quantity theory is best explained with the help of his famous equation of exchange:

$$MV = PT$$

(Or)

$$P = MV/T$$

Like other commodities, the value of money or the price level is also determined by the demand and supply of money.

1. Supply of Money:

The supply of money consists of the quantity of money in existence (M) multiplied by the number of times this money changes hands, i.e., the velocity of money (V). In Fisher's equation, V is the transactions velocity of money which means the average number of times a unit of money turns over or changes hands to effectuate transactions during a period of time. Thus, MV refers to the total volume of money in circulation during a period of time. Since money is only to be used for transaction purposes, total supply of money also forms the total value of money expenditures in all transactions in the economy during a period of time.

2. Demand for Money:

Money is demanded not for its own sake (i.e., for hoarding it), but for transaction purposes. The demand for money is equal to the total market value of all goods and services transacted. It is obtained by multiplying total amount of things (T) by average price level (P). Thus, Fisher's equation of exchange represents equality between the supply of money or the total value of money expenditures in all transactions and the demand for money or the total value of all items transacted.

Supply of money = Demand for Money

(Or)

Total value of money expenditures in all transactions = Total value of all items transacted

$$MV = PT$$

Or

$$P = MV/T$$

Where,

M is the quantity of money

V is the transaction velocity

P is the price level.

T is the total goods and services transacted.

The equation of exchange is an identity equation, i.e., MV is identically equal to PT (or MV = PT). It means that in the ex-post or factual sense, the equation must always be true. The equation states the fact that the actual total value of all money expenditures (MV) always equals the actual total value of all items sold (PT). What is spent for purchases (MV) and what is received for sale (PT) are always equal; what someone spends must be received by someone. In this sense, the equation of exchange is not a theory but rather a truism. Irving Fisher used the equation of exchange to develop the classical quantity theory of money, i.e., a causal relationship between the money supply and the price level. On the assumptions that, in the long run, under full-employment conditions, total output (T) does not change and the transactions velocity of money (V) is stable, Fisher was able to demonstrate a causal relationship

$$MV + M'V' = PT$$

or

$$P = \frac{MV + M'V'}{T}$$

between money supply and price level. In this way, Fisher concludes, "... the level of price varies directly with the quantity of money in circulation provided the velocity of circulation of that money and the volume of trade which it is obliged to perform are not changed". Thus, the classical quantity theory of money states that V and T being unchanged, changes in money cause direct and proportional changes in the price level. Irving Fisher further extended the equation of exchange so as to include demand (bank) deposits (M') and their velocity, (V') in the total supply of money.

Thus, the equation of exchange becomes:

Thus, according to Fisher, the level of general prices (P) depends exclusively on five definite factors:

(a) The volume of money in circulation (M);

(b) Its velocity of circulation (V);

(c) The volume of bank deposits (M');

(d) Its velocity of circulation (V');

(e) The volume of trade (T);

The transactions approach to the quantity theory of money maintains that, other things remaining the same, i.e., if V, M', V', and T remain unchanged, there exists a direct and proportional relation between M and P; if the quantity of money is doubled, the price level will also be doubled and the value of money halved; if the quantity of money is halved, the price level will also be halved and the value of money doubled.

Assumptions of Fisher's Quantity Theory:

Fisher's transactions approach to the quantity theory of money is based on the following assumptions:

1. Constant Velocity of Money:

According to Fisher, the velocity of money (V) is constant and is not influenced by the changes in the quantity of money. The velocity of money depends upon exogenous factors like population, trade activities, habits of the people, interest rate, etc. These factors are relatively stable and change very slowly

2. Constant Volume of Trade or Transactions:

Total volume of trade or transactions (T) is also assumed to be constant and is not affected by changes in the quantity of money. T is viewed as independently determined by factors like natural resources, technological development, population, etc., which are outside the equation and change slowly over time. Thus, any change in the supply of money (M) will have no effect on T. Constancy of T also means full employment of resources in the economy.

3. Price Level is a Passive Factor:

According to Fisher the price level (P) is a passive factor which means that the price level is affected by other factors of equation, but it does not affect them. P is the effect and not the cause in Fisher's equation. An increase in M and V will raise the price level. Similarly, an increase in T will reduce the price level.

4. Money is a Medium of Exchange:

The quantity theory of money assumed money only as a medium of exchange. Money facilitates the transactions. It is not hoarded or held for speculative purposes.

5. Constant Relation between M and M':

Fisher assumes a proportional relationship between currency money (M) and bank money (M'). Bank money depends upon the credit creation by the commercial banks which, in turn, are a function of the currency money (M). Thus, the ratio of M' to M remains constant and the inclusion of M' in the equation does not disturb the quantitative relation between quantity of money (M) and the price level (P).

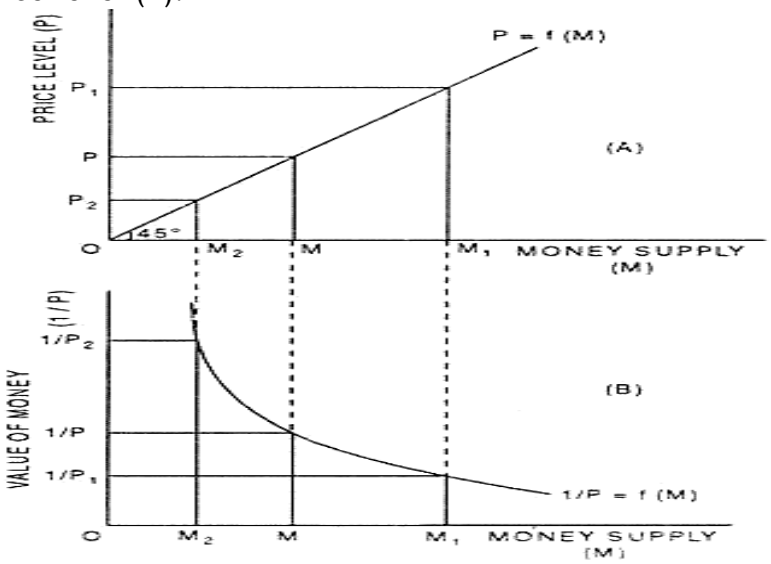


Fig.2.1. (A) and (B) - Fisher Quantity theory

6. Long Period:

The theory is based on the assumption of long period. Over a long period of time, V and T are considered constant.

Thus, when M', V, V' and T in the equation MV + M'Y' = PT are constant over time and P is a passive factor, it becomes clear, that a change in the money supply (M) will lead to a direct and proportionate change in the price level (P). The effects of a change in money supply on the price level and the value of money are graphically shown in Figure 2.1 (A) and (B) respectively:

(i) In Figure 1.1(A), when the money supply is doubled from OM to OM_1, the price level is also doubled from OP to OP_1. When the money supply is halved from OM to OM_2, the price level is halved from OP to OP_2. Price curve, P = f(M), is a 45° line showing a direct proportional relationship between the money supply and the price level.

(ii) In Figure 1.1(B), when the money supply is doubled from OM to OM_1; the value of money is halved from 1/P to $1/P_1$ and when the money supply is

halved from OM to OM_2, the value of money is doubled from 1/P to $1/P_2$. The value of money curve, 1/P = f (M) is a rectangular hyperbola curve showing an inverse proportional relationship between the money supply and the value of money.

Example:

$$P = \frac{MV + M'V'}{T}$$

$$P = \frac{(1000 \times 3) + (500 \times 2)}{4000}$$

= Re. 1 per good

Value of money (1/P) = 1

If the supply of money is doubled

$$P = \frac{(2000 \times 3) + (1000 \times 2)}{4000}$$

= Rs. 2 per good

Value of money (1/P) =1/2

Fisher's quantity theory of money can be explained with the help of an example. Suppose M = Rs. 1000. M' = Rs. 500, V = 3, V' = 2, T = 4000 goods. Thus, when money supply in doubled, i.e., increases from Rs. 4000 to 8000, the price level is doubled. i.e., from Re. 1 per good to Rs. 2 per good and the value of money is halved, i.e., from 1 to 1/2. Thus, when money supply is halved, i.e., decreases from Rs. 4000 to 2000, the price level is halved, i.e., from 1 to 1/2, and the value of money is doubled, i.e., from 1 to 2 over time. Thus, V tends to remain constant so that any change in supply of money (M) will have no effect on the velocity of money (V).

Criticisms of Quantity Theory of Money:

The quantity theory of money as developed by Fisher has been criticised on the following grounds:

1. Interdependence of Variables:

(i) M Influences V – As money supply increases, the prices will increase. Fearing further rise in price in future, people increase their purchases of goods and services. Thus, velocity of money (V) increases with the increase in the money supply (M).

(ii) M Influences V' – When money supply (M) increases, the velocity of credit money (V') also increases. As prices increase because of an increase in money

supply, the use of credit money also increases. This increases the velocity of credit money (V′).

(iii) P Influences T – Fisher assumes price level (P) as a passive factor having no effect on trade (T). But, in reality, rising prices increase profits and thus promote business and trade.

(iv) P Influences M – According to the quantity theory of money, changes in money supply (M) is the cause and changes in the price level (P) is the effect. But, critics maintain that a change in the price level occurs independently and this later on influences money supply.

(v) T Influences V – If there is an increase in the volume of trade (T), it will definitely increase the velocity of money (V).

(vi) T Influences M – During prosperity growing volume of trade (T) may lead to an increase in the money supply (M), without altering the prices.

(vii) M and T are not Independent – According to Keynes, output remains constant only under the condition of full employment. But, in reality less-than-full employment prevails and an increase in the money supply increases output (T) and employment.

2. Unrealistic Assumption of Long Period:

The quantity theory of money has been criticised on the ground that it provides a long-term analysis of value of money. It throws no light on the short-run problems. Keynes has aptly remarked that "in the long-run we are all dead". Actual problems are short-run problems. Thus, quantity theory has no practical value.

3. Unrealistic Assumption of full Employment:

Keynes' fundamental criticism of the quantity theory of money was based upon its unrealistic assumption of fall employment. Full employment is a rare phenomenon in the actual world. In a modern capitalist economy, less than full employment and not full employment is a normal feature. According to Keynes, as long as there is unemployment, every increase in money supply leads to a proportionate increase in output, thus leaving the price level unaffected.

4. Static Theory:

The quantity theory assumes that the values of V, V′, M′ and T remain constant. But, in reality, these variables do not remain constant. The assumption of constancy of these factors makes the theory a static theory and renders it inapplicable in the dynamic world.

5. Simple Truism:

The equation of exchange (MV = PT) is a mere truism and proves nothing. It is simply a factual statement which reveals that the amount of money paid in exchange for goods and services (MV) is equal to the market value of goods and services received (PT), or, in other words, the total money expenditure made by the buyers of commodities is equal to the total money receipts of the sellers of the commodities. The equation does not tell anything about the causal relationship between money and prices; it does not indicate which the cause is and which the effect is.

6. Technically Inconsistent:

Prof. Halm considers the equation of exchange as technically inconsistent. M in the equation is a stock concept; it refers to the stock of money at a point of time. V, on the other hand, is a flow concept, it refers to velocity of circulation of money over a period of time, and M and V are non-comparable factors and cannot be multiplied together. Hence the left-hand side of the equation MV = PT is inconsistent.

7. Fails to Explain Trade Cycles:

The quantity theory does not explain the cyclical fluctuations in prices. It does not tell why during depression the prices fall even with the increase in the quantity of money and during the boom period the prices continue to rise at a faster rate in spite of the adoption of tight money and credit policy. The proper explanation for the decline in prices during depression is the fall in the velocity of money and for the rise in prices during boom period is the increase in the velocity of money. Thus, the quantity theory of money fails to explain the trade cycles. Crowther has remarked, “The quantity theory is at best, an imperfect guide to the causes of the cycle.”

8. Ignores Other Determinants of Price Level:

The quantity theory maintains that price level is determined by the factors included in the equation of exchange, i.e. by M, V and T, and unrealistically establishes a direct and proportionate relationship between the quantity of money and the price level. It ignores the importance of many other determinates of prices, such as income, expenditure, investment, saving, consumption, population, etc.

9. Fails to Integrate Monetary Theory with Price Theory:

The classical quantity theory falsely separates the theory of value from the theory of money. Money is considered neutral and changes in money supply are believed to affect the absolute prices and not relative prices. Keynes criticises this view and maintains that money plays an active role and both the theory of money and the theory of value are essential parts of the general theory of output, employment and money. He integrated the two theories through the rate of interest.

10. Money as a Store of Value Ignored:

The quantity theory of money considers money only as a medium of exchange and completely ignores its importance as a store of value. Keynes recognised the stores of value function of money and laid emphasis on the demand for money for speculative purpose as against the classical emphasis on the transactions and precautionary demand for money.

11. No Discussion of Velocity of Money:

The quantity theory of money does not discuss the concept of velocity of circulation of money, nor does it throw light on the factors influencing it. It regards the velocity of money to be constant and thus ignores the variation in the velocity of money which are bound to occur in the long period.

12. One-Sided Theory:

Fisher's transactions approach is one- sided. It takes into consideration only the supply of money and its effects and assumes the demand for money to be constant. It ignores the role of demand for money in causing changes in the value of money.

13. No Direct and Proportionate Relation between M and P:

Keynes criticised the classical quantity theory of money on the ground that there is no direct and proportionate relationship between the quantity of money (M) and the price level (P). A change in the quantity of money influences prices indirectly through its effects on the rate of interest, investment and output.The effect on prices is also not predictable and proportionate. It all depends upon the nature of the liquidity preference function, the investment function and the consumption function. The quantity theory does not explain the process of causation between M and P.

14. A Redundant Theory:

The critics regard the quantity theory as redundant and unnecessary. In fact, there is no need of a separate theory of money. Like all other commodities, the value of money is also determined by the forces of demand and supply of money. Thus, the general theory of value which explains the value determination of a commodity can also be extended to explain the value of money.

15. Crowthers Criticism:

Prof. Crowther has criticised the quantity theory of money on the ground that it explains only 'how it works' of the fluctuations in the value of money and does not explain 'why it works' of these fluctuations. As he says, "The quantity theory can explain the 'how it works' of fluctuations in the value of money… but it cannot explain the 'why it works', except in the long period".

Implications of Quantity Theory of Money:

Various theoretical and policy implications of the quantity theory of money are given below:

1. Proportionality of Money and Prices:

The quantity theory of money leads to the conclusion that the general level of prices varies directly and proportionately with the stock of money, i.e., for every percentage increase in the money stock, there will be an equal percentage increase in the price level. This is possible in an economy – (a) whose internal mechanism is capable of generating a full-employment level of output, and (b) in which individuals maintain a fixed ratio between their money holdings and money value of their transactions.

2. Neutrality of Money:

The quantity theory of money justifies the classical belief that money is neutral' or 'money is a veil' or 'money does not matter'. It implies that changes in the money supply are neutral in the sense that they affect the absolute prices and not the relative prices. Since, consumer spending and business spending decisions depend upon relative prices; changes in the money supply do not affect real variables such as employment and output. Thus, money is neutral.

3. Dichotomisation of the Price Process:

The quantity theory also justifies the dichotomisation of the price process by the classical economists into its real and monetary aspects. The relative (or real) prices are determined in the commodity markets and the absolute (or nominal) prices in the money market. Since money is neutral and changes in money supply affect only the monetary and not the real phenomena, the classical economists developed the theory of employment and output entirely in real terms and separated it from their monetary theory of absolute prices.

4. Monetary Theory of Prices:

The quantity theory of money upholds the view that the general level of prices is mainly a monetary phenomenon. The non-monetary factors, like taxes, prices of imported goods, industrial structure, etc., do not have lasting influence on the price level. These factors may raise the prices in the short run, but this price rise will reduce actual money balances below their desired level. This will lead to fall in money spending and a consequent fall in the price level until the original price is restored.

5. Role of Monetary Policy:

In a self-adjusting free-market economy in which changes in money supply do not affect the real macro variables of employment and output, there is little room left for a monetary policy. But the classical economists recognised the existence of frictional unemployment which represents temporary disequilibrium situation.

Such a situation arises when wages and prices are rigid downward. To me such a situation of unemployment, the classical economists advocated a

stabilising monetary policy of increasing money supply. An increase in the money supply increases total spending and the general price level. Wage will rise less rapidly (or relative wages will fall) in the labour surplus areas, thereby reducing unemployment Thus, through a judicious use of monetary policy, the time lag between disequilibrium and adjustment can shortened; or, in the case of frictional unemployment, the duration of unemployment can be reduce. Thus, the classical economists assigned a modest stabilising role to monetary policy to deal with the disequilibrium situation.

2.3. Cambridge Equations (Or) Cash Balances Approach:

As an alternative to Fishers quantity theory of money, Cambridge economists Marshall, Pigou, Robertson and Keynes formulated the cash balances approach. Like value theory, they regarded the determination of value of money in terms of supply and demand. Robertson wrote in this connection: "Money is only one of the many economic things. Its value, therefore, is primarily determined by exactly the same two factors as determine the value of any other thing, namely, the conditions of demand for it, and the quantity of it available." The supply of money is exogenously determined at a point of time by the banking system. Therefore, the concept of velocity of circulation is altogether discarded in the cash balances approach because it obscures the motives and decisions of people behind it. On the other hand, the concept of demand for money plays the major role in determining the value of money. The demand for money is the demand to hold cash balances for transactions and precautionary motives. Thus the cash balances approach considers the demand for money not as a medium of exchange but as a store of value. Robertson expressed this distinction as money "on the wings" and money "sitting". It is "money sitting" that reflects the demand for money in the Cambridge equations. The Cambridge equations show that given the supply of money at a point of time, the value of money is determined by the demand for cash balances. When the demand for money increases, people will reduce their expenditures on goods and services in order to have larger cash holdings. Reduced demand for goods and services will bring down the price level and raise the value of money. On the contrary, fall

in the demand for money will raise the price level and lower the value of money.

The Cambridge cash balances equations of Marshall, Pigou, Robertson and Keynes are discussed as under:

Marshall's Equation:

Marshall did not put his theory in equation form and it was for his followers to explain it algebraically. Friedman has explained Marshall's views thus: "As a first approximation, we may suppose that the amount one wants to hold bears some relation to one's income, since that determines the volume of purchases and sales in which one is engaged. We then add up the cash balances held by all holders of money in the community and express the total as a fraction of their total income." Thus we can write:

$$M = kPY$$

where M stands for the exogenously determined supply of money, k is the fraction of the real money income (PY) which people wish to hold in cash and demand deposits, P is the price level, and Y is the aggregate real income of the community. Thus the price level $P = M/kY$

Or the value of money (the reciprocal of price level) is $1/P = kY/M$

Pigou's Equation:

Pigou was the first Cambridge economist to express the cash balances approach in the form of an equation:

$$P = kR/M$$

where P is the purchasing power of money or the value of money (the reciprocal of the price level), k is the proportion of total real resources or income (R) which people wish to hold in the form of titles to legal tender, R is the total resources (expressed in terms of wheat), or real income, and M refers to the number of actual units of legal tender money. The demand for money, according to Pigou, consists not only of legal money or cash but also bank notes and bank balances. In order to include bank notes and bank balances in the demand for money, Pigou modifies his equation as

$$P = kR/M \{c + h (1-c)\}$$

Where c is the proportion of total real income actually held by people in legal tender including token coins, (1-c) is the proportion kept in bank notes and

bank balances, and h is the proportion of actual legal tender that bankers keep against the notes and balances held by their customers.

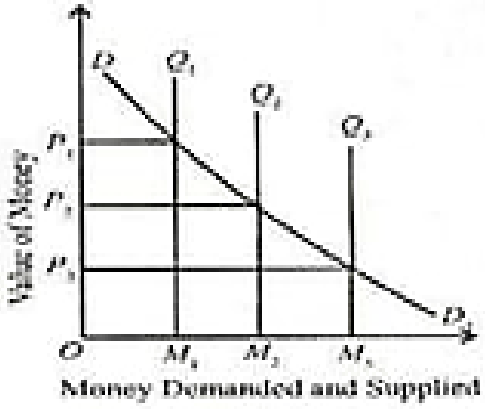


Fig.2.2. Cambridge Approaches

Pigou points out that when k and R in the equation P=kR/M and k, R, c and h are taken as constants then the two equations give the demand curve for legal tender as a rectangular hyperbola. This implies that the demand curve for money has a uniform unitary elasticity.

This is shown in Figure 2.2, where DD_1 is the demand curve for money and Q_1M_1, Q_2M_2, and Q_3M_3 are the supply curves of money drawn on the assumption that the supply of money is fixed at a point of time. The value of money or Pigou purchasing power of money P is taken on the vertical axis. The figure shows that when the supply of money increases from OM_1 to OM_2, the value of money is reduced from OP_1 to OP_2. The fall in the value of money by P_1P_2 exactly equals the increase in the supply of money by M_1M_2. If the supply of money increases three times from OM_1 to OM3 the value of money is reduced by exactly one-third from OP_1 to OP_3. Thus, the demand curve for money DD_1 is a rectangular hyperbola because it shows changes in the value of money exactly in reverse proportion to the supply of money.

Robertson's Equation:

To determine the value of money or its reciprocal the price level, Robertson formulated an equation similar to that of Pigou. The only difference between the two beings that instead of Pigous total real resources R, Robertson gave the volume of total transactions T. The Robertsonian equation is

$$M = PkT \text{ (or)}$$

$$P = M/kT$$

Where P is the price level, M is the total quantity of money, k is the proportion of the total amount of goods and services (T) which people wish to hold in the form of cash balances, and T is the total volume of goods and services purchased during a year by the community. If we take P as the value of money instead of the price level as in Pigous equation, then Robertsons equation exactly resembles Pigous P = kT/M.

Keynes's Equation:

Keynes in his A Tract on Monetary Reform (1923) gave his Real Balances Quantity Equation as an improvement over the other Cambridge equations. According to him, people always want to have some purchasing power to finance their day to day transactions. The amount of purchasing power (or demand for money) depends partly on their tastes and habits, and partly on their wealth. Given the tastes, habits, and wealth of the people, their desire to hold money is given. This demand for money is measured by consumption units. A consumption unit is expressed as a basket of standard articles of consumption or other objects of expenditure. If k is the number of consumption units in the form of cash, n is the total currency in circulation, and p is the price for consumption unit, then the equation is

$$n = pk$$

If k is constant, a proportionate increase in n (quantity of money) will lead to a proportionate increase in p (price level). This equation can be expanded by taking into account bank deposits. Let k be the number of consumption units in the form of bank deposits, and r the cash reserve ratio of banks, then the expanded equation is n=p (k + rk) again, if k, k and r is constant, p will change in exact proportion to the change in n. Keynes regards his equation superior to other cash balances equations. The other equations fail to point how the price level (p) can be regulated. Since the cash balances (k) held by the people are outside the control of the monetary authority, p can be regulated by controlling n and r. It is also possible to regulate bank deposits k" by appropriate changes in the bank rate. So p can be controlled by making appropriate changes in n, r and k so as to offset changes in k.

Criticisms of the Cash Balance Approach:

The cash balances approach to the quantity theory of money has been criticised on the following counts:

1. Truisms:

Like the transactions equation, the cash balances equations are truisms. Take any Cambridge equation: Marshall P=M/kY or Pigou P=kR/M or Robertsons P=M/kT or Keynes p=n/k, it establishes a proportionate relation between quantity of money and price level.

2. Price Level does not Measure Purchasing Power:

Keynes in his A Treatise on Money (1930) criticised Pigou cash balances equation and also his own real balances equation. He pointed out that measuring the price level in wheat, as Pigou did or in terms of consumption units, as Keynes himself did, was a serious defect. The price level in both equations does not measure the purchasing power of money. Measuring the price level in consumption units implies that cash deposits are used only for expenditure on current consumption. But in fact they are held for "a vast multiplicity of business and personal purposes." By ignoring these aspects, the Cambridge economists have committed a serious mistake.

3. More Importance to Total Deposits:

Another defect of the Cambridge equation "lies in its applying to the total deposits considerations which are primarily relevant only to the income deposits." And the importance attached to k is misleading when it is extended beyond the income deposits.

4. Neglects other Factors:

Further, the cash balances equation does not tell about changes in the price level due to changes in the proportions in which deposits are held for income, business and savings purposes.

5. Neglect of Saving-Investment Effect:

Moreover, it fails to analyse variations in the price level due to saving-investment inequality in the economy.

6. K and Y not Constant:

The Cambridge equation, like the transactions equation, assumes k and T (or R or T) as constant. This is unrealistic because it is not essential that

the cash balances (k) and the income of the people (Y) should remain constant even during the short period.

7. Fails to Explain Dynamic Behaviour of Prices:

The theory argues that changes in the total quantity of money influence the general price level equi proportionally. But the fact is that the quantity of money influences the price level in an essential erratic and unpredictable way. Further, it fails to point out the extent of change in the price level as a result of a given change in the quantity of money in the short period. Thus it fails to explain the dynamic behaviour of prices.

8. Neglects Interest Rate:

The cash balances approach is also weak in that it ignores other influences, such as the rate of interest which exerts a decisive and significant influence upon the price level. As pointed out by Keynes, the relation between quantity of money and price level is not direct but indirect via the rate of interest, investment, output, employment and income. This is what the Cambridge equation ignores and hence fails to integrate monetary theory with the theory of value and output.

9. Demand for Money not Interest Inelastic:

The neglect of the rate of interest as a causative factor between the quantity of money and the price level led to the assumption that the demand for money is interest inelastic. It means that money performs only the function of medium of exchange and demand for Money not Interest Inelastic: The neglect of the rate of interest as a causative factor between the quantity of money and the price level led to the assumption that the demand for money is interest inelastic. It means that money performs only the function of medium of exchange and does not possess any utility of its own, such as store of value.

10. Neglect of Goods Market:

Further, the omission of the influence of the rate of interest in the cash balances approach led to the failure of neoclassical economists to recognise the interdependence between the commodity and money markets. According to Patinkin, “They laid an undue concentration on the money market a

corresponding neglect of the commodity markets, and a resulting, dehumanising of the analysis of the effects of monetary changes."

11. Neglects Real Balance Effect:

Patinkin has criticised the Cambridge economists for their failure to integrate the goods market and the money market. This is borne out by the dichotomy which they maintain between the two markets. The dichotomisation implies that the absolute price level in the economy is determined by the demand and supply of money, and the relative price level is determined by the demand and supply of goods. The cash balances approach keeps the two markets rigidly apart. For instance, this approach tells that an increase in the quantity of money leads to an increase in the absolute price level but exercises no influence on the market for goods. This is because of the failure of Cambridge economists to recognise "the real balance effect." The real balance effect shows that a change in the absolute price level does influence the demand and supply of goods. The weakness of cash balances approach lies in ignoring this.

12. Neglects Speculative Demand for Money: Another serious weakness of cash balances approach is its failure to consider the speculative demand for money. The neglect of the speculative demand for cash balances makes the demand for money exclusively dependent on money income thereby again neglecting the role of the rate of interest and the store of value function of money.

2.4. KEYNESIAN MONETARY THEORY

The main thrust of Keynes's criticism of classical quantity theory of money was directed at its conclusion that (i) velocity of circulation is constant, and (ii) full employment of resources is the natural state of a free market economy. Keynes believed that velocity of circulation was volatile and there often existed underemployment of resources due to recessionary conditions in the economy.

Classical economists believed that people demanded money only for transactions purpose and money balances held for transactions purposes were proportional to nominal income. Keynes challenged this viewpoint and

held that people could hold income-earning assets such as bonds instead of holding money balances. To the transactions motive for holding money. Keynes added precautionary motive and speculative motive (that is demand for money as an asset for holding money. Income or interest earned on assets such as bonds is the opportunity cost of holding money. The higher the rate of interest on these assets, the less money will be held by the public. It is worth noting that people have adjusted their money holdings until what they demand equals what they actually have. If people have more money than what they demand, they will spend either on consumer goods and services or invest more. On the other hand, if their demand for money to hold is greater than what they presently have, they will try to acquire more money either by reducing expenditure on goods and services or selling some of their assets such as bonds and shares. Keynes laid stress on financial investment in bonds as a major way to reduce one's money holdings.

The task of a monetary theory is to explain the influence of changes in money supply on the level of economic activity (i.e., levels of real income, output and employment) and the price level. Keynes's monetary theory explains the effect of variation in money supply on the level of economic activity through its effect on the rate of interest which determines investment in the economy. In what follows we first explain the impact of expansion in money supply on the levels of real income and employment. In the second stage of our analysis of Keynes's monetary theory we show how changes in money supply affect the price level in the economy.

Keynes Monetary Theory: Integrating Money Market with Goods Market:

According to Keynes, rate of interest is determined by equilibrium between demand for money and supply of money (i.e., through money market equilibrium).The effect of money supply on rate of interest and the effect of rate of interest on aggregate demand provides a mechanism through which changes in money supply affect the goods market which determines level of economic activity in the economy, that is, level of output and employment. We know from the study of money market that monetary policy has a profound effect on the rate of interest. Thus, if rate of interest is reduced as a result of an increase in money supply, the rate of investment will rise and the increase

in investment will lead to increase in income and employment via the multiplier. Thus, when in times of recession, money supply in the economy is increased it will cause investment to increase and as result, there will be an increase in aggregate expenditure (i.e., aggregate demand) which will lead to the increase in real national income (aggregate output) and employment will increase, in this way Keynes succeed in integrating money market with goods market.

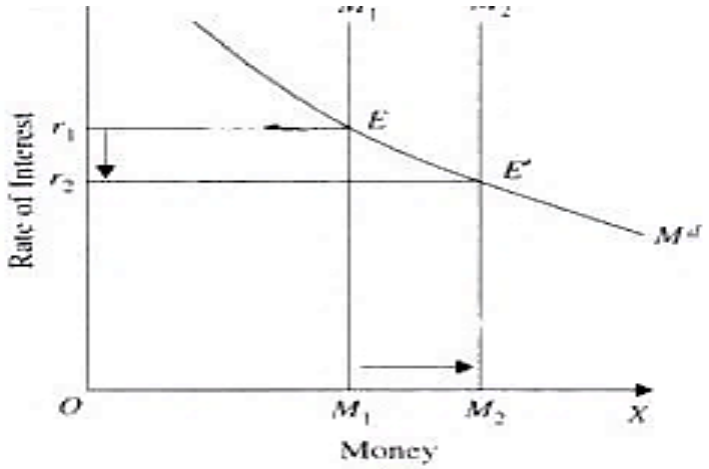


Fig.2.3. Money supply and Rate of Interest

Transmission Mechanism: How, according to Keynes, the change in money supply leads to the increase real income output and employment is shown in the following scheme:

The first link in the transmission mechanism is the effect of expansion in money supply on the rate of interest which depends on how far demand for money holdings is sensitive (i.e., elastic) to the changes in rate of interest. The expansion in money supply (M^S) causes the rate of interest to fall.

The second step in the transmission mechanism is the influence of change in rate of interest on the rate of investment, which is determined by the elasticity of investment with respect to rate of interest. The fall in rate of interest leads to the increase in investment in the economy.

The next step in the process is the effect of increase in investment on aggregate demand and therefore on national income (aggregate output) and employment in the economy. The effect of investment on income, output and employment is determined by the size of multiplier.

We explain below at length the above factors and show how the increase in money supply affects the level of economic activity. It may be noted that

expansion in money supply which leads to the increase in aggregate demand will affect both the real national income (i.e., GNP) and the price level jointly. However for better understanding of the subject by the students we shall explain the Keynesian monetary theory with regard to the relation between money supply and price level separately as well.

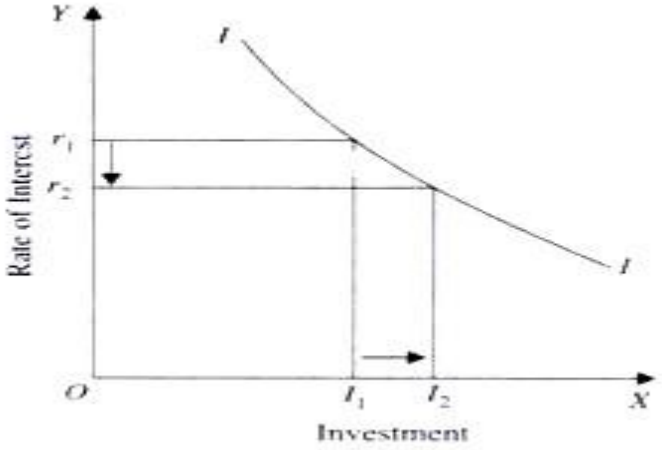


Fig.2.4. Rate of Interest and Investment

Money Supply and Rate of Interest:

Rate of interest, according to Keynes, is a purely monetary phenomenon. Demand for money to hold depends on the level of income and rate of interest. At a higher current rate of interest, less money is demanded by the people to hold and vice versa. Therefore, money demand curve (M^d) or what Keynes calls liquidity preference curve slopes downward as shown by M^d curve in Figure Rate of interest is determined by demand for money and supply of money. Where the quantity of money fixed by the Government is OM^d so that money supply curve is M_1^S. The intersection of demand for money curve M and the supply of money curve M_1^S determines r rate of interest. Thus at rate of interest r_1 demand for money to hold is equal to the available supply of money M_1.

Now, observing that there is unemployment of labour and other resources and recessionary conditions prevail in the economy, the central bank takes steps to raise money supply. The central bank can raise money supply by purchasing Government securities from the market (that is undertaking open market operations) or lowering cash-reserve ratio (CRR) of the banks. Suppose ultimately these steps lead to the expansion in money supply to M_2. It will be

seen from Figure that with the increase in money supply from M_1 to M_2, rate of interest falls to r_2 at which demand for money holdings equals the increased supply of money M_2. It may however be noted that the extent to which rate of interest falls as a result of expansion in money supply depends on the elasticity of demand for money holdings with respect to the rate of interest. The higher the elasticity of demand for money with respect to the rate of interest, the smaller the fall in rate of interest as a result of increase in money supply by the central bank of a country.

Rate of Investment:

The next link in the chain of causation is the effect of change in rate of interest on rate of investment in the economy. In the Keynesian system, investment in the economy depends on the rate of interest on the one hand and marginal efficiency of investment (MEI) on the other. Marginal efficiency of investment (i.e., expected rate of profit), it may be emphasised, depends on the expectations of entrepreneurs. The determination of investment is shown in figure where II is the investment demand curve whose position depends on the profit expectations of the entrepreneurs which determine marginal efficiency of investment. At the rate of interest r_1, investment equal to I_1 will be made. Now, if the expansion in money supply results in fall in rate of interest to r_2, investment increases to I_2. It is worth noting that the increase in investment as a result of change in the rate of interest depends on the responsiveness (that is, elasticity) of investment demand to the change in rate of interest. The higher the elasticity of investment expenditure to the changes in the rate of interest, the greater will be the increase in investment for a given fall in the rate of interest.

Investment and Aggregate Demand:

Next step in the transmission mechanism of the effect of money supply on the national income and price level is concerned with the impact of increase in investment on aggregate demand. Aggregate demand which we may write as AD is determined in the Keynesian theory by the sum of private consumption expenditure, private investment expenditure (I), Government's expenditure on goods and services (G) and net exports (X_n) that is, excess of exports over imports. Thus

$$AD = C + I + G + X_n$$

When the rate of interest is reduced as a result of expansion in money supply and causes investment to increase, it will shift the aggregate demand curve upward. This is depicted in Fig. 2.5 where initially with investment equal to I_1 along with other variables, aggregate demand curve is AD_1 or $C + I_1 + G + X_n$.

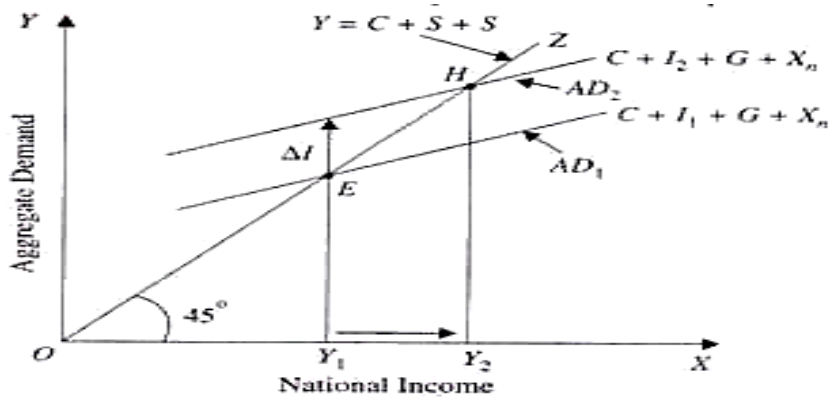


Fig.2.5. the effect of increase in investment on aggregate demand and national income

When due to the expansion in money supply and resultant fall in rate of interest investment increases from I_1 to I_2, aggregate demand curve shifts upward to the new position $C + I_2 + G + X_n$. The upward shift in aggregate demand curve is equal to the increase in investment (ΔI) from I_1 to I_2.

Keynes Theory of Money and Prices:

We know turn to explain the Keynesian monetary theory with regard to the relationship between the supply of money and the price level. Keynes believed that changes in money supply could being about changes in the price level but contrary to the classical economists' view he explained that there was no any direct and proportionate relationship between the quantity of money and the price level. He showed that changes in money supply indirectly affect the price level through its effect on the rate of interest. When money supply is increased, given the demand for money holdings curve, it leads to the fall in the rate of interest depending upon how far money demand curve is sensitive to the rate of interest.

A change in the rate of interest affects investment which through multiplier process affects aggregate expenditure or demand. It is then the magnitude of aggregate demand relative to aggregate supply of output that

causes price level to change. Thus, relation between money and the price level far from direct and proportionate is only indirect. The Keynesian theory emphasises that the price level is in fact a consequence of aggregate demand or expenditure relative to aggregate supply rather than of quantity of money. The real cause of fluctuations in price level is to be found in fluctuations in the level of aggregate expenditure.

Therefore, changes in the quantity of money can bring about changes in the level of prices only if they change aggregate demand in relation to the supply of output. Unless aggregate expenditure increases, there can be no increase in demand for goods. And if demand for goods does not increase, the question of rise in price level does not arise. However, even if aggregate demand or expenditure does increase, prices may still not rise if the supply curve of output is fairly elastic.

Therefore, the effects of a change in quantity of money on the price-level depend on the following factors:

(i) Effect of changes in money supply on the level of aggregate demand or spending;

(ii) Relation between aggregate spending and the volume of production.

As regards the volume of aggregate expenditure or aggregate demand, in the Keynesian theory it depends on the following:

(a) Rate of interest which is determined by the demand for money and the supply of money;

(b) The investment demand curve which determines the increase in investment demand following a fall in the rate of interest; and

(c) The propensity to consume which determines the magnitude of the multiplier effect of increase in investment.

(d) Supply of money.

2.5. JAMES TOBIN'S PORTFOLIO ANALYSIS OF MONEY DEMAND

By introducing speculative demand for money, Keynes made a significant departure from the classical theory of money demand which emphasized only the transactions demand for money. However, as seen above, Keynes' theory of speculative demand for money has been challenged. The main drawback of Keynes speculative demand for money is that it visualises

that people hold their assets in either all money or all bonds. This seems quite unrealistic as individuals hold their financial wealth in some combination of both money and bonds.

This gave rise to portfolio approach to demand for money put forward by Tobin, Baumol and Freidman. The portfolio of wealth consists of money, interest-bearing bonds, shares, physical assets etc. Further, while according to Keynes' theory, demand for money for transaction purposes is insensitive to interest rate, the modem theories of money demand put forward by Baumol and Tobin show that money held for transaction purposes is interest elastic. We discuss below the Post-Keynesian theories of demand for money put forward by Tobin, Baumol and Friedman.

2.5.1. Tobin's portfolio approach to demand for money:

An American economist James Tobin, in his important contribution explained that rational behaviour on the part of the individuals is that they should keep a portfolio of assets which consists of both bonds and money. In his analysis he makes a valid assumption that people prefer more wealth to less. According to him, an investor is faced with a problem of what proportion of his portfolio of financial assets he should keep in the form of money (which earns no interest) and interest-bearing bonds. The portfolio of individuals may also consist of more risky assets such as shares. According to Tobin, faced with various safe and risky assets, individuals diversify their portfolio by holding a balanced combination of safe and risky assets. According to Tobin, individual's behaviour shows risk aversion. That is, they prefer less risk to more risk at a given rate of return. In the Keynes' analysis an individual holds his wealth in either all money or all bonds depending upon his estimate of the future rate of interest.

But, according to Tobin, individuals are uncertain about future rate of interest. If a wealth holder chooses to hold a greater proportion of risky assets such as bonds in his portfolio, he will be earning a high average return but will bear a higher degree of risk. Tobin argues that a risk averter will not opt for such a portfolio with all risky bonds or a greater proportion of them. On the other hand, a person who, in his portfolio of wealth, holds only safe and riskless assets such as money (in the form of currency and demand deposits

in banks) he will be taking almost zero risk but will also be having no return and as a result there will be no growth of his wealth. Therefore, people generally prefer a mixed diversified portfolio of money, bonds and shares, with each person opting for a little different balance between riskiness and return. It is important to note that a person will be unwilling to hold all risky assets such as bonds unless he obtains a higher average return on them. In view of the desire of individuals to have both safety and reasonable return, they strike a balance between them and hold a mixed and balanced portfolio consisting of money (which is a safe and riskless asset) and risky assets such as bonds and shares though this balance or mix varies between various individuals depending on their attitude towards risk and hence their trade-off between risk and return.

Tobin's Liquidity Preference Function:

Tobin derived his liquidity preference function depicting relationship between rate of interest and demand for money (that is, preference for holding wealth in money form which is a safe and "riskless" asset.

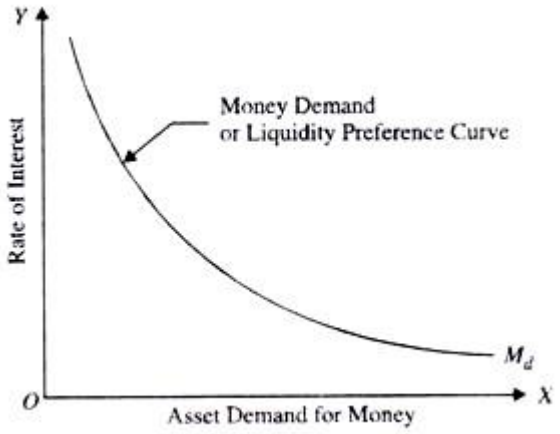


Fig.2.6 Tobin Liquidity preference curve

He argues that with the increase in the rate of interest (i.e. rate of return on bonds), wealth holders will be generally attracted to hold a greater fraction of their wealth in bonds and thus reduce their holding of money.

That is, at a higher rate of interest, their demand for holding money (i.e., liquidity) will be less and therefore they will hold more bonds in their portfolio. On the other hand, at a lower rate of interest they will hold more money and less bonds in their portfolio. This means, like the Keynes's speculative demand for money, in Tobin's portfolio approach demand function for money

as an asset (i.e. his liquidity preference function curve) slopes downwards as is shown in Fig.2.6 where on the horizontal axis asset demand for money is shown. This downward-sloping liquidity preference function curve shows that the asset demand for money in the portfolio increases as the rate of interest on bonds falls. In this way Tobin derives the aggregate liquidity preference curve by determining the effects of changes in interest rate on the asset demand for money in the portfolio of individuals. Tobin's liquidity preference theory has been found to be true by the empirical studies conducted to measure interest elasticity of the demand for money. As shown by Tobin through his portfolio approach, these empirical studies reveal that aggregate liquidity preference curve is negatively sloped. This means that most of the people in the economy have liquidity preference function similar to the one shown by curve M_d in Fig.2.6.

Evaluation:

Tobin's approach has done away with the limitation of Keynes' theory of liquidity preference for speculative motive, namely, individuals hold their wealth in either all money or all bonds. Thus, Tobin's approach, according to which individuals simultaneously hold both money and bonds but in different proportion at different rates of interest yields a continuous liquidity preference curve. Further, Tobin's analysis of simultaneous holding of money and bonds is not based on the erroneous Keynes's assumption that interest rate will move only in one direction but on a simple fact that individuals do not know with certainty which way the interest rate will change. It is worth mentioning that Tobin's portfolio approach, according to which liquidity preference (i.e. demand for money) is determined by the individual's attitude towards risk, can be extended to the problem of asset choice when there are several alternative assets, not just two, of money and bonds.

2.5.2. Baumol's Inventory Approach to Transactions Demand for Money

Instead of Keynes speculative demand for money, Baumol concentrated on transactions demand for money and put forward a new approach to explain it. Baumol explains the transaction demand for money from the viewpoint of the inventory control or inventory management similar to the inventory management of goods and materials by business firms. As businessmen keep

inventories of goods and materials to facilitate transactions or exchange in the context of changes in demand for them, Baumol asserts that individuals also hold inventory of money because this facilitates transactions (i.e. purchases) of goods and services. In view of the cost incurred on holding inventories of goods there is need for keeping optimal inventory of goods to reduce cost. Similarly, individuals have to keep optimum inventory of money for transaction purposes. Individuals also incur cost when they hold inventories of money for transactions purposes.

They incur cost on these inventories as they have to forgone interest which they could have earned if they had kept their wealth in saving deposits or fixed deposits or invested in bonds. This interest income forgone is the cost of holding money for transactions purposes. In this way Baumol and Tobin emphasised that transaction demand for money is not independent of the rate of interest. It may be noted that by money we mean currency and demand deposits which are quite safe and riskless but carry no interest. On the other hand, bonds yield interest or return but are risky and may involve capital loss if wealth holders invest in them. However, saving deposits in banks, according to Baumol, are quite free from risk and also yield some interest. Therefore, Baumol asks the question why an individual holds money (i.e. currency and demand deposits) instead of keeping his wealth in saving deposits which are quite safe and earn some interest as well.

According to him, it is for convenience and capability of it being easily used for transactions of goods that people hold money with them in preference to the saving deposits. Unlike Keynes both Baumol and Tobin argue that transactions demand for money depends on the rate of interest. People hold money for transaction purposes "to bridge the gap between the receipt of income and its spending." As interest rate on saving deposits goes up people will tend to shift a part of their money holdings to the interest-bearing saving deposits. Individuals compare the costs and benefits of funds in the form of money with the interest- bearing saving deposits. According to Baumol, the cost which people incur when they hold funds in money is the opportunity cost of these funds, that is, interest income forgone by not putting them in saving deposits.

Baumol's Analysis of Transactions Demand:

A Baumol analysis the transactions demand for money of an individual who receives income at a specified interval, say every month, and spends it gradually at a steady rate. This is illustrated in Fig. 2.7. It is assumed that individual is paid Rs. 12000 salary cheque on the first day of each month. Suppose he gets it cashed (i.e. converted into money) on the very first day and gradually spends it daily throughout the month. (Rs. 400 per day) so that at the end of the month he is left with no money. It can be easily seen that his average money holding in the month will be Rs. = 12000/2 = Rs. 6,000 (before 15th of a month he will be having more than Rs. 6,000 and after 15th day he will have less than Rs. 6,000).Average holding of money equal to Rs. 6,000 has been shown by the dotted line. Now, the question arises whether it is the optimal strategy of managing money or what is called optimal cash management. The simple answer is no. This is because the individual is losing interest which he could have earned if he had deposited some funds in interest-bearing saving deposits instead of withdrawing all his salary in cash on the first day.

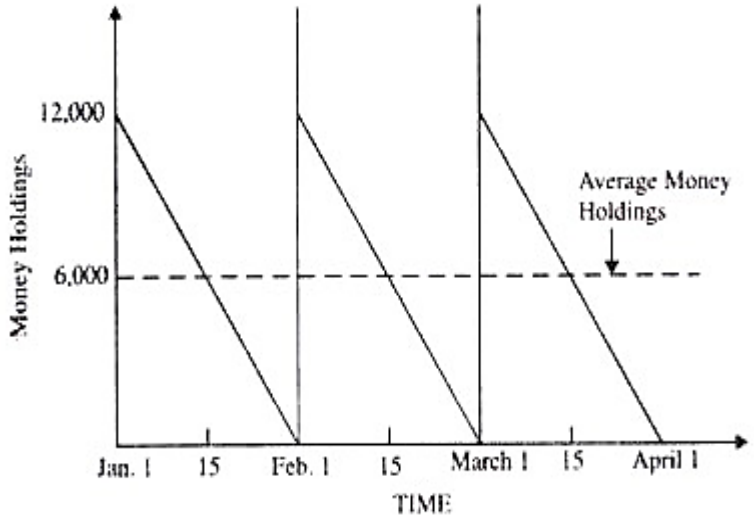


Fig.2.7. Stream of cash payments and transactions demand for money

He can manage his money balances so as to earn some interest income as well. Suppose, instead of withdrawing his entire salary on the first day of a month, he withdraws only half of it i.e. (Rs. 6,000 in cash and deposits the remaining amount of Rs. 6,000 in saving account which gives him interest of 5 per cent, his expenditure per day remaining constant at Rs. 400.

Even in case of saving deposits, the asset which we are taking for illustration, one has to spend on transportation costs for making extra trips to the bank for withdrawing money from the Savings Account. Besides, one has to spend time in the waiting line in the bank to withdraw cash each time from the saving deposits.

Thus, the greater the number of times an individual makes trips to the bank for withdrawing money, the greater the broker's fee he will incur. If he withdraws more cash, he will be avoiding some costs on account of brokerage fee. Thus, individual faces a trade-off problem-, the greater the amount of pay cheque he withdraws in cash, less the cost on account of broker's fee but the greater the opportunity cost of forgoing interest income. The problem is therefore to determine an optimum amount of money to hold. Baumol has shown that optimal amount of money holding is determined by minimising the cost of interest income forgone and broker's fee. Let us elaborate it further.

Let the size of the pay cheque (i.e. salary) be denoted by Y, the average amount of the cash he withdraws each time the individual goes to the bank by C, the number of times he goes to the bank to withdraw cash by T, broker's fee which he has to bear each time he makes a trip to the bank by b. In the first scheme of money management when he gets his whole pay-cheque cashed on the first day of every month he incurs broker's fee only once since he makes only a single trip to the bank.

Thus T in our first case is equal to one T = Y/C = 12000/12000 = 1 because in this case C = Y. In the second, case, T = 12000/6000 =2 and in the third case T = 12000/4000 =3.

Interest income lost by holding money is the average amount of money holding multiplied by the interest rate. As seen above, average money held is one half of cash withdrawn each time (i.e., C/2). Thus the total cost incurred on broker's fee and interest income forgone is given by Total Cost =bT + r(C/2)

Where b stands for broker's fee

As seen above, T = Y/C

Therefore, Total Cost = b(Y/C) + r(C/2)

Baumol has shown that average amount of cash withdrawal which minimises cost is given by

$$C = \sqrt{2bY/r}$$

This means that average amount of cash withdrawal which minimise cost is the square root of the two times broker's fee multiplied by the size of individual's income (Y) and divided by the interest rate. This is generally referred to as Square Root Rule.

For this rule, it follows that a higher broker's fee will raise the money holdings as it will discourage the individuals to make more trips to the bank. On the other hand, a higher interest rate will induce them to reduce their money holdings for transaction purposes as they will be induced to keep more funds in saving deposits to earn higher interest income. That is, at a higher rate of interest transactions demand for money holdings will decline. Keynes thought that transactions demand for money was independent of rate of interest. According to him, transactions demand for money depends on the level of income.

2.6.2. Don Patinkin Integration– Real Balance Effect

Don Patinkin in his monumental work Money, Interest and Prices criticises the Cambridge economists for the homogeneity postulate and the dichotomisation of goods and money markets and then reconciles the two markets through the real balance effect. The homogeneity postulate states that the demand and supply of goods are affected only by relative prices. It means that a doubling of money prices will have no effect on the demand and supply of goods. Mathematically, the demand and supply function for goods are homogeneous of degree zero in prices alone. Thus this homogeneity postulate precludes the price level from affecting the goods market as well as the money market. Patinkin criticises this postulate for its failure to have any determinate theory of money and prices.

Another closely related assumption which Patinkin criticises is the dichotomisation of the goods and money markets in the neo-classical analysis. This dichotomisation means that the relative price level is determined by the demand and supply of goods, and the absolute price level is determined by the demand and supply of money. Like the homogeneity postulate, this assumption also implies that the price level has absolutely no effect on the monetary sector of the economy, and the level of monetary prices,

in turn, has no effect on the real sector of the economy. After condemning the neo-classical assumptions outlined above, Patinkin integrates the money market and the goods market of the economy which depend not only on relative prices but also on real balances. Real balances mean the real purchasing power of the stock of cash holdings of the people. When the price level changes, it affects the purchasing power of people's cash holdings which, in turn, affects the demand and supply of goods. This is the real balance effect. Patinkin denies the existence of the homogeneity postulate and the dichotomisation assumption through this effect. For this, Patinkin introduces the stock of real balances (M/P) held by community as an influence on their demand for goods.

Thus the demand for a commodity depends upon real balance as well as relative prices. Now if the price level rises, this will reduce the real balances (purchasing power) of the people who will spend less than before. This implies a fall in the demand for goods and the consequent fall in prices and wages.

The price decline increases the value of money balances held by the people which, in turn, increases the demand for goods directly. The initial decrease in commodity demand creates a state of involuntary unemployment. But unemployment will not last indefinitely because as wages and prices fall, the real balance effect tends to increase commodity demand directly and indirectly through the interest rate. With sufficiently large fall in wages and prices, the full employment level of output and income will be restored. Finally, even if there is the "liquidity trap", the expansion of the money supply will increase money balances and full employment can be restored through the operation of the real balance effect. Thus absolute prices play a crucial role not only in the money market but also in the real sector of the economy. Patinkin further points out that "once the real and monetary data of an economy with outside money are specified, the equilibrium values of relative prices, the rate of interest, and the absolute price level are simultaneously determined by all the markets of the economy." In this way, Patinkin also introduces the real balance effect in the general equilibrium analysis. Besides removing the classical dichotomy and the homogeneity postulate and integrating the monetary and value theory through the real balance effect,

Patinkin also validates the quantity theory conclusion. According to Patinkin, the real balance effect implies that people do not suffer from 'money illusion'. They are interested only in the real value of their cash holdings. In other words, they hold money for 'what it will buy'. This means that a doubling of the quantity of money will lead to a doubling of the price level, but relative prices and the real balances will remain constant and the equilibrium of the economy will not be changed.

The real balance effect is illustrated, diagrammatically in Fig. 2.8 by using the IS and LM technique because the IS curve represents the goods market and the LM curve the money market.

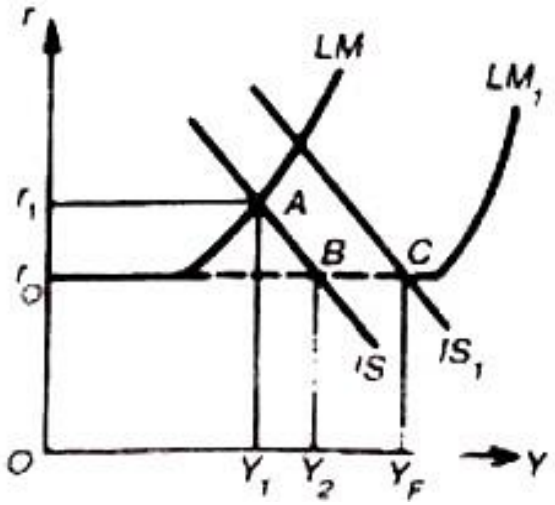


Fig.2.8.

To begin with, we take a situation when the economy is in equilibrium at OY_1 level of income when the IS and LM curves intersect at point A where the interest rate is Or_1. Assuming OY_F as the full employment level, the pressure of unemployment-is measured by Y_1-Y_1 which causes wages and prices to fall simultaneously.

This results in an increase in the real value of people's money holdings which shifts the LM curve to the right to LM_1. It intersects the IS curve at point B the income level OY_2 with the result that the interest rate falls to Or_0 which stimulates investment, discourages savings and increases consumption. Even when the interest rate falls to its minimum level Or_0, the level of demand in the commodity market as represented by the IS curve is not high enough to lead the economy to the full employment level OY_F. Rather, unemployment

measured by Y_2-Y, remains in the economy. This much unemployment leads to a further fall in wages and prices, and to the increase in demand for consumption goods which shifts the IS curve to the right to IS_1 so that it intersects the LM_1, curve at point C at the full employment level OY_F. Thus under conditions of wage and price flexibility when the IS and LM curves shift rightwards, the real balance effect ultimately leads the economy to full employment level, even in the liquidity trap situation as shown above when investment is interest inelastic.

Conclusion:

Thus the real balance effect demonstrates three theoretical points: first, it eliminates the classical dichotomy between value and monetary theory; second, it validates the conclusions of the quantity theory that in equilibrium, money is neutral and the interest rate is independent of the quantity of money through the real balance effect; and third, the wage-price flexibility leads to full employment in the long-run and that the Keynesian underemployment equilibrium is a disequilibrium situation.

Criticisms of Patinkin Analysis of the Real Balance Effect:

Patinkin's analysis of the real balance effect has been severely criticised by Johnson, Archibald, Lipsey, Lloyd and other economists.

1. Not Applicable in Equilibrium Situations:

Johnson points out that there is no need for the real balance effect so long as the real analysis is confined to equilibrium situations. The real balance is needed only to ensure the stability of the price level and not to determine the real equilibrium of the system.

2. Conceptually Inadequate:

Archibald and Lipsey regard Patinkin's analysis of the real balance effect as conceptually inadequate. According to them, Patinkin traces the real balance analysis as a short-run phenomenon and does not work it out through the long-run.

3. Price Stability without Real Balance Effect:

Cliff Lloyd has criticised Patinkin for holding the classical view that people do not suffer from 'money illusion', and that their behaviour is influenced by the real balance effect. He has shown that the stability of the

price level can be had without taking the real balance effect. According to him, by assuming that money is available in fixed quantity and people want to hold it, will bring price stability. But 'money illusion' will not be absent.

4. Failure to Explain Increase in Monetary Wealth:

Shaw has criticised Patinkin for his failure to analyse the manner in which the increase in monetary wealth comes about. According to him, Patinkin simply assumes a doubling of money balances and analyses only the resultant effects. In practice, money stock does not change in this manner. "Nor, in most cases, do people experience the happy variations of helicopters carrying a surfeit of bank notes. . ."

Conclusion:

Despite these criticisms, "the introduction of the real balance effect disposes of the classical dichotomy, that is, it makes it impossible to talk about relative prices without introducing money; but it nevertheless preserves the classical proposition that the real equilibrium of the system will not be affected by the amount of money, all that will be affected will be the level of prices."

2.7. Milton Friedman's Reformulated Quantity Theory

Friedman in his essay, "The Quantity Theory of Money—A Restatement" published in 1956 beautifully restated the old quantity theory of money. In his restatement he says that "money does matter". For a better understanding and appreciation of Friedman's modern quantity theory, it is necessary to state the major assumptions and beliefs of Friedman.

First of all Friedman says that his quantity theory is a theory of demand for money and not a theory of output, income or prices.

Secondly, Friedman distinguishes between two types of demand for money. In the first type, money is demanded for transaction purposes. It serves as a medium of exchange. This view of money is the same as the old quantity theory. But in the second type, money is demanded because it is considered as an asset. Money is more basic than the medium of exchange. It is a temporary abode of purchasing power and hence an asset or a part of wealth. Friedman treats the demand for money as a part of the wealth theory.

Thirdly, Friedman treats the demand for money just like the demand for any durable consumer good.

The demand for money depends on three factors:

(a) The total wealth to be held in various forms

(b) The price or return from these various assets and

(c) Tastes and preferences of the asset holders.

Friedman considers five different forms in which wealth can be held, namely, money (M), bonds (B), equities (E), physical non-human goods (G) and human capital (H). In a broad sense, total wealth consists of all types of "income". Friedman means "aggregate nominal permanent income" which is the average expected yield from wealth during its life time. The wealth holders distribute their total wealth among its various forms so as to maximise utility from them. They distribute the assets in such a way that the rate at which they can substitute one form of wealth for another is equal to the rate at which they are willing to do.

Accordingly the cost of holding various assets except human capital can be measured by the rate of interest on various assets and the expected change in their prices. Thus Friedman says there are four factors which determine the demand for money. They are: price level, real income, rate of interest and rate of increase in the price level. The demand for money is unitarily elastic. The relationship between the demand for money and real income (output of goods and services) is also direct. But it is not proportional as in the case of price. Thus while changes in the price level cause direct and proportional changes in the demand for money, changes in real income create direct but more than proportional changes in the demand for money.

The rate of interest and the rate of increase in the price level constitute the cost of holding cash balances. If money is kept in the form of cash, it does not earn any income. But if the same money is lent out, it could earn some income in the form of interest to the owner. The interest is the cost of holding cash. At higher interest rate the demand for money would be less. On the other hand, a lower rate of interest creates an increase in the demand for money. Thus there is an inverse relationship between the rate of interest and the demand for money. The rate of increase in the price level also influences the

demand for money. There is an inverse relationship between the rate of increase in the price level and the demand for money. When the price level increases at a high rate, the cost of holding money will increase. The people would like to hold smaller cash balances. The demand for money will decline. On the other hand when the price level increases at a low rate, the cost of holding money will decline and the demand for money increases.

Fourthly, Friedman believes that each form of wealth has its own characteristics and a different yield or return. In a broad sense money includes currency, demand deposits and time deposits which yield interest. Money also yields real return in the form of convenience, security etc., to the holder which is measured in terms of price (P). When the price level falls, the rate of return on money is positive because the value of money increases. When the price level rises, the value of money falls and the rate of return is negative. Thus P is an important variable in the demand function of Friedman. The rate of return on bonds, equities and physical assets consists of currently paid interest rate and changes in their prices.

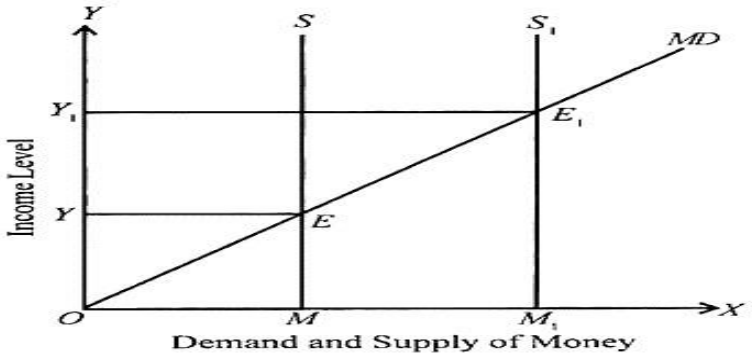


Fig.2.9. Friedman quantity theory

As far as human wealth is concerned it is very difficult to measure the conversion of human into non-human wealth due to institutional constraints. But there is some possibility of substituting human wealth for non-human wealth. Freidman calls the ratio of non-human wealth to human wealth or ratio of wealth to income as W.

According to Friedman, income elasticity of demand for money is greater than unity. Besides, there are certain variables like the tastes and preferences of the wealth holders which also affect the demand functions. These variables are represented by m.

Friedman's quantity theory of money can be explained diagrammatically in the following figure:

In the figure while the X-axis shows the demand and supply of money, Y-axis measures the income level. MD is the demand curve for money which changes along with income. MS is the supply curve for money. These two curves intersect at point E and the equilibrium income level OY is determined. If there is an increase in money supply, the supply curve shifts to M_1S_1. At this level the supply is greater than demand and a new equilibrium is established at E_1. At the new equilibrium level the income increases to OY_1.

Permanent Income Hypothesis:

Friedman gave the Permanent Income Hypothesis as an explanation of the short and long period consumption function. According to him, there is no tendency for the proportion of income saved to increase at higher income levels. He rejects the use of "current income" as the determinant of consumption expenditure. He divides consumption and income into "permanent" and "transitory" components, so that

$$Ym = Yp + Yt \text{ and}$$

$$Cm = Cp + Ct$$

Where Y stands for income, C stands for consumption and m, p and t stand for their measured, permanent and transitory components. Permanent income is to be defined as the means of income which is regarded as permanent by the consumer. It depends on time-horizon and farsightedness. It includes non-human wealth like personal attributes of the earners. Y being the measured income or current income, it may be larger or smaller than his permanent income in any period.

The differences between measured and permanent income are due to the transitory component of income (Yt). The transitory income may rise or fall depending on cyclical variations. If the transitory income is positive, the measured income will be higher than the permanent income; if it is negative it will be lower than the permanent income. The transitory income can also be zero in which case measured income equals permanent income. Permanent consumption is the amount planned to consume in a given period. Measured consumption is divided into permanent consumption (Cp) and transitory

consumption (Ct). Measured consumption may be more than permanent consumption if the transitory consumption is positive. It will be less than permanent consumption if the transitory consumption is negative and it will be equal to permanent consumption if the transitory consumption is zero.

Permanent consumption is a multiple (K) of permanent income Yp

$$Cp = KYp$$

$$\text{And } K = f(r,w,u)$$

$$\text{Therefore } Cp = K(r,w,u,)Yp$$

Where K is the function of the rate of interest (r), the ratio of income to wealth (w), and the consumer's propensity to consume (u). This equation tells us that in the long period consumption increases in proportion to change in Yp. Thus K is the permanent average propensity to consume. Friedman contended that the secular decline in (r) since 1920s has tended to raise the value of K. But there has been a long run decline in wealth (w) which tends to reduce the value of K.

Three factors have said to influence the propensity to consume.

Firstly, there has been a deep decline in farm population increasing consumption with urbanisation and ultimately increasing K.

Secondly, there has been a sharp decline in the size of the families leading to more saving and less consumption and reducing the value of K.

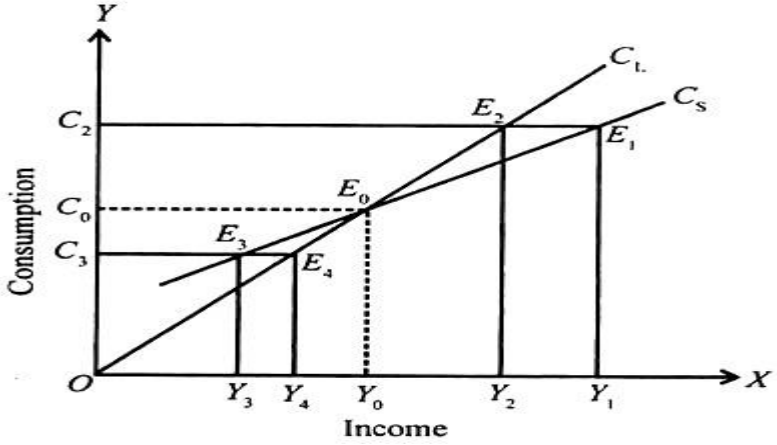
Thirdly, the large provision of social security reduced the need for keeping more savings. It has increased the propensity to consume resulting in a higher value of K. The cumulative effect of all these factors is to raise consumption in proportion to the change in the permanent income component.

The relationship between the permanent and transitory components of income and consumption are based on the following assumptions:

1. There is no correlation between transitory and permanent income.
2. There is no correlation between permanent and transitory consumption.
3. There is no correlation between transitory consumption and transitory income.
4. The differences in permanent income alone affect consumption.

The Permanent Income Hypothesis can be diagrammatically depicted Figure

X axis measures income and Y axis consumption. CI is the long run consumption function and Cs is the short run consumption function. At OY_0 income level Cs and CI coincide at E_0. At this point changes in permanent income and measured income (i.e., current income) are identical. So are permanent and measured consumption as shown by OCo. If we move to the left of point E_0 on the Cs curve at E_3, the measured income declines to OY_3 due to negative transitory income component. As the permanent income OY_4 is higher than the measured income OY_3permanent consumption will remain at OC_3 (= Y_4 E_4) and will also equal to measured consumption (Y_3E_3 = Y_4E_4). Thus when permanent income is less than one it is possible for measured consumption Y_3E_3 to be higher than measured income OY_3 because of the stability of permanent income. This generally keeps the measured consumption static.



On the other hand, a movement to the right of point E_0 on the Cs Curve at E_1, Shows the measured income to be OY_1. Here the measured consumption is OC, (=Y_1E_1). But OC_2 (=E_2Y_2) level of consumption can be maintained permanently at the permanent income level OY_2. Thus Y_1 Y_2 is the positive transitory income component of measured income OY_1, which is higher than the permanent income OY_2. The Permanent Income Hypothesis of Friedman is consistent with cross-section budget data. It suggests that current consumption or measured consumption will tend to be high during recession and low during boom period.

Criticism:

Friedman's Permanent Income Hypothesis is criticised on the following grounds: Firstly, Friedman's assumption that there is no connection between

transitory components of consumption and income is not real. This assumption says that when measured income increases or decreases it does not affect consumption but it does affect only savings. But this is very much contrary to the natural behaviour of the consumers. A person who have windfall gain does not deposit the entire amount in the bank but enjoys a whole or part of it in current consumption. Similarly a person who has met with a loss would definitely reduce or postpone his consumption than rush to the bank to withdraw the amount to meet his requirements.

Secondly, Friedman's hypothesis states that the APC of all families, whether rich or poor is the same in the long run. But this is not true. The consumption of low income families is higher relative to their incomes and the saving of high income families is higher relative to their incomes. Even among the persons with level of permanent income same saving and consumption differ.

Thirdly, the usage of terms like 'permanent, 'transitory' and 'measured' have tended to affect the clarity of the theory. The concept of measured income creates confusion by mixing with permanent and transitory income on the one hand and permanent and transitory consumption on the other.

Fourthly, the distinction between human and non-human wealth is sadly missing in Friedman's theory.

Check Your Progress:

Q.No	Short Questions	LOCF Mapping		
1.	Identify the various types of money.	K1	CO1	PO1
2.	Describe the concept of quantity theory of money.	K2	CO2	PO2
3.	Review the properties of fisher equation of exchange.	K3	CO2	PO3
4.	Differentiate between primary and secondary functions of money. Give few examples.	K2	CO1	PO2
5.	Describe the causes of speculative motive.	K3	CO3	PO2
Q.No	**Essay Type Questions**	**LOCF Mapping**		
1.	Summarize the Friedman reformulated growth theory.	K4	CO4	PO4
2.	Describe the Keynesian monetary theory with examples.	K4	CO3	PO3
3.	Evaluate the importance of Patinkin real balance effect.	K5	CO4	PO4
4.	Interpret the Tobin portfolio theory of demand for money.	K1	CO4	PO4
5.	Assess diagrammatically the Baumol inventory theory and its role.	K5	CO5	PO5

UNIT - III

MONETARISM AND KEYNESIANISM

3.1. INTRODUCTION

Keynesians are the followers of J.M.Keynes, who have reformulated his original ideas. The noteworthy Keynesians are Tobin, Paul Samuelson, Ronald Teigen, Warren Smith, Gardner Ackley, Walter Helter, Franco Modigliani and Lawrence Klein. The Keynesians believe that the capitalist economy is essentially unstable and that the monetary policy has little relevance to it and little control over it. They consider fiscal policy as more effective and they prefer it. They are also known as fiscalists. Monetarist are the modern non Keynesian economists with classical roots. Milton Friedman is ranked as the leader of the monetarists. Other important monetarist are Karl Brunner, Phillip Cagan, Don Patinkin, etc. Monetarist believe that the capitalist economy is essentially stable and that changes in the money supply play a crucial role in affecting the nominal macro variables.

Keynesianism versus Monetarism:

Monetarist disagree with Keynesians on almost all issue related to money and its role. The Keynesians hold the view that money does not matter as an effective means of demand management. The monetarist, on the other hand, maintain that money does matter as an effective means of demand management.

Keynesian View: Keynes in his book, The General Theory presented an indirect mechanism showing that changes in money supply affect interest rate movements which set in motion variations in investment expenditure, which are further amplified through the process of multiplier. Keynes had considered only two types of assets, bonds and speculative balances.

Monetarist View: According to monetarist, the transmission mechanism initiated by an increase in money supply is essentially a portfolio adjustment process. The individuals, households and firms hold their wealth in both financial and non-financial assets which include money securities, bonds, goods and services. An increase in money supply increases the cash balances with the public. The people will shift their holdings of wealth among different assets in order to obtain satisfactory relative rate of returns on their entire

portfolio assets. The holders of money attempt to restore or retain a desired balance in their portfolio after an unexpected increase in money supply.

3.2 Determinants of Money Supply

There are two theories of the determination of the money supply. According to the first view, the money supply is determined exogenously by the central bank. The second view holds that the money supply is determined endogenously by changes in the economic activities which affect people's desire to hold currency relative to deposits, the rate of interest, etc. Thus the determinants of money supply are both exogenous and endogenous which can be described broadly as: the minimum cash reserve ratio, the level of bank reserves, and the desire of the people to hold currency relative to deposits. The last two determinants together are called the monetary base or the high powered money.

1. The Required Reserve Ratio:

The Required Reserve Ratio (or the minimum cash reserve ratio or the reserve deposit ratio) is an important determinant of the money supply. An increase in the required reserve ratio reduces the supply of money with commercial banks and a decrease in required reserve ratio increases the money supply. The required reserve ratio is the ratio of cash to current and time deposit liabilities which is determined by law. Every commercial bank is required to keep a certain percentage of these liabilities in the form of deposits with the central bank of the country. But notes or cash held by commercial banks in their tills are not included in the minimum required reserve ratio.

But the short-term assets along with the cash are regarded as the liquid assets of a commercial bank. In India the statutory liquidity ratio (SLR) has been fixed by law as an additional measure to determine the money supply.

The SLR is called secondary reserve ratio in other countries while the required reserve ratio is referred to as the primary ratio. The raising of the statutory liquidity ratio (SLR) has the effect of reducing the money supply with commercial banks for lending purposes, and the lowering of the statutory liquidity ratio (SLR) tends to increase the money supply with banks for advances.

2. The Level of Bank Reserves:

The level of bank reserves is another determinant of the money supply. Commercial bank reserves consist of reserves on deposits with the central bank and currency in their tills or vaults. It is the central bank of the country that influences the reserves of commercial banks in order to determine the supply of money. The central bank requires all commercial banks to hold reserves equal to a fixed percentage of both time and demand deposits.

These are legal minimum or required reserves. Required reserves (RR) are determined by the required reserve ratio (RRr) and the level of deposits (D) of a commercial bank RR=RR r×D. If deposits are Rs. 80 lakhs and required reserve ratio is 20 percent, then the required reserves will be 20% x 80=Rs. 16 lakhs. If the reserve ratio is reduced to 10 per cent, the required reserves will also be reduced to Rs. 8 lakhs.

Thus the higher the reserve ratio, the higher the required reserves to be kept by a bank, and vice versa. But it is the excess reserves (ER) which are important for the determination of the money supply. Excess reserves are the difference between total reserves (TR) and required reserves (RR) ER=TR-RR. If total reserves are Rs. 80 lakhs and required reserves are Rs 16 lakhs, then the excess reserves are Rs. 64 lakhs (Rs. 80 Lakhs – 16 lakhs). When required reserves are reduced to Rs. 8 lakhs, the excess reserves increase to Rs. 72 lakhs. It is the excess reserves of a commercial bank which influence the size of its deposit liabilities. A commercial bank advances loans equal to its excess reserves which are an important component of the money supply. To determine the supply of money with a commercial bank, the central bank influences its reserves by adopting open market operations and discount rate policy. Open market operations refer to the purchase and sale of government securities and other types of assets like bills, securities, bonds, etc., both government and private in the open market. When the central bank buys or sells securities in the open market, the level of bank reserves expands or contracts. The purchase of securities by the central bank is paid for with cheques to the holders of securities who, in turn, deposit them in commercial banks, thereby increasing the level of bank reserves. The opposite is the case when the central bank sells securities to the public and banks which make

payments to the central bank through cash and cheques, thereby reducing the level of bank reserves.

The discount rate policy affects the money supply by influencing the cost and supply of bank credit to commercial banks. The discount rate, known as the bank rate in India, is the interest rate at which commercial banks borrow from the central bank. A high discount rate means that commercial banks get less amount by selling securities to the central bank. The commercial banks, in turn, raise their lending rates to the public, thereby making advances dearer for them. Thus there will be contraction of credit and the level of commercial bank reserves. Opposite is the case when the bank rate is lowered. It tends to expand credit and the consequent bank reserves. It should be noted that commercial bank reserves are affected significantly only when open market operations and discount rate policy supplement each other. Otherwise, their effectiveness as determinants of bank reserves and consequently of money supply is limited.

3. Public's Desire to Hold Currency and Deposits:

People's desire to hold currency (or cash) relative to deposit in commercial banks also determines the money supply. If people are in the habit of keeping less in cash and more in deposits with the commercial banks, the money supply will be large. This is because banks can create more money with larger deposits. On the contrary, if people do not have banking habits and prefers to keep their money holdings in cash, credit creation by banks will be less and the money supply will be at a low level.

4. High Powered Money and the Money Multiplier:

The current practice is to explain the determinants of the money supply in terms of the monetary base or high-powered money. High-powered money is the sum of commercial bank reserves and currency (notes and coins) held by the public. High-powered money is the base for the expansion of bank deposits and creation of the money supply. The supply of money varies directly with changes in the monetary base, and inversely with the currency and reserve ratios.

5. Other Factors:

The money supply is a function not only of the high-powered money determined by the monetary authorities, but of interest rates, income and other factors. The latter factors change the proportion of money balances that the public holds as cash. Changes in business activity can change the behaviour of banks and the public and thus affect the money supply. Hence the money supply is not only an exogenous controllable item but also an endogenously determined item.

Conclusion:

We have discussed above the factors which determine money supply through the creation of bank credit. But money supply and bank credit are indirectly related to each other. When the money supply increases, a part of it is saved in banks depending upon the depositors' propensity to save. These savings become deposits of commercial banks who, in turn, lend after meeting the statutory reserve requirements. Thus with every increase in the money supply, the bank credit goes up.

But it may not happen in exactly the same proportion due to the following factors:

(a) The marginal propensity to save does not remain constant. It varies from time to time depending on changes in income levels, prices, and subjective factors.

(b) Banks may also create more or less credit due to the operation of leakages in the credit creation process.

(c) The velocity of circulation of money also affects the money supply. If the velocity of money circulation increases, the bank credit may not fall even after a decrease in the money supply. The central bank has little control over the velocity of money which may adversely affect bank credit.

3.3. Measures of Money Supply in India:

There are four measures of money supply in India which are denoted by M_1 M_2 M_3, and M_4. This classification was introduced by the Reserve Bank of India (RBI) in April 1977. Prior to this till March 1968, the RBI published only one measure of the money supply, M or defined as currency and demand

deposits with the public. This was in keeping with the traditional and Keynesian views of the narrow measure of the money supply.

From April 1968, the Reserve Bank of India also started publishing another measure of the money supply which it called Aggregate Monetary Resources (AMR). This included M_1 plus time deposits of banks held by the public. This was a broad measure of money supply which was in line with Friedman's view. But since April 1977, the RBI has been publishing data on four measures of the money supply which are discussed as under:

M_1:

The first measure of money supply consists of:

(i) Currency with the public which includes notes and coins of all denominations in circulation excluding cash on hand with banks;

(ii) Demand deposits with commercial and cooperative banks, excluding inter-bank deposits; and

(iii) 'Other deposits' with RBI which include current deposits of foreign central banks, financial institutions and quasi-financial institutions such as Industrial Development Bank of India (IDBI), Industrial Finance Corporation of India (IFCI), International Monetary Fund (IMF), International Bank for Reconstruction Development (IBRD) etc. The RBI characterises M_1 as narrow money.

M_2:

The second measure of money supply is M_2 which consists of plus post office savings bank deposits. Since savings bank deposits of commercial and cooperative banks are included in the money supply, it is essential to include post office savings bank deposits. The majority of people in rural and urban India have preference for post office deposits from the safety viewpoint than bank deposits.

M_3:

The third measure of money supply in India is M_3 which consists of M_1 plus time deposits with commercial and cooperative banks, excluding interbank time deposits. The RBI calls M_3 as broad money.

M_4:

The fourth measure of money supply is M_4 which consists of M_3 plus total post office deposits comprising time deposits and demand deposits as well. This is the broadest measure of money supply. Of the four inter-related measures of money supply for which the RBI publishes data, it is M_3 which is of special significance. It is M_3 which is taken into account in formulating macroeconomic objectives of the economy every year. Since M_1 is narrow money and includes only demand deposits of banks along with currency held by the public, it overlooks the importance of time deposits in policy making. That is why, the RBI prefers M_3 which includes total deposits of banks and currency with the public in credit budgeting for its credit policy. It is on the estimates of increase in M_3 that the effects of money supply on prices and growth of national income are estimated. In fact M_3 is an empirical measure of money supply in India, as is the practice in developed countries. The Chakravarty Committee also recommended the use of M_3 for monetary targeting.

3.4. High-Powered Money and the Money Multiplier

The current practice is to explain the determinants of the money supply in terms of the monetary base or high-powered money. High-powered money is the sum of commercial bank reserves and currency (notes and coins) held by the public. High-powered money is the base for the expansion of bank deposits and creation of the money supply. The supply of money varies directly with changes in the monetary base, and inversely with the currency and reserve ratios. The use of high-powered money consists of the demand of commercial banks for the legal limit or required reserves with the central bank and excess reserves, and the demand of the public for currency. Thus high-powered money, H=C+RR+ER, where C represents currency, RR the required reserves and ER the excess reserves. The formal relation between the money supply and high-powered money can be stated in the form of equations as under:

A commercial bank's required reserves depend upon its deposits. But a bank usually holds reserves in excess of its required reserves. In fact, banks do not

advance loans up to the legal limits but precisely less than that. This is to meet unanticipated cash withdrawals or adverse clearing balances. Hence the need arises for maintaining excess reserves by them. The money supply is thus determined by the required reserve ratio and the excess reserve ratio of commercial banks. The required reserve ratio (RRr) is the ratio of required reserves to deposits (RR/D), and the excess reserve ratio (ERr) is the ratio of excess reserves to deposits (ER/D).

Currency held by the public is another component of high-powered money. The demand for currency by the public is expressed as a proportion of bank deposits. Thus the currency ratio Cr=C/D, where C is the currency and D deposits. The currency ratio is influenced by such factors as changes in income levels of the people, the use of credit instruments by the public, and uncertainties in economic activity.

$$M=D+C \quad ...(1)$$

High-powered money (H) (or monetary base) consists of currency held by the public (C) plus required reserves (RR) and excess reserves of commercial banks. Thus high-powered money

$$H=C+RR+ER \quad ...(2)$$

The relation between M and H can be expressed as the ratio of M to H. So divide equation (1) by (2):

$$\frac{M}{H}=\frac{D+C}{C+RR+ER} \quad ...(3)$$

Divide the numerator and denominator of the right hand side of the equation (3) by D:

$$\frac{M}{H}=\frac{\frac{D}{D}+\frac{C}{D}}{\frac{C}{D}+\frac{RR}{D}+\frac{ER}{D}}$$

or

$$\frac{M}{H}=\frac{1+\frac{C}{D}}{\frac{C}{D}+\frac{RR}{D}+\frac{ER}{D}} \quad ...(4)$$

By substituting Cr for C/D, RRr for RR/D and ERr for ER/D, equation (4) becomes

$$\frac{M}{H}=\frac{1+Cr}{Cr+RRr+ERr} \quad ...(5)$$

Thus high-powered money

$$H=\frac{Cr+RRr+ERr}{1+Cr}\times M \quad ...(6)$$

And money suply

$$M=\frac{1+Cr}{Cr+RRr+ERr}\times H \quad ...(7)$$

The money supply (M) consists of deposits of commercial banks (D) and currency (C) held by the public. Thus the supply of money equation (7) defines money supply in terms of high-powered money. It expresses the money supply in terms of four determinants, H, Cr, RRr, and ERr. The equation states that the supply of high-powered money, the higher the money supply. Further, the lower the currency ratio (Cr), the reserve ratio (RRr), and the excess reserve ratio (ERr), the higher the money supply, and vice versa. The relation between the money supply and high-powered money is illustrated in Figure 3.1. The horizontal curve Hs shows the given supply of high-powered money. The curve Hd shows the demand for high-powered money associated with each level of money supply and represents equation (6). The slope of the Hd curve is equal to the term (Cr+RRr+ERr)/ (1+Cr). Given Cr, RRr, Err and the high-powered money Hs, the equilibrium money supply is OM. If the money supply is larger than this, say OM_x, there will be excess demand for high-powered money. On the contrary, a less than OM money supply will mean less demand for high-powered money. If there is an increase in any one of the ratios Cr or RRr or ERr, there would be an increase in the demand for high-powered money.

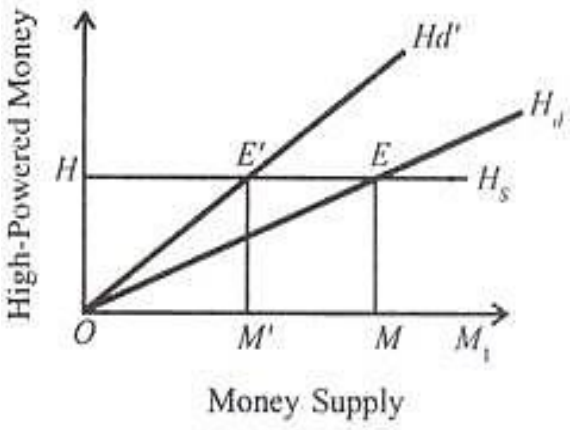


Fig.3.1

This is shown by the Hd′ curve in Figure 3.1 where the increase in the demand for high-powered money leads to decline in the money supply to OM'

The quotient of equation (7) is the money multiplier m. Thus

$$m = 1 + Cr/\ Cr + RRr + ERr$$

Now the relation between the money supply and high-powered money of equation (7) becomes M-mH, Equation (9) expresses the money supply as a function of m and H.

In other words, the money supply is determined by high powered money (H) and the money multiplier (m). The size of the money multiplier is determined by the currency ratio (Cr) of the public, the required reserve ratio (RRr) at the central bank, and the excess reserve ratio (ERr) of commercial banks. If m is fairly stable, the central bank can manipulate the money supply (M) by manipulating H. The central bank can do so by open market operations. But the stability of m depends upon the stability of the currency ratio and the reserve ratios RRr and ERr. Or, it depends upon off-setting changes in RRr and ERr ratios. Since these ratios and currency with the public are liable to change, the money multiplier is quite volatile in the short run. Given the division of high-powered money between currency held by the public, the required reserves at the central bank, and the excess reserves of commercial banks, the money supply varies inversely with Cr, RRr and ERr. But the supply of money varies directly with changes in the high-powered money. This is shown in Figure 3.2.

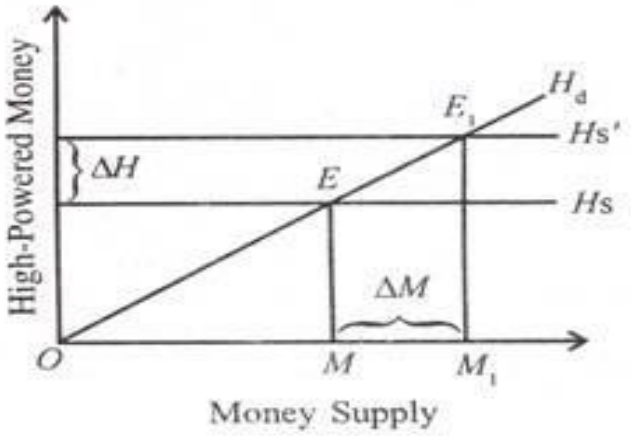


Fig.3.2

An increase in the supply of high-powered money by ΔHs′ shifts the Hs curve upward to Hs′. At E, the demand and supply of high-powered money is in equilibrium and money supply is OM. With the increase in the supply of high-powered money to Hs′, the supply of money also increases to OM_1, at the new equilibrium point E_1. Further, Figure 3.2 reveals the operation of the money multiplier. With the increase in the high-powered money by ΔH, the money supply increases by ΔM. Some economists do not take into consideration excess reserves in determining high-powered money and consequently the

money supply. But the monetarists give more importance to excess reserves. According to them, due to uncertainties prevailing in banking operations as in business, banks always keep excess reserves. The amount of excess reserves depends upon the interaction of two types of costs: the cost of holding excess reserves, and the cost generated by deficiency in excess reserves. The first cost is in terms of the market rate of interest at which excess reserves are maintained. The second cost is in terms of the bank rate which is a sort of penalty to be paid to the central bank for failure to maintain the legal required reserve ratio by the commercial bank.

The excess reserve ratio varies inversely with the market rate of interest and directly with the bank rate. Since the money supply is inversely related to the excess reserve ratio, decline in the excess reserve ratio of banks tends to increase the money supply and vice versa. Thus the money supply is determined by high-powered money, the currency ratio, the required reserve ratio and the market rate of interest and the bank rate. The monetary base or high-powered money is directly controllable by the central bank. It is the ultimate base of the nation's money supply. Of course, the money multiplier times the high-powered money always equals the money supply, i.e. M=mH. This formulation tells us how much new money will be created by the banking system for a given increase in the high-powered money. The monetary policy of the central bank affects excess reserves and the high-powered money identically. Suppose the central bank makes open market purchases. This raises the high-powered money in the form of excess reserves of banks. An increase in money supply that results from it comes from the banking system which creates new money on the basis of its newly acquired excess reserves. Thus this concept tells us that the monetary authorities can control the money supply by changing the high-powered money or the money multiplier.

3.5. Supply Side Policies of Inflation

Supply-side economics is a relatively new term which came into use in the mid-1970s as a result of the failure of Keynesian demand-side policies in the US economy which led to stagflation. The term is new but its basic principles are to be found in the works of the classical economists. According

to J.B. Say, supply creates its own demand. The very act of supplying goods implies a demand for them. If there is an imbalance between demand and supply, it is corrected automatically by changes in prices and wages and the economy always tends toward full employment.

The main emphasis of the classical economists was on economic growth for which they advocated non-interference with the market mechanism. It was the "invisible hand" which led to the maximisation of national wealth. They believed that entrepreneurs, investors and producers were the prime movers on which the economy depended. It was the increase in the supplies of capital and labour and increase in their productivities that determined growth. Of course, free trade and capital movements internationally were instrumental in a faster growth rate of the economy.

3.5.1. Main Features of Supply-Side Economics

Modern supply-side economics lays emphasis on providing all types of economic incentives to raise aggregate supply in the economy. According to Bethell, "The essential argument of supply-side theory is that adding to supply unlike adding to demand is not a zero-sum task. In order to make something… a producer does not need to be given any money. Instead, he has to be given an incentive." Incentives to producers are essential to invest, produce and employ. Similar incentives are to be given to individuals to work and save more.

The government plays a limited role in liberalising markets, reducing taxes and freeing the labour market. The main objectives of supply-side policies are to keep inflation at a low level, achieve and maintain full employment and attain faster economic growth. Supply-side economists suggest the following policy measures in order to achieve these objectives.

Tax-induced Change in Aggregate Supply:

Supply-siders regard tax cuts as an effective means of raising the growth rate of the economy. To assess the likely effects of tax reductions, they distinguish between income and substitution effects of a cut in the marginal rate of income tax. The substitution effect of a wage cut induces people to work more and have less leisure, and the income effect causes people to work less and enjoy more leisure. It is only when the substitution effect of a tax cut

is larger than the income effect that there will be an incentive to work more, thereby leading to reduction in unemployment. A reduction in personal tax rates increases the incentive of people to work and save more. High savings reduce short-term interest rates and lead to increased investment and thus to an increase in the economy's capital stock. Reduction in marginal tax rates by improving the work effort of the people also increases their productive capacity and the level of output and employment in the economy.

Thus supply-side tax cuts by raising work, effort, saving and investment, increase the supplies of labour and capital and shift the aggregate supply curve to the right. The effect of a supply-side tax cut is illustrated in Fig. 3.3.

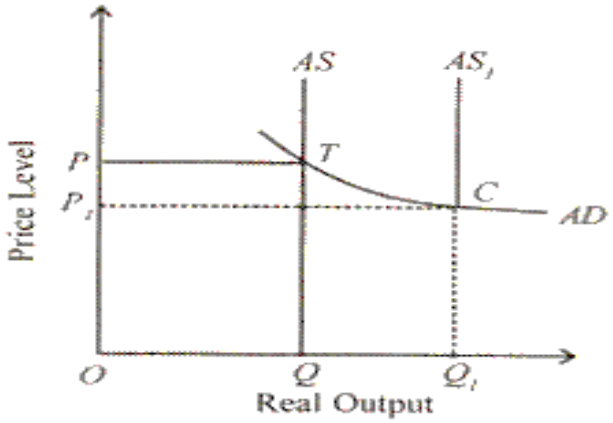


Fig.3.3.

Where AS is the aggregate supply curve and AD is the given demand curve. Real output or GDP is measured along the horizontal axis and the price level on the vertical axis. AS and AD curves intersect at point T and determine OP price and OQ real output of the economy. Suppose there is a tax cut both on persons and firms. This increases work effort and saving on the part of workers and investment by firms. As a result, supplies of labour and capital increase which shift the aggregate supply curve AS to the right as AS_1. Now the AS_1 curve cuts the AD curve at point C. As a result, the price level falls to OP_1 and the real output increases to QQ_1 as a result of a tax cut. Similarly, reduction in corporate tax rates, by giving incentives to the corporate sector in the form of increasing tax credit for larger investment and providing higher depreciation allowance, encourage investment. Higher investment leads to the production of more goods and services per unit of labour and capital.

Supply-siders also advocate an additional tax relief for firms employing researchers because R&D help in increasing productivity. They also favour reduced estate taxes for small farmers which will induce them to spend more on inputs so as to increase production. Further, tax cuts reduce diversions to "shelter" (protected) industries and minimise or eliminate the need for accountants, investment consultants and tax-lawyers. Moreover, tax reductions reduce 'underground' (black market) activity where exchange is not recorded in the books and no taxes are paid.

Increasing Growth Rate:

According to supply-side economists, tax cuts increase the disposable income of the people who raise additional demand for goods and services. On the other hand, the faster growth in productivity leads to the production of additional goods and services to match the additional demand. This leads to balanced growth in the economy without shortages. When the economy is moving towards balanced growth, the rate of inflation is low. This, in turn, leads to an increase in the real disposable income of the people which raises consumption, output and employment. Low inflation leads to increase in net exports which strengthen the value of national currency in relation to foreign currencies. The increase in productivity increases the production of more goods for export, thereby further strengthening the country's currency. Thus supply-side economists advocate reduction in tax rates in order to increase the incentives to work, save and invest and to get more tax revenue by the government. Increase in investment leads to an increase in the economy's capital stock, to increase in productivity, to larger output, low inflation, high level of employment and high growth rate of the economy.

These policy prescriptions shift the aggregate supply curve of the economy to the right. This is illustrated in Fig. 3.4 where AS is the aggregate supply curve and AD is the given aggregate demand curve. They intersect at point E which is the initial equilibrium point of the economy with OP price level and OQ real output.

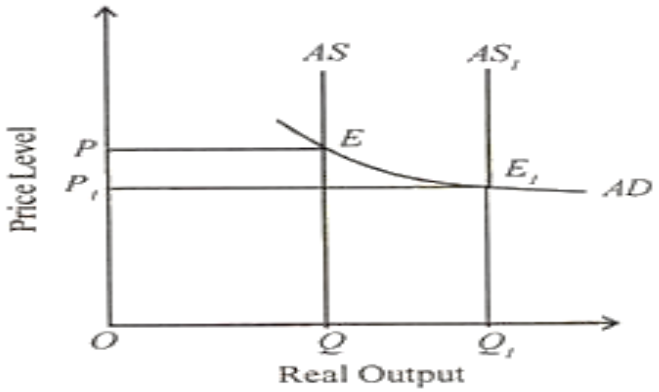


Fig.3.4.

Suppose the supply-side policies increase the total supply of factors like labour and capital due to tax policies, incentives, etc. They increase real output and shift the AS curve to the right as AS_1. The new equilibrium is at where the AS_1 curve cuts the AD curve. Now real output increases to OQ_1 and the price level falls to OP_1 thereby increasing the growth rate of the economy

3.5.2. Policy Prescriptions of Supply-Side Economics:

1. The Laffer curve: Tax Rate vs. Tax Revenue:

The most popular aspect of supply-side economics is the Laffer curve named after its originator Prof. Arthur Laffer. The Laffer curve depicts the relation between tax rate and tax revenue. It is based on the assumption that a cut in the marginal rate of tax will increase the incentives to work, save and invest. This tax cut, in turn, will increase the tax revenue. The Laffer curve shows two extremes of tax rates: A 0% tax rate and a 100% tax rate. Both yield no tax revenue. If the tax rate is 0%, no revenue will be raised. If the tax rate is 100%, people will have no incentive to work, save and invest at all because the whole income will go to the government. Thus the tax revenue will again be zero. As the tax rate increases from 0% to 100%, tax revenue correspondingly rises from zero to some maximum level and then starts declining to zero. Thus the optimum tax rate is somewhere between the two extremes. Figure 3.5 shows the Laffer curve where the tax rate (0%) is taken on the horizontal axis and the tax revenue on the vertical axis. As the tax rate is raised above zero, the tax revenue starts increasing. The Laffer curve is at upward sloping. The relatively low tax rate, it is upward sloping. At the relatively low tax rate T_1, the tax revenue is R_1. As the tax rate rises to T, the tax revenue continues to increase and the curve reaches the peak, P where

the tax revenue R is the maximum. Thereafter, further rise in the tax rate will reduce revenue to the government.

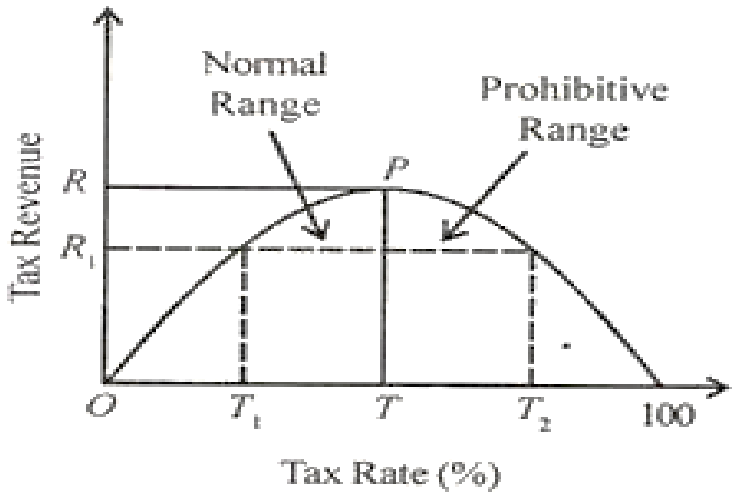


Fig.3.5.

Thus T is the optimum rate of tax. According to Laffer, "Except for the optimum rate, there are always two tax rates that yield the same revenue." In figure, the revenue R_1 at the high tax rate T_2 is the same as the revenue collected at the low tax rate T_1. If the government wishes to maximise tax revenue, it will choose the optimum tax rate T. An important feature of the Laffer curve is that it has a normal range and a prohibitive range. The normal range is to the left of the optimum tax rate T and the prohibitive range is to its right. In the normal range, increases in the tax rate bring more revenue to the government.

But in the prohibitive range, when the tax rate becomes high, it reduces the incentives to work, save and invest. Consequently, the fall in output more than offsets the rise in tax rate. When the tax rate reaches 100%, the revenue falls to zero because no one will bother to work.

Thus high tax rate stifles economic growth and results in high unemployment. Therefore, a reduction in the tax rate will actually increase revenue by encouraging the incentives to work, save and invest. People not only produce and earn more but also switch money out of low-yielding "tax shelters" and untaxed "underground" economy into more productive and socially desirable investment. The result would be higher employment and economic growth leading to high tax revenue.

2. Reduction in Government Spending:

To achieve full employment, low inflation and high growth rate of the economy, the supply-side economists emphasise reduction in government expenditure accompanied by tax cuts. They are against monetization of budget deficit which the Keynesians advocate. But the reduction in government expenditure should be more than or equal to tax cuts so that savings increase to finance larger investments. This will increase employment, income and growth rate of the economy.

3. Monetary Policy:

Another plank of supply-side policy is to have restrained monetary expansion in order to keep the inflation rate low.

4. Increased Depreciation:

To encourage more investment, supply-siders suggest increased investment allowance and/or higher depreciation on buildings, machines vehicles, and other capital goods.

5. Reduction in Welfare Benefits:

To reduce unemployment, supply-side economists emphasise reduction in welfare benefits, especially unemployment allowance. This will encourage workers to accept jobs at lower wages, thereby reducing unemployment in the economy.

6. Reducing Trade Union Power:

Supply-siders also advocate reduction in the power of trade unions through legislation which will make the labour market more competitive. Trade unions raise wages above the competitive level which the employers cannot afford. Thus they destroy jobs and increase unemployment. When the government restricts union power, unemployment and cost-inflation are reduced.

7. Deregulation and Privatisation:

Deregulation and privatisation are important supply-side policies. They are used to encourage more competition within the economy. Removal of public sector monopolies and sale of public sector enterprises and transfer of public utilities in private hands lead to increase in productive efficiency, wider consumer choice and lower prices.

8. Free Trade and Capital Movements:

Free trade and free capital movements among countries are another policy measure of supply-siders. The removal of exchange controls and free inflow and outflow of both short- term and long-term capital lead to the maximisation of output and growth by widening markets and checking monopolies.

Criticisms of Supply-side Economics:

1. Laffer Curve Controversial:

The Laffer curve is an interesting but a controversial concept. No one knows with certainty either the location of the optimum point or the exact shape of this curve. The curve may peak at 40% or 90% tax rate, or it may peak in-between these rates. For instance, if we take the curve which peaks at point A in Figure 3.6, the present tax rate-T should be cut to T_1 to maximise revenue. On the other hand, if another curve peaks at point B, the tax rate T should be increased to T_2.

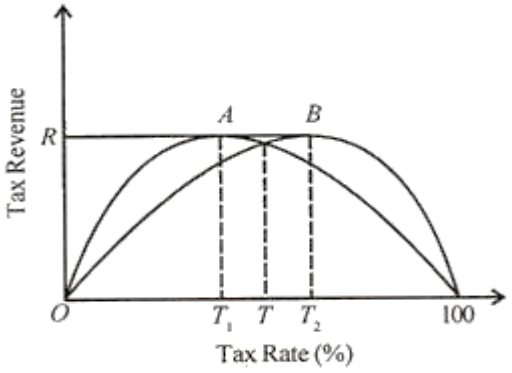


Fig.3.6.

Without the knowledge of either the peak or the shape of the curve, it is not possible to know the effect of reducing (or increasing) the tax rate or tax revenue and economic activity. In fact, nobody knows the exact shape of the Laffer curve or the relationship between tax rate and tax revenue.

2. Tax Cuts do not bring High Growth Rate:

Economists do not agree that cutting tax rates will lead to high growth rate and more tax revenue. They point out that high growth rate generates higher incomes which, in turn, generate higher tax revenue. Therefore, it is not reduction in tax rates that leads to the high growth rate of the economy.

3. Tax Cuts do not measure Work Effort:

It is not possible to measure work effort specifically as a result of tax cut. No doubt, increased work effort leads to higher incomes and to increase in tax revenue. But the increased tax revenue may not be sufficient to compensate the government for the decrease in revenue due to the lower tax rate. Moreover, it is possible that people may work less when their disposable income increases with the lower tax rate.

4. Tax Cuts do not affect Target Incomes:

Critics argue that some persons have 'target' real income. When taxes are reduced, they will work less and have more leisure to maintain their target income.

5. State Intervention Necessary:

Supply-siders have been criticised for their policy of non-intervention by the state. But there are many contradictions in the working of the capitalist system which cannot sustain balanced growth of the economy. When the economy reaches full employment, a number of distortions and imbalances develop which fail to maintain full employment. Therefore, state intervention is necessary to remove them.

6. Supply-side Policies fail to bring Social Justice:

Supply-side economists emphasise reduction in social spending, subsidies, grants and budget deficit with reduction in taxes. But such a policy has actually led to huge budget deficits in the United States. Further, the policy of reducing social spending, subsidies and grants adversely affects the poor and unemployed and fails to bring social justice.

Check Your Progress:

Q.No	Short Questions	LOCF Mapping		
1.	Justify the advantages of monetarism.	K2	CO1	PO2
2.	State the significance of Keynesianism.	K1	CO1	PO1
3.	List out the various instrument of fiscal policy.	K1	CO2	PO1
4.	Outline on bank rate policy.	K2	CO3	PO2
5.	Describe the Keynesian view of monetary policy.	K3	CO3	PO3
Q.No	**Essay Type Questions**	**LOCF Mapping**		
1.	Differentiate between Statutory Liquidity Ratio and Cash Reserve Ratio. Give few examples.	K4	CO3	PO3
2.	Recognize the functions of monetary policy by the government of India.	K2	CO3	PO2
3.	Appraise the Monetarism and Keynesianism analysis of monetary policies.	K5	CO4	PO4
4.	Identify the consequences of monetary policy in less developed countries.	K4	CO5	PO4
5.	Elucidate the role of supply side policies and its implications.	K4	CO5	PO5

UNIT - IV

COMMERCIAL BANKS

4.1. History of Banking

The General Bank of India came into existence in 1786. After that Bank of Hindustan and Bengal Bank were set up and were liquidated after few years of operations. Bank of Bengal (1840) and, Bank of Bombay (1840) and Bank of Madras (1843) were established by East India Company called them as Presidency Banks. In 1865 Allahabad Bank was established and first time exclusively by Indians, Punjab National Bank Ltd. Was set up in 1894 with headquarters at Lahore. Between 1885 and 1913, Bank of India Central Bank of India, Bank of Baroda, Canara Bank, Indian Bank and Bank of Mysore were set up. Reserve Bank of India came into existence in 1935.

Government took major steps in the Indian banking sector reform after independence. Before independence, growth was very slow and some of the banks failed as public had poor confidence in the banks. In 1955, Imperial Bank of India was nationalized which has major banking facilities not only in urban areas but also rural areas. State Bank of India was formed as an agent of RBI and to handle banking transactions of the Union and State Governments all over the country. Seven banks forming subsidiary of State Bank of India were nationalized in July, 1959. With the effort of Prime Minister of India, Mrs. Indira Gandhi, 14 major commercial banks in the country were nationalized.

In order to regulate bank, there was a need for enactment of act, so government came up with Banking Regulation Act 1949 which acts as a guideline for streamlining functioning of banking. Reserve Bank of India became the central Banking Authority and was vested with extensive powers. The duty of central bank is to maintain financial stability in the economy. It acts as lender of last resort and controls money supply in the economy by administering interest rates. Third phase was the phase of introduction of various products and facilities in the banking sector. Liberalization of banking practices was introduced in 1991. A committee was set up under the chairmanship of M. Narasimham. As per Banking Regulation Act (1949), banking is defined as the acceptance of deposits for the purpose of investment

of deposits, money from the public, repayable on demand or otherwise and withdrawable by cheque, draft, order or otherwise for the purpose of lending. If the institution uses the deposits for its own purpose, such institutions cannot be regarded as banks. Post office though opens saving accounts but it is not classified as a bank, because it accepts - chequable deposits but do not sanction loans. Some of the non-banking financial institutions are IFCI, LIC, IDBI etc. Indian banking system can be classified into two categories:

1. Organized and 2. Unorganized Banking

Organized Banking System refers to banks which are under the control of the Reserve Bank of India. For example: Commercial Banks, Industrial Banks, Agricultural Banks.

Unorganized Banking are indigenous banks which are not under direct control of our central bank are a part of unorganized banking. These are ancient bankers like Mahajan, Sahukars etc.

Scheduled banks are those which are listed under the second schedule of RBI act, 1939. Banks which have a paid-up capital and reserves of aggregate value of not less than Rs. 5 lakhs are scheduled banks. On the other hand, nonscheduled banks are the banks which do not come under purview of RBI and their paid-up capital is less than Rs. 5 lakhs. All commercial banks, Regional Rural Banks, State Cooperative Banks are scheduled banks.

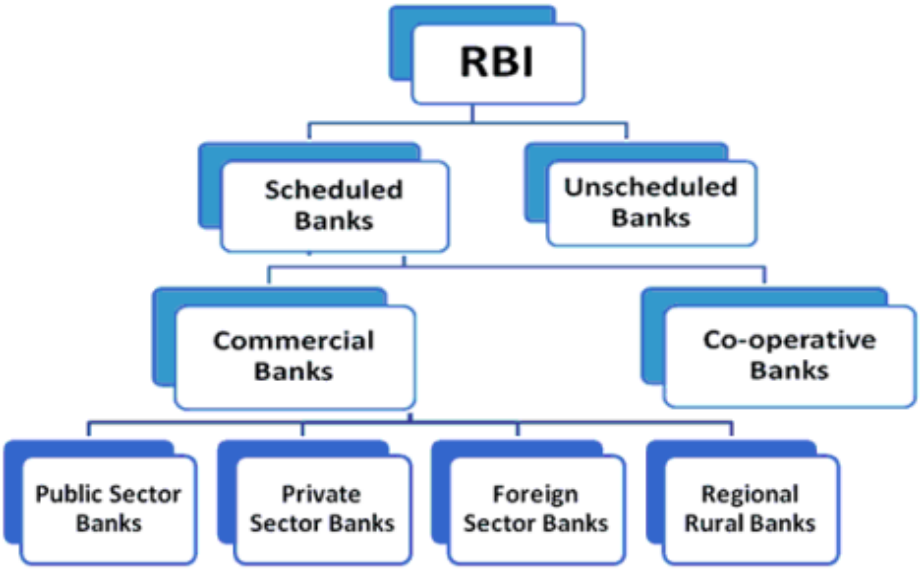
4.2. Commercial Banks

Commercial banks are the most important components of the whole banking system. A commercial bank is a profit-based financial institution that grants loans, accepts deposits, and offers other financial services, such as overdraft facilities and electronic transfer of funds. According to Culbertson, “Commercial Banks are the institutions that make short term loans to business and in the process create money.” In other words, commercial banks are financial institutions that accept demand deposits from the general public, transfer funds from the bank to another, and earn profit. Commercial banks play a significant role in fulfilling the short-term and medium- term financial requirements of industries. They do not provide, long-term credit, so that liquidity of assets should be maintained. The funds of commercial banks belong to the general public and are withdrawn at a short notice; therefore,

commercial banks prefer to provide credit for a short period of time backed by tangible and easily marketable securities. Commercial banks, while providing loans to businesses, consider various factors, such as nature and size of business, financial status and profitability of the business, and its ability to repay loans.

Commercial banks create credit in economy through the process of accepting deposits. These banks deal with general public, accept deposits and provide loans to firms and households. Commercial banks in India are State Bank of India, Punjab National Bank etc.

Classification of Commercial banks Commercial banks are of three types, which are as follows:



4.3. Significance of Commercial Banks:

Commercial banks play such an important role in the economic development of a country that modern industrial economy cannot exist without them. They constitute nerve centre of production, trade and industry of a country. In the words of Wick-sell, "Bank is the heart and central point of modern exchange economy."

The following points highlight the significance of commercial banks:

(i) They promote savings and accelerate the rate of capital formation.

(ii) They are source of finance and credit for trade and industry.

(iii) They promote balanced regional development by opening branches in backward areas.

(iv) Bank credit enables entrepreneurs to innovate and invest which accelerates the process of economic development.

(v) They help in promoting large-scale production and growth of priority sectors such as agriculture, small-scale industry, retail trade and export.

(vi) They create credit in the sense that they are able to give more loans and advances than the cash position of the depositor's permits.

(vii)They help commerce and industry to expand their field of operation.

(viii) Thus, they make optimum utilisation of resources possible.

4.4. Credit Creation by Commercial Bank:

A central bank is the primary source of money supply in an economy through circulation of currency. It ensures the availability of currency for meeting the transaction needs of an economy and facilitating various economic activities, such as production, distribution, and consumption. However, for this purpose, the central bank needs to depend upon the reserves of commercial banks. These reserves of commercial banks are the secondary source of money supply in an economy. The most important function of a commercial bank is the creation of credit.

Therefore, money supplied by commercial banks is called credit money. Commercial banks create credit by advancing loans and purchasing securities. They lend money to individuals and businesses out of deposits accepted from the public. However, commercial banks cannot use the entire number of public deposits for lending purposes. They are required to keep a certain amount as reserve with the central bank for serving the cash requirements of depositors. After keeping the required number of reserves, commercial banks can lend the remaining portion of public deposits.

According to Benham's, "a bank may receive interest simply by permitting customers to overdraw their accounts or by purchasing securities and paying for them with its own cheques, thus increasing the total bank deposits."

Let us learn the process of credit creation by commercial banks with the help of an example.

Suppose you deposit Rs. 10,000 in a bank A, which is the primary deposit of the bank. The cash reserve requirement of the central bank is 10%. In such a case, bank A would keep Rs. 1000 as reserve with the central bank and

would use remaining Rs. 9000 for lending purposes. The bank lends Rs. 9000 to Mr. X by opening an account in his name, known as demand deposit account. However, this is not actually paid out to Mr. X. The bank has issued a check-book to Mr. X to withdraw money. Now, Mr. X writes a check of Rs. 9000 in favor of Mr. Y to settle his earlier debts.

The check is now deposited by Mr. Y in bank B. Suppose the cash reserve requirement of the central bank for bank B is 5%. Thus, Rs. 450 (5% of 9000) will be kept as reserve and the remaining balance, which is Rs. 8550, would be used for lending purposes by bank B. Thus, this process of deposits and credit creation continues till the reserves with commercial banks reduce to zero.

Table. 4.1. Credit Creation Process

Bank	New Deposits/ Primary Deposits	Demand Deposits	Derivative deposits / Loans
Bank A	10000	1000	9000
Bank B	9000	450	8550
Bank C	8550	855	7695
Bank N	.	.	.
Total	**50000**	**10000**	**40000**

From Table 4.1, it can be seen that deposit of Rs. 10,000 leads to a creation of total deposit of Rs. 50,000 without the involvement of cash.

The process of credit creation can also be learned with the help of following formulae:

Total Credit Creation = Original Deposit * Credit Multiplier Coefficient

Credit multiplier coefficient= 1 / r where r = cash reserve requirement also called as Cash Reserve Ratio (CRR)

Credit multiplier co-efficient = 1/10% = 1/ (10/100) = 10

Total credit created = 10,000 *10 = 100000

If CRR changes to 5%,

Credit multiplier co-efficient = 1/5% = 1/ (5/100) = 20

Total credit creation = 10000 * 20 = 200000

Thus, it can be inferred that lower the CRR, the higher will be the credit creation, whereas higher the CRR, lesser will be the credit creation. With the help of credit creation process, money multiplies in an economy. However, the credit creation process of commercial banks is not free from limitations.

Some of the limitations of credit creation by commercial banks are shown in Figure-4.1.

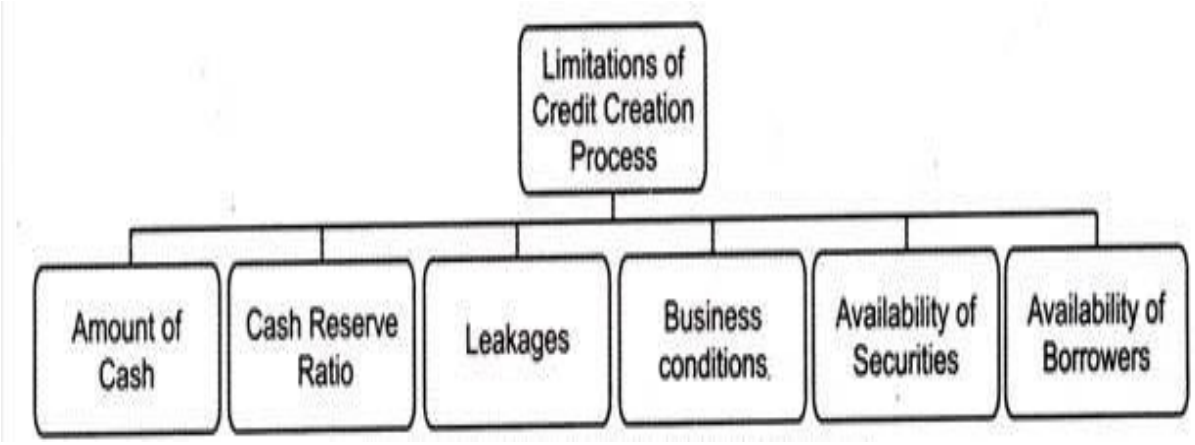


Fig.4.1. Limitation of Credit Creation Process

The limitations of credit creation process (as shown in Figure-4.1) are explained as follows:

(a) Amount of Cash:

Affects the creation of credit by commercial banks. Higher the cash of commercial banks in the form of public deposits, more will be the credit creation. However, the amount of cash to be held by commercial banks is controlled by the central bank. The central bank may expand or contract cash in commercial banks by purchasing or selling government securities. Moreover, the credit creation capacity depends on the rate of increase or decrease in CRR by the central bank.

(b) CRR:

Refers to reserve ratio of cash that need to be kept with the central bank by commercial banks. The main purpose of keeping this reserve is to fulfil the transactions needs of depositors and to ensure safety and liquidity of commercial banks. In case the ratio falls, the credit creation would be more and vice versa.

(c) Leakages:

Imply the outflow of cash. The credit creation process may suffer from leakages of cash.

The different types of leakages are discussed as follows:

(i) Excess Reserves:

Takes place generally when the economy is moving towards recession. In such a case, banks may decide to maintain reserves instead of utilizing funds for lending. Therefore, in such situations, credit created by commercial banks would be small as a large amount of cash is resented.

(ii) Currency Drains:

Imply that the public does not deposit all the cash with it. The customers may hold the cash with them which affects the credit creation by banks. Thus, the capacity of banks to create credit reduces.

(d) Availability of Borrowers:

Affects the credit creation by banks. The credit is created by lending money in form of loans to the borrowers. There will be no credit creation if there are no borrowers.

(e) Availability of Securities:

Refers to securities against which banks grant loan. Thus, availability of securities is necessary for granting loan otherwise credit creation will not occur. According to Crowther, "the bank does not create money out of thin air; it transmutes other forms of wealth into money."

(f) Business Conditions:

Imply that credit creation is influenced by cyclical nature of an economy. For example, credit creation would be small when the economy enters into the depression phase. This is because in depression phase, businessmen do not prefer to invest in new projects. In the other hand, in prosperity phase, businessmen approach banks for loans, which lead to credit creation. In spite of its limitations, we can conclude that credit creation by commercial banks is a significant source for generating income.

The essential conditions for creation of credit are as follows:

a. Accepting the fresh deposits from public.

b. Willingness of banks to lend money.

c. Willingness of borrowers to borrow.

4.5. Role of Commercial Banks After Nationalisation:

Bank have been nationalised for fulfilling various socio-economic objectives.

Six major objectives of bank nationalisation are:

1. To mobilise savings of the people to the maximum possible extent and utilise them for productive purposes;

2. To ensure prompt operations of the banking system for a larger social purpose and subject it to close public regulation;

3. To meet the legitimate credit needs of private sector industry and trade (big or small);

4. To ensure that the needs of the productive sectors of the economy and, in particular, those of farmers, small scale industrialists and self-employed professional groups are met in an increasing manner.

5. To instruct the banks to provide banking facilities to the hitherto neglected and backward areas in different parts of the country; and

6. To check (stop) the use of the bank credit for speculative and other unproductive purposes.

Performance:

The philosophy of bank nationalisation was that those financial institutions which mobilised saving of the public should broadly function as an instrument for promoting economic and social development in more purposive manner. In the post-nationalisation period, there has been a rapid growth of India's banking system.

The following points may be highlighted in this context:

1. Deposit Mobilisation:

There has occurred a significant increase in deposits of scheduled commercial banks in the post-nationalisation period. At the end of June 1969, deposits of these banks were Rs. 4,564 crores. By March 2001, total deposits increased to Rs. 983,268 crores.

It may be noted that deposits mobilised by banks are utilised for two purposes:

(i) Investments on Government securities and other approved securities in order to fulfill the statutory liquidity requirement (which is 25% at present) and

(ii) Loans and advances to borrowers.

2. Branch Expansion:

As against 8,262 branches at the end of June 1969, the total number of commercial bank branches at the end of March 2001 was 63,380. As a result of this, banking coverage in the country as a whole has been improved from one office for 65,000 persons to 15,000 persons during the same period.

3. Coverage of Rural Areas:

In the post-nationalisation period, the thrust of the branch expansion policy of commercial banks has been on improving the availability of banking facilities in rural areas. The number of rural branches increased from 1,860 in 1969 to 32,890 in 1997.

4. Credit Deployment:

Advances in whatever form constitute the end objective or purpose of banking. From a modest Rs. 3,599 crores in June 1969, total advances by public sector banks increased to Rs. 265,554 crores in March 1999.

5. Sectoral Allocation:

More significant than the increase in bank credit are the changes in sectoral development. In the pre-nationalisation period, large and medium industries as also wholesale trade accounted for more than 79% of total commercial bank credit. By March 1999, the share of these sectors (including credit for public food procurement) had declined to about 21%; correspondingly, the share of priority sectors and food procurement agencies had shown a significant increase. In recent year's food credit by commercial bank increased substantially because of large volumes of procurement and stock of food-grains. Non-food credit fell reflecting a slowdown in industrial activity.

6. Advances to Priority Sectors:

The expansion of credit to small borrowers in the hitherto neglected sectors of the economy has been one of the major tasks of public sector banks in the post- nationalisation period. To achieve this objective, banks have drawn up schemes to extend credit to small borrower in sectors like agriculture, small scale industry, road and water transport operators, retail trade and small business, which traditionally had very little share in credit extended by banks.

Taking into account the need to meet resource requirements of weaker sections, for specific purposes, consumption credit (with certain limits) had been incorporated in priority sector advances. Similarly, small housing loans (not exceeding Rs. 5,000) to the weaker section of society (such as SCs and STs) are also classified as priority sector advances. Total outstanding credit by banks to small scale industries increased from Rs. 810 crores in June 1969 Rs. 42,591 crores in March 1999. Outstanding to road and water transport operators stood at Rs. 3,620 crores in March 1999.

7. Credit to Weaker Sections of Society:

To increase the flow of bank credit to poorer sections comprising small and marginal farmers, landless labourers, tenant farmers and share-croppers, artisans, village and cottage industries and small transport operators, several new credit schemes have been evolved. This section received very little bank credit before nationalisation. In March 1999 the out-standings to small businesses were Rs. 4,231 crores, professional and self-employed person 2,630 crores, housing Rs. 5,366 crores, and consumers and others Rs. 1,108 crores.

8. Direct Finance to Agriculture:

Public sector banks were initially given a target of extending 15% of total advances as direct finance to agriculture, to be achieved by March 1985. As against this, advances by public sector banks to priority sectors rose to 16.8% of their total advances by March 1988. Direct finance to agriculture (outstanding) increased from Rs. 310 crores in June 1969 to Rs. 31,167 crores in March 1999. Indirect finance (outstanding) stood at Rs. 6,464 crores.

4.6. RBI's Role in Commercial Banks

The Reserve Bank of India is India's Central Bank. It is the apex monetary institution which supervises, regulates controls and develops the monetary and financial system of the country. The Reserve bank was established on April1, 1935 under the Reserve Bank of India Act, 1934. Initially, it was constituted as a private shareholder bank with a fully paid-up capital of Rs. 5 crores. Following India's independence on 15 August 1947, the RBI was nationalized on 1 January 1949. Irrespective of the name and the nation,

previously the roles and responsibilities of the central banks were confined to certain stereotype activities such as controller of credit in the economy, lending the fund to the commercial banks as the lender of the last resort, providing the loan and advances to the Government of the nation in the form of deficit financing, controller of the foreign exchanges by devaluating and revaluating the home currency to ensure that the value of the currency remains within a particular predefined range as a policy resolution. In this respect, RBI's role in banking supervision has changed significantly from 1992 which should be considered as milestone year in the history of Indian banking sector.

4.6.1. Functions of RBI:

The Reserve Bank of India is performing various functions related to monetary management, banking operations, foreign exchange, developmental works and research on problems of economy.

The following are some of the major functions normally performed by the Reserve Bank of India:

1. Note Issue:

Being the Central Bank of the country, the RBI is entrusted with the sole authority to issue currency notes after keeping certain minimum reserve consisting of gold reserve worth Rs. 115 crore and foreign exchange worth Rs. 85 crores. This provision was later amended and simplified.

2. Banker to the Government:

The RBI is working as banker of the government and therefore all funds of both Central and State Governments are kept with it. It acts as an agent of the government and manages its public debt. RBI also offering "ways and means advance" to the government for short periods.

3. Banker's Bank:

The RBI is also working as the banker of other banks working in the country. It regulates the whole banking system of the country, keep certain percentage of their deposits as minimum reserve, works as the lender of the last resort to its scheduled banks and operates clearing houses for all other banks.

4. Credit Control:

The RBI is entrusted with the sole authority to control credit created by the commercial banks by applying both quantitative and qualitative credit control measures like variation in bank rate, open market operation, selective credit controls etc.

5. Custodian of Foreign Exchange Reserves:

The RBI is entrusted with sole authority to determine the exchange rate between rupee and other foreign currencies and also to maintain the reserve of foreign exchange earned by the Government. The RBI also maintains its relation with International Monetary Fund (IMF).

6. Developmental Functions:

The RBI is also working as a development agency by developing various sister organisations like Agricultural Refinance Development Corporation. Industrial Development Bank of India etc. for rendering agricultural credit and industrial credit in the country. On July 12, 1986, NABARD was established and has taken over the entire responsibility of ARDC. Half of the share capital of NABARD (Rs. 100 crore) has been provided by the Reserve Bank of India. Thus, the Reserve Bank is performing a useful function for controlling and managing the entire banking, monetary and financial system of the country.

4.6.2. Regulatory and Promotional Roles of Reserve Bank of India:

The Reserve Bank of India (RBI) has been playing an important role in the economy of the country both in its regulatory and promotional aspects. Since the inception of planning in 1951, the developmental activities are gaining momentum in the country. Accordingly, more and more responsibilities have been entrusted with the RBI both in the regulatory and promotional area. Now-a-days, the RBI has been performing a wide range of regulatory and promotional functions in the country.

The following are some of the regulatory and promotional functions performed by the RBI:

1. Regulating the Volume of Currency:

The RBI is performing the regulatory role in issuing and controlling the entire volume of currency in the country through its Issue Department. While

regulating the volume of currency the RBI is giving priority on the demand for currency and the stability of the economy equally.

2. Regulating Credit:

The RBI is also performing the role to control the credit money created by the commercial banks through its qualitative and quantitative methods of credit control and thereby maintains a balance in the money supply of the country.

3. Control over Commercial Banks:

Another regulatory role performed by the RBI is to have control over the functioning of the commercial banks. It also enforces certain prudential norms and rational banking principles to be followed by the commercial banks.

4. Determining the Monetary and Credit Policy:

The RBI has been formulating the monetary and credit policy of the country every year and thereby it controls the Statutory Liquidity Ratio (SLR), Cash Reserve Ratio (CRR), bank rate, interest rate, credit to priority sectors etc.

5. Mobilizing Savings:

The RBI is playing a vital promotional role to mobilize savings through its member commercial banks and other financial institutions. RBI is also guiding the commercial banks to extend their banking network in the unbanked rural and semi-urban areas and also to develop banking habits among the people. All these have led to the attainment of greater degree of monetization of the economy and has been able to reduce the activities of indigenous bankers and private moneylenders.

6. Institutional Credit to Agriculture:

The RBI has been trying to increase the flow of institutional credit to agriculture from the very beginning. Keeping this objective in mind, the RBI set up ARDC in 1963 for meeting the long-term credit requirement of rural areas. Later on in July 1982, the RBI set up NABARD and merged ARDC with it to look after its agricultural credit functions.

7. Specialized Financial Institutions:

The RBI has also been playing an important promotional role for setting specialized financial institutions for meeting the long-term credit needs of large- and small-scale industries and other sectors. Accordingly, the RBI has promoted the development of various financial institutions like, WCI, 1DBI, ICICI, SIDBI, SFCs, Exim Bank etc. which are making a significant contribution to industry and trade of the country.

8. Security to Depositors:

In order to remove the major hindrance to the deposit mobilization arising out of frequent bank failures, the RBI took major initiative to set up the Deposit Insurance Corporation of India in 1962. The most important objective of this corporation is to provide security to the depositors against such failures.

9. Advisory Functions:

The RBI is also providing advisory functions to both the Central and State Governments on both financial matters and also on general economic problems.

10. Policy Support:

The RBI is also providing active policy support to the government through its investigation research on serious economic problems and issues of the country and thereby helps the Government to formulate its economic policies in a most rational manner. Thus, it is observed that the RBI has been playing a dynamic role in the economic development process of the country through its regulatory and promotional framework.

4.7. Narasimhan Committee Report

Considering the growing erosion in the efficiency and profitability of the banking sector, the government decided to restructure the banking sector in order to infuse greater competition and efficiency in their workings and to increase their profitability. Accordingly, the Government of India appointed a nine-member committee headed by M. Narasimham, the former Governor of RBI on August 14, 1991. The committee was appointed to review the working

of the commercial banks and other financial institutions of the country and to suggest measures to remodel these institutions for raising their efficiency.
The Narasimham Committee submitted its report in November, 1991 and the report was placed before the parliament on December 17, 1991. In its report the Narasimham Committee has acknowledged the success of the public sector banks in respect of branch expansion, deposit mobilization in household sector, priority sector lending and removal of regional disparities in banking. But during this post-nationalization period, the banking sector suffered a serious erosion in its productivity, efficiency and profitability.
Two most important factors responsible for this situation, as reported by the committee, include directed investment and directed credit programmes. The Committee argued that the abnormally high statutory liquidity ratio (SLR-38.5 per cent) and cash reserve ratio (CRR-15 per cent) enforced on the bankers a kind of tax on the banking system and diverted a good amount of banking fund for unproductive purposes.
Similarly, the CRR, in the form of "reserve requirement tax" has reduced the potential income of the banks and thus reduced the profitability of the bankers. Moreover, the Narasimham Committee report mentioned that the system of directed credit operation in the form of subsidised credit flow to under-banked and priority areas, IRDP lending, loan mela etc. has disturbed the sound banking practices. The Committee mentioned, "The intended socially oriented credit in the process, degenerated into irresponsible lending." The Committee further mentioned that about 20 per cent of agricultural and small industrial credit is in the form of "infected" and "contaminated" portfolio. The Committee also mentioned that the operational expenditure of these banks has increased significantly due to phenomenal increase in branch banking, lack of proper supervision, rapid growth of staff and accelerated promotion, improper role of trade unions and higher unit cost administering loan to the priority sectors.

4.7.1. Recommendations of Narasimham Committee on the Banking System:

The Narasimham Committee's recommendations for reforming the banking system are based on the sole rational criteria, i.e. the resources of the banks

should be deployed in a most rational manner so that it can provide maximum benefit to its depositors. Thus, the holding of funds of the banks by the government at low rate of interest for financing its consumption expenditure (paying salary of the employees) defrauded the depositors.

The recommendations of the Committee aimed at:

(a) Ensuring higher degree of operational flexibility;

(b) Autonomy in decision making; and

(c) To infuse competitiveness and higher degree of professionalism in banking operations in order to achieve efficiency and effectiveness of the financial system.

The following are the important recommendations made by the Narasimham Committee for making necessary reforms in the banking system as well as in the financial system:

1. Establishment of a four-tier hierarchy for the banking structure consisting of three or four large banks including the SBI at the top, 8 to 10 national banks with a network of countrywide branches, local banks for regional operations and rural banks at the bottom mainly engaged in financing agriculture and related activities.

2. The Government should not contemplate to nationalize any private commercial banks of the country in future and private banks should be treated at par with public sector banks.

3. Lifting the bar on setting up new banks in the private sector and abolishing the licensing procedure for branch expansion.

4. The Government should be more liberal in allowing the foreign bank to open more branches keeping in line with the foreign investment policy. Joint ventures of foreign and Indian banks be permitted in respect of merchant and investment banking. Foreign operations of Indian banks should be rationalized.

5. The statutory liquidity ratio (SLR) and cash reserve ratio (CRR) should be progressively brought down from 1991-92. The SLR instrument should be deployed in conformity with original intention of regarding it as a prudential requirement and not be viewed as a major instrument for financing the public sector.

6. The directed credit programme should be re-examined at least in case of those who were able to stand on their own feet and those who have turned this into a source of economic rent. In this way, the priority lending should be curtailed. The priority sector should be redefined to comprise small and marginal farmers, the tiny industrial sector, small business operators and other weaker sections.

7. Interest rate be further deregulated to reflect emerging market conditions and the present interest rates on bank deposits may continue to be regulated.

8. In respect of doubtful debts, provisions should be created to the extent of 100 per cent of the security short fall. Loss of assets should either be fully written off. A Board for tackling the problem of bad debts is to be formed. Arrangements be worked out under which at least part of the bad and doubtful debts of the banks and financial institutions are taken off the balance sheet so that banks could recycle the funds realised through this process into more productive assets.

9. Common staff recruitment system for bank officers is done away with as part of the banking reforms. Appointments to the key posts should be kept out of political favour. The committee also felt the urgent need of the greater use of computerised system.

10. Every public sector bank should set up one or more rural banking subsidiaries to take over all its rural branches and these should be at par with regional rural banks.

11. A percentage of shares of the public sector banks should be disinvested like the other PSUs.

12. Government guidelines relating to matters of internal administration should be rescinded to ensure the independence and autonomy of the banks. The quality of control over the banking system between the RBI and the banking Division of the Ministry of Finance should end and RBI should be the primary agency for regulation of the banking system.

Other Financial Reforms:

The other financial reforms recommended by the Narasimham Committee include:

1. Assigning supervisory function over banks and other financial institutions to a separate quasi-autonomous body to be sponsored by the RBI.
2. Infusing competition among the development financial Institutions (DFIs) to adopt a syndicating or participating approach rather than consortium approach. The DFIs should adopt internationally accepted norms to restore capital adequacy and extend loans for short periods to meet working capital requirements.
3. IDBI should retain only its refinancing role and delegate its direct lending to a separate corporate body.
4. Prudential guidelines should govern the functioning of all financial institutions. In order to regulate the capital market, the SBI should formulate a set of prudential guidelines to protect the interests of investors which would replace the too much restrictive guidelines of CCI (Controller of Capital Issues).
5. Provision to make for proper classification of assets and full disclosure and also for transparency of accounts of bank and other financial institutions.

Evaluation of the Narasimham Committee Report:

The Narasimham Committee report has been criticised by various critics on various grounds.

The various points which have been raised by the critics against the recommendations of this committee include the following issues:

(a) The role of public sector will be minimised in this new system where these banks will not be able to perform their social role in priority sector lending as effectively as they did earlier;

(b) The idea about no more nationalisation of banks, permitting private and foreign banks to expand their business is criticized; and

(c) Reduction of SLR may affect the borrowing capacity of government adversely.

But all these criticisms have no solid base of its own. The matter which is clear is that playing politically with public money deposited in the bank has already reached its saturation point. Bank funds should be strictly utilized for productive investment where viability criterion should hold good.

But the recommendations of Narasimham Committee lack adequate statistical support and empirical testing. Moreover, some of the recommendations like removal of concessional rate of interest, gradual abolition of priority sector lending, reducing of SLR, etc. will no doubt indirectly affect the weaker sections of the society if alternative provisions have been made.

But under the present regime of economic reforms, if the banking sector is not liberalised from excessive bureaucratic control, then the country cannot expect a high return from such reforms. Although the Narasimham Committee report has been criticised by a section of politicians, greedy officials, trade unions, bank employees from their own angles but there are some logics in facing competition and other structural changes. Working under a protective system for a prolonged period would definitely destroy the productivity spirit of the workers. Thus, the problem should be viewed from that angle also. In the meantime, some of these recommendations have already been accepted by the government.

Highlights of Narasimham Committee Recommendations on Banking Reforms in India

The main recommendations of Narasimham Committee (1991) on the Financial (Banking) System are as follows;

(i) Statutory Liquidity Ratio (SLR) is brought down in a phased manner to 25 percent (the minimum prescribed under the law) over a period of about five years to give banks more funds to carry business and to curtail easy and captive finance.

(ii) The RBI should reduce Cash Reserve Ratio (CRR) from its present high level.

(iii) Directed Credit Programme i.e., credit allocation under government direction, not by commercial judgement of banks under a free market competitive system, should be phased out. The priority sector should be scaled down from present high level of 40 percent of aggregate credit to 10 percent. Also the priority sector should be redefined.

(iv) Interest rates to be deregulated to reflect emerging market conditions.

(v) Banks whose operations have been profitable is given permission to raise fresh capital from the public through the capital market.

(vi) Balance sheets of banks and financial institutions are made more transparent.

(vii) Set up special tribunals to help banks recover their debt speedily.

(viii) Changes be introduced in the bank structure 3-4 large banks with international character, 8- 10 national banks with branches throughout the country, local banks confined to specific region of the country, rural banks confined to rural areas.

(ix) Greater emphasis is laid on internal audit and internal inspection in the banks.

(x) Government should indicate that there would be no further nationalisation of banks, the new banks in the private sector should be welcome subject to normal requirements of the RBI, branch licensing should be abolished and policy towards foreign banks should be more liberal.

(xi) Quality of control over the banking system by the RBI and the Banking Division or the Ministry of Finance should be ended and the RBI should be made primary agency for regulation of banking system.

(xii) A new financial institution called the Assets Reconstruction Fund (ARF). Should be established which would take over from banks and financial institutions a portion of their bad and doubtful debts at a discount (based on realisable value of assets), and subsequently follow up on the recovery of the dues owed to them from the primary borrowers.

Follow-up Action:

(i) Statutory Liquidity Ratio (SLR) on incremental Net Domestic and Time Liabilities (NDTL) reduced from 38.5 percent in 1991-92 to 28 percent by December 1996.

(ii) Effective Cash Reserve Ratio (CRR) on the NDTL reduced from 14 percent to 10 percent in January 1997.

(iii) In April, 1992 the RBI introduced a risk assets ratio system for banks (including foreign banks) in India as a capital adequacy measure. Under this bank will have to achieve a Capital to Risk Weighted Asset ratio (CRAR) of 8 percent. By March, 1996 out of 27 public sector banks 19 banks (including

SBI and all its subsidiaries) have attained 8 percent CRAR norm. In case of foreign banks, all of them have already attained these norms.

(iv) New prudential norms for income recognition, classification of assets and provisioning of bad debts introduced in 1992.

(v) In regard to regulated interest ratio structure:

(i) considerable rationalisation has been affected in banks' lending rates with the number of concessive slabs reduced and some of the ratios have been raised thereby reducing the element of subsidy; (ii) regulated deposit late has been replaced by single prescription of not exceeding 13 (revised to 11 percent) per annum for all deposit maturities of 46 days and above.

(vi) The SBI and some other nationalised banks have been allowed to seek capital market access.

(vii) Less strong nationalised banks are being recapitalised by government through budget provisions of Rs. 15000 crore till 1994-95.

(viii) Existing private sector banks given signal for expansion, more private sector banks allowed to set up branches provided they confirms to the RBI guidelines.

(ix) Supervision system of the RBI is being strengthened with establishment of new board for Financial Bank Supervision within the RBI.

(x) Banks given freedom to open new branches and upgrade extension counters on attaining capital adequacy norms and prudential accounting standards. They are permitted to close non-viable branches other than in rural areas.

(xi) Rapid computerization of banks being undertaken.

(xii) Agreement signed between the public sector bank and RBI to improve their managerial and quality of performance.

(xiii) Recovery of debts due to banks and the Financial Institution Act 1993 recently passed to facilitate quicker recovery of loans and arrears. Accordingly, 6 special Debt Recovery Tribunals were set up along with an Appellate Tribunal at Mumbai to expedite the recovery of bank loan arrears.

Check Your Progress:

Q.No	Short Questions	LOCF Mapping		
1.	Summarize the main functions of Reserve Bank of India.	K2	CO1	PO1
2.	State the significance of commercial banks.	K1	CO2	PO1
3.	Demonstrate the high-powered money.	K3	CO3	PO2
4.	Support the benefits of credit creation.	K3	CO2	PO2
5.	Demonstrate quantitative methods of credit control.	K3	CO4	PO3
Q.No	**Essay Type Questions**	**LOCF Mapping**		
1.	Clarify the Narashimham committee reports in 1998.	K4	CO5	PO4
2.	Describe the role of regulation of reserve bank of India in India during after reforms period.	K4	CO1	PO3
3.	Summarize the role of Reserve Bank of India in methods of credit control.	K4	CO4	PO3
4.	Illuminate the importance of Raguram Rajan Committee report 2007.	K1	CO5	PO4
5.	Create principles, tools and valuation of methods in credit control.	K6	CO4	PO5

UNIT – V

MONETARY STABILITY AND CENTRAL BANK

5.1. INTRODUCTION

The monetary policy of any country denotes to the regulatory policy, whereby the monetary authority maintains its control over the supply of money for the realization of general economic objectives. Monetary policy can be explained as the deliberate effort by the Central Bank to effect economic activity by variations in the money supply, in availability of credit or in the interest rates consistent with specific national objective. In a wider sense, monetary policy not only includes monetary measures but also nonmonetary measures which have monetary effects. In this sense, monetary policy includes a wide range of policies and measures. It includes not only monetary measures which influence the cost and availability of money but also those non-monetary measures which influence monetary situations. But to be more specific on the actions – that is its instruments to achieve certain targets, it can be stated that monetary policy comprises only those decisions and measures of the state and of the monetary authority which affect the volume of money and the level of interest rates. Thus, monetary policy is defined as comprising of such measures which lead to influencing the cost, volume and availability of money and credit so as to achieve certain set objectives. Johnson (1963) explains monetary policy as policy employing central bank‘s control of the supply of money as a tool for attaining the objectives of general economic policy. Shaw (1960) also says that monetary policy denotes to any conscious action undertaken by the monetary authorities to alter the quantity, availability or cost of money. In the Indian context, RBI is relatively more explicit in defining the monetary policy. For it, monetary policy operates through influencing the cost, volume and availability of credit and money. It seeks to influence aggregate demand indirectly through influencing the credit position of commercial banks. So, according to RBI, the monetary policy in India refers to the use of instruments within the control of central bank to affect the level of aggregate demand for goods & services. Central banking instruments of control operate through varying the cost and availability of credit, those producing desired changes in the asset pattern of credit institutions primarily

the commercial banks. Hence, we can say that while we discuss the monetary policy of any country in its action, it is important to know about its targets, instruments used for achieving those targets, the achievements and the failures. Hence, this module is an attempt to discuss all these aspects in case of monetary policy in India. Let us first discuss about the targets of any monetary policy. Macroeconomic policies play a useful role in attaining macroeconomic objectives of economic growth, employment and price stability. Fiscal policy and monetary policy are two important instruments of the macroeconomic policy of a government. Fiscal Policy is changes in the tax and spending pattern of the central government for the purpose of expanding and contracting the level of aggregate demand. Monetary Policy is changes in the interest rates and money supply to expand and contract aggregate demand under the control of the central bank, say Reserve Bank of India (RBI) in India. Changes in the monetary policy are more frequent and can be made at any time during a year. However, changes in fiscal policy take longer time as it requires parliamentary approval. The interdependence between fiscal policy and monetary policy is considerable. The fiscal policy has a direct impact on the goods market and the monetary policy has a direct impact on the money markets. The two markets interact with each other influencing output and interest rates by the simultaneous equilibrium in goods and money markets. Therefore, the present module examines the interdependence of fiscal and monetary policy through the changes in the aggregate demand.

5.2. Inflation and Deflation

To the neo-classical and their followers at the University of Chicago, inflation is fundamentally a monetary phenomenon. In the words of Friedman, "Inflation is always and everywhere a monetary phenomenon…and can be produced only by a more rapid increase in the quantity of money than out-put.'" But economists do not agree that money supply alone is the cause of inflation.

As pointed out by Hicks, "Our present troubles are not of a monetary character." Economists, therefore, define inflation in terms of a continuous rise in prices. Johnson defines "inflation as a sustained rise" in prices.

However, it is essential to understand that a sustained rise in prices may be of various magnitudes. Accordingly, different names have been given to inflation depending upon the rate of rise in prices.

Deflation is the opposite of inflation. It is essentially a matter of falling prices. In the words of prof. Crowther, " Deflation is that state of the economy where the value of money is rising or the prices are falling". 1. The fall in prices will be deflationary in the following situations: if the money income diminished but the output remains constant. 2. If money income diminishes much more rapidly than the output. 3. If the volume of output increases but the money income remains constant. 4. If the output increases faster than the money income. 5. If the volume of output increases but the volume of money income diminishes.

5.2.1. Types of Inflation

1. Creeping Inflation:

When the rise in prices is very slow like that of a snail or creeper, it is called creeping inflation. In terms of speed, a sustained rise in prices of annual increase of less than 3 per cent per annum is characterised as creeping inflation. Such an increase in prices is regarded safe and essential for economic growth.

2. Walking or Trotting Inflation:

When prices rise moderately and the annual inflation rate is a single digit. In other words, the rate of rise in prices is in the intermediate range of 3 to 6 per cent per annum or less than 10 per cent. Inflation at this rate is a warning signal for the government to control it before it turns into running inflation.

3. Running Inflation:

When prices rise rapidly like the running of a horse at a rate or speed of 10 to 20 per cent per annum, it is called running inflation. Such an inflation affects the poor and middle classes adversely. Its control requires strong monetary and fiscal measures, otherwise it leads to hyperinflation.

4. Hyper Inflation:

When prices rise very fast at double- or triple-digit rates from more than 20 to 100 per cent per annum or more, it is usually called runaway ox

galloping inflation. It is also characterised as hyperinflation by certain economists. In reality, hyperinflation is a situation when the rate of inflation becomes immeasurable and absolutely uncontrollable. Prices rise many times every day. Such a situation brings a total collapse of monetary system because of the continuous fall in the purchasing power of money.

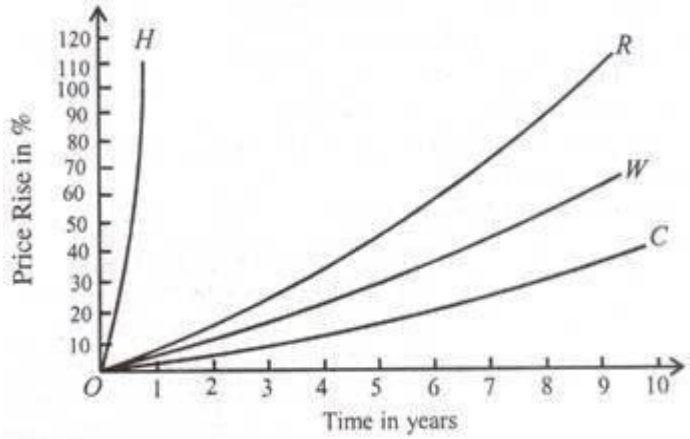


Fig.5.1.

The speed with which prices tend to rise is illustrated in Figure 5.1. The curve C shows creeping inflation when within a period of ten years the price level has been shown to have risen by about 30 per cent. The curve W depicts walking inflation when the price level rises by more than 50 per cent during ten years. The curve R illustrates running inflation showing a rise of about 100 per cent in ten years. The steep curve H shows the path of hyperinflation when prices rise by more than 120 per cent in less than one year.

5. Semi-Inflation:

According to Keynes, so long as there are unemployed resources, the general price level will not rise as output increases. But a large increase in aggregate expenditure will face shortages of supplies of some factors which may not be substitutable. This may lead to increase in costs, and prices start rising. This is known as semi-inflation or bottleneck inflation because of the bottlenecks in supplies of some factors.

6. True Inflation:

According to Keynes, when the economy reaches the level of full employment, any increase in aggregate expenditure will raise the price level in the same proportion. This is because it is not possible to increase the supply of factors

of production and hence of output after the level of full employment. This is called true inflation.

7. Open Inflation:

Inflation is open when "markets for goods or factors of production are allowed to function freely, setting prices of goods and factors without normal interference by the authorities". Thus, open inflation is the result of the uninterrupted operation of the market mechanism. There are no checks or controls on the distribution of commodities by the government. Increase in demand and shortage of supplies persist which tend to lead to open inflation. Unchecked open inflation ultimately leads to hyperinflation.

8. Suppressed Inflation:

Men the government imposes physical and monetary controls to check open inflation, it is known as repressed or suppressed inflation. The market mechanism is not allowed to function normally by the use of licensing, price controls and rationing in order to suppress extensive rise in prices. So long as such controls exist, the present demand is postponed and there is diversion of demand from controlled to uncontrolled commodities. But as soon as these controls are removed, there is open inflation. Moreover, suppressed inflation adversely affects the economy. When the distribution of commodities is controlled, the prices of uncontrolled commodities rise very high. Suppressed inflation reduces the incentive to work because people do not get the commodities which they want to have. Controlled distribution of goods also leads to mal-allocation of resources. This results in the diversion of productive resources from essential to non-essential industries. Lastly, suppressed inflation leads to black marketing, corruption, hoarding and profiteering.

9. Stagflation:

Stagflation is a new term which has been added to economic literature in the 1970s. It is a paradoxical phenomenon where the economy expedience's stagnation as well as inflation. The word stagflation is the combination of' stag' plus 'flation' taking 'stag' from stagnation and 'flation' from inflation.

Stagflation is a situation when recession is accompanied by a high rate of inflation. It is, therefore, also called inflationary recession. The principal cause of this phenomenon has been excessive demand in commodity markets,

thereby causing prices to rise, and at the same time the demand for labour is deficient, thereby creating unemployment in the economy. Three factors have been responsible for the existence of stagflation in the advanced countries since 1972. First, rise in oil prices and other commodity prices along with adverse changes in the terms of trade, second, the steady and substantial growth of the labour force; and third, rigidities in the wage structure due to strong trade unions.

10. Mark-up Inflation:

The concept of mark-up inflation is closely related to the price-push problem. Modem labour organisations possess substantial monopoly power. They, therefore, set prices and wages on the basis of mark-up over costs and relative incomes. Firms possessing monopoly power have control over the prices charged by them. So, they have administered prices which increase their profit margin. This sets off an inflationary rise in prices. Similarly, when strong trade unions are successful in raising the wages of workers, this contributes to inflation.

11. Ratchet Inflation:

A ratchet is a toothed wheel provided with a catch that prevents the ratchet wheel from moving backward. The same is the case under ratchet inflation when despite downward pressures in the economy, prices do not fall. In an economy having price, wage and cost inflations, aggregate demand falls below full employment level due to the deficiency of demand in some sectors of the economy. But wage, cost and price structures are inflexible downward because large business firms and labour organisations possess monopoly power. Consequently, the fall in demand may not lower prices significantly. In such a situation, prices will have an upward ratchet effect, and this is known as “ratchet inflation.

5.3. Demand-Pull Inflation

Demand-Pull or excess demand inflation is a situation often described as “too much money chasing too few goods.” According to this theory, an excess of aggregate demand over aggregate supply will generate inflationary rise in prices. Its earliest explanation is to be found in the simple quantity theory of money. The theory states that prices rise in proportion to the

increase in the money supply. Given the full employment level of output, doubling the money supply will double the price level. So, inflation proceeds at the same rate at which the money supply expands.

In this analysis, the aggregate supply is assumed to be fixed and there is always full employment in the economy. Naturally, when the money supply increases it creates more demand for goods but the supply of goods cannot be increased due to the full employment of resources. This leads to rise in prices. Modem quantity theorists led by Friedman hold that "inflation is always and everywhere a monetary phenomenon". The higher the growth rate of the nominal money supply, the higher the rate of inflation. When the money supply increases, people spend more in relation to the available supply of goods and services. This bid prices up. Modem quantity theorists neither assume full employment as a normal situation nor a stable velocity of money. Still, they regard inflation as the result of excessive increase in the money supply.

The quantity theory version of the demand-pull inflation is illustrated in Figure 5.2. Suppose the money supply is increased at a given price level OP as determined by the demand and supply curves D and S_1 respectively. The initial full employment situation OY_F at this price level is shown by the interaction of these curves at point E. Now with the increase in the quantity of money, the aggregate demand increases which shifts the demand curve D to D_1 to the right. The aggregate supply being fixed, as shown by the vertical portion of the supply curve SS_1 the D_1 curve intersects it at point E_1. This raises the price level to OP_1.

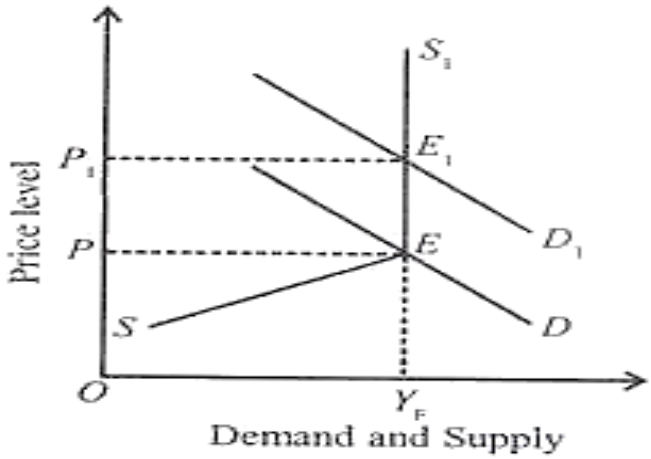


Fig.5.2.

Suppose the economy is in equilibrium at E where the $SS_1$and D curves intersect with full employment income level OY_F .The price level is OP. Now the government increases its expenditure. The increase in government expenditure implies an increase in aggregate demand which is shown by the upward shift of the D curve to D_1 in the figure. This tends to raise the price level to OP_1, as aggregate supply of output cannot be increased after the full employment level.

5.4. Cost-Push Inflation

Cost-push inflation is caused by wage increases enforced by unions and profit increases by employers. This type of inflation has not been a new phenomenon and was found even during the medieval period. But it was revived in the 1950s and again in the 1970s as the principal cause of inflation. It also came to be known as the "New Inflation."

Cost-push inflation is caused by wage-push and profit-push to prices for the following reasons:

1. Rise in Wages:

The basis cause of cost-push inflation is the rise in money wages more rapidly than the productivity of labour. In advanced countries, trade unions are very powerful. They press employers to grant wage increases considerably in excess of increases in the productivity of labour, thereby raising the cost of production of commodities. Employers, in turn, raise prices of their products. Higher wages enable workers to buy as much as before, in spite of higher prices. On the other hand, the increase in prices induces unions to demand still higher wages. In this way, the wage-cost spiral continues, thereby leading to cost-push or wage-push inflation. Cost-push inflation may be further aggravated by upward adjustment of wages to compensate for rise in the cost-of-living index.

2. Sectoral Rise in Prices:

Again, a few sectors of the economy may be affected by money wage increases and prices of their products may be rising. In many cases, their production such as steel, raw materials, etc. are used as inputs for the production of commodities in other sectors. As a result, the production cost of other sectors will rise and thereby push up the prices of their products.

Thus wage- push inflation in a few sectors of the economy may soon lead to inflationary rise in prices in the entire economy.

3. Rise in Prices of Imported Raw Materials:

An increase in the prices of imported raw materials may lead to cost-push inflation. Since raw materials are used as inputs by the manufacturers of the finished goods, they enter into the cost of production of the latter. Thus, a continuous rise in the prices of raw materials tends to sets off a cost-price-wage spiral.

4. The Inflationary Gap

In his pamphlet How to pay for the War published in 1940, Keynes explained the concept of the inflationary gap. It differs from his views on inflation given in his General Theory. In the General Theory, he started with underemployment equilibrium. But in How to Pay for the War, he began with a situation of full employment in the economy.

He defined an inflationary gap as an excess of planned expenditure over the available output at pre-inflation or base prices. According to Lipsey, "The inflationary gap is the amount by which aggregate expenditure would exceed aggregate output at the full employment level of income." The classical economists explained inflation as mainly due to increase in the quantity of money, given the level of full employment.

Keynes, on the other hand, ascribed it to the excess of expenditure over income at the full employment level. The larger the aggregate expenditure, the larger the gap and the more rapid the inflation. Given a constant average propensity to save, rising money incomes at full employment level would lead to an excess of demand over supply and to a consequent inflationary gap. Thus, Keynes used the concept of the inflationary gap to show the main determinants that cause an inflationary rise of prices.

The inflationary gap is shown diagrammatically in Figure 5.3. where OY_F is the full employment level of income, 45° line represents aggregate supply AS and C + 1 + G line the desired level of consumption, investment and government expenditure (or aggregate demand curve).

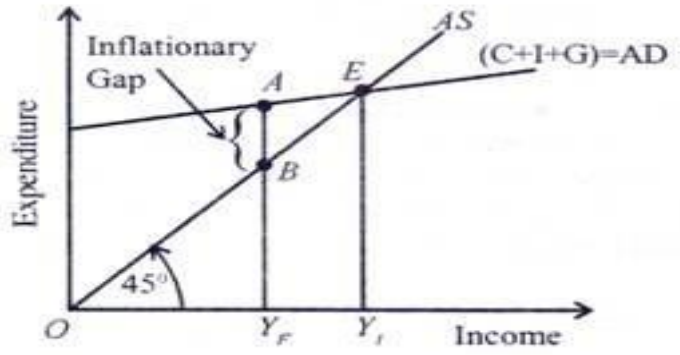


Fig.5.3.

The economy's aggregate demand curve (C + 1 +G) = AD intersects the 45° line (AS) at point E, the income level OY_1which is greater than the full employment income level OY_F The amount by which aggregate demand (Y_FA) exceeds the aggregate supply (Y_FB) at the full employment income level is the inflationary gap. This is AB in the figure. The excess volume of total spending when resources are fully employed creates inflationary pressures. Thus, the inflationary gap leads to inflationary pressures in the economy which are the result of excess aggregate demand.

How can the inflationary gap be wiped out?

The inflationary gap can be wiped out by increase in savings so that the aggregate demand is reduced. But this may lead to deflationary tendencies. Another solution is to raise the value of available output to match the disposable income. As aggregate demand increases, businessmen hire more labour to expand output. But there being full employment at the current money age, they offer higher money wages to induce more workers to work for them. As there is already full employment, the increase in money wages leads to proportionate rise in prices. Moreover, output cannot be increased during the short run because factors are already fully employed. So the inflationary gap can be closed by increasing taxes and reducing expenditure. Monetary policy can also be used to decrease the money stock. But Keynes was not in favour of monetary measures to control inflationary pressures within the economy.

It's Importance:

Despite these criticisms the concept of inflationary gap has proved to be of much importance in explaining rising prices at full employment level

and policy measures in controlling inflation. It tells that the rise in prices, once the level of full employment is attained, is due to excess demand generated by increased expenditures. But the output cannot be increased because all resources are fully employed in the economy. This leads to inflation. The larger the expenditure, the larger the gap and more rapid the inflation. As a policy measure, it suggests reduction in aggregate demand to control inflation. For this, the best course is to have a surplus budget by raising taxes. It also favours saving incentives to reduce consumption expenditure. "The analysis of the inflationary gap in terms of such aggregates as national income, investment outlays and consumption expenditures clearly reveals what determines public policy with respect to taxes, public expenditures, savings campaigns, credit control, wage adjustment—in short, all the conceivable anti-inflationary measures affecting the propensities to consume, to save' and to invest which together determine the general price level."

5.5. Causes of Inflation

Inflation is caused when the aggregate demand exceeds the aggregate supply of goods and services. We analyse the factors which lead to increase in demand and the shortage of supply.

5.5.1. Factors Affecting Demand:

Both Keynesians and monetarists believe that inflation is caused by increase in the aggregate demand.

They point towards the following factors which raise it.

1. Increase in Money Supply:

Inflation is caused by an increase in the supply of money which leads to increase in aggregate demand. The higher the growth rate of the nominal money supply, the higher is the rate of inflation. Modem quantity theorists do not believe that true inflation starts after the full employment level. This view is realistic because all advanced countries are faced with high levels of unemployment and high rates of inflation.

2. Increase in Disposable Income:

When the disposable income of the people increases, it raises their demand for goods and services. Disposable income may increase with the rise in national income or reduction in taxes or reduction in the saving of the people.

3. Increase in Public Expenditure:

Government activities have been expanding much with the result that government expenditure has also been increasing at a phenomenal rate, thereby raising aggregate demand for goods and services. Governments of both developed and developing countries are providing more facilities under public utilities and social services, and also nationalising industries and starting public enterprises with the result that they help in increasing aggregate demand.

4. Increase in Consumer Spending:

The demand for goods and services increases when consumer expenditure increases. Consumers may spend more due to conspicuous consumption or demonstration effect. They may also spend more whey they are given credit facilities to buy goods on hire-purchase and instalment basis.

5. Cheap Monetary Policy:

Cheap monetary policy or the policy of credit expansion also leads to increase in the money supply which raises the demand for goods and services in the economy. When credit expands, it raises the money income of the borrowers which, in turn, raises aggregate demand relative to supply, thereby leading to inflation. This is also known as credit-induced inflation.

6. Deficit Financing:

In order to meet its mounting expenses, the government resorts to deficit financing by borrowing from the public and even by printing more notes. This raises aggregate demand in relation to aggregate supply, thereby leading to inflationary rise in prices. This is also known as deficit-induced inflation.

7. Expansion of the Private Sector:

The expansion of the private sector also tends to raise the aggregate demand. For huge investments increase employment and income, thereby creating more demand for goods and services. But it takes time for the output to enter the market.

8. Black Money:

The existence of black money in all countries due to corruption, tax evasion etc. increases the aggregate demand. People spend such unearned money extravagantly, thereby creating unnecessary demand for commodities. This tends to raise the price level further.

9. Repayment of Public Debt:

Whenever the government repays its past internal debt to the public, it leads to increase in the money supply with the public. This tends to raise the aggregate demand for goods and services.

10. Increase in Exports:

When the demand for domestically produced goods increases in foreign countries, this raises the earnings of industries producing export commodities. These, in turn, create more demand for goods and services within the economy.

5.5.2. Factors Affecting Supply:

There are also certain factors which operate on the opposite side and tend to reduce the aggregate supply.

Some of the factors are as follows:

1. Shortage of Factors of Production:

One of the important causes affecting the supplies of goods is the shortage of such factors as labour, raw materials, power supply, capital, etc. They lead to excess capacity and reduction in industrial production.

2. Industrial Disputes:

In countries where trade unions are powerful, they also help in curtailing production. Trade unions resort to strikes and if they happen to be unreasonable from the employers' viewpoint' and are prolonged, they force the employers to declare lock-outs. In both cases, industrial production falls, thereby reducing supplies of goods. If the unions succeed in raising money wages of their members to a very high level than the productivity of labour, this also tends to reduce production and supplies of goods.

3. Natural Calamities:

Drought or floods is a factor which adversely affects the supplies of agricultural products. The latter, in turn, create shortages of food products and raw materials, thereby helping inflationary pressures.

4. Artificial Scarcities:

Artificial scarcities are created by hoarders and speculators who indulge in black marketing. Thus, they are instrumental in reducing supplies of goods and raising their prices.

5. Increase in Exports:

When the country produces more goods for export than for domestic consumption, this creates shortages of goods in the domestic market. This leads to inflation in the economy.

6. Lop-sided Production:

If the stress is on the production of comforts, luxuries, or basic products to the neglect of essential consumer goods in the country, this creates shortages of consumer goods. This again causes inflation.

7. Law of Diminishing Returns:

If industries in the country are using old machines and outmoded methods of production, the law of diminishing returns operates. This raises cost per unit of production, thereby raising the prices of products.

8. International Factors:

In modern times, inflation is a worldwide phenomenon. When prices rise in major industrial countries, their effects spread to almost all countries with which they have trade relations. Often the rise in the price of a basic raw material like petrol in the international market leads to rise in the price of all related commodities in a country.

5.6. Measures to Control Inflation

We have studied above that inflation is caused by the failure of aggregate supply to equal the increase in aggregate demand. Inflation can, therefore, be controlled by increasing the supplies and reducing money incomes in order to control aggregate demand. The various methods are usually grouped under three heads: Monetary measures, fiscal measures and other measures.

1. Monetary Measures:

Monetary measures aim at reducing money incomes.

(a) Credit Control:

One of the important monetary measures is monetary policy. The central bank of the country adopts a number of methods to control the

quantity and quality of credit. For this purpose, it raises the bank rates, sells securities in the open market, raises the reserved ratio, and adopts a number of selective credit control measures, such as raising margin requirements and regulating consumer credit. Monetary policy may not be effective in controlling inflation, if inflation is due to cost-push factors. Monetary policy can only be helpful in controlling inflation due to demand-pull factors.

(b) Demonetisation of Currency:

However, one of the monetary measures is to demonetise currency of higher denominations. Such a measure is usually adopted when there is abundance of black money in the country.

(c) Issue of New Currency:

The most extreme monetary measure is the issue of new currency in place of the old currency. Under this system, one new note is exchanged for a number of notes of the old currency. The value of bank deposits is also fixed accordingly. Such a measure is adopted when there is an excessive issue of notes and there is hyperinflation in the country. It is a very effective measure. But is inequitable for it hurts the small depositors the most.

2. Fiscal Measures:

Monetary policy alone is incapable of controlling inflation. It should, therefore, be supplemented by fiscal measures. Fiscal measures are highly effective for controlling government expenditure, personal consumption expenditure, and private and public investment. The principal fiscal measures are the following:

(a) Reduction in Unnecessary Expenditure:

The government should reduce unnecessary expenditure on non-development activities in order to curb inflation. This will also put a check on private expenditure which is dependent upon government demand for goods and services. But it is not easy to cut government expenditure. Though economy measures are always welcome but it becomes difficult to distinguish between essential and non-essential expenditure. Therefore, this measure should be supplemented by taxation.

(b) Increase in Taxes:

To cut personal consumption expenditure, the rates of personal, corporate and commodity taxes should be raised and even new taxes should be levied, but the rates of taxes should not be so high as to discourage saving, investment and production. Rather, the tax system should provide larger incentives to those who save, invest and produce more. Further, to bring more revenue into the tax-net, the government should penalise the tax evaders by imposing heavy fines. Such measures are bound to be effective in controlling inflation. To increase the supply of goods within the country, the government should reduce import duties and increase export duties.

(c).Increase in Savings:

Another measure is to increase savings on the part of the people. This will tend to reduce disposable income with the people, and hence personal consumption expenditure. But due to the rising cost of living, people are not in a position to save much voluntarily. Keynes, therefore, advocated compulsory savings or what he called 'deferred payment' where the saver gets his money back after some years.

For this purpose, the government should float public loans carrying high rates of interest, start saving schemes with prize money, or lottery for long periods, etc. It should also introduce compulsory provident fund, provident fund-cum-pension schemes, etc. compulsorily. All such measures to increase savings are likely to be effective in controlling inflation.

(d) Surplus Budgets:

An important measure is to adopt anti-inflationary budgetary policy. For this purpose, the government should give up deficit financing and instead have surplus budgets. It means collecting more in revenues and spending less.

5.7. Central Bank

A central bank also known as a monetary authority or a reserve bank is an institution that manages its economy's currency creation, alters money supply and interest rates. In addition, the Central banks must also supervise the commercial banking system of their own country. Examples of Central banks are the European Central Bank (ECB) & the Federal Reserve of the United States. Central bank of our country is Reserve Bank of India (RBI). RBI

was established on 1 April 1935 during the British Raj in harmony with the requirements of the Reserve Bank of India Act, 1934. Subsequently after India's independence in 1947, the RBI was nationalized in the year 1949. The RBI plays a major part in the development strategy of the Government of India. It is a member bank of the Asian Clearing Union. The general supervisory and direction of the RBI is assigned with the 21-member Central Board of Directors.

5.7.1. Functions (Role) of RBI:

Traditional functions are those functions which every central bank must performs. These functions are basically harmonized with the objectives for which the RBI is set up. They encompass the below tasks:

1. Issue of Currency Notes:

The RBI has the sole right or authority or monopoly of issuing currency notes except one rupee note & coins of smaller denomination. These currency notes are legal tender issued by the RBI and are in denominations of Rs. 2, 5, 10, 20, 50, 100, 500, & 1,000. The RBI has controls to issue & pull back as well as even to trade these money notes for different divisions. It issues these notes against the security of gold bullion, foreign securities, rupee coins, trade bills & promissory notes & legislature of India bonds.

2. Banker to other Banks:

The RBI being an apex establishment has compulsory forces to guide, help and direct other banks in the economy. The RBI can control the volumes of banks holds and permit different banks to make credit in that extent. Each bank needs to maintain a part of its reserves with the RBI. Thus, in need or in direness these banks approach the RBI for fund. Along these lines it is called as the lender of last resort.

3. Banker to the Government:

The RBI works as an agent of the central & state govts. It performs different banking function such as to agree to take deposits, taxes &make payments on behalf of the govt. It works as a representative of the govt at the international level too. It has the responsibility of maintaining govt accounts &providing financial advice to the govt. It also manages the govt public debts

&maintains foreign exchange reserves on its behalf. It provides overdraft facility to the govt when it faces financial crunch.

4. Exchange Rate Management:

It is a vital function of the RBI. In order to maintain stability in the external value of rupee, it has to prepare domestic policies in that direction. Also, it needs to formulate & implement the foreign exchange rate policy which helps in attaining exchange rate stability. In order to do this the RBI has to bring demand & supply of the foreign currency close to each other.

5. Credit Control Function:

The Commercial banks of the country make credit in accordance to the demand in the economy. But if this credit creation is not checked or is not regulated properly there can be situations of economy going into inflationary cycles. On the other credit creation is below the required limit then it harms the growth of the economy. The RBI, thus, must aim for growth that has stable prices & controls the credit creation capacity of other commercial banks with the help of numerous credit control tools.

6. Supervisory Function:

The RBI has been entrusted with major powers for supervising the banking system of the country. It has authorities to issue license for establishing new banks, to open new branches, to decide minimum reserves, to review functioning of commercial banks in India & abroad, & to guide and direct the commercial banks in India. It can have periodical inspections & audits of different commercial banks.

Developmental / Promotional Functions of RBI:

In addition to its traditional function, the RBI has to perform several other functions which are country specific & changes according to the requirement of the economy. The RBI has been performing its function of that of a promoter of the financial system since its initiation. Certain main development functions of the RBI are as follows:

1. Development of the Financial System: The financial system includes the financial institutions, financial markets & financial instruments. The sound & proficient monetary system is a prerequisite for the rapid economic development of the economy. The RBI has encouraged establishing of main

banking & non-banking institutions to supply to the credit needs of different sectors of the economy.

2. Development of Agriculture: RBI has to provide special attention for the credit need of agriculture & its related activities as India is an agrarian nation. RBI has made success in rendering services to the needs of the agriculture sector by increasing the flow of credit. The Regional Rural Banks (RRBs), Agriculture Refinance & Development Corporation (ARDC) & the National Bank for Agriculture & Rural Development (NABARD) are some of RBI's effort in this direction.

3. Provision of Industrial Finance: Rapid industrial growth is the key to faster economic development. For this the RBI has made adequate & timely access of credit to small, medium & large industry & has always been contributory for setting up the special financial institutions like: ICICI Ltd. IDBI, SIDBI, EXIM BANK.

4. Provisions of Training: The RBI has always tried to provide essential training to the staff of the banking industry. For this it has established bankers' training colleges at various places like the National Institute of Bank Management, Bankers Staff College, College of Agriculture Banking etc.

5. Collection of Data: The RBI must collect, process & disseminate statistical data on numerous topics in its capacity as being the apex financial institution. These include data on interest rate, inflation, savings & investments. These data are useful for policy makers & researchers.

6. Publication of the Reports: RBI has a distinct publication division which collects & publishes data on various sectors of the economy. These reports & bulletins are published regularly. The public too has access to this information at cheaper rates.

Promotion of Banking Habits:

RBI always tries to promote the banking habits in the nation. It institutionalizes savings & takes steps for expanding the banking network. It has set up many institutions such as the Deposit Insurance Corporation-1962, UTI-1964, IDBI-1964, NABARD-1982, NHB-1988 which develop & promote banking habits in the economy.

Promotion of Export through Refinance: RBI tries to encourage the facilities for providing finance for foreign trade especially exports from India. EXIM Bank India & the Export Credit Guarantee Corporation of India (ECGC) are supported by refinancing their lending for export purpose.

Supervisory Functions of RBI:

The RBI also performs many supervisory functions. It has authority to control & manage the entire banking & financial system. Some of its supervisory functions are given below:

1. Granting license to banks: The RBI grants license to banks for carrying its business. The licenses are also given for opening extension counters or new branches & even to close down any existing branches.
2. Bank Inspection: The RBI gives permit to banks filling in according to the orders & in a reasonable way without undue danger. Notwithstanding this it can request periodical data from banks on different segments of assets & liabilities.
3. Control over Non-Bank Financial Institutions: NBIFs are not prejudiced by the working of a monetary policy. However, RBI has a right to issue directives to the NBFIs from time to time regarding their functioning. Through periodic inspection, it can control the NBFIs.
4. Carrying out the Deposit Insurance Scheme: RBI has set up the Deposit Insurance Guarantee Corporation to protect the deposits of small depositors. All bank deposits below Rupees One lakh are insured with this establishment. The RBI also works to implement the Deposit Insurance Scheme in case of a bank failure.

5.8. Tools of the Central Bank

Central banks use various policy tools to influence the money supply in an economy. Here are some of the key tools:

1. Bank Rate: The RBI lends to the commercial banks against approved securities through its discount window to help the banks meet its depositor's demands & reserve requirements for long term. The rate of interest that the RBI charges the banks for this purpose is called bank rate. If the RBI wants to increase the liquidity & money supply in the market, it will decrease the bank rate and if RBI wants to reduce the

liquidity and money supply in the system, it will increase the bank rate. The Bank Rate has lost its significant as a monetary policy tool as RBI signals stance through changes in repo (the rate at which banks borrow short-term funds). Bank rate is presently used as a penal rate which the banks have to pay for their failure to meet the mandatory Cash Reserve Ratio (CRR).

2. Reserve requirement: Cash Reserve Ratio (CRR) Every commercial bank in the economy is required to maintain a minimum cash reserve with RBI. The CRR for scheduled banks between 5 to 25% as prescribed by RBI for securing the needs of monetary stability in the economy. CRR is used for increasing or decreasing money supply. An increase in CRR makes it obligatory for banks to hold a large amount of its deposits with the RBI. This will reduce the size of their deposits and they will lend less. This will in turn decrease the money supply.
3. Statutory Liquidity Ratio (SLR): Along with CRR, banks are also required to maintain certain amount of liquid assets in the form of gold, cash and approved securities with the RBI. A high liquidity ratio forces banks to maintain a big proportion of its reserves in liquid form which reduces its capacity to grant loans and advances. This is an anti-inflationary impact. A higher SLR would divert the bank funds from loans and advances to investment in govt and approved securities. In well-developed economies, central banks use open market operations (OMO) i.e. buying and selling of govt securities by central bank in the money market; to influence the volume of cash reserves with commercial banks and thereby influence the volume of loans and advances they can make to the commercial and industrial sectors. In the open money market, these are traded at market related interest rates.
4. Repo Rate and Reverse Repo Rate: Repo rate is the rate at which RBI lends to commercial banks generally against govt securities. A decrease in Repo rate helps banks to get money at a cheaper rate and an increase in Repo rate discourages banks to get money as the rate increases and becomes expensive. Reverse Repo rate is the rate at which RBI borrows money from the commercial banks. An increase in the reverse repo rate increases the

cost of borrowing & lending of the banks. This discourages the public to borrow money and encourages them to deposit it. Because of high rates, the availability of credit and demand decreases resulting to decrease in inflation. This increase in Repo Rate and Reverse Repo Rate is a symbol of tightening of the policy.

5. Open Market Operation (OMO): OMO is buying or selling of govt securities conducted by RBI to manage the liquidity conditions in the market and may support govt market borrowing. It's one of the major instruments of monetary policy by which the RBI infuses liquidity in the market and can be used in sterilization of capital flows (managing excess inflow of capital). Effective instruments for OMOs are Liquidity Adjustment Facility (LAF) to manage liquidity and Market Stabilization Scheme (MSS) to manage long term excess liquidity. Two rates constitute the LAF system, Repo & Reverse Repo rate. Repo rate is used for daily injection of liquidity & reverse repo is used for daily absorption of securities. Securities purchased and sold in OMOs are dated securities, T bills. Presently because of the liquidity deficit RBI is resorting to purchasing bonds from the market.

Open Market Operation in India: CRR and SLR were the prime tools used by the RBI to control money supply and interest rates in the market before, the financial reforms of 1991. But soon, these parameters lost their importance and implementation of OMO scaled immensely as these are deemed comparably effective in correcting market liquidity. The Reserve Bank of India in India performs OMO in two ways: a) Outright Purchase (PEMO): Through PEMO, RBI out-rightly engages in purchasing and selling of securities for expanding or tightening the money-supply for a long-term. b) Repurchase Agreement (REPO): RBI through REPO is involved in purchase and sale of securities with a condition to repurchase.

How is OMO conducted?

When there is excess liquidity in the market, RBI sells bonds to absorb liquidity and when there is liquidity deficit, it buys bonds to inject liquidity in the market. RBI could support govt borrowing through OMOs by injecting liquidity in the market by buying back bonds from banks. This in turn could lower govt securities yields because of improved liquidity.

Working of OMOs: When the RBI engages in OMOs to purchase govt securities through either PEMO or repo agreement, its financial assets on the balance sheet increase by the amount of purchase. For the same, the central bank writes a cheque to the bank or participating institution from which RBI has purchased the securities. The institutions will then deposit the cheque in their account held with a commercial bank, which then sends the cheque for clearance to the RBI. This leads to increase in the liabilities side of the balance sheet of RBI as the number of reserves of the bank increases. With regard to identity: M3 = MB*m (where: M_3 = money supply, MB = monetary base; m = multiple number), an increase in MB or monetary liability will lead to increase in M_3 by multiple m. Conversely, in case of securities sale by the RBI, money supply decreases in the market with decrease in the monetary base or liability of the central bank.

5.9. Targets of Monetary Policy

Generally, a monetary authority follows three targets. These are – maximal employment, price stability and interest rate stability. The achievement of these objectives also runs in consonance of the objectives of economic growth and balance of payments equilibrium.

1. The Employment Objective:

Achieving full employment of resources is considered to be the most important object as their underemployment and unemployment implies wastage of scarce resources which no economy can afford to have for a long period. Admitting that the full employment defined as complete absence of the involuntary unemployment is hard to achieve as there is always some frictional unemployment in the economy. Therefore, the monetary authority aims to maximise the employment rate through expansionary monetary policy. During recessions, it is important to raise the level of investment through reduction in interest rates.

2. Price Stability:

One of the policy objectives of monetary authority is to stabilize the price level. Rising & falling prices are both bad because they bring needless loss to some & undue advantage to others. Again, they are related with business cycles. So, policy of price stability is deemed to be necessary to

maintain certain level of growth as well as welfare. Price stability does not mean that prices remain unchanged indefinitely. Stable prices reduce the incentive to invest. Price stability can be maintained by following a counter-cyclical monetary policy, that is easy monetary policy during a recession and dear monetary policy during a boom.

3. Interest Rate Stability:

Interest rates represent the cost of investment, which is the increase in the capital stock of the economy and an essential requirement for the growth of the economy's output capacity. Hence, it can be argued that low rates of interest imply higher investment and therefore higher growth rates for the economy. Many countries, especially Less Developed Countries(LDC), in the second half of the twentieth century, followed this reasoning to set interest rates in the organized markets of their economies below what would have been determined in unregulated markets. Interest is not only the cost of funds borrowed for investment; it is also the return on savings lent through the financial markets. Although, the classicals and the Neo-classicals hypothesize a positive relationship between the rate of interest and savings, the empirical significance of this dependence of saving on interest rates is in considerable doubt. There are more evidences which show the relationship of savings with income rather than rate of interest. Thus, if savings are not much influenced by interest rates, while investment does so, it could be argued that keeping the rates of interest low would promote growth of the economy on a net basis. Interest rates, however, also play the role of allocating funds between the various projects and sectors of the economy and the stability of the rate of interest is much desirable to retain the capital in productive sectors than to be used for speculative and unproductive activities.

4. Economic Growth:

Rapid economic growth is the undisputable objective among the policy makers. It is a process which shows an increase in real per capita income over a long period of time. With increase in volume of production, it also means raising the standard of living of the people, and reducing inequalities of income distribution. The monetary authority may influence growth by controlling the real interest rate through its effect on the level of investment.

By following an easy credit policy and lowering interest rates, the level of investment can be raised which promotes economic growth. Monetary policy may also contribute towards growth by helping to maintain stability of income and prices. So monetary policy should be such that encourages investment and at the same time controls hyper-inflation so as to promote growth and control economic fluctuations.

5.10. Monetary Policy in India

We have discussed that there are certain objectives of the monetary policy that are to be achieved through certain instruments. This requires articulation of a consistent monetary policy framework that enables transmission of policy signals in such a way that monetary and financial conditions are influenced to the desired extent to attain the objectives. Monetary policy framework in India is a continuously evolving process contingent upon the level of development of financial markets and institutions, and the degree of global integration. Monetary policy framework in India has evolved over time. Its focus has shifted from a controlled expansion in the initial years to an anti-inflationary policy in the recent years. Recent global financial crisis has also questioned the virtue of the entire focus of monetary policy on price stability that has failed to ensure financial stability. In India, the developments in the government securities market and money market brought about by financial sector reforms have led to several changes in the operating procedure of monetary policy of India (Pacheco and Shiraly, 2014). During this process, the liquidity management facility (LAF) has emerged as the main operating procedure of monetary policy, with repo rates as the key indicators for signalling the monetary policy stance. Besides other instruments such as open market operations, cash reserve ratio and statutory liquidity ratio are equally important and work in co-ordination with each other for common objectives.

An Evolution of Monetary Policy Operations in India:

The monetary policy in India has undergone several shifts ever since the inception of Reserve Bank of India. In its formative years during 1935–1950, the focus of monetary policy was to regulate the supply of and demand for credit in the economy. It relied more or less upon the Bank Rate, reserve

requirements and open market operations for this purpose. However, after independence, after planned development started in India, till 1970, the monetary policy introduced several quantitative control measures to contain the consequent inflationary pressures while ensuring credit to preferred sectors. These measures included selective credit control, credit authorisation scheme and "social control" measures to enhance the flow of credit to priority sectors. The Bank Rate was raised very often during this period. The period 1971–90, saw the focus of monetary policy on credit planning. However, these periods, mainly saw the dominance of fiscal policy over monetary policy. To raise resources for the government from banks, the statutory liquidity ratio (SLR) was progressively increased and it was as high as 38.5 per cent by 1990. Similarly, the cash reserve ratio (CRR) was gradually raised from its statutory minimum of 3 per cent to 15 per cent during the same period. Then in 1985, the monetary targeting framework based on the recommendations of Chakravarty Committee (1985) was adopted. Under this framework, reserve money was used as operating target and broad money (M_3) as an intermediate target. Then in 1987, Vaghul Committee recommended the use of a variety of money market instruments such as inter-bank participation certificates, certificates of deposit (CDs) and Commercial Paper (CP) etc. Then during the 90s, the structural reforms and financial liberalisation led to a shift in the determination of interest rates and exchange rate. The CRR and SLR were brought down to 9.5 per cent and 25 per cent by 1997. Then in 1998, following the recommendation of Narasimham Committee II the RBI introduced the Interim Liquidity Adjustment Facility (ILAF) in April 1999, under which liquidity injection was done at the Bank Rate and liquidity absorption was through fixed reverse repo rate. Then full-fledged liquidity adjustment facility (LAF) was operated through overnight fixed rate repo and reverse repo from November 2004. The LAF helped to develop interest rate as an instrument of monetary transmission. The operating policy rate alternated between repo and reverse repo rates depending upon the prevailing liquidity condition.

Check Your Progress:

Q.No	Short Questions	LOCF Mapping		
1.	Explain the concept of deflation and its effects on economic growth.	K2	CO1	PO2
2.	Categorize the various types of inflation with examples.	K2	CO2	PO1
3.	Distinguish between demand pull inflation and cost pull inflation.	K3	CO2	PO2
4.	List out the major functions of central bank.	K2	CO3	PO1
5.	Explain the concept of monetary policy and its objectives in India.	K2	CO4	PO4
Q.No	**Essay Type Questions**	**LOCF Mapping**		
1.	Discuss the functions of a central bank and explain its role in maintaining monetary stability.	K3	CO3	PO3
2.	Evaluate the objectives and instruments of monetary policy in India.	K5	CO4	PO4
3.	Analyze the role of the Reserve Bank of India in controlling inflation and maintaining economic stability in India.	K4	CO4	PO4
4.	Design a policy framework explaining how monetary policy can control inflation and stabilize the economy.	K6	CO5	PO6
5.	Summarize the role of Reserve Bank of India in methods of credit control.	K4	CO4	PO3

Course Outcomes		Programme Outcomes
CO	On completion of this course, students will	
1	Acquire knowledge of Money and its Functions.	PO1,PO2
2	Understand the Demand for Money and its Determinants.	PO1,PO2
3	Acquire information on Supply of Money and its Determinants.	PO1,PO2
4	Understand operations of Commercial Banks and Money Multiplier.	PO1,PO2,PO3
5	Identify the Monetary Policy Implications	PO1,PO2,PO8
Textbooks		
1	Gupta R.D. (1995), Keynes and Post Keynesian Economics, Kalyani Publishers, New Delhi.	
2	Jhingan M. L. (2004), Monetary Economics, Konark Publication, New Delhi.	
3	Jagdish Handa, "Monetary Economics", Talyor & Francis, 2008	
4	L. Blume, Steven Durlauf, " Monetary Economics", Palgrave Macmillan, 2016	
5	Keith Bain, Peter Howells, "Monetary Economics:Policy and Its Theoretical Basis"", Macmillan, 2009	
Reference Books		
1.	Vaish M.C. (2004), Money, Banking and International Trade, New Age International (P) Ltd, New Delhi.	
2.	Sundaram K.P.M. (1996), Money, banking and International Trade, Vikas, New Delhi.	
3.	Basil J. Moore (1965), An Introduction to the theory of Finance, Oxford University Press.	
4.	Sethi, T.T. (2003). Monetary Economics: S. Chand and Co., New Delhi	
5.	Ghosh, B.N. and Rama Ghosh. (1989). Fundamentals of Monetary Economics, Himalaya Publishing House, Mumbai	
Web Resources		
1.	www.rbi.org.in	
2.	https://www.imf.org	
3.	https://www.oecd.org	
4.	https://www.bis.org/publ/work437.pdf	
5.	https://www.worldbank.org/	

Mapping with Programme Outcomes:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	3	3	3	3	3	3	3	3
CO 2	2	3	3	3	3	3	3	3
CO 3	3	3	3	2	2	3	3	3
CO 4	3	3	3	3	3	2	3	3
CO 5	3	3	3	3	3	3	2	3
Weightage	14	15	14	14	15	14	14	15
Weighted percentage of course contribution to POS	2.8	3.0	3.0	2.8	2.8	2.8	2.8	3.00

S-Strong-3 M-Medium-2 L-Low-1

Level of Correlation between PSO's and CO's

CO /PO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	2
CO2	3	2	3	2	2
CO3	3	2	3	2	2
CO4	3	2	3	2	2
CO5	3	3	3	3	3
Weightage	15	12	15	12	11
Weighted percentage of Course Contribution to PSOs	3	2.4	3	2.4	2.2

S-Strong-3 M-Medium-2 L-Low-1

Compiled by:

Dr. K. Ajitha

Assistant Professor of Economics

Manonmaniam Sundaranar University

Tirunelveli – 627 012