UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION

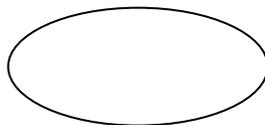# BBA

(1st SEMESTER)

Course: BBA1C01

MANAGERIAL ECONOMICS

(2019 ADMISSION ONWARDS)

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STUDY MATERIAL

1ˢᵗ SEMESTER

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UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION

Calicut University- PO, Malappuram, Kerala, India - 673 635

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MANAGERIAL ECONOMICS

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MODULE I
INTRODUCTION

Introduction

The term "economics" has been derived from a Greek Word "Oikonomia" which means "household"**.** Economics is a social science. It is called "social" because it studies mankind of society. It deals with aspects of human behaviour. It is called science since it studies social problems from a scientific point of view. The development of economics as a growing science can be traced back in the writings of Greek philosophers like Plato and Aristotle. Economics was treated as a branch of politics during early days of its development because ancient Greeks applied this term to management of city-state, which they called "Polis". Actually economics broadened into a full-fledged social science in the later half of the 18th century.

Definition of Economics

Classical economists like Adam Smith, Ricardo, Mill Malthus and others; socialist economist like Karl Marx; neo-classical economists like Alfred Marshall, AC Pigou and Lionel Robbins and modern economists like JM Keynes, Samuelson and others have made considerable contribution to the development of Economics. Hence a plethora of definitions are available in connection with the subject matter of economics. These are broadly divided into

A. Wealth Definition,
B. Welfare Definition,
C. Scarcity Definition and
D. Growth Definition

A. Wealth Definition

Really the science of economics was born in 1776, when Adam Smith published his famous book "An Enquiry into the Nature and Cause of Wealth of Nation". He defined economics as the study of the nature and cause of national wealth. According to him, economics is the study of wealth- How wealth is produced and distributed. He is called as "father of economics" and his definition is popularly called "Wealth definition". But this definition was severely criticized by highlighting the points like;

- Too much emphasis on wealth,
- Restricted meaning of wealth,
- No consideration for human feelings,
- No mention for man's welfare
- Silent about economic problem etc.,

B. Welfare Definition

It was Alfred Marshall who rescued the economics from the above criticisms. By his classic work "Principles of Economics", published in 1890, he shifted the emphasis from wealth to human welfare. According to him wealth is simply a means to an end in all activities, the end being human welfare. He adds, that economics "is on the one side a study of the wealth; and the other and more important side, a part of the study of man". Marshall gave primary importance to man and secondary importance to wealth. Prof. A C Pigou was also holding Marshall's view. This definition clarified the scope of economics and rescued economics from the grip of being called "Dismal science", but this definition also criticized on the grounds that welfare cannot be measured correctly and it was ignored the valuable services like teachers, lawyers, singers etc., (non-material welfare).

C. Scarcity Definition

After Alfred Marshall, Lionel Robbins formulated his own conception of economics in his book "The Nature and Significance of Economic Science" in 1932. According to him, "Economics is the science which studies human behavior as a relationship between ends and scares means which have alternative uses". He gave importance to four fundamental characters of human existence such as;

1. Unlimited wants - In his definition "ends" refers to human wants which are boundless or unlimited.
2. Scarcity of means (Limited Resources) – the resources (time and money) at the disposal of a person to satisfy his wants are limited.
3. Alternate uses of Scares means – Economic resources not only scarce but have alternate uses also. So one has to make choice of uses.
4. The Economic Problem – when wants are unlimited, means are scarce and have alternate uses, the economic problem arises. Hence we need to arrange wants in the order of urgency.

The merits of scarcity definition are; this definition is analytical, universal in application, a positive study and considering the concept of opportunity cost. But this also criticized on the grounds that; it is too narrow and too wide, it offers only light but not fruit, confined to micro analysis and ignores Growth economics etc.,

D. Modern Definition

The credit for revolutionizing the study of economics surely goes to Lord J.M Keynes. He defined economics as the "study of the administration of scares resources and the determinants of income and employment".

Prof. Samuelson recently given a definition based on growth aspects which is known as Growth definition. "Economics is the study of how people and society end up choosing, with or without the use of money to employ scarce productive resources that could have alternative uses to produce various commodities and distribute them for consumption, now or in the future, among various persons or groups in society. Economics analyses the costs and the benefits of improving patterns of resources use". Main features of growth definition are; it is applicable even in barter economy, the inclusion of time element makes the scope of economics dynamic and it is an improvement in scarcity definition.

Meaning and Definition of Managerial Economics.

Managerial Economics as a subject gained popularity in U.S.A after the publication of the book "Managerial Economics" by Joel Dean in 1951. Joel Dean observed that managerial Economics shows how economic analysis can be used in formulating policies.
Managerial economics bridges the gap between traditional economic theory and real business practices in two ways. Firstly, it provides number of tools and techniques to enable the manager to become more competent to take decisions in real and practical situation. Secondly, it serves as an integrating course to show the interaction between various areas in which the firm operates.

According to Prof. Evan J Douglas, Managerial economics is concerned with the application of business principles and methodologies to the decision making process within the firm or organization under the conditions of uncertainty. It seeks to establish rules and principles to facilitate the attainment of the desired economic aim of management. These economic aims relate to costs, revenue and profits and are important within both business and non-business institutions.

Spencer and Siegleman defined managerial Economics as "the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning of management"

managerial economics helps the managers to analyze the problems faced by the business unit and to take vital decisions. They have to choose from among a number of possible alternatives. They have to choose that course of action by which the available resources are most efficiently used. Cristopor I Savage and John R Small opinioned that "managerial economics is something that concerned with business efficiency".

In the words of Michael Baye, "Managerial Economics is the study of how to direct scares resources in a way that mostly effectively achieves a managerial goal".

Objectives and Uses (Importance) of managerial Economics

Objectives: The basic objective of managerial economics is to analyze the economic problems faced by the business. The other objectives are:

1. To integrate economic theory with business practice.
2. To apply economic concepts and principles to solve business problems.
3. To allocate the scares resources in the optimal manner.
4. To make all-round development of a firm.
5. To minimize risk and uncertainty
6. To helps in demand and sales forecasting.
7. To help in profit maximization.
8. To help to achieve the other objectives of the firm like industry leadership, expansion implementation of policies etc.,

Importance: In order to solve the problems of decision making, data are to be collected and analyzed in the light of business objectives. Managerial economics provides help in this area. The importance of managerial economics maybe relies in the following points:

1. It provides tool and techniques for managerial decision making.
2. It gives answers to the basic problems of business management.
3. It supplies data for analysis and forecasting.
4. It provides tools for demand forecasting and profit planning.
5. It guides the managerial economist.
6. It helps in formulating business policies.
7. It assists the management to know internal and external factors influence the business.

Following are the important areas of decision making;
   a) Selection of product.
   b) Selection of suitable product mix.
   c) Selection of method of production.
   d) Product line decision.
   e) Determination of price and quantity.
   f) Decision on promotional strategy.
   g) Optimum input combination.
   h) Allocation of resources.
   i) Replacement decision.
   j) Make or buy decision.
   k) Shut down decision.
   l) Decision on export and import.
   m) Location decision.
   n) Capital budgeting.

Scope of Managerial / Business Economics

The scope of managerial economics refers to its area of study. Scope of Managerial Economics is wider than the scope of Business Economics in the sense that while managerial economics dealing the decisional problems of both business and non-business organizations, business economics deals only the problems of business organizations. Business economics giving solution to the problems of a business unit or profit oriented unit. Managerial economics giving solution to the problems of non-profit organizations like schools, hospital etc., also. The scope covers two areas of decision making (A) operational or internal issues and (B) Environmental or external issues.

A) Operational/internal issues

These issues are those which arise within the business organization and are under the control of the management. They pertains to simple questions of what to produce, when to produce, how much to produce and for which category of consumers. The following aspects may be said to be fall under internal issues.

1. **Demand analysis and Forecasting**: - The demands for the firm's product would change in response to change in price, consumer's income, his taste etc. which are the determinants of demand. A study of the determinants of demand is necessary for forecasting future demand of the product.
2. **Cost analysis**: - Estimation of cost is an essential part of managerial problems. The factors causing variation of cost must be found out and allowed for it management to arrive at cost estimates. This will helps for more effective planning and sound pricing practices.
3. **Pricing Decisions: -** The firms aim to profit which depends upon the correctness of pricing decisions. The pricing is an important area of managerial economics. Theories regarding price fixation helps the firm to solve the price fixation problems.
4. **Profit Analysis:** - Business firms working for profit and it is an important measure of success. But firms working under conditions of uncertainty. Profit planning become necessary under the conditions of uncertainty.
5. **Capital budgeting: -** The business managers have to take very important decisions relating to the firm's capital investment. The manager has to calculate correctly the profitability of investment and to properly allocate the capital. Success of the firm depends upon the proper analysis of capital project and selecting the best one.
6. **Production and supply analysis:** - Production analysis is narrower in scope than cost analysis. Production analysis is proceeds in physical terms while cost analysis proceeds in monitory term. Important aspects of supply analysis are; supply schedule, curves and functions, law of supply, elasticity of supply and factors influencing supply.

B) Environmental or external issues

It refers to the general business environment in which the firm operates. A study of economic environment should include:
1. The types of economic system in the country.
2. The general trend in production, employment, income, prices, savings and investments
3. Trends in the working of financial institutions like banks, financial corporations, insurance companies etc.,
4. Magnitude and trends in foreign trade.
5. Trends in labour and capital market.
6. Government economic policies viz., industrial policy, monitory policies, fiscal policy, price policy etc.

Chief Characteristics of Managerial or Business economics.

Following are the important feature of managerial economics

1) Managerial economics is **Micro economic** in character. Because it studies the problems of a business firm, not the entire economy.
2) Managerial economics largely uses the body of economic concepts and principles which is known as **"Theory of the Firm" or "Economics of the firm".**
3) Managerial economics is **pragmatic.** It is purely practical oriented. So Managerial economics considers the particular environment of a firm or business for decision making.
4) Managerial economics is **Normative** rather than positive economics (descriptive economics). Managerial economics is **prescriptive** to solve particular business problem by giving importance to firms aim and objectives.
5) **Macro-economics is also useful** to managerial economics since it provides intelligent understanding of the environment in which the business is operating.
6) **It is management oriented.**

Principles of Managerial Economics

Economic theory provides a number of concepts and analytical tools which can be of considerable and immense help to a manager in taking many decisions and business planning. This is not to say that economics has all the solutions. In fact, actual problem solving in business has found that there exists a wide disparity between economic theory of the firm and actual observed practice. Therefore, it would be useful to examine the basic tools of managerial economics and the nature and extent of gap between the economic theory of the firm and the managerial theory of the firm. The contribution of economics to managerial economics lies in certain principles which are basic to managerial economics. There are six basic principles of managerial economics. They are:

1. Incremental Principle:

It is related to the marginal cost and marginal revenues, for economic theory. Incremental concept involves estimating the impact of decision alternatives on costs and revenue, emphasizing the changes in total cost and total revenue resulting from changes in prices, products, procedures, investments or whatever may be at stake in the decisions. The two basic components of incremental reasoning are

    • Incremental cost and
    • Incremental Revenue

The incremental principle may be stated as under: "A decision is obviously a profitable one if:

    • It increases revenue more than costs
    • It decreases some costs to a greater extent than it increases others
    • It increases some revenues more than it decreases others and
    • It reduces cost more than revenues"

2. Marginal Principle:

Due to scarce resources at the disposable, the manager has to be careful of spending each and every additional unit of resources. In order to decide whether to use an additional man hour or machine hour or not you need to know the additional output expected from there. A decision about additional investment has to be viewed in terms of additional returns from the investment. Economists use the word "Marginal" for additional magnitudes of production or return. Economist often use the terms like

    • Marginal output of labour
    • Marginal output of machine
    • Marginal return on investment
    • Marginal revenue of output sold

> • Marginal cost of production
> • Marginal utility of consumption

3. Opportunity Cost Principle:

Both micro and macro-economics make abundant use of the fundamental concept of opportunity cost. In everyday life, we apply the notion of opportunity cost even if we are unable to articulate its significance. In Managerial Economics, the opportunity cost concept is useful in decision involving a choice between different alternative courses of action. Resources are scarce, we cannot produce all the commodities. For the production of one commodity, we have to forego the production of another commodity. We cannot have everything we want. We are, therefore, forced to make a choice.

Opportunity cost of a decision is the sacrifice of alternatives required by that decision. Sacrifice of alternatives is involved when carrying out a decision requires using a resource that is limited in supply with the firm. Opportunity cost, therefore, represents the benefits or revenue forgone by pursuing one course of action rather than another. The concept of opportunity cost implies three things:

> • The calculation of opportunity cost involves the measurement of sacrifices.
> • Sacrifices may be monetary or real.
> • The opportunity cost is termed as the cost of sacrificed alternatives.

Opportunity cost is just a notional idea which does not appear in the books of account of the company. If resource has no alternative use, then its opportunity cost is nil. In managerial decision making, the concept of opportunity cost occupies an important place. The economic significance of opportunity cost is as follows:

> 1. It helps in determining relative prices of different goods.
> 2. It helps in determining normal remuneration to a factor of production.
> 3. It helps in proper allocation of factor resources.

4. Risk and Uncertainty Principle:

Managerial decisions are actions of today which bear fruits in future which is unforeseen. Future is uncertain and involves risk. The uncertainty is due to unpredictable changes in the business cycle, structure of the economy and government policies. Economic theory generally assumes that the firm has perfect knowledge of its costs and demand relationships and of its environment. Uncertainty is not allowed to affect the decisions. Uncertainty arises because producers simply cannot foresee the dynamic changes in the economy and hence, cost and revenue data of their firms with reasonable accuracy.

Also dynamic changes are external to the firm, they are beyond the control of the firm. The result is that the risks from unexpected changes in a firm's cost and revenue data cannot be estimated and therefore the risks from such changes cannot be insured. But products must attempt to predict the future cost and revenue data of their firms and determine the output and price policies.

The managerial economists have tried to take account of uncertainty with the help of subjective probability. The probabilistic treatment of uncertainty requires formulation of definite subjective expectations about cost, revenue and the environment. The probabilities of future events are influenced by the time horizon, the risk attitude and the rate of change of the environment.

5. Principle of Time Perspective:

Managerial economists are also concerned with the short run and the long run effects of decisions on revenues as well as costs. The very important problem in decision making is to maintain the right balance between the long run and short run considerations. Whenever a manager confronts a decision environment, he must analyze the present problem with reference to the past data of facts, figures and

observation in order to arrive at a decision, contemplating clearly its future implications in terms of actions and reactions likely thereupon. Thus, time dimension is very important. Economist consider time in terms of concepts like:

Temporary run: the supply of output;
Fixed short run: supply can be changed slightly by altering the factor proportion (all factors are not variable);
Long run: All factors are variables, output level can be adjusted freely.

There exist constraints in temporary and short run, but none in long run for a manager, Short run is the (present) period and long run is the future (remote) period. Manager must calculate the opportunity cost if they have to choose between the present and future. His decision principle must take care of both time periods. He cannot afford to have a time period which is too short Example:

• He may set a high price for his product today but then he should be prepared to face the declining sales.
• Today the advertisement cost might inflate the prices but tomorrow it may increase the revenue flow.
• Management may ignore labour welfare today to reduce costs but in future this may deteriorate industrial relation climate with adverse effect on productivity and profitability.

6. Discounting Principle:

This concept is an extension of the concept of time perspective. Since future is unknown and incalculable, there is lot of risk and uncertainty in future. Everyone knows that a rupee today is worth more than a rupee will be two years from now. This appears similar to the saying that "a bird in hand is more worth than two in the bush." This judgment is made not on account of the uncertainty surrounding the future or the risk of inflation.

It is simply that in the intervening period a sum of money can earn a return which is ruled out if the same sum is available only at the end of the period. In technical parlance, it is said that the present value of one rupee available at the end of two years is the present value of one rupee available today. The mathematical technique for adjusting for the time value of money and computing present value is called 'discounting'.

Value Maximisation Model

Most of firms are expected to operate for a long period. They are interested in maximisation of long term profits instead of maximum short term profit. Value of the firm can be calculated with the help of the following formula:

Value of the firm $= \dfrac{P1}{(1+i)} + \dfrac{P2}{(1+i)2} \ldots \ldots \dfrac{Pn}{(1+i)n}$

P_1 stands for expected profit in period 1, P_2 is expected profit in period 2 and so on. i is the cost of equity capital. The concept of discounting and present value are taken into consideration. Wealth maximisation is recognised at the primary objective of a business firm. Non-business firms also pursue non-value maximisation objectives.

Baumols' Model of Sales Revenue Maximisation
Sales revenue maximisation an alternative goal to profit maximisation has been suggested by W.J. Baumol. According to Baumol, the oligopolistic firms aim at maximise their sale revenue. The reasons for this are given as under:
    (i)   The health of the firms is judged by the financial institutions largely in terms of the rate of growth of its sales revenue.

    (ii)   Slack earnings and salaries of top management are correlated more closely with the firm's sales that with its profits.

    (iii)   Profits go to the shareholders, while increasing sales revenue over time provides prestige to the top management of the firm.

    (iv)   Growing sales help in keeping a healthy personnel policy with better package of salary and vice- versa.

    (v)   The managers prefer a steady performance with satisfactory profits than spectacular profit maximisation profits.

    (vi)   Large and growing sales by maintaining or increasing the market share of the firm increases to competitive power of the firm.

Assumptions of the model

The firm while pursuing the goal of sales maximisation cannot completely ignore the stakeholders. The goal of the firm is, thus, the maximisation of sales revenue-subject to a minimum profit constraint. The profit constraint is determined by the expectation of the shareholders and to enable it to raise new capital at a future date. The basic assumptions of in model are given as follows:

    (i)   Sales maximisation subject to minimum profit constraint is the goal of the firm.

    (ii)   Production costs are independent of advertising.

    (iii)   The price of the product is assumed as constant.

    (iv)   Advertisement always result in creating favourable conditions for the product.

    (v)   Advertisement is a major instrument of the firm as non-price competition is the typical form of competition in oligopolistic markets.

    (vi)   Conventional cost and revenue functions are assumed which implies that cost curves are U shaped and the demand curve of the firm has a negative slope.

    (vii)   Advertisement will always shift demand curve to the right, which implies that the firm will sell larger quantity and earn larger revenue

Managerial Utility Maximisation Model

This model was propounded by Oliver Williamson. It is a combination of the objectives of profit maximisation and growth maximisation. This model emphasizes upon the fact that in modern businesses, ownership is different from management and modern managers have discretionary powers to set the goals of firms. According to this model managers would apply their discretionary power in such a way, as to maximise their own utility function, with the constraint of maintaining minimum profit to satisfy shareholders. The utility function of managers depends upon their salary, job security, power, status, professional satisfaction and the power to influence firm's objectives. Williamson has given the model in the form of a formula as given below:

$$UM = f (S, M, ID)$$

Where, UM is manager's utility function S is salary, M is managerial emoluments and ID is power of discretionary investment. This theory has certain weaknesses. The model fails to deal with the problem of oligopolistic interdependence. The theory holds good only where rivalry between firms are not strong. This model does not offer a more satisfactory hypothesis than profit maximisation.

Assumptions of the model

Like Baumol, Williamson also adopts in following assumption in his model:

    (i)   Market is non-perfectly competitive.

    (ii)   Ownership of the firm and management of the firm are divorced from each other.

    (iii)   A minimum profit constraint is imposed on the managers by the capital market (or shareholders) which cannot be ignored by the management.

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MODULE II
DEMAND AND SUPPLY

Introduction

The manufacturers produce and supply goods to meet demand. When the demand and supply is equal the economic conditions of the country is in equilibrium position. This demand and supply are market forces which gives dynamism to the economic conditions of the country. The demand is not always static. The changes in demand or elasticity of demand gives room for the managerial decision making like what to produce, how much to produce, when to produce, and where to distribute the products. In this unit, we shall be examining various concepts of demand, the law of demand, elasticity of demand, demand forecasting, utility concept, law of supply, supply curve and elasticity of supply.

Demand Concepts
Meaning of Demand

Demand is a common parlance means desire for an object. But in economics demand is something more than this. In economics "Demand" means the quantity of goods and services which a person can purchase with a requisite amount of money.

According to Prof. Hidbon, Demand means the various quantities of goods that would be purchased per time period at different prices in a given market. Thus demand for a commodity is its quantity which consumer is able and willing to buy at various prices during a given period of time. Simply, demand is the behavior of potential buyers in a market.

In the opinion of Stonier and Hague, "Demand in economics means demand backed up by enough money to pay for the goods demanded". In other words, demand means the desire backed by the willingness to buy a commodity and purchasing power to pay. Hence desire alone is not enough. There must have necessary purchasing power, ie, .cash to purchase it. For example, everyone desires to posses Benz car but only few have the ability to buy it. So everybody cannot be said to have a demand for the car. Thus the demand has three essentials-Desire, Purchasing power and Willingness to purchase.

Demand Analysis

Demand analysis means an attempt to determine the factors affecting the demand of a commodity or service and to measure such factors and their influences. The demand analysis includes the study of law of demand, demand schedule, demand curve and demand forecasting. Main objectives of demand analysis are;

1) To determine the factors affecting the demand.
2) To measure the elasticity of demand.
3) To forecast the demand.
4) To increase the demand.
5) To allocate the recourses efficiently

Law of Demand

The law of Demand is known as the "first law in market". Law of demand shows the relation between price and quantity demanded of a commodity in the market. In the words of Marshall "the amount demanded increases with a fall in price and diminishes with a rise in price".

According to Samuelson, "Law of Demand states that people will buy more at lower price and buy less at higher prices". In other words while other things remaining the same an increase in the price of a commodity will decreases the quantity demanded of that commodity and decrease in the price will increase the demand of that commodity. So the relationship described by the law of demand is an inverse or negative relationship because the variables (price and demand) move in opposite direction. It shows

the cause and effect relationship between price and quantity demand. The concept of law of demand may be explained with the help of a demand schedules.

Demand Schedule and Demand Curve

Demand schedule is a statistical/tabular statement showing the different quantities of a commodity which will be bought at its different prices during a specified time period. It is a table which represents functional relationship between price of a commodity and its quantity demanded. Demand schedule can be for an individual –known as Individual Demand Schedule (IDS) and it can be for the whole market-known as Market Demand Schedule (MDS). MDS can be obtained by aggregating the IDS as illustrated earlier in this unit under the heading of individual and market demand.

Demand Curve: By plotting the demand schedule on graph, we can obtain the demand curve. According to Prof. Samuelson, "Picturization of demand schedule is called the demand curve".

Individual demand Schedule

An individual demand schedule is a list of quantities of a commodity purchased by an individual consumer at different prices. The following table shows the demand schedule of an individual consumer for apple.

Price of Apple (In Rs.)	Quantity demanded
10	1
8	2
6	3
4	4
2	5

When the price falls from Rs 10 to 8, the quantity demanded increases from one to two. In the same way as price falls, quantity demanded increases. On the basis of the above demand schedule we can draw the demand curve as follows;
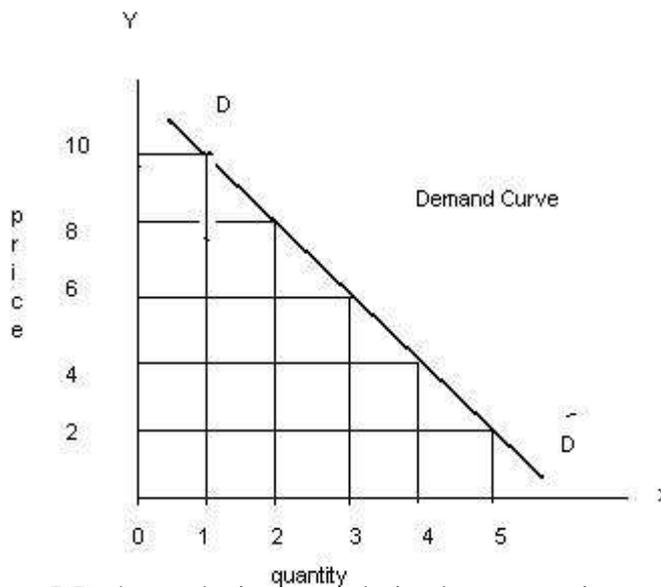
The demand curve DD shows the inverse relation between price and demand of apple. Due to this inverse relationship, demand curve is slopes downward from left to right. This kind of slope is also called "negative slope".

Market demand schedule

Market demand refers to the total demand for a commodity by all the consumers. It is the aggregate quantity demanded for a commodity by all the consumers in a market. It can be expressed in the following schedule.

Market Demand Schedule for egg.

Price per dozen(Rs)	Demand by consumers				Market Demand
	A	**B**	**C**	**D**	
10	1	2	0	0	3
8	2	3	1	0	6
6	3	4	2	1	10
4	4	5	3	2	14
2	5	6	4	3	18

Derivation of market demand curve is a simple process. For example, let us assume that there are four consumers in a market demanding eggs. When the price of one dozen eggs is Rs.10, A buys one dozen and B buys 2 dozens. When price falls to Rs.8, A buys 2, B buys 3 and C buys one dozen. When price falls to Rs.6, A buys 3 b buys 4, C buys 2 and D buys one dozen and so on. By adding up the quantity demanded by all the four consumers at various prices we get the market demand curve. So last column of the above demand schedule gives the total demand for eggs at different prices, i.e., "Market Demand" as given below;
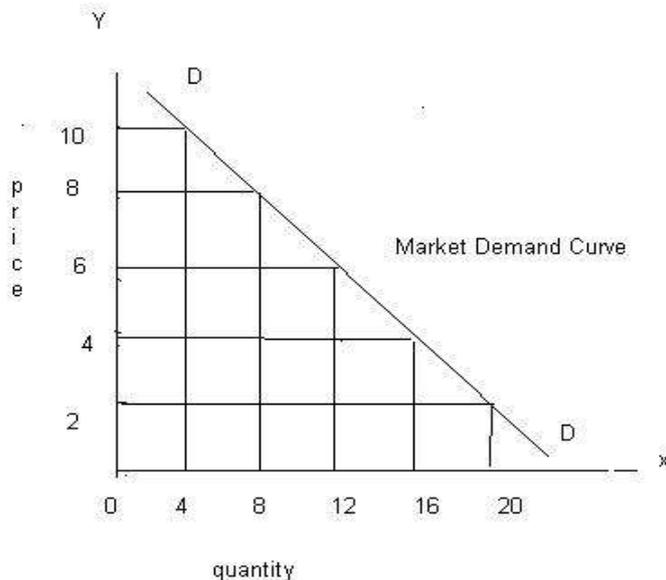
Assumptions of Law of Demand

Law of demand is based on certain basic assumptions. They are as follows

1) There is no change in consumers' taste and preference
2) Income should remain constant.
3) Prices of other goods should not change.
4) There should be no substitute for the commodity.
5) The commodity should not confer any distinction.
6) The demand for the commodity should be continuous.
7) People should not expect any change in the price of the commodity.

Why does demand curve slopes downward?

Demand curve slopes downward from left to right (Negative Slope). There are many causes for downward sloping of demand curve:-

1) **Law of Diminishing Marginal utility**

As the consumer buys more and more of the commodity, the marginal utility of the additional units falls. Therefore the consumer is willing to pay only lower prices for additional units. If the price is higher, he will restrict its consumption

2) **Principle of Equi- Marginal Utility**

Consumer will arrange his purchases in such a way that the marginal utility is equal in all his purchases. If it is not equal, they will alter their purchases till the marginal utility is equal.

3) **Income effect**

When the price of the commodity falls, the real income of the consumer will increase. He will spend this increased income either to buy additional quantity of the same commodity or other commodity.

4) **Substitution effect**.

When the price of tea falls, it becomes cheaper. Therefore the consumer will substitute this commodity for coffee. This leads to an increase in demand for tea.

5) **Different uses of a commodity.**

Some commodities have several uses. If the price of the commodity is high, its use will be restricted only for important purpose. For e.g. when the price of tomato is high, it will be used only for cooking purpose. When it is cheaper, it will be used for preparing jam, pickle etc.,

6) **Psychology of people.**

Psychologically people buy more of a commodity when its price falls. In other word it can be termed as **price effect.**

7) **Tendency of human beings to satisfy unsatisfied wants**.

Exceptions to the Law of Demand. (Exceptional Demand Curve).

   The basic feature of demand curve is negative sloping. But there are some exceptions to this. i.e., in certain circumstances demand curve may slope upward from left to right (positive slopes). These phenomena may due to;

1) **Giffen paradox**

   The Giffen goods are inferior goods is an exception to the law of demand. When the price of inferior good falls, the poor will buy less and vice versa. When the price of maize falls, the poor will not buy it more but they are willing to spend more on superior goods than on maize. Thus fall in price will result into reduction in quantity. This paradox is first explained by Sir Robert Giffen.

2) **Veblen or Demonstration effect.**

   According to Veblen, rich people buy certain goods because of its social distinction or prestige. Diamonds and other luxurious article are purchased by rich people due to its high prestige value. Hence higher the price of these articles, higher will be the demand.

3) **Ignorance.**

   Sometimes consumers think that the product is superior or quality is high if the price of that product is high. As such they buy more at high price.

4) **Speculative Effect.**

   When the price of commodity is increasing, then the consumer buy more of it because of the fear that it will increase still further.

5) Fear of Shortage.

During the time of emergency or war, people may expect shortage of commodity and buy more at higher price to keep stock for future.

6) Necessaries

In the case of necessaries like rice, vegetables etc., People buy more even at a higher price.

7) Brand Loyalty

When consumer is brand loyal to particular product or psychological attachment to particular product, they will continue to buy such products even at a higher price.

8) Festival, Marriage etc.

In certain occasions like festivals, marriage etc. people will buy more even at high price.

Exceptional Demand Curve (perverse demand curve)
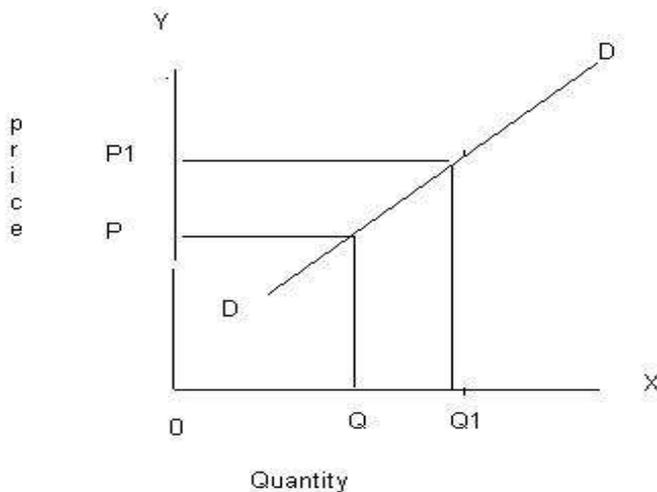
When price raises from OP to OP1 quantity demanded also increases from OQ to OQ1. In other words, from the above, we can see that there is positive relation between price and demand. Hence, demand curve (DD) slopes upward.

CHANGES IN DEMAND

Demand of a commodity may change. It may increase or decrease due to changes in certain factors. These factors are called **determinants of demand.** These factors include;
1) Price of a commodity
2) Nature of commodity
3) Income and wealth of consumer
4) Taste and preferences of consumer
5) Price of related goods (substitutes and compliment goods)
6) Consumers' expectations.
7) Advertisement etc.,

Determinants of Demand/Demand Function.

There is a functional relationship between demand and its various determinants. i.e., a change in any determinant will affect the demand. When this relationship expressed mathematically, it is called Demand Function. Demand function of a commodity can be written as follows:

$$D = f (P, Y, T, Ps, U)$$

Where, **D**= Quantity demanded   **P**= Price of the commodity

   **Y**= Income of the consumer   **T**= Taste and preference of consumers.

       Ps = Price of substitutes   **U**= Consumers expectations & others

f = Function of (indicates how variables are related)

Extension and Contraction of Demand.

Demand may change due to various factors. The change in demand due to change in price only, where other factors remaining constant, it is called extension and contraction of demand. A change in demand solely due to change in price is called extension and contraction. When the quantity demanded of a commodity rises due to a fall in price, it is called extension of demand. On the other hand, when the quantity demanded falls due to a rise in price, it is called contraction of demand. It can be understand from the following diagram.
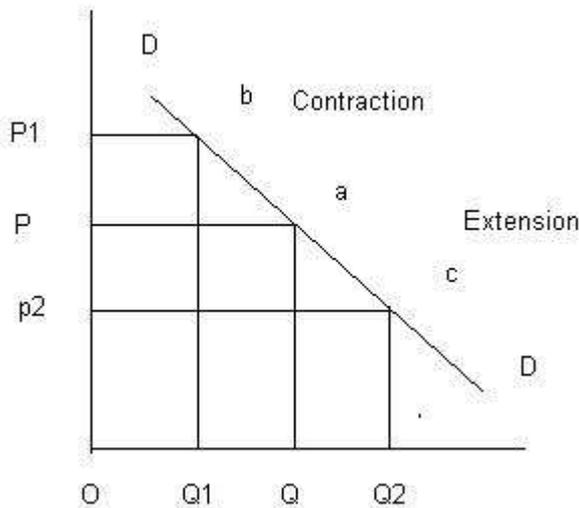

When the price of commodity is OP, quantity demanded is OQ. If the price falls to P2, quantity demanded increases to OQ2. When price rises to P1, demand decreases from OQ to OQ1. In demand curve, the area **a** to **c** is extension of demand and the area **a** to **b** is contraction of demand. As result of change in price of a commodity, the consumer moves along the same demand curve.

Shift in Demand (Increase or Decrease in demand)

When the demand changes due to changes in other factors, like taste and preferences, income, price of related goods etc., it is called shift in demand. Due to changes in other factors, if the consumers buy more goods, it is called increase in demand or upward shift. On the other hand, if the consumers buy fewer goods due to change in other factors, it is called downward shift or decrease in demand.

Shift in demand cannot be shown in same demand curve. The increase and decrease in demand (upward shift and downward shift) can be expressed by the following diagram.
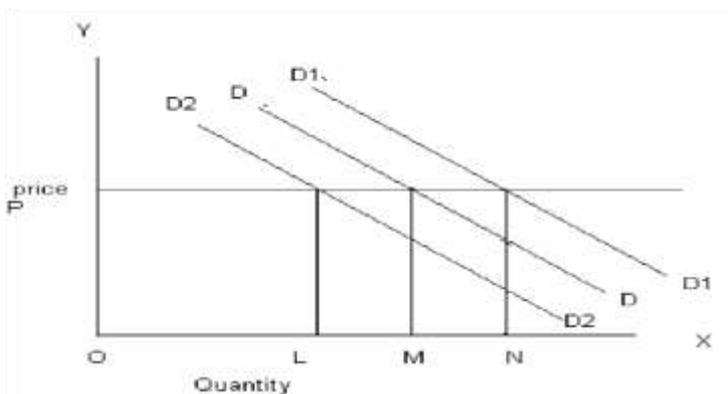
DD is the original demand curve. Demand curve shift upward due to change in income, taste & preferences etc., of consumer, where price remaining the same. In the above diagram demand curve D1-D1 is showing upward shift or increase in demand and D2-D2 shows downward shift or decrease in demand.

Comparison between extension/contraction and shift in demand

SL. No	Extension/Contraction of Demand	Shift in Demand
1	Demand is varying due to changes in Price	Demand is varying due to changes in other factors
2	Other factors like taste, preferences, income etc., remaining the same.	Price of commodity remain the Same
3	Consumer moves along the same demand curve	Consumer may moves to higher or lower demand curve

Different types of demand.

Joint demand:
When two or more commodities are jointly demanded at the same time to satisfy a particular want, it is called joint or complimentary demand. (Demand for milk, sugar, tea for making tea).

Composite demand:
The demand for a commodity which can be put for several uses (Demand for electricity)

Direct and Derived demand:
Demand for a commodity which is for a direct consumption is called direct demand (food, cloth). When the commodity is demanded as the result of the demand of another commodity, it is called derived demand (Demand for tyres depends on demand of vehicles).

Industry demand and company demand:

Demand for the product of particular company is company demand and total demand for the products of particular industry which includes number of companies is called industry demand.

ELASTICITY OF DEMAND

Meaning of Elasticity

Law of demand explains the directions of changes in demand. A fall in price leads to an increase in quantity demanded and vice versa. But it does not tell us the rate at which demand changes to change in price. The concept of elasticity of demand was introduced by Marshall. This concept explains the relationship between a change in price and consequent change in quantity demanded. Nutshell, it shows the rate at which changes in demand take place.

Elasticity of demand can be defined as "the degree of responsiveness in quantity demanded to a change in price". Thus it represents the rate of change in quantity demanded due to a change in price. There are mainly three types of elasticity of demand:

1. Price Elasticity of Demand.
2. Income Elasticity of Demand. and
3. Cross Elasticity of Demand.

Price Elasticity of Demand

Price Elasticity of demand measures the change in quantity demanded to a change in price. It is the ratio of percentage change in quantity demanded to a percentage change in price. This can be measured by the following formula.

Price Elasticity = Proportionate change in quantity demanded
                        Proportionate change in price
                                OR

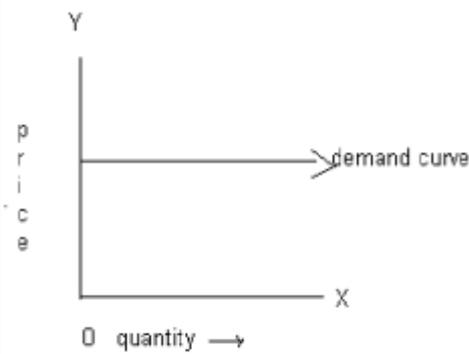$$Ep = \frac{\text{Change in Quantity demanded / Quantity demanded}}{\text{Change in Price/price}}$$

                        OR

$$Ep = \frac{(Q_2-Q_1)/Q_1}{(P_2-P_1)/P_1} \quad,$$

Where: Q_1 = Quantity demanded before price change
        Q_2 = Quantity demanded after price change
        P_1 = Price charged before price change
        P_2 = Price charge after price change.

There are five types of price elasticity of demand. (Degree of elasticity of demand) Such as perfectly elastic demand, perfectly inelastic demand, relatively elastic demand, relatively inelastic demand and unitary elastic demand.

1) Perfectly elastic demand (infinitely elastic)

When a small change in price leads to infinite change in quantity demanded, it is called perfectly elastic demand. In this case the demand curve is a horizontal straight line as given below. (Here **ep= ∞**)
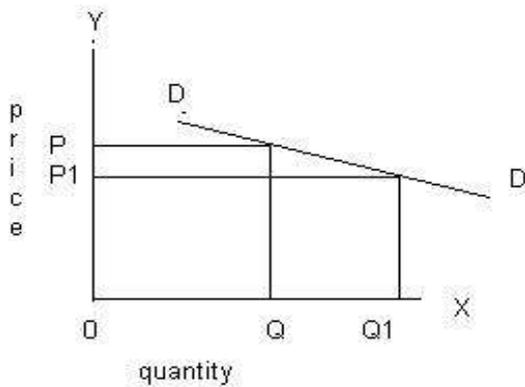
2) Perfectly inelastic demand

In this case, even a large change in price fails to bring about a change in quantity demanded. i.e., the change in price will not affect the quantity demanded and quantity remains the same whatever the change in price. Here demand curve will be vertical line as follows and **ep= 0**
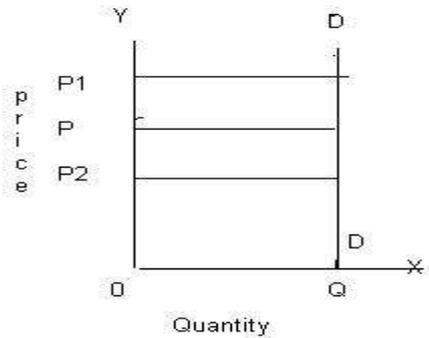
3) Relatively elastic demand

Here a small change in price leads to very big change in quantity demanded. In this case demand curve will be fatter one and **ep=>1**

4) Relatively inelastic demand

Here quantity demanded changes less than proportionate to changes in price. A large change in price leads to small change in demand. In this case demand curve will be steeper and **ep=<1**
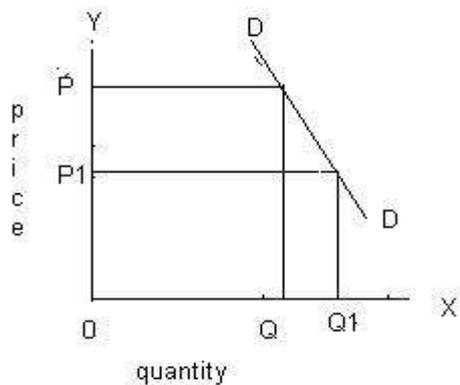
5)   Unit elasticity of demand (Unitary elastic)

Here the change in demand is exactly equal to the change in price. When both are equal, **ep= 1,** the elasticity is said to be unitary**.**
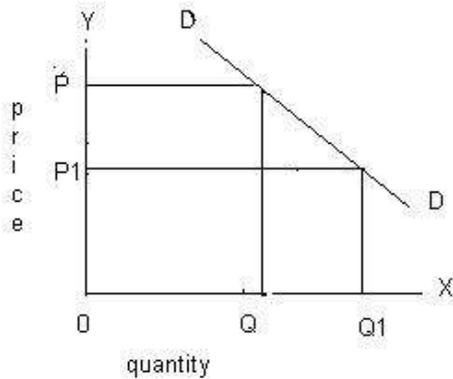
The above five types of elasticity can be summarized as follows

Sl. No	Type	Numerical expression	Description	Shape of curve
1	Perfectly elastic	α	infinity	Horizontal
2	Perfectly inelastic	0	Zero	Vertical
3	Unitary elastic	1	One	Rectangular hyperbola
4	Relatively elastic	>1	More than one	Flat
5	Relatively inelastic	<1	Less than one	Steep

3.3 Income Elasticity of Demand

Income elasticity of demand shows the change in quantity demanded as a result of a change in consumers' income. Income elasticity of demand may be stated in the form of formula:

$$Ey = \frac{\text{Proportionate Change in Quantity Demanded}}{\text{Proportionate Change in Income}}$$

Income elasticity of demand mainly of three types:
    1) Zero income Elasticity.
    2) Negative income Elasticity
    3) Positive income Elasticity.

Zero income elasticity – In this case, quantity demanded remain the same, even though money income increases.ie, changes in the income doesn't influence the quantity demanded (Eg., salt, sugar etc.,). Here **Ey** (income elasticity) = **0**

Negative income elasticity -In this case, when income increases, quantity demanded falls. Eg., inferior goods. Here **Ey = < 0.**

Positive income Elasticity - In this case, an increase in income may led to an increase in the quantity demanded. i.e., when income rises, demand also rises. (**Ey =>0**) This can be further classified in to three types:
        a) Unit income elasticity; Demand changes in same proportion to change in income. i.e., **Ey = 1**

b) <u>Income elasticity greater than unity</u>: An increase in income brings about a more than proportionate increase in quantity demanded. i.e., **Ey =>1**

c) <u>Income elasticity less than unity:</u> when income increases quantity demanded is also increases but less than proportionately. i.e., **Ey = <1**

Business decision based on income elasticity.

The concept of income elasticity can be utilized for the purpose of taking vital business decision. A businessman can rely on the following facts.

If income elasticity is greater than Zero, but less than one, sales of the product will increase but slower than the general economic growth

If income elasticity is greater than one, sales of his product will increase more rapidly than the general economic growth.

Firms whose demand functions have high income elasticity have good growth opportunities in an expanding economy. This concept helps manager to take correct decision during business cycle and also helps in forecasting the effect of changes in income on demand.

Cross Elasticity of Demand

Cross elasticity of demand is the proportionate change in the quantity demanded of a commodity in response to change in the price of another related commodity. Related commodity may either substitutes or complements. Examples of substitute commodities are **tea and coffee.** Examples of compliment commodities are **car and petrol.** Cross elasticity of demand can be calculated by the following formula;

Cross Elasticity = <u>Proportionate Change in Quantity Demanded of a Commodity</u>
                 Proportionate Change in the Price of Related Commodity

If the cross elasticity is positive, the commodities are said to be substitutes and if cross elasticity is negative, the commodities are compliments. The substitute goods (tea and Coffee) have positive cross elasticity because the increase in the price of tea may increase the demand of the coffee and the consumer may shift from the consumption of tea to coffee.

Complementary goods (car and petrol) have negative cross elasticity because increase in the price of car will reduce the quantity demanded of petrol.

The concept of cross elasticity assists the manager in the process of decision making. For fixing the price of product which having close substitutes or compliments, cross elasticity is very useful.

Advertisement Elasticity of Demand

Advertisement elasticity of demand (Promotional elasticity of demand) measure the responsiveness of demand due to a change in advertisement and other promotional expenses. This can be measured by the following formula;

Advertisement Elasticity = <u>Proportionate Increase in Sales</u>
                         Proportionate increase in Advertisement expenditure.

There are various determinants of advertisement elasticity, they are;

1. Type of commodity- elasticity will be higher for luxury, new product, growing product etc.,
2. Market share – larger the market share of the firm lower will be promotional elasticity.
3. Rival's reaction – if the rivals react to increase in firm's advertisement by increasing their own advertisement expenditure, it will reduce the advertisement elasticity of the firm.
4. State of economy – if economic conditions are good, the consumers are more likely to respond to the advertisement of the firm.

Advertisement elasticity helps in the process of decision making. It helps to deciding the optimum level of advertisement and promotional cost. If the advertisement elasticity is high, it is profitable to spend more on advertisement. Hence, advertisement elasticity helps to decide optimum advertisement and promotional outlay.

Importance of Elasticity

The concept of elasticity of demand is much of practical importance;

1. **Production**- Producers generally decide their production level on the basis of demand for their product. Hence elasticity of demand helps to fix the level of output.

2. **Price fixation**- Each seller under monopoly and imperfect competition has to take into account the elasticity of demand while fixing their price. If the demand for the product is inelastic, he can fix a higher price.

3. **Distribution**- Elasticity helps in the determination of rewards for factors of production. For example, if the demand for labour is inelastic, trade union can raise wages.

4. **International trade**- This concept helps in finding out the terms of trade between two countries. Terms of trade means rate at which domestic commodities is exchanged for foreign commodities.

5. **Public finance**- This assists the government in formulating tax policies. In order to impose tax on a commodity, the government should take into consideration the demand elasticity.

6. **Nationalization**- Elasticity of demand helps the government to decide about nationalization of industries.

7. **Price discrimination**- A manufacture can fix a higher price for the product which have inelastic demand and lower price for product which have elastic demand.

8. **Others**- The concept elasticity of demand also helping in taking other vital decision Eg. Determining the price of joint product, take over decision etc.,

Determinants of elasticity.

Elasticity of demand varies from product to product, time to time and market to market. This is due to influence of various factors. They are;

1. **Nature of commodity -** Demand for necessary goods (salt, rice, etc.,) is inelastic. Demand for comfort and luxury good are elastic.

2. **Availability/range of substitutes –** A commodity against which lot of substitutes are available, the demand for that is elastic. But the goods which have no substitutes, demand is inelastic.

3. **Extent /variety of uses -** a commodity having a variety of uses has a comparatively elastic demand. Eg. Demand for steel, electricity etc.,

4. **Postponement/urgency of demand -** if the consumption of a commodity can be post pond, then it will have elastic demand. Urgent commodity has inelastic demand.

5. **Income level -** income level also influences the elasticity. E.g. Rich man will not curtail the consumption quantity of fruit, milk etc., even if their price rises, but a poor man will not follow it.

6. **Amount of money spend on the commodity -** where an individual spends only a small portion of his income on the commodity, the price change doesn't materially affect the demand for the commodity, and the demand is inelastic (match box, salt etc.,).

7. **Durability of commodity -** if the commodity is durable or repairable at a substantially less amount (eg. Shoes), the demand for that is elastic.

8. **Purchase frequency of a product/time –** if the frequency of purchase of a product is very high, the demand is likely to be more price elastic.

9. **Range of Prices -** if the products at very high price or at very low price having inelastic demand since a slight change in price will not affect the quantity demand.

10. **Others –** the habit of consumers, demand for complimentary goods, distribution of income and wealth in the society etc., are other important factors affecting elasticity.

Measurement of Elasticity
There are various methods for the measurement of elasticity of demand. Following are the important methods:

1. **Proportional or Percentage Method**: Under this method the elasticity of demand is measured by the ratio between the proportionate or percentage change in quantity demanded and proportionate change in price. It is also known as formula method. It can be computed as follows:

$$ED = \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price.}}$$
$$\text{OR}$$
$$= \frac{\frac{\text{Change in Demand Original}}{\text{Quantity demanded}}}{\frac{\text{Change in Price}}{\text{Original price}}}$$

2. **Expenditure or Outlay Method**: This method was developed by Marshall. Under this method, the elasticity is measured by estimating the changes in total expenditure as a result of changes in price and quantity demanded. This has three components
   • If the price changes, but total expenditure remains constant, unit elasticity exists.
   • If the price changes, but total expenditure moves in the opposite directions, demand is elastic (>1).
   • If the price changes and total revenues moves in the same direction, demand is inelastic (<1).
   This can be expressed by the following diagram.
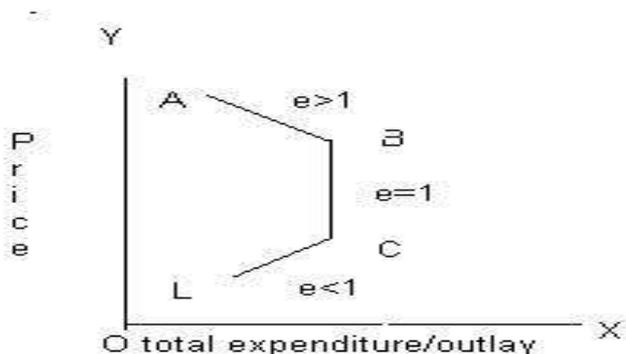
3. **Geometric or Point method:** This also developed by Marshall. This is used as a measure of the change in quantity demanded in response to a very small change in the price. In this method we can measure the elasticity at any point on a straight line demand curve by using the following formula;

ED = <u>Lower section of the Demand curve</u>
     Upper section of Demand curve.
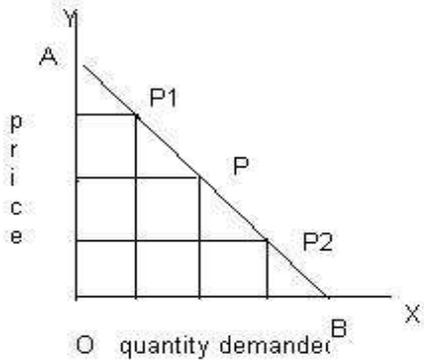
   In the above diagram, AB is a straight line demand curve with P as its middle point. Further it is assumed that AB is 6 cm. Then,

     At point P, ED = PB/PA=3/3=1
     At point P1, ED = P1B/P1A= 4.5/1.5= 3=>1,
     At point A, ED = AB/A= 6/0= α (infinity),
     At point P2, ED = P2B/P2A = 1.5/4.5 = 1/3 = <1,
     At point B, ED = B/BA = 0/6 = 0

4. **Arc Method**: the point method is applicable only when there are minute (very small) changes in price and demand. Arc elasticity measures elasticity between two points. It is a measure of the average elasticity According to Watson," Arc elasticity is the elasticity at the midpoint of an arc of a demand curve". formula to measure elasticity is:

   ED = ΔQ/ ΔP × (P1+P2)/ (Q1+Q2) or   **<u>Change in D</u> x <u>Average P</u>**
                                         Average D   **Change in P**
Where, ΔQ= change in quantity   Q1= original quantity
        P1 = original price   Q2= new quantity
        P2 = New price   ΔP= change in price

DEMAND ESTIMATION AND FORECASTING

Demand Estimation

Business enterprise needs to know the demand for its product. An existing unit must know current demand for its product in order to avoid underproduction or over production. The current demand should be known for determining pricing and promotion policies so that it is able to secure optimum sales or maximum profit. Such information about the current demand for the firm's product is known as demand estimation.

Demand Estimation is the process of finding current values of demand for various values of prices and other determining variables.

Steps in Demand Estimation

1. Identification of independent variables such as price, price of substitutes, population, per capita income, advertisement expenditure etc.,

2. collection of data on the variables from past records, publications of various agencies etc.,

3. Development a mathematical model or equation that indicates the relationship between independent and dependant variables.

4. Estimation of the parameters of the model. I.e., to estimate the unknown values of the parameters of the model.

5. Development of estimates based on the model.

Tools and techniques for demand estimation includes;

1. Consumer surveys.
2. Consumer clinics and focus groups
3. Market Experiment.
4. Statistical techniques.

Demand Forecasting.

   Accurate demand forecasting is essential for a firm to enable it to produce the required quantities at the right time and to arrange well in advance for the various factors of production. Forecasting helps the firm to assess the probable demand for its products and plan its production accordingly.

   Demand Forecasting refers to an estimate of future demand for the product. It is an "objective assessment of the future course of demand". It is essential to distinguish between forecast of demand and forecast of sales. Sales forecast is important for estimating revenue, cash requirements and expenses. Demand forecast relate to production inventory control, timing, reliability of forecast etc.,

Levels of Demand forecasting

Demand forecasting may be undertaken at three different levels;

1. **Macro leve**l – Micro level demand forecasting is related to the business conditions prevailing in the economy as a whole.
2. **Industry Level** – it is prepared by different trade association in order to estimate the demand for particular industries products. Industry includes number of firms. It is useful for inter-industry comparison.
3. **Firm level** – it is more important from managerial view point as it helps the management in decision making with regard to the firms demand and production.

Types of Demand Forecasting.

Based on the time span and planning requirements of business firms, demand forecasting can be classified into short term demand forecasting and long term demand forecasting.

Short term Demand forecasting: Short term Demand forecasting is limited to short periods, usually for one year. Important purposes of Short term Demand forecasting are given below;

1. Making a suitable production policy to avoid over production or underproduction.
2. Helping the firm to reduce the cost of purchasing raw materials and to control inventory.
3. Deciding suitable price policy so as to avoid an increase when the demand is low.
4. Setting correct sales target on the basis of future demand and establishment control. A high target may discourage salesmen.
5. Forecasting short term financial requirements for planned production.
6. Evolving a suitable advertising and promotion programme.

Long term Demand Forecasting: this forecasting is meant for long period. The important purpose of long term forecasting is given below;

1. Planning of a new unit or expansion of existing on the basis of analysis of long term potential of the product demand.
2. Planning long term financial requirements on the basis of long term sales forecasting.
3. Planning of manpower requirements can be made on the basis of long term sales forecast.
4. To forecast future problems of material supply and energy crisis.

Demand forecasting is a vital tool for marketing management. It is also helpful in decision making and forward planning. It enables the firm to produce right quantities at right time and arrange well in advance for the factors of production.

Methods of Demand Forecasting (Established Products)

Several methods are employed for forecasting demand. All these methods can be grouped into survey method and statistical method.

Survey Method.

Under this method, information about the desire of the consumers and opinions of experts are collected by interviewing them. This can be divided into four types;

1. Opinion Survey method: This method is also known as Sales- Force –Composite method or collective opinion method. Under this method, the company asks its salesmen to submit estimate for future sales in their respective territories. This method is more useful and appropriate because the salesmen are more knowledgeable about their territory.

2. Expert Opinion: Apart from salesmen and consumers, distributors or outside experts may also be used for forecast. Firms in advanced countries like USA, UK etc., make use of outside experts for estimating future demand. Various public and private agencies sell periodic forecast of short or long term business conditions.

3. Delphi Method: It is a sophisticated statistical method to arrive at a consensus. Under this method, a panel is selected to give suggestions to solve the problems in hand. Both internal and external experts can be the members of the panel. Panel members are kept apart from each other and express their views in an anonymous manner.

4. <u>Consumer Interview method</u>: Under this method a list of potential buyers would be drawn and each buyer will be approached and asked about their buying plans. This method is ideal and it gives first-hand information, but it is costly and difficult to conduct. This may be undertaken in three ways:
   A) Complete Enumeration – In this method, all the consumers of the product are interviewed.
   B) Sample survey - In this method, a sample of consumers is selected for interview. Sample may be random sampling or Stratified sampling.
   C) End-use method – The demand for the product from different sectors such as industries, consumers, export and import are found out.

Statistical Methods

It is used for long term forecasting. In this method, statistical and mathematical techniques are used to forecast demand. This method is relies on past data. This includes;

1. <u>Trent projection method</u>: Under this method, demand is estimated on the basis of analysis of past data. This method makes use of time series (data over a period of time). Here we try to ascertain the trend in the time series. Trend in the time series can be estimated by using least square method or free hand method or moving average method or semi-average method.

2. <u>Regression and Correlation</u>: These methods combine economic theory and statistical techniques of estimation. In this method, the relationship between dependant variables (sales) and independent variables (price of related goods, income, advertisement etc.,) is ascertained. This method is also called the economic model building.

3. <u>Extrapolation:</u> In this method the future demand can be extrapolated by applying binomial expansion method. This is based on the assumption that the rate of change in demand in the past has been uniform.

4. <u>Simultaneous equation method:</u> This means the development of a complete economic model which will explain the behaviour of all variables which the company can control.

5. <u>Barometric techniques:</u> Under this, present events are used to predict directions of change in the future. This is done with the help of statistical and economic indicators like: Construction contract, Personal income, Agricultural income, Employment, GNP, Industrial production, Bank deposit etc.,

Forecasting Demand for a New Product.
Joel Dean has suggested six approaches for forecasting the demand for new products.

1. **Evolutionary Approach:** In this method, the demand for new product is estimated on the basis of existing product. E.g. Demand forecasting of colour TV on the basis of demand for black & white TV.

2. **Substitute Approach:** The demand for the new product is analyzed as substitute for the existing product.

3. **Growth curve Approach:** On the basis of the growth of an established product, the demand for the new product is estimated.

4. **Opinion Polling Approach:** In this approach, the demand for the new product is estimated by inquiring directly from the consumers by using sample survey.

5. **Sales Experience Approach:** The demand is estimated by supplying the new product in a sample market and analyzing the immediate response on that product in the market.

6. **Vicarious Approach:** Consumers reactions on the new products are found out indirectly with the help of specialized dealers.

Factors Affecting Demand Forecasting.

The following are the important factors governing demand forecasting:

1. Prevailing Business conditions (price level change, per capita income, consumption pattern, saving, investments, employment etc.,

2. Condition within the Industry (Price –product-competition policy of firms within the industry).

3. Condition within the firm. (Plant capacity, quality, important policies of the firm).

4. Factors affecting Export trade (EXIM control, EXIM policy, terms of export, export finance etc.,)

5. Market behaviour

6. Sociological Conditions (Population details, age group, family lifecycle, education, family income, social awareness etc.,)

7. Psychological Conditions (taste, habit, attitude, perception, culture, religion etc.,)

8. Competitive Condition (competitive condition within the industry)

Criteria for Good forecasting Method

A good forecasting method should satisfy the following criteria:

1. **Plausibility**-It should be reasonable or believable.
2. **Simplicity**- It should be simple and easy.
3. **Economy** – it should be less costly.
4. **Accuracy** – it should be as accurate as possible.
5. **Availability** –Relevant data should be easily available.
6. **Flexibility** – it should be flexible to adopt required changes.

Concept of Revenue

For the purpose of demand analysis, it is considered useful to distinguish between various types of revenue:

Average Revenue (AR);

AR means the total receipts from sales divided by the number of unit sold.

AR= TR/Q

Total Revenue (TR):

TR means the total sales proceeds .it can be ascertained by multiplying quantity sold by price.

TR = P x Q

Incremental Revenue (IR):

IR measures then differences between the new TR and existing TR

IR=R2-R1 =ΔR

Marginal Revenue (MR);

It is the additional revenue which would be earned by selling an additional unit of a firm's products.
It shows the change in TR when one more or one less unit is sold.

MR= R2-R1/Q2-Q1 = ΔR/ΔQ

Where, R1= TR before price change

R2= TR after price change

Q1 = old quantity before price change

Q2 = new quantity after price change

The relationship between AR, TR and MR can be understand with the help of the following table

Quantity demanded (Q)	AR	TR	MR
1	9	9	9
2	8	16	7
3	7	21	5
4	6	24	3
5	5	25	1
6	4	24	-1
7	3	21	-3
8	2	16	-5
9	1	9	-7

The study of the above table reveals that:
1. So long as AR is falling, MR will be less than AR
2. MR falls more steeply than AR
3. TR will be rising so long as MR is positive
4. Where MR is negative, TR will be falling
5. TR will be maximum at the point where MR is Zero.

The relation between elasticity of demand and TR can be summarized as under:

Change in price	Elasticity .>1	Elasticity .=1	Elasticity <1
Rises in price	TR falls	TR unchanged	TR rises
Fall in price	TR rises	TR unchanged	TR falls

Incremental Revenue is the change in total revenue irrespective of changes in price. It is not confined to the effect of price change. It rather measures the effect of managerial decision on total revenue.

SUPPLY

The term supply refers to the quantity of a good or service that producers are willing and able to sell during a certain period under a given set of conditions. Factors that must be specified include the price of the good in question, prices of related goods, the current state of technology, levels of input prices, weather, and so on. The amount of product that producers bring to the market—the supply of the product—depends on all these influences.

Market Supply Function

The market supply function for a product is a statement of the relation between the quantity supplied and all factors affecting that quantity. In functional form, a supply function can be expressed as

Quantity of Product X Supplied = Q = f (Price of X, Prices of Related Goods, Current State of Technology, Input Prices, Weather, and so on)

The generalized supply function expressed in Equation lists variables that influence supply. As is true with the demand function, the supply function must be made explicit to be useful for managerial decision making.

Determinants of Supply

1. Price of the commodity: At a higher price, producer offers more quantity of the commodity for sale and at a lower price, less quantity of the commodity. There is a direct relationship between price and quantity supplied of the commodity as given by the Law of Supply.

2. Price of related good: Supply of a commodity depends upon the prices of its related goods, especially substitute goods. If the price of a remains constant and the price of its substitute good Z increases, the producers will find it more profitable to produce good Z.

3. State of Technology: If there is up gradation in the technique of production or new discovery, it will lead to fall in the cost of production. Thus, supply of the commodity will increase.

4. Cost of Production: a change in the cost of production i.e., prices of factors of production affects the supply of a commodity. If wages of labour or price of raw materials increase, then marginal cost (MC) of production will rise. As a result, supply of the good will fall because producers would prefer to produce some other commodities that can be produced at a lower cost.

5. Government Policy: Government levy taxes or grant subsidies to producers. If heavy excise taxes are imposed on a commodity, it will discourage producers as it will increase the cost of production and as a result, its supply will decrease and the supply curve will shift to the left. Similarly, if subsidies are granted by the government to the producers then supply will increase and the supply curve will shift to the right.

Law of Supply

It is observed in markets that when more price of commodities are offered to sellers. They increase the quantity supplied of these commodities and when the level of prices decreases, the sellers decrease the quantity supplied. This behaviour of seller is called law of supply. Therefore we can say that there is a positive relationship between the quantity that suppliers are willing to sell and the price level. Thus, according to the law of supply, the quantity supplied of a commodity is positively related to price. Because of this direct or positive relationship between price and quantity supplied of a commodity the supply curve slopes upward to the right.

Assumptions of the Law of Supply (ceteris paribus)

The law supply is based on the assumption that factors, other than price of the commodity, that affect the supply remain the same. The functional relationship between the quantity supplied and the price of a commodity can be expressed as:

$$Qs = f (P)$$

Where Qs = quantity supplied and P = price of commodity

Supply Schedule

It is a statement in the form of a table that shows the different quantities of a commodity that a firm or a producer offers for sale in the market at different prices.

It denotes the relationship between the supply and the price, while all non-price variables remain constant.

There are two types of Supply Schedules:

1. Individual Supply Schedule
2. Market Supply Schedule

Individual Supply Schedule

It is a supply schedule that depicts the supply by an individual firm or producer of a commodity in relation to its price. Let us understand it with the help of an example.

Price per unit of commodity X (Px)	Quantity supplied of commodity X (Dx)
100	1000
200	2000
300	3000
400	4000
500	5000

The above schedule depicts the individual supply schedule. We can see that when the price of the commodity is ₹100, its supply is 1000 units. Similarly, when its price is 500, its supply increases to 5000 units.

Market Supply Schedule

It is a summation of the individual supply schedules and depicts the supply of different customers for a commodity in relation to its price. Let us understand it with the help of an example.

Price per unit of commodity X	Quantity supplied by firm A (Q$_A$)	Quantity supplied by firm B (Q$_B$)	Market Supply Q$_A$ + Q$_B$
100	1000	3000	4000
200	2000	4000	6000
300	3000	5000	8000
400	4000	6000	10000
500	5000	7000	12000

The above schedule shows the market supply of commodity X. When the price of the commodity is Rs. 100, firm A supplies 1000 units while the firm B supplies 3000 units.

Thus, the market supply is 4000 units. Similarly, when its price is Rs. 500, firm A supplies 5000 units while firm B supplies 7000 units. Thus, it's market demand increases to 12000 units.

Thus, we can conclude that whether it is the individual supply or the market supply, the law of supply governs both of them.
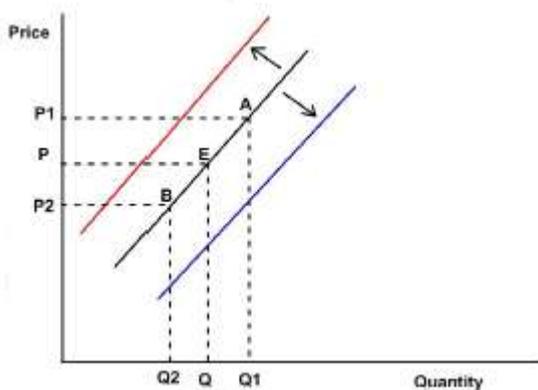
Supply Curve

The supply function specifies the relation between the quantity supplied and all variables that determine supply. The supply curve expresses the relation between the price charged and the quantity supplied, holding constant the effects of all other variables. As is true with demand curves, supply curves are often shown graphically, and all independent variables in the supply function except the price of the product itself are fixed at specified levels. In the automobile supply function given in Equation 4.8, for example, it is important to hold constant the price of SUVs and the prices of labour, steel, energy, and other inputs to examine the relation between automobile price and the quantity supplied.

Change Supply and Shift in Supply Curve

A movement in a supply curve is a change in supply as a result of a change in price. A shift in a supply curve is a change in supply for a reason other than a change in price. This is illustrated in the figure given below. If there is a rise in price of commodity P to P1it will lead to increase in quantity supplied by the producer from Q to Q1, and if there is a fall in price of the commodity from P to P2, then it will lead to reduction in the quantity supplied by the producer from Q to Q2. On the other hand if there is any change in the determinant of supply it will lead to shift in the supply curve either left or right depending upon the nature of change in the determinant of supply.

Figure showing Shift in Supply & Movement along a Supply Curve

Reason for Change in Supply or movement along supply curve: Change in the price of the product.

Reason for upward movement (Expansion of supply): A rise in price of the product

Reason for downward movement (Contraction of supply): A fall in price of the product.

Elasticity of Supply

When a small fall in price leads to a large contraction in supply, the supply is comparatively elastic. But when a big fall in price leads to a very small contraction in supply, the supply is said to be comparatively inelastic. On the other hand, a small rise in price leading to a big extension in supply shows more elastic supply, and a big rise in price leading to a small extension in supply indicates inelastic supply.

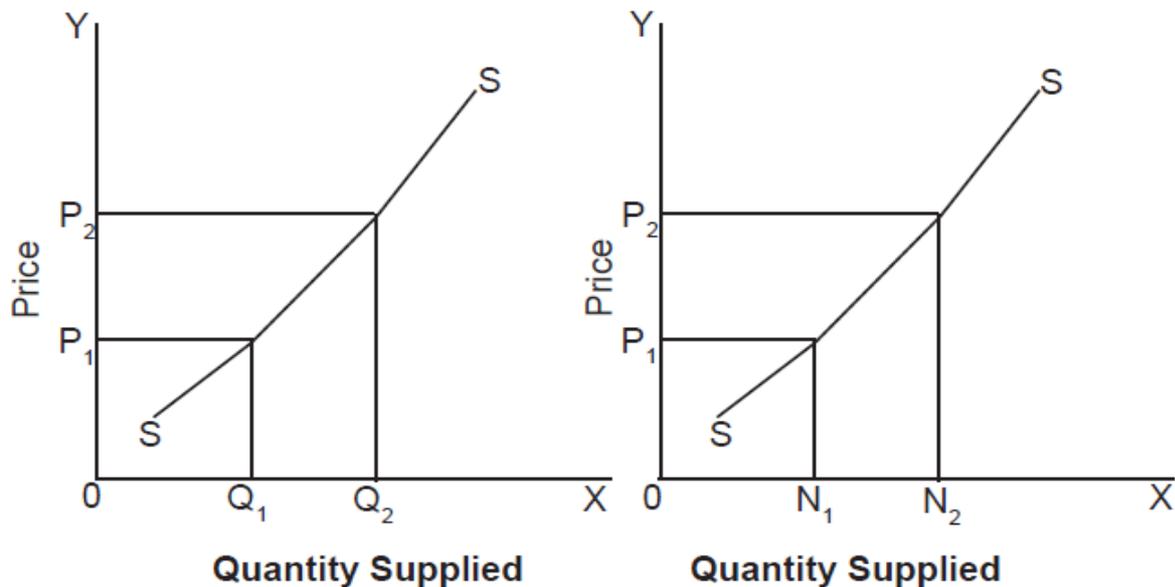Let us discuss elastic and inelastic supply graphically–

Figure 1 Elastic Supply   **Figure 2   Inelastic Supply**

From the above two figures we got two supply curves 'SS' and S1S1. Quantity supplied is measured along the horizontal axis and price is measured along the vertical axis. In figure 1, at price OP1, the quantity supplied is OQ1, and in figure 2 the quantity supplied is ON1. Price is same in both the cases. With rise in price of the commodity, quantity supplied increases. In figure 1, due to change in price from OP1 to OP2, quantity supplied increases to OQ2. In figure 2, the change in quantity supplied is from ON1 to ON2. In figure 1, the change in quantity supplied Q1Q2 is much larger as compared to increase in quantity supplied N1N2. In figure 2. Therefore, supply in figure 1 is elastic whereas supply in figure 2 is inelastic.

Definition of Elasticity of Supply: The elasticity of supply is the degree of responsiveness of supply to changes in the price of a good. More precisely, the elasticity of supply can be defined as a proportionate change in quantity supplied of a good in response to a given proportionate change in price of the good.

It can be expressed as follows–

$$\text{Es} = \frac{\text{Proportionate change in quantity supplied}}{\text{Proportionate change in price}}$$

Symbolically we can write it as follows–

$$\text{Es} = \frac{\frac{\Delta q}{q}}{\frac{\Delta p}{p}}$$

Using above formula we can measure elasticity of supply. In the given formula–

Es = elasticity of supply

Δq = change in quantity supplied

Δp = change in price

p = price of commodity

q = quantity supplied of the commodity

Problem: If the price of a refrigerator rises from Rs. 2000 to Rs.2100 per unit and in response to this rise in price the quantity supplied increases from 2500 to 3000 units, what will be the elasticity of supply?

Solution: We know that,

$$Es = \frac{\dfrac{\Delta q}{q}}{\dfrac{\Delta p}{p}}$$

Here,   Dq (Change in quantity supplied) = (3000-2500) units

                                                     = 500 units

       Dp (Change in price)   = (2100-2000)

                                                     = Rs. 100

P (initial price)   = Rs. 2000

or (initial quantity supplied)   = 2500 units

Hence, elasticity of supply will be 4.

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MODULE III
PRODUCTION

Introduction

Production in economic terms is generally understood as the transformation of inputs into outputs. The inputs are what the firm buys, namely productive resources, and outputs are what it sells. Production is not the creation of matter but it is the creation of value. Production is also defined as producing goods which satisfy some human want. This kind of production is called manufacturing. The production process however does not necessarily involve physical conversion of raw materials in to tangible goods. It also includes the conversion of intangible inputs to intangible outputs. For example, production of legal, medical, social and consultancy services- where lawyers, doctors, social workers consultants are all engaged in producing intangible goods. An '*input*' is good or service that goes in to the process of production and '*output*' is any good or service that comes out of production process.

Fixed and variable inputs.

In economic sense, a fixed input is one whose supply is inelastic in the short run .Therefore, all of its users cannot buy more of it in short run. Conceptually, all its users, cannot employ more of it in the short run. If one user buys more of it, some other users will get less of it. A variable input is defined as one whose supply in the short run is elastic, eg: Labour, raw materials etc. All the users of such factors can employ larger quantity in the short run.

In technical sense, a fixed input remains fixed (constant) up to a certain level of output whereas a variable input changes with change in output. A firm has two types of production function:-

(1) Shot run production function
(2) Long run production function

Production function

Production function shows the technological relationship between quantity of output and the quantity of various inputs used in production. Production function is economic sense states the maximum output that can be produced during a period with a certain quantity of various inputs in the existing state of technology. In other words, it is the tool of analysis which is used to explain the input - output relationships. In general, it tells that production of a commodity depends on the specified inputs in its specific term it presents the quantitative relationship between inputs and output. Inputs are classified as:-

1) Fixed input or fixed factors
2) Variable input or variable factors

Short run and Long run

Short run refers to a period of time in which the supply of certain inputs (E.g. plant, building, machines, etc.,) are fixed or inelastic. Thus an increases in production during this period is possible only by increasing the variable input. In some Industries, short run may be a matter of few weeks or a few months and in some others it may extent even up to three or more years. The long run refers to a period of time in which "supply of all the input is elastic; but not enough to permit a change in technology. In the long run, the availability of even fixed factor increases. Thus in the long run, production of commodity can be increased by employing more of both, variable and fixed inputs. In the strict sense, production function is defined as the transformation of physical input in to physical output where output is a function input. It can be expressed algebraically as;

$$Q = f (K, L \text{ etc.,})$$

Where
Q - The quantity of output produced during a particular period.
K, L etc., are the factors of production
f - Denotes the function of or depends on.

The production functions are based on certain assumptions;
      1. Perfect divisibility of both inputs and output;
      2. Limited substitution of one factor for the others
      3. Constant technology; and
      4. Inelastic supply of fixed factors in the short run

Cobb-Douglas Production Function
One of the important tool of statistical analysis in production function that measures the relation between changes in physical input is Cobb-Douglas production function. The concept was originated in USA. This is more peculiar to manufacturing concerns. The cob-Douglas formula says that labour contributes about 75% increases in manufacturing production while capital contributes only 25%. The formula is as follows:-

$$O = KL^aC (1-a)$$

   Where O is output. L is the quantity of labour "C" is the quantity of capital employed K and a (a<1) are positive constants. a and 1-a measure percentage response of output to percentage change in labour and capital respectively.

The production function shows at One (1%) percentage change in labour, capital remaining constant, is associated with 0.75% change in output. Similarly One percentage change in capital, labour remaining constant, is associated with a 20% change in output. Returns to scale are constant. That is if factors of production are increased, each by 10 percentage then the output also increases by 10 percentage

The laws of production

      Production function shows the relationship between a given quantity of input and its maximum possible output. Given the production function, the relationship between additional quantities of input and the additional output can be easily obtained. This kind of relationship yields the law of production. The traditional theory of production studies the marginal input-output relationship under
(I) Short run; and (II) long run. In the short run, input-output relations are studied with one variable input, while other inputs are held constant. The Law of production under these assumptions are called "the Laws of variable production". In the long run input output relations are studied assuming all the input to be variable. The long-run input output relations are studied under `Laws of Returns to Scale.

Law of Diminishing Returns (Law of Variable Proportions)

The Laws of returns states the relationship between the variable input and the output in the short term. By definition certain factors of production (e.g.-Land, plant, machinery etc.,) are available in short supply during the short run. Such factors which are available in unlimited supply even during the short periods are known as variable factor. In short-run therefore, the firms can employ a limited or fixed quantity of fixed factors and an unlimited quantity of the variable factor. In other words, firms can employ in the short run varying quantities of variable inputs against given quantity of fixed factors. This kind of change in input combination leads to variation in factor proportions. The Law which brings out the relationship between varying factor properties and output are therefore known as the Law of variable proportions.

      The variation in inputs lead to a disproportionate increase in output more and more units of variable factor when applied cause an increase in output but after a point the extra output will grow less and less. The law which brings out this tendency in production is known as "Law of Diminishing Returns".

      The Law of Diminishing returns levels that any attempt to increase output by increasing only one factor finally faces diminishing returns. The Law states that when some factor remain constant, more and more units of a variable factor are introduced the production may increase initially at an increasing rate; but after a point it increases only at diminishing rate. Land and capital remain fixed in the short-term whereas labour shows a variable nature.

The following table explains the operation of the Law of Diminishing Returns.

No. of Workers	Total product	Average product	Marginal Product
1	10	10	10
2	22	11	12
3	36	12	14
4	52	13	16
5	66	13.2	14
6	76	12.7	10
7	82	11.7	6
8	85	10.5	3
9	85	9.4	0
10	83	8.3	(-2)

The above table illustrates several important features of a typical production function. With one variable input - here both **Average Product (AP)** and **Marginal Product (MP)** first rise, reach a maximum - then decline. Average product is the product for one unit of labour. It is arrived at by dividing the **Total Product (TP)** by number of workers Marginal product is the additional product resulting term additional labour. It is found out by dividing the change in total product by the change in the number of workers. The total output increases at an increasing rate till the employment of the 4th worker. The rate of increase in the marginal product reveals this. Any additional labour employed beyond the 4th labour clearly faces the operation of the Law of Diminishing Returns. The maximum marginal product is 16 after which it continues to fall, ultimately becoming negative. Thus when more and more units of labour are combined with other fixed factors the total output increase first at an increasing rate then at a diminishing rate finally it becomes negative. The graphical representation the above table is shown below:
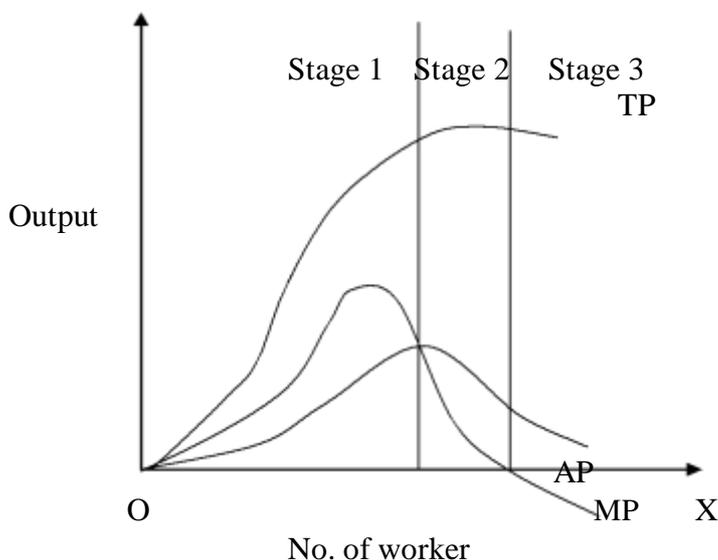
OX axis represents the units of labour and OY axis represents the unit of output. The total output (TP) curve has a steep rise till the employment of the 4th worker. This shows that the output increases at an increasing rate till the employment of the 4th labour. TP curve still goes on increasing but only at a diminishing rate. Finally TP curve shows a downward trend.

The Law of Diminishing Returns operation at three stages. At the first stage, total product increases at an increasing rate. The marginal product at this stage increases at an increasing rate resulting in a greater increases in total product. The average product also increases. This stage continues up to the point where average product is equal to marginal product. The law of increasing returns is in operation at this stage. The Law of increasing Returns operates from the second stage onwards. At the second stage, the total product continues to increase but at a diminishing rate. As the marginal product at this stage starts falling, the average product also declines. The second stage comes to an end where total product become maximum and marginal product becomes zero. The marginal product becomes negative in the third stage. So the total product also declines. The average product continues to decline in the third stage.

Assumptions of Law Diminishing Returns
The Law of Diminishing Returns is based on the following assumptions;-
1) The production technology remains unchanged.
2) The variable factor is homogeneous.
3) Any one factor is constant.
4) The fixed factor remains constant.

Law of Returns to scale
In the long-run all the factor of production are variable and an increase in output is possible by increasing all the inputs. The Law of Returns to scale explains the technological relationship between changing scale of input and output. The law of returns of scale explain how a simultaneous and proportionate increase in all the inputs affect the total output. The increase in output may be proportionate, more than proportionate or less than proportionate. If the increase in output is proportionate to the increase in input, it is constant Returns to scale. If it is less then proportionate it is diminishing returns to scale. The increasing returns to the scale comes first, then constant and finally diminishing returns to scale happens.

Increasing Returns to scale
When proportionate increase in all factor of production results in a more than proportionate increase in output and this results first stage of production which is known as increasing returns to scale. Marginal output increases at this stage. Higher degree of specialization, falling cost etc., will lead higher efficiency which result increased returns in the very first stage of production.

Causes of Increasing Returns

1. The main reason for increasing returns in the first stage is that in the beginning the fixed factors are larger in quantity than the variable factor. When more units of the variable factor are applied to a fixed factor, the fixed factor is used more intensively and production increases rapidly.
2. In the beginning, the fixed factor cannot be put to the maximum use due to the non-applicability of sufficient units of the variable factor. But when units of the variable factor are applied in sufficient quantities, division of labour and specialization lead to per unit increase in production and the law of increasing returns operates.
3. Another reason for increasing returns is that the fixed factors are indivisible which means that they must be used in a fixed minimum size. When more units of the variable factor are applied on such a fixed factor, production increases more than proportionately. This points towards the law of increasing returns.

Constant Returns to scale
Firms cannot maintain increasing returns to scale indefinitely after the first stage, firm enters a stage when total output tends to increase at a rate which is equal to the rate of increase in inputs. This stage comes in to operation when the economies of large scale production are neutralized by the diseconomies of large scale operation.

## Diminishing Returns to Scale

In this stage, a proportionate increase in all the input result only less than proportionate increase in output. This is because of the diseconomies of large scale production. When the firm grows further, the problem of management arise which result inefficiency and it will affect the position of output.

Isoquant Curve

The terms "Iso-quant" has been derived from the Greek word 'iso' means 'equal' and Latin word 'quantus' means 'quantity'. The iso-quant curve is therefore also known as 'equal product curve' or production indifference curve. An iso-quant curve is locus of point representing the various combination of two inputs–capital and labour–yielding the same output. It shows all possible combination of two inputs, namely - capital and labour which can produce a particular quantity of output or different combination of the two inputs that can give in the same output. An isoquant curve all along its length represents a fixed quantity of output. The following table illustrates combination of capital (K) and labour (L) which give the same output say – 20 units. The combinations of A uses one unit of "K" and 12 units of "L" to produce is 20 units. Likewise, the combinations B, C, D and E give the same output -20 units.

Combination	Capital	Labour	Output
A	1	12	20
B	2	8	20
C	3	5	20
D	4	3	20
E	5	2	20
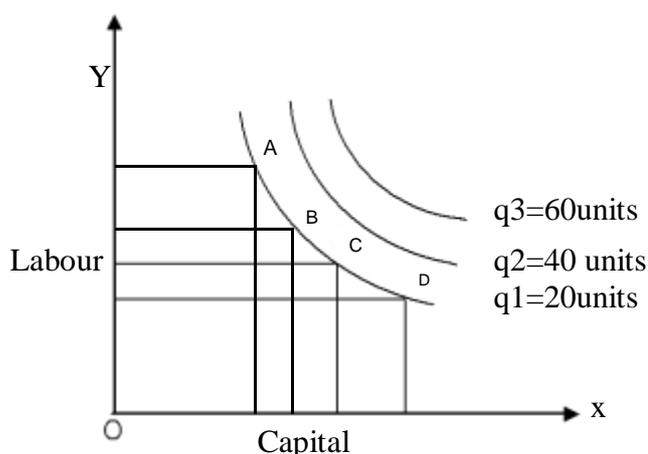
The above curve shows the four different combinations of inputs. (Capital and Labour) which give the same output namely 20 units, 40 units, 60 units respectively. Thus it provides fixed level of output. Further the shape of isoquants reveal the degree of substitutability of one factor for another to yield the same level of output. It also implies the diminishing marginal rate of technical substitution. Marginal rate of technical substitution refers to the rate at which one output can be substituted for another in order to keep the output constant. The slope of an isoquant indicates the marginal rate of technical substitution at the point.

Properties of Isoquants
1. Isoquants have a negative slope: An isoquant has a negative slope in the economic region or in the relevant range. Economic region means where substitution between input is technically possible that keeps same output.
2. Isoquants are convex to origin: Convex nature of Isoquant shows the substitutability of one factor for another and the diminishing marginal rate of technical substitution.
3. Isoquant cannot Intersect or be tangent to each other.

Marginal Rate of Technical substitution (MRTS)

MRTS is the rate at which marginal unit of an input can be substituted for the marginal units of the other input so that the level of output remains the same. In other words it is the ratio of marginal unit of labour substituted for the marginal units of capital without affecting the total output. This ratio indicates the slop of Isoquants.

Isocost Curve

Isocost curve shows the different combination that a firm can buy with a certain unit of money.
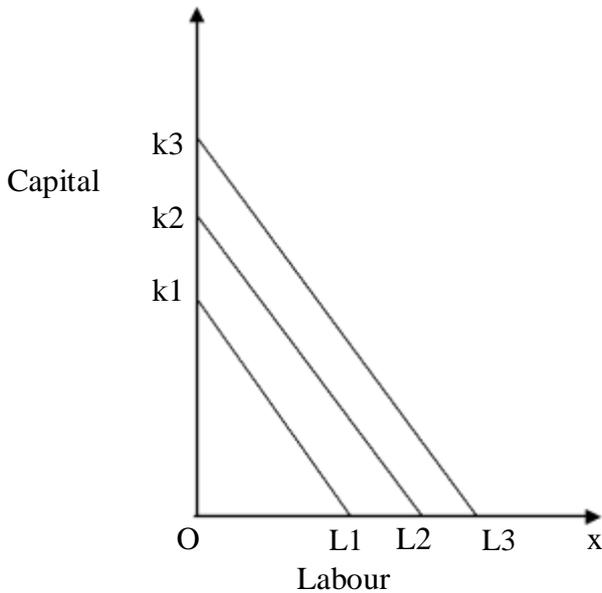

Usually, the management has to incur expenditure in buying inputs namely - labour, raw materials, machinery etc., Further, management is expected to know price of inputs what it costs to produce a given output. Therefore, it is required to minimize the cost of output that it produces. Here management is more helpful to draw isocost curve that represents the equal cost. An iso-cost line is so called because it shows the all combinations of inputs having equal total cost. The isocost lines are straight lines which represents the same cost with different input combinations. Suppose a firm decides to spend Rs.100 on output. If one unit of labour costs Rs. 10 the firm can purchase 10 units of labour. Similarly, if a unit of capital cost Rs.25, the firm can spend the whole amount on buying 4 units of capital likewise the firm can spend partly on capital, say 2 units and party on labour, say 5 units for this Rs.100.

The figure shows that the firm has the option to spend the total money either on capital or labour or on both, from this Rs. 100, the firm can buy either OL, units of labour or OK, units of capital or any combination of those two between the extremes "K1" and L1. An isocost curve represents the same cost for all the different combination of inputs. The upward isocost curve as represented by K2, L2 and K3, L3 shows higher amounts spent on larger quantities of both K and L.

Optimum Combination of inputs

A profit maximizing firm seeks to minimize its cost for a given output or to maximize the output for a given total cost. A certain quantity of output can be produced with different Input combinations. Optimum input combination is that which bears least cost. Thus the input combination that results in the minimum cost of production is to be found out. This is known as least - cost input combination. This can be found out by combining Isoquant curves and Isocost curves. The production function is represented by Isoquant curve and the cost function is represented by Isocost curve. The least cost combination exists at a point where Isoquant is tangent to Isocost.
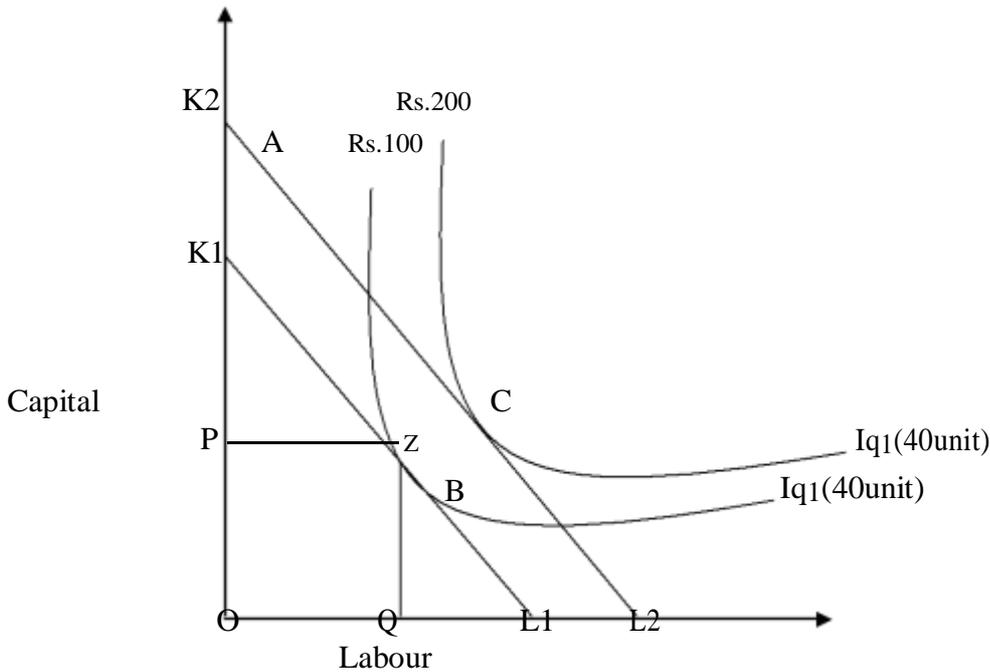
The figure shows the least – cost combination of capital end labour. The Isoquant Iq1, is tangent to the Isocost curve K1, L1 at point `z`. At this point in the combination is OP of capital and OQ of labour. The point `z` gives the ideal combination which minimizes cost of production per units, it is the point at which the firm is in equilibrium. At the point `z` the isocost line K1, L1, representing Rs.100 is tangent to the isoquant curve Iq1, representing 20 units of output. Any other point on Iq1, would mean the same output, but at high cost. The point A or B or Iq1, gives the same output but with a higher cost combination of inputs K2, L2 representing Rs. 200. The point 'C' is the least cost point of producing 40 units formed by the intersection of Iq$_2$ (40 units) and K$_2$, L$_2$ (Rs.200).

Economies of Scale

Economies of scale means a fall in average cost of production due to growth in the size of the industry within which a firm operates. The factors which cause the operation of the laws of returns the scale are grouped under economies and diseconomies of scale. Increasing returns to scale operates because of economies of scale and decreasing returns to scale operates because of diseconomies of scale where economies and diseconomies arise simultaneously. Increasing returns to scale operates when economies of scale are greater than the diseconomies of scale and returns to scale decreases when diseconomies overweight the economies of scale. Similarly when economies and diseconomies are in balance, returns to scale becomes constant. Economies of scale exist when long run average costs decline as output is increased. Diseconomies of scale exist when long run average cost rises as output is increased.

The economies of scale occur because of (i) Technical economies: the change in production process due to technology adoption. (ii) Managerial economies (iii) Purchasing economies, (iv) Marketing economies and (v) Financial economies.

Diseconomies of Scale
Arises due to managerial problems. If the size of the business becomes too large, then it becomes difficult for management to control the organizational activities therefore diseconomies of scale arise.

Factors Causing Economies of Scale
There are various factors influencing the economies of scale of an organization. They are generally classified in to two categories as Internal factors and External factors.

Internal Factors:
1. **Labour economies:** if the labour force of a firm is specialized in a specific skill then the organization can achieve economies of scale due to higher labour productivity.

2. **Technical economies:** with the use of advanced technology they can produce large quantities with quality which reduces their cost of production.

3. **Managerial economies:** the managerial skills of an organization will be advantageous to achieve economies of scale in various business activities.

4. **Marketing economies:** use of various marketing strategies will help in achieving economies of scale.

5. **Vertical integration:** if there is vertical integration then there will be efficient use of raw material due to internal factor flow.

6. **Financial economies:** the firm's financial soundness and past record of financial transactions will help them to get financial facilities easily.

7. **Economies of risk spreading:** having variety of products and diversification will help them to spread their risk and reduce losses.

8. **Economies of scale in purchase:** when the organization purchases raw material in bulk reduces the transportation cost and maintains uniform quality.

External Factors:
1. **Better repair and maintenance facilities:** When the machinery and equipments are repaired and maintained, then the production process never gets affected.
2. **Research and Development:** research facilities will provide opportunities to introduce new products and process methods.
3. **Training and Development:** continuous training and development of skills in the managerial, production level will achieve economies of scale.
4. **Economies of location:** the plant location plays a major role in cutting down the cost of materials, transport and other expenses.
5. **Economies of Information Technology:** advanced Information technology provides timely accurate information for better decision making and for better services.
6. **Economies of by-products:** Organizations can increase the economies of scale by minimizing waste and can be environmental responsible by using the by- products of the organization.

Factors Causing Diseconomies of Scale

1. **Labour union:** Continuous labour problem and dissatisfaction can lead to diseconomies of scale.
2. **Poor team work:** Poor performance of the team leads to diseconomies of scale.
3. **Lack of co-ordination:** Lack of coordination among the work force has a major role to play in causing diseconomies of scale.
4. **Difficulty in fund raising:** Difficulties in fund raising reduce the scale of operation.
5. **Difficulty in decision making:** The managerial inability, delay in decision making is also a factor that determines the economies of scale.
6. **Scarcity of Resources:** Raw material availability determines the purchase and price. Therefore there is a possibility of facing diseconomies in firms.
7. **Increased risk:** Growing risk factors can cause diseconomies of scale in an organization. It is essential to reduce the same.

Constant Returns To Scale:

In the long run if the returns to scale are constant then the average cost of production will be the same. For example : Ananda Vikatan magazine, started 100 years ago and it was sold in the market for 25 paise but now it is still sold at a nominal cost of Rs.15. The price increased because raw material cost and printing and labour costs have also increased but in the long run the price of the commodity has not increased much.

Economies of scope: Producing variety to get cost advantage. In retail business it is commonly used. Product diversification within the same scale of plant will help them to achieve success.

Summary

Production function is an equation that asserts the relationship between the quantities of productive factors used and the maximum amount of product obtained at certain technological level. The production function can thus measure the marginal productivity of a particular factor of production and determine the cheapest combination of productive factors. We have seen that the concept of marginal productivity and the law of diminishing marginal productivity play central parts in both the efficient allocation of resources in general and in profit maximization.

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COST CONCEPTS

Introduction

The term *cost* simply means cost of production. It is the expenses incurred in the production of goods. It is the sum of all money-expenses incurred by a firm in order to produce a commodity. Thus it includes all expenses from the time the raw material are bought till the finished products reach the wholesaler.

A managerial economist must have a proper understanding of the different cost concept which are essential for clear business thinking. The cost concept which are relevant to business operation and decision can be grouped on the basis of their purpose under two overlapping categories:

1. Concept used for accounting purpose

2. Concept used in economics analysis of the business

Types of Cost (or Cost Concepts)

There are several types of costs (or cost concepts).Following are the important items:-

Money Cost: money cost means the total money expenses incurred by a business firm on the various items entered into the production of a particular product. For example, money payments made on wages and salaries to workers and managerial staff, payments for raw materials purchased, expenses on power and light, insurance, transportation, advertisement and also payments made on the purchase of machinery and equipments etc., constitute money cost of production. Money cost is also called nominal cost.

Real Cost: Real cost means the real cost of production of a particular product. It is the next best alternative sacrificed in order to obtain that product. It also denotes the "efforts" of workers and sacrifices of owners undergone in the production of a particular product.

Opportunity Cost: Opportunity cost refers to the cost of foregoing or giving up an opportunity. It is the cost of the next best alternative. It implies the income of benefit foregone because a certain course of action has been taken. As Adam smith observed, if a hunter can bag a deer or a beaver in the single day, the cost of deer is a beaver and the cost of beaver is a deer. A man who marries a girl is foregoing the opportunity of marrying another girl. A film actress can either act in films or do modelling work. She cannot do both the jobs at the same time. Her acting in the film results in the loss of an opportunity of doing modelling work. Likewise, if an old building is proposed to be used for a business, where rent of the building is the opportunity cost. The opportunity cost concept was first developed by an Austrian economist, Wieser.

The opportunity cost concept plays an important role in managerial decisions. It is useful in determination of relative prices of different goods. It is also useful in fixing the price of an output factor. Above all, it helps in the best allocation of available resources.

Sunk Cost: Sunk costs are those which have already been incurred and which cannot be changed by any decision made now or in the future. These are past or historical costs.

Incremental cost: These are additional costs incurred due to a change in the level or nature of activity.

Differential Cost: It refers to the change in cost due to change in the level of activity or pattern of production or method of production.

Explicit Cost: Explicit costs are those costs, which are actually paid (or paid in cash.). They are paid out costs.

Implicit Cost: Implicit costs are those costs, which are not paid in cash to anyone. These are not actually incurred, but are computed for decision-making purpose. These are the costs, which the entrepreneur pays to himself. For example, rent charged on owned premises, wages of entrepreneur, interest on owned capital etc., Implicit costs are also known as imputed costs or hypothetical costs.

Accounting cost: Accounting costs represent all such expenditures, which are incurred by a firm on factors of production. Thus, accounting costs are explicit costs. In short, all items of expenses appearing on the debit side of trading, profit and loss account of a firm represent the accounting cost. Since all the expenses on production are in money terms, the accounting costs are money costs or nominal costs.

Economic Cost: Economic cost refers total of explicit cost and implicit cost. Thus it includes the payment for factors of production (that is rent, wages etc.,) and the payments for the self-owned factors (interest on owned capital, rent on owned premises, salary to entrepreneur etc.,)

Difference between Accounting Cost and Economic Cost

Accounting cost means the expenses incurred by the firm on production and sale of goods or service. These are paid by the firm to the outsiders. For example, payment made for wages, raw materials, fuel, power, building etc., are the accounting costs. Accounting cost is the money paid for contractual payments. It includes payments and charges made by the enterprise to the suppliers of resources. It is the explicit cost. But economic cost includes not only explicit cost but also implicit or imputed cost. Implicit cost includes rent charged on owned premises, interest charged on owned capital, wages paid to entrepreneur etc. Implicit cost is not included in accounting cost. Accounting cost includes only explicit costs which are recorded in the books of account. Implicit cost will not be recorded in the books of account. Thus the economist's concept of cost is more comprehensive as compared to accountant's concept of cost.

Accounting cost are generally used for financial reporting and control. Economic costs are used for decision-making

In short, accounting costs involve only cash payments made by the entrepreneur. On the other hand, economic costs include all these accounting costs plus the implicit cost

Social Cost of Production (or Social Cost)

In the production of goods, costs will be incurred not only by the owners business but also by the society. Cost incurred by a society in terms of resources used in the production of a commodity is known as social cost of production. It is the opportunity cost borne by a whole society or community. Social costs include not only the cost borne by the owners of a business (or producers) but also the cost passed on to the society. For example, production of certain commodities (chemical, rubber, petroleum, steel etc.,) causes environment pollution. Pollution caused while producing a commodity imposes a social cost on those residents who suffer ill health. Some industries leave wastes which the adjoining areas have to bear. A cost that is not borne by the firm but is incurred by others in the society is called external cost. Social cost includes external costs and privet cost (because firms are also apart of society). Thus, social cost is the total cost of the society on account of production of a commodity. For example, the social cost of liquor sold by a firm includes the cost incurred by the firm (private cost) and the cost like expenditure of additional police force to deal with the drunken people and such other incidental expenses for the society. Take another example. When people go for picnic in the park and throw wrappers, then they impose a real cost on the residents of that area who have to clean up the park. This is social cost. Thus social cost includes real cost which is the cost borne by the society, directly or indirectly due to the production of goods. In short social costs are those costs, which are incurred by the society in producing commodities and services. It is the sum of private costs of production and economic damage upon society.

Private Cost of Production (Private Costs)

Private cost are the costs incurred by a firm in production a commodity or service. All the actual costs incurred by a firm or producers are private costs. Private costs include both explicit cost and implicit cost. Private costs have to be borne by only those persons or firms who make decision. These do not include the effect of the produced commodity on the society.

Difference between Private Cost and Social Cost

Private costs are the costs incurred by a firm while producing a commodity or service. But social costs are those costs, which are incurred by the society in producing commodities or services. Social costs include private costs and external costs. Private costs include both explicit and implicit costs. Private costs do not include external costs.

The concept of social cost enables to understand the social implication of the utilization of scarce resources among the different sections of the society. The economic optimum is the yardstick in matters of private cost, but social optimum is the governing factor in the case of social cost.

Fixed and Variable Cost:-

Fixed Cost: Fixed cost are those costs which do not vary with the volume of production. These costs remain fixed or constant up to a certain level of production. Even if the production is zero, a firm will have to incur fixed costs. Examples are rent, interest, depreciation, insurance, salaries etc. The fixed costs are also called supplementary costs, capacity costs or period costs or overhead costs.

Average fixed cost (fixed cost per unit) changes with a change in the quantity of production. If the volume of production increases, average fixed cost will decrease. If the quantity of production decrease, average fixed cost will increase. Thus, there is an inverse relationship between fixed costs and quantity of production.

Average fixed cost is obtained by dividing total fixed cost by total output. Total fixed cost curve and average fixed cost curve are shown below:
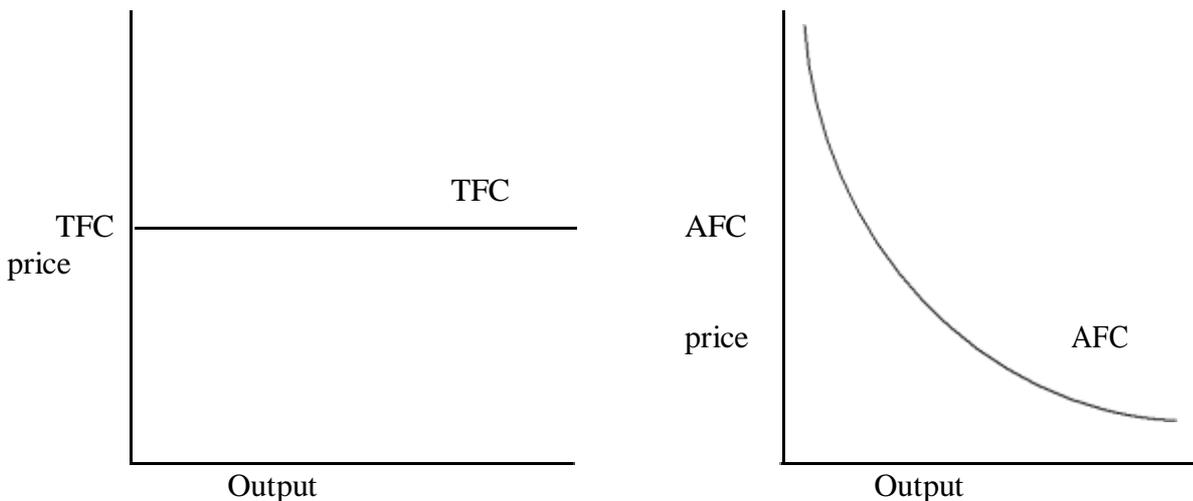
From the above graph it is clear that the total fixed cost curve is horizontal to the OX axis. On the other hand the average fixed cost curve slopes from left to right. This implies that as the output increases, the average fixed cost falls.

Variable Cost:

Variable costs are those costs, which change with the quantity of production. When the output increases, variable cost also increases. When the output decreases, the variable cost also decreases. Thus, there is a direct relationship between variable cost and volume of production.

Variable costs are also known as prime costs or direct costs. Examples are materials, wages, power, stores etc., Prime or variable cost consist of direct material cost, direct labour cost and other direct expenses

Business cost and full cost

Business cost include all the expenses which are incurred to carry out a business. It includes all the payments and contractual obligations made by the firm together with the book cost of depreciation on plant and equipment. These cost concepts are used for calculating business profits and losses and for filing returns for income- tax and also for other legal purposes

The concept of full costs, includes business costs, opportunity costs and normal profits. The opportunity cost includes the expected earnings from the second best use of the resources, or the market rate of interest on the total money capital and also the value of the entrepreneurs own services which are not charged for in the current business. Normal profit is a necessary minimum earning in addition to the opportunity cost, which a firm must get to remain in its present occupation.
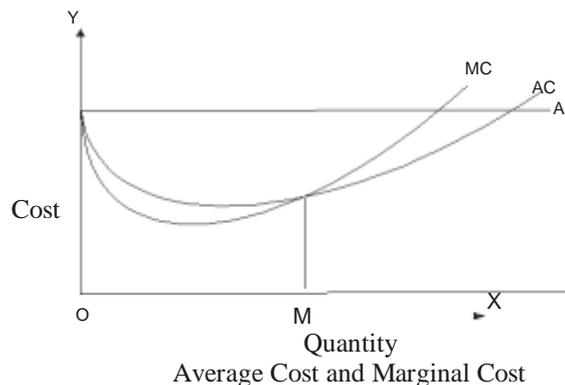
Total cost, Average cost and Marginal cost

Total cost is made up of both the fixed cost and the variable cost. They are represented in the following diagram. OX and OY are the two axes, along OX is represented the quantity produced and along OY the cost. FC, a straight horizontal line represents the fixed cost and the area above is the variable cost so that the TC is total cost curve.

Average Cost: Average cost is the sum of average variable cost and average fixed cost; it is also called average total cost. If the total cost of producing 60 units of good is 2400 rupees, then average cost will be

Average cost at any output = Total Cost / Units of output

= 2400 / 12 = 20

Marginal Cost: Marginal cost is the cost of producing an additional unit of output. In other words, marginal cost is the addition made to the total cost by producing one more unit of output. For example, if the total cost of producing 120 units is 2400 rupees and the total cost of producing 121 units is 2436 rupees, the marginal costing in this case will be equal to 36 rupees.

Curve can be drawn to represent costs. The marginal cost (MC) and the average cost (AC) are shown in the following diagram.

Average Cost and Marginal Cost

OX and OY are two axes, along OX is shown the quantity produced and along OY the cost. It will be seen that as output is increased, both average cost (AC) and marginal cost (MC) fall, but MC is below AC, i.e., marginal cost is less than the average cost. The fall is due to the economics of scale. But beyond a point (M) i.e. when output is expanded too much, both AC and MC start rising and now MC is above AC, i.e., the marginal cost is greater than the average cost. That is why MC cuts AC from below at its lowest point.

Cost Function

Cost function is derived from the production function. Time factor is very important in cost theory. The short-run costs are the costs over a period during which some factors of production are fixed. The long-run costs are the costs over a period long enough to permit changes in all factors of production. Both in

the short-run and in the long-run, cost is a multivariate function, i.e., it is determined by many factors simultaneously, symbolically, the long run cost function is given as:

$$C = f(X, T, Pf)$$

and the shot-run-run cost function is:

$$C = f(X, T, Pf, K)$$

Where,
C = Total Cost   X = Output
T = Technology   Pf = Prices of factors
K = Fixed factor (s)

Graphically, the cost function is generally shown on a two-dimensional diagram by taking C= f(x), ceteris paribus, If other factors (i.e., T, Pf) to change, then the cost curve will shift.

Short Run Cost Function

The short-run refers to that period of time within which a firm can vary its output by varying only the amount of variable factors, factors such as labour and raw material. In the short run period the firm cannot alter the fixed factors such capital equipment management personal, the factory buildings etc., Suppose a firm wants to increase production in the short run it can do so only by hiring more worker or buying and using more raw materials. In the short run a firm cannot enlarge the size of the existing plant or build a new plant of a bigger capacity. Thus in the short run only variable factors can be varied while the fixed factors remain the same.

Short-run Fixed and Variable Costs

In the period, the prime costs relating to labour and raw material can be varied whereas the fixed costs remain the same. On the other hand, in the long period, even the fixed costs relating to plant and machinery, staff salaries, etc., can be varied. That is, in the long run all costs are variable and no costs are fixed.

Short-run Cost Curve

Generally, in the short-run a firm will adjust output to demand by varying the variable factors. When the factors of production can be used in varying proportions, it means that the scale of operations of the firm can be changed. It is evident form the above figure that at any scale of operations in the short-run, a firm will have regions of rising and falling costs. On the other hand, in the long-run the firm can produce on a completely short-run cost curve, and there will be an output where the average cost is minimum. This is the optimum output.

Long-Run Average Cost Curve

The long-run average cost curve LAC is a tangent to all the short run cost curve. The LAC curve will therefore, be U-shaped like the short-run cost curve. It will be flatter. That is why the long-run cost curve is called an 'Envelope', because it envelops all the short-run cost curves. According to Dewett and Varma, the cost curve, whether short-run or long-run are U-shaped because the cost of production first starts falling as output is increased owing to the various economies of scale. But after touching the lowest point at the optimum output level, it starts rising, and goes on rising if production is continued beyond the optimum level. This obviously makes a U-shape.

The U-shape of the long-run cost curves is less pronounced. In other words, the long run average costs are than the short-run curves. The longer the period to which the curve relates the less pronounced will be

the U-shape of the curve. By the long period the size and organisation of the firm can be altered to meet the changed conditions.

Summary

For clear business decisions it is necessary to have complete understanding of different cost concepts. For proper knowledge of cost analysis, various cost concepts include and determine cost of production which enables management for correct business decisions. Various combinations of costs ingredients account for various kind of management decisions.

In short period, the price cost relating to labour and raw material can be varied whereas fixed cost remains the same. On the other hand in long period even fixed cost relating to plant & machinery staff salaries can be varied or in other words in long run all costs are variable. For Completing profit & loss a firm has to analyse the components or elements of total costs.

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MODULE IV
MARKET STRUCTURES AND PRICE OUTPUT DETERMINATION

Introduction

In economics, the market is the study about the demand for and supply of a particular commodity and its consequent fixing of prices for instance the market may be a bullion market, stock market, or even food grains market. The market is broadly divided into two categories like perfect market and imperfect market. The perfect market is further divided into pure market (which is a myth) and perfect market. The imperfect market is divided into monopoly market, monopolistic market, oligopoly market and duopoly market. Based on the nature of competition and on the number of buyers and sellers operating in the market, the price for the commodity may be settled at the point where the demand forces and supply forces agree upon.

Market

The knowledge of market and market structure with which a firm operates is more helpful in price output decisions. Market in economic term means a meeting place where buyers and sellers deal directly or indirectly. Clark and Clark defines market as that "any body of persons who are in intimate business relations and carry on extensive transactions in any commodity".

Classification of Market

The economists have classified the market on the basis of following elements.

General classification of market

Sl. No.	*On the basis of Area or Region*	*On the basis of time*	*On the basis of Function*	*On the basis of Nature of Commodity*	*On the basis of Legality*
1	*Local Market*	Very Short Period Market	Mixed or General Market	Product Market	Legal Market
2	Regional or Provincial Market	Short Period Market	Specialised Market	Stock Market	Illegal market
3	National Market	Long Period Market	Marketing by Sample	Bullion Market	
4	International market	Very Long Period Market	Marketing by Grades		

Market Structure

The level of production of any commodity depends upon structure of its market. Possible outcomes of sales, revenues, profits are prices and structured under market structures. The firms demand curve to the industry demand curve is expected to depend on such things as the number of sellers in the market and the similarity of their products. These are aspects of market structures which may be called characteristics of market or generalization that are likely to influence firm's behaviour and performance. These include the ease of entering the industry, the nature and size of the purchasers of the firm's products, and the firm's ability to influence demand by advertising. To reduce the discussion to manageable size, economists have focused on a few theoretical market structures that are expected to represent a high proportion of the cases actually encountered market societies. In this portion we shall look at four of these: Perfect competition, Monopoly, Monopolistic competition and Oligopoly.

The price and level of production of a commodity depends upon the market structure of its conditions. Market demand depends on the following factors:

(i) Nature of the commodity: It is to be taken into account whether the goods are homogeneous or heterogeneous.
(ii) Number of buyers and sellers of the product in the market.
(iii) Mutual inter-dependence of buyers and sellers.

In brief the market structure depends on the level or forms of competition which are as under:

1. Perfect Competition
2. Monopoly
3. Imperfect Competition

Perfect Competition:

It is such a market structure where there are large number of buyers and sellers of a homogeneous product and the price of the product is determined by the industry. There is one price that prevails in the market. All firms sell the product at the prevailing price.

According to Leftwitch, "Perfect competition is a market in which there are many firms selling identical product with no firm being large enough relative to the entire market so as to be able to influence market price."

In other words a perfectly competitive firm is too small and insignificant to affect the market price like a wheat farmer. He is a price taker who can sell all he wishes to sell at the ruling market price. In terms of elasticity of demand a perfect competitor faces a horizontal demand curve (parallel to the X-axis) for his product, coefficient of elasticity being infinite.

Features or Characteristics of perfectly competitive market:

1. **Large number of buyers and sellers in the market:** There is a large number of buyers and sellers of a commodity under perfect competition but each buyer and each seller is so small in comparison with entire market of product that he cannot influence the market price by changing the quantity of the product sold by him. If a seller supplies the entire stock of the product produced by him the total supply will not increase to such as extent as to lower the price and on the other hand if he withdraws from the market the total supply will not fall to such an extent as to raise the price. Thus, every seller has to accept the prevailing price.
2. **Homogeneous product:** The second important characteristic of the perfectly competitive market is that the product sold by the various firms are homogeneous. The products are homogenous in the sense that they are perfect substitutes from the buyer's point of view. The sellers do not spend on advertisement and publicity etc., because all the firms sell homogeneous product.
3. **Free entry or exit:** The third major characteristic of the perfect competition is free entry and free exit for the firms under perfectly competitive market. The firms are free to enter or to exit from the industry whenever they want to do so. Any firm can enter or leave the industry at any time as there are no legal restrictions.
4. **Perfect knowledge about the market:** There is perfect knowledge on the part of buyers and sellers about market conditions. The buyers and sellers are fully aware of the price prevailing in the market. Due to this awareness all the firms charge on price from the buyers.
5. **Perfect mobility of the factors of production:** The existence of perfect mobility of the factors of production is another important characteristic of the perfect competition for its smooth functioning. It means all the factors of production are perfectly mobile under perfectly competitive market. Factors will move to the industry which pays the higher remuneration.
6. **Non-Existence of transportation cost:** A perfectly competitive market also assumes the characteristic of non-existence of transport costs as uniform price prevails throughout the market. It is essential that there is no transportation cost across different areas of the market.

Equilibrium Price

The demand curve normally slopes downwards showing that more quantity of commodity will be demanded at a lower price than at a higher prices. Similarly supply curve showing an upward trend where the producers will offer to sell a larger quantity at a higher price than at a lower price. Thus the quantity demanded and quantity supplied vary with price. The price that tends to settle down or comes to stay in the market (where both buyers and sellers are satisfied) is at which quantity demanded equals quantity supplied. The point so formed is known as equilibrium point and price is known as equilibrium price.

Effect of time on supply

According to Marshall, time has great influence on the determination of price. The following are the market periods based on time- market period, short period and long period.

      1. Very short period (Market period)
      2. Short period
      3. Long period

Market period or very short period may be only a day or very few days. Change in supply is not possible where the period is very short and quantity demanded will be the determining factor in this period Further, supply curve in the market period is remain fixed showing vertical straight line.

The short period is a period not sufficient to make any changes in the existing fixed plant capacity. Increase in supply in the short period is possible by increasing the variable factors of production only.
The supply curve slopes upward to right showing that some increase in supply is possible when the price increases. Long period is a time long enough to adjust the supply to any changes in demand. The long run supply curve is less steep then short run supply curve showing increase in quantity supplied when price changes.

Price Determination under Perfect Competition

In perfect competition the market price of a commodity is determined by its demand and supply. The price of a commodity determines at the point where quantity demanded equates quantity supplied. It can be explained through the following diagram.
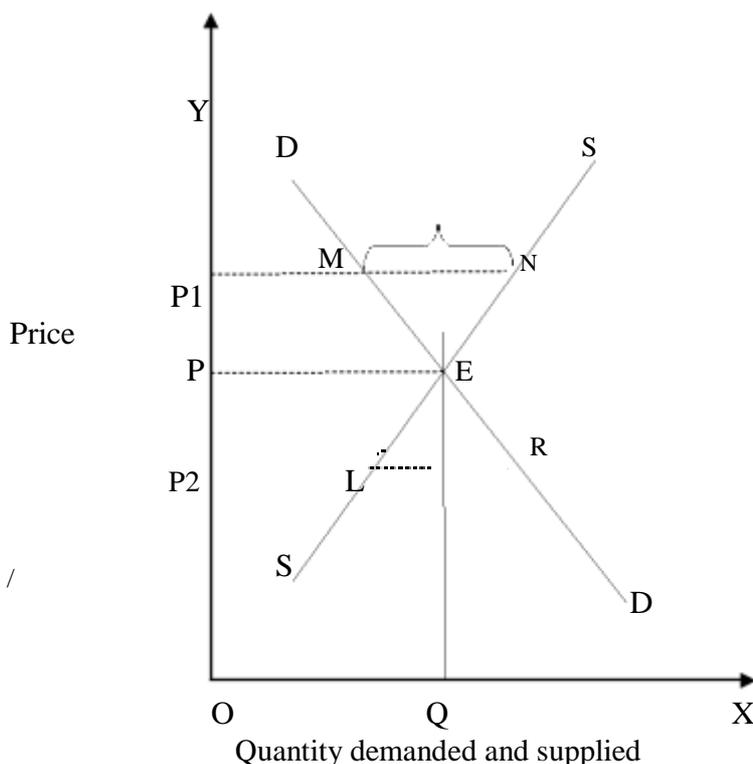
In the above diagram, DD denotes the demand curve and SS denotes the supply curve. Demand and supply curves slopes in opposite direction. In this diagram OP is the equilibrium price where the Demand curve equates with the Supply curve. In this figure, the point E determines the equilibrium price and OQ is the equilibrium quantity. From the diagram it can be noted that if the price increases to OP_1, the demand will be P1M and supply will be P1N. So MN will be excess supply. Under this circumstance, the firm will be forced to lower the price in order to sell the excess stock. It the firm can minimizes the price, the profit will be low. Thus we can say that at the point of equilibrium firm can derive maximum profit. At the point of equilibrium, there are two conditions to be satisfied.

1) MC=MR
   Where, MC = Marginal Cost (Cost of producing an additional unit)
          MR = Marginal Revenue realized from the sale of an additional unit.
2) MC Curve Cuts MR curve from below that is MC Curve should have positive slope.

Under perfect competition, the following equations are satisfied.
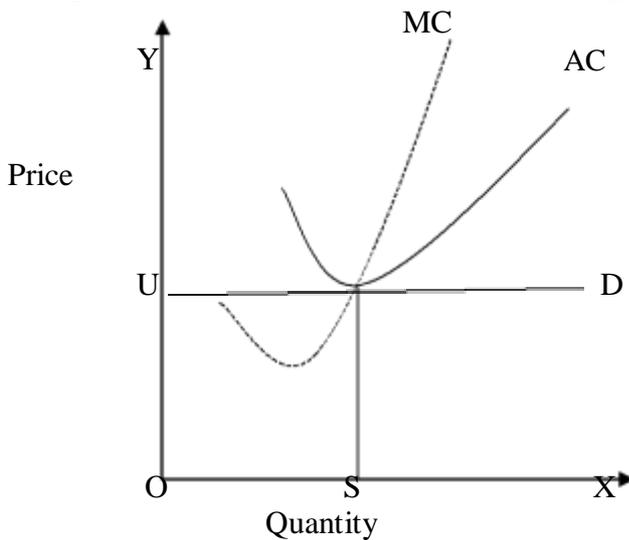   MC = MR,
          MR = AR
          Price = AR = AC
Therefore, Price = MR = MC = AR = AC.
The equations can be satisfied with the following diagrams

When the firm is OS quantity of goods, the MC curve cuts the AC curve at its lowest. At the lowest point the AC curve is tangential to the demand (i.e., AC=MC=AR) curve. Thus the price OU is equal to the marginal cost (ST) which is again equal to average cost (ST). The firms under perfect competition will be the cost efficient size or optimum size which gives the lowest possible average cost of production per unit**.**

During the Market period

In very short period, supply is inelastic, thus the price depends on changes in demand. The supply curve will be vertical straight line parallel to y-axis.
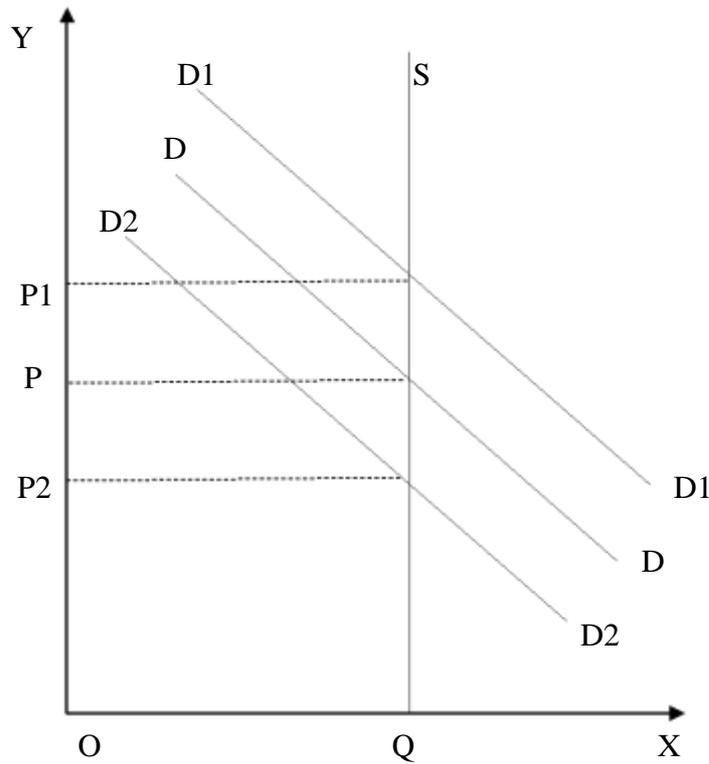

In the above diagram, SP is the supply curve. It means where ever the price is, the fixed supply is to be sold in the market. Here, DD is the demand curve. The supply is SQ. The point of equilibrium is at "S" so the equilibrium is OP. If the commodity is non-perishable, it can be stored. The seller does not sell the goods if the price is low.

But the price is high he will sell whole stock. The curve will be curved at beginning; then it will become a straight line. Under very short period, the demand alone determines the price.

During short period

In this period, the firm can make slight changes in their supply of goods without changing the capacity of plant.
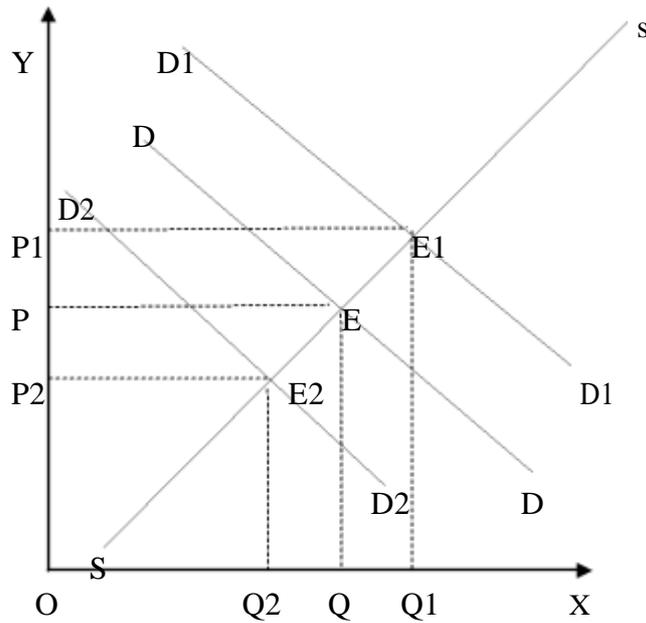
In this diagram, DD is the demand curve and SS is the supply curve. At point "E" the demand curve equals the supply curve, the equilibrium price is OP. If the demand is increased to D1D1 the equilibrium price will be OP1 and if the demand decreased to D2D2, the equilibrium will be OP2. But the quantity will be decreased from OQ to OQ2. The firm in the short run can produce output by increasing the variable inputs. A firm gets maximum profit where MC=MR. The price determination by the industry is given in the following diagram.
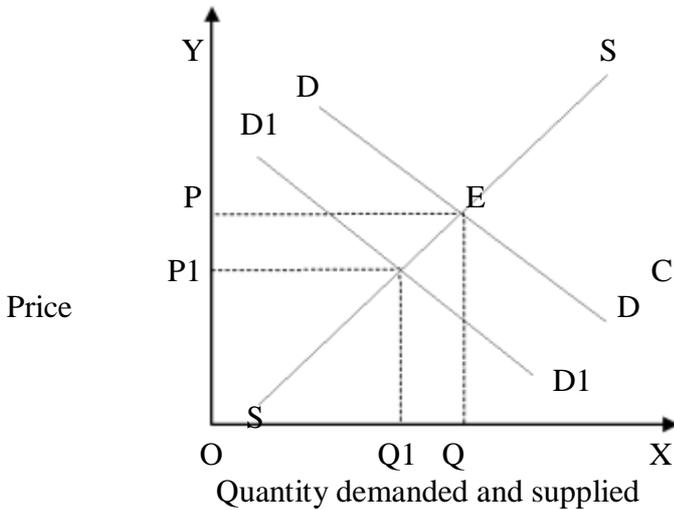
In the above diagram, it can be revealed that the price is determined by the industry OP. when the demand is shifted to D1D1 then the quantity demanded is decreased from OQ to OQ1 and also price decreases from OP to OP1. In the case of a firm, MR=AR, thus demand =AR=MR=price
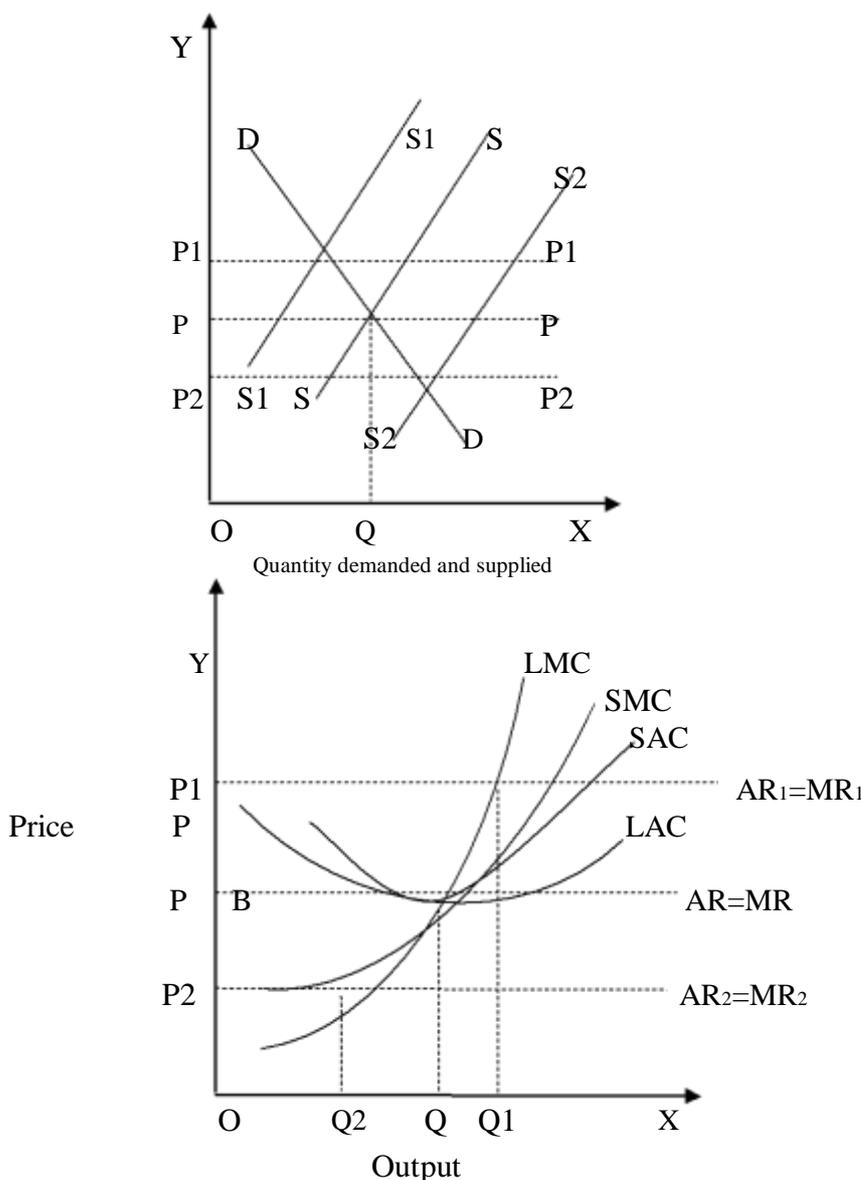
In the long run

In the long run, the firms in the industry are eager to get super normal profits. The price determination is explained through the diagram given below;

In output decision making in the long run. Long run Average Cost (LAC) and Long run Marginal Cost (LMC) are to be taken in to consideration. Under this condition, the firm is in equilibrium

    When AR=MR=LAC=LMC

Figure 1

In the above diagram, (1) DD is the long run. Demand curve and $S_1 S_1$ short run supply curve. The price is determined at OP. In the figure 2, the equilibrium output is at point E. At this point. $AR_1=MR=LMC$

Monopoly

Monopoly means `single `selling. In brief, monopoly is a market situation in which there is only one seller or producer of a product for which no close substitution is available. As there is only one firm under monopoly, that single firm constitutes the whole industry.

The monopolist can fix price of his product and can pursue an independent price policy. A monopolist can take the decision about the price of his product. For ex:- electricity, water supply companies etc.,

Features

The following are the important features of monopoly:-

1. **Sole supplier of the product and large number of buyers:** The monopoly is characterised by the sole seller of product in an industry. Firm represents the industry as a whole which has complete control over the supply of product. Thus, there is only one firm under monopoly but the buyers of the product are in large number, consequently, no buyer can influence the price of the product.
2. **No close substitutes:** Under Monopoly there are no close substitutes of the product. Monopoly cannot continue if there is availability of substitute goods.
3. **One firm industry:** There being only one firm, the distinction between the firm and the industry is no longer in existence.
4. **Monopoly may vary from industry to industry:** The form and structure of a monopoly may also vary from industry to industry.

5. **Absence of Entry:** Under monopoly market structure no other firm can enter the market. It implies the absence of actual entry. The barriers to the entry may be artificial, legal, natural, economic and institutional etc.

6. **Monopolist is a Price maker:** Under Monopoly, market structure is a price maker not the price taker because of the fact that a monopolist has full control over the supply of the commodity. The fortunate monopolist can fix whatever price he chooses. But if his sale is not enough, then he may lose instead of gaining.

After discussing monopoly we may note certain other forms which are offshoot of monopoly. They are (i) MONOPSONY, (2) BILATERAL MONOPOLY. In monopsony there is only one buyer but there are large number of sellers. Price is determined by negotiation and output is determined on the basis of orders placed by the buyer. In bilateral monopoly there is one buyer and only one seller of the commodity.

Causes of Monopoly

1. Legal restrictions
2. Exclusive ownership or control over the raw materials.
3. Economies of large scale production
4. Exclusive knowledge of a production technique.

Price Determination under Monopoly

A monopoly firm has complete control over the entire supply. It can sell different quantities at different prices. It can sell more if it cuts down its price. Thus the monopoly firm faces a downward sloping demand curve or average revenue (AR) curve. As the single firm constitutes the industry the demand curve of the monopoly firm and the industry will be the same. But under perfect competition the firm`s demand curve is a horizontal straight line, but the industry's demand curve slopes down wards. Since average revenue falls when more units of output are sold marginal revenue will be less than average revenue. MR curve thus declines at a greater rate than. AR curve and it falls below AR curve.

Though the monopolist has the freedom to fix any price he will prefer a price output combination that gives him maximum profit. He goes on producing so long as additional units add more to revenue than to cost. He will stop at that point beyond which additional units of production add more to cost than to revenue. In other words he will be in equilibrium position at the output level at which MR equal MC and MC cuts MR from below.

Short Run Monopoly Equilibrium

The monopolist will be in short run equilibrium where the output having MR equal MC
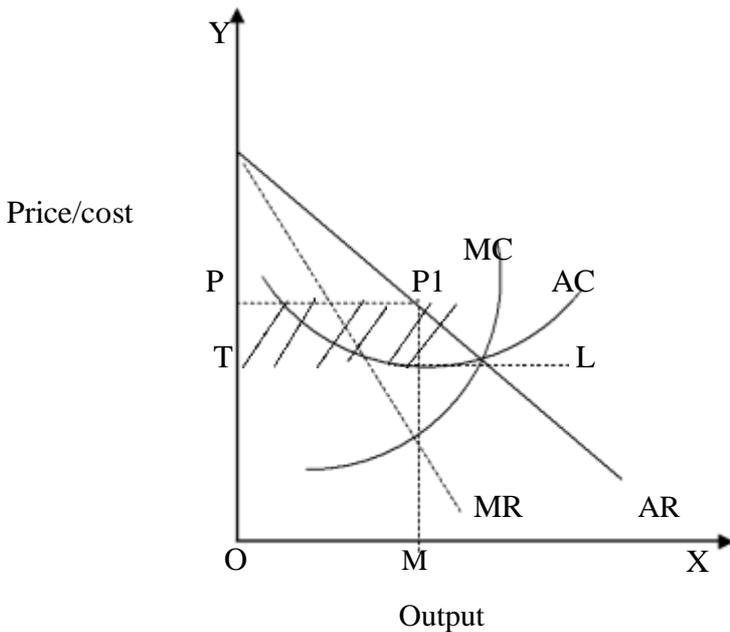
Output

In the following figure the monopolist will be in short run equilibrium at output OM where MR is equal to the short run marginal cost curve MC.

At an output OM, MP` is the average revenue (price) and ML is the average cost of production. Therefore, P1L is the monopoly profit per unit. The total profit is equal to product of profit per unit with total output. The following are the result of monopoly operation in the market

If AR greater than AC-results super normal profit

If AR equals AC results normal profit

If AR less than AC that results loss to the firm

Long run Monopoly Equilibrium

The monopolist is the single producer and the new firms cannot cuts the industry which enables the monopolist to continue to earn super profit in the long run. In the figure the long run equilibrium of the monopolist will be at the output where the long run marginal cost curve MC Intersects the marginal revenue curve MR
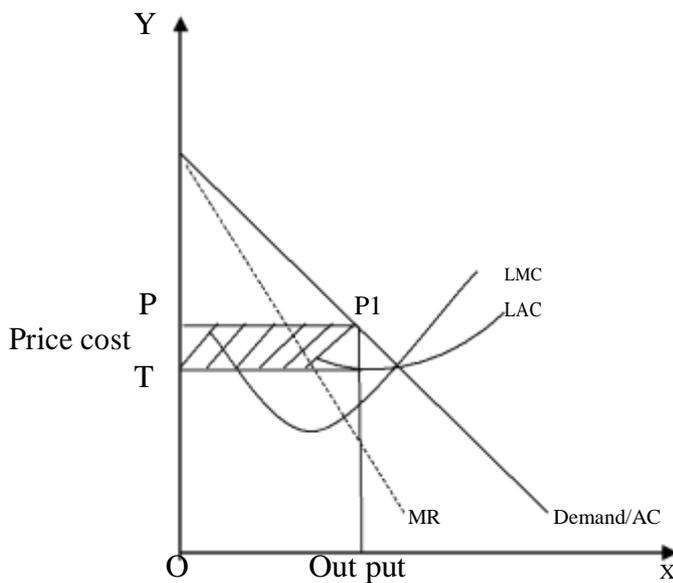
The shaded rectangle `PP`LI ` shows the long run monopolist profit. In the long run, if the cost is at an increasing trend. He will fix a high price and sell a large quantity. This will help him to make maximum profit.

Difference between perfect competition and Monopoly
1. Under perfect competition there are many sellers but in the case of monopoly, there is only one seller
2. Individual seller has no control over the market supply in the case of perfect competition. But in the case of Monopoly individual seller controls the supply.
3. Products are identical in the case of perfect competition, but there is only one product in the case of Monopoly.
4. Under perfect competition, there are free entry and exit of firms. But the Monopolist blocks the entry.
5. The Monopolist discriminates the price but there is uniform price in perfect competition.
6. Firm and Industry is different in the case of perfect competition, they are same in the case of Monopoly.

Monopolistic Competition

In the present World market, it can be seen that there is no monopoly and there is no real competition. There is a mix up of the two. This situation is generally known as Monopolistic competition. According to Prof. E. H Chemberlin of America, Monopolistic Competition means a market situation. In which competition is imperfect. The products of the firms under monopolist competition, are mainly close substitutes to each other.

Features /Assumptions of Monopolistic Competition

1. **Large number of firms:** There is a large number of firms or sellers operating under monopolistic competition but a relatively small fraction of the total market is shared by each firm or seller.
2. **Product differentiation:** The second distinct feature of monopolistic competitive market structure is product differentiation. The number of firms is large but their products differ from one another in colours, shape and size, brand, chemical composition, quality, trade mark, packaging, durability etc. For example, firms produce different kinds of bathing soap e.g. Hamam, Lux, Lifebuoy, Rexona, Liril, Dove, Ganga, Pears, Le Sancy etc. but these products are close substitutes**.**
3. **Freedom of entry and exit:** Under monopolistic competition the firms are relatively free to enter the industry and to exit from the industry, but they have no absolute freedom of entry the industry. New firms are free to enter into the market with new brands as close substitute of the existing brands.
4. **Non-price competition:** Under monopolistic competition firms compete with one another without changing the price of their products. The firms attract the potential buyers by offering them gifts, incentives, credit schemes, selling schemes and other services. Thus, the firms compete at other than price front.
5. **Price policy:** Every firm has its own price policy. As under monopoly and monopolistic competition the average revenue curve and marginal revenue curve are sloping downward means that the firm will have to fix low price for fulfilling sales maximisation and high price for less sales.
6. **Less Mobility:** There is no perfect mobility of factors of production and of goods and services in practical life. The factors are less mobile because of psychological reasons and disparity among the regions.
7. **No perfect knowledge:** Under monopolistic competition the buyers and sellers do not have perfect knowledge about the market conditions. The buyers and sellers of the products and owners of the factors of production are ignorant about the prices of the products and factor services.

8. **Selling costs:** The each firm wants to promote the sales of its products by incurring selling costs. The expenditure incurred on advertisement and publicity to increase sales is called selling costs. The selling costs shifts the demand for a firm's product and the rival firms also retaliate by incurring more and more selling costs.
9. **Close Substitutes:** Under monopolistic competitions the product are not homogeneous products but they are close substitutes to each other which tends to create competition among the firms regarding their products.
10. **Group Equilibrium:** Under monopolistic competition the industry is not said to be in equilibrium but there is a position of group equilibrium for the group as whole e.g. soap manufacturing group combine a group of soap manufacturers and that group itself needs to be in equilibrium position. Group denotes the collection of firms producing un-identical but close substitutes.

Price and Output Decisions under Monopolistic Competition Short Run Period

In short run, each existing firm is a monopolist having a downward sloping demand curve for its product. In order to maximize its profit the firm will produce that level of output at which MC=MR if price is more than MR, there will be abnormal profit.

Long –Run Period

In the long period, normal profits will disappear. New firms will enter the industry and consequent expansion of output will decrease the price and only normal profit are made by the firms. Profit are normal only when Average Cost (AC) equals the Average Revenue (AR). Then the equilibrium output will be at AC and MC=MR.
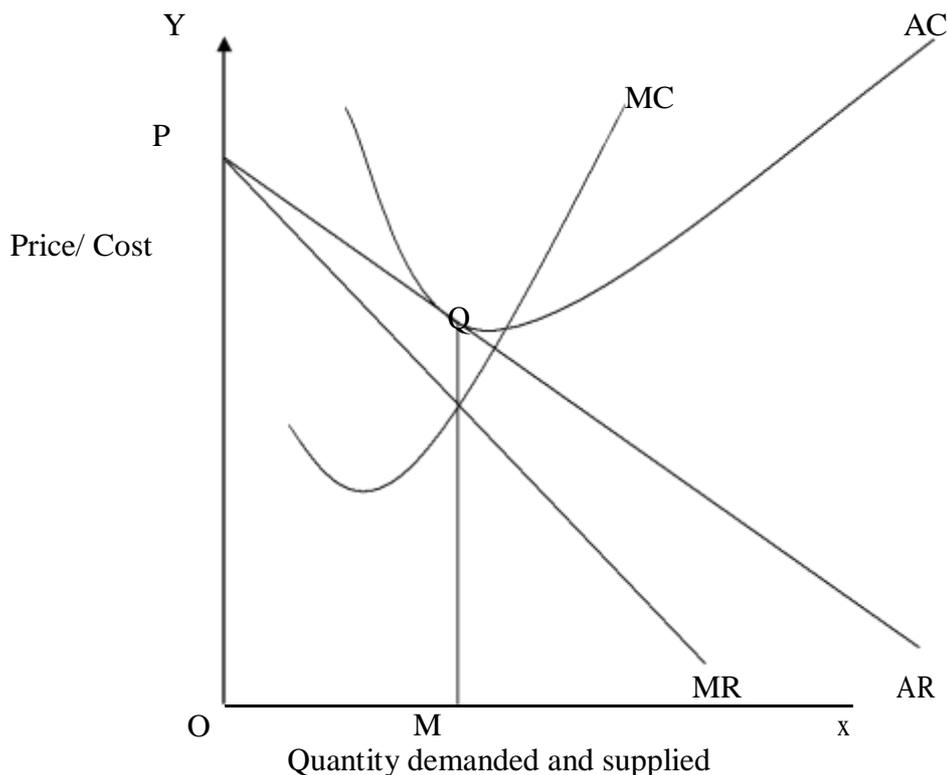
In the above diagram, the equilibrium output is OM where MC =MR and AC=AR Abnormal profit disappears because TC=TR (Total cost = Total Revenue).

Difference between Perfect Competition and Monopolistic Competition

Sl. No.	**Perfect Competition**	**Monopolistic Competition**
1	Products are identical	Products are differentiated
2	It is not a real concept	It is real concept
3	Large Number of buyers and sellers	Buyers and Sellers are not so large
4	Perfect knowledge of market Condition	Lack of perfect knowledge of market Condition
5	Selling Cost do not play any role	Selling cost has an important role
6	They are price takers	They are price markers
7	Demand curve is horizontal	Demand curve is downward sloping
8	AR, MR curves are parallel to x axis and price = demand = AR=MR	Price = demand = AR=But MR<AR.

Oligopoly

Oligopoly is a situation in which there are so few sellers that each of them is conscious of the results upon the price of the supply. Which he individually places upon the market. According to J. Stigler "Oligopoly is that situation in which a firm bases its market policy in part on the expected behaviour of a few close revels". Further, they may produce homogeneous or differentiated products.

Characteristics

Oligopoly is a distinct market condition. It has the following features:

1. **Relatively small number of sellers:** There are relatively small number of sellers under oligopoly market structure selling identical or differentiated products. Each seller controls a large part of the demand and the policies of every seller influence the price and output of the industry as a whole.
2. **Interdependence of the firms:** Under the oligopoly market structure all the firms are sailing in the same boat and every tilting position influences each of the firm as well with equal proportion. No firm can be neutral. They depend on each other while determining the price and output of the firm.
3. **Price rigidity and price war:** Price rigidity and price was are the common features of an oligopoly market structure. Each firm retaliates and acts according to the actions of the other firms and a tug of war starts between them which is better known as 'Price War' which further paves way to price rigidity.
4. **Difficulty in entry and exit:** Under oligopoly the entry and exit of the firms is banned. The new firms cannot enter the market as the old firms have complete hold over the market conditions and the firms are also reluctant to leave because of the huge investment made by them.
5. **Selling costs:** Under oligopoly market structure, each firm pursues an aggressive and defensive marketing strategy to control the market. Advertisement is an important method used by the oligopolists to control the bigger part of the market.
6. **Indeterminateness of the demand curve:** Under oligopoly market structure the shape of the demand curve is broken and is indeterminate because the firms cannot assume that the rival firms will not make a change in their price policy in response to change in price affected by it. Thus, the fact that the reaction pattern of the rival firms are indeterminate leaves the demand curve in an indeterminate position.
7. **Complex Market Structure:** The market structure of oligopoly is quite complex. As there is a possibility of rival firms to end rivalry by working out some policy of collusion and the collusive oligopoly manifests itself in the form of combination of rival firms to fix the same price and also share in output as in case of cartels. Besides it, non-collusive oligopoly is also found in practice which presents a complex market structure.

Price Determination under Oligopoly

Pricing may be in condition of independent pricing, pricing under price leadership and pricing under collusion.

Independent Pricing (Kinked Demand Model or Price Rigidity Model)

Kinked demand curve was first introduced by Prof. Paul M Sweezy to explain price rigidity under oligopoly. An oligopolist always guesses about his competitor's reaction. They assume that if one decides to decrease the price, the others will also reduce the price. The assumption behind the kinked curve is that each oligopolist will act and react in a way that keep condition tolerable for all the members of the industry. If one firm reduces the price of the product, the others will be compelled to reduce the price. But sometimes, if one increases the price, the other will not increase the price. The firms in Oligopoly do not increase the prices due to the possibility of losing the customers to rivals who do not raise their prices. Firms usually do not change their price in response to small changes in costs.

The kinked demand curve has two segments i.e., (i) the relatively elastic portion of the demand curve and (ii) the relatively inelastic portion of the demand curve. The following diagram will give you the clear idea:
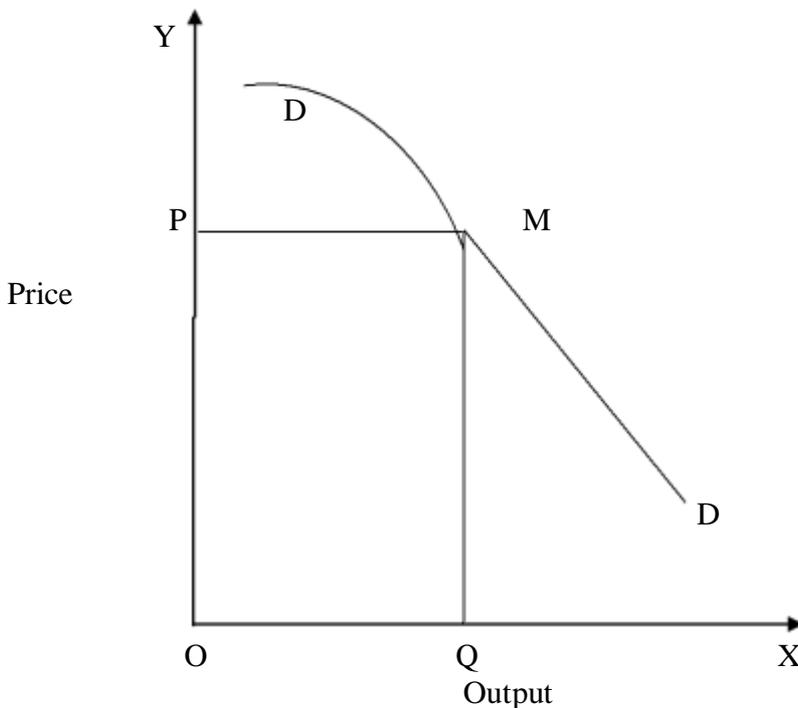
Kinked demand curve DD with a kink at point M. The price prevailing in the market is OP and the firm produces OQ output. Here, D, M is the relatively elastic of the demand curve and MD is the relatively inelastic portion. This difference in the elasticities of demand due to the particular competitive reaction pattern assumed by the Kinked demand Curve hypothesis.

Pricing under Price Leadership

The price leadership means the leading firm determines the price and others follow it. All the firms in the industry adjusts, the price fixed by the price leader.

The large firm, who fixes the price, is known as the price maker and the firms, who follow it are known as price takers. The price leadership may be four types. They are:

1. Dominant price leadership: In this situation, there exists many small firms and one large firm and the large firm fixes the price and the small firms in the market accept that price.

2. <u>Barometric Price Leadership</u>: Under this situation one reputed and experienced firm fixes the price and others may follow it.

3. <u>Aggressive Price Leadership</u>: Under this market condition, one dominating firm fixes the price and they compel all others in the industry to follow the price.

4. <u>Effective Price Leadership</u>: Under this condition, there are small number of firms in the industry.

Price -Output determination Under Price Leadership

In order to determine the price and output under price leadership. We have to make two assumptions. They are,

1. There are two firms – L and F, in which the cost of production of L is less than that of F and

2. Product are identical.

The following diagram will give the clear picture of price output determination.
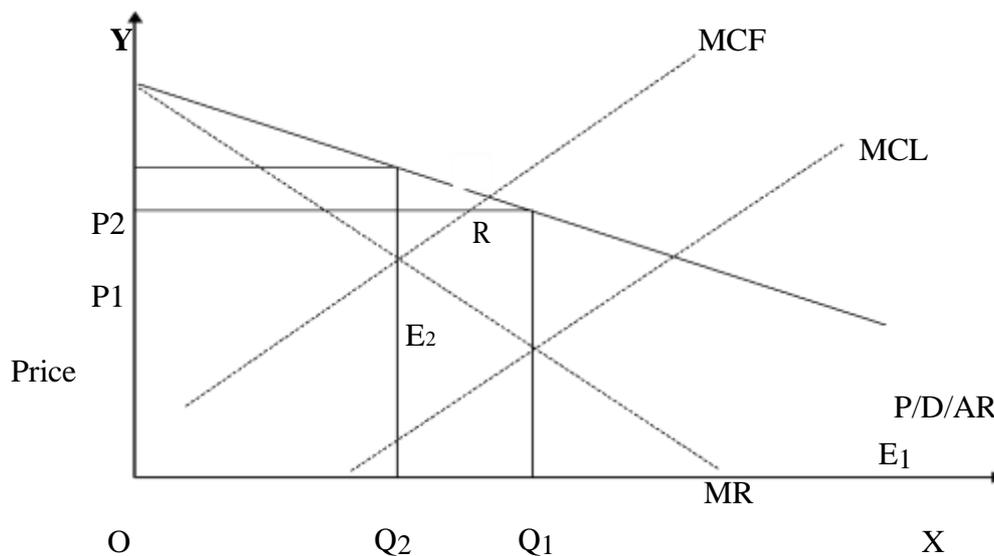
In the above diagram, MC and MC_1 are the marginal cost curves of the firms F and L respectively. By analysing this diagram it can be known that the firm L will fix at point E2, where MC=MR. The price of the firms F and L are OP_1 and OP_2 and the output are Oq_1 and OQ_2 respectively.

Pricing Under Collusive Oligopoly
The term Collusion means `to play together`. To avoid the competition among the firms, monopolistic firms arrive at a formal agreement called cartel. It is common sales agency formed to eliminate competition and fix such a price and output that will maximize profit of member firms. The firms output and price are determined by this cartel. The following diagram will give the idea more clear or to make an assumption that there are only two firms viz. firm S and firm T.

Figure 12

Figure13

Figure13
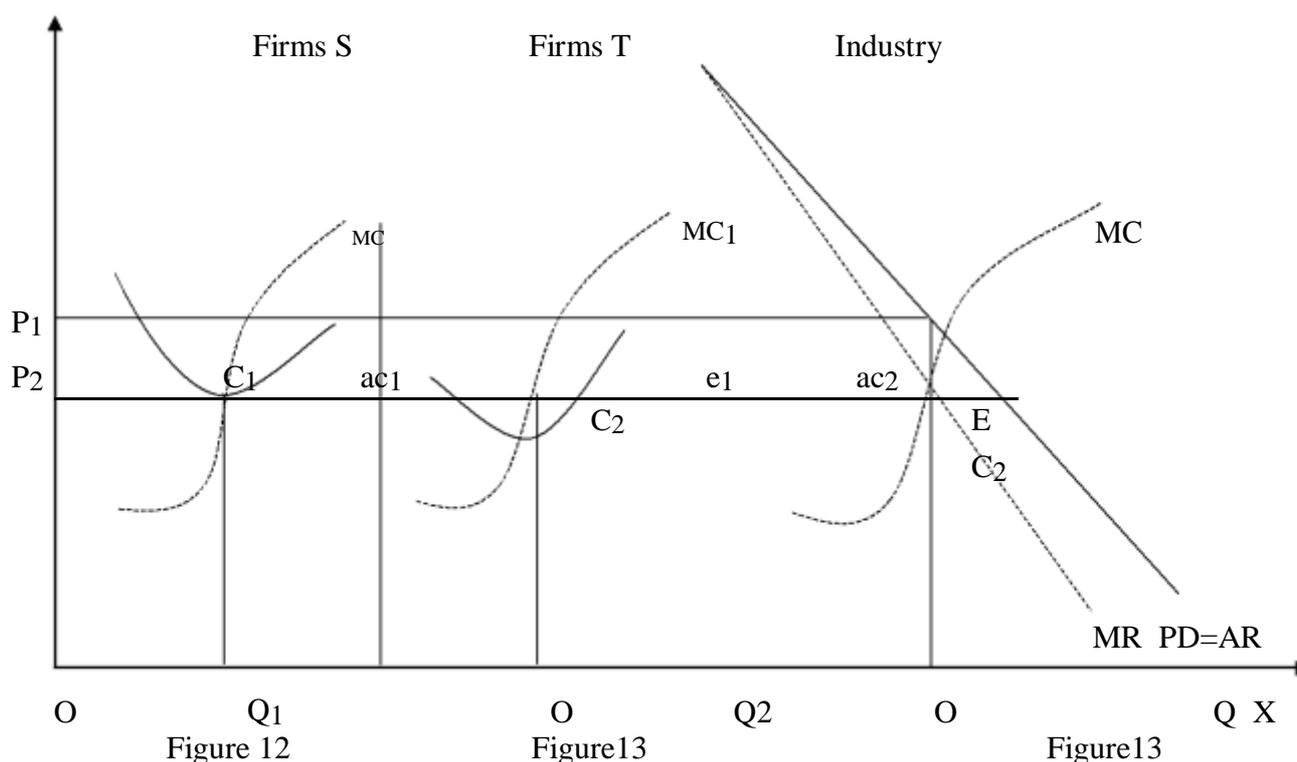
In the above diagram, MC denotes the marginal cost curve of industry and MC_1 and MC_2 are the MC for the firm S and T. MR is Marginal Revenue Curve. The industry is in equilibrium at point E and equilibrium output is OQ and the price is OP. The equilibrium output of two firms are determined based on this own MC curve. The share of output of each firm will be obtaining by drawing a parallel line through E to the X axis.

The points E1 and E2 determines the level of output for the firm S and the firm T respectively. OQ_1 and

OQ_2 determine the market share of firms and Firm T respectively. Here, we can say that,

$OQ_1+OQ_2=OQ$, $OP_1+OP_2=OP$.

Price Discrimination

A monopolist is in a position to fix the price of his product .He enjoys the control of supply of the product. A monopolist is able to charge different price for his products to the different customers. This is known as price discrimination. According to Mrs. John Robinson, the act of selling the same article, produced under single control at different prices to different buyers is known as price discrimination. This is also known as differential pricing.

Types of Price Discrimination

1.   Price relatively elastic portion of the demand curve of the first degree – Charging different price for different persons for the same product.

2.   Price discrimination of the second degree – Under this, the buyers are classified into different divisions.

3. Price discrimination of the third degree – Here, the markets are divided according to elasticity of demand.

Conditions of Price Discrimination

There are three conditions to be satisfied to apply the price discrimination. They are:

1. There must be more than one separate market

2. The markets must have different elasticity of demand

3. The market should be such that no buyer of the market may enter the other market and vice versa.

Dumping

When monopolist works in home market as well as foreign market, he is able to discriminate the price between these two markets. If he has monopoly in home market, and he faces competition in to foreign market, he will be able to charge higher prices for his products in home market. This practice is known as `Dumping` or `price dumping`.

Summary

Perfect competition is a utopian market situation or a myth. Monopoly is an extreme market situation and consumer has to pay exorbitant prices in it. In case of imperfect competition a lot of selling cost in incurred and the poor consumer bears all the burden of non-price competition or selling cost. Hence, what is prevailing is good. Imperfect competition seems to be much near to the reality in the market.

The extent to which an individual firm exercises control over the price of the product it sells is another important characteristic of a market structure. Under perfect competition, an individual firm has no control over the price of the product it sells. A firm under monopolistic competition or oligopoly has some control over the price of the product it sells. Finally, a monopoly firm is deemed to have considerable control over the price of its product.

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MODULE V
BUSINESS CYCLE

Introduction

The economic progress the world has been achieved is not a steady and continuous movement forward. Economic activities faced fluctuations at more or less regular intervals. There were upward swings and downward swings. A period of prosperity was generally followed by a period of depression. These ups and downs in the economic activity moving like a wave at regular intervals is known as business cycle. Business cycle simply means the whole course of business activity which passes through the phases of prosperity and depression. Generally there are two broad phases, viz. prosperity and depression.

R. A. Gordon defined business cycle as consisting of "recurring alteration of expansion and contraction in aggregate economic activity, the alternating movements in each direction being self-reinforcing and prevailing virtually all parts of the economy".

The movement is like the swing of a pendulum. A movement in one direction tends automatically to generate a movement in the opposite direction. The period of business prosperity alternate with period of depression. The period of business prosperity contains within itself the seed of the coming period of depression. Once depression reached the through, recovery starts and soon grows into boom or prosperity. At the peak of the boom recession grips the economy which soon slides into depression. To be specific, there are four phases, viz. recovery, boom, recession and depression.

The Business cycle influence business decision. The cycles affect not only the economy in general, but each individual business firm. The period of prosperity promotes business. It provides new investment opportunities. Likewise, a period of depression slackens business. A manager who is always confronted with the problem of forward planning takes into consideration the phase of the business cycle. This helps to take advantage of the chance ahead or to reduce the chance of heavy losses to the firm.

Phases of Business Cycle

Boom

This is also known as prosperity phase. The products in this phase fetch an above normal price which is above higher profit. This attracts more and more investors. The existing production capacity is utilized at its full capacity. More and more new machines are made use of the business of the capital goods industry also shoots up. The price of the factors of production increases. Additional workers are employed at higher wage rate. The increasing cost tendency of the factors of production leads to a continuous increase in product cost. The fixed income group on the salaried class find it difficult to cope with this increase in prices. The income does not increase accordingly and they are now compelled to reduce consumption. The demand is now more or less stagnant or it even decreases. Thus boom or prosperity reaches its peak.

Recession

Once the economy reaches the peak- the course changes. A downward tendency in demand is observed but the producers who are not aware of it goes on producing further. The supply now exceed demand. Now the producers come to notice that their stock piling up. They are compelled to give up the future investment plans. The order for new equipments and raw materials are cancelled. A business even cuts down its existing business. Workers are retrenched capital goods producers who lose orders. Bankers insist on repayment, stock accumulate and business failure increase investment ceases and unemployment leads to fall in income, expenditure, prices, profits and industrial and trade activities. Desire for liquidity increase all around producers are compelled to reduce price so that they can find money to meet their obligations Consumers who expect a still further decline in prices postpone their consumption Stock goes

on piling up. Some firms are forced into bankruptcy. The failure of one firm affects other firm with whom it has business connections. There is a general distress. This phase of the business cycle is known as the Recession. It is the period of utmost suffering for a business.

Depression

Underemployment of both men and material is the characteristics of this phase. General demand falls faster than production. Producers are compelled to see their goods at a price which will not even cover the full cost. Manufactures of both producer's goods and consumer goods are forced to reduce the volume of production. As a result workers are thrown out. The remaining workers are poorly paid the demand for bank credit is at its lowest which results in idle funds. The interest rates also decline the firms that cannot pay of their debts are wound up. Prices of shares and securities fall down.
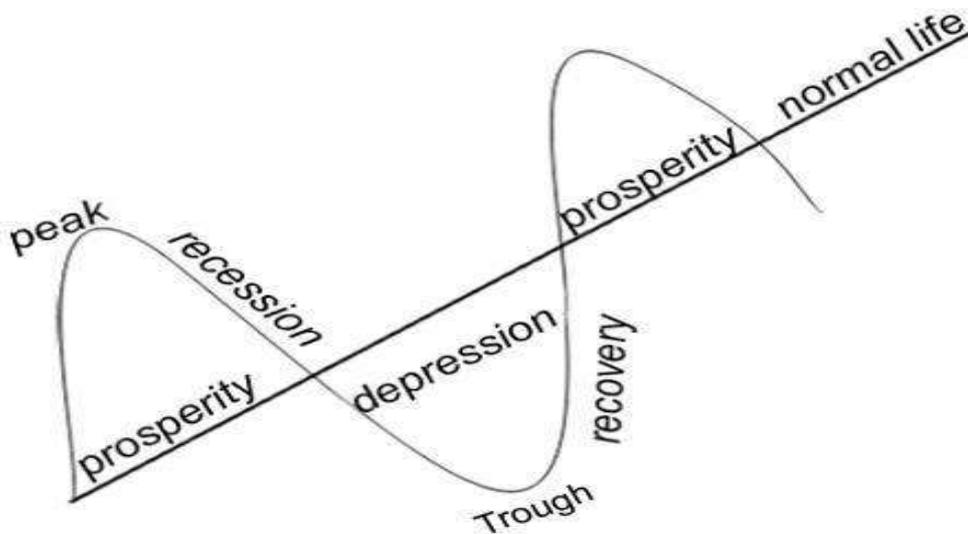
Pessimism prevails in the economy the less confident investors are not ready to take up new investment projects. The aggregate economic activity is at its bottom.

Recovery

Depression phase does not continue indefinitely. Depression contains in itself the gems of recovery. The rule workers now come forward to work at low wages. As the prices are at its lowest the consumers, who postponed their consumption expecting a still further fall in price, now starts consuming. The banks, with accumulated cash reserves, now come forward to gives loans at easier terms and lower rates. As demand increases the stock of goods become insufficient. The economic activity now starts picking up. Investment pick up, Employment and output slowly and steadily begins to rise. Increased income increases demand, resulting in rise in prices, profits investment, employment and incomes. The wave of recovery once initiated soon begins to feed upon itself. Stock markets become live thus hastening the revival. Optimism develops among the entrepreneurs. Bank loans and demand for credit starts rising. The depression phase at its through then given way to recovery.

Characteristics of a business cycle
1. The cycle is synchronic. The upward and downward movements tend to occur at all the same period in all industries. The wave of prosperity or depression generate a wave in other industries. When industry pick up to provides more employment, more income etc. to workers and it gives new orders for raw materials and capital goods. This help other firms also to prosper.
2. A business cycle is a wave-like movement. The period of prosperity and depression can be alternately seen in a cycle.

3. Cyclical fluctuations are recurring in nature. The various phases are repeated is followed by depression and the depression again in followed by a boom.
4. Business cycles are cumulative and self-reinforcing in nature. Each movement feeds on itself and keeps up the movement in the same direction. Once booms starts it goes on growing till forces accumulate to reverse the direction.
5. There can be no indefinite depression or eternal boom period. Each phase contain in itself the seed for other phase. The boom, when it reaches its peak, turns to recession.
6. Business cycles are pervasive in their effects. The cyclical fluctuations affect each and every part of the economy. Depression or prosperity felt in one part of the economy makes its impact in other part also. The cyclical movements are even international in character. The mechanism of international trade makes the boom or depression in one country shared by other countries also.
7. Presence of a crisis. The up and down movements are not symmetrical. The downward movements are not symmetrical. The downward movement is more sudden and violent than the upward movement.

Types of Business Cycle

Prof. James Arthur classified business cycle into 3 parts as follows:

1. **Major and Minor Trade Cycles:** Major trade cycles are those the period of which is very large. Minor trade cycles are those which occur during the period of a major cycle. Prof. Hanson determines the period of a major cycle between8 years and 33 years. Two or three minor cycles occur during the period of a major cycle. Period of a minor cycle is 40 months.

2. **Building Cycle:** Building Cycles are those trade cycles which are related with construction industry. Period of such cycle range from 15 to 20 years

3. **Long Waves:** Period of a long wave is of 50 years. It was discovered by a Russian economist Kondratief. One or two major trade cycle occur during the period of a long wave.

Schumpeter distinguished 3 types of trade cycle as follows:

1. **Short Kitchin Cycle:** The period of this cycle is very short, approximately 4 months duration.

2. **Longer juglar cycle:** This cycle has an average 9.5 years duration.

3. **Very long Kondratief Wave:** It takes more than 50 years to run its course.

Two kinds of element or forces bring about business cycle. They are internal and external. Internal forces are elements within the very sphere of business activity itself and include such things as production, income, demand, credit, interest rates, and inventories. External forces are elements outside the normal scope of business activity and include population growth, wars, basic changes in the nation's currency and national economic policies. As well as floods, droughts and other catastrophes that have effect on business activity.

Important causes giving birth to business cycle may be summarized as follows:

1. Expansion of loans and contraction of loans by banks:
2. Monetary disequilibrium
3. Change in the volume of investment or decrease in the marginal efficiency of capital
4. Under consumption or excessive saving
5. Lack of adjustment between demand and supply
6. Dealings of entrepreneurs
7. Innovation
8. Seasonal fluctuations

Control of Business Cycle

The business cycle leads to greater unemployment and poverty. The various steps that can be taken to achieve economic stability are (i) monetary policy and (ii) fiscal policy.

Monetary Policy

Monetary policy refers to the programs adopted by the central bank to control the supply of money. The Central bank may resort to open market operations, changes in bank rate or changes in the variable reserve ratio. The open market implies the purchase and sale of government bonds and securities. In the boom period the Central Bank sells government bonds and securities to the pubic which helps to withdraw money from the public. During the period of depression, the Central bank purchases government securities which increase the cash supply in the economy. This helps to increase investment. The central bank purchase government securities which increase the cash supply in the economy. This helps to increase investment. The central bank may change the bank rate or rediscount rate. The bank rate is the rate at which commercial banks borrow from central bank. When the central bank increases the bank rate the commercial banks in turn will raise their discount rates for the public. This discourages public borrowing and it reduces investment. During the depression the bank rate is lowered which will end up the increased investment. The central bank can regulate the money supply by changing the variable reserve ratio. When the central bank wants to reduce the credit creation capacity of commercial banks, it will increase the ratio of the deposits to be held by the commercial bank as reserve with the central bank.

Fiscal Policy

This implies the variation in taxation and public expenditure programme by the government to achieve certain objectives. Taxation helps to withdraw cash from the public. An increase in tax results in reduction of private disposable income. Taxes should be reduced during the depression will stimulate private sector. During boom periods public expenditure must be curtailed, so that cash flow can be reduced. The fiscal policy of the government to regulate purchasing power to control business cycle is known as counter the cyclical fiscal policy. Counter-cyclical fiscal policy in the boom period implies a reduction in the public expenditure and heavy taxes and a surplus budget. The budget surplus can be used to eliminate previous deficits. This implies an increase in public expenditure, reduction in taxation and deficit budgeting during the depression. The monetary policy proves more effective to control boom than to depression. A proper mix of fiscal and monetary policy will be more fruitful in the control of business cycles.

Business Forecasting/Economic Forecasting

According to Fayol - the father of modern management — "Forecasting is the essence of management. The success of a business greatly depends upon the efficient forecasting and preparing for future events." Everything you need to know about the techniques of business forecasting. Forecasting is an important component of Business Management. It is essentially a technique of anticipation and provides vital information relating to the future. It is the basis of all planning activities in an organisation. It involves collecting valuable information about past and present and estimating the future. Forecast is an estimate of what is expected to happen in some future period.

A forecast of sales of depends upon economic forecasts. This is because the sales of almost every firm is affected by the state of general business. Periods of depression and boom have an influence on the sales value. Sales may be at an increase during the prosperity but might decline during the depression. The businessman should take into consideration the business cycle he is facing so that he can have an effective forecast of sales.

Economic Forecasting

Economic forecasting is the process of attempting to predict the future condition of the economy using a combination of important and widely followed indicators. Economic forecasting involves the building of

statistical models with inputs of several key variables, or indicators, typically in an attempt to come up with a future gross domestic product (GDP) growth rate. Primary economic indicators include inflation, interest rates, industrial production, consumer confidence, worker productivity, retail sales, and unemployment rates.

Techniques and Methods of Economic or Business Forecasting

In the recent years, large numbers of techniques of forecasting have been evolved to handle different types of forecasting problems. Each technique has its special use and the manager has to select that which one is most suitable for application to his problem. Basic forecasting techniques may be classified as:
(1)   Qualitative and
(2)   Quantitative.

(1) Qualitative Techniques:

  a) **Market Research Techniques:**
Under this technique, polls and surveys may be conducted to find out the sale of a product. This may be done by sending questionnaires to the present and prospective consumers. In addition, this may also be interviewed personally, though questions and interviews, the manager can find out whether the consumers are likely to increase or reduce their consumption of- the product and if so, by what margin. This interviews etc., and hence this method is somewhat costly and time consuming.

  b) **Past Performance Technique:**
In this technique the forecasts are made on the basis of past data. This method can be used if the past has been consistent and the manager expects that the future will resemble the recent past.

  c) **Internal Forecast:**
Under this technique indirect data are used for developing forecasts. For Example — For developing sales forecasts, each area sales manager may be asked to develop a sales forecast for his area. The area sales manager who is in charge of many sub-areas may ask his salesmen to develop a forecast for each sub-area in which they are working. On the basis of these estimates the total sales forecast for the entire concern may be developed by the business concern.

  d) **Deductive Method:**
In the deductive method, investigation is made into the causes of the present situation and the relative importance of the factors that will influence the future volume of this activity. The main feature of this method is that it is not guided by the end and it relies on the present situation for probing into the future. This method, when compared to others, is more dynamic in character.

  e) **Direct vs. Indirect Methods:**
In the case of direct method, the different subordinate units on departments prepare estimates and the company takes the aggregate of these departmental estimates. This method is also called bottom up method of forecasting.
On the other hand, in the case of indirect method of forecasting, first estimates are made for the entire trade or industry and then the share of the individual units of that industry is ascertained. This method is also called as "top down" method of forecasting.

  f) **Jury of Executive Opinion:**
In this method of forecasting, the management may bring together top executives of different functional areas of the enterprise such as production, finance, sales, purchasing, personnel, etc., supplies them with the necessary information relating to the product for which the forecast has to be made, gets their views and on this basis arrives at a figure.

(2) Quantitative Techniques:

Quantitative techniques are known as statistical techniques. They focus entirely on patterns and on historical data. In this technique the data of past performance of a product or product line are used and analysed to establish a trend or rate of change which may show an increasing or decreasing tendency. Following are the important quantitative techniques used for the purpose of forecasting:

a) Business Barometers Method:

This is also called Index Number Method. Just as Barometer is used to measure the atmospheric pressure similarly in business Index numbers are used to measure the state of economy between two or more periods. These index numbers reveal the trends, seasonal fluctuations, cyclical movements and irregular fluctuations. These number when used in conjunction with one another or in combination with one or more provide a direction of economy.

b) Trend Analysis Method:

This is also known as 'Time Series Analysis'. This analysis involves trend, seasonal variations, cyclical variations and irregular or random variations. This technique is used when data are available for a long period of time and the trend is clearly visible and stable. It is based on the assumption that past trend will continue in future. This is considered valid for short term projection. In this different formulas are used to fit the trend.

c) Extrapolation Method:

Extrapolation method is based Time series, because it believes that the behaviour of the series in the past will continue in future also and on this basis future is predicted. This method slightly differs from trend analysis method. Under it, effects of various components of the time series are not separated, but are taken in their totality. It assumes that the effect of these factors is of a constant and stable pattern and would also continue to be so in future.

d) Regression Analysis Method:

In this method two or more inter-related series are used to disclose the relationship between the two variables. A number of variables affect a business phenomenon simultaneously in economic and business situation. This analysis helps in isolating the effects of various factors to a great extent.

For example- there is a positive relationship between sales expenditure and sales profit. It is possible here to estimate sales on the basis of expenditure on sales (independent variable) and also profits on the basis of projected sales, provided other things remain the same.

e) Economic Input Output Model Method:

This is also known as "End Use Technique." The technique is based on the hypothesis of various sectors of the economy industry which are inter-related. Such inter-relationship is known as coefficient in mathematical terms. For example—Cement requirements of a country may be well predicted on the basis of its rate of usage by various sectors of economy, say industry, etc. and by adjusting this rate on the basis of how the various sectors behave in future.

As the data required for this purpose are easily available this technique is used in forecasting business units.

f) Econometric Model:

Econometric refers to the science of economic measurement. Mathematical models are used in economic model to express relationship among various economic events simultaneously. To arrive at a particular econometric model a number of equations are formed with the help of time series. These equations are not easy to formulate. However, the availability of computers has made the formulation of these equations relatively easy. Forecasts can be solved by solving this equation. To conclude, it can be said that all these techniques qualitative and quantitative, may give different results in making forecasting. An organisation may choose any of these techniques, considering the size and nature of the business accuracy required and the cost benefit factor.

g) Leading Indices:

The "Leading Indices" refer to certain sensitive series which tend to turn upward or downward in anticipation of other series. If one knows a series which would reliably lead say, commodities, price indices etc., It would not be difficult to purchase raw materials in advance if prices are expected to rise. Certain important Leading Indices are

(1) New orders for durable goods;

(2) Building contracts;

(3) Number of new incorporations;

(4) Whole sale prices of basic commodities,

(5) New order placed with manufactures, building contractors etc., have early reflection of the coming demand for products, raw materials, labour loans and capital.

General Steps in the Forecasting Process

The general steps in the forecasting process are as follows:

1) Identify the general need
2) Select the Period (Time Horizon) of Forecast
3) Select Forecast Model to be used: For this, knowledge of various forecasting models, in which situations these are applicable, how reliable each one of them is; what type of data is required. On these considerations; one or more models can be selected.
4) Data Collection: With reference to various indicators identified-collect data from various appropriate sources-data which is compatible with the model(s) selected in step (3). Data should also go back that much in past, which meets the requirements of the model.
5) Prepare forecast: Apply the model using the data collected and calculate the value of the forecast.
6) Evaluate: The forecast obtained through any of the model should not be used, as it is, blindly. It should be evaluated in terms of 'confidence interval' – usually all good forecast models have methods of calculating upper value and the lower value within which the given forecast is expected to remain with certain specified level of probability. It can also be evaluated against some related variable or phenomenon. Thus, it is possible, sometimes advisable to modify the statistically forecasted' value based on evaluation.

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