

UNIT I

GENERAL FOUNDATION OF MANAGERIAL ECONOMICS

Economics can be broadly divided into two categories namely, microeconomics and macroeconomics. Macroeconomics studies the economic system in aggregate on the other hand micro-economics studies the behavior of an individual decision-making economic unit like a firm, a consumer, or an individual supplier of some factor of production.

Macroeconomics relates to issues such as determination of national income, savings, investment, employment at aggregate levels, tax collection, government expenditure, foreign trade, money supply and price level, etc.

In simple terms, managerial economics can be taken as applied micro-economics. It is an application of that part of micro-economics which is directly related to decision making by a manager. Thus, *managerial economics analyses the process through which a manager uses economic theories to address the complex problems of business world, and then take 'rational' decisions in such a way that the preconceived objectives of the concerned firm may be attained (Barla: 2000).*

Like an economy, the manager of a firm also faces five basic issues:-

- (1) Choice of product, i.e., the products a firm has to produce - A manager has to allocate the available resources so as to maximize the profit of the firm.
- (2) Choice of inputs – After determining the profit maximising level of output, the manager has to identify the input-mix which would produce the profit maximizing level of output at a minimum cost.
- (3) Distribution of the firms' revenue – The revenue received by the firm through sales has to be distributed in a just and fair manner by the manager. Workers, owner of factory building, bankers, and all those who have contributed

their materials and services in the process of production, storage and transportation, have to be paid remunerations according to the terms and conditions already agreed upon. The residual after such payments constitutes the firm's profit which has to be distributed among the owners of the firm after tax payment.

(4) Rationing - This constitutes an important function of a manager. He/she should utilize the scarce resources optimally, which involves expenditure. As the manager has to often look after several plants simultaneously, he/she must prioritize not only the allocation of resources but also the time.

(5) Maintenance and expansion – In addition, the manager has to plan strategies to ensure that the level of output is maintained, the efficiency of the firm is retained over time, and also to plan the future expansion of the firm. Expansion of the firm involves making adequate provisions for mobilizing additional capital from the market and/or borrowing money from banks. A dynamic manager always aspires to expand the firm's scale of operation so as to increase the profits.

1.1 Circular Flow of Economic Activities

Economic analysis attempts to explain the working of economic systems. Assume a simple economic system consisting of two sectors, whose activities are systematically connected with one another. (there is no link between both the sentence) The economic activities performed by economic agents are generally classified into three inter-related activities:-

- (a) Supplying factor inputs like land, labour, capital, organisation and enterprise, which enable the agents to earn income which in turn could be used for purchasing consumable goods;
- (b) Using the factor inputs like raw materials, machines, labour, land, etc., for producing goods to be supplied to the consumers; and

(c) Providing intangible and specialized services directly to the people (example, lawyers, teachers, doctors, and porters) or working for the government (example, soldiers, judges, police, etc.).

The nature and dimensions of economic activities are generally determined by the extent of overall economic development. For instance, a developed economic system like that of the United States or Japan, has more specialized activities and division of labour, as compared to a traditional economic system. In an extremely primitive economic system, the extent of interdependence among economic agents tends to be limited, with some kind of division of labour in them.

The extent of monetization and foreign trade also determine the nature and scope of economic activities in a country. Foreign trade adds various dimensions to the process of identification of economic activities. Further, the extent of government intervention also complicates this process. Hence, to study the flow of income among different economic agents, a simplified economy with non-existent government economic activities and foreign trade may be considered, wherein the inflow and outflow of income among different economic agents are always equal.

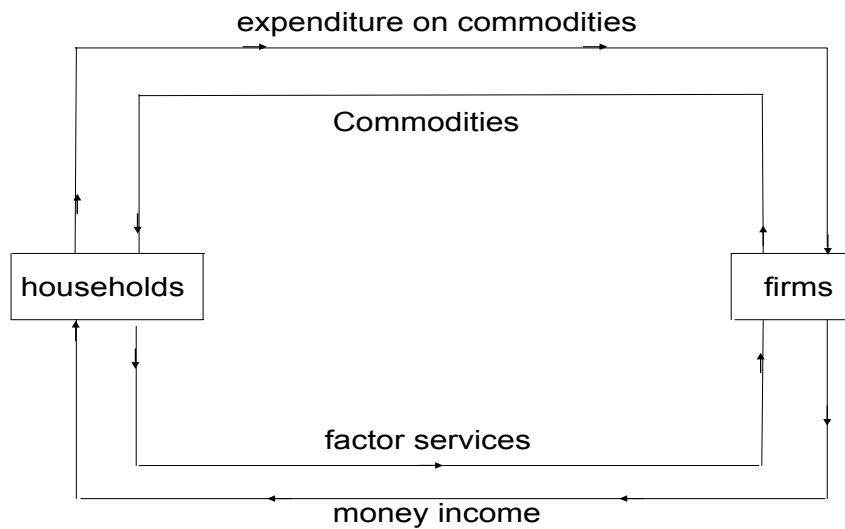


Diagram – 1 Circular flows in a two-sector economy

1.2 Forms of Organisation

In modern times, organisation of business assume several forms, viz., sole proprietorship, individual entrepreneur or one-man business, partnership, joint-stock companies, industrial combination, co-operative enterprises and state enterprises.

- Individual Entrepreneur:** Under the 'one-man' concern, organiser invests his/her own capital and may also borrow some. He/she rents a shop and employs a worker, if necessary. He/she personally make purchases and attend to the sales, and who also takes the entire risks. Thus, an entrepreneur organizes, directs all economic activity and takes the full risks, and is the sole proprietor.
- Partnership:** In partnership firm, two, three or more people join together, contribute capital, and share the profits and risks of losses in agreed proportions.
- Joint-stock company:** It is the most important type of business organisation today. It overcomes the disadvantages of the partnership arising out of small financial resources and limited business talent.

d) Co-operative enterprise: They are of two types –

- 1) Producer's cooperation, and
- 2) Consumer's cooperation.

i) Producers cooperation: Under it, the workers take up the entrepreneurial work; contribute some capital and borrow the rest; elect their own foreman and managers and employ other staff. After all expenses on rent, capital, salaries and wages, the profits are divided by the workers. This type of co-operation is called the productive co-operation or producer's co-operation.

ii) Consumer's cooperation: Under it, the consumers of a region contribute small shares of capital and start a store. These co-operative stores buy goods from wholesalers or, and sells them to the members at the market price. The profits are shared by the members in proportion to their purchases or, commonly, in proportion to their capital share. Usually, the capital share is contributed equally and therefore profits are also equally shared by the members.

State enterprise: The organisation of state enterprise is similar to that of the private enterprises. It consists of general manager, foremen, works manager, accountants, treasurer, departmental heads, etc. It functions in a similar way like a joint-stock company. But, the fundamental difference is that all its employees are government servants with fixed tenure and pension benefits on retirement. The capital comes from the state revenue, which are attributed by the tax-payers. Therefore, the profit, if any, goes to the state.

Public enterprises: Public enterprises may be in the form of

- i) Departments, i.e., run by a government department, e.g., railways and postal and telegraph in India,
- ii) Corporation, e.g., Life Insurance Corporation of India which is established by a special Act of Parliament, and
- iii) Limited Liability Company registered under the Companies Act.

1.2 Objectives of the Firm

Traditionally, the objective of a firm is to maximize profit. It is assumed that managers consistently make decisions to maximize profit for the firm. They make decisions that reduce current year profits, so as to increase profits in the future years. To achieve this objective, they incur expenditures on research and development activities, new capital equipments and major marketing programs, which reduce the profits initially but significantly, raise it in the future. Thus, given that both the current and future profits are important, it is assumed that the goal of a firm is to maximize the present or discounted value of all future profits $\{PV(\pi_t)\}$. The goal or objective function for the firm may be expressed as:-

$$\text{Maximize: } PV(\pi_t) = \frac{\pi_1}{1+r} + \frac{\pi_2}{1+r} + \dots + \frac{\pi_n}{1+r}$$

where π_t is profit in time period t , and r is an appropriate discount rate used to reduce future profits to their present value. Using the Greek letter $\sum$, which indicates that each of the terms on the right-hand side of the given equation have been added together. Then, the objective function can be rewritten as: -

$$\text{Maximize: } PV(\pi) = \sum_{t=1}^n \frac{\pi_t}{(1+r)^t}$$

1.3 Theory of Demand

The theory and analysis of demand provides several useful insights for business decision making. Demand for a commodity is defined as the quantity a consumer is willing to purchase at the prevailing price, given sufficient purchasing power or income for that purpose. As against the demand of an individual consumer or a household, the manager of a firm may consider the market demand which is the aggregation of demand levels of all the consumers at a given price.

1.3.1 The law of demand

The law of demand explains the behaviour of consumers; either a single consumer/household or all the consumers collectively. The law of demand states that other things remaining the same (*ceteris paribus*), the quantity demanded of a commodity is inversely related to its price. In other words, as price falls, the consumers buy more. Or, the demand for a commodity falls when its price rises. Thus:

- (1) The concept of demand generally refers to the quantity demanded at a given time, which may be a point of time, a day or a week.
- (2) The law of demand is based on the assumption that within the given time frame, there would be no change in the quality of the goods in question. To put it differently, among the various determinants of demand, the price of the commodity is only variable.
- (3) The term *ceteris paribus* associated with the law of demand implies that taste and preference, income, the prices of related goods and social status, all remains constant over the period in which the impact of price variation on the quantity demanded is being analysed.
- (4) The law of demand is a partial analysis of the relationship between demand and price, in the sense that it relates to the demand for only one commodity, say X, at a time or over a period of time.

1.3.2 The demand function

A demand function shows the relationship between the demand for a good, say X, and the various factors which cause a change in it. The demand function may be expressed as follows:-

$$D_x = f(P_x, P_y, M, T, W)$$

where,

D_x	=	quantity of commodity X demanded per unit of time,
P_x	=	price of X,
P_y	=	mean price of all other substitute commodities,

M = consumer's income,
 T = taste, and
 W = wealth of the consumer

Of the variables mentioned, tastes are difficult to quantify, whereas wealth does not have a direct influence on the demand D_x . Hence, T and W are held constant, and D_x is assumed to be a function of P_x , P_y and M only.

Demand functions are generally homogenous of degree zero. Homogeneity means that changes in all the independent variables, namely, P_x , P_y and M are uniform. *If the degree of a homogenous function is zero, then it would imply that when all prices and income change in the same proportion, D_x would remain unchanged (Barla: 2000).*

P_y and M are generally assumed to be the parameters. For simplicity, the demand for X is assumed to be a function of only P_x . The quantity demanded and price has an inverse relationship, except in the case of a Giffen good. The demand curve for a Giffen good is upward sloping, indicating that the price and quantity demanded move in the same direction. Meanwhile, the demand curve for a normal commodity is negatively sloped. The slope of the curve, however, depends upon the price elasticity of demand for the commodity.

The demand for a commodity X , depends on its own price P_x , the price of other substitute good (P_y), consumer's income, tastes and preference, etc. In reality however, demand depends upon numerous factors. The main determinants of demand are as follows:-

- a. Price (P_x) - As already discussed, the price of a commodity and its demand are inversely related. Hence the negative (inverse) slope of the demand curves.
- b. Price of other associated good (P_y): A change in P_y also influences the change in D_x . However, the direction of such change depends upon the nature of relationship between the two goods, namely X and Y :

- i) X and Y are complementary goods, when both goods satisfy a single want. Eg. ink and pen, milk and sugar, car and petrol, etc. When price of Y rises, the consumer will buy less of Y and also less of X, although the price of X remains unchanged. Thus, D_x and P_y , are negatively related.
- ii) X and Y are substitutes, if the consumer can use more of X at the cost of Y, or vice versa. That is, with a fall in P_y , the consumer would buy more of Y because it has become cheaper compared to X. Therefore, the demand for X will fall and that of Y will increase. For e.g., if the price of apple falls then it would induce the buyers to buy more. Besides, many buyers of orange may also switch over to apple, even though the price of orange has not changed.
- iii) When X and Y have no relationship, the two commodities are said to be independent. For example, the demand for wheat and milk has no relationship. Under such a situation, even if the price of X (P_x) falls significantly, demand for Y (D_y) remains unchanged.
- c. Income of the consumer (M) - With an increase in the income, of a consumer, the demand also increases. Hence, the demand curve for X will have a positive slope in relation to income. However, for an inferior good, an increase in income would result in buying smaller quantities of it. Therefore, the demand curve for an inferior good is negatively sloped in relation to income. For eg., ragi is inferior to rice or wheat for consumption.
- d. Status of the consumer – Often, even when P_x , P_y and M are constant, the consumer's status in the society induces him/her to buy less or more of a good. They have to maintain certain level of living standards, regardless of the problems like that of incidence of loans taken, etc.
- e. Demonstration effect – Sometimes, a consumer is motivated to buy some commodity not because it has become cheaper or the income has increased, but because the neighbours have purchased it. This is also called as the “Bandwagon effect”. According to it, demand for X is determined not by its

utility, price or income, but by what other consumers in the society are doing. On the other hand, there are also consumers who like to behave differently from the others. For instance, when all other consumers buy more units of X when P_x falls, such consumers prefer to buy less of X. This is known as the “Snob effect”.

f. Seasonal variations in demand – The demand for a good also rise or falls according to the variations in temperature or climate conditions. Demand for air conditioners, ice cream, cool drinks, etc, are extremely high in summers, whereas demand for blankets and woollens are low.

g. Spatial variations in demand – Demand for a good also varies according to the place or profession in which a consumer is engaged.

h. Taste of the consumer – The demand for a good is also determined by the taste and preference of a consumer. Other things remaining constant, a consumer would buy more or less of a good depending upon his/her choice or preference function. A consumer may like coffee over tea, while another may prefer tea over coffee. Thus, a consumer’s taste is also an important determinant of demand for a commodity.

1.3.3 Derivation of demand curves

Other things remaining the same, a demand curve is negatively sloped due to the law of diminishing marginal utility. This law of diminishing marginal utility states that as more and more units of the same commodity initially are consumed without any time gap, then the total utility (TU) derived increases at an increasing rate, then starts increasing at a decreasing rate from the point of inflection, becomes maximum and then starts declining. A consumer gets maximum utility from the consumption of a commodity X, when its marginal utility (MU_x) is equal to P_x , i.e., $MU_x = P_x$.

Marginal utility (MU) refers to the additional utility derived by the consumer from the consumption of an additional unit of commodity to the total units consumed. It starts from the origin and becomes maximum at the point of inflection, after which, it starts declining and becomes zero when total utility is maximum. This is shown by diagram 2.

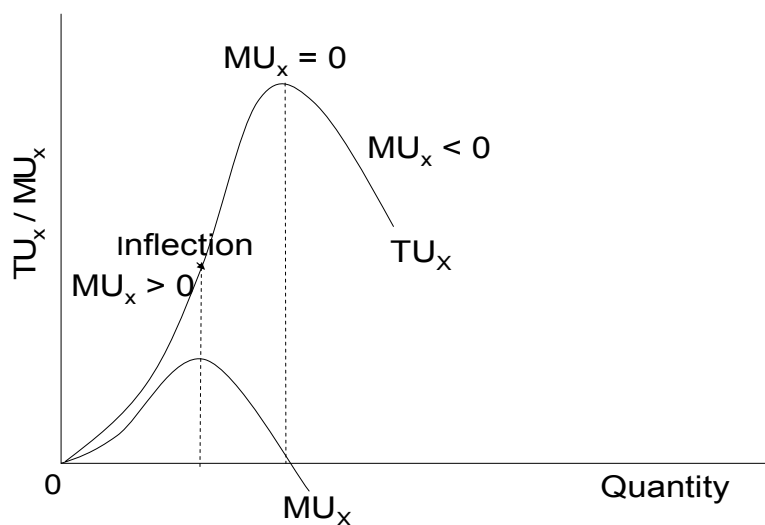


Diagram-2: Law of Diminishing Marginal Utility

Only the positive slope of the MU_x curve is considered for the derivation of the demand curve D_x , as there can be no negative demand. A demand curve may be derived from the negative slope of the MU_x curve, and the consumer equilibrium condition $MU_x = P_x$. By this logic, the Y axis represents P_x , which is represented MU_x in diagram -2. This is shown in the following diagram.

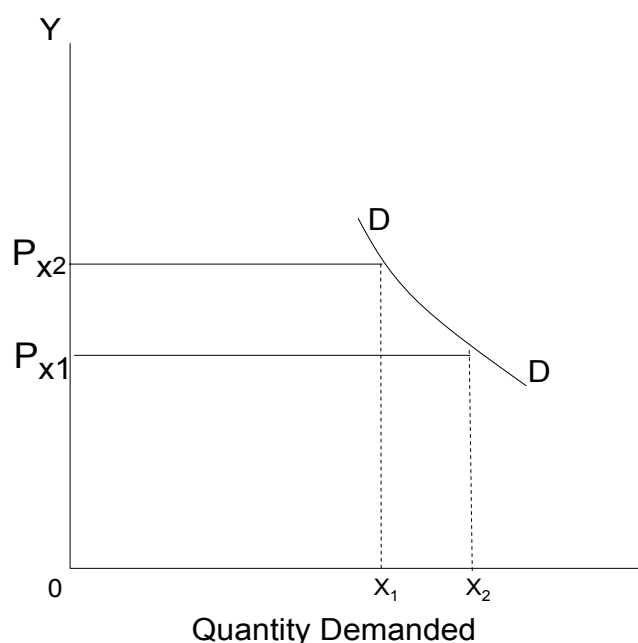


Diagram -3: The Demand Curve

Diagram - 3 shows that a rise in the price of X from P_{x1} to P_{x2} leads to a contraction in the quantity demanded from Ox_1 to Ox_2 along the demand curve DD . Further, DD indicates that even a small or large change in P_x would still support the law of demand. Alfred Marshall assumed that every consumer maximizes total utility only at that level of X where $MU_x = P_x$. That is, where P_x decreases, the consumer consumes more of X such that MU_x equals price level. Therefore, the MU curve and demand curve in the Marshallian analysis are similar. The fall in the quantity demanded due to an increase in P_x results from three reasons: i) increase in price affects the utility maximizing quantity of consumption, and to restore the equilibrium, the quantity of X must decrease with an increase in P_x . This is because, only with smaller quantity of X , MU will increase and approach close to the higher level of P_x ; ii) due to substitution and income effects, the consumer will reduce the quantity of X consumed when its price rises, so as to maximize utility; iii) the demand curve is negatively

sloping demand due to the rise in consumption as a result of a fall in price, or conversely, due to fall in consumption when price increases.

When there are two goods namely X and Y, then the ratio of their marginal utilities must be equal to the ratio of their respective prices. This is known as the law of equi-marginal utility maximization. The consumer is in equilibrium when the ratio of marginal utility and prices for all the goods is equal, i.e.,

$$= \frac{MU_x}{P_x} \text{ or } \frac{MU_y}{P_y} = \frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

The consumer maximizes utility by buying certain combination of X and Y. If P_x increases and the consumer consumes the same quantity of X, thus holding the level of marginal utility of X at the original level, then equilibrium will be disturbed, i.e.

$$< \frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

Thus, if in spite of a rise in the price of X, the quantity demanded is held constant, the marginal utility of Y will change due to a decrease in its quantity because the consumer now spends more on X. Then, the consumer no longer maximizes utility. For maximization of utility, the consumer has to reduce the quantity of X in response to the increase in P_x . Thus, when price increases, a consumer can maximize utility only by reducing the quantity demanded. Conversely, the quantity demanded has to increase when the price of X falls. In

the process, the equilibrium is restored at a new equilibrium at a new combination of X and Y.

1.3.4 Demand schedule

A demand schedule shows the list of prices and the corresponding quantities of a commodity. While preparing the demand schedule, it is assumed that the marginal utility of money is constant and that the quantity demanded depends only on price.

1.3.5 Elasticity of demand

In economics, the term elasticity measures a proportionate (percentage) change in one variable to a proportionate (percentage) change in another variable. In other words, it measures the responsiveness of the dependent variable to a given change in one of the independent variables, other variables remaining constant. Elasticity of demand is the responsiveness of the quantity demanded to a given change in the price of a commodity, the prices of other commodities and consumer's income remaining the same. The elasticity (e) of X with respect to Y may be written as: -

$$E_{xy} = \frac{\text{percentage change in X}}{\text{percentage change in Y}}$$
$$\text{or, } E_{xy} = \frac{\Delta X/X}{\Delta Y/Y}$$

Given the demand function: -

$$D_x = f(P_x, P_y, M)$$

Where, D_x = quantity of X demanded by a consumer; P_x = price of X; P_y = the (weighted) price of all other commodities; and M = consumer's income. Demand (D_x) responds to a given change in each of these independent variables, when the other two variables are held constant. For the concept of elasticity of demand to be meaningful, a direct reference has to be made to the nature of change in the independent variable (P_x , P_y , or M) although their relative significance may be different in different context.

Since demand varies with fluctuations in different variables, there are different kinds of demand elasticities, one with respect to each of the causal variable. In modern analysis of consumer behaviour, the important demand elasticities of significance are:-

- (a) Price elasticity of demand,
- (b) Cross elasticity of demand,
- (c) Income elasticity of demand, and
- (d) Promotional elasticity of demand

(a) Price elasticity of demand:

Price elasticity of demand measures the responsiveness or percentage change in demand to a given percentage change in price, holding the other determinants of demand, namely other prices (P_y) and consumer's income (M) constant. This elasticity is also known as 'own elasticity'. Due to the negative relationship between demand and price, the coefficient of price elasticity has a negative sign, which in practice is generally ignored.

Price elasticity may be measured under two alternative conditions (i) when the change in price is very small, and (ii) when price variation is finite.

- (a) when change in price is very small or infinitesimal, point elasticity method of measurement is used: -

$$\frac{dD_x}{D_x} \quad P_x$$

$$E_{xx} = \frac{\frac{dD_x}{dP_x}}{D_x} \cdot P_x$$

where E_{xx} = the price elasticity; dD_x/dP_x = change in demand with respect to a change in price; P_x = original price; and D_x = original quantity of demand. Algebraically, dD_x/dP_x is the first derivative of demand function with respect to price.

(b) When change in price is finite, arc method of measurement is used. Here, rather than taking the first derivative of demand function, an attempt is made to measure the elasticity of demand in relation to a finite change in price using the following formula: -

$$E_{xx} = \frac{\frac{\Delta D_x}{\Delta P_x}}{D_{x1} + D_{x2}} \cdot (P_{x1} + P_{x2})$$

where X_1 and Y_1 = the values of X and Y at point A; and X_2 and Y_2 = values at point B.

While the first part of formula {i.e. $\Delta D_x / \Delta P_x$ }, measures the change between the new and previous levels of demand in response to a finite variation in price, the second part represents the summation of the two prices divided by the sum total of the two levels of demand.

Both the methods of measuring price elasticity (point and arc) are useful. While point elasticity is used to find out a change in one variable in relation to a small change in the other variable, arc elasticity is used to find out a change in one variable due to a large change in the other variable. For example, to find the effect of a price change from Rs. 5 to Rs. 4.80 per unit on demand, the point elasticity would be more appropriate, whereas if the change is from Rs. 20 to Rs. 15 per unit on demand, then arc elasticity would be more suitable. The

significance of both point and arc elasticities methods arise from the fact that elasticities are independent of the unit of measurement. This makes the use of elasticities popular in demand studies, as the variables in a demand function are measured in different units which makes the analysis of their marginal effects difficult.

The categories of price elasticity are: -

- (i) Perfectly elastic demand;
- (ii) Highly elastic demand;
- (iii) Unit elasticity of demand;
- (iv) Inelastic demand; and
- (v) Perfectly inelastic demand

All these elasticities can be computed both at different points on a demand curve, and also at a given arc. For simplicity, the point definition formula is used to express price elasticity of demand.

b) Cross elasticity of demand: It is the responsiveness of demand for commodity X to a percentage change in the price of commodity Y. It can be expressed as: -

$$E_{Xy, P_Y} = \frac{\text{percentage change in } D_X}{\text{percentage change in } P_Y}$$

$$\text{or, } E_{xy} = \frac{\Delta D_X}{\Delta P_Y} \cdot \frac{P_Y}{D_X}$$

For substitute commodities, the cross elasticity of demand is positive. This implies that when the price of Colgate falls, the demand for Pepsodent will

fall, as the two commodities are substitutes. When two commodities are complements, the cross elasticity of demand will be negative. This indicates that when the price of coffee falls, the quantity demanded of sugar will go up as the two goods are complementary. Thus, while the signs of cross elasticity show whether two commodities are substitutes or complements, their magnitude indicate the degree of their relationship. The greater the cross elasticity, the more closely related the two goods are. If the two goods have no relationship, the cross elasticity between them will be zero. The concept of cross elasticity of demand is useful in measuring the interdependence of demand for a commodity and the prices of its related commodities. Its knowledge thus helps a firm to estimate the likely effects sales of pricing decisions of its competitors on its own sales.

c) Income Elasticity of Demand

Income elasticity of demand ($e_{D_X, I}$) measures the responsiveness of demand for a commodity, say X (D_X) to a change in consumers' income (I). It can be computed from the following formula:

$$E_{XI} = \frac{\text{percentage change in } D_X}{\text{percentage change in } I}$$
$$= \frac{\Delta D_X / D_X}{\Delta I / I}$$

$$\text{or } E_{XI} = \frac{\Delta D_X}{\Delta I} \cdot \frac{I}{D_X}$$

For superior goods income elasticity is positive, whereas for inferior good it is negative. Positive income elasticity can assume three forms: greater than unity (one) elasticity, unity elasticity and less than unity elasticity. When a change in income results in a direct and more than proportionate change in the quantity demanded, the income elasticity is said to be positive and more than unity. Luxury goods are its example. When a change in income leads to a direct and proportionate change in the quantity demanded, then it is known as positive and unit income elasticity. Its examples include semi-luxury and comfort goods. When an increase in income results in a less than proportionate increase in quantity demanded, then the elasticity is positive and less than unity. Necessary goods fall under this category. The income elasticity is negative when an increase in income leads to a decrease in quantity demanded. Inferior quality goods come under this category. Knowledge of income elasticities of demand for various commodities is useful in determining the effects of changes in business activity on various industries.

d) Promotional elasticity of demand: It measures the expansion of demand through advertisement and other promotional strategies. It is also known as advertisement elasticity of demand. It may be expressed as: -

$$E_{X A} = \frac{\text{percentage change in } D_X}{\text{percentage change in } A}$$

$$\text{or, } E_{XA} = \frac{D_X}{A} \circ \frac{A}{D_X}$$

where, A = expenditure on advertisement and other promotional strategies.

The advertisement elasticity is always positive. This is because both informative and persuasive types of advertisements are used which increase sales. The higher the elasticity, the better it is for the firm to spend on promotional activities. This elasticity helps a decision maker to decide upon the firm's advertisement outlay.

1.3.6 Demand analysis and forecasting

Demand is crucial for the survival of any business enterprise. A firm's own profit and/or sales depend mainly upon the demand for its product. A management's decisions on production, advertising, cost allocation, pricing, inventory holdings, etc. all requires an analysis of demand. Demand analysis attempts to identify and measure the factors that determine sales, on the basis of which alternative methods of manipulating or managing demand can be worked out. Demand forecasting attempts to estimate the expected future demand for a product, which helps to plan production better. In this context, it is important to understand the types and determinants of demand and their relative importance. Demand is broadly classified as: -

- (a) Demand for consumers' goods and producers' goods,
 - (b) Demand for perishable and durable goods,
 - (c) Derived and autonomous demands,
 - (d) Firm and industry demands, and
 - (e) Demand by total market and by market segments.
- a) Consumers' goods and producers' goods - Consumers' goods are directly used for final consumption. Meanwhile, producers' goods are used for further production of other goods, which may either be in the form of consumers' or producers' goods. The former includes clothes, houses, food, etc., while the latter includes machines, tools, raw materials, etc. Consumers' goods are also

known as direct demand. Whereas producers' goods is known as derived demand.

b) Perishable and durable goods' demand - Consumers' and producers' goods are further classified as perishable and non-durable goods. Those goods which can be consumed only once are known as perishable goods, whereas the durable goods can be used more than once during a period of time. For example, vegetables, fruits and milk are perishable consumer goods, while oil, raw materials and coal are non-durable producer goods. On the other hand, car, refrigerator and furniture are durable consumers' goods, while industrial buildings, machine and tools are durable producers' goods.

c) Derived and autonomous demand – When the demand for a good is associated with another parent good, it is called derived demand. For example, the demand for steel is not for its own sake, but for satisfying the demand for construction. In this sense, the demand for all producers' goods is derived. On the other hand, autonomous demand is wholly independent of all other demands. It is difficult to name a product which is fully autonomous

d) Firm and industry demands – Firm demand represents the demand for products of a single company, while industry demand refers to the demand of an industry.

e) Demands by total market and by market segments – The total market demand for a product refers to the total demand, while the demand arising from different segments of the market is market segment demand. Segments include different regions, product use, distribution channels, customer sizes, and sub-products. Each of them differs significantly with respect to delivered prices, net profit margins, competition, seasonal patterns and cyclical sensitivity. Wide differences in them call for a demand analysis restricted to an individual market segment, which in turn would help a firm to manipulate the total demand. Hence, a company/ industry would be interested in the both these demands.

Risk and uncertainty are involved in every decision-making process. The producer, manager or any decision-making authority should be aware of the existing level of demand for the products being produced, and estimate the gap between demand and supply. In a growth-oriented decision-making process, the manager decision-maker is expected to know the changes that are expected to take place in the future demand. Such knowledge would help to determine the targets to be achieved to match the future demand with the available supply. Thus, the manager decision-maker, whether a firm or a state planning agency, must not only estimate the present level of demand, but should also forecast the future demand (Barla: 2000).

The extent of objectivity and precision with which demand for a product is estimated and projected for the future would determine the ability of a decision-making agent in dealing with further uncertainties. For example, if there is a possibility of rise in the prices of petroleum products, the automobile producers may plan to switch over to the production of smaller cars. Such switch-over decisions need to be made on the basis of accuracy of demand forecasts. Thus, major decisions in business enterprises depend upon forecasts of one kind or the other.

1.3.7 Stages in forecasting demand

Based on the scope of demand forecasting for a commodity, the following sequence is generally adopted in projecting demand: -

- (1) **Specification of objective(s):** Specification of the purpose of demand forecasts is the foremost task in forecasting demand.
- (2) **Selection of appropriate technique:** Next, selection of appropriate technique for the purpose is important. If it is proposed to use regression method, the model has to be specified properly by identifying the necessary variables and the nature of relationship between X and Y_j .

(3) **Collection of appropriate data:** Collection of quality and adequate data for the demand forecasting would determine the quality and reliability of results. Hence, the data collected should also be representative.

(4) **Estimation and interpretation of results:** The results obtained through the analysis of collected data, either manually or with the help of computers, should be interpreted carefully in correspondence with the objectives examined.

(5) **Evaluation of the forecasts:** A model used for demand forecasting with objectivity, would yield good results. The results, however, need to be verified by persons possessing professional acumen and expertise.

1.3.8 Levels of forecasting

Demand projections may not be cent per cent correct/accurate, more so when the scope of a demand forecast is wide. Different levels of demand forecast may be attempted by business firms. They are:-

- a. Micro-level – Under it, the forecasting is restricted to a particular brand or specific product, like the demand for BPL televisions or Maruti cars.
- b. Meso level – Here, a firm attempts to project the demand for a product group, like the demand for washing machines.
- c. Macro level – When a firm attempts to examine the future demand for all automobiles or TV sets rather than the demand for a particular brand name or product group, it is known as macro level forecasting of demand.

1.3.9 Data and techniques of demand forecasting

A good set of data is required for the estimation of present level of demand and forecasting the future demand. A private sector forecasts demand on the basis of past experience and the data collected from various sources. Similarly, a public sector uses data collected by different government and research agencies for the purpose. The following are some of the techniques adopted for estimating the existing and future demands.

1) Delphi Technique: This technique is based on the assumption that collective judgment of knowledgeable persons may serve as an important source of information. The personal insights of such persons may help in forecasting the demand for some products. These key persons use their own perceptions and evaluate future prospects. It is quite likely that due to different perceptions, different experts may view the future demand differently. Under such circumstances, they are requested to revise their estimates until consensus is reached through upward adjustments by some experts and downward adjustments by the others (Barla 2000). In this method, an individual is assigned the task of forecasting the demand by personally studying the changes that have taken place in the national and international scenario and then come out, without any personal bias, with a forecast. He/she carefully studies the demographic changes, per capita income changes, trends in government policies, mood of the investors, availability of substitutes and complementary goods, and on the basis of all such data or information, predicts the future level of demand for a product. This technique has the merit that each expert or panel member is expected to assess their own forecast. However, this is an expensive and time consuming technique. Besides, sometimes one or more experts may refuse to revise the forecasts once given, which would create problem.

2) Forecasts based on the projected population and per capita income:

Usually, large producers get market surveys conducted for estimating the existing level of demand for their products and to know consumers' preferences. Some magazines/newspapers also publish reports on such market surveys.

3) Market Survey Technique: There are different types of market surveys, viz.,

i) complete enumeration, ii) sample survey, and iii) market study based on experiments. These techniques provide relevant information depending upon the extent of survey conducted.

4.) Trend Projections: It is the most widely used and the simplest technique for extrapolating the demand for a product on the basis of past trend, assuming that the past trend would continue in the future. There are two methods of conducting trend projections: (a) time series analysis, and (b) constant percentage method.

(a) Time series analysis – Under this method, sales of a commodity over the past 15 to 20 years are plotted on a graph. The year to year oscillations are smoothened and a trend line is fitted using a statistical method, so that the squared values of upward and downward deviations from the trend add to zero.

(b) Constant percentage method – This method is based on the assumption that the percentage growth rate of sales between the base year and the terminal year would remain unchanged. The following formula is used for projecting this demand:-

$$Y_n = Y_0 [1+g]^n$$

where, y_0 = demand in the base year; g = annual rate of growth; and n = number of years. In other words, g is the compound growth rate.

5). Econometric method: In this method of demand forecasting, it is assumed that demand is determined by one or more variables, e.g., income, population, exports, etc.. A demand function determined by only one variable is expressed as follows: -

$$X = f(Y)$$

This equation may be expressed as:-

$$X = a + bY$$

Here, with a change in the independent variable (Y) with a positive intercept a , and constant coefficient b , the dependent variable (X) will also change.

An econometric model involving two or more independent variables may be shown as: -

$$X = f(Y_1, Y_2, Y_3, \dots, Y_n)$$

Its multiple regression equation will be of the form:-

$$X = a + b_1 Y_1 + b_2 Y_2 + b_3 Y_3 + \dots + b_n Y_n$$

If X is assumed to have non-linear relationship with Y, then the exponential regression function will be as follows: -

$$X = a Y_1^\alpha Y_2^\beta Y_3^\gamma Y_4^\Omega \dots (b_j = \alpha, \beta, \gamma, \Omega \dots)$$

In sum, the econometric forecasting of demand for X would be based on: (i) the nature of demand model, i.e., simple or multiple regressions, and (ii) the expected nature of relationship between the dependent and independent variables, i.e., whether constant or exponential, besides the negative or positive relationship with the dependent variable.

6). End use method: This method is widely used to forecast the demand for a commodity, which is used as an input for producing other goods/services and a good (X) for direct consumption. For example, cement may be used for constructing houses, hotels, bridges, roads, etc. Therefore, while estimating its present demand and for forecasting its future demand, the demand for the good in different uses has to be taken into consideration.

7). Barometric forecasting: At times, a business concern may assign the task of demand forecasting to some expert agency, which would attempt to forecast the demand on the basis of signals received from the policies adopted or the events that had taken place within the country or in other countries.

1.3.10 Significance of demand forecasting

Estimating and forecasting demand are crucial to the following types of decision-makers for knowing the present level of demand and the expected increase in demand over time.

(i) Producers: A producer allocates various factors of production for maximization of profit, for which knowledge of both the present and future

demand is important. Future demand estimates helps the producer to plan the extent of expansion in scale of operations, so as to deal with the increased demand and earn higher profits.

(ii) Policy makers and planners: It helps government to formulate economic policies through the planning boards or planning commissions to allocate resources for economic development through production in the public, private and export sectors to achieve the targets set for a given time period. It also ensures adequate supply of inputs for achieving the objectives of industrial policy, import-export policies, credit policy, public distribution system, and other related policies, which involves forecasting of future demand.

(iii) Other groups of the society: Demand forecasts are also useful to researchers, social workers and others with futuristic approach, to understand the levels of future demand or supply, the gaps, and their expected impact on prices or the economy.

1.4 Production Function

A production function expresses the technological or engineering relationship between the output of a commodity and its factor inputs. Traditionally, economic theory considers four factors of production, namely, land, labour, capital and organisation or management. Now, technology is also considered as an important determinant, as it contributes to output growth. Therefore, output is a positive function of the quantities of land, labour, capital, the quality of management, and the level of technology employed in its production (Mote, et. al, 1997). This relationship may be expressed as follows:-

$$X = f(A, L, K, M, T)$$

Where, $f_1, f_2, f_3, f_4, f_5 > 0$

X = output of commodity X,

A = land employed in the production of X,

L = labour employed,

K = capital employed,

M = management employed,

T = technology used,

f = unspecified function, and

f_i = partial derivative of f with respect to the i th independent variable.

This function describes a general production function. For the production of different commodities, one or all the factor inputs may not be equally important for all commodities. The importance of a factor of production varies from product to product. For instance, while land is the most important factor in the case of an agricultural product, its importance is relatively lower in the case of a manufacturing product. Meanwhile, the significance of management and technology may be greater in the case of an industrial product, rather than for an agricultural product. Therefore, researchers modify the production function according to the product and the specific objectives analysed.

Generally for the analysis of production decision problems, labour and capital are the only two factor inputs considered for convenience. Then, the production function reduces to:-

$$X = f(L, K)$$

For a given level of output of commodity X , various combinations of L and K may be used, which is known as production process or technology. Further, these combinations would also vary with variations in the level of X . Usually for production, both labour and capital are necessary and they substitute each other. When an entrepreneur employs more of labour than capital, then the production process is known as labour intensive production technique. Whereas, if more of capital is used in relation to labour, the production technique becomes capital intensive.

1.4.1 Producer's equilibrium

A producer is in equilibrium when he or she maximizes output for the given total outlay. In other words, a producer is in equilibrium when the highest isoquant is reached, given a particular isocost or price line. An isoquant (IQ) represents different combinations of labour and capital which yields the same level of output of a commodity. An isocost/price line represents the different combinations of labour and capital that an entrepreneur can purchase, given the prices of the two factor inputs and the total outlay available to him/her at a point of time. Producer's equilibrium occurs when an isoquant is tangent to the isocost line. At the point of tangency, the absolute slope of the isoquant is equal to the absolute slope of the isocost line. That is, at equilibrium, $MRTS_{L,K} = P_L/P_K$. Since $MRTS_{L,K} = MP_L/MP_K$, at equilibrium,

$$\frac{MP_L}{MP_K} = \frac{P_L}{P_K} \quad \text{or} \quad \frac{MP_L}{P_L} = \frac{MP_K}{P_K}$$

Here, MP = marginal product; and $MRTS_{L,K}$ = marginal rate of technical substitution of labour(L) for capital (K). $MRTS_{L,K}$ is defined as the number of units of K given up to employ one more unit of L. P_L and P_K represent the prices of labour and capital respectively. The slope of the isocost line represents the price ratios of the two factor inputs, L and K, given the total outlay. Marginal product (MP) is the addition of output made to total output by employing one more unit of the factor input. The slope of the isoquant represents the MP ratios of L and K.

At equilibrium, the MP of the last unit spent on labour is the same as the MP of the unit spent on capital. The same applies to the other factors, if the firm's production function is expressed in terms of more than two factors of production. Diagram-4 shows a producer's equilibrium.

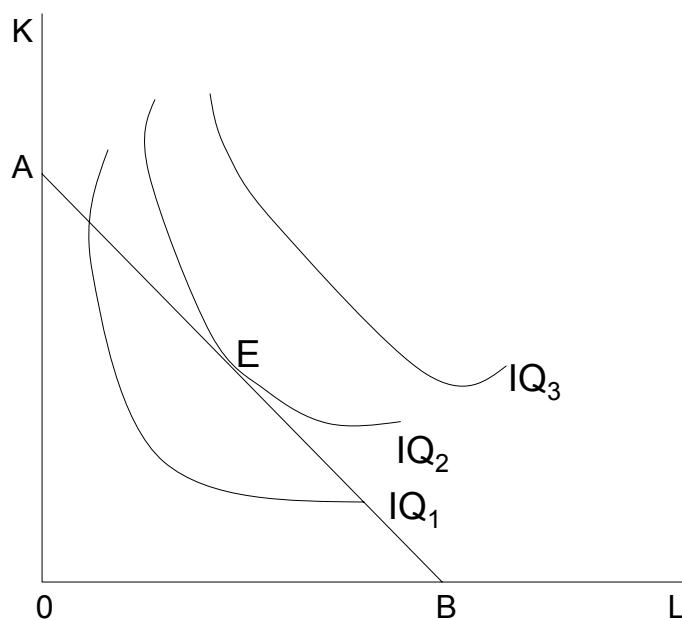


Diagram 4: Producer's equilibrium

Given the total outlay constraint AB, IQ_2 is the highest isoquant the firm can reach. IQ_3 is desirable, but not attainable with the given isocost line. Further, at IQ_1 the firm would not be maximizing output. Therefore, a rational producer who aims at maximum output with the given total outlay, would be at equilibrium at point E, where $MRTS_{L,K} = P_L/P_K$

1.4. 2 Law of variable proportions

The production function shows the maximum quantity of the output that can be produced per unit of time for each set of alternative inputs, given the best available production technology available. In the short-run, at least one factor of production remains fixed. For instance, in the case of an agricultural production function, various alternative commodities of labour or capital per unit of time may be used in relation a fixed amount of land. The total product curve increases at an increasing rate first until the point of inflection, after which

it starts increasing at a decreasing rate, reaches its maximum and then starts declining. The average product of labour (AP_L/AP_K) is then obtained from total product (TP) divided by the number of units of labour/capital used. The marginal product of labour (MP_L/MP_K) represents the change in TP per unit change in the quantity of labour/capital used. The shapes of curve determine the shape of the AP_L and MP_L curves. The AP_L , at any point on the TP_L curve is given by the slope of the straight line from the origin to that point on the TP curve. The AP curve usually first rises, reaches a maximum, and then falls, but remains positive as long as the TP is positive. The MP_L is equal to the slope of the TP curve, reflecting the change in output due to a unit change in input between the two points. The MP curve also rises first, reaches a maximum (before the AP curve reaches its maximum), and then declines. The MP becomes zero when the TP is maximum. This is the law of diminishing returns. If labour is factor input considered, the relationship between the AP_L and MP_L curves can be used to define the three stages of production. Stage I starts from the origin to the point where the AP_L is maximum. Stage II starts from the point where the AP_L is maximum to the point where the MP_L is zero. Stage III covers the area over which the MP_L is negative. A rational producer will not operate in stage III, even with free labour, because it is possible to increase total output by using less labour on the given land. Likewise, a rational producer will not operate in stage I because it corresponds to the area where full TP is still increasing with an additional unit of labour employed. Therefore, a rational producer would only operate in stage II. In stage I; $MP_2 > 0$, when TP is maximum $MP_L = 0$, and when TP falls $MP_L < 0$. This is shown by diagram-5.

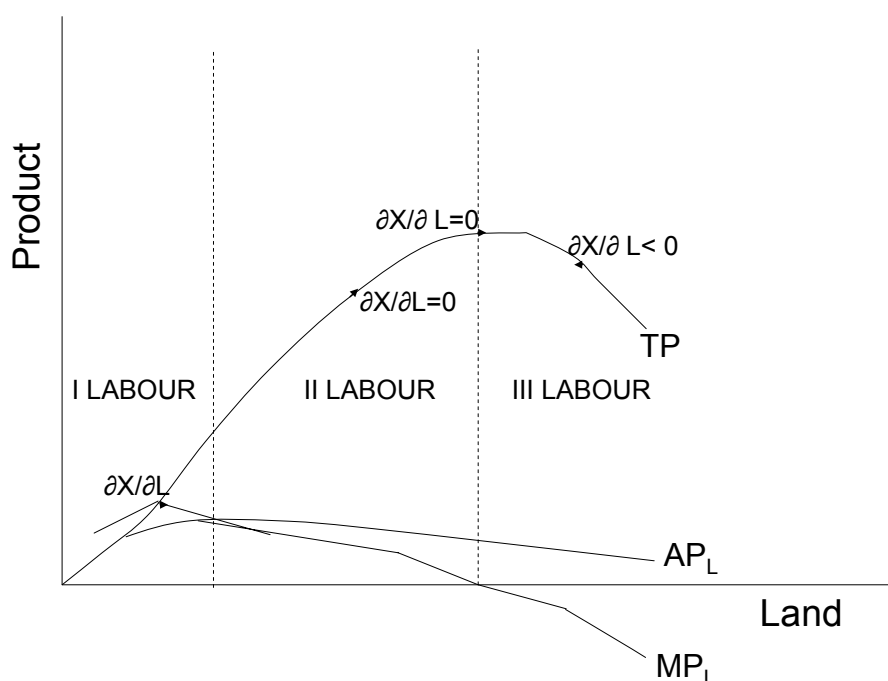


Diagram 4 : Law of Variable Proportions

1.4.3 Returns to scale

Law of returns to scale represents the long-term perspective of production analysis, when all factors of production are variable. There are three types of returns to scale.

(a) Constant returns to scale: This indicates that if all factors of production are increased in a given proportion then the output produced would also increase in exactly the same proportion. That is, if the quantities of labour or capital or both are increased by 10%, output would also increase by 10%. This is illustrated by diagram-6.

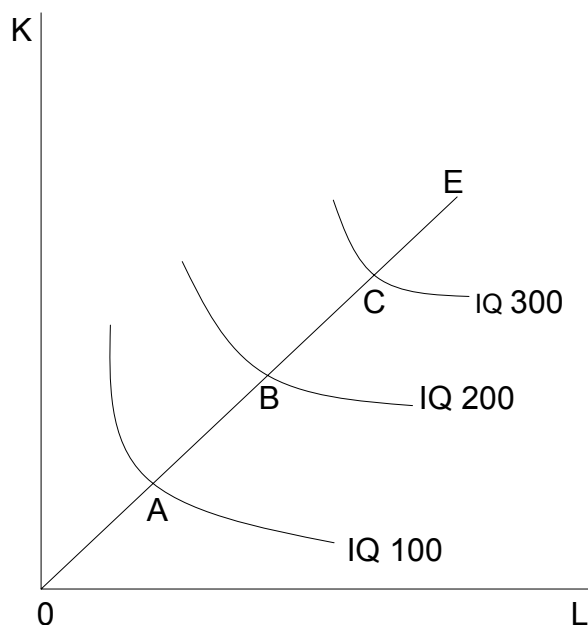


Diagram 6: Constant Returns to Scale

The equi-distance between successive isoquants along the product line reflects the phenomenon. Here, the distance $OA = AB = OC$ on the ray from the origin which is known as product line. It represents alternatives paths of increasing output by increasing combinations of factor inputs L and K, regardless of their prices.

(b) Increasing returns to scale: It indicates that when all factors are increased in a given proportion, output increases in a greater proportion. That is, if labour and capital are increased by 10%, output increases by more than 10%. Increasing returns to scale may occur because of expansion in the scale of operation, and greater productive efficiency of managers and labour due to greater specialization. This is known as economies of scale. Diagram-7 illustrates this situation.

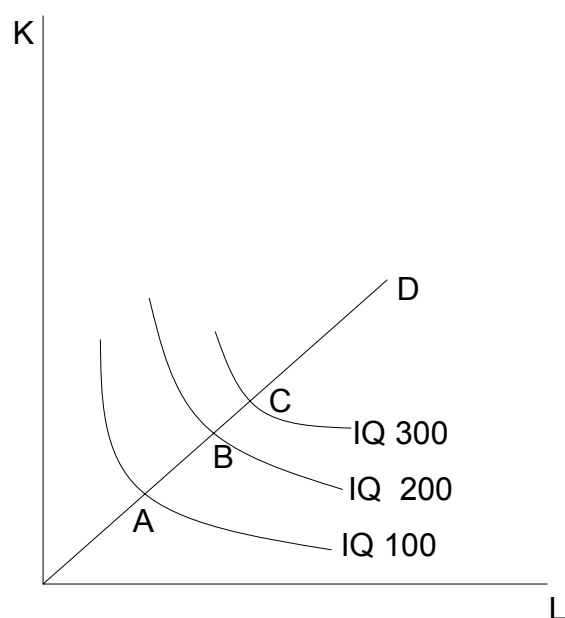


Diagram 7: Increasing Returns to Scale

In the diagram, the distance between successive isoquants goes on decreasing, indicating that larger quantities of output may be produced with smaller quantities of factor inputs. This is shown along the product line, where $OA > AB > BC$.

(c) Decreasing returns to scale: It indicates that output increases in less than proportion to the increase in factor inputs. This may be due to the scale of operation beyond the optimum plant capacity, over-utilization of machineries resulting in wear and tear and break-down leading to increased maintenance cost, overworking labour, managerial constraints in over-seeing expanded business, wastage of raw materials, etc. This is known as diseconomies of scale. Diagram-8 shows this.

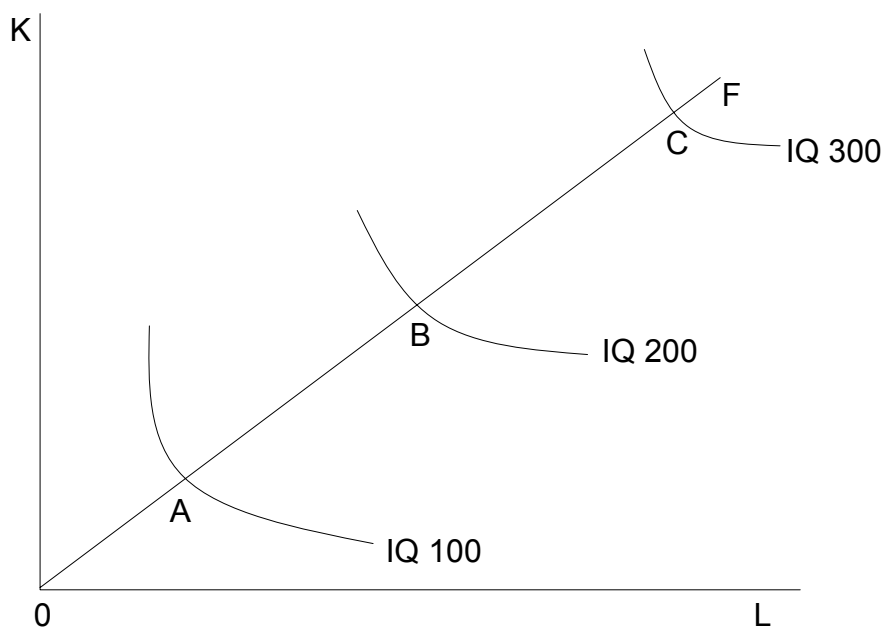


Diagram 8: Decreasing Returns to Scale

The diagram shows that the distance between the successive isoquants along the product line goes on increasing, due to increased input requirements resulting from diseconomies of scale. That is, $OA < AB < BC$.

1.5 Cost Concepts

A cost function expresses the relationship between the cost of production and levels of output. The various cost concepts are:-

(1) **Social and private costs:** Social cost of producing a commodity refers to the opportunities of producing other commodities foregone, given the scarce resources. In simple terms, it is the cost of alternative good sacrificed by a community in producing a certain amount of one good. Private costs, on the other hand, include the costs incurred by an individual firm to obtain the resources used for the production of commodity. The reduction in private cost of a product would result in the reduction in of social cost, due to the emergence of a divergence between the social and private motives.

(2) **Explicit and implicit costs:** Production of a commodity generally requires different kinds of labour and capital in many forms. Modern economists call the direct production expenses as the explicit costs of production. It includes the expenses incurred by a producer on buying the productive services owned by others. Whereas, implicit costs include the evaluation of a producer's efforts and sacrifices incurred in production process. In other words, it refers to the reward a producer would like to pay self for self-owned and self-employed resources. They include a normal return on own investment, and the opportunity cost (alternative earnings) of own labour.

(3) **Economic versus accounting costs:** Accounting cost includes the expenses incurred on production process, in addition to the wear and tear of machines and equipments, which can be translated into monetary terms. The accountant records all the explicit costs in the account book, so as to compare them with the sale proceeds in order to compute profits. Whereas, economic cost includes all the implicit and explicit costs of production. It involves the estimation of opportunity cost, which is the price a factor of production can receive in any alternative use, including the implicit costs of the factors owned by the entrepreneur.

(4) **Sunk costs:** They are the costs which cannot be recovered, and therefore, are not included in the decision making process. They include the costs of highly specialized resources or inputs, which once installed, cannot be put to any alternative use. For e.g., a big plant or machine installed by a firm which has become obsolete or inoperative due to non-availability of some parts, then the money spent on it is known as a sunk cost. It is sunk because neither can the firm use it, nor sell it, or put it to any alternative use. Hence, sunk costs have no relevance in decision making.

(5) **Fixed and variable costs:** In production process, some factors are constant in the short run, while others are variable. Fixed costs are costs which do not

vary with a change in output. The examples are interest on capital, rent on building, salaries to the staff, etc., which must be incurred, regardless of the level of output. On the other hand, variable costs change with the variations in the level of output. They include the payments made to the variable factors, such as wages paid to workers, raw materials, electricity, transportation cost, etc.,

Total cost is the sum total of fixed and variable costs.

$$\text{Total Cost} = \text{Fixed Costs} + \text{Variable Costs}$$

$$\text{or } TC = FC + VC$$

$$\text{ATC or Average Total Cost} = \frac{TC}{Q} = \frac{FC}{Q} + \frac{VC}{Q}$$

where, Q = quantity of output produced.

Thus, average cost of production is the sum total of average fixed cost and average variable cost.

In ordinary accounting statements generally only explicit or money costs incurred in production process are considered. However, for a realistic computation of costs, two additional variables must be included, viz., normal profit and implicit costs or opportunity costs (already seen). Normal profit refers to the returns which the owners expect to receive from the business done by the firm, in the absence of which they would prefer to quit. When total revenue (TR) is equal to total cost (TC), the firm earns only the expected minimum return on the capital invested, i.e. normal profit. Hence, normal profit is a part of the cost of production. When TR exceeds TC, the firm gets super normal profit, which is more than what a firm needs to remain in business. But when $TR = TC$, the firm earns only normal profit.

1.5.1 Theory of cost in the short run

Short-run is the duration of time in which some factors of production remain fixed, while other factors are variable. It is the time period during which a firm cannot vary its production capacity. This capacity is determined by the amount of fixed inputs or the size of the plant, and the costs associated with it, which must be paid by a firm regardless of the level of output. Meanwhile, the level of variable costs varies directly with the level of output. When returns to variable inputs increase at an increasing rate, variable costs would increase at a decreasing rate, and when returns to variable inputs increase at a decreasing rate, variable costs increase at an increasing rate.

Thus, while the variable cost increases directly with the level of output, but total fixed cost remains unchanged.

Diagram-9 shows the fixed, variable and total costs.

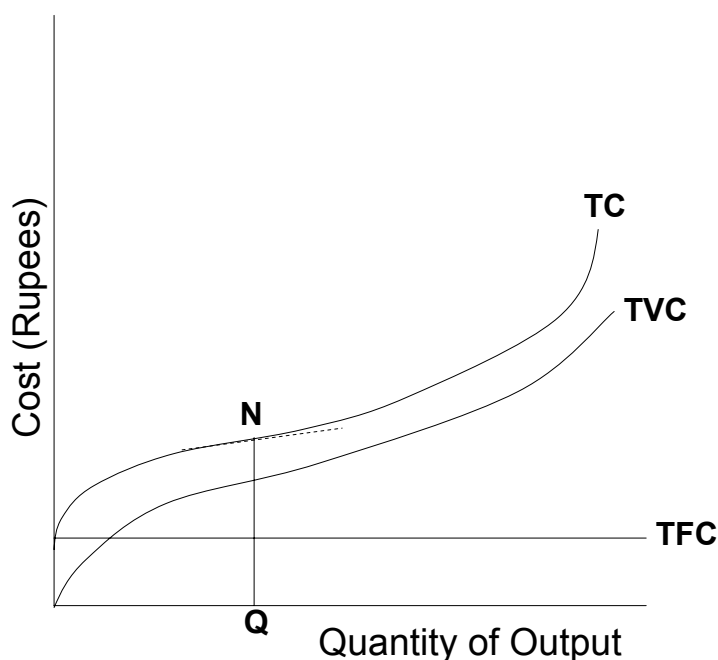


Diagram - 9 Fixed, Variable and Total Cost Curves

The diagram shows that both total variable cost (TVC) and total cost (TC) curves are increasing functions of the level of output. TVC initially increases at a decreasing rate and then at an increasing rate. However, the total fixed cost curve remains constant at all output levels. The shape of total cost curve (TC) reflects that at each level of output, total cost exceeds the variable cost. The vertical distance between TC and TVC represents total fixed cost. Initially, the distance between TC and TVC is relatively high when the proportion of fixed to total cost is high. But, as the level of output increases, fixed cost constitutes a small fraction of total cost and hence the TC converges towards TVC. This is because, with the rise in the level of output produced, the fixed cost gets distributed across larger units of output. This reduces the fixed cost per unit of output.

Total product and total variable cost: Logically, TVC is expected to be a strictly increasing function of output. Further, larger levels of output generally require greater outlays. This relationship may be expressed as follows: -

$$TVC = f(Q)$$

But,

$$Q = g(X),$$

Therefore,

$$TVC = h(X) \quad \text{---- (1)}$$

Equation (1) states that since total variable cost is a function of the level of output (Q), the output itself is a function of the level of variable input (X). Therefore, TVC is a function of variable input. However, as larger levels of Q require higher amounts of variable input, with constant price of X; this relationship can be written as follows: -

$$G(X_1) > f(X_0) \text{ if and only if } X_1 < X_0$$

Hence,

$$H(X_1) > h(X_0) \quad \text{---- (2)}$$

Equation (2) indicates that TVC will increase as the level of input use increases from X_0 to X_1 , which in turn results in an increase in output from Q to Q_1 , thus affecting TVC (Barla, 2000).

Average and marginal cost: Unit cost and the incremental cost of production can also be computed. It has been seen that total cost of production is the sum total of total fixed cost and total variable cost, i.e.,

$$TC = TFC + TVC \quad \text{----- (3)}$$

Dividing both sides of equation (3) by the quantity of output (Q) would give average cost or unit cost of production. Therefore, average cost is the sum total of average fixed cost and average variable cost. i.e.,

$$\frac{TC}{Q} = \frac{TFC}{Q} + \frac{TVC}{Q}$$

$$\text{or} \quad AC = AFC + AVC \quad \text{----- (4)}$$

As output increases, average fixed cost registers a decline. Average variable cost, average total cost and marginal cost, decline initially and then show an upward trend.

Total fixed cost divided by the quantity of output (Q) is average fixed cost (AFC).

Section A of diagram - 10 shows that, the average fixed cost has an inverse relationship with the quantity of output, such that as the output increases, AFC decreases. This makes AFC a rectangular hyperbola, because total fixed cost is divided by different levels of output. Thus,

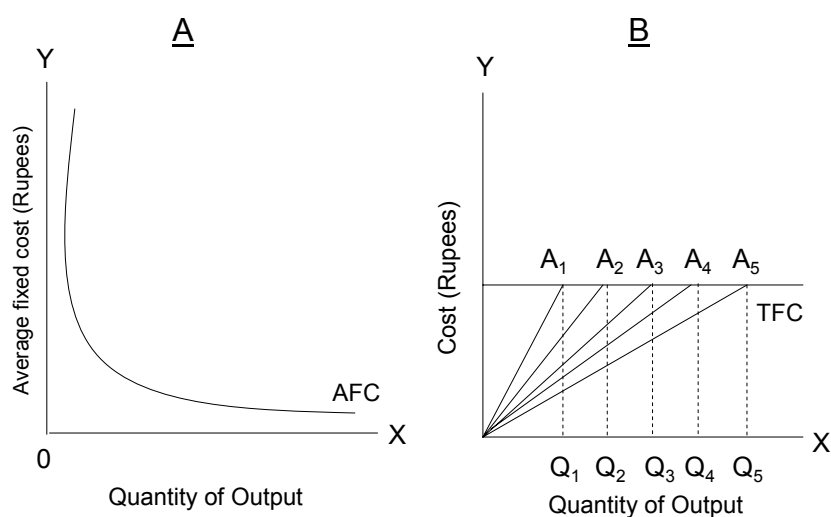
$$Q \cdot AFC = \overline{C}, \text{ a constant.}$$

That is, the area under AFC is always equal to $TFC = C$, —

The AFC curve is a rectangular hyperbola ($Q \cdot AFC = C$), which never touches the axes even if extended indefinitely upward or downward to the right. It only approaches the axes asymptotically. That is, as output increases AFC curve will approach closer to the X axis, but will never touch it because the numerator is still a positive constant. The two axes in section A of diagram - 10 represent the asymptotes of the AFC function.

Section B of diagram-10 shows the derivation of AFC from in section A. Choice of certain points on TFC and dividing the vertical distance by the corresponding quantity of output would give the slopes of different rays starting from origin and extending to the TFC. The slopes of OA_1 , OA_2 , OA_3 , OA_4 and OA_5 indicate average fixed cost at different output levels. Thus:

$$OA_1 = \frac{A_1X_1}{OQ_1} = \frac{TFC}{OQ_1}$$



Diagram–10: Derivation of Average Fixed Cost

It clearly shows that as OQ_1 increases, the slope of OA_1 declines. This illustrates the inverse relationship between AFC and the level of output (Barla 2000).

It is also possible to derive average variable cost (AVC) by measuring the slopes of different rays from the origin to the corresponding points on the TVC curve. However, analyzing the pattern of variation in AVC is more complicated as compared to the AFC, because both of these elements determine its change. Since $AVC = \frac{TVC}{Q}$, both the numerator (TVC) and the denominator (output) increase together, but not necessarily in the same proportion. The traditional AVC curve is 'U' shaped due to the operation of law of variable proportions. Decreasing costs arise due to economies of scale reaped by a firm, whereas increasing costs occur due to diseconomies of scale. Section B in diagram-11 shows TVC at different levels of output. The change in slope indicates that TVC increases at different rates at different quantities of output. For instance, for producing OQ_1 units of output, the AVC is OC_1 , which is nothing but the slope of the ray OC at A on the TVC curve.

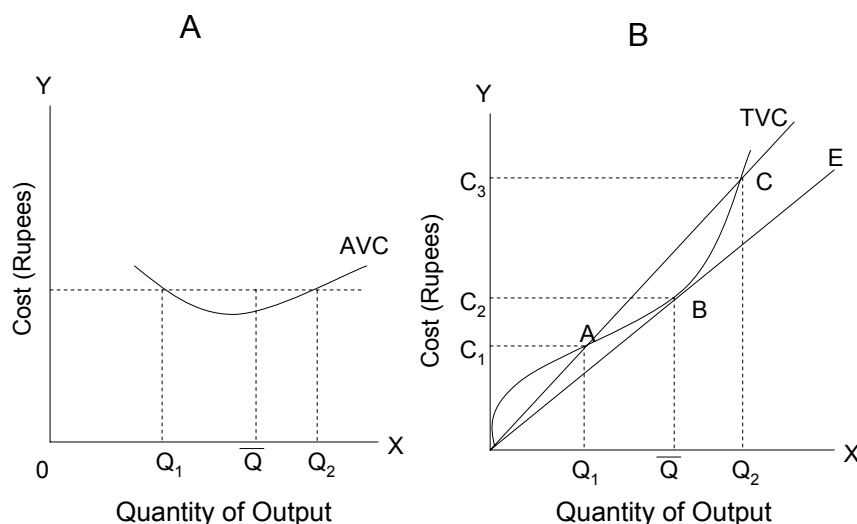


Diagram-11: Derivation of Average Variable Cost Curve

Marginal cost (MC) is the change in total cost due to an additional unit of output produced, i.e., $MC = \Delta C / \Delta Q$. Since total fixed cost remains fixed at all levels of output, the MC reflects the change in TVC only. The slope of TVC represents the marginal cost, i.e., $\Delta C / \Delta Q = MC$. The MC significantly influences the behaviour of a rational profit maximizing firm. It falls faster than the fall in AVC, becomes constant and cuts the AC and AVC at minimum and rises faster than the AVC. This is because it reflects the immediate changes in per unit cost in response to the increased in the level of output. This is the consequence of the law of variable proportions, the AC has its minimum to the right of AVC, because it combines AFC. Diagram -12 illustrates this behaviour of the MC curve.

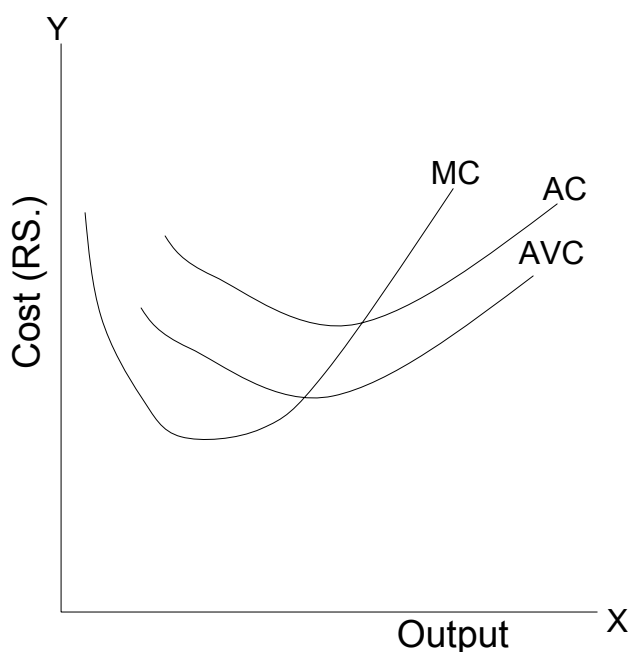


Diagram-12: Cost Curves

1.5.2 Long-run costs

Long-run is defined as the period in which all factors of production are variable. While, in the short-run some costs are fixed and others vary (variable costs), in the long-run all the costs are variable. Hence, the long run cost reflects the returns to scale. When a manager decides to increase all the factors of production, it is known as a change in the scale of a firm's operation. In response to the change in the scale, the firm may experience increasing, constant and/or diminishing returns to scale. These changes in returns may be expressed in terms of cost conditions as decreasing costs, and constant costs and/or increasing costs. This is shown by diagram – 13.

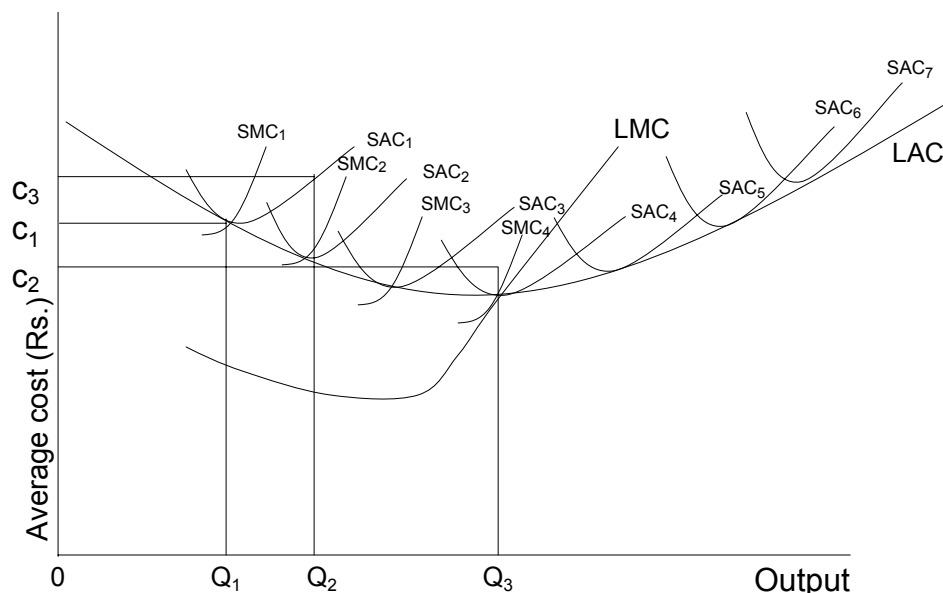


Diagram-13: Long Run Cost Curves

At the initial short-run average cost SAC_1 , the firm produces OQ_1 units of output at per unit cost OC_1 . When the manager plans to increase output to OQ_2 units, the average cost would be OC_3 on the rising part of the SAC_1 cost curve if the same plant is used. On the other hand, if an additional plant is installed, the cost would fall to OC_2 ($OC_2 < OC_1$). Thus, the installation of a new plant decreases the cost per unit of output. The diagram shows that average cost will successively fall till the installation of the fourth plant. The lowest AC level is reached at output level OQ_3 . This level is known as the optimum level of output, at which the long run average cost (LAC) is minimum and the LMC cuts it from below. Here, the long run equilibrium condition of $LAC = LMC$ and LMC cutting LAC from below have been reached. If output increases beyond OQ_3 , the LAC would rise for every additional plants installed. No rational manager would install new plant beyond it, as they wish to make atleast normal profits in the long run. The long run average cost curve (LAC) is also known as

envelope curve as it envelopes several average cost curves corresponding to different plant size. Further, it is also known as a planning curve, as it guides the manager in planning the future expansion of plant and output.

References:

Barla C.S., Managerial Economics, National Publishing House, Raipur, 2000.

Craig Petersen H., W. Cris Lewis, Managerial Economics, Prentice-Hall of India, New Delhi, 2003.

Dominick Salvatore, Theory and Problems of Micro Economic Theory, Schuam's outline series, McGraw-Hill, Inc., 1992.

Dewet K.K., Modern Economic Theory, Shyam Lal Charitable Trust, S. Chand and Company Ltd., New Delhi, 2005.

Mote V.L., Samuel Paul and G.S. Gupta, Managerial Economics Concepts and Cases, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2001.

Koutsoyiannis. A, Modern Micro Economics, Macmillan Publishers Ltd., London, 1979.

Questions:

- 1) Distinguish between micro and macro economics.
- 2) Explain the concept of managerial economics.
- 3) List the function of a manager.
- 4) Illustrate the circular flow of economic activity
- 5) State the objectives of a firm.
- 6) Explain the law of demand.
- 7) What are the determinants of demand?
- 8) How is a demand curve derived?
- 9) Define elasticity of demand. What are its types?
- 10) What is demand forecasting? Discuss its stages and significance.
- 11) Describe the techniques of demand forecasting.
- 12) What is production function?

- 13) When is producer's equilibrium achieved?
- 14) How is the law of variable proportions different from the law of returns to scale?
- 15) Distinguish between economies and diseconomies of scale.

www.FirstRanker.com

Unit – II

1. Markets
2. Classification of Markets
3. Perfect Competition
4. Monopoly
5. Price discrimination
6. Monopolistic Competition
7. Oligopoly and Duopoly
8. Wage
9. Wage Differential

OBJECTIVES

The main objectives of the chapter are:

- i) To examine the features of differential market
- ii) To identify price, output and profit determinants of various forms of market
- iii) To examine the reasons for wage differentials

I MARKETS

Meaning of market

A market is a place where commodities are bought and sold at retail or wholesale prices. In economics, however, the term “market” does not refer to a particular place as such but it refers to a market for a commodity or commodities. Thus, the market is an arrangement whereby buyers and sellers come in close contact with each other directly or indirectly; to sell and buy goods is described as market. Hence, the term “market” is used in economics in a typical and a specialized sense. They are:-

- (i) It does not refer only to a fixed location. It refers to the whole area of operation of demand and supply.
- (ii) It refers to the conditions in which transactions between buyers and sellers take place.
- (iii) A group of potential sellers and potential buyers are required at different places for creating market for a commodity.
- (iv) Markets may be physically identifiable, e.g., the cutlery market in Pondicherry situated at Jawaharlal Nehru Street.
- (v) Existence of different prices for a specific commodity means existence of different markets.

Products and factor markets

Markets may be classified into two. They are:-

- (i) Product market and
- (ii) Factor market.

(i) Product market

A 'product market' or 'commodity market' refers to an arrangement in effecting buying and selling of commodities. In fact, each commodity has its market. Thus, we speak of the cotton market, the wheat market, the rice market, etc. Markets for precious metals such as gold and silver are called the bullion exchanges or bullion markets. Markets for capital change such as government securities bonds, shares, etc., are called the Stock Exchange.

(ii) Factor market.

Factor markets are markets in which factors of production such as land, labour and capital are transacted. There are, markets called labour market, land market, and capital market. The households or the consumers are the buyers in the product markets. Their demand is the direct demand for the consumption goods.

The firms or the producers are the buyers in the factor markets. Their demand for productive resources or factors or production is a derived demand. In the product market, the commodity price of a specific commodity is determined individually in the concerned commodity market by the interaction society. Factor prices such as rent of land, wages of labour and interest for capital are determined in the factor markets as the price of each factor is determined by the interaction between its demand and supply in its respective

market. Thus, factor markets; facilitate distribution of income in the form of rents wages, interest and profits.

II CLASSIFICATION OF MARKETS

Classification of market structures

The market is a set of conditions in which buyers and sellers come in contact for the purpose of exchange. The market situations vary in their structure. Different market structures affect the behaviour of buyers and sellers. Further, different prices and trade volumes are influenced by different market structures. Again, all kinds of markets are not equally efficient in the exploitation of resources, and consumers' welfare also varies accordingly. Hence, the different aspects of the pricing process should be analysed in relation to the different types of markets.

Markets may be divided on the basis of different criteria. They are:-

- (i) geographical space or area,
- (ii) time element and
- (iii) the nature of competition.

Markets based on geographical area may be classified as:-

- (a) local markets,
 - (b) regional markets,
 - (c) national markets, and
 - (d) world markets,
- (a) Local markets:-**

Markets pertaining to local areas are called local markets. When commodities are bought and sold at one place or in one locality only, then it is known as local markets.

- (b) Regional markets:-**

Goods are sold within a particular region, is known as regional market. For example, most of the films produced in regional languages in India have their regional markets only.

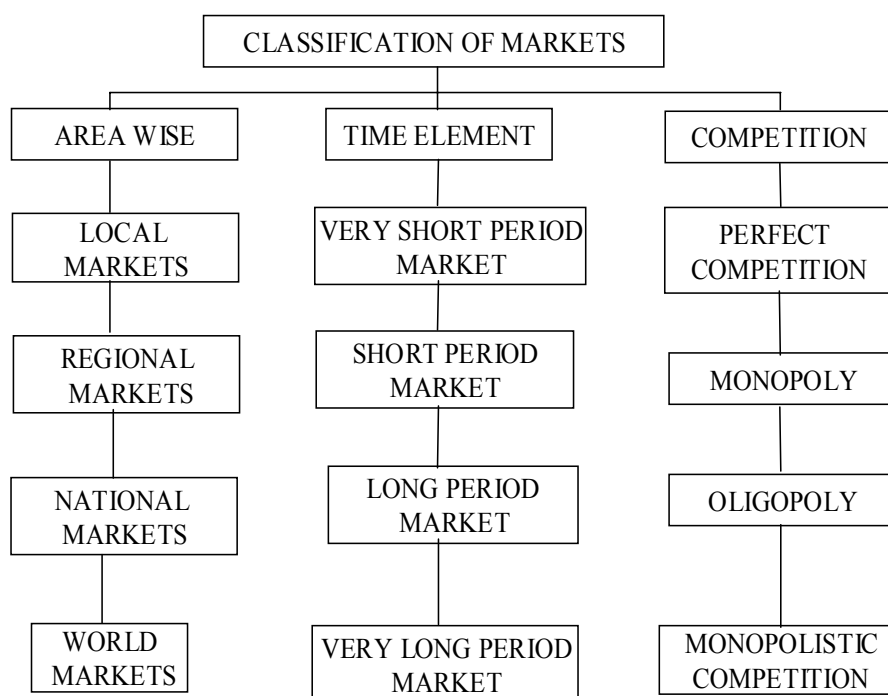
(c) National markets:-

Goods in a National market are demanded and sold on a nationwide scale. A large number of items such as TV sets, cars, scooters, fans, vanaspati ghee, cosmetic products, etc., produced by big companies have national markets. A good network of transport and communication and banking facilities are required in promoting national markets.

(d) World markets:-

In world markets goods are traded internationally. In international markets, goods are exchanged between buyers and sellers from different countries and we use the terms “exports” and “imports” of goods.

Classification of markets



Markets based on time element.

In this context, time element is used to the functional or operational time period pertaining to market forces at work. The time element may be classified as:

- (a) Very short period,
- (b) short period market,
- (c) long period market, and
- (d) Very long period market.

(a) Very short period market:-

On functional basis, the market period is regarded as a very short time period during which it is physically impossible to change the stock of a commodity even by a single unit. The basic characteristic of a very short period

market is that in this market it is not possible to make any adjustments in the supply to the changing demand conditions.

(b) Short period market:-

The market of a commodity during short period is referred to as “the short period market”. During this period, it is possible for a firm to expand output of a commodity to some extent by changing the variable inputs such as labour, raw materials, etc., under its fixed plant size. Thus, the firm is in a position to make some adjustment in the supply on the basis of changing demand conditions. Besides, the equilibrium price is established by the intersection of short period demand and short period supply.

(c) Long period market:-

The market for a commodity in the long period is referred to as “the long period market”. Here, long period is sufficient to permit changes in the scale of production to a firm by changing its plant size. Further, the firm is in a position to make better period market; the equilibrium price of a commodity is established by the interaction of long period demand and long period supply. The price in this market is normally normal.

(d) Very long period market:-

The market for a commodity in the secular time period is referred to as “the very long period market”. This period runs over a series of decades. During this period, dynamic changes take place in demand and supply conditions. There can be perfect adjustment between demand and supply in the secular period.

Type of market structures formed by the nature of competition

Traditionally the nature of competition is adopted as the fundamental criterion for distinguishing different types of market structure. The degree of competition may vary among the sellers as well as the buyers in different market situations. Usually, the market structures are classified in accordance with the nature of competition among the sellers. The nature of competition among the sellers is viewed on the basis of two major aspects: (1) the number of firms in the market; and (2) the characteristics of products, such as homogeneous or differentiated. On supply side of the market, the main types of market are:-

- (i) Perfect competition,
- (ii) Monopoly;
- (iii) Oligopoly, and
- (iv) Monopolistic competition.

III PERFECT COMPETITION

In the perfectly competitive market, a single market price prevails for the commodity, and it is determined by the forces of demand and supply in the market. Under perfect competition, every participant (whether a seller or a buyer) is a price-taker, and no one is in a position to influence it.

Characteristics of perfect competition:

The main characteristics of perfectly competitive market are:-

(a) Large number of buyers and sellers:-

A perfectly competitive market is basically formed by a large number of actual and potential buyers and sellers. Their number is sufficiently large and the size of each seller and buyer is relatively small in terms of market. So, the individual seller's buyer's and supply and demand are negligible in terms of market supply and demand. Hence, individual seller and buyer do not have a control over supply and demand of the market.

(b) Homogeneous Product:-

The commodity supplied by each firm in a perfectly competitive market is homogeneous. This means that the product of each seller is virtually standardized. Since each firm produces an identical product, their products can be readily substituted for each other. Hence, the buyer has no specific preference to buy from a particular seller and his purchase from any particular seller is a matter of chance and not of choice.

(c) Free entry and exit of firms:-

New firms are not having any legal, technological, economic, and financial or any other barrier to their entry in the industry. Similarly, existing firms are free to quit the market. Thus, the mobility of firms ensures that whenever there is scope in the business, new entry will take place and competition will remain always stiff. Due to the natural stiffness of competition, inefficient firms would have to eventually quit the industry.

(d) Perfect knowledge of market conditions:-

Perfect competition requires that all the buyers and sellers must possess perfect knowledge about the existing market conditions such as market price, quantities and sources of supply and demand. The perfect knowledge ensures transactions in a perfectly competitive market at a uniform price.

(e) Non-intervention of the Government:-

A perfect competition also implies that there is no government intervention in the working of market economy. This means that there are no tariffs, subsidies, rationing of goods, control on supply raw materials and licensing policy. Government non-intervention is essential to permit free entry of firms and for automatic adjustment of demand and supply through the market mechanism.

(f) Absence of transport costs element.

It is essential that competitive position of no firm is adversely affected by the transport cost differences. Hence, it is assumed that there is absence of transport cost as all firms are closer to the markets.

Price and Output determination under perfect competition

Price for an individual firm under perfect competition is given. It cannot influence the price by its own action. Hence, the demand curve or average revenue curve facing a firm under perfect competition is perfectly elastic at the ruling price. Perfectly competitive firm can sell as much as it wishes without affecting the price, and the marginal revenue is equal to the price (average revenue) of the commodity. So, the average revenue (or demand) curve, (AR) and marginal revenue curve (MR) must coincide with each other for a firm under perfect competition.

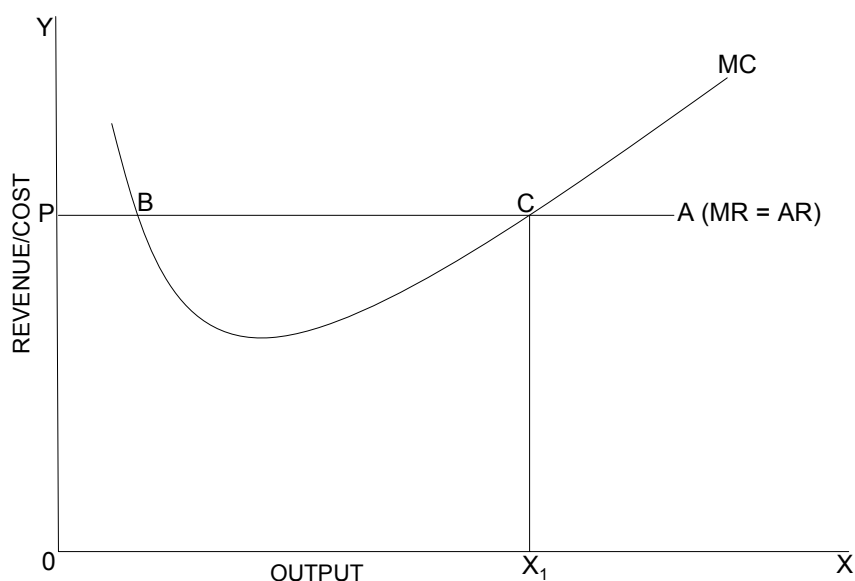


Fig. 1 Conditions of Equilibrium Under Perfect Competition

In Fig. 1 if price prevailing in the market is OP , then PA is both the average and marginal revenue curve. MC is the marginal cost curve. It may be noted that under perfect competition, a firm's upwards rising position of MC curve is also its supply curve. Given the price OP , the firm will fix its output

where its profits are maximum. Profits are the greatest at the level of output for which marginal cost is equal to marginal revenue and marginal cost curve cuts the marginal revenue curve from below. In point B MC is equal to MR but MC is cutting MR from above rather than from below. Therefore, B cannot be a position of equilibrium. At point C or output OX_1 , the marginal cost equals MR and marginal cost curve is also cutting MR curve from below. Hence, at the output OX_1 , the profits would be maximum and the firm would be in equilibrium position. Thus, the conditions of firm's equilibrium under perfect competition are: -

- (i) **MC = MR = Price**
- (ii) **MC must cut MR from below.**

Equilibrium in the Short Run

The short run has been defined as a period of time sufficient to allow the firm to adjust its output by increasing or decreasing the amount of variable input and fixed factors of production remains constant. Thus, in the short run, the size and kind of plant cannot be changed, nor can new firms enter the industry.

Assume that all firms are working under identical cost conditions to explain the equilibrium of firm under perfect competition both in the short run and long run. The entrepreneurs of all the firms are equally efficient. Further, let us assume that the factors of production used by the different firms are homogeneous and are available at given and constant prices.

The above twin conditions of equilibrium ensure that profits have been maximized or losses minimized, but they do not tell about the firm's absolute profit or loss position. Hence, there are three possibilities.

They are:-

- (a) The firm makes supernormal profits,

- (b) It makes only normal profits, and
- (c) It incurs losses.

Let us explain them one by one.

(a) When the firm makes supernormal profits in the short run:-

In Fig 2, if the price is OP_1 , the average-marginal revenue curve is P_1A_1 and the firm is in equilibrium at point C_1 of output OX_1 . The average cost is X_1G , and price is OP_1 . Hence, profit per unit is GC_1 . The output is OX_1 . Hence, the firm is making supernormal profits, and it is equal to the area P_1C_1GH . As all the firms in the industry have identical cost curves with the firm represented in Fig.2, and all would be making supernormal profits. There will be a tendency for the new firms to enter the industry and it will compete away these supernormal profits. But the time period is not sufficient for the new firms to enter, the industry and hence the existing firms will continue to earn supernormal profits at the price OP_1 in the short period.

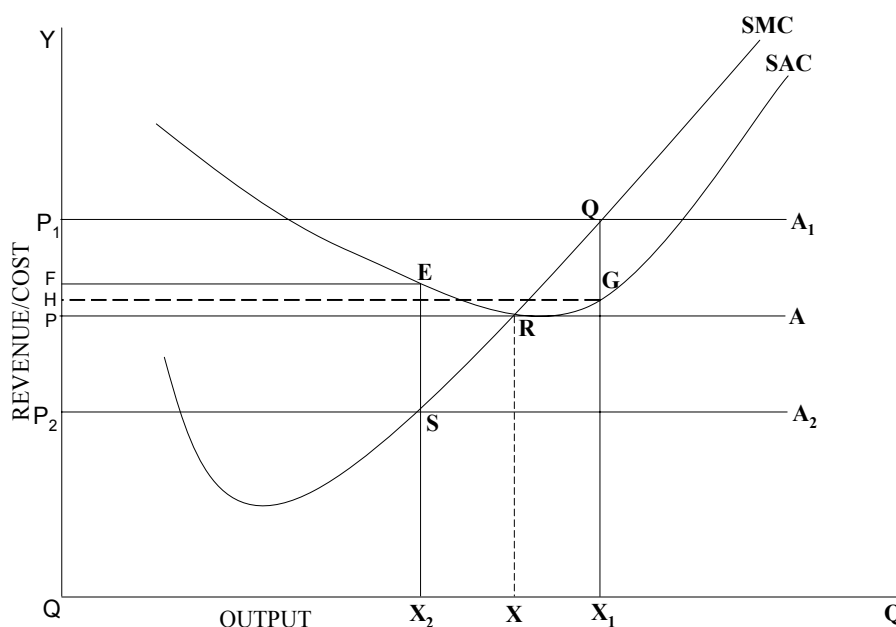


Fig.2 Firm's Equilibrium: Short Run

(b) The Firm just makes normal profit:-

Let us assume that the ruling price in the market is OP . PA will then be the average marginal revenue curve and the firm will be in equilibrium at the point R . At the point R , besides marginal cost being equal to marginal revenue and MC curve cutting MR curve from below, average revenue (or price) is also equal to average cost, and the firms in the industry will be making only normal profits which included in average cost. Since all the firms in the industry are making only normal profits, the time period is not sufficient enough either for the new firms to enter or for the existing firms to quit the industry.

(c) The Firm incurring Losses, but does not shutdown:-

If the short-run price in the market were OP_2 , instead of OP_1 and OP , the firm will be in equilibrium at point S , since with price OP_2 , only at S the marginal cost is equal to marginal revenue or price OP , and MC curve cuts MR P_2A_2 from below. But, at S or output OX_2 , the firm is incurring losses, The total losses in this situation are equal to the area P_2SEF . This is the smallest loss that a firm can incur under the given price-cost situation, if it is to produce at all. Given the price OP_2 in the market, the loss of the firm would be greater if it tries to produce at a point other than S .

The important question arises are:- Why at all should the firms continue operating if they are incurring losses ? If they cannot leave the present industry, why do they not at least shut down to avoid losses? As mentioned earlier, the short run is a period in which firms cannot alter their fixed capital equipment. Hence, they will have to bear fixed costs in the short run even if they shut down. Only variable cost can be avoided by stopping production.

Shut-down point:

The whole argument can be easily understood with the help of Fig 3, where AC and MC are average cost and marginal cost curves respectively. AVC is the average variable cost curve. If price is OP_2 , the firm is in equilibrium at point S and incurring losses to the extent of P_2SNF . Further, the firm is covering total variable cost and a part of the fixed costs, due to the fact that the price $OP_2 = M_1S$ is greater than the average variable cost M_1K at the equilibrium output OM_1 . So, in the short run, it is in the interest of the firm to keep operating at price OP_2 .

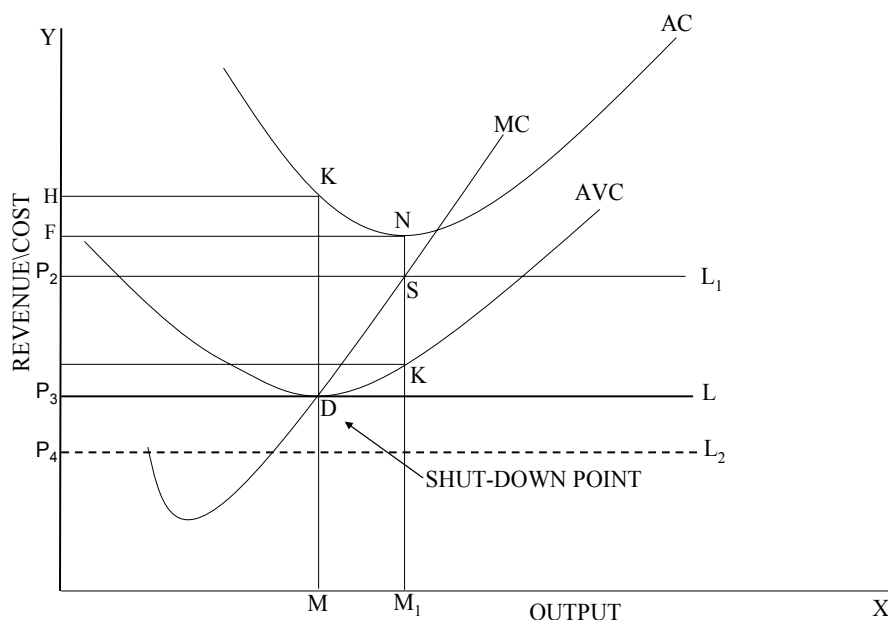


Fig.3 Equilibrium of Firm – Short Run: Shut Down Point.

But if the price is less than OP_3 or MD (i.e., if price is less than the bottom of AVC), the firm would shut down, because it would not cover even variable cost. Therefore, point D is, called the shut down point. For example, at price OP_4 , the firm would not cover even variable cost since OP_4 is less than the average variable cost at every level of output. With price OP_4 , the firm's losses would be equal to fixed costs plus a part of the variable cost not covered by the

total revenue. Hence, it can be concluded that a firm will shut down if the price falls below the bottom of average variable cost curve in the short run.

Equilibrium in the Long Run

The long run is a period which is long enough to permit changes in the variable as well as in the fixed factors of input. Hence, firms can change their output by increasing their fixed equipment. They can enlarge the old plants or replace them by new plants or add new plants. Moreover, in the long run, new firms can also enter the industry. On the contrary, if the situation so demands, in the long run, firms can diminish their fixed equipments by allowing them to wear out without replacement and the existing firms can leave the industry. So, it is the long run average and marginal cost curves are relevant for making output decisions. Further, in the long run, average cost is of no particular relevance. It is the average total cost which is of determining importance, since in the long run all costs are variable and none are fixed.

For a perfectly competitive firm to be in equilibrium in the long run, in addition to marginal cost equal to price, price must also be equal to average cost. If the price is greater than the average cost, the firms will be making supernormal profits. Lured by these supernormal profits, new firms will enter the industry and these extra profits will be competed away. When the new firms enter the industry, the supply of output of the industry will increase and hence the price of the output will be reduced. The new firms will keep coming into the industry until the price is depressed down to average cost, and all firms are earning only normal profits. On the other hand, if the price happens to be below the average cost, the firms will be incurring losses. Some of the existing firms will quit the industry. As a result, the output of the industry will decrease and the price will rise to equal the average cost so that the firms remaining in the

industry are making normal profits. Thus the following two conditions must be satisfied.

- (i) **Price = Marginal Cost**
- (ii) **Price = Average Cost.**

But if price equals both the marginal and the average costs then for the long-run equilibrium of the firm under perfect competition, we have a combined condition.

$$\text{Price} = \text{Marginal Cost} = \text{Average Cost.}$$

Now when average cost curve is falling, marginal cost curve is below it, and when average cost curve is rising, marginal cost curve must be above it. Hence, marginal cost can be equal to the average cost only at the minimum point of average cost curve. Therefore, it is at the point of minimum average cost curve that marginal cost curve intersects the average cost curve, and the two are equal.

Thus, the conditions for long-run equilibrium of perfectly competitive firm can be written as:

$$\text{Price} = \text{Marginal Cost} = \text{Minimum Average Cost.}$$

The conditions for the long-run equilibrium of the firm under perfect competition can be easily understood from the Fig 4 where LAC is the long-run average cost curve and LMC is the long-run marginal cost curve. The firm under perfect competition cannot be in long-run equilibrium at price OP1 because though the price OP1 equal MC at Q but it is greater than the average cost at this output and, therefore, the firm will be earning supernormal profits.

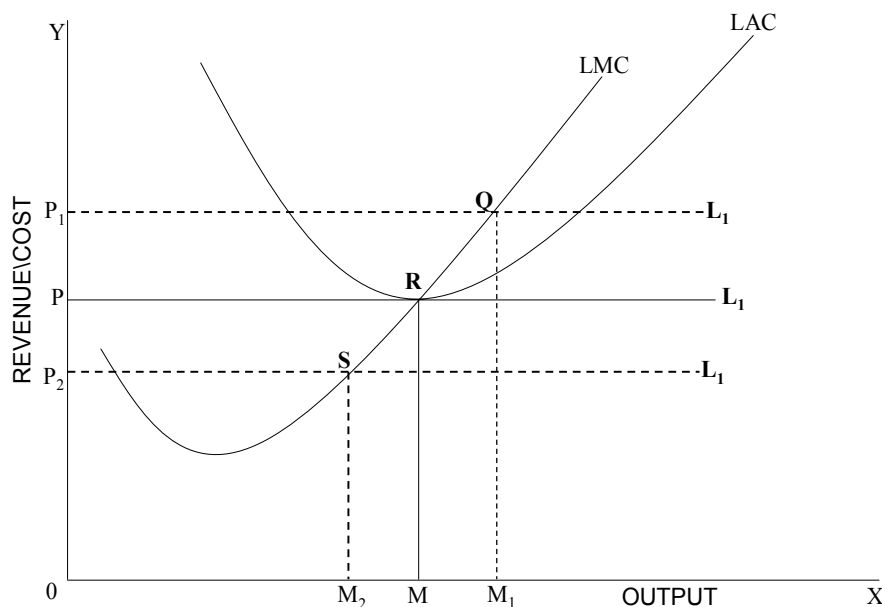


Fig. 4 Equilibrium of Firm: Long Run

Hence, there will be incentive for the new firms to enter the industry. As a result, the price will be declined to the level OP at which price, the firm is in equilibrium at R and is producing OM output. At this point, the price is equal to average cost. Hence, the firm will be earning only normal profits and there will be no tendency for the outside firms to enter. Thus, the firm will be in equilibrium at OP price and OM output.

On the contrary, a firm under perfect competition cannot be in the long-run equilibrium at price OP_2 . Though price OP_2 is equal to marginal cost at point S , or at output OM_2 but price OP_2 is lower than the average cost at this point and thus the firm will be incurring losses. To avoid these losses, some of the firms will leave the industry. As a result, the price will rise to OP , where again all firms are making normal profits. When the price OP is reached, the firms would have no further tendency to quit. Thus, the firm under perfect competition is in equilibrium in the long run when:

Price = MC = Minimum AC.

An important conclusion that follows from the above discussion of firm's equilibrium in the long run is that the forces of competition force all the firms to produce at the minimum point of the average cost curve. In other words, all the firms under perfect competition tend to be of the optimum size in the long run. This is advantageous from the viewpoint of consumers, due to the fact that the product in question is being produced in the cheapest possible manner without any firm incurring a loss.

Relevance of Pure Competition.

Pure competition is practically non-existence in the real world. However, the main importances of pure competition are:-

- (i) The study of the purely competitive is a rare phenomenon. But, there are at any time in existence certain industries which resemble a competitive model. The best example in this regard is of a contractors firm in a garment industry, where the number of firms is large, their size and capital investment is small.
- (ii) From the purely competitive model, we will be able to know how outside forces affect an industry. Agriculture is a purely competitive industry which is vitally affected by external factors.
- (iii) The study of the purely competitive market structure is helpful in understanding the imperfectly competitive model.
- (iv) Purely competitive model is a very useful starting point for economic analysis in the real world conditions.
- (v) An understanding of a purely competitive model can enable us to study the beneficial effects of increased production. We will be able to know, for instance how competition lowers prices, costs and profit margins under the impact of increased production. This is highly beneficial to the general public. Besides, we can grasp the force of anti-trust or anti-monopoly arguments and

arguments for lowering the tariff barriers, reduce import quotas and have freer international trade.

IV MONOPOLY

Price and Output Decisions under Monopoly

The type of monopolistic and monopsonistic situations may be distinguished according to the nature and extent of the deviation from the conditions of perfect competition. A useful classification can be

- (i) Monopoly and Monopsony;
- (ii) Monopolistic competition; and
- (iii) Oligopoly and oligopsony.

Main Features of Monopoly

The main features of Monopoly are:

1. There is only one seller of a particular good or service.
2. Rivalry from the producers of substitutes insignificant. This implies that the cross-elasticity of demand between the monopolists' product and any other product is low
3. The monopolist is in a position to set the price himself.

The strength of a monopolist lies in his power to raise his prices without frightening away all his customers. How much he can raise them depends on the elasticity of demand for his particular product. This, in turn, depends on the

extent to which substitutes for his products are available. And in most cases, there is rather an infinite series of closely competing substitutes. Even exclusive monopolies like railways or telephones must take account of potential competition by alternative services. An undue increase in rates may lead to substitution of railways by motor transport and of telephone calls by telegrams. The closer the substitute and the greater the elasticity, therefore, of the demand for a given manufacturing's product, the less he can raise his price without frightening away his customers. In fact, two conditions are necessary to make a monopolist strong:

- (i) A gap in the chain of substitutes, and
- (ii) Possibility of securing control over all the close substitutes. In fact, it is very difficult to draw a line between what is and what is not a monopoly.

Causes of Monopoly

Monopoly may arise due to the following reasons:

- (i) The Government may grant a license to any particular person or persons for operating public utilities like a gas company or an electricity undertaking.
- (ii) A producer may possess certain scarce raw materials, patent rights, secret methods of production, or specialized skill which might give him monopoly power. For example, Hoechst held a monopoly for some time in oral medicines for diabetes because they were the first to find out the methods of reducing blood sugar by an oral dose.

- (iii) The necessity of having large resources, as is the case where the minimum efficient scale of operations is very large, may often create monopoly. For example, it is so for making some chemicals.
- (iv) Ignorance, laziness and prejudice of the buyers may create monopoly in favor of a particular producer.

Revenue and Costs of Monopolists

Average Revenue

If a monopolist raises his price slightly, he will sell less, but there will still be some buyers of his product. He can increase his sales only by reducing his price. His average revenue (demand) curve will slope downwards to the right. It shows that larger quantities can be sold at lower prices, whereas smaller quantities can be sold at higher prices.

Price and Output determination under Monopoly

A firm buys competitively and sells monopolistically. It can choose to sell many units at a lower price or fewer units at a higher price. For maximization of profit or minimization of loss, a monopoly enterprise would curtail inputs and outputs to the level at which the marginal revenue equals the marginal cost. Then the slope of MC should be greater than slope of MR and it is presented in fig.5. In the figure equilibrium output is OQ for an equilibrium price OP. The total revenue is OPBQ ($OQ \cdot OP$) and total cost is OP₀AQ ($OQ \cdot OP_0$). Hence, the profit of a monopoly is P₀ABP ($PP_0 \cdot OQ$).

However, monopoly may get profit, loss or neither profit or nor loss in the short run. But, in the long-run he will obtain only profit, otherwise he will not continue in the firm.

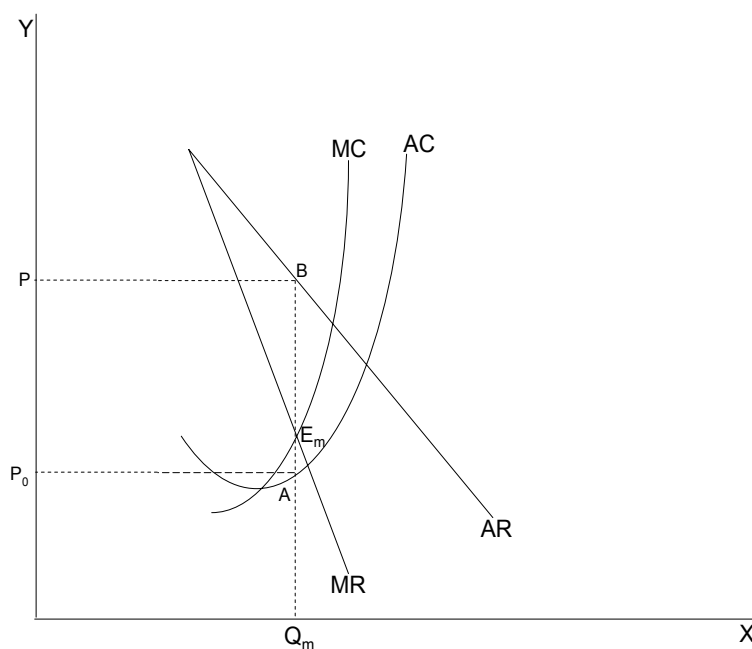


Fig 5. Price and output under Monopoly

Disadvantages of Monopoly

The main disadvantages of Monopoly are:-

- (i) When a monopolist exercises the market power by restricting supplies, he will become richer and he will do so at the expense of those who consume his producer.
- (ii) Consumer choice is restricted because in monopoly there is only one producer.
- (iii) The absence of competition means that there will be no pressure on the monopolist firms to be as economical as feasible. Wasteful costs tend to be reflected in higher prices.
- (iv) The exercise of monopoly power causes resources to be misallocated from society's point of view. As the monopolist restricts output, his output is too small. He employs too little of society's resources. As a result, too much of

these resources may go into the production of goods with low consumer preferences. Thus resources are misallocated.

(v) A firm enjoying monopoly position in a strategic sector may provide too big a risk for the economy. For example, it has been pointed out that putting all the power engineering facilities in one company, i.e., BHEL, is full of risks, as an natural or man-made causes of slow-down or stoppage of production would give severe setback to the economy.

Monopsony

Monopsony is a market situation in which there is only one buyer. The main features of monopsony are:-

1. There is only one buyer of the goods or service.
2. Rivalry from buyers who offer substitutive outlets is so remote as to be insignificant.
3. As a result, the buyers are in a position to determine the price he pays for the goods or services he buys.

V PRICE DISCRIMINATION

Price discrimination, also known as differential pricing, may be defined as the practice by a seller of charging different prices to the same buyer or to different buyers for an individual product.

The main classes of price discrimination are:-

- (i) First Degree Discrimination.** The seller charges the same buyer a different price for each unit bought. E.g., quantity discounts.
- (ii) Second Degree Discrimination.** The seller segregate buyers according to income, geographic location, individual tastes, kinds of uses for the product, and charges different prices to each group or market despite equivalent costs in serving them. As long as the demand elasticities among different buyers are

unequal, it will be profitable for the seller to group the buyers into separate classes according to elasticity, and charge each class a separate price.

Conditions for Price Discrimination.

The main conditions of Price discriminations are:-

(i) Multiple Demand Elasticity's:-

There must be difference in demand elasticities among buyers due to differences in income, location, available alternatives, tastes or other factors.

(ii) Market Segmentation:-

The seller must be able to partition (segment) the total market by segregating buyers into groups according to elasticity.

(iii) Market sealing:-

The seller must be able to prevent, or natural circumstances must exist which will prevent any significant resale of goods from the lower to the higher price sub-market.

Objectives.

The objectives of price discrimination are:

- (i) To appropriate the consumer's surplus so that it accrues to the producer rather than to the consumer.
- (ii) To dispose of occasional surplus.
- (iii) To develop a new market.
- (iv) To make the maximum use of the unutilized capacity.
- (v) To earn monopoly profits.
- (vi) To enter into or retain export markets.
- (vii) To destroy or to forestall competition or to make the competitors amenable to the wishes of the seller adopting price discrimination. It may be called predatory or discriminatory competition.

(viii) To raise future sales. This is done by quoting lower rates in the present so that people develop in future a taste for the allied commodities produced by the same manufacturer.

VI MONOPOLISTIC COMPETITION

Meaning and Nature:

Monopolistic competition refers to a market situation in which there are many producers producing goods which are close substitutes of one another. The important distinguishing characteristics of monopolistic competition are,

- (a) Product Differentiation,
- (b) existence of many firms supplying the market, and
- (c) the goods made by them are close substitutes.

Price-output Determination under Monopolistic Competition

Under monopolistic competition, different firms, produce different varieties of the product. Therefore, different prices for them will be determined in the market depending upon their respective demand and cost conditions. Each firm under monopolistic competitions seeks to achieve equilibrium or profit-maximizing position as regards (1) price and output, (2) product adjustment and (3) adjustment of selling costs. In other words, the producer, under monopolistic competition, must make optimal adjustments not only in the price charged and as regards the quantity of output sold but also in the design of the product and the way in which he promotes the sales.

Short-run Equilibrium

In the short run, the firm will be in equilibrium when it is maximizing its profit, i.e.,

- (i) Marginal Revenue = Marginal Cost, and
- (ii) Slope of marginal cost > Slope of marginal revenue.

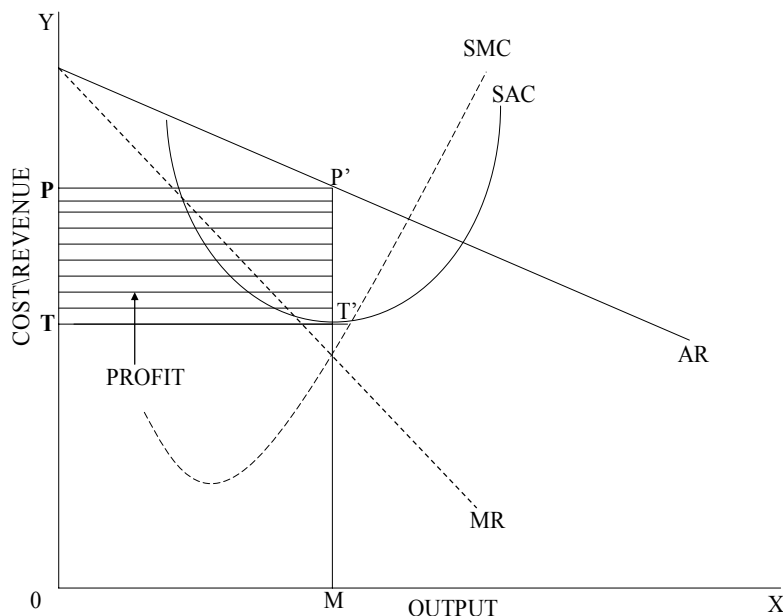


Fig. 6 Equilibrium under Monopolistic Competition:
Short-run

In the figures (6 and 7), AR is average revenue curve, MR is marginal revenue curve, SAC is the short-run average cost curve, and SMC is the short-run marginal cost curve. In these figures, marginal revenue curve (MR) and marginal cost curve (SMC) intersects each other at the output OM at which price is OP'.

In Fig. 6, the firm is earning supernormal profits. Supernormal profit per unit of output is the difference between average revenue and average cost at the equilibrium point. In this case, in equilibrium, the average revenue is MP and average cost is MT'. Therefore, PT is the supernormal profit per unit of output. Total supernormal profit will be measured by the area of the rectangle PTT'P', i.e., output multiplied by supernormal profit per unit of output.

However, if the demand and cost situation are less favorable, then the monopolistically competitive firm will be realizing losses in the short run as illustrated in Fig. 7. Here, the price is OP' ($=MP$) which is less than the average cost MT . TP is the loss per unit of the output OM ($=PP'$). Hence, the total loss is represented by the shaded area $TPP'T'$. Thus, in the short run, the monopolistically competitive firm may either realize profits or suffer losses, or neither profit nor loss. Besides, the conditions for equilibrium under monopolistic competition are:-

- (i) $MC = MR$
- (ii) Slope of $MC >$ Slope of MR

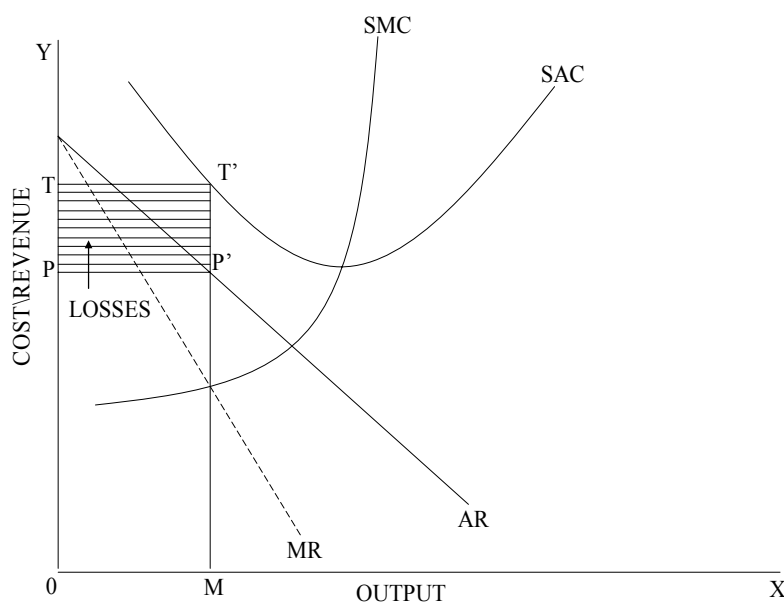


Fig. 7 Equilibrium Under Monopolistic Competition:
Short-run (with Losses)

Long-run Equilibrium of Firm and Group Equilibrium.

The firms under monopolistic competition can earn only normal profits in the long run. This is because we assume that entry is free and new firms will enter the industry, if the existing firms are making supernormal profits. As new firms enter and start production, supply will increase and the price will fall, i.e., average revenue curve faced by the firm will shift to the left, and therefore, the supernormal profits will be competed away and the firms will be earning only normal profits. In, the long run, firms which are realizing losses, will leave the industry so that the remaining firms will be earning normal profits.

Another point which is to be noted in this context is that average revenue curve in the long run will be more elastic, due to large number of available substitutes. Hence, in the long run, equilibrium is established when firms are earning only normal profits. Therefore, the equilibrium in the long run under monopolistic competition is when

Average Revenue = Average Cost.

In Fig. 8, average revenue curve (AR) is a tangent to the average cost curve (LAC) at P. Hence, the equilibrium output in the long run is OM and the corresponding price is MP. At this point, average cost and average revenue is MP. Therefore, there are only the normal profits which form part of the cost of production. Thus in the long run, the firm is in equilibrium when output is OM, and the price is MP.

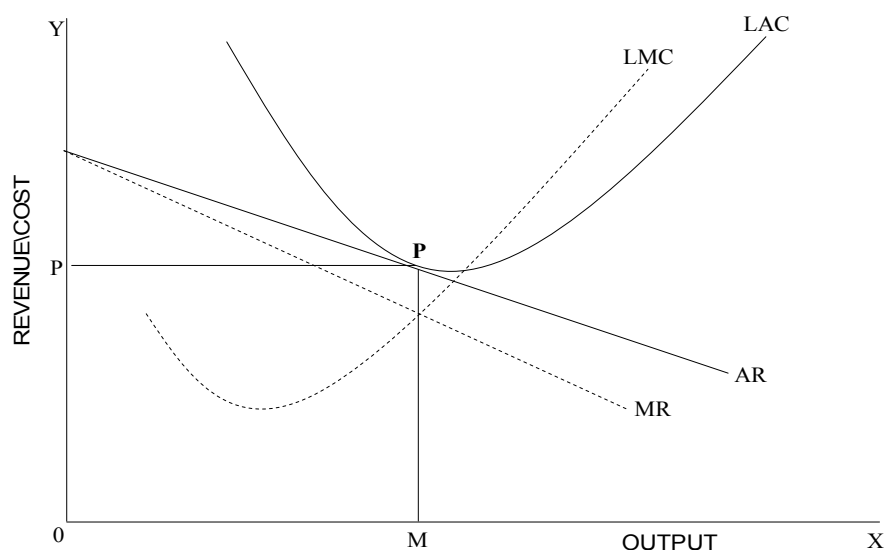


Fig. 8 Equilibrium Under Monopolistic Competition:
Long Run

VII OLIGOPOLY AND DUOPOLY

But the situation in which there are two monopolists instead of one who share the monopoly power is called Duopoly. The other is when more than two or a few sellers are found in a monopolistic position is called Oligopoly.

Important characteristics of an oligopolistic situation are:

- (a) Every seller can exercise an important influence on the price-output policies of his rivals.
- (b) Every seller is so influential that his rivals cannot ignore the likely adverse effect on them of a given change in the price-output policy of any single manufacturer.
- (c) The rival consciousness on the part of the seller of the fact of interdependence is the most important feature of oligopolistic situation.

- (d) The demand curve under oligopoly is indeterminate, due to the fact that any step taken by his rivals may change the demand curve.
- (e) The demand curve under oligopoly are more elastic than under simply monopoly and not perfectly elastic as under perfect competition.

DUOPOLY

Duopoly may be of two types:

- (a) Duopoly without product differentiation and
- (b) Duopoly with product differentiation.

Duopoly without Product Differentiation

Under duopoly the simplest cases will be those selling an identical commodity and there is no product differentiation and there will be collusion between the two. They may agree on a price assign quotas and divide the territory in which each is to market his goods.

In case, if, there is no agreement between the two, a constant price war will be the most probable consequence. The important factors to be considered in this context will be the costs and gains in driving out the rival, the relative sizes of the two firms, the demand elasticity and mobility of the purchasers, the promptitude with which the rival reacts to changes in the other's policy and the extent to which price concession can be kept secret, and so on.

Duopoly with Product Differentiation

There is no fear of immediate retaliatory measures by the rivals. If one producer changes his price-output policy, there is less danger of price-war. The firm with better products can earn supernormal profits.

KINKED DEMAND CURVE

It is impossible to find a single generalized solution to the problem of oligopoly pricing. This is because of the difficulty of knowing the exact position of the demand curve facing a firm under oligopoly. This in turn is due to the fact that the effect of a given price change by a seller on the demand for his product depends very much on the reactions of his rivals and, as we explained earlier, rival consciousness is a basic characteristic of oligopolistic situations.

The kinked demand curve is drawn on the assumption that the kink in the curve is always at the ruling price. Taking the ruling price as given, it assumes that a rise in price beyond the ruling price on the part of a given firm under oligopoly will invite retaliation from the rivals. Otherwise, they will allow him to raise his price and lose customers to his rivals. Hence, the upper part of the curve is more elastic than the lower part of the curve lying below the kink. This is because a reduction of price below the ruling price will invite immediate retaliation from the rivals who wish to protect their own sales. The result will be that it cannot push up its sales due to the fact that the rival firms also follow suit with a price cut. So, the lower part of the demand curve is less elastic than the upper one.

price. The price leader is generally a very large or a dominant firm. It often happens that price leadership is established as a result of price war in which one firm emerges as the winner.

Types of Price Leadership

There main types of price leadership are:-

- (i) Price Leadership of a Dominant Firm.** Under this type of price leadership, there is generally one firm which produces the bulk of the product of the industry. By virtue of this position, it is able to dominate the entire market. It sets the price and the other firms simply accept this price. The other firms are not in a position to exercise any influence on the market price. So, the dominant firm fixes a price so as to maximize its profits. The other firms have to adjust their output to the price so fixed by the dominant firm.
- (ii) Barometric Price Leadership.** Under this type of price leadership, an old, experienced and the largest firm assumes the role of a leader. Besides, it protects the interests of all firms instead of merely promoting its own interest. In a way it acts as the custodian of firms operating in the industry. It fixes a price which is found to be suitable for all the firms in the industry. This price is fixed by taking into consideration the market conditions with regard to the demand for the product, cost of production, competition from the rival producers, etc.
- (iii) Exploitative or Aggressive Price Leadership.** Under this category, one big firm comes to establish its supremacy in the market by following aggressive price policies. This firm compels other firms to follow it and accept the price fixed by it. In case the other firms show any independence, this firm threatens them and coerces them to follow its leadership with the result that the prices set by this firm comes to be accepted.

Price-output Determination under Price Leadership

Economists have developed various models concerning price-output determination under price leadership on the basis of certain assumptions regarding the behavior of the price leader and his followers.

We take simple case here to show price-output determination under price leadership on the following assumption:-

- (a) There are only two firms X and Y and firm X has a lower cost of production than Y,
- (b) the product of the firms is homogeneous or identical so that the consumers are indifferent as between the firms,
- (c) both X and Y have equal share in the market, and they are facing the same demand curve which will be half of the total market demand curve.

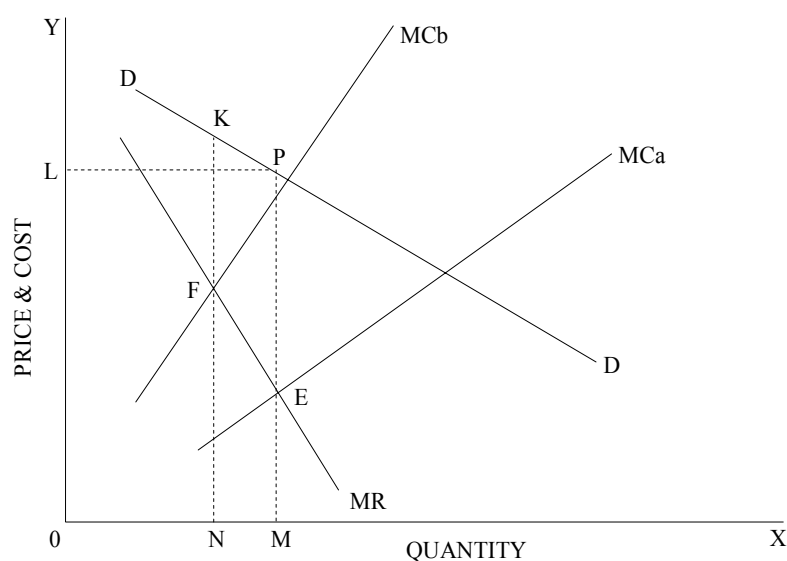


Fig. 10 Price-output Equilibrium Under Price Leadership

In figure.10, DD is the demand curve facing each firm which is half of the total demand curve for the product, MR is the marginal cost curve of firm X and MC_Y is the marginal cost curve of the firm Y. Since we have assumed that

the firm X has a lower cost of production than the firm Y, MC_X is drawn below MC_Y .

Let us take the firm X first, will be maximizing its profits by selling output OM and setting price MP, because at the output OM its marginal cost is equal to its marginal revenue. As regards the firm Y, and fixes NK price, because at this output its marginal cost is equal to its marginal revenue. It can be seen that the profit-maximizing price NK of the firm Y. The two firms will have to charge the same price since the products of the two firms have been assumed to be homogeneous. This means that the firm X, whose price MP is lower, will dictate the price to the firm Y whose profit-making price NK is higher. In case the firm Y refuses to fall in line, it can be ousted by the firm X which will be charging the lower price. This shows that thus, the firm X is the price leader and the firm Y has to follow it.

VIII WAGES

Meanings of Wages

The term, 'wages' means payments made for the services of labour. A wage may be as a sum of money paid under contract by an employer to a worker for services rendered.

Nominal Wages vs. Real Wages.

According to the classical wage theory, labour supply was considered a function of real wages. According to Keynes, the workers acted irrationally and generally bargained for money wages and they sharply reacted against any cut in money wages. That is, a rise in prices does not offend labour as much as a cut in the money wage. The money wage is also known as nominal wage. Nominal wages are wages paid in terms of money. After deflating nominal wages with the help of price index, we obtain real wages. The main factors influencing on real wages are

(i) **Purchasing Power of Money.** When comparing wages at different places and at different times, the changes in the purchasing power of money must be considered. The purchasing power of money varies inversely with the price level. This means that higher the prices, the lower the purchasing power of money, and vice versa. It is generally supposed that the prices rise faster than money wages during the times of rising prices and fall faster than money wages during the periods of falling prices. The result is that money wages decline in the former and rise in the latter case.

(ii) **Subsidiary Earnings.** In addition to the regular money wage, an employee has extra earnings in the form of money or goods. For example, free board and lodging are provided to the domestic servants. Subsidiary earnings may also arise from opportunities of employment available to other members of the worker's family.

(iii) **Extra Work without Extra Payment.** If an employee is required to do extra work without any compensation, his real wages are less by that extent. Maid servants are paid for doing their duty during working hours, but quite often they are required to work late. This means that their real earnings are reduced to that extent.

(iv) **Regularity or Irregularity of Employment.** Regular employments may give lower money wages, but the real wages may be higher than irregular and employments which give high money wages. For instance, a person with Rs. 50 daily wage but whose employment is intermittent, may not be so well off as another, who earns regularly Rs. 40 day.

(iv) **Conditions of Work.** The conditions of work such as humanistic approach sympathetic nature of an employer etc., should be taken into account in estimating a person's earnings.

(v) **Future Prospects.** A low money income will be considered a high real wage if there are good prospects of a rise in the future. On the other hand, a high initial salary may not be considered as good in the absence of prospects for a further rise.

XI WAGE DIFFERENTIALS

In the context of wage differentials we have to explain the causes of differences in wages in different employments and between different persons in the same employment or grade. Wages everywhere tend to approximate to the marginal productivity of labour. But, the marginal productivity of labour is different in different employments and grades. It varies with the degree of scarcity of each kind of labour in relation to the demand for it. If there were free mobility of labour over the whole field of employment, real wage would tend to be in proportion to the relative efficiency of labour engaged in each kind of work. Real wage (not nominal wages) of workers of the same level of efficiency would tend to be the same. If workers in one employment were getting real wages more than in proportion to their efficiency, labour would tend to move to that employment until increased supply would bring down its marginal productivity and wages. An opposite movement would take place if in an employment lower wages were paid than those justified by the relative efficiency of labour.

The main causes which create differences in wages in different employments are:-

- (i) **Difference in efficiency.** These may be due to different inborn qualities, education, training, and conditions under which work is performed. Hence, wages should vary according to efficiencies.
- (ii) **Existence of Non-competing Groups.** The non-competing groups arise due to the difficulties in the way of mobility of labour from low-paid to high-paid employments. These difficulties may be due to geographical, social or economic reasons. Besides, they may arise from lack of transport facilities, existence of family ties and caste barriers.
- (iii) **Difficulty of Learning a Trade.** The number of those who can master difficult trades is small. Their supply is inelastic less than demand for them and their wages are normally will be higher.
- (iv) **Future Prospects.** An occupation provides opportunities for future promotion, then people will accept a lower pay, as against another occupation offering higher initial rewards where chances of rise in future are less.
- (v) Hazardous and dangerous occupations generally offer higher emoluments.
- (vi) Regularity or irregularity of employment also exerts a strong influence on the level of wages.
- (vii) **Collective Bargaining.** The differences in the strength and militancy of trade unions also account for differences in wages in different industries.

Questions:-

- 1) Briefly explain the market structure?
- 2) Distinguish between perfect competition and monopoly?
- 3) What are the features of perfect competition?
- 4) Explain how price and output is decided under perfect competition?
- 5) What do you mean by Shut-down point?
- 6) How are price and output decided under monopoly?
- 7) What are the features of Monopsony?
- 8) Explain the importance of price discrimination?
- 9) What are the conditions of price discrimination?
- 10) What are the features of monopolistic competition?
- 11) How are price and output decided under monopolistic competition?
- 12) Write short note on kinked demand curve?
- 13) What are the features of oligopoly?
- 14) Distinguish between money wage and real wage?
- 15) What are the determinants of real wage?
- 16) What are the reasons for wage differential?
- 17) Write short note on price leadership?

Unit – III

LESSON OUTLINE:

1. Principles of Decision Making
2. Criteria of Profit
3. Break-Even Analysis
4. Appraising Project Profitability
5. Pay-back method
6. Accounting Rate of Return
7. Internal Rate of Return
8. Net-Value Index Method
9. Probability approach for Project Appraisal

Objectives:

The main objective of the chapter is:

- (i) To examine the principles of investment decision making, and
- (ii) To examine the various methods of project appraisal.

Lesson 1

Principles of Decision Making

A business firm is always profit motivated. Profit seeking is the main guiding force of any business undertaking. The classical economists have opined that profit maximization is the sole objective of the business firm in a capitalist economy. But, in real business, profit is not an end in itself. The survival of the business depends on the firm's ability to earn some profit so as to keep the business alive.

In this context, it is worth mentioning that the reasonable profit is the righteous reward of the entrepreneur for his entrepreneurial, organizational risk taking activity. Hence, there is a need for rational profit policy and planning for a modern business firm.

Most of the firms have many goals of primary importance other than profit. Hence, the firms are interested in putting a limit on their profits. The main reasons for limiting or controlling profits are:-

(i) Maintaining business goodwill

A policy of limiting profit may be followed by a firm in order to win appreciation of consumers and earn business reputation and maintain business goodwill in the market. By keeping a low profit margin, the firm may create a good impression on the consumers and enjoy their patronage. Thus, the firm may be in a position to maintain a stable price for its product which will definitely fetch consumer's appreciation by restricting profit margin in an inflationary situation.

(ii) Wage Consideration

Trade unions will demand high wages, if the firm maintains high profits which may inflate costs and further complicate the management of business problem. Profit control is also an important objective of running a business.

(iii) Avoiding government's Intervention

High profits may attract high taxation. Again, high profits may be taken as an index of monopoly power which may attract government's attention and investigation and its eventual control.

(iv) Minimization Risk

The risk element tends to be high under profit maximization. Hence, it is imperative not to go in for maximization of profits but be satisfied with a reasonable profitability of the business venture for minimizing risk.

(v) Reduction of Potential Competition

High profitability of the business may attract new competitors to enter the field and share the market. Only a fair profit may be earned by the concerned firm to discourage new entry in its production line.

(vi) Leadership in the Market

Firm may seek to maximize sales and capture the market rather than maximize its profits to dominate the market and acquire leadership

(vii) Enlightened Self-interest of Survival

The firm in its own interest, for survival, would limit its profits and try to see that its existence becomes permanent in the market so that it can earn a regular flow of business income in the long term. It also implies considerations to prevent loss instead of maximum return.

(viii) Liquidity Preference

In banking business greater emphasis is placed on liquidity rather than profitability. A bank arranges its assets in the ascending order of liquidity and descending order of profitability.

II CRITERIA FOR RATE OF PROFIT

Various criteria may be employed to determine the rate of return on investment and decide the most acceptable rate of profit. The main criteria of rate of profit are:-

- (i) Competitive rate of profits,
- (ii) Historical profit rate,
- (iii) Sufficient earning to protect the equity; and
- (iv) Plough back of profit rate.

(i) **Competitive Rates of Profit**

The firm in its profit policy may consider the guiding principle of the rates of profits earned by other firms in the same industry.

(ii) **Historical profit Rate**

The firm may look into its past earnings in normal times and determine the planned rate of return for the future course of operation.

(iii) **Earning required to Protect the Equity**

The rate of return on investment should adequately protect the interest of the present shareholders, so that it has no problem in raising new equity capital for further expansion.

(iv) **Plough Back of Profit Rate**

The rate of return may be such that it can adequately finance growth through internal resources.

PROFIT ELASTICITY AND OPERATING LEVERAGE.

Profit elasticity (PE) may be defined as the ratio of proportionate change in profit to the proportionate change in unit sales, symbolically:

$$PE = \frac{\% \Delta \pi}{\% \Delta Q}$$

or,

$$PE = \frac{\Delta \pi}{\Delta Q} \times \frac{Q}{\pi}$$

Where π = profit, and Q = unit sales.

Profit elasticity depends upon the following factors;

- (i) Price (P)
- (ii) Rate of Output (Q)
- (iii) Total Fixed Cost (TFC)
- (iv) Average Variable Cost (AVC)

The formula for measuring profit elasticity (PE), in this context, is:

$$PE = \frac{\lambda}{\lambda - \mu}$$

Where $\lambda = Q(P - AVC)$, $\mu = TFC$

The above mathematical formulation reveals that other thing being equal in case of two or more firms in a business; the profit elasticity and total fixed cost (μ) are directly related.

Example: The above point is explained by an example of three firms and it is given below:

Profit Elasticity		
Firm X	Firm Y	Firm Z
P = 40	P = 40	P = 40
AVC = 10	AVC = 10	AVC = 10

TFC = 6000			TFC = 8000			TFC = 10000 ($\mu = \text{TFC}$)		
Rate of output (Q)			$\lambda = Q (P - \text{AVC})$			$\text{PE} = \frac{\lambda}{\lambda - \mu}$		
Firms			Firms					
	X	Y	Z	X	Y	Z		
2000	60000	60000	60000	1.11	1.16	1.20		
4000	120000	12000	12000	1.05	1.07	1.07		

It follows that at the same rate of output, and to the profit costs, elasticity (PE) of firm Z tends to higher than that of firm Y. Similarly, the profit elasticity of firm Y tends to be higher than that of firm X. This is because the fixed costs of firm Z is greater than that of firm Y. Similarly, the fixed cost of firm Y is greater than that of firm X. Besides, with the increase in the rate of output, PE tends to diminish in all the cases and the difference in the profit elasticities among the firms also narrows down, profit elasticity is also indicative of operating leverage of the firms. The firm having larger and higher fixed costs relative to variable costs is regarded as highly leveraged. In other words, there is a direct relationship between elasticity leverage.

III Break-even Analysis

Assumptions

The main assumptions of break-even analysis are:-

1. All costs are either perfectly variable or absolutely fixed over the entire range of the volume of production.

2. All revenue is perfectly variable with the physical volume of production.
3. The volume of sales and the volume of production are equal. Everything produced is sold and there is no change in the closing inventory.
4. In the case of multi-product firms, the product-mix should be stable. For a multi-product firm, the BEP is determined by dividing total fixed costs by an average ratio of variable profit (contribution) to sales. If each product has the same contribution ratio, the BEP is unaffected by changes in the product-mix. However, if different products have different contribution ratios, a shift in the product-mix may cause a shift in the break-even point.

Break-even point is normally explained in terms of physical units because it is convenient for the single-product firm. The break-even volume is the number of units of product which must be sold to earn enough revenue just to cover fixed and variable cost. The selling price of a unit covers not only its variable cost but also keeps a margin to contribute towards the fixed costs. The break-even point is reached when sufficient number of units has been sold so that the total contribution margin of the units sold is equal to the fixed costs. The formula for calculating the Break-even point is:

$$\text{BEP} = \frac{\text{Fixed Costs}}{\text{Contribution margin per unit}} = \frac{\text{FC}}{\text{SP} - \text{VC}}$$

Where BEP = Break-even point, FC = Fixed Cost, SP = Sales price, and
 VC = Variable cost per unit.

Example: Suppose the fixed costs of a factory are Rs. 10,000 per year, the variable cost are Rs. 2 per unit and the selling price is Rs. 6 per unit. The break-even point would be:

$$\text{BEP} = \frac{\text{Rs. 10,000}}{(6 - 2)} = 2,500 \text{ units}$$

In other words, the company would not make any loss or profit at a sales volume of 2,500 units and it is shown below:

Sales		Rs. 15, 000
Cost of goods sold:		
Variable Cost @ Rs. 2.00	Rs. 5,000	
Fixed Costs	Rs. 10,000	Rs. 15,000
	-----	-----
Net profit	--	Nil
	-----	-----

Break-even point in terms of Sales Value.

Multi-product firms are not in a position to measure the break-even point in terms of any common unit of product. They find it convenient to determine their break-even point in terms of total sales in terms of monetary units. Hence, the break-even point would be the point where the contributions margin would be equal to the fixed costs. The contributions margin, however, is expressed as a ratio to sales. For example, if the sales are Rs. 600 and the variable costs of these sales is Rs. 300, the contribution margin ratio is $(600 - 300) / 600$, i.e., 0.5.

The formula for calculating the break-even point is:

$$\text{BEP} = \frac{\text{Fixed Costs}}{\text{Contribution margin per unit}}$$

Example : Calculate the break-even point from the following information

Sales	Rs. 40,000
Variable costs	Rs. 24,000
Fixed Costs	Rs. 12,000

The contribution ratio is $(40,000 - 24,000)/40,000 = 0.4$

$$\text{BEP} = \frac{\text{Fixed Costs}}{\text{Contribution margin per unit}} = \frac{12,000}{0.4} = \text{Rs. 30,000}$$

It will be clear from the following calculation that at sales valued Rs. 30,000 (BEP), there is no-profit no-loss:

Sales value		Rs. 30,000
Less: Variable costs		
(0.6*30,000)	Rs. 18,000	
Fixed costs	Rs. 12,000	
	-----	-----
Net profit	---	Nil
	-----	-----

Example : Sales were Rs. 60,000, variable cost 36,000 and Fixed cost Rs. 20,000. Find out the BEP.

Solution:

Sales:	60,000
Fixed cost:	20,000
Variable costs:	36,000
	60,000 - 36,000

$$\text{Contribution ratio} = \frac{60,000 - 36,000}{60,000} = 0.4$$

$$\begin{aligned}
 \text{BEP} &= \frac{\text{Contribution margin}}{0.4} = \frac{20,000}{0.4} = 50,000 \\
 \text{Sales} &= 50,000 \\
 \text{Less: Variable Cost} & \\
 (0.6 \times 50,000) &= 30,000 \\
 \text{Fixed Cost} &= 20,000 \\
 \text{Net Profit} & \quad \text{Nil} \quad \text{Nil}
 \end{aligned}$$

Multi-product Manufacturer and Break-even Analysis.

Most manufacturers produce more than one type of product. The determination of BEP in such cases is illustrated below:

Example : A manufacturer makes and sells tables, lamps and chairs. The cost accounting department and the sales department have supplied the following data:

Product	Selling price per unit	VC per unit	%of rupee sales volume
	Rs.	Rs.	
Tables	20	15	20
Lamps	25	20	30
Chairs	35	25	50

Capacity of the firm – Rs. 3,00,000 of the total sales value.

Annual fixed cost – Rs. 20,000

Calculate (1) BEP, and (2) Profit if firm works is at 80 per cent of capacity.

Solution:

The contribution towards fixed costs in each case is:

Tables	Rs. 5
Lamps	Rs. 5
Chairs	Rs. 10

Now, these contributions are to be converted into percentage of selling prices, the formula being:

$$\text{Contribution percentage} = \frac{\text{Selling} - \text{VC} \times 100}{\text{Selling Price}}$$

Thus, the contribution percentage for individual items is:

$$\text{Table} - \frac{20 - 15}{20} \times 100 = \frac{5}{20} \times 100 = 25 \text{ per cent}$$

$$\text{Lamp} - \frac{25 - 20}{25} \times 100 = \frac{5}{25} \times 100 = 20 \text{ per cent}$$

$$\text{Chair} - \frac{35 - 25}{35} \times 100 = \frac{10}{35} \times 100 = 28.57 \text{ per cent}$$

Now, we multiply the contribution percentage of each of the products by the percentage of sales volume for that particular product and add the figure and it gives the total contribution per rupee of sales volume for table, lamps and chairs:

	Contribution		% of Sales
Tables	25.00%	*	20% = 5.00%
Lamps	20.00%	*	30% = 6.00%
Chairs	28.57%	*	50% = 14.28%

			24.28% or say 25%

This 25 per cent is the total contribution per rupee of overall sales given the present product sales mix.

(1) BEP:- The BEP of the firm may now be calculated as under:

$$\text{BEP} = \frac{\text{Fixed Costs}}{\text{Contribution ratio}} = \frac{20,000}{25\%}$$

(2) Profit:- Calculation of profit or loss at various volumes can also be made easily. If the firm produces at 80 per cent of capacity (assuming the same product mix), the profit will be calculated as under:

$$\begin{aligned} \text{Profit} &= \text{Total Revenue} - \text{Total Costs} \\ &= 80\% \text{ of } (3,00,000) - \text{Fixed costs} - \text{Variable costs} \\ &= 2,40,000 - 20,000 - 75\% \text{ of } (3,00,000) \\ &= 2,40,000 - 20,000 - 1,25,000 = \text{Rs. } 5,000 \text{ (loss).} \end{aligned}$$

Break-even Charts

A break-even chart is given in Fig. A. Units of product are shown on horizontal axis OX and revenues and costs are shown on the vertical axis OY. The fixed costs is represented by

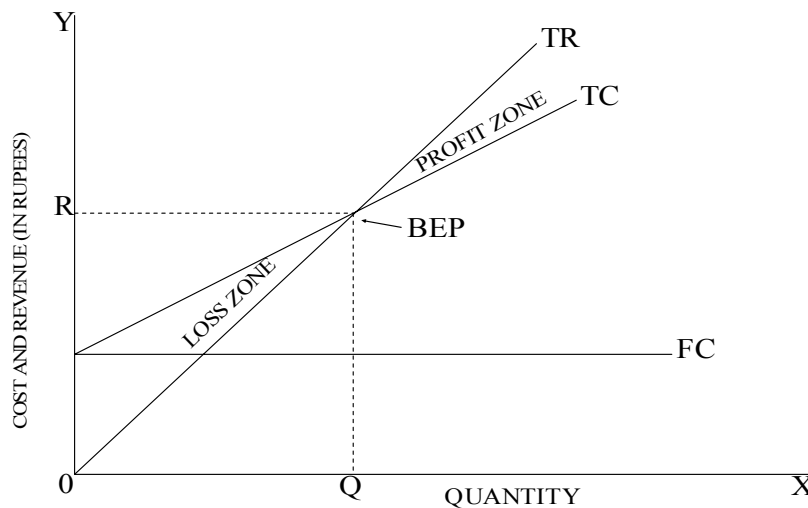


Fig A. Break – Even diagram

a straight line parallel to the horizontal axis. Variable costs are then plotted over and above the fixed costs. The resultant line is the total cost line, combining both variable cost lines in a graph; variable costs are represented by the vertical distance between the fixed cost and the total cost lines.

The break-even point corresponds to the point of intersection of the total revenue and the total cost lines. Projecting a perpendicular from the BEP to the horizontal axis shows the break-even point in units of the product. Dropping a perpendicular from BEP to the vertical axis shows the break-even sales value in rupees. Below the BEP, total costs are more than total revenue and the firm would suffer a loss. Above the BEP, total revenue exceeds total costs and the firm would be making profits. Since profit or loss occurs between cost and revenue lines, the space between them is known as the profit zone and the loss zone respectively.

Managerial Uses of Break-even Analysis.

The main managerial uses of break-even analysis are:-

- (i) It presents a microscopic picture of the profit structure of a business enterprise.
- (ii) It sharpens the focus on certain leverages which can be operated upon to enhance its profitability.
- (iii) It is possible for the management to examine the profit vulnerability of a business firm to the possible changes in business
- (iv) The analysis is immensely useful for sales prospects, changes in cost structure, etc.
- (v) It is possible to devise managerial actions to maintain and enhance profitability of the firm.
- (vi) The break-even analysis can be used for the following purposes:

(v)(a) **Safety Margin:** The break-even chart can help the management to know at a glance the profits generated at the various levels of sales. The safety margin refers to the extent to which the firm can afford a decline in sales before it starts incurring losses. The formula for calculation of safety margin is:

$$\text{Safety Margin} = \frac{(\text{Sales} - \text{BEP}) * 100}{\text{Sales}}$$

Examples : Assume that our sales are 8,000 units and Break-even point is 6,000 units.

$$\text{Safety Margin} = \frac{(8,000 - 6,000) * 100}{8,000} = 25$$

This means that, we can afford to lose sales up to 25 per cent of the present level before incurring a loss. If the safety margin is dropping over a period of time, it would mean that the firm's resistance capacity to avoid losses has become poorer. A margin of safety can be negative as well. In that case, it reveals the percentage increase in sales necessary to reach the Break-even point so as to least to avoid losses. Thus, it reveals the minimum extent of sales effort expected of the management. Suppose in our example, sales are as low as 5,000 units. The safety margin would be:

$$\text{Safety Margin} = \frac{(5,000 - 6,000) * 100}{5,000} = -20\%$$

In other words, the management must strive to increase sales at least by 20 per cent to avoid losses.

(v)(b) **Volume Needed to Attain Target Profit.** Break-even analysis may be utilized for the purpose of determining the volume of sales necessary to achieve a target profit. The formula is:

$$\text{Target sales volume} = \frac{\text{Fixed costs} + \text{Target profit}}{\text{Contribution margin per unit}}$$

Example: Let desired profit is Rs. 6,000, fixed cost is Rs. 6,000 and contribution margin is Rs. 5 per unit then the target sales volume would be calculated as follows:

$$\frac{6,000 + 6,000}{5} = 2,400 \text{ units}$$

(v)(c) **Change in Price.** The management is often faced with a problem whether to reduce prices or not? Before taking a decision on this question the management will have to consider a number of points. A reduction in price leads to a reduction in the contribution margin. This means that the volume of sales will have to be increased even to maintain the previous level of profit. The higher the reduction in the contribution margin, the higher is the increase in sales needed to ensure the previous profit. The formula for determining the new volume of sales to maintain the same profit, during the reduction in price is given below:

$$NVS = \frac{FC + P}{SP_n - VC}$$

Where NVS = New Volume of Sales, FC = Fixed Cost, P = Profit,

SP_n = New Selling Price, and VC = Variable Cost per unit.

Example : Let Fixed cost = Rs. 10,000, Profit = Rs. 6,000, Variable cost per unit = Rs. 2, Price reduced from Rs. 400 to Rs. 300 the new sales volume needed to maintain the previous profit of Rs. 6,000 would be

$$= \frac{10,000 + 6,000}{4.00 - 3.00} = \frac{16,000}{1.00} = 16,000 \text{ units}$$

This would mean an increase of 11,000 units. The management can easily decide whether this increase is feasible or not.

(v)(d) **Change in Costs**

A. If Variable Costs Changes. An increase in variable costs leads to a reduction in the contribution margin. The formulae to determine the new quantity, is given below:

- (1) the new quantity will be

$$NQ_n = \frac{FC + P}{SP - VC_n}$$

- (2) The new selling price will be

$$NSP = SP + (VC_n - VC) \quad \text{Where, } NQ_n = \text{New Quantity,}$$

$$FC = \text{Fixed Cost, } SP = \text{Selling Price,}$$

NSP= New Selling Price, VC = Variable Cost, and P= Profit.

If variable cost increases from Rs. 2 to Rs. 3.50 per unit, and price is Rs. 4.00, then

$$Q_n = \frac{10,000 + 6,000}{4 - 3.50} = \frac{16,000}{0.5} = 32,000 \text{ units}$$

Limitations

The main limitations of break-even analysis are:-

- (i) A basic assumption in break-even analysis is that the cost-revenue-volume relationship is linear and it is highly restricted.
- (ii) Break-even analysis is not an effective tool for long-range use and its use should be restricted to the short run only. The break-even analysis is limited to the budget period of the firm normally it will be a year.
- (iii) Break-even analysis assumes that profits are a function of output ignoring the patent fact that they are also caused by other factors such as

technological change, improved management, changes in the scale of the fixed factors of production, and so on.

(iv) A straight-line total revenue curve presumes that any quantity might be sold at one price. This implies a horizontal demand curve and can be true only under conditions of perfect competition. This situation is very rare in the present world.

(v) Selling costs are difficult to handle in break-even analysis. This is due to the fact that changes in selling costs are a cause and not a result of changes in output and sales.

(vi) Costs in a particular period may not be caused entirely by the output in that period. For example, maintenance expenses may be the result of past output or a preparation for future output. So, it may, be difficult to attribute them to a particular period.

(vii) Break-even analysis is static in character. It is based on the assumption of given relationship between costs and revenues. Costs and revenue, may change over time. So, making the projection based on past data is highly limited in its use

(viii) Break-even analysis is based on accounting data, and it may suffer from number of limitations of such data, neglect of imputed costs, arbitrary depreciation estimates, and inappropriate allocation of overhead costs. Hence, Break-even analysis, useful only if the firm in question maintains a good accounting system and uses proper managerial accounting techniques and procedures.

In view of the foregoing limitations, doubts have sometimes been raised about the utility of break-even analysis unless it is made complex. The truth, however, remains that break-even analysis is a device, simple, easy to understand and inexpensive and hence quite useful to management whose primary concern is to cut through the complexity of real world and focus attention on basic relationships. Of course, its usefulness varies from industry to industry. Industries suffering from frequent, volatile product-mix will not benefit much from break-even analysis. Finally, break-even analysis should be viewed as a guide to decision-making and not as a substitute for judgment, logical thinking or commonsense.

IV APPRAISING PROJECT PROFITABILITY

Methods of appraising profitability

For examining the various projects under consideration, we should know some basic information about the alternative project proposals like the initial investment, the economic life, the scrap value, if any, the annual earnings and the cash flow. Besides, we should consider the following factors for evaluating a project proposal.

- (i) The timing of the proceeds over the economic life of the investment proposal, and
- (ii) The duration of the proceeds: Larger the duration proceeds larger the benefit. However, the future stream of income should be discounted

The various methods of evaluating the relative profitability of the alternative investment projects are:

1. Pay-back Method,

2. Accounting Rate of Return,
3. Internal Rate of Return and
4. Net Present Value Index Method.

It may be noted that the pay-back period does not reveal anything about the rates of return of different projects. The accounting Method and the Internal Rate of return Method spells out relative rates of return of different projects. Besides, the former method does not consider the time value of money, and the latter consider the time value of money. Under the Net Present Value Index Method, we proceed with our cost of capital as the base for calculating the relative profitability of the projects. Further, the net present value method, we also consider the time value of money.

The pay-back Method and the Accounting Method are considered as traditional methods of investment appraisal as they are very commonly used. The Discounted Cash Flow Method or the Internal Rate of Return and the Net Present Value Index Method are the modern techniques as the development and use of discounting methods is relatively new.

For purposes of illustration, we assume that there are five alternative proposals under consideration. The details about the proposals are given in the following table. We will examine the proposals while discussing the criteria of project appraisal..

Proposals	Initial Investment	Annual Cash Flow	Life in Year
	Rs.	Rs.	
A	72,000	12,000	15
B	88,000	22,000	22
C	3,000	1,500	3
D	22,500	4,500	10

E	4,25,000	2,22,5000	20
---	----------	-----------	----

The relevant cost of capital is 10 per cent

V Pay-back Method

Pay-back method is one of the rules of thumb to decide about the desirability of a particular proposal. The pay-back period is the length of time required for the initial investment to be recouped out of the annual cash flow produced by the investment. It indicates only the number of years to recover the initial investment. The method of calculating the pay-back period is:

Initial Investment

Pay-back method = -----

Annual cash flow

There is an inverse relationship between the Pay-back period and viability of a project. This means that larger the pay-back period of project lesser the chance of acceptability of a project for investment and vice-versa.

If the cash flow is not uniform over the years, we will find out the cumulative cash flow. When the cumulative cash flow is equal to the initial investment, we get the pay-back period.

The pay-back period of the various proposals in our example would be:

Proposal	Initial Investment/Annual Cash Flow			Rank
A	72,000/12,000	= 6	years	5
B	88,000/22,000	= 4	years	3
C	3,000 / 1,500	= 2	years	2

D	$22,500 / 4,500$	$= 5$	years	4
E	$4,25,000 / 2,25,000$	$= 1.9$	years	1

Depends upon the availability of investment and quick return, we can select the project. The project ranked based on the pay-back method is E, C, B, D and A.

The pay-back method emphasizes the quick cash return flow. This concept is particularly useful on the condition that liquidity is an important consideration.

Advantages:

The main advantages of the pay-back method are:

- (i) Pay-back method is extremely simple to apply and easy to understand.
- (ii) The company can judge the length of time its funds will be tied up and the risk involved in the various projects. This method takes care of the conditions of high uncertainty in evaluating project.
- (iii) Pay-back method is especially useful in industries subject to rapid technological advances, where the plant becomes obsolete before the end of its physical life.
- (iv) In a period of tight money when funds are difficult to get, a quick pay-back project may be preferred to one which may yield a higher rate of return, yet commit funds for a longer period.

Limitations:

The main limitations of the pay-back method are:-

- (i) Pay-back method over-emphasizes liquidity. Highly profitable projects do not necessarily pay off in the initial years although large gains may occur later.
- (ii) It does little justice to a project with a long gestation period.
- (iii) It also ignores long term prospects of growth.
- (iv) It does not measure the rate of return.
- (v) This method fails to take into account the earnings of the project after the pay back period.
- (vi) It ignores completely the time value of the money received during and after the pay back period.

However, the pay-back method is the most widely used method for ranking investment proposals. This is mainly due to the following reasons:

- (i) In general, when the life of a project is greater than twice the pay-back period, the reciprocal of the pay-back period is a close estimate of the true rate of return.
- (ii) Professional manager, normally employ pay-back periods as a means to demonstrate their ability to generate a quick profit. Hence, pay-back method is suitable to them.

- (iii) Pay-back period acts as a hedge against a poor decision.

VI Accounting Rate of Return.

Accounting Rate of Return Method is also known as the Financial Statement Method. This method aims at providing us with an estimate of the rate of return. Under this method, capital employed and related income are determined by following the principles and practices employed in accounting. The formula for calculating the rate of return under this method is:-

$$\text{ARR} = \frac{\text{Estimated Net Profit X 100}}{\text{Capital Employed}}$$

However, there is a diversity of practice in measuring the amount of capital employed. Some firms compute this rate of return on the initial amount invested; others, on the average amount invested over the life of the project. The initial investment is simply the amount of cash outlay necessary at the outset in order to make the investment. The average investment may be calculated in this manner:

$$\frac{\text{Initial investment} + \text{Scrap value}}{2}$$

Average investments assume regular periodic recovery of capital over the life projects under consideration. In our example, we have only the cash inflow. But for calculating the rate of return under the accounting method, we must know the net profits. This we can find by subtracting the annual depreciation from the annual cash flow.

Proposal	Initial Invest- -ment Rs.	Annual Cash Flows Rs.	Life in Years	Annual Depreci- -ation Rs.	Net Profits Rs.	Rate of Return %
A	72,000	12,000	15	4,000	8,000	11.10
B	88,000	22,000	22	6,000	16,000	18.80
C	3,000	1,500	3	500	1,000	33.33
D	22,500	4,500	10	2,000	2,500	11.10
E	4,25,000	2,25,000	20	25,000	2,00,000	47.10

Here, higher the rate of return higher the viability of a project. Hence, in the above example the projects are selected in the order of E, C, B, A and D.

Limitations:

The main limitations of the accounting method are:

- It does not take into account the time value of money. It gives the same weight to the money received now and the money to be receipts in the first year.
- The expected profit is unlikely to be the same every year. The use of profit in a typical year or of the average profit per year is likely to be misleading because both ignore the year-by-year pattern of profits.
- No specific account is taken of the earning life of the project.

VII Internal Rate of Return or Discounted Cash Flow Method.

The basic assumption of Discounted Cash Flow Method is that the same amount of money received today is more valuable than the one received after a year and so on. The reason for this lie in the fact that the money received today can be invested to earn a certain amount of interest. So, a claim to receive Rs.1000 one year hence is not equivalent to Rs.1000 received today. The

present value of Rs.1000 to be received after one year is only Rs.941.8 if the rate of interest is 6 per cent. Thus, the present value of future cash flows is less than their face value. The later the payment is due, the lower is the present value. This approach is neglected by the pay-back method and by the accounting method.

The process of adjusting the face value of future cash flows to their present value by means of an imputed interest rate is called discounting. This imputed interest rate will be the rate of return and the rate of return calculation normally consider, the time value of money and it is called the discounted cash flow method.

There can be two possibilities in respect of computation of internal rate of return they are:-

- (i) The annual cash flows may be uniform over the years, and
- (ii) They may be irregular or unequal.

(i) When the cash flow is uniform. The computation will involve two steps:

1. Calculate the P Ratio =
$$\frac{\text{Initial Investment}}{\text{Annual Cash Flow}}$$
2. In the Present Value Table showing the present value of an annuity of Re.1, read against the number of years of the asset's useful life up to the interest rate column in which the computed P ratio is located.

For example:

Proposal	Initial Investment	Annual Cash flow	Life in year	P Ratio	Expected Rate of Return
A	50,000	5,000	15	5.0	Between 15 and 20% (18.97%)
B	76,000	20,000	10	3.8	Between 25 and 30% (23.56%)

C	1,400	1,000	4	1.4	Over 40% (52.50%)
D	46,000	10,000	8	4.6	Between 15 and 20% (18.64%)
E	1,90,000	1,00,000	20	1.9	Over 40% (53.00%)

An example as to how to arrive at the rate of interest may be given here. For proposal A, the life is 15 years. Reading against 15 years, to locate the P Ratio, we find that the required P Ratio, of 5.00 lies between 15 per cent (5.938) and 20 per cent (4.7509). The rate can be interpolated but it would be nearer 20 than 15.

The interpolation will be done by the following formula:

$$r = r_2 - \frac{p - p_2}{p_1 - p_2} \times (r_2 - r_1)$$

or

$$r = r_1 + \frac{p_1 - p}{p_1 - p_2} \times (r_2 - r_1)$$

where p = rate of return to be determined by interpolation, r_1 = lower rate of return, r_2 = higher rate of return, p_1 = the P ratio at the low rate of return, p_2 = the P ratio at the higher rate of return, and v = The P ratio for which r is to be interpolated

Applying the formula, we get

$$r = 20 - \frac{5 - 4.7509}{5.9638 - 4.7509} \times (20 - 15)$$

$$r = 20 - \frac{0.2491 \times 5}{1.2129} = 20 - 1.03 = 18.97$$

The figures in brackets shown against the various proposals in the table above give interpolated rates of return

For long-life projects, with constant cash flows, the pay-back reciprocal provides a close approximation of the rate of return calculated by the discounted cash flow method. Taking proposal A, the reciprocal of the pay-back period is $1/5$ which comes to 20 per cent meaning thereby, that the approximate rate of return on this project is 20 per cent. This is very near the rate we calculated above.

(ii) When the Cash Flows are Unequal. Let us assume than an investment of Rs.1,55,000 which has a useful life of 5 years (with no scrap value) has the following cash inflows:

1 st year	Rs. 30,000,	2 nd year	Rs. 40,000,	3 rd year	Rs. 60,000
4 th year	Rs. 50,000,	5 th year	Rs. 40,000		

We have to calculate the rate of return through a trial-and error approach. Accordingly, we must start by guessing at a rate interest which will discount the future cash flows so that the total of the present values of all cash inflows proves to be equal to the initial investment. The rate, which equates the two figures, is the sought-for rate of return. Very often, several guesses will have to be made before we are able to arrive at the desired rate. Let us begin with an interest rate of 15 per cent. In this case, we have to consult Table1 which shows the present value of Re.1 received or paid in a steady stream through out a particular year. The present value of all cash flows comes to Rs.1,51,093 which is less than 1,55,000. This means that the rate of interest must be less than 15 per cent.

Year	Annual rate	Present value factor: 15%	Present value
1	30,000	0.9286	27,858
2	40,000	0.7993	31,972
3	60,000	0.6879	41,274
4	50,000	0.5921	29,605
5	40,000	0.5096	20,384
			<u>1,51,093</u>

Let us now try with an interest rate of 14 per cent. It will be seen that the present value of all cash flows comes to Rs.1,54,740 which is approximation equal to our investment. Thus we can say that the rate of return is slightly lower than 14 per cent.

Year	Annual Cash flow	Present value factor: 15%	Present value
1	30,000	0.9332	27,996
2	40,000	0.8112	32,449
3	60,000	0.7050	42,318
4	50,000	0.6131	30,652
5	40,000	0.5330	<u>21,320</u>
			1,54,737

The main merits of the internal rate of return method are:

- (i) It considers the time value of money.
- (ii) It considers the cash flows over the entire life of the project.
- (iii) The calculation of the cost of capital is not a pre-condition for the use of this method.

One of the limitations of this method is that it is difficult to understand and use in practice as its computation is complicated.

VIII Net present Value Index Method.

The net present value of an investment proposal is the difference between the total of present values of the estimated annual cash flows over the life of the project and the initial investment of the project. If the net present value is positive, the investment is profitable. If the net present value is negative, investment is not feasible. The investment proposal that simply breaks even will have a net present value of zero. The annual cash flows are discounted to find out the present value with an interest rate which is equal to the average cost of capital of the company or the lending rate, whichever is higher.

The method of computation of Net Present Value index is:-

$$\text{Net Present Value Index} = \frac{\text{Total Present Value of All Cash Flows}}{\text{Initial Investment}}$$

The higher the index, the more profitable the project is. We can then rank the various proposals according to their net present value index.

If the projects have a salvage value, we can find out the present value of the scrap value at the same rate of interest and add it to the total present value of all cash flows.

Let us now apply this formula to find out the relative profitability of the five proposals which are given below:

Proposal	Initial Invest- - ment Rs.	Annual Cash flow Rs.	Life in years	PV 10%	PV factor Rs.	NPVI	Rank
1	60,000	12,000	15	7.77	93,225.60	1.55	4

2	88,000	22,500	22	8.89	2,00,067.75	2.27	2
3	2,150	1,500	3	2.60	3,887.70	1.88	3
4	20,500	4,500	10	6.32	28,445.85	1.39	5
5	4,25,000	2,25,000	20	8.6466	19,45,485.00	4.58	1

There is a direct relationship between Net present value index and acceptability of a project for investment. This means that higher the net present value index higher the chance of acceptability of a project. Thus, in the above example the project should be selected in the order of E, B, C, A and D.

The main merits of net present value index method are:-

- (i) It considers the time value of money.
- (ii) It considers the cash flows over the entire life of the project.
- (iii) The calculation of the cost of capital is not a pre-condition for the use of this method.
- (iv) It avoids the problem by assuming an interest rate equivalent to the cost of capital for finding out the present values of the cash flows. Thus, the net present value index method has the advantage of simplicity and involves discounting of the cash flows only once.

Other Criteria of evaluation of a project.

We have so far discussed that the projects should be ranked according to their profitability and the various methods for finding out the relative profitability. However, in actual business practice, managerial decisions about investment proposals may not always be made according to their relative profitability. There are a number of other considerations which have to be taken into account in addition to profitability. Some of these considerations are explained below:-

- (i) Type of decision being made. The management may decide to make a tactical decision to provide funds to a division which is making a low return to preserve its earning power and maintain its existing market share.
- (ii) Type of investment. A firm would accept a lower return on a cost reduction programme (with relatively certain results) as against a project with a higher but uncertain return.
- (iii) Degree of certainty about cash flow. The degree of uncertainty in relation to the estimated cash flows is an important consideration be kept in view. Hence projects with relatively assured cash flows over with lower rates of return are to be preferred to projects with uncertain cash flows despite high rates of return.
- (iv) Intangible factors. Very often, intangible factors such as the effect of a course of action on company's prestige and image. These factors cannot be ignored and some projects may have to be accepted whether they are profitable or not.
- (v) Overall profitability. If we strictly follow the rate of return criterion, we may be persuaded to choose a smaller investment proposal with a higher rate of return over a large investment proposal with a lower rate of return.
- (vi) Urgency of the project. Sometime, the firm may have no choice but to make the investment irrespective of its rate of return, i.e., a roof blown by the cyclone should be replaced at once. Here the main point to be considered is the cost of not doing so, i.e., the damage to merchandise and equipment which is imminent if the roof is not immediately replaced.

IX Probability approach for Project Appraisal

We will arrive at two types of conclusions, If an experiment is repeated under essentially homogeneous and similar conditions,. They are: - the results are unique and the outcome can be predictable and result is not unique but may be

one of the several possible outcomes. In this context, it is better to understand various terms pertaining to probability before examining the probability theory pertaining to project evaluation. The main terms are explained as follows:-

(i) Random experiment:

An experiment which can be repeated under the same conditions and the outcome cannot be predicted under any circumstances is known as random experiment. For example: An unbiased coin is tossed. Here we are not in a position to predict head or tail is going to occur. Hence, this type of experiment is known as random experiment.

(ii) Sample Space

A set of possible outcomes of a random experiment is known as sample space. For example in the case of tossing an unbiased coin twice, the possible outcomes are HH, HT, TH and TT. This can be represented as $S = (HH, HT, TH, TT)$.

(iii) An event

Any possible outcomes of a random experiment are known as an event. In the case of tossing of an unbiased coin twice, HH is an event. An event can be classified into two. They are: (a) Simple events, (ii) compound event. Simple event is an event which has only one sample point in the sample space. Compound event is an event which has more than one sample point in the sample space. In the case of tossing of an unbiased coin twice HH is a simple event and TH and TT are the compound events.

(iv) Complementary event

A and A' are the complementary event if A' consists of all those sample point which is not included in A. For instance, an unbiased dice is thrown once. The probability of an odd number turns up are complementary to an even number

turns up. Here, it is worth mentioning that the probability of sample space is always is equal to one. Hence, the $P(A') = 1 - P(A)$.

(v) Mutually exclusive events

A and B are the two mutually exclusive events if the occurrence of A precludes the occurrence of B. For example, in the case of tossing an unbiased coin once, the occurrence of head precludes the occurrence of tail. Hence, head and tail are the mutually exclusive event in the case of tossing of an unbiased coin once. If A and B are mutually exclusive events, then the probability of occurrence of A or B is equal to sum of their individual probabilities. Symbolically, it can be presented as:-

$$P(A \cup B) = P(A) + P(B)$$

If A and B are joint sets, then the addition theorem of probability can be stated as:

$$P(A \cup B) = P(A) + P(B) - P(AB)$$

(vi) Independent event

A and B are the two independent event if the occurrence of A does not influence the occurrence of B. In the case of tossing an unbiased coin twice, the occurrence of head in the first toss does not influence the occurrence of head or tail in the second toss. Hence, these two events are called independent events. In the case of independent event, the multiplication theorem can be stated as the probability of A and B is the product of their individual probabilities. Symbolically, it can be presented as:-

$$P(A \cap B) = P(A) * P(B)$$

Addition theorem of Probability

Let A and B are the two mutually exclusive events then the probability of A or B is equal to sum of their individual probabilities. (For detail refer mutually exclusive events)

Multiplication theorem of Probability

Let A and B are the two independent events, then the probability of A and B is equal to the product of their individual probabilities. (For details refer independent events)

Example: The odds that person X speaks the truths are 3:1 and the odds that Y speaks the truth are 2:1. Find the probability that :-

- (i) both of them speak the truth,
- (ii) any one of them speak the truth, and
- (iii) truth may not be told.

Solution: The probability of X speaks the truth = $1/4$

The probability that X speaks lie = $3/4$

The probability that Y speaks the truth = $1/3$

The probability that Y speaks lie = $2/3$

(i) Both of them speak truth = $P(X) * P(Y) = 1/4 * 1/3 = 1/12$ (independent event)

(ii) any one of them speak truth = $P(X) + P(Y) - P(X*Y)$

$$= 1/4 + 1/3 - 1/4 * 1/3 = 6/12 - 1/12 = 5/12 \text{ (not mutually exclusive events)}$$

(iii) Truth may not be told = $1 - P(\text{any one of them speak truth})$

(complementary event)

$$= 1 - 5/12 = 7/12.$$

Probability distribution

Let X is discrete random variable which takes the values of $x_1, x_2, \dots, x_n$ and the corresponding probabilities will be $p_1, p_2, \dots, p_n$. Then, X follows the probability distribution. The two main properties of probability distribution are :- (i) $P(X_i)$ is always greater than or equal to zero and less than or equal to

one, and (ii) the summation of probability distribution is always equal to one. For example tossing of an unbiased coin thrice (something needs to be added). Then the probability of distribution is:

X (probability of obtaining head):	0	1	2	3
P(Xi)	: 1/8	3/8	3/8	1/8

Expectation of probability

Let X is discrete random variable which takes the value of $x_1, x_2, \dots, x_n$ then the respective probability is $p_1, p_2, \dots, p_n$. Then the expectation of probability distribution is $p_1x_1 + p_2x_2 + \dots + p_nx_n$. In the above example, the expectation of probability distribution is

$$0(1/8) + 1(3/8) + 2(3/8) + 3(1/8) = 12/8 = 1.5$$

This indicates that on an average the probability obtaining head is 1.5 times.

Probability theory approach

A more rational method for taking into account the varying risks associated with different investment projects is based on the probability theory. Under this method one has to find out a range of possible cash flows, from the most optimistic to the most pessimistic for each pertinent year, and assign probabilities to each of the possible outcomes. The various methods of appraisal may then be applied to each of the cash flows. Of course, the assignment of probabilities would be subjective; depending upon each individual executive's beliefs and opinions. However, objectivity can be achieved by a consensus among a team of executives or by taking an average of the probabilities assigned by different executives to each outcome. The application of this method is illustrated in following table

TABLE – Probability Calculation of Cash Flows

	First year		Second year		Third year	
Cash flows	Proba-	expec	Probability	Expectation	Proba-	Expec-

	-bility tation			-bility tation		
Rs.		Rs.	Rs.		Rs.	
4000	0.0	-	0.0	-	0.30	1200
4500	0.0	-	0.1	450	0.30	1350
5000	0.1	500	0.1	500	0.20	1000
5500	0.2	1000	0.3	1650	0.10	550
6000	0.3	1800	0.3	1800	0.05	300
6500	0.2	1300	0.1	650	0.05	300
7000	0.1	700	0.1	700	0.0	-
7500	0.1	750	0.0	-	0.0	-

Thus, the cash flows for years 1, 2 and 3 are Rs.6050, Rs.5750, and Rs.4725, respectively.

Questions:

1. What are the principles of decision making?
2. State the main criteria of profit
3. What are the assumptions of break-even analysis?
4. Write short note on break-even chart?
5. Explain the managerial uses of break-even analysis?
6. State the main limitations of break-even analysis
7. How for pay-back method can be used as a method of evaluating a project proposal?
8. Write short note on accounting rate of return.
9. What are the merits and demerits of internal rate of return method of project appraisal?
10. Explain the net present value index method by bringing out its merits and effects?
11. critically evaluate various criteria of project evaluation.

12. Explain how uncertainty project can be evaluated?

www.FirstRanker.com

Unit IV

Lesson Outline

- I National Income
- II Inflationary and Deflationary Gaps
- III Economic Development
- IV Technological Progress and Development
- V Business and Government

Learning Objectives

After reading this lesson you should be able to understand

- The nature and scope of the concept of national income
- Models of national income determination
- Inflation and gaps
- Economic development and its indicators
- technological progress and development
- government and business enterprises

Lesson 1

National Income

Alfred Marshall defined national income (or National Dividend) as, “Labour and capital of a country acting on its natural resources, produce annually a certain ‘net’ aggregate of commodities, material and immaterial, including services of all kinds. The word ‘net’ means that from the gross value of the output depreciation of capital must be deducted” According to Pigou, national income *is that part of the objective income of the community including, of course, income derived from abroad, which can be measured in money.* Prof. Fisher based his idea of national income on consumption, rather than production. To him, National income refers *solely to services received by ultimate consumers, whether from their material or human environment* (Dewett 2005). The concept

of national income thus has three interpretations: i) receipts total, ii) expenditure total, and iii) every expenditure is at the same time a receipt (expenditure by one is income to another). The Keynesian concept of national income lies between Gross National Product (G.N.P.) and Net National Product (N.N.P.). Thus, national income of a country may be expressed in terms of three measures:-

- (a) The sum of all incomes, in cash and kind, accruing to factors of production in a given time period, i.e., the total of income flows;
- (b) The sum of net outputs arising in several sectors of the nation's production; and
- (c) The sum of consumers' expenditure, government expenditure on goods and services and net expenditure on capital goods.

National Income is presently defined as the aggregate factor income, arising from the production of goods and services by a nation's economy during a specific period of time.

The circular flow of income may be shown using a simple two sector model, consisting of only firms and households. Government sector and foreign sector are ignored here, to avoid further complications arising out of their inclusion. The economy is thus a closed economy, with no foreign trade or external sector. Further, the model is based on the following assumptions. All production takes place in the firms and all factors of production are owned by the households. There is full employment. Finally, all income are spent. Diagram-1 illustrates the real and money income flow in a two-sector model.

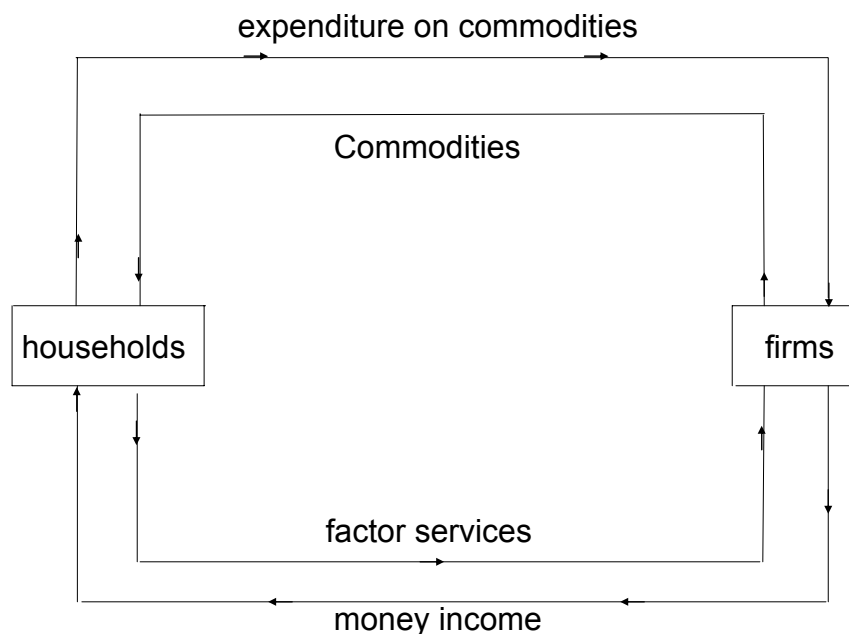


Diagram – 1 Circular flows in a two-sector economy

The firms produce goods, for which the services of factors of production are required. The factors of production are supplied by households, for which they receive income. With the income earned, they purchase the finished products from the firms. This provides income to the firms, which is used for purchasing factors of production from the households. Thus, the sales value of net production must be equal to the sum total of payments made by the firms to the factors of production (i.e., wages, rents, interest and profits). These incomes in turn become the sources of expenditure of the households. Thus, income flows from firms to households in exchange for their productive factor services, while products flow from firms in response to the expenditure made by the households. The flow of products in exchange for factor services is known as the real flow, while the money income received and expenditure incurred by the two-sector comprise the monetary flow.

The total of income flows, net outputs and final expenditures will be the same, but the significance of each arises out of the fact that they reflect the total operations of the nation's economy at the level of three basic economic functions, namely, production, distribution and expenditure.

1.1.1 Concepts of national income

There are five important concepts of national income. They are as follows:

i) Gross National Product (G.N.P.): This is the basic social accounting measure of the total output or aggregate supply of goods and services. Gross National Product is defined as the total market value of all final goods and services produced in a year. The two aspects to be noted with respect to the gross national product are:-

(a) it is a monetary measure of the market value of the output (i.e., goods and services) produced in a year. However, to know the accurate changes in physical output, the gross national product is adjusted for price changes by comparing it to a base year; and

b) for the accurate computation of gross national product, the total goods and services produced in a specific year must be accounted only once.

All finished goods go through different stages of production before being marketed. In the process, various forms of most of the goods are purchased and sold several times. This is likely to subject such goods to double accounting - once in its semi-finished form, and again as the final good. In order to avoid this problem, gross national product includes only the market values of the final goods, and ignores the transactions of intermediate goods. Final goods are those which are bought for final consumption and not for further processing or resale, whereas the intermediate goods are those which are purchased for further processing or resale. In GNP, the sales of only final goods are included and those of the intermediate goods are excluded, because the value of final good

includes the value of intermediate goods as well. The calculation of G.N.P. also excludes non-productive transactions, which are pure financial transactions or transfer payments, such as old-age pensions or unemployment assistance, which are in the nature of grants, gifts, transactions relating to existing shares, or second-hand shares.

2) Net National Product (N.N.P.): The production process involves the use of capital, like equipment, machinery, etc., which experience wear and tear or depreciation in the value over time. Depreciation is known as the wear and tear of fixed capital or fall in its value, due to its constant or continuous use during the production process. Deducting payment for depreciation from the gross national product constitutes net national product. N.N.P. is the market value of all final goods and services, after deducting the depreciation charges. Hence, it is also known as national income at market prices. That is: -

$$\left. \begin{array}{l} \text{Net National Product} \\ \text{or} \\ \text{National Income at} \\ \text{Market Prices} \end{array} \right\} = \text{Gross National Product} + \text{Depreciation}$$

3) National Income or National Income at Factor Cost (N.I.): National income at fixed cost differs from national income at market prices. National income at factor cost refers to the sum total of all incomes earned by the owners of all factors of production, resource suppliers for their contribution of land, labour, capital, and entrepreneurial ability, during a year. Generally, it is the national income at factor cost which is termed as 'National Income'. The net national product is also known as national income at market prices. The difference between the two concepts arises from the fact that indirect taxes and subsidies result in market prices of output, which tend to be different from the

factor incomes. For e.g., if one kg rice is sold at Rs. 20 which includes Rs. 2 of excise and sales tax, then the market price is Rs. 20 per kg., whereas its factors of production and distribution would receive only Rs. 18. A subsidy reduces the market price lower than the factor cost. For e.g., if rice is subsidized at the rate of Rs. 7 per kg and its sale price is Rs. 13, then the consumers would pay Rs. 13, whereas the factors of production and distribution would receive Rs. 20 per kg. Thus, the value of rice at factor cost would be equal to the market price plus the subsidies on it.

Therefore, net national product minus indirect taxes plus subsidies is known as national income at factor cost.

$$\left. \begin{array}{l} \text{National Income} \\ \text{or} \\ \text{National Income} \\ \text{Subsidies.} \\ \text{at Factor Cost} \end{array} \right\} = \text{Net National Product} - \text{Indirect Taxes} +$$

4) Personal Income (P.I.): It is the sum total of all incomes actually received by all individuals or households during a particular year. National income is different from personal income, because some income earned are not actually received by households (e.g., social security contributions, corporate income taxes and undistributed corporate profits) and some incomes received are not currently earned (e.g., transfer payments, which include old-age pensions, unemployment relief, other relief payments, interest payment on the public debt, etc.). Therefore, while from national income is an indicator of income earned; personal income is an indicator of the income actually received. Hence, these three types of incomes which are earned but not received must be subtracted

from national income, and incomes received but not currently earned must be added. Thus:

Personal Income = National Income – Social Security Contributions – Corporate Income Taxes – Undistributed Corporate Profits + Transfer Payments.

5) Disposable Income (D.I.): Personal income minus the payment made to government in the form of personal taxes, like income tax, personal property taxes, etc., is known as disposable income. Thus,

Disposable Income = Personal Income – Personal Taxes.

This Disposable Income can be either used for consumption or saving.

Therefore, Disposable Income = Consumption + Saving.

1.1.2 National income determination models

In short-run, the level of national income is determined by aggregate demand and aggregate supply. Supply of goods and services in a country is governed by the productive capacity of the community, which does not change in the short-run. However, the actual production or aggregate supply need not always be equal to the productive capacity. But, the total output or aggregate supply will correspond to aggregate demand. When aggregate demand rises, output will also increase, thus raising the level of national output (i.e., national income). Conversely, when aggregate demand decreases, the national output or national income would also decrease, which in turn would also decrease the equilibrium level of national income. The equilibrium level of national income is determined by aggregate demand, as the aggregate resources of a country remain almost constant during the short run. It is also assumed that the national output (or income) is equal to the effective demand.

Effective demand refers to the total expenditure of the government and the people who make expenditure on both consumption and investment goods. Thus, effective demand consists of two components: (a) consumption demand,

i.e., demand for consumption goods, and (b) investment demand, i.e., demand for investment goods or producers or capital goods. This may be expressed as:

Aggregate Demand = Consumption Demand + Investment Demand,

i.e., $AD = C + I$.

where, C = consumption demand; and I = investment demand

Consumption demand depends upon the propensity to consume (consumption function) and income of a consumer. Given the propensity to consume, the consumption demand increases when the income increases. That is, there is a positive relationship between income and consumption expenditure. Diagram-2, shows this relationship.

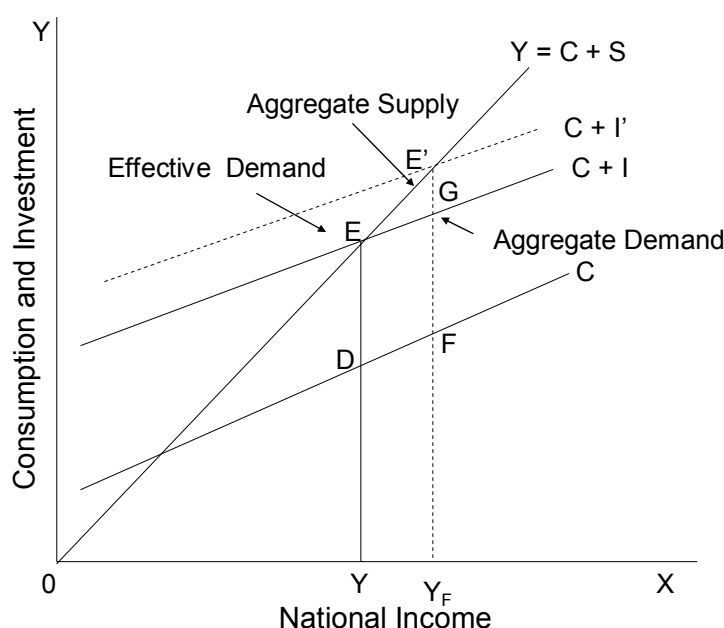


Diagram 2: Determination of National Income

In the diagram, the X axis represents national income and national output (G.N.P.), and Y axis represents the consumption (C) and investment (I) demands. A straight line of 45° from the origin represents the aggregate supply curve. It is also called the income line. This line indicates two things: (i) total

output or aggregate supply of consumption goods and investment goods; and (ii) national income in terms of money. Actually, the national output (G.N.P.) and national income refer to the same thing in real and money terms respectively. The 45° line represents equi-income-expenditure line, where the income is equal to the expenditure.

The slope of C curve represents the propensity to consume, i.e., the change in consumption due to a change in income. It may be observed that the C curve starts from above the origin. It is known as the intercept or constant. It indicates that consumption expenditure takes place even at zero income, which may be done using past savings or borrowings. The C curve rises upwards to the right indicating that as income increases, consumption demand also increases. As the 45° line also represents national income, the distance between the curve C and the 45° line represents saving, because a part of income after consumption is saved. Thus,

National Income = Consumption + Saving

or, $Y = C + S$,

where, Y = national income, C = consumption, and S = saving.

The diagram shows the distance between the national income line Y (i.e., 45° line) and C (propensity to consume) to be increasing, implying that as income increases, the amount saved also increases. In other words, savings and income are directly related.

The propensity to consume remains stable or constant during the short period, because it (or the slope of curve C) depends upon the tastes and preferences of the people, which does not change in the short run. However, stable propensity to consume does not indicate no change in the consumption demand. It only implies that the consumption demand which increases with an increase in the income, does not change in the short period. Therefore, as consumption remains more or less stable during the short run, changes in the

national income depend upon the changes in investment. Thus, investment which is the second component of aggregate demand is an important determinant of national income. Investment depends upon: (i) marginal efficiency of capital, and (ii) the rate of interest. Of them, interest rate is comparatively more stable. Therefore, the change in investment is mainly determined by the change in marginal efficiency of capital. The marginal efficiency of capital refers to the rate of return or expectation of profit from investment. In other words, the expected rate of profit is known as the marginal efficiency of capital. The marginal efficiency of capital in turn is determined by two factors, viz., a) the replacement cost of the capital goods, and b) the expectations of profit of the investors. Here, again, the expectations of profit are more important determinant of investment. This implies that if a country wishes to increase its national income or employment, then it should create an environment wherein the profit expectations of investors and businessmen are high.

Any time in a country, given the rate of interest and marginal efficiency of capital, there will be a demand for investment goods. That is, entrepreneurs would invest some amount of capital. It is assumed that investment demand does not increase with an increase in income. On the other hand the demand for consumption goods increases with an increase in people's income. This in turn raises the entrepreneur's profit expectations, which increases the marginal efficiency of capital, and thus results in increased investment. This clearly indicates that the amount of investment is not directly determined by income. It is due to this reason that diagram - 2 does not show investment demand as an increasing function of income. Rather, it is shown combined with consumption demand as the C+I curve.

By now it is well-known that at any given time in a country, the entrepreneurs invest a certain amount of capital. When investment demand is

combined with the curve C , the aggregate demand curve $C+I$ is obtained, which represents both consumption and investment demand. The distance between the curve C and aggregate demand curve $C+I$ represent investment (I). Given the propensity to consume, higher the investment, the higher would be the aggregate demand curve ($C+I$). The point at which the aggregate demand curve ($C + I$) intersects the aggregate supply curve, i.e., 45° angle line, the level of national income of a country would be determined at a given time. That is, when the aggregate demand and aggregate supply are in equilibrium, the national income of a country is determined at that point of time. In the diagram, the aggregate demand curve $C+I$ intersects the aggregate supply curve (i.e., 45° angle line) at E . At this point, the equilibrium level of income is OY . When the income is either more or less than OY , then the aggregate demand $C+I$ will be more or less, which in turn will affect the level of national income. When aggregate demand is lower, the entire output will not be sold out. This would result in a reduction in output, which will decrease the income. On the contrary, if income is greater than OY , then the total output or aggregate supply will be lower than the aggregate demand. This will lead to an increase in output, which in turn will result in increased national income. Thus, only when income is OY , aggregate demand and aggregate output are equal, and there will be no tendency for output or income to decrease or increase. This is the equilibrium level of income, which is determined by the interaction of aggregate demand and aggregate supply. At this level, the equilibrium level of employment is also determined, because national income, output and employment are interchangeable terms.

1.1.3 Equilibrium and full employment

It is not necessary that the equilibrium level of national income achieved is also the point of full employment. The classicists totally opposed this view of Keynes. The classical economists claimed that the economy would always reach the state of full employment. Any deviation from full employment is

strictly temporary and that there is a continuous tendency in the economic system to revert to the state of full employment. Keynes completely contradicted this view and proved both theoretically and in reality the possibility of under-employment equilibrium.

In the diagram - 2, assume that OY_F is the full employment level of national income. But given OY as the equilibrium level of income, it turns out to be lower than OY_F , which is the full employment level. This indicates that the equilibrium level of income OY is at less than full employment. The equilibrium can be achieved at full employment income, only when the saving gap between income and consumption corresponding to full employment filled. At OY_F level of full employment income, the saving is equal to FE' . When investment demand rises and covers this level of saving, the equilibrium level of income will be at full employment. However, there is no guarantee that the investment demand will be equal to saving at the full employment level of income. This is because saving and investment are done by different sets of people. Moreover, the factors that determine saving and investment are different from each other. Savings are made for various purposes, like education, construction of house, marriage, old age, future contingencies, etc. Investment is determined by the marginal efficiency of capital and rate of interest. Therefore, investment need not necessarily be equal to saving always at the full employment level of national income. When investment is less than saving, the equilibrium will be established at less than full employment.

1.1.4 Equilibrium income at equality of saving and investment

It has already been seen that the equilibrium level of national income is achieved at the point where aggregate demand is equal to aggregate supply. The determination of national income may also be done using the alternative method of explaining it directly by saving and investment concepts. In diagram - 2, at OY equilibrium level of national income, saving and investment are equal to

DE. At an income more than OY (with the aggregate demand curve C+I), the amount of saving exceeds investment by GE', while for income less than OY, investment exceeds saving. This indicates that if saving and investment are not equal, then the national income will not be in equilibrium. This is because when at a certain level of national income the intended investment by entrepreneurs exceeds the intended savings by people, it would indicate that aggregate demand is greater than the aggregate supply. This would encourage firms to increase production, which would raise the levels of employment and income. This in turn would increase national output and thus the national income as well. Thus, when investment is greater than saving, there will be a tendency for the national income to increase. On the other hand, when saving is higher than investment, it would indicate that aggregate demand is short of aggregate supply. This implies that the entrepreneurs are unable to sell their complete output at the prevailing price. This would lead to a decline in output, which would result in a fall in the national income. Therefore, at a given level of national income when the investment demand of entrepreneurs is lower than the intended savings of the people, the national income would decrease. It will decline to the level at which investment expenditure becomes equal to the planned savings of the community. But, when the intended saving of the people is equal to the investment demand at a given national income, the aggregate demand would be equal to the total output or aggregate supply. This would result in equilibrium national income.

The determination of national income by saving and investment can again be interpreted in yet another way. While saving comprises withdrawal of money from the income stream, investment constitutes an injection of money into it. When intended investment exceeds the intended saving, it would imply that more money has been injected into the income stream than what has been withdrawn. This would imply that the national income has increased. Meanwhile, when investment falls short of the intended saving, it would mean

that less money has been injected into the income stream and more has been withdrawn. As a result, the national income would decrease. On the other hand, when investment equals saving, it would imply that the amount of money injected has been withdrawn from the income stream. As a consequence, the national income would neither increase nor decrease, indicating an equilibrium condition. Thus, the equilibrium national income would be established at the level at which the intended investment equals the intended saving.

Diagram – 3 shows the determination of national income by investment and saving.

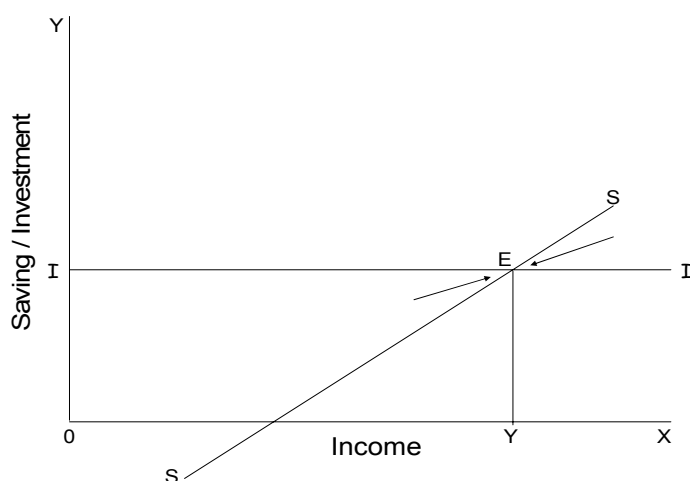


Diagram 3: Determination of National Income by Saving and Investment

In the diagram, the X-axis represents income and the Y-axis represents saving and investment. The SS curve shows intended saving and the II curve shows the intended investment or investment demand. The SS curve is upward sloping, indicating the intended saving to be rising at different levels of income. The II investment curve is parallel to the X-axis, due to the assumptions that investment does not change with income, and that entrepreneurs intend to invest only a certain amount of money in a particular year. The SS and II curves intersect each other at E, showing the equality between intended investment and

saving at OY level of income. This indicates that OY is the equilibrium level of income. When the level of income is lower than OY, the amount of intended investment exceeds the intended saving, due to which the level of income would rise. On the other hand, when the level of income is greater than OY, the intended saving exceeds intended investment, as a result of which the level of income would fall. The decline in income would continue until it becomes equal to OY. At the OY level of income, there is neither a tendency for income to rise nor to fall, because at this level both the intended investment and intended saving are equal. Therefore, the equilibrium level of national income is determined by the equality in investment and saving at OY.

In sum, the equilibrium level of national income would be determined under the fulfillment of the following two conditions:

- (i) Aggregate Demand = Aggregate Supply, and
- (ii) Intended Investment = Intended Saving.

Thus, the equality between aggregate demand and aggregate supply and the equality between the intended investment and saving mean the same thing.

1.1.5 Keynesian theory of employment

During the “Great Depression” in the late 1920s, the validity of classical economic theories completely collapsed as they failed to correct the disequilibrium in the economic activities. Although the classical economists advocated that demand created its own supply, savings were equal to investment, full employment prevailed, business cycles were temporary in nature and unemployment was a short term phenomenon, and that these disturbances could be easily corrected by varying the interest rates or by reducing the wage rate, nothing of the sort happened in 1919. Therefore, the then American President Hoover introduced various policy measures to correct the prevailing economic situations, all of which ended up being *too little and too late*. As a result, he was forced to resign and President Roosevelt took over on

04-03-1933. In 1936, the Keynesian 'General Theory of Employment, Interest and Money' completely changed the classical economic thought. This led to the emergence of the Keynesian revolution, which completely transformed the old economic thought based on the monetarist's approach to an entirely new approach that was based more on fiscal economics. The latter came to be popularly known as the 'welfare oriented economic policy' (Dewett 2005).

1.1.6 Principles of effective demand

The Keynesian approach was directed to redeem the capitalists' economy from the conditions of great depression. Hence, it is also better known as a solution to the "depression economics". According to Keynes, depression occurred as a consequence of lack of 'effective demand', which is the point at which aggregate demand equals the aggregate supply. Therefore, the level of 'effective demand' was to be increased, which in turn would raise the level of other economic variables. This may be expressed as:-

$$\Delta Q = \Delta N = \Delta Y$$



← Effective Demand

where, ΔQ = aggregate output, ΔN = aggregate employment in an economy, and ΔY = aggregate income in an economy.

Effective demand comprises two important elements, viz., aggregate demand function (ADF) and aggregate supply function (ASF).

$$\Delta Q = \Delta N = \Delta Y$$



Effective Demand

Aggregate supply function: Adam Smith, 'the father of economics' laid emphasis on human behaviour, especially the concept of self-love. Human beings are rational in the sense that a consumer tries to maximize utility and a producer tries to maximize output, given their respective price and budget

constraints. A seller tries to maximize sales, and thus the profits by minimizing cost. A producer estimates the market demand, so as to adjust the production process. The basis of Keynesian economic principle is also the same. Diagram – 4 shows the determination of employment caused by the interaction between ADF and ASF.

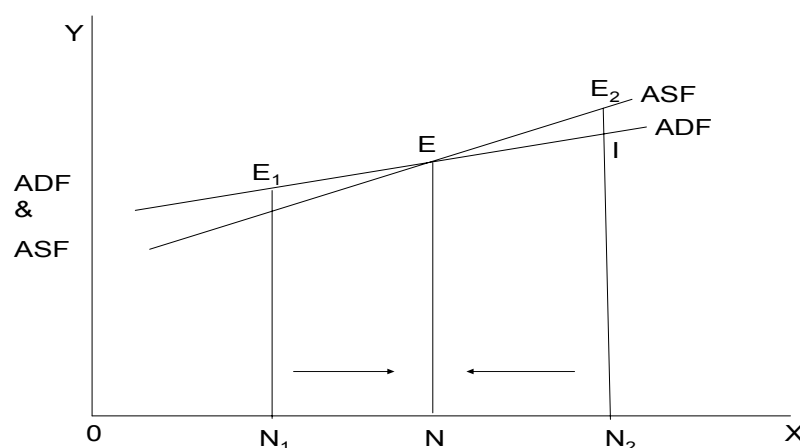


Diagram 4: Level of Employment

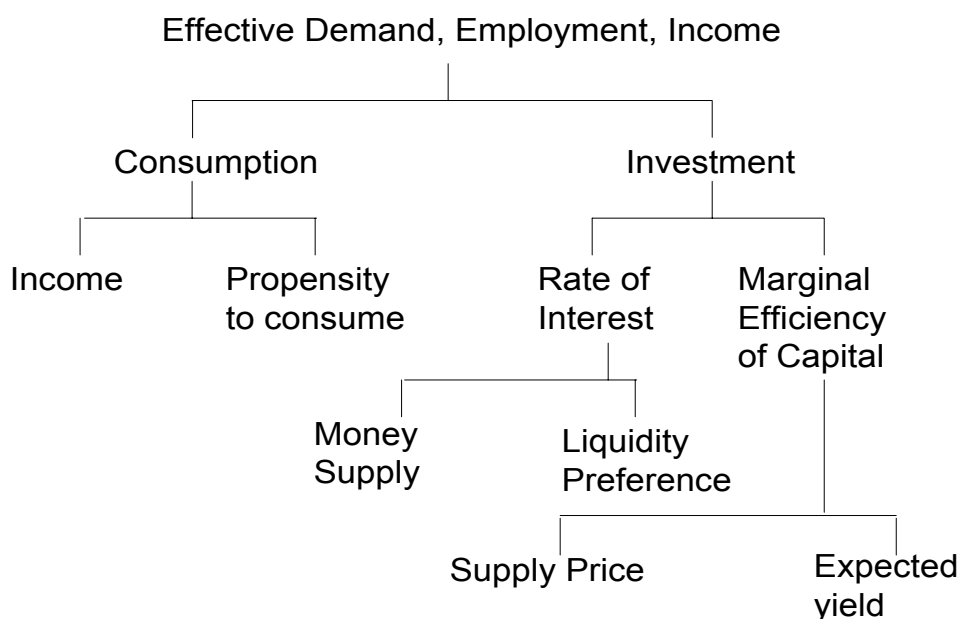
At the equilibrium level E, $ADF = ASF$. At this point, the level of employment is ON, where the equilibrium output and income also occur, reflecting the level of effective demand. When $ADF > ASF$, economic activities will rise and lead to higher levels of employment, output and income. The Keynesian multiplier and acceleration effects lead to acceleration in economic activities. As a consequence, production will increase, leading to a rise in employment from ON_1 to ON. Thus, the economy would move to the equilibrium point E. Multiplier refers to the change in income caused by a change in investment, i.e., $\Delta Y/\Delta I$. Meanwhile, accelerator refers to the change in investment caused by a change in income and consumption, i.e., $\Delta I/\Delta Y$.

On the other hand, when $ASF > ADF$ and the economy move away from E to E_2 , production would fall and unemployment would emerge to the extent of

ON₂. As a result, the economy would revert back to the equilibrium point E and unemployment would fall from ON₂ to employment level ON. When employment is ON, which is less than the full employment point, the government can raise ADF through autonomous investment, assuming ASF to be constant.

1.1.7 Keynesian theory

The Keynesian theory states that employment is a function of income. Since both income and employment are determined by the level of effective demand, greater the national income, the greater would be the volume of employment. The Keynesian theory may be summarized in the form of the following flow chart.



The Keynesian model of income and employment determination is illustrated by diagram – 5.

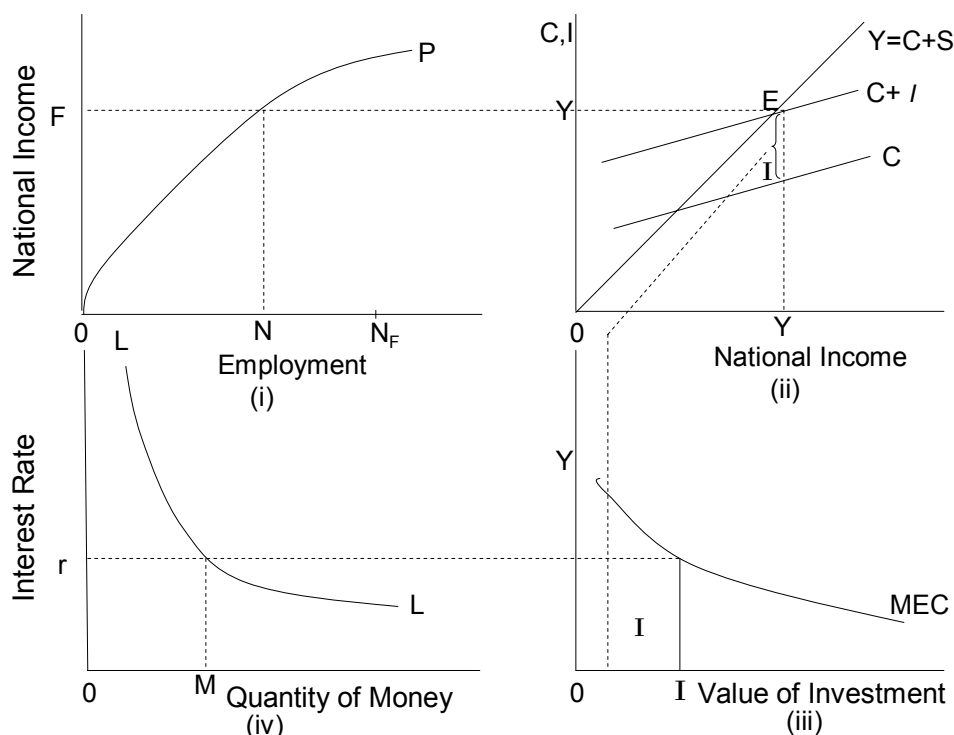


Diagram 5: Income-Employment Determination Model.

The OP curve in diagram (i) presents the relationship between income and employment. Diagram (ii) illustrates the determination of the equilibrium level of income by aggregate demand. Diagram (iii) shows the determination of the volume of investment by marginal efficiency of capital (MEC) and the rate of interest. Finally, diagram (iv) shows how the rate of interest is determined by the liquidity preference curve LL and the OM quantity of money. Given the liquidity preference curve LL and the quantity of money OM, the rate of interest is determined at Or. Given the marginal efficiency of capital (MEC) curve and Or rate of interest, OI is the volume of investment determined. Given OI level of investment and the marginal propensity to consume, reflected by curve C in diagram (ii), the national income is determined at OY. In other words, the economy will be at equilibrium at OY level of income. Diagram (i) shows that

OY level of national income creates ON volume of employment. Assuming ON_F to be the level of full employment, the OE equilibrium represents less than full employment level.

1.2 Inflationary and Deflationary Gaps

Inflation is the rise in price without a corresponding increase in the supply of goods and services at a given time. In the process, the values of commodities rise, while the value of money declines during inflation. By now it is understood that equilibrium need not necessarily occur at the full employment level and that it can also occur at less than full employment level. Therefore, the equilibrium level of national income or employment has no particular feature. For, an equilibrium level may involve both unemployment and waste of national resources, if the investment is insufficient to ensure full employment. Therefore, the desirable level of equilibrium is the one which is achieved at full employment or near full employment. This level may be achieved when investment opportunities equal full employment savings. As a result, there can be inflationary gap or deflationary gap.

a) **Inflationary gap:**

When consumption and investment expenditures are greater than the full employment GNP level, it gives rise to inflationary gap. Under this circumstance, consumer demand for goods and services are greater than its supply. Thus, when inflationary gap occurs, national income, output and employment cannot increase any further. The rise in demand for goods and services results in increased price level. In other words, inflationary gap would occur when the scheduled investment exceeds the full employment saving. Under such a situation, the demand for goods would be more than what the economic system can produce. This would lead to a rise in the prices, which would result in an inflationary situation. Thus, when the full employment

savings is lower than the scheduled investment at full employment, inflationary gap would emerge. This situation illustrated in diagram - 6.

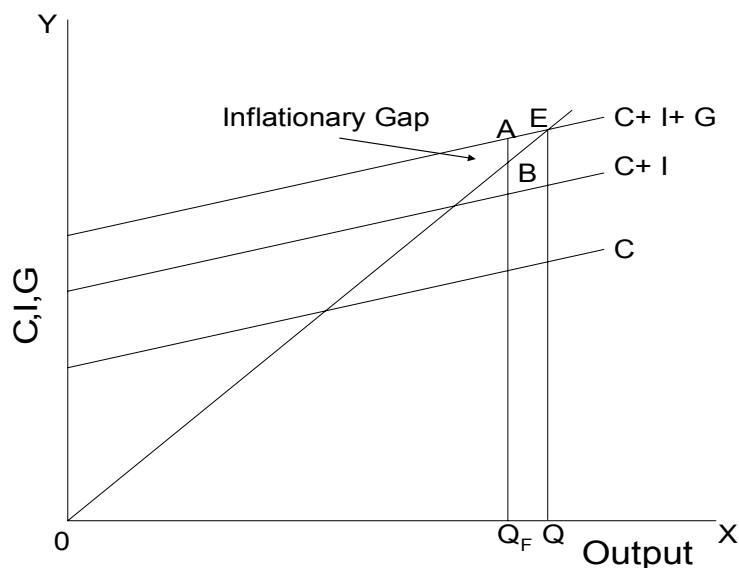


Diagram 6: Inflationary Gap

In the diagram, C, I and, G represent consumption, investment and government expenditures respectively. The $C+I+G$ line represent the total expenditure in an economy. It intersects the 45° line at E, at which the total real output is Q. Q_F represents the full employment limit to real output. The real income cannot reach Q, because at Q_F the total demand $C+I+G$ exceed the total output, showing a gap of AB. This gap AB is known as the inflationary gap in the Keynesian sense.

b) Deflationary gap:

Deflationary gap occurs when the total aggregate demand fails to create full employment. The Diagram - 7 shows the deflationary gap.

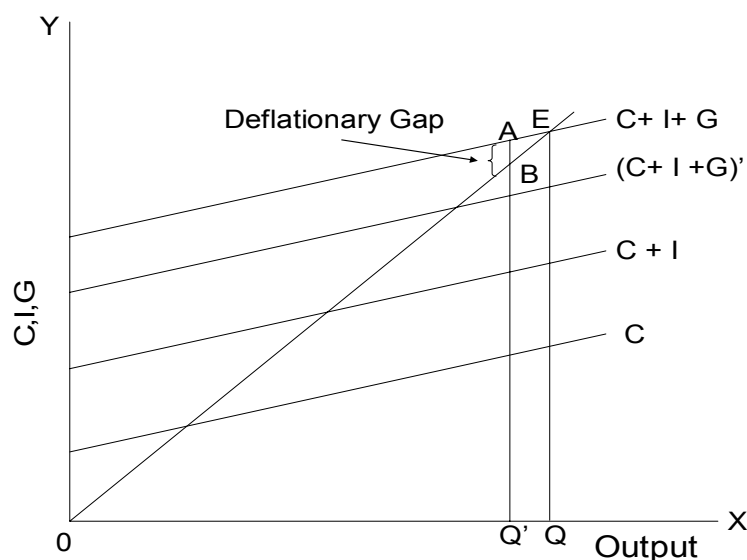


Diagram 7: Real Output or National Income

The diagram shows Q to be the total output at full employment level. The point at which the demand curve $C + I + G$ cuts the 45° line at E, the real output is Q . If the real output is Q' , it would create a deflationary gap of AB.

1.3 Economic Development

The economic development of a country is a complex process. It is influenced by both economic and non-economic factors, which determine the pace and direction of development. The most prominent among the economic factors are the economic system, availability of capital stock and the rate of capital accumulation, capital-output ratio in various sectors, agricultural marketable surplus, and the foreign trade situations. Meanwhile, the non-economic factors include quantity and quality of human resources, social organisation, general education and technical know-how, political freedom, corruption free environment and the people's will to develop. Natural resources also govern the level of development, as they determine its limits.

a) Economic factors:

Economic factors play a decisive role in a country's economic development. For instance, the growth of a country is generally determined by the stock of capital and the rate of capital accumulation. The other economic factors which influence development are the nature of economic system, the availability of surplus food grains or food security for the people, foreign trade situations, etc. It is important to examine the role of some of these factors in economic development.

i) Economic system:

The historical background and economic system of a country also influences its developmental prospects. It decides the institutional structure of a country. Laissez faire economic system was one of its earliest forms, wherein the market forces determined the economic progress. In today's world, no country can claim to be having a pure economic system, whether capitalist or socialist. With the onset of liberalization policy, it is even more difficult to categorize countries under clear-cut economic system. The history of economic development of any country is inter-woven with the complex process of development, which has helped each of them to evolve their own path of development. Thus, economic system of a country plays a crucial role in determining the process, pace and level of development.

ii) Capital formation:

The strategic role played by capital in increasing the level of production is widely recognized, more so since the development of growth economics in the post-World War II period. Capital was treated as the crucial factor of economic growth in the Harrod-Domar growth model. At present, it is widely acknowledged that capital accelerates the pace of growth of a country. It is emphasized that the principal obstacle to growth is the lack of adequate capital

for investment, without which no developmental plan can be implemented successfully. Therefore, in order to increase the level of investment, a country has to make increased savings. This is important, as this also avoids heavy reliance on foreign aid/capital, which can be risky.

iii) Marketable surplus of agriculture:

The excess of agricultural output produced by the sector, over and above what is needed for the subsistence of the rural population, is known as marketable surplus. Enhanced productivity and production in agriculture is vital for the development of a country. These in turn should result in increased marketable surplus of agricultural produces. Marketable surplus is particularly important in the context of a developing country, as the rise in urban population leads to an increase in the demand for agricultural products, mainly the food grains. These increase in demand need to be met by adequate supplies, as scarcity of food in urban areas would affect the process of economic growth. This is because food shortage would force a country to import food grains, which in turn would affect the balance of payments. India suffered a similar problem till 1976-77. Due to inadequate marketable surplus during the period, the government of India was compelled to import huge quantities of food grains to support the urban population and to avert a food crisis in the country. Although this solved the then food problem, it resulted in high foreign exchange drainage, which could have been used for furthering the economic development of the country. To overcome such a problem, there are countries which have embarked upon the strategy of accelerating the pace of industrialization, so as to prevent agriculture from lagging behind. It is for this reason that Maurice Dobb observed, "There is reason to suppose that it will be the marketed surplus of agriculture which plays the crucial role in the underdeveloped country in setting the limits to the possible rate of industrialization" (Dobb 1955).

iv) Foreign trade situations:

The classical theory of trade states that international trade (particularly free trade) benefits all the trading partners, both in terms of increased GNP and improved welfare. Further, the theory suggests that it would benefit the less developed countries to specialize in the production of primary products, in which they possess a comparative production cost advantage. On the other hand, the developed countries should specialize in the production of manufactured goods (including machines and equipment), in which they have a comparative cost advantage. In due course, economists like List and some of the protectionists contradicted this idea and argued that free trade based on such specialization would not be beneficial to a developing economy. Of late, another school of thought has emerged under the leadership of Raul Prebisch, who question the merits of unrestricted/free trade between developed and underdeveloped countries on both theoretical and empirical grounds. Unlike neo-classical economists, Prebisch argued that the relationship between trade and development should be considered from the point of view of balance of payments, rather than the real resource endowments. He also argued that with a few exceptions, unrestricted trade would result in deficit balance of payments in developing countries (Misra and Puri 2002).

b) Non-economic factors in economic development:

The non-economic factors represent the size and quality of human resources, social organisation, general education and technical know-how, political freedom, corruption free environment and the people's will to develop.

i) Human resources:

Population constitutes an important factor in economic development, which is often viewed as an obstacle to growth rather than a factor that contributes to it. The people of a country generally make positive contributions to growth by providing labour power for production. A country which is endowed with efficient and skilled labour would have high productivity that would contribute to growth. Whereas, a country with illiterate, unskilled, unhealthy and superstitious people would generally experience low growth, as its people would not have the capacity to contribute much to the development of its economy. Therefore, a country that manages its manpower properly would be able to convert its capabilities into an important factor in development. On the other hand, if human resources remain either unutilized or underutilized due to inefficient manpower management, the people would end up becoming a burden to the economy rather than making positive contributions to growth. It is due to the latter reason that in an over-populated underdeveloped country, people are considered as a growth arresting factor.

ii) **Social organisation:**

People's participation and cooperation in the development process of a country is a pre-condition for accelerating the growth of an economy. This participation and cooperation in development process would, however, be forthcoming only when they are assured of the fact that the benefits of growth would be distributed on a fair and just basis. But, experiences in numerous countries indicate that defective social organizations have contributed to skewed distribution of benefits of growth in society. This has resulted in some groups of the society being benefited more than the general mass. This has resulted in dissatisfaction among the latter class towards the development programmes of the government, due to which the people are reluctant to participate in the development projects initiated by the state.

India's development experiences during the plan periods reflect such a situation, which has led to the growth of monopolies in industries and concentration of economic power in the hands of a few in the modern sector. Further, the new agricultural strategy has also been more favourable to the rich peasantry class, which has resulted in the emergence of widespread disparities in the rural sector. This indicates that the government policies of India have also resulted in development, which is far from being fair and just. This proves that India's social organisation has failed to improve along the developmental process of the country. Therefore, although the government has been emphasizing upon participatory development since the early plan periods, not much success has been achieved by the country in this direction. Hence, there has been widespread apathy towards development planning in the country, which needs to be rectified.

iii) **General education and technical know-how:**

During 1909 and 1949, Robert M. Solow found the contribution of education to be greater than that of any other factor in increasing the output per man hour in the United States (Solow 1957). In recent times, some of the economists like T.W. Schultz, A.K. Sen and others have stressed upon the contribution of investment in man for economic development (Schultz 1977 and Sen 1972). They call for development of human capabilities through human capital investments. Although it is difficult to subject its contributions to quantitative measurement, the results of its verifications undertaken using proxy variables provide a tentative approximation of it.

Further, the direct impact of the level of technical know-how on the developmental pace of a country is widely recognized today. Advancements in the scientific and technological knowledge help man to discover more sophisticated techniques of production that would contribute to enhanced levels of productivity. In fact, Schumpeter attributed most of the capitalist

development to the role played by the entrepreneurial class in contributing to technological innovations (Schumacher 1978). This recognition has led to the consciousness towards increased investments on Research and Development for the development of highly sophisticated technology and its further advancement. Any country that neglects it in modern times, tends to suffer industrial underdevelopment, low productivity and poor competitiveness in the international market.

iv) **Political freedom:**

World history of modern times bears witness to the fact that the processes of development and underdevelopment are interlinked, rather than being isolated. It is a well known fact that the underdevelopment of past British colonies, like Sri Lanka, India, Bangladesh, Pakistan, Kenya, Malaysia and other countries, are all directly linked with the development of England, which indiscriminately stripped these countries of their development and appropriated huge shares of their economic surplus. Although these countries made a significant contribution to Britain's economic development, they were pushed back into remaining backward. Another such example is that of the U.S.A.'s development being linked with the underdevelopment of Latin American countries, Netherlands' development being linked with the underdevelopment of Indonesia, France's development being linked with the underdevelopment of Algeria and Indo-China, and the like (Misra and Puri 2002). Hence, this indicates that a country's level of development cannot be clearly understood by viewing it in isolation from that of the others with which it was historically linked in the past.

v) **Corruption:**

Corruption is rampant and ailing the development process of most of the world's developing countries at various levels of their operations. This tends to negatively affect their growth process and acts as a retarding factor, which slows

the pace of their development. In the process, the scarce resources allocated for development purposes thus tend to be misappropriated, which in turn affects the achievement of planned targets. Hence, unless corruption is rooted out of the administrative system of these countries, it is difficult for them to grow at the desired pace, no matter how well-formulated plan/policies they have. As a consequence of corruption, the vested interest groups like capitalists, traders and other powerful economic classes would continue to exploit the nation's resources to their personal gains. A huge chunk of the plan outlay on development projects end up being misappropriated by the government officials and the associated functionaries through the adoption of corrupt methods. The regulatory system also tends to be misused quite often to obtain favours like grant of licenses, which may not be done on the basis of merit. Tax evasion is another major problem perfected by certain sections of the society in connivance with some of the corrupt government officials in most of the less developed countries, which further tends to hamper the pace of development for want of the required revenues. However, this fact has hardly received any attention in the literature on development and underdevelopment as a growth arresting factor in recent years. Economist Gunnar Myrdal has been very critical about this approach, who feels that rather unfortunately economists have deliberately ignored the role of corruption as a retarding factor in their analysis of development problems in the backward economies since the post-World War II period. He identified two main reasons responsible for this: first, the presence of diplomacy in economic research; and second, the application of Western models which do not reflect the actual realities of the developing countries, and have thus blurred the perspective (Myrdal 1968).

vi) Desire of the people to develop:

According to Richard T. Gill, "The point is the economic development is not a mechanical process; it is not a simple adding up of assorted factors. Ultimately,

it is a human enterprise. And like all human enterprises, its outcome will depend finally on the skill, quality and attitudes of the men who undertake” (Misra and Puri 2002). This clearly indicates that development activity is not merely a mechanical process. The pace of economic growth of any country is to a large extent governed by the desire of its people to develop. The people of a country who consider poverty as their fate and resign to it can never be helped, which in turn would affect its economic growth. In the process, there would be little hope for the development of the country.

1.4 Technological Progress and Development:

Technology refers to the knowledge about production process and machines. It refers to the body of “skills, knowledge and procedures for making, using and doing useful things” (Misra and Puri 2002). Thus, it includes the methods used in the production of marketed and non-marketed commodities. “It includes the nature and specification of what is produced, the product design, as well as how it is produced. It encompasses managerial and marketing techniques as well as techniques directly involved in production. Technology extends to services like administration, education, banking and the law; besides manufacturing and agriculture (Misra and Puri 2002). Technological progress is the change in the technology taking place over time, in terms of process or product innovations, which renders some earlier technologies obsolete. Process innovation results in change in the production technique, while product innovation refers to change in the packaging, colour, fragrance or size of the products.

Technology plays a crucial role in the economic development of a country. Sophisticated technology has been responsible for the development of most of the developed countries, like Japan, the United States and Western Europe. The underdeveloped countries, which do not undertake independent scientific research to develop their own technology suited to their own human

and natural resources, face difficulties in adopting the borrowed capital-intensive technical know-how of the developed countries.

The technologies of production in underdeveloped countries are backward, which determines the limits of their production capabilities, and thus the level of development. While farmers in the developing countries, like Asia, Latin America, and Africa, still adopt obsolete or backward cultivation technologies, those in the developed countries, like America and Europe, adopt mechanized cultivation technologies. In the less developed countries, machines like tractor, harvester, etc., are being used these days, which however remain restricted to a few selected activities, areas and section of farmers, such as the large farmers. In recent years, nevertheless, increasingly land augmenting technologies are being used in a number of less developed countries. Besides, the production technologies are also fast changing in the modern large-scale industries. For instance, in the case of industries like iron and steel, oil refineries, heavy engineering, chemicals, and machine tools use the most sophisticated techniques. Meanwhile, the small-scale and cottage industrial sector, however, largely remain labour-intensive in nature or adopt intermediate technology. Government policy, besides economic reasons are responsible for the adoption of the labour-intensive techniques in the small-scale industrial sector. The rationality of this policy under is to utilize the large labour force in the country. Hence, these industries continue to use labour-intensive techniques in the underdeveloped countries. This, however, while reflecting backwardness, also acts as a major obstacle to the prospective economic development in these countries.

1.4.1 Choice of techniques:

The choice of appropriate technology is a crucial issue for any underdeveloped country. However, since all underdeveloped countries are not similar and are experiencing different stages of development, no single technology can be

prescribed for all underdeveloped countries. This is due to the fact that a technology which may be suitable to one country may not be equally suitable for all the others. Therefore, the question of choice of techniques is complex and must be analysed carefully. For this, clarity on the model of the underdeveloped country is necessary, for which the appropriate technique is being considered. For instance, for a country like India, which has labour as abundant factor of production, the choice of technique should take into account the development model of the Indian economy? Obviously, due to the huge population in the country, labour-intensive technology is considered the most appropriate one. This leads to the problem of making a choice between labour-intensive and capital-intensive technology for the country. Considering the abundant labour endowment, it is obvious that the choice should be in favour of labour intensive technology and against the capital intensive technology, because otherwise a large number of people would remain unemployed. The choice of technique would then be based on the argument that this would keep the social cost low. Hence, in countries like India, labour-intensive technology is more preferred to the capital-intensive technology.

However, A.K. Sen is of the opinion that the problem of adopting labour-intensive technology could be much more complex than what it appears, because increase in labour employment would increase the wage bill, which in turn would raise the consumption expenditure. He argued that, *It is, thus, possible that while the choice of a more labour-intensive technique will add to output, it will add more to consumption, reducing the volume of investible surplus. If the policy objective is the maximization of the growth rate, we may choose more capital-intensive techniques than when it is the maximization of immediate output per unit of investment. If our objective is something intermediate between the maximization of immediate output and the*

maximization of growth rate, we might choose techniques which are in between these (A.K. Sen 1972).

1.4.2 Quality of labour supply:

Considering the conditions of labour supply in underdeveloped countries, it is obvious that India and other highly populated countries should adopt production technologies that absorb the abundant labour available in these countries rather than capital. This implies that under the adoption of such a production technology, a small quantity of capital per unit of labour would be employed, which need not necessarily be true. This is because in a production process, both fixed and variable capitals are used. If the technique involves a greater ratio of variable capital to fixed capital, the possibility is that the technology would be capital-intensive in nature, even though the country does not depend much on heavy machines. However, such a situation may arise rarely in practice. Therefore, it is quite logical to assume in the absence of abundant capital supply, that a country would adopt labour-intensive technology rather than a capital-intensive one.

The basic argument that a labour-intensive technology should be adopted by highly populated underdeveloped countries is justified on two important grounds:

- a) labour supply is high, and
- b) the real wage rates are very low in these countries.

Therefore, the implications of excess labour supply is that as the unemployed labour in such countries have no opportunity cost from the social point of view, a technology that absorbs the abundant labour in a large quantity should be adopted. Thus, the prevailing factor abundance in India warrants that the country goes in for the adoption of labour-intensive technology. However, situations are different in the African and Latin American countries, which are thinly populated. Further, in some of the underdeveloped countries where

unemployment is low, any attempt made to employ more labour by one sector would result in their withdrawal from the other sectors. Workers under such situations are said to possess an opportunity cost. Therefore, a labour-abundant country should pursue a suitable policy of employing labour in such sectors, where its productivity would be higher. This provides valid economic reasons as to why the labour surplus underdeveloped countries should go in for the adoption of a labour-intensive technology, even though this may not be an appropriate strategy at higher levels of economic development. Hence, it is sometimes argued that a rise in current output need not necessarily be the main objective of an economic policy, because this objective may be in contradiction with the objective of long-term economic growth. This implies that an attempt to increase output in the short run may have an undesirable impact on the long-term economic growth of a country. It is for this reason that some of the developing countries take special care in choosing the technology that would contribute to maximization of their growth rate.

1.4.3 Labour in combination with capital-intensive technology:

Labour utilization in developing countries may also create situations and conditions that encourage the adoption of capital intensive technology. The following need to be considered in this context:

- (1) Both the price and efficiency of labour may be low in the developing countries, due to low skill and training, malnutrition, knowledge, poor adherence to factory discipline, or high rate of absenteeism. According to Kindleberger, *Even where nutrition is not a problem, the uneducated, undisciplined worker will not be readily used in large-scale production with simple machinery, since his efficiency is too low to compensate for his low wages* (Kindleberger 1965)
- (2) Labour also in some developing countries tends to be high-priced. According to Kindleberger, "When the demonstration effect has extended into the field of social services and collective bargaining, the price of labour,

including wages and benefits, will be high despite low productivity (Misra and Puri 2002). Besides, inflation also tends to push up labour wages, while imports of foreign capital equipments often tend to be subsidized to encourage industrial growth in the country. Besides, government and/or labour trade unions also tend to artificially raise up labour cost for economic or political reasons. This is the reason why that labour need not be cheap nor capital be expensive, based on the factor abundance or scarcity in the developing countries.

(3) Further, skilled labour and managerial expertise being in short supply in the developing countries, it calls for an optimum combination of labour with capital in these countries, rather than a mere maximization of labour use.

(4) Besides, *Labour in some situations is less dependable and causes production interruptions and quality maintenance problems, which encourages the use of more capital-intensive technologies to reduce labour usage* (Misra and Puri 2002).

1.4.4 Imported capital-intensive technology:

At times, a developing country ends up using capital intensive technology despite its factor endowments favouring the adoption of labour-intensive technology, because the technology it imported from developed country tends to be capital-intensive. This situation arises because capital is cheap and labour relatively scarce and expensive in the developed countries. Hence, the technologies in the developed countries tend to have a distinct labour-saving bias. As a consequence, the developing countries which trade from them have to import the capital-intensive technology.

1.4.5 Labour-intensive technology:

The adoption of labour-intensive technology immediately generates increased employment and output, when compared to the capital-intensive technology. Hence, it is best suited for the countries with the objective of maximization of immediate employment and output levels. Further, it is difficult to solve the

problem of unemployment in a labour abundant developing country without the adoption of labour-intensive technologies to absorb the surplus labour supply in it. Another important objective of the developing countries is the immediate maximisation of output levels, which are in extremely short supply in them. These shortages can best be taken care of by adopting labour-intensive technology, because the gestation lag in its case is also shorter when compared to that of the capital-intensive technologies. As a result, the former add to the volume of output faster than the latter. Moreover, another favourable aspect of the labour intensive technologies is that they involve no foreign exchange requirements, whereas the capital-intensive technologies require imports of substantial capital equipments from foreign countries and substantial maintenance of the imports later as well. Hence, the developing countries which lack foreign exchange resources should therefore choose labour- intensive technologies.

1.4.6 Appropriate technology:

In recent years, the issue of appropriate technology for the developing countries has caught the attention of the policy makers, economists and planners. This is attributable to the fact that huge import of capital-intensive technology by the developing countries from the developed countries over the past few decades have also failed to yield the desired growth and development in them. Such import of technology by them have largely resulted in the development of certain towns and major cities, created a few employment opportunities, and left the smaller towns and rural areas lagging behind, such that large number of their residents continue to remain poor, unemployed and underemployed. Besides, the cost of every additional employment created through the adoption of the imported technology also becomes very high, which is more suited to the advanced countries with their high per capita income, a low population growth rate, and high saving to income ratio. However, for the developing countries

which have acute shortage of investment resources for creating infrastructure and building industries, insufficient foreign exchange resources, and high construction and equipment cost, such a technology tends to be inappropriate. Given the high rate of population growth, a growth strategy based on industry-led development using the technologies suited to developed countries only creates poverty, unemployment and underemployment in the developing countries. Thus, it is the responsibility of the developing countries to work out and adopt an appropriate technology, most suited to the available natural resources, human capital, socio-economic features, etc., which would contribute to its growth and development.

1.4.7 Intermediate technology:

Owing to the failure of intermediate technology to generate the desired effects in overcoming the problems of poverty and unemployment in the developing countries, some economists have recommended the use of intermediate technology by them. For, the gap between the technologies of developed and an underdeveloped country is so wide, that the latter can achieve little success by adopting the advanced technologies of the former. This is attributable to two major reasons:

- (i) Technology of the developed countries is too expensive for the underdeveloped countries, which lack the required resources; and
- (ii) The adoption of such advanced technologies would only aggravate the already existing problems of poverty and unemployment in these countries.

According to E.F. Schumacher, *it is a serious error to assume that whatever technology is appropriate to developed countries of the West is equally appropriate to developing countries of the Third World. Granted that the technological backwardness is the main cause of poverty of underdeveloped countries and their traditional techniques of production would not survive long, nonetheless, it cannot be concluded that the most sophisticated technology of the*

developed West is appropriate to the poor countries. This fact must not be overlooked that in all those countries where mechanization has been done on a grand scale, capital has been available in abundant supply, while labor has been a relatively scarce factor (Schumacher 1978). This explains the increasing adoption of automatic machines by the developed countries. On the other hand, there is surplus labour supply in the underdeveloped countries, while the capital stock is limited. Owing to these practical problems, it is difficult for the labour surplus developing countries to adopt the highly sophisticated capital-intensive technologies of the developed countries.

Meanwhile, it is undoubtedly true that the adoption of sophisticated technology would certainly prove advantageous in some of the sectors of the developing countries. However, Schumacher feels that such sectors would not account for more than 15 per cent of the whole economy, while the remaining 85 per cent of the economy would have to depend upon, what he called as the 'intermediate technology'. Schumacher emphasized that intermediate technology was superior to the traditional technologies of the less developed countries, which were simple and less expensive compared to those of the developed countries.

However, the possibility of the development of intermediate technology has frequently raised a debate on the choice of appropriate technologies, as most often the capital-intensive technology of the developed countries is viewed as an alternative to the traditional labour-intensive technology of the developing countries. Despite this fact, few developing countries, including India, have made serious attempts to identify and develop intermediate technology, which have also proved to be quite successful when connected to the sophisticated technologies of the developed countries. Thus, the opinion that the capital-intensive technology suited to the developed countries would also be suitable to

all other countries is wrong. In fact, it is the specific conditions of a particular country which determine the appropriateness of a technology for it.

1.5 Business and Government

There are several ways in which the government may influence business operations in a country. Some of them may be discussed here.

(a) Government enterprises:

Sometimes, government may directly involve in the production of private or marketable commodities or services, because the private sector does not supply them in optimum amounts. Optimum level of output is the maximum output produced at the full productive capacity of a firm at minimum cost, which is welfare maximizing. Besides, the government may also decide to set up its own public enterprises, and produce and sell output of natural monopoly industries.

(b) Price fixation:

The state or central government can fix the price of products; either produced by private or public sector enterprises, or may enforce price regulation for the welfare and protection of the consumers, or revenue generation. The prices announced by the government for the goods produced in the public sector and/or private sector units are known as administered prices. Depending upon the political and economic conditions, the government may raise these prices. Examples of such administered prices are power tariff, air fare, rail fare, postal rates, prices of petroleum products like LPG, diesel, and petrol and prices of rice, wheat, sugar and urea, sold through the Fair Price Shops.

The government may also regulate monopoly price. Monopolies are those producing units, who have no close substitutes. Taking advantage of their position, they generally tend to charge a price higher than the one charged by the competitive firms. Therefore, the government may regulate the price of the monopoly seller and force them to become price taker. However, the monopoly seller is free to sell the quantity that would maximize his/her profit.

The government may also announce support prices for primary agricultural products in the interest of farmers, particularly during the periods of surplus production resulting from technological advancement. The purpose of support prices is to ensure that farmers do not incur any loss, when cost of production falls. Such prices, however, interfere with the automatic determination of market prices through the interaction of market demand and supply. India has placed 22 farm products under minimum support price or statutory price categories. Besides, cereal crops like rice and wheat are procured at previously announced prices in every crop season.

(c) Direct intervention:

Tax is one of the ways in which government makes direct intervention, which directly increases the price of a product by adding to the cost of production. Government may impose tax to reduce production, or reduce tax or provide tax subsidy to encourage it. Tax relief may also be given to encourage production in strategic industries. On the other hand, higher taxes may be imposed to discourage production of commodities which are injurious to health. In the process, the government may also influence the consumption level of such commodities.

(d) Indirect intervention:

The device of allocating quotas is another important method of government intervention in the context of business enterprises. This method is generally adopted by the developed countries, who find it more convenient to restrict production so as to restrain the rising burden of price support to producers. Under this method, the producers are restricted from producing output beyond a prescribed limit by the government. If the government directive is not followed, they would be debarred from any government policy, benefits, including that of the price support. Thus, production quotas tend to have an upward pressure on the price, due to restriction imposed on output supply. In sum, the expected

change from price support should be acceptable to both the producers and consumers, such that they may be neutral towards price support and production quota policies. Besides, the government also controls inflation through the price regulation mechanisms.

(e) Control of monopolies:

Monopoly enterprises are harmful to the welfare of consumers. As only one producer controls the production under it, there is a tendency on its part to exploit consumers by charging high prices because the product has no close substitute. Besides, the price may also be artificially raised through under-production. Further, monopolies also result in the concentration of economic power in the hands of a few, which interferes with the objective of just and equitable distribution of income and wealth. To avoid such consequences, most governments have passed legislative acts to control their activities. The Indian government passed the Monopoly and Restrictive Trade Practice Act in 1976 to control them.

Thus, the government may participate in the production activities along with the private sector in an economy, besides controlling, regulating and governing the activities of the latter in the general interest of maximizing the welfare of the people of the country.

References:

- C.S. Barla, *Managerial Economics*, National Publishing House, Raipur, 2000.
- Charles Kindleberger, *Economic Development*, McGraw Hill Book Company, New York, 1965.
- H. Craig Petersen and W. Cris Lewis, *Managerial Economics*, Prentice-Hall of India, New Delhi, 2003.
- K.K. Dewett, *Modern Economic Theory*, S. Chand and Company Ltd., New Delhi, 2005.
- Gunnar Myrdal, *Asian Drama*, Pantheon, 1968.

A. Koutsoyiannis, *Modern Micro Economics*, Macmillan Publishers Ltd., London, 1979.

S.K. Misra and V.K. Puri, *Economics of Development and Planning*, Himalaya Publishing House, New Delhi, 2002.

Morris Dobb, “A Note on the so-called Degree of Capital-Intensity of Investment in Underdeveloped Countries”, in *On Economic Theory and Socialism*, London, 1955.

V.L. Mote, Samuel Paul and G.S. Gupta, *Managerial Economics: Concepts and Cases*, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2001.

Robert Solow, “Technical Change and the Aggregate Production Function”, *Review of Economics and Statistics*, 1957

A.K. Sen, *Choice of Techniques*, Oxford University Press, 1972.

E.F. Schumacher, *Small is Beautiful*, Radha Krishna Prakashan, New Delhi 1978.

Theodore W Schultz, *Investment in Human Capital: The Role of Education and of Research*, Free Press, New York, 1977.

Questions:

1. Define national income.
2. Illustrate the circular flow of income and expenditure using a two sector model.
3. Explain the different concepts of national income.
4. Distinguish between national income at factor price and market price.
5. What is disposable income?
6. Define the principle of effective demand.
7. Illustrate the determination of equilibrium level of national income.
8. Does equilibrium necessarily occur at full employment level?
9. Explain the Keynesian theory of employment.

10. Illustrate the determination of equilibrium national income through the equality of saving and investment.
11. Define marginal propensity to consume.
12. What are the determinants of investment?
13. Explain the concept of liquidity preference.
14. What is inflation?
15. Describe the concepts of inflationary and deflationary gaps.
16. Define economic development.
17. Discuss the economic and non-economic factors determining economic development.
18. Define technology.
19. What is technological progress?
20. Examine the problem of choice of technique.
21. Distinguish between labour intensive and capital intensive technologies.
22. What do you understand by appropriate technology?
23. What is sustainable technology?
24. Write a note on government intervention and business.

Unit-V

Lesson - 1

INTER SECTORAL LINKAGES

Introduction

The three sectors of the economy are related to one another in many ways. Agriculture depends upon industry for the supply of its inputs and implements and Industry depends on the agriculture for the demand of its products. Services are dependent upon both. Hence one cannot be separated from the other in the economy.

Objectives

By studying this lesson the students will be in a position to understand the inter linkage of one sector of the economy to the other. How agriculture is the back bone of the industries and in return industries are facilitators of the agriculture. Apart from all that what is the link between agriculture and industry on one hand and Services on the other. The whole discussion in this lesson will highlight not only the link between these sectors but also the interdependence of these sectors.

Contents

- 1. Agriculture as the provider of livelihood and employment in underdeveloped economy.**
- 2. Agriculture as the supplier of raw materials to the industry.**
- 3. Agriculture as the placer of demand for industrial goods.**
- 4. Industries as the absorber of the labour force shifted from agriculture.**
- 5. Industries as the provider of industrial and consumer goods to the agriculture.**

6. Industries as the provider of agricultural implements to agriculture.
7. Services as the consequence of the development of these two Sectors and facilitator to them.

The Discussion

The debates have centered on the relative importance to be assigned to agriculture versus industry. This dichotomy has very been overdrawn. Time has shown the limitations of over emphasizing industrialization and at the same time it is widely recognized that agricultural progress must have a vital role in the development process. The past controversy and tussle between agriculture and industry has been proved to be a false issue and the concern now is rather with the interrelationships between industry and agriculture and the contribution that each can make to the other.

In developing countries more people get engaged in agriculture for their livelihood than in the industrial and tertiary sectors of the economy. Agricultural growth provide food for the growing non agricultural labour force and raw material for agro based industries, stimulates domestic demand for industrial goods, increases savings and tax revenue to be utilized for further development. Export of agricultural goods earns foreign exchange which is utilized for financing imports of capital goods, intermediate goods and raw materials for industrialization. Growth of agriculture not only helps the development of industrialization process but also facilitates the development of labour intensive village, medium and small scale industries in rural and urban areas.

Development of agriculture is directly related to the increase in the income of the rural people as about 70% of them depend upon agriculture. Raising rural incomes have strong multiplier effects in that they increase the demand for domestic non-agricultural goods and services which, in turn,

increase the incomes of those providing the goods and services. As rural incomes rise due to increasing agricultural production and productivity, the increase in the domestic demand for agricultural goods brings rapid gains for industrialization. Apart from that, growth in the industrial output of consumer goods needed by the rural population, the output of fertilizers, pesticides, agricultural tools, implements and other intermediate manufactured goods required by the farm sector also grow. Moreover, with the diversification of agricultural activities, a number of labour intensive village and small enterprises are set up in the rural areas. These provide further fillip to industrialization.

While agriculture is progressing, it will provide some of the resources for industrialization. In fact, increased agricultural productivity implies a large marketable surplus and a redistribution of income in favor of the rural sector. Industrialization requires the reallocation of funds towards the modern sector along with rising agricultural incomes. Rising farm incomes are mopped up through land taxes and betterment levies and the mobilization of rural savings through savings drives and such financial institutions as cooperative banks, rural banks etc. They play an important part in canalizing rural savings for industrialization.

Development in the productivity and yield in the agriculture and thereby total production leads to export of agricultural products which help finance large imports of raw materials, intermediate and capital goods for industrial production, the LDCs save the foreign exchange for industrial development.

On the other hand, industrialization helps develop agriculture in number of ways which for the sake of better study are discussed below:-

1. Rise in demand for agricultural commodities

Industrialization leads to the rapid rise in the income of the people, which affects rise in the demand for such agricultural commodities as milk, vegetables, eggs, poultry etc. Since production of such commodities is labour intensive,

agricultural production is greatly increased without enlarging farm acreage. This in turn, provides more work to rural population and raises incomes.

2. Availability of capital

With industrialization, financial institutions develop and they finance agriculture too and thereby availability of capital increases for the agricultural sector which helps in modernizing agriculture and raising farm output.

3. Vast Job Opportunities

The natural consequence of industrialization is urbanization which opens enormous job opportunities to the rural labour force that were disguisedly unemployed in agriculture. They remit money back to the home which is utilized for arranging inputs for agriculture and cattle raising, poultry and fisheries etc. With the economic development and thereby urbanization, transport sector develops and consequently market expands. Agriculturists are facilitated by this expanded market by selling their surplus agricultural products at remunerative prices. Many people engage in some part time job that either live near to the town or visit the town very frequently because of nearness of the town from the villages.

4. Change in the Attitude

When, after industrialization urbanization takes place, the air is charged in the neighboring areas. Villagers now, have the access to the modern education, entertainment and jobs which in turn bring a great change in their life style and attitude.

5. Motivation to raise income

With the changed attitude, people in the villages require modern means of comforts and luxuries as T.V, washing machines, computer, motorcycles etc. which can be had only by raising their income. Hence, they work hard and try their best to modernize agriculture to improve their income.

Summary

Therefore, it can be said that agricultural and industrial development are interrelated and one influences the development of the other. Therefore, it has been suggested by the experts that for a harmonious economic development, agriculture and industry both should be developed simultaneously. There has not been any example that an economy has developed comprehensively without developing all the sectors. In the course of development of agriculture from where the process of development starts, a huge amount of labour force is shifted and if the industry is not prepared to absorb them then the economy will face a severe problem of unemployment of labour force. Therefore, industry is also developed simultaneously. And without proper development of the services industry cannot sustain its development.

Review Questions And Key

- 1 Explain how agriculture and industry are inter-linked and inter- related?
(Mention the facts presented in para one to para seven)
- 2 Explain what happens after industrialization?
(Explain the points like –i) rapid rise in income, ii) capital availability, iii) vast job opportunities, iv) change in attitude, v) motivation to raise income)

Lesson – 2

NATIONAL INCOME

Introduction

Macro aggregates mean the parameters which exhibit the health of the economy. Macro economic indicators like national income, total output, employment and general price level etc. present the overall picture of the economy as it is in and indicate the future direction. Hence the analysis of macro aggregates becomes necessary to understand and assess the strengths and weaknesses of the economy and thereby formulate the appropriate policies.

Objectives

By reading this lesson the students will be in a position to understand the macro-economic scenario of the economy in general and individual macro-economic sectors in particular. The performances of these sectors like national income , employment, general prices are the real reflector of the health of the economy .An economy is growing or not and if growing then the fruits of development is reaching to the people or not can be studied well by studying this lesson.

Contents

1. National income
2. Total output
3. Employment
4. General price level

1.National income

Credit goes to Prof.V.K.R.V.Rao, who was the first economist to compute the national income of India in a scientific manner. He divided the economy into three sectors- primary, secondary and tertiary or services.

The first scientific estimate of national income was made during 1949 with the appointment of the National Income Committee in August 1949 having Prof. Mahalanobis, D.R.Gadgil and Prof. V.K.R.V.Rao as members. This committee submitted its final report in February 1954 in which it gave estimates of national income for the year 1948-49. They analyzed the total national income by industrial origin, the character of the enterprise and the net output per employed persons in various occupations. There after, the national income estimates of India have been prepared and published regularly by Central Statistical Organization (CSO). The CSO follows the product and the income methods while preparing the estimates of national income. They use product methods for the sectors which produce commodities such as agriculture, forestry, fishing, mining etc. and manufacturing. The income method is applied for computing income from tertiary or services sector such as banking, insurance, transport, trade, public services etc.

The Central Statistical Organization has revised the base year from 1980-81 to 1993-94 and brought out a new series of National Accounts Statistics. The coverage of G.D.P has been extended by including several horticultural and floricultural crops in agriculture. In other services, estimation of income from unorganized service activities on the basis of new NSS Employment Survey Results, Private activities under T.V and radio, tailoring and the activities of high value software consultancy have been included. The main purpose of extending coverage was to reduce under reporting of G.D.P

Sectoral Share of GDP.

Table I Sectoral share of GDP

Sector	1993-94	1997-98
--------	---------	---------

Agricultural	30.3	27.5
Industry	25.8	26.1
Services	43.9	46.6

Note: Figure are the percentage share of particular Sector.

From the Table I it is clear that during the period 1993-94 to 1997-98 share of agricultural has fallen from 30.3% in 1993-94 to 27.5% in 1997-98 but that of industry has marginally improved during the same period and it stood at 26.1% in comparison to 25.8% during year 1993-94. So far as services is concerned it is quite clear from the table that it has been improving its share in the G.D.P. in recent very fast and substantially. The share of services which was 43.9% in 1993-94 reached to 46.6%, a rise of around 3% in this small period of time.

Estimate of India's national income

Estimate of national income can best be studied through different series of C.S.O's National Statistical Account. The first series is called the conventional series based on 1948-49 prices. The second is revised series based on 1960-61 prices, the third on 1970-71 prices and fourth on 1980-81 prices and the current and the fifth on 1993-94 prices. These estimates are both at current constant prices. We analyse the trends of India national income during different plans in terms of new series as given in Table II.

From Table number II, it is clear that India's net national product at factor cost during First Plan grew by 3.6 percent per annum whereas the target was of 2.1 percent.

Table II: Plan Wise Annual Growth Rate of Net National Income

Plan and Year	Targeted Growth	Actual Growth at 1980-81 Prices (Constant Price)
---------------	-----------------	--

First Plan (1951-56)	2.1	3.6
Second Plan (1956-61)	2.5	3.9
Third Plan (1961-66)	5.6	2.3
Annual Plan (1966-69)	5.2	3.8
Fourth Plan (1969-74)	5.7	3.3
Fifth Plan (1974-79)	4.4	4.9
Sixth Plan (1980-85)	5.2	5.4
Seventh Plan (1985-90)	5.0	5.8
Eighth Plan (1992-96)	5.6	6.1
Ninths Plan (1997-2002)	N.A	4.6
Annual Plan (1990-91)	N.A	5.4
Annual Plan (1991-92)	N.A	0.5
(2001-2002)	N.A	6.2
(2002-2003)	N.A	4.2

Source – Based on C.S.O's Statistics

The Table II Presents clearly that after achieving a higher growth rate of 3.6% during the First Plan from the targeted rate of 2.1% only, the planners were much enthusiastic and targeted a slightly higher rate of growth of 2.5% during Second Plan but this time too their joy knew no bounds when the country achieved even better growth rate of 3.9%. Their ambition rose tremendously and they fixed a target of 5.6% growth rate during the Third Plan but the target fell flat. The Third Plan could achieve only 2.3% annual growth rate which was lowest in comparison to the earlier two Five Year Plans. The main reason for this fall was the big failure on both the fronts – agricultural as well as industry. Agriculture and industry both performed below expectation. Again the growth of G.D.P was bellow expectation during the annual plans (1966-69) when it slipped to 3.8 percent form the targeted growth of 5.2 percent.

Irrespective of a failure during annual plans, Indian planner fixed an ambitious target of 5.7% G.D.P growth during Fourth Plan but what could be achieved was only 3.3%, even lesser than annual plans. Therefore a close analysis of the table reveals that except for Sixth, Seventh and the Eighth Plans, targeted growth was never realized.

Summary

Prof. V.K.R.V.Rao was the first economist to compute India's national income in a scientific manner. National income committee was appointed in 1949 and it gave estimate in 1954. The base year has been shifting. The CSO which is responsible for publishing national income estimates follow the income and product methods while preparing the national income estimates.

The share of different sectors in national income has been changing over the years. The share of agriculture was 30.3 percent in 1993-94 fell down to 27.5 percent in 1997-98. During the same period the share of services in national income increased from 43.9 percent to a high of 46.6 percent.

Except for the few years India's national income has been growing steadily at around 4 percent. It was highest at 6.2 percent during the years 2001-2002 and lowest at 0.5 percent during the years 1991-92.

Review Questions and Key.

- 1 Point out the procedures adopted in the estimation of India's national income.

(Refer to I and II para of this lesson)

- 2 Explain the plan wise growth of India's national income.

(Refer to the table No. II)

LESSON – 3

EMPLOYMENT

EMPLOYMENT IN ORGAINSED AND UNORGANISED SECTOR

Introduction

Employment is another indicator of the health of the economy. Employment is directly related with the national income because a higher employment will be followed by a higher output and thereby income. Not only that, a higher level of employment encourages advancement in education, skill formation, human resource development and a better physical quality of life. Hence, study of employment helps us to estimate the real status of the economy.

Objective

Reading this lesson, students will be in a position to understand employment potential of various sector of the economy, rise and fall of employment in different sector income generation, performance of different Plans on employment front etc.

Contents

- * Growth rate of employment in different sectors
- * Employment in organized and unorganized sector

Growth Rate Of Employment In Different Sectors

The growth rate of employment which was 2.04% per annum during the ten year's period of 1983 to 1993-94, declined sharply to 0.98 percent during 1993-94 to 1999-2000. Therefore, it is told that the economic growth in this period was of jobless variety. Sector wise growth of employment has been explained in the table III.

Table III – Sectoral Growth of Employment 1983-2000

Sector	Employed Workers (million)			Annual Growth Rate(%)	
	1983	1993-94	1999-2000	1983-84	1994-2000
Primary					
Secondary	208.99	245.16	239.83	1.16	-0.34
Tertiary	(69)	(65.5)	(60.4)	2.90	3.14
	41.66	55.53	66.91	3.53	2.42
	(13.8)	(14.8)	(16.8)		
	52.11	73.76	90.26		
	(17.2)	(19.7)	(22.7)		
Total	302.76	374.45	397.00	2.04	0.98
Employment	(100.0)	(100.0)	(100.0)		

It is clear from the above table (No-III) that the growth of employment in the primary sector during 1983-94 was only 1.6 percent and that during 1994-2000 become negative i.e. -0.34% The contribution of the primary sector in terms of providing employment was very important as ever which stood at 208.99, 245.16 and 239.83 millions during the period 1983, 1993-94 and 1999-2000 respectively. So far as secondary sector is concerned it' contribution towards employment has been consistent at 13.8,14.8 and 16.8 percentages respectively during the reporting period. The growth of employment in this sector during

1983-94 and 1994-2000 were 2.9 and 3.14 percent which can be said as satisfactory. But remarkable was the growth of employment in the tertiary sector where it grew from 52.11 million jobs in 1983 to 73.76 million during 1993-94 and hopping 90.26 million during 1999-2000 having the percentage of 17.2, 19.7 and 22.7 respectively.

Employment In Organised And Unorganized Sectors

By organized sector it is normally understood as public sector but the private sector is also included where at least 10 or more workers work at a time.

Table IV- Total organized Sector Employment

					Growth Rate % Per Annum	
	1983	1988	1994	1999-00	1983-94	1994-00
a) Total Employment	302.75	324.29	374.45	397.00	2.04	0.98
b) Public Sector	16.46 (68.6)	18.32 (71.3)	19.44 (71.0)	19.41 (69.1)	1.52	-0.03
c) Private Sector	7.55 (31.4)	7.39 (28.7)	7.93 (29.0)	8.70 (30.9)	0.45	1.87
(B+C)	24.01	25.71	27.37	28.11	1.20	0.53

It is evident form the table IV that over the years since 1983-2000 the volume of employment has increased form 302.75 million to 397.00 million. Though the growth during 1983-94 was at 1.6%, which became negative during 1994-2000; the early liberalization era. The contribution of public sector remained almost around 70% and that of private sector around 30%.

Summary

From the above discussion it becomes clear that the growth rate of employment in recent years has fallen. While it was 2.04% during the ten years period of 1983-84 to 1993-94, declined sharply to 0.98% during 93-94 to 1999-2000. The major contributor in employment front has been the primary sector which has been consistent in providing employment to around 65%. Within organized sector the Public sector has been the major provider of employment at around 19%.

Review Questions and Key

1. Explain the growth rate of employment in different sectors.

(Refer Table No. III)

Show the contribution of organized and unorganized sectors towards employment. (Refer table no. iv)

www.FirstRanker.com

Lesson – 4

GENERAL PRICE LEVEL

Introduction

The study of general price level is another indicator of the health of the economy. Price level and purchasing power have inverse relationship. Increasing prices reduce people's purchasing power and thereby bring hardship and fall in general welfare. Hence, every government tries to keep the rate of inflation under acceptable level so that economic activities are also induced and people's purchasing power too remains high. Therefore, rise in real income of the people can be analyzed through the rise in inflation.

Objective

Reading the trend of general price level will enable us to analytically reach to a conclusion as to what had been the level of real economic development in the country.

Contents

Price situation during 1979-80 to 1989-90. Price situation after liberalization.
Causes of price rise.

Table V. Price situation during 1979-80 to 1984-85

Year	Whole Sale Price Index all Commodities (1970-71=100)	% Variation over the previous year
1979-80	218	-
1980-81	256	17.4
1981-82	281	9.8
1982-83	289	2.9
1983-84	316	9.4
1984-85	338	7.0

It is clear from the Table V that during 1979-80 to 1984-85, prices rose quite sharply except for the year 1982-83 when the variation in the price over previous year was only 2.9 percent.

Table VI. Price situation During 1985-90

Year	Whole Price Index	Annual increases % (1981-82=100)
1984-85	120	6.0
1985-86	125	4.9
1986-87	133	4.7
1987-88	144	10.7
1988-89	154	5.7
1989-90	166	8.1

During the years 1985-90 the whole sale price index rather increased steadily. The annual rate of inflation ranged between 4.7% to 10.7%, which by all means can not be said as moderate.

Table VII. Price Situation after Liberalization

(1981-82=100 and 1993-94=100)

Year	Whole Sale Price Index	Annual Rate of Inflation
1990-91	182.7	10.3
1991-92	207.8	13.7
1992-93	228.7	10.1
1993-94	247.8	8.4
1994-95	112.6	12.6
1995-96	121.6	8.0
1996-97	127.2	4.6
1997-98	132.8	4.4
1998-99	140.7	5.9
1999-2000	145.3	3.3
2000-2001	155.7	7.1
2001-2002	161.3	3.6
2002-2003	166.8	3.4
2003-2004	175.9	5.5

The table above presents a complete picture of price trend during the entire period of liberalization. Annual price rise ranged from 13.7% in 1991-92 to 3.3% in 1999-2000. The average annual inflation remained in and around 7.2% throughout the period of liberalization. But in the initial period it was high because of increased administrated price and high indirect taxes and increase in the petroleum prices.

Causes of Price Rises

Rise in inflation can't be attributed to one or two reasons but there is multiplicity of causes responsible for this. More aptly to say, inflationary pressure has a long history in India, particularly form the time of II world war when demand rose very sharply and supply was very scanty. But in recent years cost push, demand

pull and structural factors have been mainly responsible for this. Expanding demand for goods and services is due to the ever rising population of the country, rising money incomes, expansion in money and liquidity in the economy, rising volume of black money etc. on the other hand, supply side of the economy is also equally responsible for this. Supply of goods and services has not risen in the proportion as the demand. This may be due to failure of monsoon, bottlenecks in transport, power, shortage of various inputs etc.

Summary

The study of price level indicates about the purchasing power of the people. It also indicates about the real upliftment in the general standard of living of the people. When we look to the rise in prices from 1979-80 to 1984-85 we find that during the years 1980-81, general price level increased by the highest 17.4 percent. In the period between 1985-90 based on 1981-82 prices the general price level increased by highest 10.7 percent during 1987-88. After liberalization the general price level rose highest by 12.6 percent during the years 1994-95. There were different causes for the rise in prices. The prominent among them were imposition of additional taxes, financing of development projects, public debt, deficit financing, social security burden, infrastructural development etc.

Review Question and Key

1. Explain the price situation in India during 1979-80 to 1985-90.
(Refer Table No.V and VI)
2. Explain the price situation after liberalization
(Refer Table No.VI)
3. Point out the various causes for the rise in general price level
(Mention the point I to X in the sub heading – causes for price rises).

Lesson - 5

FISCAL POLICY AND FULL EMPLOYEMENT

Introduction

Fiscal policy is a part of general economic policy of the government, which is primarily concerned with budget receipts and the expenditure of the government. Fiscal policy explains the tax and expenditure policy of the government. It encompasses two separate but related decisions, public expenditures and the level and structure of taxes. The amount of public outlay, the incidence and effects of taxation and the relation between expenditure and revenue exert a significant impact upon free enterprise economy.

Objectives

Attaining full employment
Leveling the gap of income distribution
Economic stabilization
Economic Growth

Contents

Fiscal policy and economic growth
Fiscal policy and full employment
Fiscal policy and Social justices
Fiscal policy and Economic stabilization
Role of fiscal policy in developing countries.

Fiscal Policy and Economic Growth

Developed economies aim at attaining full employment through long term fiscal policy. Keynesian analysis of fiscal policy is considered as short term view where as post Keynesian economists like Hanson, Harrod and Domer have tried to extend Keynesian analysis to a more comprehensive long term theory of income and employment. Therefore, the main objective of long term fiscal policy in developed country is conceived to be the maintenance of a steady growth of full employment income with out inflation or deflation in order to avoid secular stagnation or secular inflation.

According to Harrod and Domer, investment plays a vital role in the process of economic growth. In the process of secular growth, along run disequilibrium may occur in a mature economy. The reason behind this disequilibrium may be the income does not grow at a rate just sufficient to ensure full capacity use of a growing capital stock. Thus, the objective of growth and full employment in the long run is associated with problem of enlarging capacity through investments in capital goods sector. Therefore, in the long run, employment is the function of the rate of growth, investment and income.

But the role of fiscal policy in a developing country is different because this type of countries are caught in the grip of vicious circle of poverty, and quite obviously the aim and objective of long term fiscal policy in these countries should be breaking the vicious circle of poverty. Rapid economic growth is the long term objective of fiscal policy in poor countries and thereby to break the circle.

Fiscal policy aims at fulfilling following objectives while used as a means of encouraging economic growth:

Providing revenue to public enterprises.

Imposition of additional taxes

Realizing and channelizing the potential resources into productive projects.

Direct physical control.

Increase in the rate of taxation.

Public dept.

Deficit financing.

To promote investment into socially desirable channels.

Inducing and stimulating private investment.

To change the direction and pattern of investment and production so that general economic welfare is improved and to level the gap of the distribution of wealth and income. (reframe the highlighted sentence)

Fiscal Policy and Full Employment

According to Keynes, public finance is a compensatory finance which should aim at full employment and to maintain it. To attain this let us see some of the suggestions made by Keynes-

a) *Deficit budget:* Budgetary policy should be designed to fight deflation and unemployment. A deficit budget will bring about expansionary effects in a stagnant economy.

b) *Tax Policy for Stimulation:* The tax policy should be designed in such way that it stimulates consumption and investment both. To affect this, indirect taxes should be brought to minimum so that purchasing power of the people should increase and effective demand increases. Direct taxes should also follow the same policy so as to step up investment

c) *Compensatory Public Spending:* Compensatory public expenditure and public sector investment play a vital role in attaining full employment in the present day public policy. Public expenditure and public works like road construction, buildings, parks, school, colleges, hospitals, canals etc. This will stimulate effective demand and volume of employment.

d) Public debt management: Efficient and effective public debt management can be used for achieving full employment. This can happen when public expenditure is partly financed through public borrowings. Government should follow cheap money policy so that burden of public debt will not be much. Government should borrow from the people with whom money remains idle.

Democratic governments aim at providing maximum social welfare which can be attained through providing social justice which lie in equitable distribution of income and wealth. Fiscal policy can serve as an effective means of achieving this much desired objective through expenditure, tax and debt policy. Therefore, budget policy should aim at re-distribution of wealth by taxing more to the rich and by providing free medical, education, housing and other social upliftment measures.

Fiscal Policy and Economic Stabilization

Economic stability is a macro- goal of the fiscal policy of a country whether developed or developing. By economic stabilization it means -

a) Controlling recession or depression and Price stability- Checking inflation or deflation.

Fiscal Policy and Social Justice

Anti-Depressionary Fiscal Policy

Keynes advocated the effectiveness of fiscal policy to over come depression. According to Keynes, depression is the consequence of deficiency in effective demand and that can be over come by a deficit budget policy.

A deficit budget policy during depression follows the following strategies-

- 1) Reduction in direct taxes.
- 2) Increases in public expenditure and
- 3) Repayment of public debt

These strategies will tend to increase the flow of total expenditure and thereby the size of effective demand which as per Keynes, pull out a country from the state of depression.

Expenditure could be increased through two different prescriptions-pump priming and compensatory spending.

Pump priming refers to that initial public expenditure which helps to initiate and revive economic activity in a depressed economy. The idea is aimed at increasing private investment through public expenditure.

Compensatory spending on the other hand, refers to government expenditure which is undertaken with the idea of compensating the decline in private investment. Depression brings down the private investment because of the low marginal efficiency of capital, whose automatic revival is not possible. Thus, the government having no other alternative than to resort to public investment fills the gap in private investment.

Deficit Financing

Keynes' another suggestion to raise the effective demand is deficit financing which means the government spends more than its revenue and thereby relying on unbalanced budget. It rises public spending because the public have extra purchasing power in their hand and consequently effective demand rises.

Fiscal Policy during Inflation

The economy which has initiated economic growth makes huge investment to construct social overhead capital, infrastructure of the economy and development of heavy industries which all have a long gestation period, and returns are not immediate, shortage of consumption goods are felt. This leads to rise in prices. This demand pull inflation causes wages to go up and resultantly cost push inflation is generated. This vicious circle of inflation has to be checked through appropriate fiscal measures.

Therefore, in order to arrest the inflation, fiscal policy should aim at curbing the flow of expenditure, particularly consumption expenditure and reduce the demand. Hence a surplus budget policy will help which may have the following prescriptions.

- i Increases in direct taxes to squeeze the purchasing power of the people and reduce their consumption expenditure.
- ii Reduction in public expenditure and
- iii Attempt to increase public debt by issuing bonds etc., to seize people's purchasing power.

Role of Fiscal Policy in Developing Countries

The role of fiscal policy in developing countries has to be different from that of in developed countries for the obvious reason that the task of fiscal policy in developing country is or ought to be rapid economic growth.

Objective of Fiscal Policy in Developing Countries

- i **Capital Formation:** Fiscal policy in the developing countries aims at the formation of high rate of capital. Private capital is generally shy in these countries and so the government has to fill up this lacuna.
- ii **Allocation of Resources:** Another objective of fiscal policy in a poor country is to divert existing resources from unproductive sectors to productive socially more desirable projects.
- iii **Social Justice:** Equitable distribution of wealth and income in the society is another important objective of the fiscal policy. Though, equitable distribution of wealth and income and economic growth-are two paradoxical issues. Hence difficulty arises. Equitable distribution reduces aggregate savings as the propensity to consume of the poor people is high and the propensity to save of the rich people reduces. Socialism brings social justice

but not growth. Hence, government has to choose between capitalistic system suitable for high growth or socialism.

Summary

Fiscal policy is an important and integral part of modern public finance. It is related to government spending, taxation, borrowing and management public debt. Therefore, fiscal policy comprises, budget instruments and government transactions designed to further general economic development and allied objectives.

It operates through both taxation and expenditure programs of the government. Obviously, fiscal policy relates itself with aggregative effects of public expenditure and taxation on income, output and employment.

Review Question and Keys

- 1) What is fiscal policy? Explain its objectives.
(Refer to I and II para of the lesson)
- 2) Explain the role of fiscal policy in developing country.
(Mention the role of fiscal policy as – capital formation, allocation of resources and social justices)
- 3) Examine the role of fiscal policy in attaining full employment and growth.
(Explain the sub points deficit budgetary policy, tax policy for stimulation, compensatory public expenditure, public debt management etc.)
- 4) Point out the role of fiscal policy in economic stabilization.
(Explain anti depressionary fiscal policy and mention reduction in direct taxes, increase in public expenditure and repayment of public debt)
- 5) What is the role of fiscal policy in bringing social justice? Explain.
(Explain the role of fiscal policy like progressive taxation and subsidy spending)

LESSON - 6

MONETARY POLICY

Introduction

Monetary policy plays a vital role in shaping the economy of a country because money and credit influence tremendously the course, nature and volume of economic activities. A keenly and appropriately weaved monetary policy can significantly aid economic growth by adjusting the money supply according to the needs of economic growth by directing the flow of funds into desired channels. Apart from that, monetary policy can make available the institutional credit to the much desired and required economic pursuit more appropriately, in the present day management of the economy, monetary policy plays an extremely important role of stabilizing the economy.

Meaning of the Monetary Policy

Monetary policy is an important tool in the hands of the monetary authority (more often central bank of the country) to regulate the flow of money in the economy according to needs at a particular point of time. Through this tool, the monetary authority achieves many macro economic goals. The need for monetary policy is felt because money can't manage itself. Monetary management itself therefore, the main issue of monetary policy.

According to Prof. Wrightsman, *the deliberate effort by the central bank to control the money supply and credit condition for the purpose of achieving certain broad economic objectives.* (something needs to be added, sentence incomplete)

In the Indian context, monetary policy comprises those decisions of the government and the *Reserve Bank of India* which directly influence the volume and composition of money supply, the size and distribution of credit, the level

and structure of interest rates, and the direct and indirect effects of these monetary variables upon related factors such as savings and investment and determination of output, income and price.

Monetary policy is only a means to an end and not an end in itself. Monetary policy has to be structured and operated within the institutional framework of the money market of the country. Credit control measures and decisions are the constituent elements of a monetary policy.

In a developing economy there are two factors of monetary policy- Positive and Negative. In its positive aspect, it sets out the promotional role of central banking in improving the savings ratio and expanding credit for facilitating capital formation. In its negative approach, it implies a regulatory phase of restricting credit expansion, and its allocation according to the absorbing capacity of the economy.

1. Neutrality of Money

According to some economists like Wicks Steed, Hayek and Robertson the best monetary system is one in which money is neutral. Money should be a passive factor. It should not be allowed to interfere with economic forces like productive efficiency, real cost of production and consumer preferences. Therefore, according to them money should facilitate exchange alone. The quantity of money should be controlled in such a way that the total output, the total transactions and prices of goods and services being exactly what they would be in an efficient barter economy.

It implies that the monetary authority must keep the quantity of money perfectly stable.

The neutral money concept has been criticized severely by many economists as follows:

It is based on the out dated concept of quantity theory of money - The critics have discarded the concept of neutrality of money as an outdated concept which can't be practiced in the modern day management of the economy.

Neutrality can't guarantee price stability - In modern economy in which technological and scientific developments play a vital role in increasing production and under such conditions quantity of money is kept fixed, it would only lead to deflationary conditions.

Neutral money policy not suitable during depression- During depression when prices are falling neutral money policy will not hold good. There is the need to have active money policy during depression.

Contradictory and impractical - The concept of neutral monetary policy and the very purpose for which it is suggested are not only contradictory but also impractical. This is based on concept of laissez - faire philosophy and existence of perfect competition, have been rejected long back in modern dynamic economy.

Therefore, as a conclusion it can be said that a neutral money policy can't check the occurrence of business cycle in an economy and that money has come to stay as an active element in a modern economy.

2. Price Stability and Control of Business Cycles

In Normal cases, capitalism has inborn characteristics of fluctuations in prices and cyclical variations among other disadvantages of monetary system under capitalism. Therefore according to Cassel and Keynes and others, a more important aim of monetary policy is to achieve and maintain price stabilization and normal business activity through regulating the credit appropriately.

Arguments in Favour of Price Stabilization

Smooth production and distribution: Price instability creates difficult problem of production and distribution, affecting differently different sections of the

community. Precisely, there are innumerable evil aspects of inflation or deflation.

Eliminates the Evils of Inflation and Deflation: Both inflation and deflation brings reduction in social welfare and hardships to individuals. Inflation reduces purchasing power and thereby reduces economic welfare, deflation brings fall in production, employment and income and thereby hardships. Therefore, stability of price can prevent these evils.

It eliminates socio-economic disturbances: Changes in price level cause disturbances in economic relationships within a country and among countries as well. This may bring dire economic and social consequences to all concerned. Therefore, price stabilization is prescribed to eliminate these disturbances.

It Leads to Economic Stabilization: By eliminating cyclical fluctuations, price stability leads to economic stabilization.

Apart from the above, price stabilization leads to equity in distribution and economic welfare also.

Arguments against price stabilization

Prices stability is opposed generally following grounds

It is a Vague Policy- The concept of price stabilization is vague and thereby it is difficult to determine the price level to be selected for stabilization.

Obstructs Economic Growth - Price stabilization as the potentials of hindering economic development, as it will remove much of the price incentives to the business community and as such productive activity will suffer from stagnation.

It is not suited for a dynamic economy.

It ignores the importance of relative prices and changes in working of the market economy.

It also has the potentials to adversely affect economic relations.

It is impractical.

In fact a mild inflation of the magnitude of 2 to 3 percent is suggested for the smooth growth and economic development of an economic.

3.Full Employment

Most economists considered attainment of full employment as for most and ideal objective of monetary policy after the publication of “General Theory” of Keynes. Thus, the use of monetary policy for promoting full employment is of recent origin. Many modern economists are of the view that, economic stabilization can be combined with the objective of having a full level of employment. By encouraging saving and investment, monetary policy can play an effective role in realizing its objective of full employment. Many modern economists feel that the proper aim of a monetary policy is neither price stability nor neutrality of money, but optimum utilization of resource full employment level.

4. Monetary Policy and Economic Growth

Economic growth is undoubtedly the primary goal of any country. Therefore, monetary policy is taken into help for achieving this goal. Though, till recently many economists considered monetary policy as a short term policy primarily aimed at full employment and mitigating cyclical fluctuations and not concerned with economic growth. However, recently it has been realized by the economists and the managers of the economy that mere achieving full employment is not enough but the economy should aim at achieving continuous and faster economic growth for providing a high standard of living to the people. Some economists like Howard Ellis, are strongly opposed of the idea of the role monetary policy is economic growth because they fear inflation. Still there are economists like Whittlesey, who strongly support the role of monetary policy in economic growth and argue that since economic growth is the primary aim of the general economic policy which is a part of the general economic policy, there is no reason why monetary policy should not be directed to achieve this

objective. Monetary policy can contribute to the achievement of economic growth in two ways-

- Management of aggregate demand and
- Encouragement to saving and investment

Let us explain the above two points:-

Management of Aggregate Demand

It is expected from the monetary authority to keep the aggregate demand for money in balance with the aggregate supply of goods and services. For this, a flexible monetary policy is required. A tight or dear restrictive money policy will have to be applied when there is excess demand on the economy threatening to raise prices and create conditions of unsustainable boom. Contrary to that an expansionary or cheap credit policy has to be followed when there is deficiency of aggregate demand and supply is in excess causing a fall in prices, production, employment and income.

It is argued that a tight money policy impedes while an easy money policy promotes economic growth. But both are extremist views where as the truth lies in the mid way. A tight money policy is not conducive to growth when it is applied at a wrong time. In a situation when demand is deficient and resources are unemployed, an easy money policy is most suitable. But if it is carried beyond the limit, it will generate inflationary pressure and to control it. A tight money policy would be needed. Therefore, a flexible monetary policy has been advocated to achieve economic growth with price stability. Precisely, monetary policy can assist in promoting economic growth by maintaining reasonable price stability and optimum use of economic resources in an economy.

1. Encouragement to Saving and Investment

Monetary authority can help economic development by creating a favorable environment for saving and investment which is the back bone of the

economic growth. For this monetary policy should aim at price stabilization. Price stability encourages saving and investment. Saving being the main source of capital formation, when saving increases under favorable circumstances, capital formation can also be accelerated which in turn accelerate economic growth.

2. Exchange Rate Stability and Equilibrium in the Balance of Payments

A smooth operation of international trade depends upon exchange rate stability and this in turn brings confidence internationally. Instability in exchange rate might lead to undesirable effects such as weakening of the currency in the world market, speculation and even flight of capital.

The objectives of exchange stability of a monetary policy could easily achieve equilibrium in the balance of payments of a country under the gold standard. Traditionally, countries that have faced disequilibrium in their balance of payment, have used monetary policy for correcting it.

Following are the ways through which a restrictive monetary policy tends to reduce country's balance of payments deficit:-

It forces domestic demand downwards and thereby reduces the demand for imports and of domestic goods.

Fall of domestic demand ease down the pressure of inflation which makes imported article less attractive. At the same time exports become more attractive.

Under dear money policy, higher interest rates make it less attractive for foreign countries to borrow from the deficit country and induce them to invest there.

Summary

Monetary policy refers to all such decisions and measures of the monetary authorities, state and central bank, influencing money supply and credit situation in the monetary system as a whole with a view to full fill certain macro economic goals.

Monetary policy basically deals with two aspects of credit- 1) The cost of credit and 2) The availability of credit.

Monetary policy involves three major steps- 1) Choice of objectives 2) Implementation of the policy and 3) Relationship between action and steps. Major objectives of monetary policy include—Neutrality of money, exchange rate stability, price stability, full employment and economic growth.

Review Questions and Key

What is monetary policy?

(Explain the meaning of the monetary policy mentioned in the beginning of the lesson)

Mention the different objectives of monetary policy.

(Explain the objectives of the monetary policy like economic growth, full employment, neutrality of money, exchange rate stability and balance of payment equilibrium, price stability and control of business cycle)

Explain monetary policy and full employment.

(Point out the different monetary steps taken for achieving full employment)

Explain the relationship between monetary policy and economic growth.

(Explain the ideas mentioned in the sub point 4 – Monetary policy and economic growth)

How is price stability maintained through monetary policy?

(Mention the views explained in sub point 2 – price stability and control of business cycle)

Do you feel that money should be neutral? Explain

(Mention the views contained in sub point 1)

Lesson - 7

INDUSTRIAL FINANCE

Introduction

‘Finance’, in board sense refers to monetary resources needed by individuals, industries, business houses, farmers and the government to carry out their activities smoothly. The financial system of India is characterized by the system of borrowing and lending of funds or the demand for and supply of funds of all individuals, institutions, companies and the government. In India, the whole financial system is classified into the following four categories generally.

- i Agricultural Finance: Fund need by the farmers for the conduct of agricultural and allied activities.
- ii Industrial Finance: Funds required by the industries for the conduct of industry and trade.
- iii Development Finance: This include both agricultural as well as industrial finance but the nature is basically developmental rather than operational or maintenance, and finally,
- iv Government Finance: This is required by the government and supplied to it for meeting governmental expenditure.

With the end of II world war there was urgent need of re-construction and development of the economies devastated by the war. Speedy industrial expansion was needed. Though India was not an active partner of the war and so away from devastation, but changed economic condition wanted Indian industries to grow fast and the agencies providing finance to the industries were either apathetic or inadequate. Therefore, the government of India set up a number of financial institutions to provide funds to the large industrial sector.

Prominent among them were Industrial Finance Corporation of India(IFCI) in 1948, the Industrial Credit and Investment Corporation of India(ICICI) in 1955, the Industrial Development Bank of India(IDBI) in 1964, the Indian Reconstruction Bank of India(IRBI) in 1971, the Export and Import Bank of India(EXAIM BANK) in 1982 etc, Not only that, at the state level also, the state governments established - State Financial Corporation(SIFCs) and State Industrial Development Corporations(SIDCs) to finance industries. All these institutions have come to be known as public sector financial institutions and are the part of the Indian Money Market.

Objective

Studying this will enable us to know the various aspects of money and capital markets which can be listed in the following ways:-

Structure of Indian Money Market

Components of Indian Money Market

Organized and unorganized sector.

Capital market

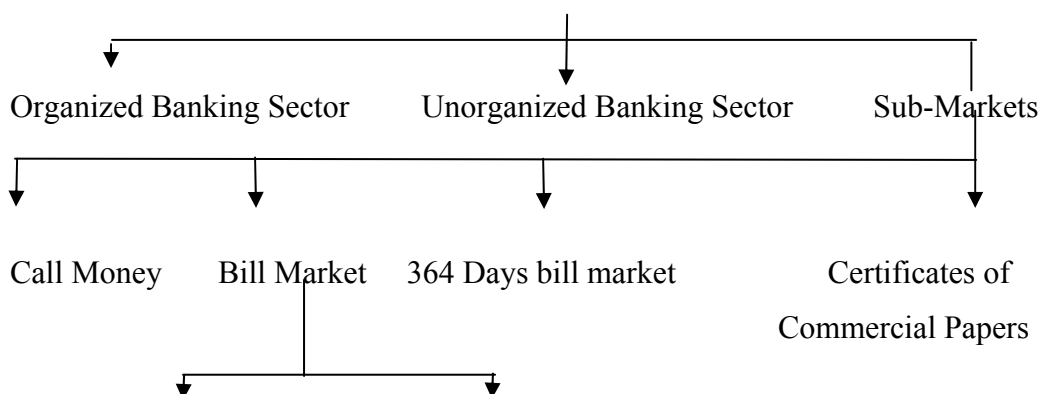
Organization of Indian Capital Market

Characteristics of Indian Capital Market.

Composition of Indian Money Market

A well - structured and organized money market provides the base for an effective monetary policy. A money-market is a market which performs lending and borrowing of short-term funds, where short-term surplus investible funds of banks and other financial institutions are demanded by borrowers like individuals, companies and the government. Commercial bank acts as both suppliers of funds in the money market and borrowers. The following chart explains well the composition of Indian money market.

Indian Money Market



Commercial Bills Treasury Bill (90 Days)

The Indian money market is characterized by organized and unorganized sectors. The organized consists of indigenous bankers and non-banking financial institutions. The organized sector comprises of the Reserve Bank, the State Bank of India and its associated banks, the nationalized banks, private sector banks both foreign and Indian. One of the important characteristics of Indian money market is that it is not a single homogeneous market but is composed of several submarkets, each one of them deals a particular type of short-term credit.

1.Call Money Market

Call money market is one of the sub-markets of the Indian money market which deals with very short-term funds and is also known as money at call and short notice. Public sector banks, private banks and the non-banking financial institutions are the players of this market where majority of the fund is provide by the public sector banks.

2. Bill Market in India

The bill market or the discount market is the most important component of the money market where the short-term bills normally of 90 days are bought and sold. The bill market is further divided into two parts namely commercial bills and treasury bills. The government of India most often raises funds through 91 day treasury bills from the bill market.

RBI is the final authority and controller of monetary and banking conditions in the country. It has the responsibility to guide and control the institutions of the money market and to full fill this it is armed with both qualitative and quantitative weapons of credit controls.

3. Features and Defects of the Indian Money Market

Presence of unorganized money market- one of the most alarming defect of the Indian money market is the existence of the indigenous bankers, who do not distinguish between short-term and long-term finance. They also are not guided by the RBI guidelines and involve in all the ills of lending.

Lack of integration- A major defect of the Indian money market is the lack of integration between different public sector, private and foreign banks. After the passage of the Banking Regulation Act 1949 the problem of disintegration is almost over.

Multiplicity of interest rates- Another defect of the Indian Money Market is the existence of too many rates of interest which is due to the immobility of funds from one section of the market to another.

Absence of the bill market- Indian Money Market did not have the bill market whereas a well organized bill market is necessary for linking up the various credit agency effectively to RBI.

Highly volatile call money market- This market is known for 'money at call and short notice'. It has in fact two segments - Call market or over night market and short notice market. Call money market rates are determined by demand for and

supply of short term funds. Because money called for is always for urgent needs, lending rates are always very much fluctuating ranging from 70% to 1.5% per annum.

4. RBI and the Indian Money Market

R.B.I has been taking important measures time to time to remove the defects of the Indian money market and it has been successful to a great extent too. The discrimination between Indian and foreign banks does not exist now. Disparity of interest rates from banks to banks on regional or sectional grounds does not exist now. Through money market operations, shortages of money has also been reduced considerably by the R.B.I.

5. The Reforms in the Indian Money Market

Recommendations of the Sukhmoy Chakravarty Committee on the review of the working of the Monetary system and the Narasimhan committee report on the working on the Financial System in India, 1991 have induced the R.B.I to bring the series of money market reforms which is listed below:

Deregulation of Interest rates: R.B.I used to keep a strict control over interest rates. But after the recommendation of Narasimham committee, interest rates were further deregulated and financial institutions were freed to fix their rate of interest.

R.B.I used to keep a strict control over interest rates but after the recommendations of Narasimham committee interest rates were further deregulated and financial institutions were freed to fix their rate of interest.

Introduction of new instruments in the money market-Previously there were only 91 days treasury bills traded in the money market but R.B.I introduced new instruments like 182 days treasury bills, 364 days treasury bill, longer maturity treasury bills, dated government securities, certificates of deposits and commercial papers.

Traditionally 91 days Treasury bill has been an important instrument through which the government of India raised funds for short periods and commercial banks invested their short-term funds. There was a time when treasury bills by commercial banks were solely governed by SLR Considerations. But the things have changed now. They transact in the secondary market instrument also.

182 Days Treasury Bill

182 days treasury bills were variable interest bill and were sold through fortnightly auctions. Though they were highly yield giving but they have been replaced by 364 days Treasury Bills.

364 days Treasury Bills

Because of the success but difficult to operate 15 day treasury bill, there was considerable scope for financial institutions to go for long-term bills. The 364 day treasury bills are important instruments of government borrowing form the market. Financial institutions recognized the yield rate on 364 day treasury bills as the anchor rate for floating interest rate instruments.

The R.B.I in 1997 introduced two more treasury bill that is 14 day intermediates treasury bills and 14 day treasury bills.

Dated - Government Securities

The government of India has decided to sell dated securities that are 5 years and 10 years maturity, on an auction basis. The purpose of which can be listed as below:

To develop dated securities as a monetary instrument with flexible yields

For the financial instruments to suit investor's expectations and

To meet the needs of the government directly from the markets.

Repos and Reverse Repos

Introduction of repos and reverse repos in 1992 is an interesting development in respect of central government dated securities. Through these the R.B.I try to bring the fluctuations in liquidity of the money market to minimum. Since 1996,

The R.B.I has introduced reverse repos that is to sell dated government securities through auction at fixed cut of rate of interest. In the days the R.B.I is using repos and reverse repos as a deliberate policy to influence the volume of liquidity in the money market and also to stabilize the short term rate of interest or the call rates. This policy of using repos and reverse repos is now called the Liquidity Adjustment Facility (LAF) and this has emerged as a major instrument of monetary policy since 2000-2001.

Certificates of Deposits(CDs)

The CDs are other important instruments of money market. Initially, CDs were issued in the multiples of Rs 25 lakhs but it was reduced to Rs 1 lakhs to increase the investors' base. The maturity is between 3 months and one year. They are issued at a discount rate and that is freely determined according to market conditions. CDs are freely transferable after 45 days from the date of issue.

Commercial Paper(CP)

The commercial papers are issued by companies of a net worth of Rs.5 crore. This is issued in the multiples of Rs 25 lakhs subject to a maximum issue of Rs 1 crore. The maturity period subject of a commercial paper is between 3 to 6 months. They are issued at discount rate, the face value which is freely determined. Maximum amount of CP that a company can raise is limited to 30% of the maximum permissible bank finance. The purpose of introducing CP is to enable high level corporate borrowers to diversify their source of short-term borrowing on the one hand, and provide an additional instrument to the banks and financial institutions in the money market, on the other.

Summary

Finance in broader sense, refers to monetary resources needed by individuals, industries, business houses, farmers and government to carry out their activities smoothly. The whole finance system in India is classified as – agricultural

finance, industrial finance, development finance and government finance. Study of this lesson enables us to know the structure, components, organization and characteristics of Indian money and capital market. Indian money market is comprised of organized banking sector, unorganized banking sector and sub markets which in itself is comprised of call money market, bill market, 364 days bill market certificate of deposits, commercial papers. The bill market is of two types – commercial bills and treasury bills. Indian money market has many defects like – presence of unorganized money market, lack of integration, multiplicity of interest rates, absences of bill market, highly volatile money market. The Reserve Bank of India has brought many reforms in the Indian money market.

Review Question and Keys.

Explain the meaning and structure of Indian money market.

(Refer to the introduction of this lesson and sub point 1 – composition of Indian money market.)

Explain the reforms in Indian money market.

(Refer to sub point 5 of this lesson)

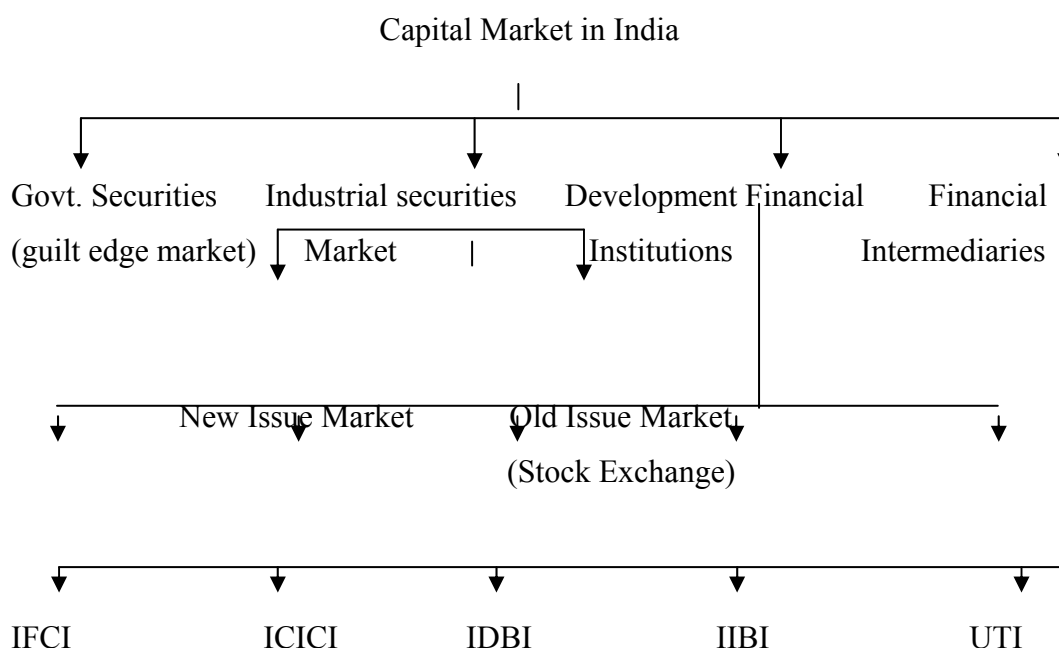
Lesson – 8

CAPITAL MARKET

Introduction

As money market is the market of short-term finance, capital market is for long-term finance. It is known for all facilities and the institutional arrangements for borrowing and lending term funds (medium and long term funds are known as term funds). Capital market does not deal in capital goods but is concerned with the raising with money capital for the purpose of investment. For the cause of economic development all, the government, the private sector manufacturing industries and agriculturists demand long term capital from the capital market. On the other hand, individual savings, corporate saving, banks, insurance companies and the government are the main suppliers of the fund in capital market. In recent times, provident funds, development financial institutions like IFCI, ICICI, IDBI, UTI etc and financial intermediaries such as merchant bankers, mutual funds, leasing companies, have become the major suppliers of funds to the capital market. In capital market too, like any other market, there are borrowers and lenders. An ideal capital market is that which provide sufficient capital at reasonable rate of return for business or industrial purpose, to make the borrowing worth.

The structure of Indian capital market can be explained through the following chart



Merchant Banks Mutual Funds Leasing Companies Venture Capital Others
companies

Objectives

Study of this lesson will enable the students to know the structure, functioning, organization and control mechanism of the Indian capital market. They will also be in a position to make an analysis of the role of SEBI in bringing a level playing field in the capital market.

Guilt-edge Market:

The guilt edge market is referred to the market for the government and semi government securities, backed by Reserve Bank of India. The value of the securities traded in this market is stable and are much sought after by banks and other institutions.

Industrial Securities Market:

Industrial securities market refers to the market for shares and debentures of old and new companies. This is also known as new issue market and old capital market which means stock exchange. The new issue market also known as primary market deals in rising of new capital in the form of shares and debentures. The old issue market or the stock exchange deals in securities already issued by companies.

Both the markets-primary and secondary or new issue and old issue market- are necessary but the primary market is more important with respect to economic development.

Development Financial Institutions

The Government of India, soon after the independence, set up a number of financial institutions to facilitate the private sector industries for providing finance to them as a view to speedy economic development of the country. The first financial institution setup in this regard was IFCI(1948). Next was SFCs, which were setup by state governments with the cooperation from the Reserve Bank of India, to provide long and median finance to median and small scale industries. ICICI, IDBI, UTI were established in the years 1955, 1964 and 1964 respectively. The LIC was setup in 1956 to mobilize saving from the individuals and to invest a part of it in the capital market. Apart from these, many other special institutions were setup for the above mentioned purpose and they are popularly known as public sector financial institutions. The development financial institutions provide funds to the private sector enterprise. They have been doing a tremendous job, is evident in the manner that while in 1970-71 to total assistance by these institutions stood at Rs.203 crores, increased up to an unimaginable amount of Rs.1,21,350 crores in 2000-2001.

Bank and the Capital Market

Commercial banks are one of the most important organs of the Indian capital market but they have restricted their operations to the purchase and sale of

government and others trust securities. But in recent years, banks have increased their participation in term lending through subscribing to the shares and debentures of special financial institutions. They are also setting up financial intermediaries as merchant houses, mutual funds, venture capital companies, leasing companies etc. to mobilize funds for investment in industrial securities.

Non- Banking Financial Companies(NBFCs)

In recent years non-banking financial companies have grown tremendously. They advance loans to whole sale and retail traders, small scale industries and self-employed persons. The loans are generally unsecured and the rate of interest charged by them may range between 24-36% per annum. NBFCs run chit funds, purchase and discount hundis and also undertake the work of merchant banking mutual funds, higher purchase and leasing etc.

The R.B.I has classified NBFCs into the following categories.

Non-banking financial company.(NBFCs) of which the principal business is to receive deposit from the public under any scheme and lending in any manner.

Equipment leasing company of which the principal business is to equip leasing or financing.

Hire purchase finance company of which the principal business is to hire purchase transactions or financing.

Investment Company of which the principal business is to buy sell securities. These include primary dealers who deal under writing and market making for government securities.

Loan Company provides loans or advances for an activity other than its own.

Residuary Non- Banking Company(RNBC), receives deposits from the public under any scheme but it does not belong to any of the categories of NBFC.

Mutual Benefit Financial Company(MBFC), is a company which is notified by the central government as a Nidhi company under section 620A of the companies Act 1956.

Miscellaneous Non Banking Company(MNBC) manages, conducts and supervise chit funds.

There is no specific legislation to govern the NBFCs instead they come under their different agencies. There are-

NBFCs are governed by the Companies Act 1956 because they are limited liability companies and they don't even come under the definition of a finance company.

With regards to its deposit, NBFCs are governed by Non Banking Financial Companies(Reserve Bank) Directions 1997.

Some of the NBFCs are governed by SEBI who are engaged in merchant banking and portfolio management.

But the government of India enacted the Reserve Bank of India (Amendment) Act, 1997, which confers wide ranging powers on R.B.I for controlling the functioning of non banking financial companies.

Merchant Banking

The concept of merchant banking is relatively new in India in the area of financial services. It caters to the needs of trade and industry by acting as intermediary, consultant, financial and liaison agency initially, commercial banks setup merchant banking divisions, which later became separate merchant banking subsidiaries. Merchant banks in India manage and underwrite new issue, undertake syndication of credit, they advise corporate clients on fund raising and other financial aspects. They don't undertake banking business like deposit banking, lending and foreign exchange services like foreign merchant banks.

The merchant banks in India were subject to two types of authorities-

1. The SEBI(The Securities and Exchange Board of India) sought to authorize and regulated all merchant banks on issue activity and portfolio management of their business and ,

2. Merchant banks, who were subsidiaries or affiliates of commercial banks were supervised by the R.B.I. If the merchant banks were to raise deposits, they would have to be subject to guidelines issued by the R.B.I

3. Merchant banks have been statutorily brought under the regulatory framework of SEBI. Accordingly merchant banks have to adopt the stipulated capital adequacy norms. They are also subject to abide by a code of conduct which specifies a high degree of responsibility towards investors in respect of pricing and premium fixation of issues and debentures in the prospectus or offer letters for fresh issue of capital.

Leasing and Hire Purchase Companies

Leasing is a popular way of financing method for acquiring plant and machinery especially for small and median sized enterprises. They have grown very high and the reason being speed, informality and flexibility to suit individual needs. Narasimham committee has recognized the importance of leasing and hire purchase companies and has recommended the following:-

A minimum capital requirement should be stipulated.

Prudential norms and guidelines in respect of conduct of business should be laid down and

Supervision should be based on periodic structure returns by a unified supervisory authority.

Summary

Capital market is a market for long-term finance. It provides term finances for the cause of economic development. The Indian capital market comprises of – gilt edged market, industrial securities market, development financial institutions, financial intermediaries. Industrial market is comprised of new issue market and old issue market (Stock Exchange). Development financial institutions are – IFCI, ICICI, SFCS, IDBI, IIBI AND UTI. The financial

intermediaries are like – Merchant Banks, Mutual Funds, Leasing Companies, Venture Capital Companies and others.

Review Question and Key

1. Explain the meaning and components of Indian capital market
(Refer the introduction of this lesson)
2. Explain merchant banking and leasing and hire purchase companies
(Refer to merchant banking and leasing hire purchasing companies in this lesson)

www.FirstRanker.com

Lessons – 9

MUTUAL FUNDS

Introduction

The origin of the mutual funds can be traced in Britain in the late 19th century and early 20th century. Unit trust was the first mutual fund in India which was set up in 1964. Mutual funds are those who represent pooled savings of investors in diversified portfolio to obtain maximum return on investment with the minimum risk. In recent years, mutual funds have become most important among the newer capital market institutions. Like unit trust of India, many public sector banks and financial institutions have setup mutual funds on tax saving schemes.

Objectives of Mutual Funds

To provide investment opportunity to the small investors to participate in the fast growing corporate securities market through indirect way.

To provide a higher return than the banks without having much risk.

To mobilize savings from the small investors and channelise them for productive purposes.

To provide multiplicity of investment options like current return, capital appreciation, tax benefit or a combination of all these.

To strengthen the capital market by assuring better flow of funds.

Contents

Meaning of mutual funds

Objectives of mutual funds

Registration and Trustee

Advantages of mutual funds

SEBI's regulations

Some Major Private Mutual Funds

ICICI Ltd. Mutual Fund, IDBI Mutual Fund, Kothari Pioneer Mutual Fund, 20th Century Mutual Fund, Alliance 1995, GIC Mutual Fund, Birla Mutual Fund, JM Mutual Fund and ITC Mutual Fund etc.

Government allowed the entry of mutual fund in 1992 and SEBI has cleared a number of private mutual funds. Above mentioned are a few among them.

Registration and Trustee: Mutual funds are required by law to obtain a certificate of registration from the SEBI. They have to apply in form A and deposit a fee of Rs. 25000/-. A mutual fund will be constituted as a trust under a registered trust deed and managed by a trustee or by a board of trustees.

Advantages of Mutual Funds

Safety and stable return.

Convenience in investment. Investors need not worry where to invest.

Since it is invested in different portfolios, risk factor is reduced tremendously.

Broad basing of capital and the benefit of professional and skilled fund management.

It helps speedy formation of capital in the country.

Even small and pawn sophisticated investors are benefited by the mutual fund.

Freedom of selection from wide range of schemes having excellent liquidity.

SEBI'S Regulation

SEBI is empowered to lay guidelines and supervise and regulate the functioning of mutual funds. The guidelines will include advertisements, disclosures and reporting requirements. Mutual funds are under obligation to inform the investors regarding the status of their investment in equities, debentures and government securities. SEBI has introduced uniform regulations for the mutual

funds in the country, known as SEBI(Mutual Funds) Registration, 1993 which comprises of the following guidelines.

Mutual funds has to be established as a trust and should be managed by a separate asset management company(AMC). Mutual funds should be supervised by board of trustee.

The AMC must have a minimum net worth of Rs.6 crores of which the sponsors must contribute at least 40 percent.

Approval of SEBI must be obtained for the offer documents of scheme of mutual funds.

SEBI prescribe the minimum amount should be raised by each scheme.

The norms of advertisement and truthful discloser by the mutual funds in advertisements and publicity materials. (Incomplete sentence.)

Summary

Britain is the mother land of mutual fund. In India, Unit Trust was the first mutual fund which was set up in 1964. Mutual funds are those who represent pooled savings of investors in diversified portfolios to obtain maximum return on investment with the minimum risk. The main objectives of the mutual funds are like providing opportunities the small investors to participate in securities market, to provide higher return than the banks, to mobilize savings from small investors, to provide diversified investment portfolios and strength and capital market. By now private mutual funds are also allowed to participate in the capital market. Some of them are like ICICI Ltd. Mutual fund, IDBI Mutual Fund, Kothari Pioneer Mutual Fund etc. There many advantages of mutual funds as safety of investment, stable returns convenience, minimum risk and high return etc. SEBI regularizes the function of mutual fund.

Review Questions and Key

- 1) Explain what is a mutual fund.

(Refer to the introduction of this lesson)

- 2) What are the objectives of mutual fund?
(Refer to the objective part of this lesson)
- 3) Account for the advantages of mutual funds.
(Refer to the advantages part of this lesson)
- 4) Explain and comment on the various guild lines of SEBI for the regulation of mutual funds.
(Rrefer to the SEBI regulation part of this lesson)

www.FirstRanker.com

Lesson – 10

VENTURE CAPITAL FUNDS

Introduction

There are occasions when small entrepreneur fail to convince the banks to finance for their small enterprises and therefore they fail to get finance. In these situations some big and giant business organization, come forward to help these numerous small enterprises by providing seed and growth capital. OECD has defined the venture capital in the following words *Capital provided by forms who invest along side management in young companies that is not quoted on the stock market. The objective is high return form the investment. Value is created by the young company in partnership with the venture capitalists money a professional expertise.* The importance of venture capital companies is to give commercial support to new ideas and for the introduction and adaptation of new technologies. It also involves a very high degree of risk in financing venture capital.

Objectives

To understand the mechanism of venture capital cycle.

To know the over all scenario of venture capital in India

Contents

- a) Current trends in India.
- b) Venture capitalist
- c) Benefits of the venture capital.
- d) Narasimham committee's views

Current Trends in India

After the Government of the India Guidelines in 1988, many new venture capital funds were sponsored in India. ANZ Grindlays bank, an American bank, setup the first private venture capital fund. It was called 'India investment fund' there

after a number of foreign and indigenous funds came in the field. Now a situation has come where capital is pouring into private equity funds. The average ticket size of venture capital is also increasing. The small investors or to say the first entrants entrepreneurs are finding easier to raise fund. Many state governments are also setting regional venture capital funds competitions in stretching the valuation and there by V.C. firms are focusing the specific industries.

The flow of venture capital from in the investor to a start-up company and back passes through-

- (a). Rising of venture fund,
- (b). Investing in, monitoring of and adding value to firms and
- (c) Existing successful companies returning capital to investors.

Venture Capitalist

A venture capitalist is that who is a wealth man and finance to start-up companies. The start-up companies are normally new entrants or innovators who do not get financed by the banks for his or her newly developed product. Venture capital and private equity firms are pools of capital who are typically organized as a limited partnership. They invest in companies that provide an opportunity of high rate of returns within five to seven years. They will properly investigate about the opportunities in several such firms and then invest. Venture capitalists are not simply the passive financiers, but they foster growth in companies through their involvement in the management, strategic marketing and planning of their investee companies. Therefore, they are normally called as entrepreneurs first and financiers next.

There are different size of venture capital firms from small seed specialist firms of a few crores of rupees to several hundred and thousand of crores of rupees.

Benefits of Venture Capital

It has been experience that companies financed and baked by venture capitalist have grown faster than other type of companies. This became possible because of active involvement of experienced and expert venture capitalist.

Most often it becomes a challenge for the venture capitalist to see that the company earns profit and thus they do not leave any stone unturned.

The venture capital firms will try to increase a company's value to its owners, without taking day to day management control.

Venture capital firms usually work in tandem with other financiers and they may be able to help the entrepreneurs to put a total funding package together for the benefits of the entrepreneurs.

NARASIMHAM Committee's Views

The Narasimham committee was of the opinion that the guidelines for the setting up of venture capital companies were too stringent and unrealistic and thus be relaxed. Since venture capital is associated with high risk factor, the committee recommended a reduction in tax on capital gains made by these companies and equality of tax treatment between venture capital companies and mutual funds. The central government launched the National Venture Fund for Software and IT industry (NVESIT) to provide funds for technology development particularly for small and medium industries. It is managed by SIDBI (Small Industries Development Bank of India) SEBI has been made the single point nodal agency for registration - and regulation of both domestic and overseas capital funds.

Infrastructure Leasing and Financial Services Ltd.(IL&FS)

Infrastructure leasing and financial services Ltd. was set up in 1988, which focuses on leasing of equipment and infrastructure development. The company has been specially directed for structuring the finances of major projects in the power and transportations sector since in 1994-95, IL & FS has made a remarkable success in commercialization of infrastructure projects. In

association with the various states and central government agencies, it has worked for developing infrastructural projects in railways, power generation, telecommunication, water supply, water transport system etc. It is also engaged in the fields of investment banking and undertakes merchant banking activities. IL & FS is actively engaged in money and gilt-edge markets for trading in government securities, bonds of public sector undertakings, corporate debentures and units.

Summary

When the small and new entrants in the business and industries, having failed to convince banks of the gains from their prospective projects some of the wealthy people come forward to finance them with the seed and growth capital. This is known as venture capital and those who provide finance are called venture capitalist. After 1988 government guidelines, many new venture capital funds were sponsored in India. ANZ Grindlays Bank was the first private venture capital fund in India. There are many benefits of venture capital like – venture capital finance companies grow fast, venture capitalist take it as a challenge profit making of the companies, etc.

Review Question and Key

What is venture capital and who is a venture capitalist?

(Refer to the introduction and venture capitalist headlines of this lesson)

Explain the benefits of Venture Capital. Discuss Narasimham committee's views on venture capital

(Refer to the headlines - benefits of the venture capital and Narashimam committee's views)

Lesson – 11

CREDIT RATING

Introduction

With the development of finance market, number of institutions started operating in a very tough competitive atmosphere and thus, many companies came out with varied and attractive investment schemes. To invest an investor must assure himself of all the risks involved and therefore, the need was felt to have credit rating agencies that should work independently and rate the companies. America is the mother of credit rating where it was introduced in 1909. Credit rating is a codified rating assigned to an issue by authorized credit rating agencies like CRISIL, CARE and ICRA extra. These agencies have been promoted by well established financial institutions like IDBI, ICICI, UTI etc. Credit rating is a relative raking through a systematic analysis of the strengths and weakness of a company based on financial statement project analysis, credit-worthiness etc.

Objectives of Credit Rating

Credit rating has the following objectives:-

- 1) To provide a better information to the investors.
- 2) To provide the investor a sound basis for proper risk - return structure.
- 3) To teach the borrower a healthy discipline.
- 4) To assist in framing the guidelines for public policy on institutional investment.

Contents

Credit Rating agencies in India.

Rating methodology.

1. Credit Rating agencies in India

The need for credit rating agencies has been in discussion in recent time in India and after being convinced about its need, the first credit rating agency which was established in India was the Credit Rating and Information Services of India Ltd. (CRISIL) in 1987, since then, there has been a rapid growth of credit rating agencies in India. The major credit rating agencies in India are- CRISIL, Investment information and credit rating agencies of India Ltd.(ICRA), and Credit Analysis and Research Ltd(CARE) etc.

2. Rating Methodology

The process of rating starts with the company approaching the rating agency for rating. The experts are given a free hand and they collect data and information. Then they investigate strengths and weaknesses of the business in detail. The entire process of investigation and analysis are kept top confidential. The key factors which are generally examined are:-

Business analysis, Economic analysis, Industry analysis, Financial analysis, Management evaluation, Geographical analysis and Fundamental analysis etc.

Summary

With a very high pace of development of financial market, a number of institutions started operating in a highly competitive condition. Many companies came with varied and attractive investment schemes. For the small investors it became difficult to know the credit worthiness of this institution. That is why the need for credit rating was felt. Credit rating agencies provided better information to the investor and the borrower a healthy discipline.

Review Question and Key

Explain the objectives and importance of credit rating.

(Mention the contents in this lesson)

Lesson – 12

STOCK EXCHANGE IN INDIA

Introduction

Stock exchange or the secondary market is that where purchase and sale of shares are affected in a free market conditions. The joint stock companies or corporate houses issue stock and bonds and enables those who have surplus funds to invest them profitably in either of them according to their choice. A Stock exchange is an association of member brokers for self regulating and protection of their interests.

The first stock exchange in India was started in Bombay in the year 1875 in the name of Native Share Stock Brokers Association and later it became popular by the name of Bombay Stock Exchange.

Objective

By reading this lesson the students would be in a position to understand the meaning, objectives, Features and the functioning of the stock exchange in India.

Contents

Regulation which governs stock exchange-

Organization-

- 1 Role of stock exchanges-
- 2 Qualification for membership-
- 3 Process of Transaction-
- 4 SEBI and Capital Market Reforms.

Regulation for Governing Stock Exchange

the SC(R) Act 1956 and the securities contracts (regulation) rules 1957 regulate certain matters of trading on stock exchanges subjects like opening and closing

of the stock exchanges, timing of trading, banks transfer regulation, bank regulation, badla regulations, settlement, fixation of margin, market prices, regulation of broker trading, brokerage charges, trading rules etc are governed by the bylaws of the exchanges.

Organization

On the organization front stock exchanges in India are divided into two categories.

Non profit making and

Profit making exchanges

Stock exchanges at Mumbai, Ahemadabad, Indore are voluntary non-profit making associations, while Kolkata, Dehli, Banglore, etc. are joint stock companies limited by shares. There is uniformity in their organization because the Rules of Articles of association which defines the constitutions of the recognized stock exchanges are approved by the Central Government.

The decision making body of the stock exchanges is a governing body which has wide governmental and administrative powers. Subject to the approval of the government, it can make, amend and suspend the operation of the rules, bylaws and regulations of the exchanges. The constitution has provided it absolute power of jurisdiction over all members, power of management and control. The constitution also provides it the power to and admits expel members, to warn, censure, fine and suspend, members and their partners etc. It has also the power to determine the mode and conditions of the stock exchange business and to supervise direct and control all matters and activities affecting the stock exchange.

The organization of Mumbai exchange is different. The members elect 16 directors for the Governing board. The governing board elects a President, a Vice- President and a treasurer. The governing board recommends the name of

the Executive Director to the government. There are three representatives from the government, three from the public and one from the RBI.

Role of stock Exchanges: In a capitalistic system companies and corporate houses depend upon stock exchanges for raising funds. For that purpose the companies have to get listed in the stock exchanges. Stock exchanges provide liquidity to the listed companies. Its role and function can be listed as follows:

1. This provides a market place for purchase and sale of securities. It ensures free transfers of securities which is the essential basis for the joint stock enterprise system. This is why the private sector companies fully depend on stock exchange for market their securities.
2. It provides linkage between household savings and investment in the corporate economy.
3. It also provides market quotations of the prices of shares and bonds. It makes a stock exchange the provider of input for predicting economic trend.
4. The stock exchanges in India serve the joint sector units as also to some extent public sector enterprises.
5. Stock exchanges in India provide a market for gilt - edge securities.

Qualification for Membership

A person should full fill the following conditions for becoming a member of a recognized stock exchange-

- i) Should be an Indian citizen.
- ii) Must be of 21 years of age.
- iii) Should not have compounded with creditors.
- iv) Must not have been convicted for fraud or dishonesty.
- v) Should be engaged as agent or broker only.
- vi) Should not be a defaulter or of any other stock exchange.
- vii) Should work at least for two years in any capacity as a member.

Process of Transaction: The investment transaction passes through following four stages-

Exchange of the Order: A Client places his order to a stock broker who is entitled to do business in a stock exchange.

Execution of the order:- After placing the order, the broker or his clerk will execute the order and that will appear in the stock exchange daily official list showing the number and price of shares

Reporting the deal to the Client:- The moment the deal is transacted, the broker will send a contract note to the client giving details of the security bought or sold, prices and broker's commission etc.

Settlement of Transaction- In the case of cash transaction, payment has to be made immediately on the transfer of the securities, or within a period of one to seven days. But in case of forward delivering contracts, the settlement is made on a fixed day generally a fortnight.

The National Stock Exchange

India in the recent past has witnessed wide ranging changes in its economy and its organs. Stock market is one of them. Liberalization and Globalization are the mantras of the day. The setting of the National Stock Exchange is an important part of the securities market reform process of the country. Though securities trading is not a new phenomenon in India but it was not keeping pace and standard as per the requirement of the day because securities trading in India was experiencing multiplicity of defects as lack of trading facilities with fairness and accessibility and dated procedures and long and uncertain settlement cycles. 1980's is a land mark with regards to the growth of capital market in India. It witnessed a manifold increase in the number of companies, investors, brokers, and stock exchanges. Mr. M.J.Pherwani the Chairman of the Expert Group recommended the establishment of the National Stock Exchange. Hence, the

National Stock Exchange came into existence in November 1992 with an equity capital of Rs. 25 crores but started its operation in November 1994. Companies with capital of Rs. 10 crores are eligible for listing. The NSE has been established for providing a nation wide stock trading facility and will operate in traditional and non traditional market for equities.

The NSE has the following objectives:-

1. To provide a nation wide trading facility for trading in equities, debt and hybrids.
2. It provides equal access to the investors across the country.
3. To ensure fairness, efficiency and transparency in security trading.
4. To ensure shorter settlement cycles.
5. To provide international standard in the trading of securities.

Functioning of the NSE

National Stock Exchange has a nation wide network for providing trading facilities and equal access to investors across the country. There is no trading floor and each trading member has to have a computer in his office. This computer will be linked to the central computer at the NSE by internet. Thus it provides a high tech trading facility. The trading system provides a high flexibility to trading members. They can easily exercise the various options which are traditionally available to them on trading floor. When entering the order a trading member is empowered to place various conditions on the order. The system provides complete transparency. The identity of the trading members is kept secret and revealed only on confirmation of a trade to the respective counter parties. When securities are sold and delivery made to the clearing system, they are transferred to a depository. Each trading member is provided a pass book showing securities deposited by the trading member. Every client of the trading member has to have a sub account where records of

share holding of the client will be maintained. The pass book of the trading member is updated through electronic book entry method every time the transaction is made.

SEBI and Capital Market Reforms

SEBI (the Securities and Exchange Board of India) was set up in 1988 as a non statutory body to regulate the functioning of the capital market which was suffering from the weakness like- long delays, lack of transparency and vulnerability to price rigging and insider trading. It was made a statutory body in 1992. SEBI was authorized to regulate all merchant banks on issue activity, regulate and supervise the working of the mutual funds and also to over see the functioning of the stock Exchanges in India. In constitutions with the government, SEBI has introduced a number of steps to improve the functioning of the Stock-Exchange in India.

On the recommendation of the Narasimham committee, the government of India abolished the post of Control of Capital Issues (CCI) and instead, SEBI was given the power to control and regulate the new issue market as well as the old issue market.

Primary Market Reforms

SEBI has issued various guidelines for the issue of capital. Companies now have to disclose material facts and risks factors with their projects. And the basis of fixing premium. Not only that, SEBI has also introduced a code of advertisement for public issues for the purpose of fair and truthful disclosures. For reducing cost of issue, understanding of issue has been made optional subject to certain conditions. It has raised the minimum application size, regulated acquisition and takeover etc. Merchant banking has been statutorily brought under the regularity frame work of the SEBI. Since 1992, the government of India allowed Indian companies to access international capital markets through Euro equity shares.

Secondary Market Reforms

Under the provision of Securities and Stock Exchange Board Act, 1992, SEBI has started registering the intermediaries like stock brokers and sub-brokers. While registering SEBI will adequacy, infrastructure etc. It has also notified regulation an insider trading. It has amended the organization of the governing body also and by now the governing body must have 5 elect members, not more than government nominated as public representatives. The government has allowed Foreign Institutional Investors (FIIs) to invest in the Indian capital market provide they are registered with the SEBI. Till January 1995, as many as 286 FIIs have been registered with the SEBI. To prevent excessive speculation and volatility in the stock market, SEBI has introduced rolling settlement from July 2002, under which settlements has to be made every day.

Reforms in the Insurance Sector

After a wide range of reforms in the capital market it was felt necessary to bring reforms in the insurance sector also. Accordingly in the year 1999-2000 the Insurance Regulation and Development Authority Act was passed despite stiff opposition from trade unions and left parties. The IRDA Act brought an end to the monopoly of the government in the insurance sector because it aims to promote private sector including foreign companies, in the insurance sector. It provides priority for the utilization of the policy holder's funds in infrastructure development. So far the government has given the licenses to a number of private sector companies to participate in this business.

Wide ranging powers to SEBI for better functioning of the Capital Market

In the due course the government of India felt that SEBI should be strengthened more specially after experiencing Security Scam (Popularly known as Harsad Mehta Scam) in early 90's. Accordingly in January 1995, the Government of India promulgated an ordinance to amend SEBI Act 1992 so as to empower SEBI with additional powers for ensuring the orderly development of the capital

market and to enhance its ability to protect the interests of the investors. Important clauses of this ordinance are:

To enable SEBI to respond quickly to market conditions and to reinforce its authority, it can go to the courts without prior approval of the government matters related to any dispute.

SEBI is now provided with the regulatory powers over companies in the issuance of capital, the transfer of securities and other related matters.

SEBI can now impose monetary fine on capital market intermediaries and other participants for a listed range of violations.

SEBI can now summon the attendance of and call for documents from all categories of market intermediaries, including persons from the securities market.

Summary

Stock exchange or the secondary market is that where sale and purchase of shares are perfected in a free market condition. The joint stock companies and corporate houses issue stock and bonds in this market. The first stock exchange of India was started in Bombay In the year 1875 in the name of Native Share Stock Brokers Association.

Stock exchanges of in India are divided into two categories – a) Non profit making and b) Profit making exchanges. To become member of the stock exchange a person has to full fill certain conditions. The process of transaction consists of – exchange of the order, execution of the order, reporting the deal to the client and settlement of the transaction. SEBI has brought the reforms in both the markets – primary market and secondary market.

Review Question and Key

1. Explain the organization and role of stock exchanges in India.
(mention the sub point 2 and 3 of the lesson)

2. Explain the qualification for membership and reforms in the capital market.(mention the contain explain under the sub points 4 and 6 of the lesson)

GLOSSARY OF WORDS

Accounting Rate of Return: It is calculated by dividing the average annual profit by the average investment. The concept is used in project evaluation or capital investment decisions.

Aggregate demand: It is the sum of all planned consumption, investment, government purchases, and net exports.

Aggregate Demand Schedule: A schedule showing the inverse relationship between the general price level and aggregate demand.

Aggregate Supply schedule: It is a schedule showing the relationships between the general price level and the volume of real goods and services business firms supply to the product market.

Aggregate Supply: The total volume of real final goods and services provided by business to the market.

Appreciation: An increase in value.

Arc Elasticity of Demand: The price elasticity of demand between two points on the demand curve.

Arc Elasticity of Supply: The price elasticity of supply between two points on the supply curve.

Autonomous consumption: The minimum level of consumption independent of the Level of disposable income.

Autonomous investment: Investment independent of level of income and the state of the economy.

Average Fixed Cost (AFC): Total fixed Cost divided by output i.e. fixed cost per unit of output.

Average Product (AP): The total product divided by the quantity of the variable factor used.

Average propensity to consume: The fraction of income that is spent on consumption goods.

Average propensity to save: The fraction of income that is saved.

Average revenue (AR): Total Revenue divided by the quantity sold.

Average Total Cost (ATC): Total Costs divided by output.

Average Variable Cost (AVC): Total variable Cost divided by output.

Balanced Budget: A budget in which total revenues and total expenditures are equal.

Balance of Payments: The difference between a country's payments to foreigners and its receipts from the foreigners.

Barter: The direct exchange of goods and services without the use of money.

Break-Even point: The point at which total revenues equal to total costs.

Business Cycles: The periodic fluctuations in economic activity.

Capital: A produced means of further production.

Consumption function: The relationship between income and consumption.

Discount rate: The rate at which cash flows are discounted.

Economic Cost: It is the explicit cost as per accounting records and the implicit cost which is opportunity cost.

Economics: It is a branch of social science dealing with the allocation of scarce resources among alternative uses to satisfy human wants.

Factors of Production: Those factors that are used in production like land, labour, capital and organization.

Fiscal Policy: the financial policy of the government dealing with government expenditure, taxes, or transfers used for stabilizing the economy.

Forecasting: Predicting future value of a variable on the basis of current and past trend.

Gross National Product (GNP): The total market value of all final goods and services produced by an economy in a year.

Imports: The purchase of goods produced abroad by any country.

Isocost: Different combinations of two inputs that a firm can purchase with the same amount of money represented in a curve.

Isoquant: Different combinations of two inputs that produce the same level of output represented in a curve.

Long Run: The time period when all inputs can be varied.

Marginal Cost: The incremental change in total cost by producing one more unit.

Marginal Revenue: The incremental revenue in total revenue by selling one more unit.

Merger: The combining of two or more firms under one ownership.

Monetary Policy: The policy of the Central Bank to stabilize the economy by changes in money supply.

Monopoly: The market situation where there is only one producer or seller.

Normal Profit: The profit at total cost and total revenue are equal.

Oligopoly: A market situation in which there are only few producers or sellers.

Penetration Pricing: A pricing policy in which a lower price is charged than economically feasible to penetrate in to the market.

Product Market: The Market in which real goods and services are bought and sold.

Profit: The reward for entrepreneurship after payment of wages, rent and interest.

Quota: A quantitative restriction on the value or volume of imports or exports.

Recession: A period of lower level of economic activities when unemployment increases.

Rent: The return received for the use of real property.

Saving: The part of disposable income that is not consumed.

Short Run: A short period of time when at least one input is fixed.

Tax: A compulsory payment levied by a government without ensuring any particular service.

Total cost: Total fixed cost plus Total variable cost.

Uncertainty: The state in which decision makers do not know the possible outcome of their decisions.

Utility: The ability of goods to satisfy a want.

Value addition: The increment to the value of an item when it passes through each stage of production process.

Yield: The return on an investment.

Glossary of Abbreviations

1. CSO – Central Statistical Organization.
2. ICICI – Industrial Credit and Investment Corporation of India.
3. IFCI - Industrial Finance Corporation of India.
4. IRBI - Industrial Reconstruction Bank of India.
5. EXIM-BANK – Export Import Bank
6. SFCs – State Financial Corporations
7. SIDCs - State Industrial Development Corporation.
8. IDBI - Industrial Development Bank of India.
9. UTI - Unit Trust of India.
10. NBFCs – Non- Banking Financial Companies.
11. SEBI – Securities and Exchange Board of India
12. AMC – Asset Management Committee.
13. NVFSIT- National Venture Fund for Soft Ware and Information Technology.
14. IL & FS Ltd. Infrastructure Leasing and Financial Services Limited.