1st Semester BBA

Calicut University

MANAGERIAL ECONOMICS

Prepared by

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SYLLABUS

Complementary Course

Time: 5 Hours per week;
Credits: 4
Internal: 20; External: 80

Module 1:

Introduction to Managerial Economics: Meaning, Definition, Nature, Scope and Principles of Managerial Economics. Value Maximisation- Limitations: Sales Maximisation Model and Utility Maximisation Model.

10 Hours

Module II:

Demand and Supply :Meaning and Determinants of Demand; Demand Function, Law of Demand; Demand Schedule, Demand Curve; Movement along the Demand Curve, Shifts of Demand Curve; Elasticity of Demand: Price, Income and Cross Elasticity; Importance and Methods of Demand Forecasting. Utility: Concept, Marginal Utility, Law of Diminishing Marginal Utility. Supply: Meaning and Determinants; Law of Supply; Supply Schedule Supply Curve; Movements on the Supply Curve, Shifts in Supply Curve; Elasticity of Supply.

20 Hours

Module III:

Production and Cost: Factors of Production, Production Function, Total, Average and Marginal Product; Law of Variable Proportions; Returns to Scale; Production Optimisation; Isoquants. Cost Concepts; Cost Function; Long Run and Short Run Cost Functions, Economies and Diseconomies of Scale.

20 Hours

Module IV:

Market Structures and Price-Output Determination: Meaning of Market; Types of Market Structures; Concepts of Revenue; Demand and Revenue Relationship. Price and Output Decisions under Perfect Competition, Monopoly and Monopolistic Competition; Pricing Under Oligopoly: Kinked Demand Curve, Price Leadership.

15 Hours

Module V:

Business Cycle: Concept, Definition, Features, Types and Phases of Business Cycle, Effects of Business Cycle and Controls of Business Cycle. Economic Forecasting for Business: Economic and Business Forecasting, Uses of Economic Forecasts, Methods of Economic Forecasting, Selecting a Forecast, Evaluating Forecasts.

15 Hours

Module 1

Introduction to managerial economics

Meaning and definitions of economics

Economics is a social science .it is called social because it studies mankind and society. Besides, it deals with the aspect of human behaviour.it is called science because it studies social problem (the problem of choice) from a scientific viewpoint.

According to George Bernard Shaw, economics is art of making the most of life.

The word "economics "has been derived from the ancient Greek word "oiknomia".it means managing a household with limited resources

Definitions of economics

- Adam smith's definition(wealth/classical definition)

The science of economics was born in 1776 when Adam smith published his famous work "an enquiry into the nature and causes of wealth of nations".

Adam smith defined economics as the study of the nature and causes of national wealth. According to him, economics is the study of wealth –how wealth is produced and distributed.

- Marshall's Definition (Welfare/Neo-classical Definition)

Another definition was given by Alfred Marshall, Marshall was a mathematician and geometrician who became a great economist. He defined (in his book. "Principles of Economics" published in 1890) economics as follows:

Marshall shifted the emphasis from wealth to welfare. According to him, wealth is not the end but only a means to an end the end being human welfare. According to him economics studies both wealth and man.

- Robbins's Definition (Scarcity Definition)

Robbins gave a definition of economics in his famous book, "Nature and Significance of Economic Science" published in 1932. Robbins's definition is known as scarcity definition.

"Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses".

- Samuelson's (Growth definition)

Prof. Samuelson has given a definition based on growth aspects. His definition is as follows:

"Economics is the study of how men and society choose, with or without the use of money, to employ scarce productive resources which could have alternative uses, to produce various commodities over time, and distribute them for consumption now and in the future among various people and groups of society"

Branches of Economics

In 1933, Ragnar Frisch (of Oslo University of Sweden) classified economics into two branches. These two branches are micro economics and macroeconomics.

- Macro economics

The word macro is derived from the Greek word 'makros'.It means large. Macro economics is the study of the economy as a whole. In macroeconomics, we study about national income, gross national output, aggregate demand, aggregate supply, general price level etc.

In short, macro economics is the study of the entire economy. Macroeconomics is also known as theory of income and employment.

- Micro Economics

The term micro is derived from the Greek word 'mikros'. It means small. Micro economics simply refers to the microscopic study of the economy.

In micro economics, a small part or component of the whole economy is analysed. Micro economics solves the three central problems of an economy. They are: what, how and for whom to produce.

In short, micro economics deals with the decision-making of a single economic unit such as a producer or a consumer. It is also known as price theory or theory of firm

Managerial Economics

Meaning and definitions of managerial economics

Managerial economics is the application of the economic theories and analytical tools in managerial decision making. It is a study of allocation of scarce resources available to a firm among various business activities like production, marketing etc.

Managerial economics was first introduced by Joel Dean. He is considered to be the father of managerial economics. According to him, "Managerial economics is the use of economic analysis in the formulation of business policies".

Nature (characteristics) of managerial economics

- Micro economics in character
- Economics is normative science
- Pragmatic
- Prescriptive
- Uses macro economics
- Uses theory of firm
- Management oriented
- Multi-disciplinary
- Art and science

Scope of managerial economics

- Demand analysis and forecasting
- Cost and production analysis
- Pricing policies
- Study of market
- Profit management
- Capital budgeting
- Inventory management
- Business cycles
- Strategic planning

Principles of managerial economics (or fundamental concepts or theories or tools in managerial economics)

- Principle of opportunity cost
- Principle of incrementalism
- principle of time perspective
- principle of discounting
- Equi-marginal principle

Models or theories on objectives of firm

- Theory of value maximisation (value maximisation model)

Value maximisation model assumes that the objective of the firm is to maximise value of the firm as measured in the market place.i.e maximise the market value of the firm's shares.

Value can be defined as the present value of the expected future cash flows of the firm. Cash flows are often equated with profits.

Value of the firm is measured by calculating present value of cash flows of profits of the firm over a number of years in the future

PV or value of firm=

$$\sum_{t=1}^{n} \frac{(R-C)_t}{(1+i)^t}$$

Alternative model of value maximisation

The value of a firm also can be obtained by decomposing total revenue and total cost which determine profits made by the firm. Total revenue is obtained from multiplying price with the quantity of output sold .Thus,

$TR = P_t \times Q_t$

P_t=price of the product of the firm in a period

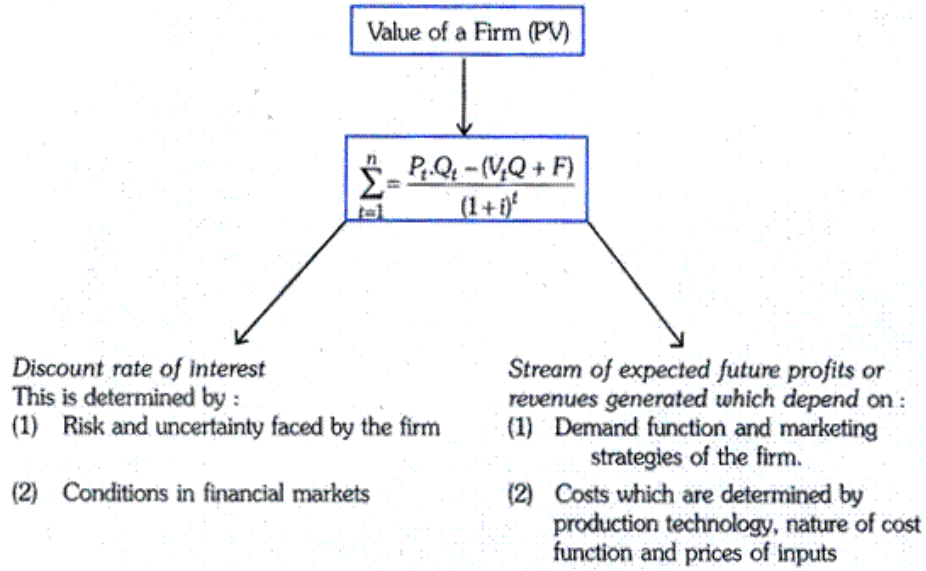
Q_t= quantity sold in that period

Cost can be obtained by taking a sum of variable cost and fixed cost. Thus

$TC=V_{t\times}Q_t+F$

$$PV = \sum_{t=1}^{n} \frac{P_t Q_t - (V_t . Q_t + F)}{(1+i)^t}$$

Value of a firm (PV)



<u>Limitations of the value maximisation model</u>

- Unrealistic
- Promotes their own interest
- Look for satisfactory performances
- Bad business practices
- Forgetting about the customer
- Hurt employees
- Corporate involvement in politics
- Wrong assumptions
- Speculation
- Different objectives
- Fair treatment to all social group
- Profit maximisation

Baumol's sales maximisation models

William Jack Baumol of Princeton University (USA) did not agree with the profit maximisation as an objective of the firm. According to him, sales volume, and not profit volume, determine market leadership. Even managers' own salary depends more on sales volume than on the profit figures. Firms give them bonus and other facilities on the basis of sales revenue.

Prof. Baumol has presented his sales maximisation model in his book "Business Behaviour Value and Growth" (1967). He discussed two models of sales maximisation: a static model and a dynamic model. We shall analyse only his static model of sales maximisation with its variants of single product model without advertisement.

Meaning of Sales Maximisation

By sales maximisation, Baumol means maximisation of total sales revenue. It does not mean the sale of large quantities of output. But it refers to the maximum money sales (in rupee, dollar, etc.). Sales can increase up to the point of profit maximization where the marginal cost equals marginal revenue.

Assumptions of Sales Maximisation Model

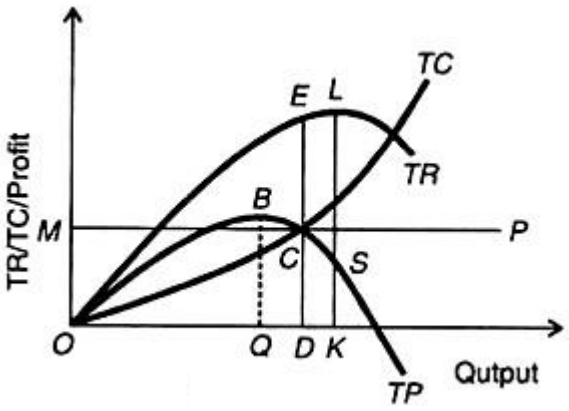
1. There is a single period time horizon of the firm.

2. The firm aims at maximising its total sales revenue in the long run subject to a profit constraint.

3. The firm's minimum profit constraint is set competitively in terms of the current market value of its shares.

4. The firm is oligopolistic whose cost curves are U-shaped and the demand curves downward sloping. Its total cost and revenue curves are also of the conventional type.

Explanation of the model



This sales maximisation output OK is higher than the profit maximisation output OQ. But sales maximisation is subject to minimum profit constraint. Suppose the minimum profit level of the firm is represented by the line MP.

The output OK will not maximise sales as the minimum profits OM are not being covered by total profits KS. For sales maximisation the firm should produce that level of output which not only covers the minimum profits but also gives the highest total revenue consistent with it.

This level is represented by OD level of output where the minimum profits DC (=OM) are consistent with DE amount of total revenue at the price DE/OD, (i.e., total revenue/total output). Baumol's model of sales maximisation points out that the profit maximisation output OQ will be smaller than the sales maximisation output OD, and price higher than under sales maximisation.

The reason for a lower price under sales maximisation is that both total revenue and total output are equally higher while under profit maximisation total output is much less as compared to total revenue.

Criticisms against the sales maximisation model

- Rosenberg has criticised the use of the profit constant for sales maximisation by Baumol. Rosenberg has shown that it is difficult to specify exactly the relevant profit constraint for a firm.
- Generally, the sales maximisation behaviour will be seen in oligopolistic market structure. Unless we know the cost condition of the individual firm, we cannot ascertain the level of output that will bring maximum sales revenue. Such data will not be disclosed by any firm.
- According to Shepherd, under oligopoly a firm faces a kinked demand curve and if the kink is large enough, total revenue and profits would be the maximum at the same level of output. So both the sales maximiser and the profit maximiser would not be producing different levels of output.
- Hawkins has shown that Baumols's conclusion that a sales maximiser will in general produce and advertise more than a profit maximiser, is invalid. According to Hawkins, a sales maximiser "may choose a higher, lower or identical output, and a higher, lower or identical advertising budget. It depends on the responsiveness of demand to advertising rather than price cuts."
- In the case of multiproduct, Baumol has argued that revenue and profit maximisation yield the same results. But Williamson has shown that sale maximisation yields different results from profit maximisation.
- Another weakness of this model is that it ignores the interdependence of the prices of oligopolistic firms
- Prof. Hall in his analysis of 500 firms came to the conclusion that firms do not operate in accordance with the object of sales maximisation.

Utility maximisation model (managerial utility maximisation model)

The managerial utility maximisation model is developed by Oliver E Williamson in 1964. This theory is also known as Managerial Discretion Theory. This theory is based on the concept that owners or shareholders of the firm and managers are two separate groups. The shareholders want maximum return on their investment (dividends). Therefore, they are interested in maximising profits. On the other hand, managers have different motives other

than profit maximisation, Williamson argued that managers have discretionary power to formulate and execute polices. They would apply their discretionary power in such a way as to maximise their own utilities rather than maximising shareholders utilities. They would maintain only a minimum profit (constraint) to keep the shareholders happy. Managers are free to increase their own emoluments and also the size of their staff and expenditure on the staff. Shareholders have no power to change the corporate policy.

Assumptions of the Model

1. Imperfect competition in the markets.

2. Separation of ownership and management

3. A minimum profit constraint exists for the firms to be able to pay dividends to their shareholders.

4. The law of diminishing marginal utility applies.

Main Model

As already stated Williamson's theory is related to the maximisation the manager's utility function. Manager's utility is a function of the expenditure on staff and emoluments and discretionary funds. The utility function of managers is dependent upon managers' salary, job security, power, status, prestige, professional satisfaction etc. Of these, only salary is measurable. Others are non-measurable. These non-measurable variables can be assigned nominal values. Thus, these can be used as proxy variables to measure the real of non-measurable concepts like job security, power, status, dominance, prestige, professional excellence etc. appearing in the managerial utility function.

Managers desire utility from a wide range of variables mentioned above. Their objective is to maximise their utility rather than profits of the firm. Williamson's model may be written as

U = f(S, M, D)

U = Managerial Utility Function

S = Staff expenditure, including managerial salary

M= Managerial emoluments

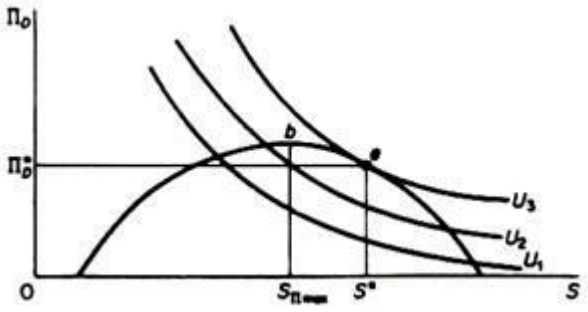
D= Discretionary investment

f means function of

Concepts of Types of Profits Used In the Model

- Actual profit(π_A)
- Reported profit(π_R)
- Minimum profit(π_O)
- Discretionary profit(π_D)

Graphic presentation of Williamson's model



Critical Appraisal of the Utility Maximisation Model

Merits

1 .Williamson has supported his utility-maximisation hypothesis by citing a number of evidences which are generally consistent with his model.

2. This model is also superior to Baumol's sales-maximisation model because it also explains the facts involved in Baumol's theory. Williamson does not treat sales maximisation as a single criterion like Baumol but as a means of the manager for increasing his staff and emoluments. This approach is rather more realistic.

3. Further, in Williamson's model output is higher, and price and profits are lower than in the profit maximisation model.

Criticisms

1. Williamson does not clarify the basis of the derivation of his feasibility curve. In particular, he fails to indicate the constraint in the profit-staff relation, as shown by the shape of the feasibility curve.

2. He adds together staff and manager's emoluments in the utility curve. This mixing up of non- pecuniary and pecuniary benefits of the manager makes the utility function ambiguous.

3. This theory does not deal with oligopolistic inter dependence and of oligopolistic competition.

4. The model fails to describe how businesses take their price and output decisions in a highly competitive set up.

5. The relationship between better performance of managers and the increasing amounts spent on manager's utility by the firm is not always true.

6. The model does not apply in a dynamic set up like changing demand and cost conditions during booms and recessions.

7. The model is valid only for large firms, where there is scope for product diversification and discretionary investment.

Module 2

Demand and supply

Meaning of demand

Demand is the behaviour of potential buyers in a market.

Demand is a desire which is backed by willingness to pay and ability to pay

Definition of demand

According to prof.Hibdon,"demand means the various quantities of goods that would be purchased per time period at different prices in a given market"

Law of demand

There is an inverse relationship between the price of a commodity and the quantity demanded. This relationship is known as the law of demand.

According to Samuelson, "Law of demand states that people will buy more at lower prices and buy less at higher prices".

P↑ => Qd ↓ and P↓ => Qd↑

The law of demand is known as the first law of market'. The law of demand was propounded by Marshall.

Assumptions of the Law of Demand

1. Income of the buyer remains constant.

2. Tastes and preferences of the consumers remain the same.

3. Price of related goods (substitutes and complements) remains the same.

4. Consumers do not know about any new substitute product.

5. There is no expectation of change in the price of commodity in the near future.

6. The commodity should not be a prestige commodity.

7. The size of population remains constant.

Demand schedule

The law of demand can be explained with the help of a demand schedule. A demand schedule is a list of prices and corresponding quantities. It is the table or chart showing the quantities of a commodity demanded at different prices at a particular time in a particular market.

Types of demand schedule

1. Individual demand schedule:

An individual demand schedule is a list of various quantities of a commodity which an individual consumer buys at different possible prices in the market. It takes into account the demand of an individual.

Price of apple(Rs)	Quantity demanded
10	1
8	2
6	3
4	4
2	5

2. Market demand schedule:

Market demand schedule shows how much quantity is demanded by all the consumers in the market at different prices. It is the sum total of all individual demand schedule.

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

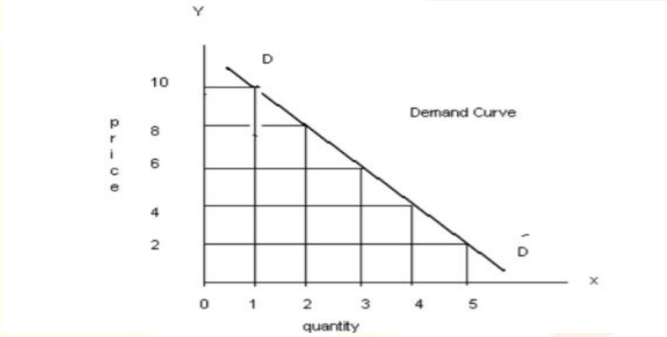
Demand curve

The law of demand can be explained with the help of a demand curve also. When the demand schedule is shown graphically, it is called a demand curve.

Types of demand curve

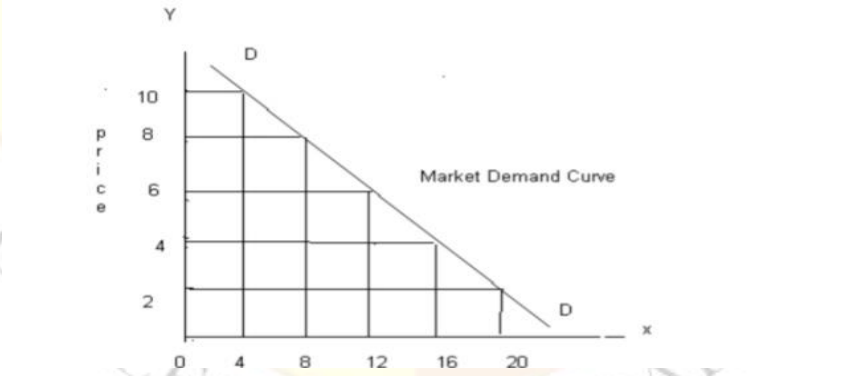
- **Individual demand curve**

Individual demand curve is the graphical representation of individual demand schedule.



- **Market demand curve**

Market demand curve is the graphical representation of market demand schedule. It is obtained by adding individual demand schedules.



Factors affecting demand (determinants of demand)

- Price of commodity
- Nature of commodity
- Income and wealth of consumers
- Taste and preference of consumers
- Price of related goods

- Consumers expectation
- Advertisement
- Usefulness
- Changes in population
- Distribution of income and wealth
- Change in quantity of money in circulation
- Technological progress
- Business cycle
- Demonstration effect
- Availability of credit

Demand function

The mathematical expression of relationship between demand for a commodity and various factors determining its demand is called demand function.

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

Where , D= Quantity demanded

P=price of the commodity

Y=income of the consumer

Ps=price of substitutes and complements

U=consumers expectation and other factors

f=function of

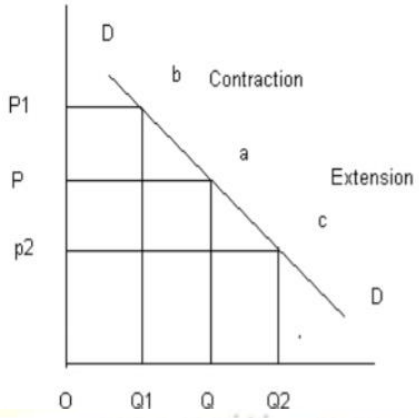
Movement along the demand curve (extension and contraction of demand)

The change in demand due to change in price only (when other factors remain constant)is called movement along the demand curve

Extension of demand: Increase in demand due to fall in price

Contraction of demand: decrease in demand due to rise in price

Movement on the demand curve is also called “change in quantity demanded”

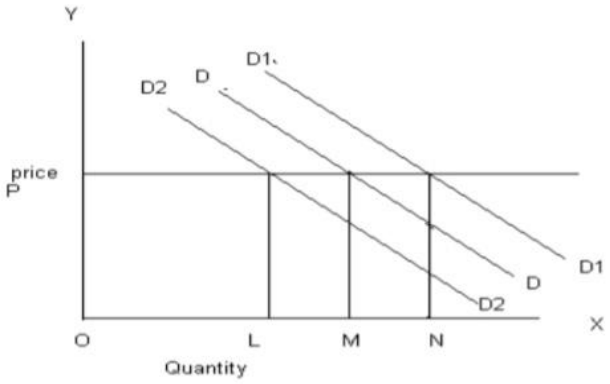


Shifts of demand curve

The demand depends not only on price but also on other factors like income, population, taste and preference of consumers etc. The change in demand due to change in any of the factors other than the price is called shift in demand.

Shift of demand curve is also called 'change in demand'

A change in demand will shift the demand curve either to right or to left. A rightward shift in demand curve is called increase in demand. Leftward shift in demand curve is called decrease in demand.



Difference between movement along the demand curve and shift of demand curve

Movement	Shift
• Movement occurs when price of a product changes • Movement is also called "change in quantity demanded.(expansion and contraction of demand)	• Shift in demand curve occurs when there are changes in other factors(price remains constant) • Shift is also called "change in demand (increase and decrease in demand)

• Movement may be upwards or downwards • Movement is always along the same demand curve	• Shift may be rightward or leftward • In a shift, new demand curve is drawn

Elasticity of demand

Meaning

Elasticity of demand means the degree of responsiveness of demand to the change in price.in short, elasticity is the rate of change in the quantity demanded due to a change in price.

Definition

According to E.K.Estham,"elasticity of demand is a measure of the responsiveness of quantity demanded to a change in price"

Types of elasticity

1. Price Elasticity of Demand.

2. Income Elasticity of Demand.

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.

Price Elasticity =

$$\frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

Proportionate change in quantity demanded =

$$\frac{\text{Change in quantity demanded}}{\text{Original quantity demanded}}$$

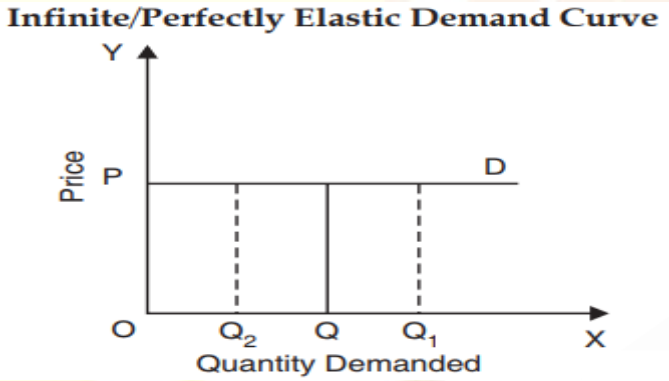
Proportionate change in price =

$$\frac{\text{Change in price}}{\text{Original price}}$$

Degrees of elasticity of demand (types of price elasticity)

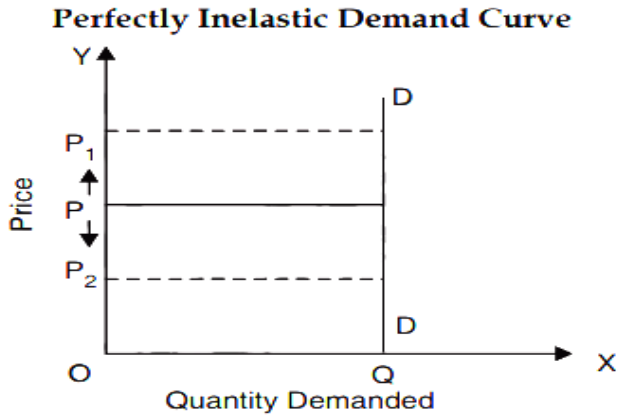
1) Perfectly elastic demand (infinitely elastic)

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

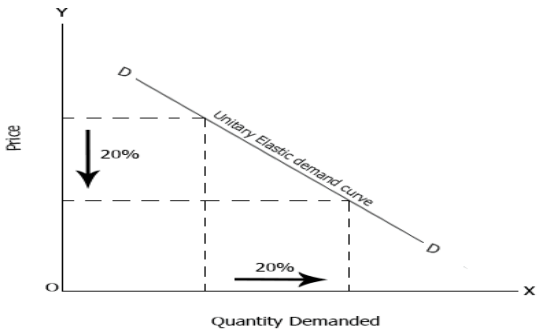
In this case, even a large change in price fails to bring about a change in quantity demanded. I.e. the change in price will not affect the quantity demanded and quantity remains the same whatever the change in price. Here demand curve will be vertical line as follows and ep= 0



3) Unit elasticity (unitary elasticity)

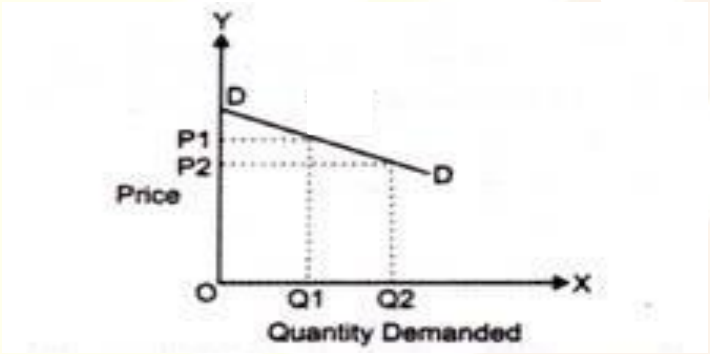
Here the change in demand is exactly equal to the change in price. When both are equal,

ep= 1, the elasticity is said to be unitary.



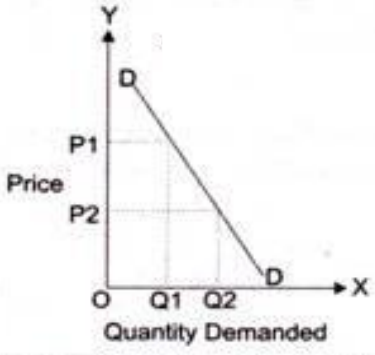
4) Relatively elastic demand

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



5) 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



Measurement of price elasticity of demand

- Proportional or percentage method
- Expenditure or outlay method
- Geometric or point method
- Arc method

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:

$$ED = \frac{\text{proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

OR

$$E_d = \frac{\frac{\Delta Q}{Q} \times 100}{\frac{\Delta P}{P} \times 100} = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta P}{P}}$$

$$E_d = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

△ Q= change in quantity demanded

△ P=change in price

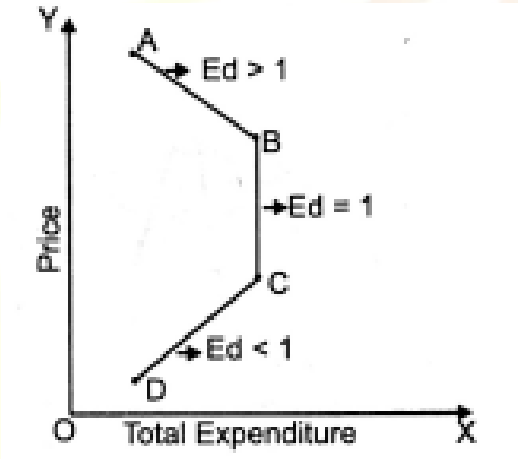
Q=Original quantity

P=Original price

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

	Price	Mangoes demanded	Total money spent (expenditure)	Elasticity
Case 1	4.00 3.60	50 60	200 216	Greater than unity elastic
Case 2	3.00 2.40	80 100	240 240	Unit elasticity
Case 3	2.00 1.60	110 120	220 192	Less than unity



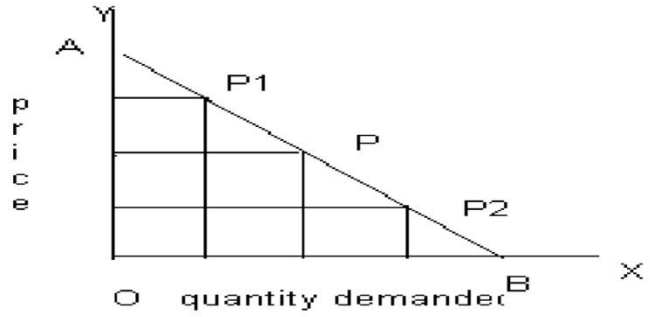
This has three components

- 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)

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;

$$ED = \frac{\text{Lower section of demand curve}}{\text{Upper section of the demand curve}}$$



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

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:

$$ED = \frac{\triangle Q}{\triangle P} \times \frac{(P_1+P_2)}{(Q_1+Q_2)} \quad \text{OR} \quad \frac{Q_1-Q_2}{P_1-P_2} \times \frac{P_1+P_2}{Q_1+Q_2}$$

OR

$$\frac{\text{Change in D}}{\text{Average D}} \times \frac{\text{Average P}}{\text{Change in P}}$$

ΔQ= change in quantity

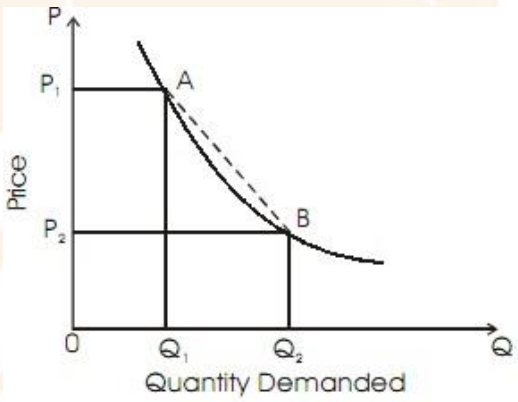
ΔP= change in price

Q_1= original quantity

P_1 = original price

Q_2= new quantity

P_2 = New price



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 lead to an increase in the quantity demanded. i.e., when income rises, demand also rises. (Ey =>0)

Importance of income elasticity

- Helps in investment decision
- Helps in forecasting demand
- Helps in categorising goods

Cross elasticity

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;

$$\text{Cross Elasticity} = \frac{\text{Percentage Change in Quantity Demanded of a Commodity A}}{\text{Percentage change in the price of commodity B}}$$

Types of cross elasticity of demand

- Positive cross elasticity: when increase in the price of one good (A) cause increase in the demand of other good (B)
- Negative cross elasticity: When increase in the price of one good (A)reduces the demand for the other good (B)
- Zero cross elasticity: when the increase or decrease in price of one good (A) does not affect the demand of other good (B)

Importance of cross elasticity

- Demand forecasting
- Determining the nature of relationship between two goods.
- To identify substitute and complementary goods.

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;

$$\text{Advertisement Elasticity} = \frac{\text{Proportionate Increase in Sales}}{\text{Proportionate increase in Advertisement expenditure.}}$$

Demand forecasting

Demand Forecasting refers to an estimate of future demand for the product. It is an "objective assessment of the future course of demand".

Role and importance of demand forecasting

1. It enables a firm to produce the required quantities at the right time and arrange well in advance for the factors of production. This helps to avoid the possibilities of over production and under-production.

2. It helps in formulating an appropriate pricing policy because the price is determined on the basis of expected demand.

3. It helps in discovering new marketing opportunities. It is the base for marketing planning. Without the knowledge of future expected demand.

4. It is not possible to prepare correct marketing programme.

5. It reduces the business risks.

6. It helps in reducing the cost of purchasing and inventory.

7. It helps in financial planning to avoid under-capitalisation and over-capitalisation.

8. It helps management in arranging the required labour force.

9. It is the foundation for budgeting.

10. It guarantees effective control.

11. It ensures a judicious allocation of resources of the firm among its various activities.

12. Production planning is possible.

13. It determines the speed at which the company can grow.

14. At the macro level, demand forecasting is of great help to government and planning Commission for planning and allocation of the scarce resources of the economy.

Methods of Demand Forecasting (For Established Products)

There are several methods to predict the future demand. All methods can be broadly classified into two: (A) Survey Methods, and (B) Statistical Methods.

Survey methods

Under this method surveys are conducted to collect information about the future purchase plans of potential consumers. Survey methods help in obtaining information about the desires, likes and dislikes of consumers through collecting the opinion of experts or by interviewing the consumers. Survey methods are used for short term forecasting.

- Consumers interview method
- Collective opinion method or sales force opinion method
- Expert opinion method
- Consumers clinic
- End use method

Consumers interview method

Under this method, consumers are interviewed directly and asked the quantity they would like to buy. After collecting the data, the total demand for the product is calculated. This is done by adding up all individual demands. Under the consumer interview method, either all consumers or selected few are interviewed .When all the consumers are interviewed, the method is known as complete enumeration method. When only a selected group of consumers are interviewed, it is known as sample survey method.

Advantages (Merits)

1 .It is a simple method because it is not based on past record.

2. It suitable for industrial products.

3. The results are likely to be more accurate.

4 .This methods are used for forecasting the demand of new products and established products.

5. It is less time consuming

Disadvantages (Demerits)

1. It is expensive and time consuming.

2. Consumers may not give their secrets or buying plans.

3 .This methods are not suitable for long term forecasting.

4. It is not suitable when the number of consumers is large.

5. It is subjective

Collective opinion method

Under this method the salesmen estimate the expected sales in their respective territories on the basis of previous experience. Then demand is estimated after combining the individual forecasts (sales estimates) of the salesmen. This method is also known as sales force opinion method.

Advantages (Merits)

1 This method is simple.

2 It is based on the first-hand knowledge of salesmen.

3. This method is particularly useful for estimating demand of new products.

4 It utilises the specialised knowledge of salesmen who are in close touch with the prevailing

Market conditions.

Disadvantages (Demerits)

1. The forecasts may not be reliable if the salespeople are not trained.

2. It is not suitable for long period estimation.

3. It is not flexible.

4. Salesmen may give lower estimates that make possible easy achievement of sales quotas fixed for each salesman.

Experts' opinion method

This method was originally developed at Rand Corporation in 1950 by Olaf Helmer, Dalkey and Gordon. Under this method, demand is estimated on the basis of opinions of experts and distributors other than salesmen and ordinary consumers. This method is also known as Delphi method.

Advantages (Merits)

1. It is simple to conduct.

2. Forecast can be made quickly and economically.

3. This is a reliable method because it uses the collective knowledge of experts.

4 .It is less time consuming and less expensive.

5. This method is suitable for both new products and established products.

Disadvantages (Demerits)

1. It is subjective

2. This method sometimes lacks reliability,

3. Experts may commit mistakes.

Consumer clinics

In this method some selected buyers are given certain amounts of money and asked to buy the products. Then the prices are changed and the consumers are asked to make fresh purchases with the given money. In this way the consumers' responses to price changes are

observed. Thus the behaviour of the consumers is studied. On this basis demand is estimated. This method is an improvement over consumer's interview method.

Merits

1. It provides an opportunity to study the behaviour of consumers directly.

2. It provides reliable and realistic picture about future demand.

3. It gives useful information to aid in the decision making process.

Demerits

1. It is a time consuming method.

2. Selecting the participants is very difficult.

3. It is expensive.

4. Consumers may take it as a game. They may not reveal their preferences.

End use method

This method is based on the fact that a product generally has different uses. In the end use method, first a list of end users (final consumers, individual industries, exporters etc.) is prepared. Then the future demand for the product is found either directly from the end users or indirectly by estimating their future growth. Then the demand of all end users of the product is added to get the total demand for the product.

Merits

1. It provides sector-wise demand forecasts.

2. It gives accurate predictions

3. It does not require any historical data.

Demerits

1. It is costly and time consuming.

2. It requires complex calculations.

3. It requires every industry to furnish its plan of production correctly and in advance

Statistical Methods

Statistical methods use the past data as a guide for knowing the level of future demand. Statistical methods are generally used for long run forecasting.

(1) Trend projection method

(2) Regression and Correlation

(3) Extrapolation method

(4) Simultaneous equation method

(5) Barometric method.

Trend projection method

Under the trend projection 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). The trend in the time series can be estimated by using any one of the following four methods: (a) Least-square method. (b) Free-hand method. (c) Moving average method and (d) semi-average method.

Merits

1. It is very simple.

2. It yields good forecasts.

3. It is quick and inexpensive.

4. It is appropriate for long term forecasts.

5. It does not require the knowledge of economic theory and the market.

Demerits

1. It cannot explain the turning points of a business cycle.

2. It is not appropriate for short term forecasts.

3. It has limited value in actual business forecasting

Regression and Correlation

These methods combine economic theory and statistical technique of estimation. Under these methods the relationship between the sales (dependent variable) and other variables (independent variables such as price of related goods, income, advertisement etc.) is ascertained. Such relationship established on the basis of past data may be used to analyse the future trend. The regression and correlation analysis is also called the econometric model

Merits

1. It gives accurate result.

2. It is prescriptive as well as descriptive.

3. It is quite consistent.

4. It not only forecasts the directions but also the magnitude of the change.

Demerits

1. It is costly and time consuming.

2. It involves complicated calculations.

3. It requires too much statistical data.

Barometric technique

This is an improvement over the trend projection method. This method is based on the idea that future can be predicted from certain happenings in the present. Under this method, demand is forecasted just like weather is forecasted by meteorologists. Under barometric technique, certain economic and statistical indicators from the selected time series are used to predict variables. Personal income, non-agricultural placements, gross national income, prices of industrial materials, wholesale commodity prices, industrial production, bank deposits etc. are some of the most commonly used indicators. This method was introduced by Harvard Economic Service In 1920. It was further revised by National Bureau of Economic Research in 1930s.

Merits

1. It is simple

2. It can be used even in the absence of past data.

3. It is an accurate method.

Demerits

1. It can be used for short term forecast only

2. It cannot be used in case of new products,

3. It is not always possible to get an appropriate economic indicator to predict the demand trend

Extrapolation

Under this statistical method, the future demand can be extrapolated applying Binomial expansion method. This method is used on the assumption that the rate change in demand in the past has been uniform.

Merits

1. It explains past economic activity and predicts future activity by deriving mathematic equations.

2 .It expresses the most probable inter-relationship among a set of economic variable

Demerits

1. It use complex mathematical

2 .It is time consuming.

Simultaneous equation method

This involves the development of a complete econometric model which can explain the behaviour of all the variables which the company can control. This method is also known as complete system approach of forecasting

Merits

1. Only the future values of exogenous variables are required to be estimated.
2. The values of exogenous variables are supposed to be easier to predict than those endogenous variables.

Demerits

1. It is highly complicated and time consuming…

2. It is expensive.

3. It requires historical data or all the variables concerning the decision

Methods of Demand Forecasting for New Products

Prof. Joel Dean has suggested the following methods for forecasting demand of new products:

1. Evolutionary approach

This method is based on the assumption that the new product is the improvement and evolution of the old product. Accordingly, the demand is forecasted on the basis of the demand of the old product. For example, the demand for black and white TV should be taken in to consideration while forecasting the demand for colour TV sets because the latter is an improvement of the former.

2. Substitute approach

Here the new product is treated as a substitute of an existing product, e.g., polythene bags for cloth bags. Thus the demand for a new product is analysed as a substitute for some existing goods or service.

3. Growth curve approach

Under this method the growth rate of demand of a new product is estimated on the basis of the growth rate of demand of an existing product. Suppose Pears soap is in use and a new cosmetic is to be introduced in the market. In this case the average sale of Pears soap will give an idea as to how the new cosmetic will be accepted by the consumers.

4. Opinion poll approach

Under this method the demand for a new product is estimated on the basis of information collected from the direct interviews (survey) with consumers.

5. Sales experience approach

Under this method, the new product is offered for sale in a sample market, i.e., by direct mail or through multiple shop or departmental shop. From this the total demand is estimated for the whole market.

6. Vicarious approach

This method consists of surveying consumers' reactions through the specialised dealers who are in touch with consumers. The dealers are able to know as to how the customers will accept the new product. On the basis of their reports demand can be estimated

Utility

A consumer demands a good to consume it. When he consumes that good he satisfies h need. The satisfaction derived by a consumer after consuming a good is called utility.

Utility is generally defined as the capacity or power of a commodity to satisfy a human want. If a commodity does not satisfy a human want, then we say that it has no utility.

Total Utility

Total utility is the sum of the utilities obtained from consuming all the units of a commodity.

Marginal utility

Marginal utility is a very important concept in utility theory. Marginal utility is the utility of an additional unit. It refers to the utility derived from the last unit of a commodity consumed.

Consumer’s equilibrium in terms of the utility analysis

The objective of every consumer is to get maximum utility or satisfaction from spending his or her limited income. When he gets maximum satisfaction, he is said to be in equilibrium. This can be determined with the help of three fundamental laws - (1) Law of diminishing marginal utility, (single commodity), (2) Law of equi-marginal utility (two or more commodities) and (3) Concept of consumer surplus.

Law of Diminishing Marginal Utility

This law explains human behaviour (consumer behaviour) in relation to the consumption of a commodity. Law of Diminishing Marginal Utility states that as a consumer consumes more and more units of a commodity, each successive unit gives him lesser and lesser satisfaction. In other words, as more and more units of a commodity are consumed, the total utility from the commodity increases at a diminishing rate and may become negative.

Relation between total utility and marginal utility

Marginal utility	Total utility
Declines	Increases but a diminishing rate
Reaches zero	Reaches maximum
Becomes negative	Declines from the maximum

Assumptions of the Law

1. The units of commodity are identical or homogeneous.

2. The consumer's tastes and fashions remain unchanged.

3. There is no time interval between the consumption of 2 units of a commodity. In other words, the consumption should be continuous

4. The units of the commodity are of normal size, i.e., neither too small nor too large.

5. There should be no change in the income and price of goods.

6. The law assumes utility measurable in terms of money.

7. The tastes and preferences of the consumer do not change during the course of consumption.

Limitations and Exceptions of the Law

1. The Law of Diminishing Marginal Utility may not apply to rare collections such as stamps, coins, old paintings etc. The larger the number a person collects, the greater will be his happiness.

2. The Law of Diminishing Marginal Utility doesn't hold good in the consumption of liquor The more a person (drinker) drinks, the more he likes.

3. This law does not apply to a miser The miser has immense love for money. A miser gets more and more satisfaction from getting more and more money.

4 The law cannot apply to money. The marginal utility of money never falls to zero.

5. The law fails when there is a large number of consumers to consume a commodity.

6. When a consumer consumes a commodity for the first time, then he may get increasing marginal utility for some time.

Practical Importance of the Law

- Helpful in taxation
- Basis of the policy of equal distribution of wealth
- Helpful in regulating daily expenditure
- Determination of market price
- Helpful to the monopolist
- Basis of economic laws

Supply

Supply means the quantity of a commodity a firm or a producer is willing to supply at a given price during given period of time.

According to Harvey supply defined as “how much of a good will be offered for a sale at a given time “

Determinants of supply (factors affecting or influencing supply)

- Price of the commodity
- Cost of production
- Price of related goods
- Technology
- Government policy
- Means of transportation and communication
- Prices expectation

- Agreement among producers
- Natural factors
- Times periods

Law of supply

The law of supply is known as the second law of market. A high price encourages suppliers to produce and sell more of the good. Accordingly, the law of supply states that at higher prices higher quantity will be supplied and at lower prices lesser quantity will be supplied. Marshall stated the law of supply as "other things remaining constant, more is offered for sale at higher prices than at lower prices". Thus, the law establishes a direct relationship between price and supply

Assumptions of the Law of Supply

1. There is no change in the income of the buyers and sellers,

2. There is no change in the level of technology,

3. There is no change in the prices of related goods.

4. The price of factors of production remains unchanged.

5. Production is subject to law of constant returns,

6. Supply of factors of production is elastic.

Supply Schedule

Law of supply can be explained with the help of supply schedule and supply curve. In fact, a supply schedule is essential for constructing a supply curve. A supply schedule is a tabular presentation of information relating to price and quantity supplied of a good. In short, supply schedule is the tabular form of law of supply.

Types of Supply Schedule

Individual supply schedule

An individual supply schedule is a list of various quantities of a commodity which are offered for sale by an individual supplier or seller at different prices.

Price of milk(per ltr)	Quantity supplied
10	10
12	13
14	20
16	25

Market supply schedule

Market supply schedule shows how much quantity is supplied by all suppliers or sellers in the market at different prices.

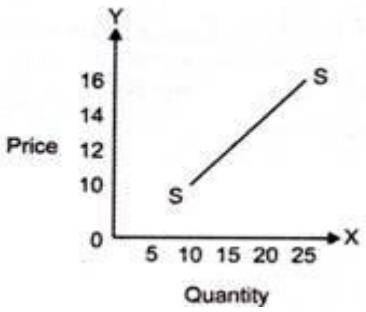
Price of Product X (per unit in ₹)	Individual Supply (per day)			Market Supply (per day)
	A	B	C	
100	750	500	450	1700
200	800	650	500	1950
300	900	750	650	2300
400	1000	900	700	2600

Supply curve

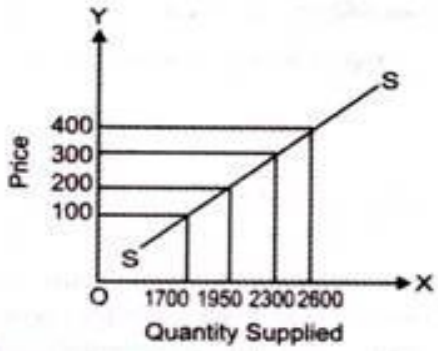
The law of supply can be explained with the help of a supply curve also. When the supply schedule is shown graphically, it is called a supply curve. In short, the graphical representation of supply schedule is called supply curve.

Types of Supply Curve

- **Individual supply curve** is the graphical representation of individual supply schedule.



- **Market supply curve** is the graphical representation of market supply schedule.it is obtained by adding individual supply schedules.

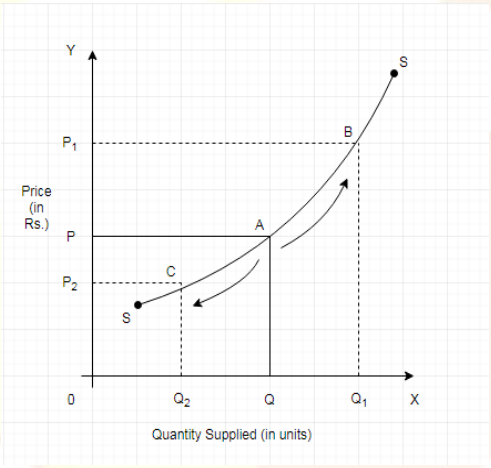


Movements on the supply curve

When quantity supplied changes due to change in price only (other factors remain constant.it is also called change in quantity supplied.

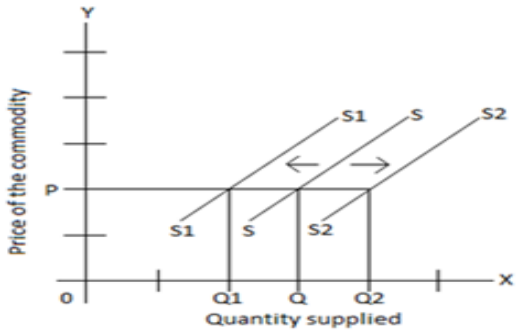
Rise in supply due to rise its price is called **expansion or extension of supply**.it is also known as increase in quantity supplied

Fall in supply due to fall in its price is called contraction of supply.it is also known as decrease in quantity supplied.



Shifts in supply curve

The change in supply due to change in any of the factors other than the price is called shift in supply curve.it is also called "change in supply". A rightward shift in supply curve is called 'increase in supply'. A leftward shift in supply curve is called 'decrease in supply'



Difference between movement on the supply curve and shift in supply curve

Movement	Shift
• Movement occurs when price of a product changes	• Shift in supply curve occurs when there are changes in other factors(price remains constant)
• Movement is also called change in quantity supplied(expansion and contraction)	• Shift is also called change in supply(increase in supply and decrease in supply)
• Movement may be upwards or downwards	• Shift may be rightward or leftward
• Movement is always along the supply curve	• In a shift, new supply curve is drawn

Elasticity of supply

Elasticity of supply measures the degree of responsiveness of the supply for a commodity to a change in its price.

$$ES = \frac{\text{percentage change in quantity supplied}}{\text{Percentage change in price}}$$

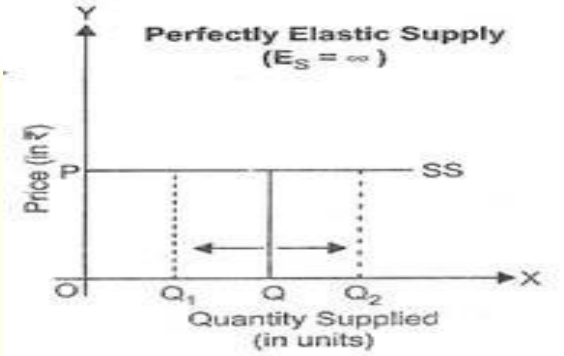
Types of elasticity of supply

- Perfectly elastic supply

- Perfectly inelastic supply
- Unitary elastic supply(unit elasticity)
- Relatively elastic supply(High elastic supply)
- Relatively inelastic supply(Less elastic supply)

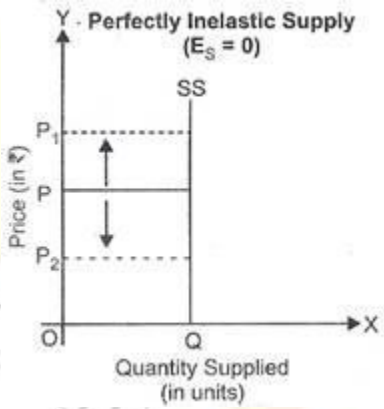
Perfectly elastic supply

When there is a significant change in supply without any change or a little change in its price (Es=α)



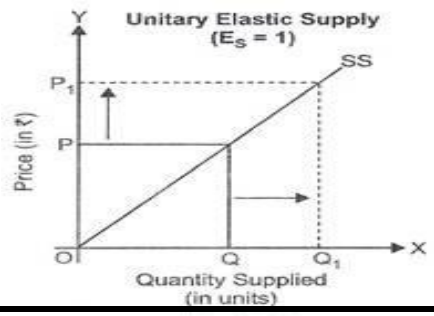
Perfectly inelastic supply

Perfectly elastic supply means that changes in price will not bring about any change in supply. (Es=0)



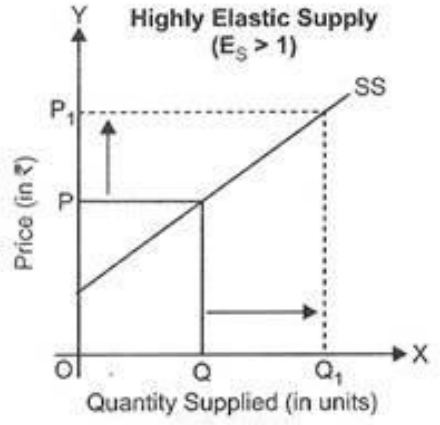
Unitary elastic supply (unit elasticity)

This is a situation where the rate of change in supply is exactly equal to the rate of change in price. (Es=1)



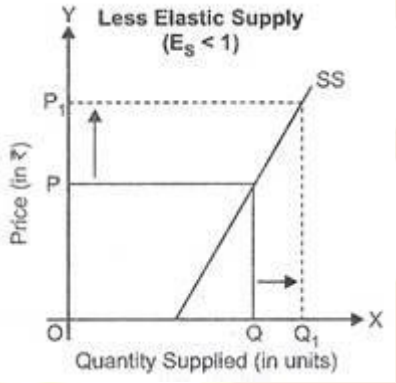
Relatively elastic supply (High elastic supply)

When proportionate change in supply is more than proportionate change in price.(Es=>1)



Relatively inelastic supply(less elastic supply)

When proportionate change in the quantity of supply is less than proportionate change in price (Es=<1)



Measurement of elasticity of supply

- Proportionate method
- Point method
- Arc method

Proportionate method

Under this method elasticity of supply is measured by dividing proportionate change in the quantity of supply by the proportionate change in the price. If the result of this calculation is more than 1, it is called relatively elastic supply. If the result is 1, it is called unitary elasticity. If it is less than 1, it is known as relatively inelastic supply.

Point method

Under this method, a supply curve is drawn and the elasticity of supply is measured at any point on this curve. For this purpose, supply curve is extended to the limit that it intersects OX axis at a particular point. If this line passes through the point of origin, it is known as unitary elastic supply. If it intersects OX axis, it is treated as relatively less elastic supply. If it intersects OY axis, it is regarded as relatively elastic.

Arc elasticity

If elasticity is to be measured in between two points on the supply curve we measure arc elasticity. In measuring arc elasticity, we use the average of the two prices (original and subsequent) and average of the two quantities (original and subsequent).

Factors affecting elasticity of supply (Determinants of elasticity of supply)

- Nature of commodity
- Time
- Technique of production
- Cost of production
- Producers expectation
- Stage of laws of returns

Module 4

Market structures and price Determination

Price mechanism (Market Mechanism)

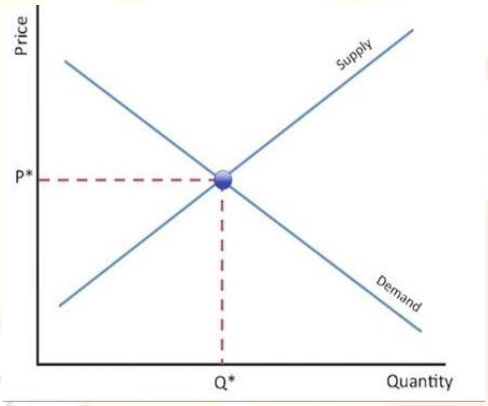
Price mechanism refers to the process of price determination by the interaction of free market forces of demand and supply. Demand and supply of a commodity determine its equilibrium price. Any change in demand or supply or a simultaneous change in demand or supply leads to a change in equilibrium price.

Components of price mechanism.

(a) Principle of demand

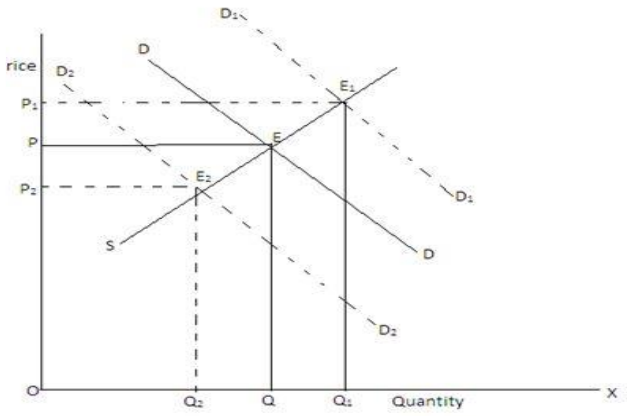
(b) Principle of supply

(c) Equilibrium price.

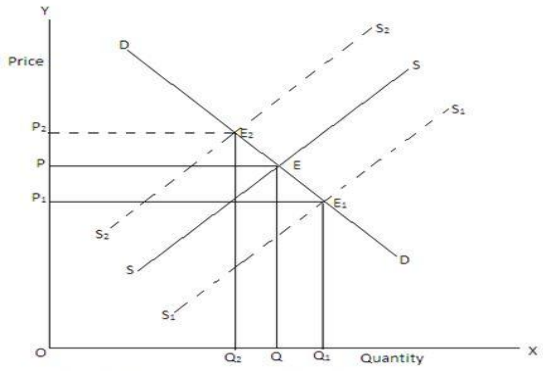


Whenever there is a change in demand or in supply or in both there is a change in price.

Suppose the demand increases to D_1 D_1 and supply remains the same. Then price will increase to OP_1 suppose the demand falls to D_2 D_2 (supply remains the same) the price will decrease to OP_2



Suppose supply increases to S_1S_1 (shifts to right) and demand remains the same. Then the price will fall to OP_1. Suppose the supply decreases to S_2 S_2 (shifts to left) and demand remaining the same. In this case the price will increase to OP_2.



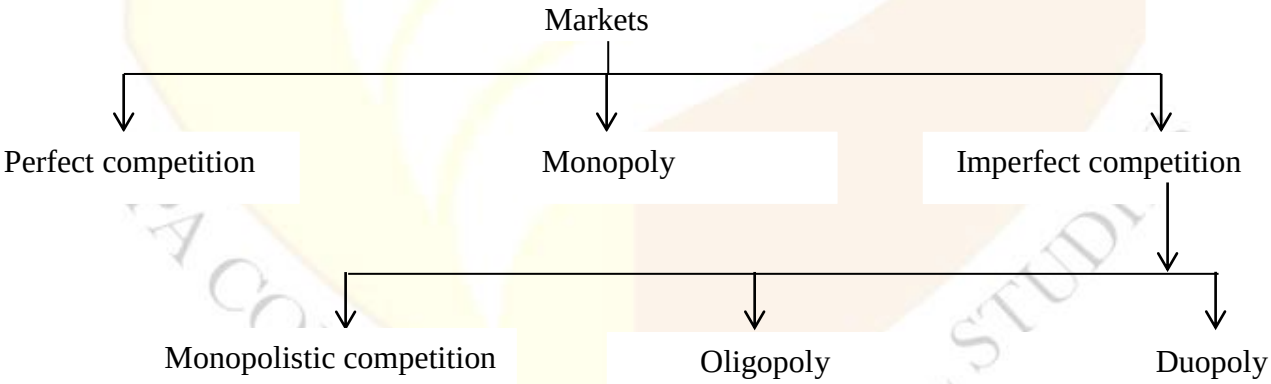
Meaning of Market

In ordinary language the term 'market' means a place where goods are bought and sold. But in economics the term market is used in a broader sense.

In economics, market is defined as "an arrangement by which buyers and sellers of a commodity interact to determine its price and quantity".

Thus, market is a group of buyers and sellers and the institution or arrangement by which they come together to trade.

Kinds of market



Perfect competition

Meaning

Perfect competition is the market situation in which there are a large number of buyers and sellers of a homogeneous product and the price of the product is determined by the market forces. All sellers accept that price.

Definition

According to Bilas, "The perfect competition is characterized by the presence of many firms; they all sell identically the same product. The seller is a price taker".

Characteristics (Assumptions or Conditions) of Perfect Competition

- Large number of buyers and sellers
- Homogeneous product
- A single price
- Free entry and exit of firms
- Perfect knowledge of market conditions
- Perfect mobility of factors of production
- Absence of selling and transportation cost

Difference between pure competition and perfect competition

Perfect competition	Pure competition
Factors of production are perfectly mobile	Factors of production are immobile and cannot move from one industry to another
Buyers and sellers have perfect knowledge about the prevailing market conditions.	Buyers and sellers have imperfect knowledge about the prevailing market conditions.
The characteristics of perfect competition are quite stringent. Hence the existence of this market structure is a myth.	The characteristics of this market structure are comparatively liberal. Hence can be found in the real world.

Equilibrium of firm and industry

Equilibrium

The term 'equilibrium' has been derived from the two Latin words 'acquis and 'Libra'. The word 'acquis' means equal. The 'libra' balance. Thus, equilibrium means equal balance... When a firm or industry is said to be in equilibrium when it does not intend to change the

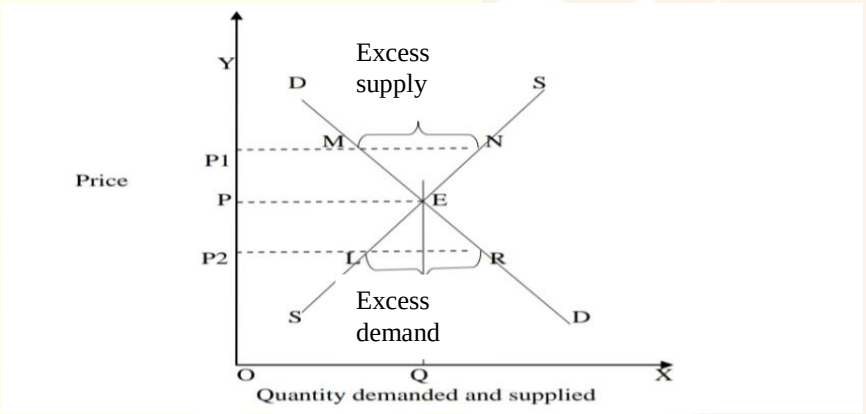
volume of output which it is producing. The firm will be in this position when it is earning maximum profit or incurring minimum loss

Firm: A firm is a business unit engaged in the production of a particular commodity for selling it at a profit.

Industry: A group or collection of all firms producing the same product is called industry.

Equilibrium of demand and supply under perfect competition

A perfect competition is a market structure where each firm is a price-taker and price is determined by the market forces of demand and supply. We know, equilibrium refers to a state of balance. It means, under perfect competition, market equilibrium is determined when market demand is equal to market supply.



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 P_1M and supply will be P_1N.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.

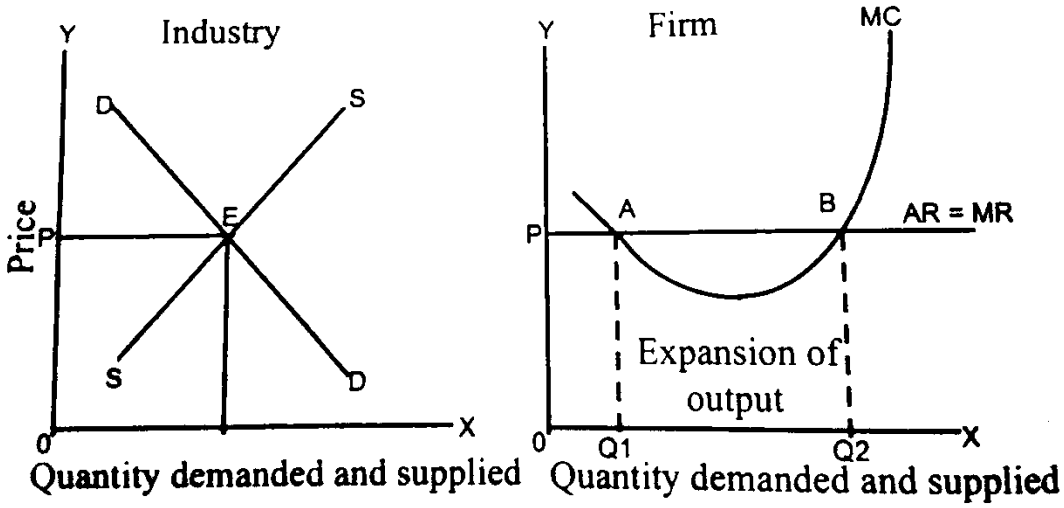
At the point of equilibrium, there are two conditions to be satisfied.

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.



In fig .1, DD and SS are industry demand and supply curves. Both these intersect at point E. Hence OP is the equilibrium price. In Fig.2 shows that the firm as a price taker accepts OP price. At point A, MC=MR but MC is cutting MR from above. Hence A is not the equilibrium position of the firm because second condition is not satisfied. The firm is in equilibrium at B, where MC = MR and MC cuts MR from below. Thus OQ is the equilibrium quantity. This level of output gives the maximum profit.

Effect of time upon supply

Market period: This may be a day or very few days. This period is so short that the supply will be limited to the existing stock. Since the supply is more or less fixed, demand alone determines the price.

The supply curve in the market period is a vertical straight line. This implies that the supply remains fixed irrespective of the changes in demand. Most of the perishable goods like milk, fish, egg, fruits etc. come under this category. The equilibrium price is that price at which the entire supply is sold. If the demand is high, price will be high. If the demand is low, the price will be low.

Short period: Short period is a period during which the supply of commodity can be changed without changing the existing plant and machinery. It has no time to change its scale of plant. Only variable production factors can be changed to bring about change in the output.

The supply curve would be moving upwards from left to right. The price of a commodity in the short period is determined by supply to a certain extent and the demand. In the short period, the commodities are durable and reproduceable. The price that is determined in the short period is known as short run normal price.

Long Period: Long period is a period during which sufficient time is available to change the fixed as well as variable production factors. Thus the output can be changed by changing all production factors. The supply can easily be adjusted to changing demand. Thus the price in the long period is determined by the forces of both demand and supply. The cost of production has a decisive role in price determination in long period. Here the supply curve would be more flatter than the short period supply curve. The price that is determined in the long period is called the long run normal price.

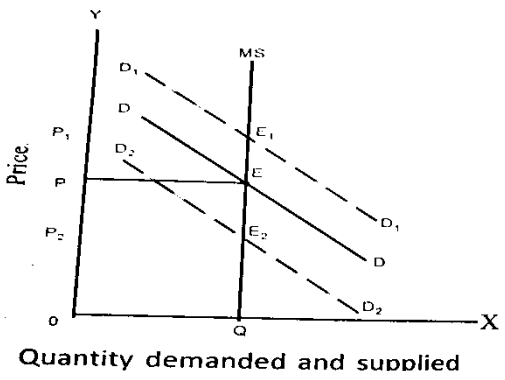
Very long period: The very long period or secular period will include all the changes in demand and supply which require a long period of time, such as changes in the size of population, supplies of raw materials, supply of capital etc. These are the structural changes.

Price determination by the industry under perfect competition

Price determination during market period

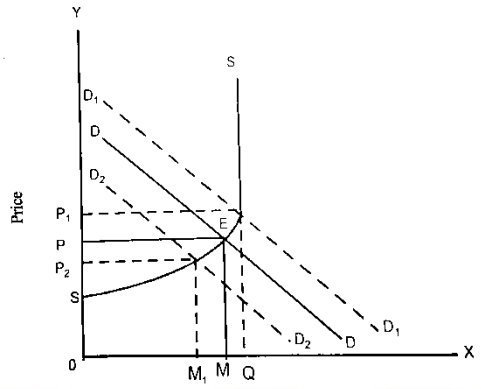
During the market period (say a single day) the supply of a commodity is fixed. In other words, the supply is perfectly inelastic. Hence price depends on the changes in demand; it does not mean that supply has no role in the price.

The role of supply depends on the nature of the commodity. If the commodity is perishable like vegetables, fruits, fish etc., it cannot stay fresh for some time. Hence its entire supply must be sold at the same time. In this case the supply curve of the commodity is a vertical line



MS is the market period supply curve. It is vertical. The vertical shape of the supply curve indicates that whatever the price is, the fixed supply is to be sold in the market. Now the price will depend on the demand curve alone. Higher the demand the more will be the price and the lower the demand, the lesser will be the price

If the commodity is durable, like wheat, car etc., it can be stored. Then the supply curve will not be a straight line. It will be curved in the beginning and it will take a straight line later,

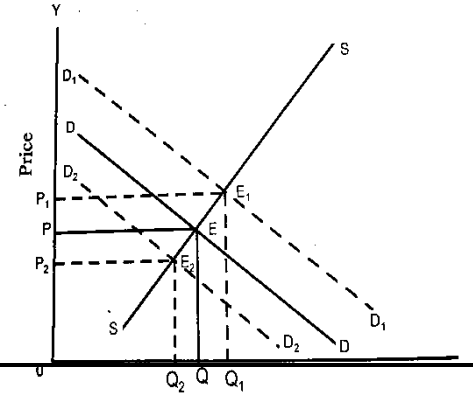


So in the very short period the price is mainly fixed by the demand. The costs of production have no influence on the determination of the price. Price and Output Determination in the Short Period

Price and output determination in the short period

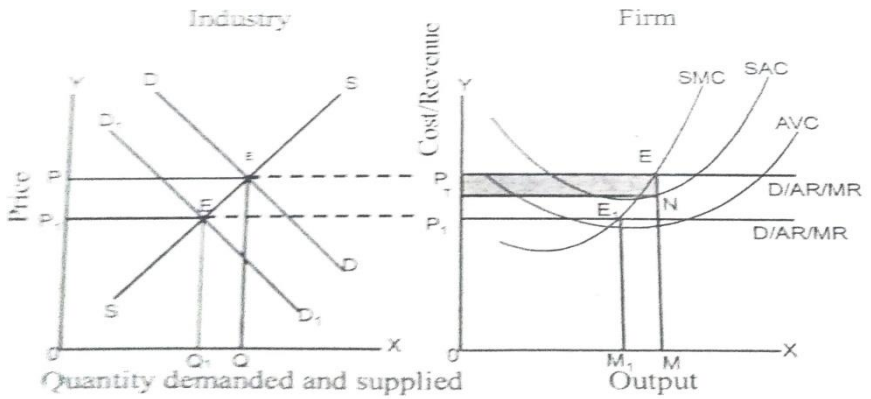
In the short period, the firm is able to change its supply, but does not have time to change its scale of plant. Hence the supply can be increased with the help of the existing plant and machinery. This means that the firm can increase the production and supply in the short period only by making intensive use of the existing plant and equipment and increasing the variable factors.

The number of firms will be fixed because new firms will not have time to enter into the industry and the existing firms have no time to leave the industry. Thus the supply can be changed to a certain extent only. The supply curve will be upward sloping (i.e., elastic). Price determined in the short period is called the short-run normal price. The short run equilibrium price is the price at which the demand and supply intersect.



The firm in the short period can produce output by increasing the units of variable factors to work on the fixed factor. The expenses incurred on the variable factor and fixed factor are called variable costs and fixed costs respectively. Accordingly, the Average Cost (Cost per unit) has two components - AFC and AVC. In the short period a firm has to incur fixed cost even if it does not produce. Hence the firm will decide to produce the output only if it is able to cover the AVC and a part of fixed cost or at least AVC. If at any level of output AR is greater than AVC, then the firm will decide to produce the output. Having decided to produce, the firm decides to produce that level of output which yields maximum profit. A firm gets maximum profit where MC=MR.

The process of the price determination by the industry and output adjustment by firm in the short run are given with following diagram:



The total maximum profit is shown by the shaded area. This is calculated as follows:

Profit per unit = AR-AC

Total profit = AR-AC x Qty

AR = EM

AC = NM

Total Qty= OM (or TN)

Profit = EM-NM×OM

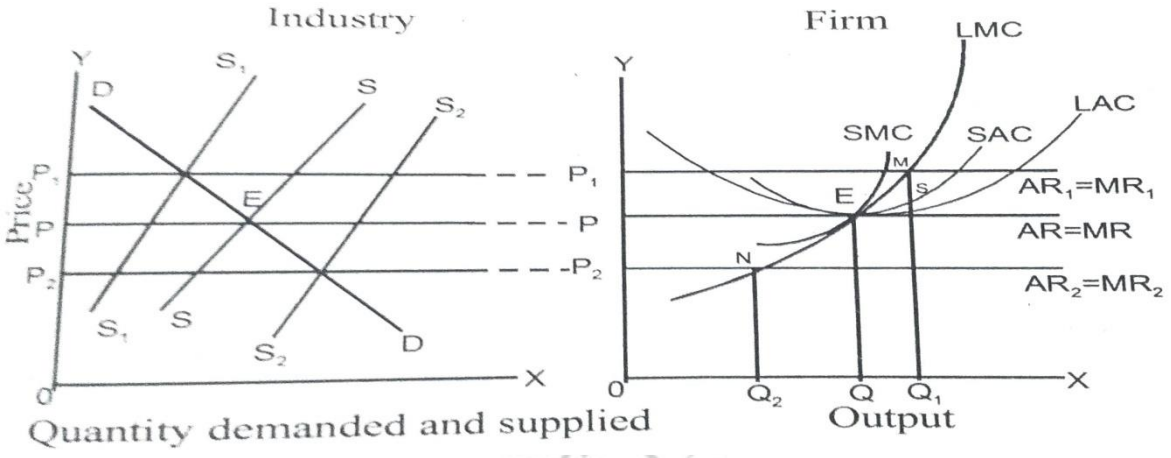
=EN ×OM.This is maximum profit

Shut down point

The point where the average variable cost is equal to average revenue is called shutdown point.if the price falls below AVC ,The firm will stop production

Price and output determination in the long period(Long run equilibrium)

During the long run, there will be sufficient time for the existing firms to expand their production by installing new plants and machineries. Some new firms may enter into market Similarly, some firms may leave the industry. If during the short period the firms have been earning super normal profit or abnormal profit (AR > AC), then in the long run new firms are attracted by the short run super normal profit to enter the industry. Due to the entry of new firms the price of production factors increases and thus cost increases. The supply also increases. Hence the price (AR) comes down. Thus in the long run super normal profit disappears. Similarly, if during the short period the firms have been incurring losses (AR <AC) then in the long run, the losing firms may leave the industry. This brings down the prices of production factors and hence costs come down. The supply also decreases. Hence the price (AR) increases. Thus in the long run the loss disappears. Hence in the long run the firms in equilibrium earn only normal profit (i.e., normal accounting profit or zero economic profit), Further, in the long run all factors are variable. Therefore, AVC is not relevant in the long period. The Long run Average Cost (LAC) and Long run Marginal Cost (LMC) are relevant in output decision making. Under perfect competition the firm is in equilibrium when AR=MR=LAC=LMC. This point of equilibrium will be established at which the firm's horizontal MR curve touches LAC curve at its minimum point. It is at this point also that LMC=LAC.



Difference between market price and normal price

Market price	Normal price
1. It is a very short period price, 2 It is influenced more by demand factors. 2. All goods have a market price. 4. A firm with a market price may earn super normal profit or incur losses. 5. Market price is a reality. 6. There will be a temporary equilibrium between demand and supply. 7. It fluctuates frequently (even daily).	It is a long period price. 2. It is influenced more by supply factors and cost of production. 3. Only reproducible goods alone have a normal price, 4. Firm with a normal price can earn only normal profit. 5. Normal price is a mirage. 6. There will be a permanent equilibrium between demand and supply 7. It is relatively stable.

Monopoly

The word monopoly comes from the two Greek words 'mono' and 'poly'. Mono means single and poly means selling. These two mean 'alone to sell. Thus monopoly is a market situation in which there is only one seller or producer of a product for which there is no close substitute.

In short, monopoly is a market in which a single seller sells a product or service which has no substitute.

Features of Monopoly

1. There is only one seller of a product.

2. The product has no close substitute.

3. The entire market is under the control of the single seller.

4. The monopolist fixes the price for the commodity. He is the price maker and not price taker

5. Other sellers or new firms cannot enter into the market easily.

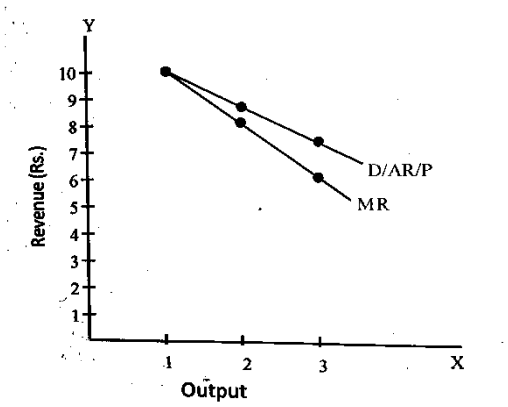
6. The firm and industry are one and the same.

Kinds of monopoly

- Natural monopoly
- Legal monopoly
- Social monopolies
- Voluntary monopolies
- Service monopoly

Monopolist's Demand, Revenue and Cost Curves

Since there is only one firm in the industry the monopoly firm constitutes the whole Industry also. Therefore, the demand curve of the monopolist would be the same as the demand curve of the industry. This demand curve is downward sloping. This is so because the monopoly firm can sell more at lower prices and less at higher prices. The demand curve is also the average revenue curve for the monopolist. When AR curve slopes downwards the MR curve also slopes downwards but it lies below the AR curve. This means the MR curve declines at a higher rate than the AR or demand curve.



It is clear from the above chart and diagram (given in the next page) that under monopoly: (a) demand, average revenue and price are one and the same. (b) AR curve and MR curve both are separate and are downward sloping, and (c) MR curve lies below AR curve (MR is less than AR)

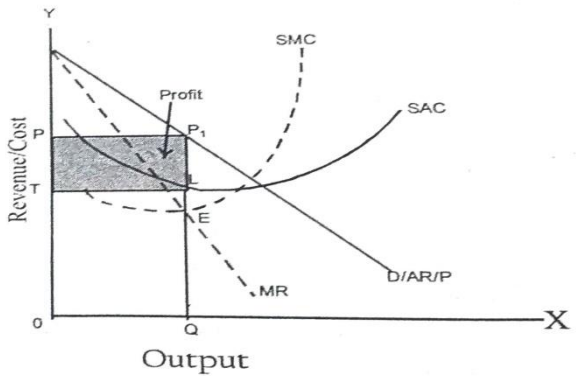
It should be noted that a monopoly has no supply curve. This is so because the quantity supplied at any one price depends on demand. Therefore the firm chooses the price quantity combination along its demand curve that maximises its profit.

The average cost curve of the monopoly firm is generally flattened U-shape as in perfect competition. This is so because the costs of production are governed by the Laws of Returns

Price and Output Determination under Monopoly

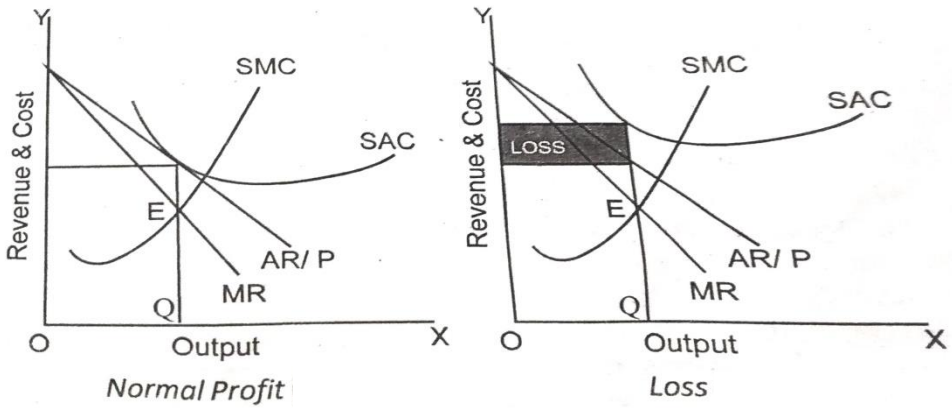
Short run Equilibrium under Monopoly

During short run a monopolist can increase his output only with the existing plant and machinery. He cannot install new machinery and expand output. The profit of the monopolist will be the maximum during short run when his MC is equal to his MR. This is the equilibrium position of the monopolist during a short period. So long his MR is higher than his MC, it is profitable for the monopolist to go on expanding his output and sales. This is because with the production of every additional unit he gets more revenue than the cost. As the monopoly firm goes on expanding the output, slowly the MC would rise, and ultimately the MC becomes equal to MR. At this point the monopoly firm should stop further expansion of output because this is the point of equilibrium of monopolist during a short period. At this point he gets maximum profit. If he expands his put further, his MC would rise more than his MR. This means the cost of producing the goods creases more than the profits derived from them, and so he incurs losses. The short run equilibrium position of the monopolist regarding his price-output is shown in the following diagram



A monopolist need not always earn super normal profit in the short run. He may make normal profit. He may even incur loss. As put by Benham "The fortunate monopolist can fix what price he chooses. But if he cannot sell enough, he doesn't gain, he loses". If the equilibrium price (AR) is above AC, the firm makes super normal profit. If the price is equal to AC, it makes normal profit. If the price is less than AC, the firm incurs loss. The aim of the

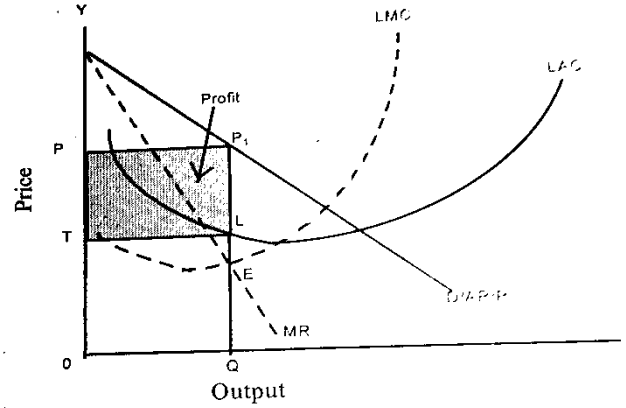
monopolist is to maximise profits or minimise losses. These situations are shown in the following diagrams:



Long run Equilibrium under Monopoly

Under the perfect competition in the long period a firm gets only normal profit because of the free entry or exit of the firms into the industry. But under monopoly entry of new firm is not possible. Therefore, the monopoly firm can easily protect its short period super normal profit in the long run. However, the long run profit will depend upon the firm's cost conditions Under perfect competition we have seen that in the long run every firm would be of optimum size where its LAC is minimum. But in the case of monopoly, the equilibrium level of output (where LMC = MR) may or may not have the lowest LAC This is because the size of market or demand may not permit to expand output to produce it at the minimum cost per unit (i.e., LAC) However, the monopolist would not stay in the business if he makes losses in the long period

Just like the short run a monopolist maximises the profit under long-run by producing and selling that output at which MR=LMC, The long run equilibrium of the firm will be at the output where the long run marginal cost curve (LMC) intersects the long run marginal revenue curve (MR). The price and output determination in the long run under monopoly (Long run equilibrium under monopoly) is illustrated in the following diagram



Arguments against monopoly (Case against monopoly)

- Monopoly promotes inefficiency
- Welfare loss in monopoly
- Monopoly results in concentration of economic power
- Monopoly retards innovation
- Unfair practices

Comparison between perfect competition and monopoly

Perfect Competition	Monopoly
1 .Many sellers	1.Single seller
2. Individual seller has no control over the market supply	2.Complete control over the market supply
3 .Product is homogeneous	3. Product has no close substitute
4. Entry is free and easy	4.Entry is blocked
5.Perfect competition	5. No competition
6.uniform price	6. Different prices in discriminating monopoly
7. Industry is composed of all the firms Producing homogeneous product.	7 Firm itself is the industry.
8. Average revenue curve is parallel to OX-Axis	8.Average revenue curve slopes downwards from left to right
9. AR and MR are equal to each other	9. MR curve is always below AR curve
10. Seller can sell any quantity of output at the prevailing price	10. Seller can sell additional units only by reducing the price
11. When the firms earn normal profits, industry attains equilibrium	11 Monopoly firm is the industry which attains equilibrium either with abnormal profit or abnormal loss
12. Firm earns abnormal profits only in the short-run	12. Firm enjoys abnormal profits in short-run and long-run
13. Firm reaches equilibrium only when MC curve cuts MR curve from below	13. Firm reaches equilibrium with increasing, decreasing or constant marginal cost curves.
14. Firm reaches equilibrium when its average cost is minimum	14. Firm reaches equilibrium even with falling average cost curve,

Monopolistic Competition

In the real world there is neither perfect competition nor pure monopoly. Both perfect competition and monopoly are purely imaginary situations. Perfect competition is a myth while monopoly is short lived. In the real world we can see a combination of monopoly and

competition. This situation is technically known as imperfect competition. There are three forms of imperfect competition-monopolistic competition, oligopoly and duopoly.

Meaning

The term monopolistic competition was coined by Prof. E. H. Chamberlin of America. Monopolistic competition refers to a market situation in which competition is imperfect. It is a market structure in which relatively many firms supply a similar but differentiated product, with ach firm having a limited degree of control over price.

Features of Monopolistic Competition

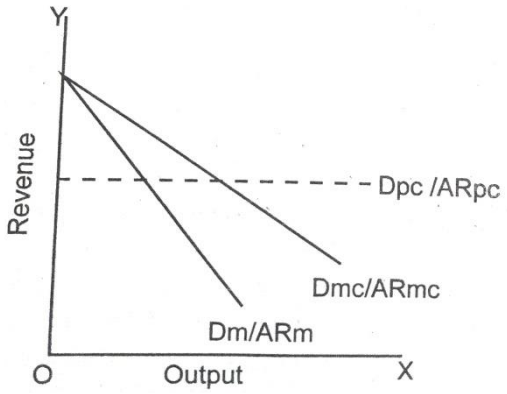
- Large number of producers
- Product differentiation
- Free entry and exit of firms
- Important role of selling costs
- No combination of all firms
- More elastic demand
- Non price competition
- Lack of perfect knowledge of the market

Difference between Imperfect Competition and Monopolistic Competition

The two terms "imperfect competition" and "monopolistic competition" are not synonymous. Hence they cannot be interchangeably used. Imperfect competition is a much wider and more comprehensive term than monopolistic competition. In fact, monopolistic competition is only one of the many subcategories of imperfect competition. Therefore, monopolistic competition cannot be equated with imperfect competition.

Demand or AR Curve under Monopolistic Competition

The demand curve or AR curve under monopolistic competition is neither horizontal nor identical to the demand curve as in the case of monopoly. It stands a midway between these. This implies that the demand curve under monopolistic competition is flatter than that under monopoly.



The reasons for this are:

(a) There are fewer firms than in perfect competition (there are a large number of firms under perfect competition and only one firm under monopoly)

(b) The products are not homogeneous but differentiated and hence firms enjoy some monopoly

(c) There is some degree of competition because the products are close substitutes. Thus the demand or AR curve is downward sloping.

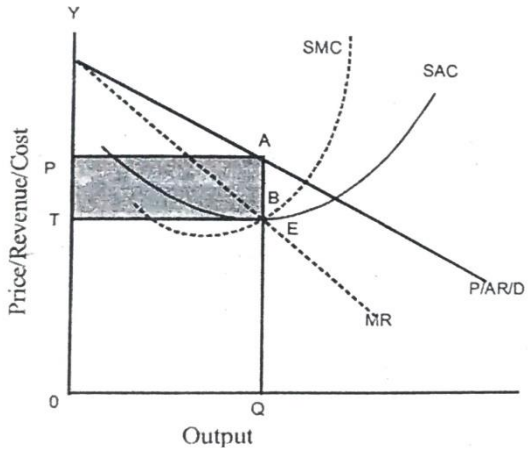
Price-Output Determination under Monopolistic Competition

Short-Run Equilibrium of a Firm Short period equilibrium of a firm under monopolistic competition is very similar to that of a monopolist. Here the firm produces a differentiated product and enjoys some degree of monopoly power. In short period, the firm does not have time to change its scale of plant and no new firm will enter the market. Therefore, in short run there may be three possibilities:

(1) Firm may get super normal (abnormal) profit,
(2) Firm may get normal or zero profit
(3) Firm may incur loss.

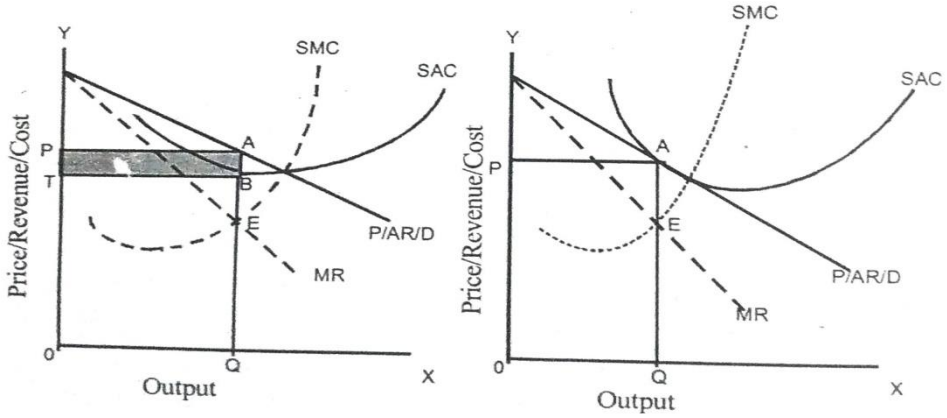
Possibility of Super normal profit:

In short run a firm may be in a position to get abnormal profit. It may get abnormal profit only when the demand is very high and there is no close substitute of its product. Under these circumstances, the firm can fix high price for its product and can get super normal profit. This is possible only in short period. This is because in short run no new firm can enter into market. In order to maximise its profit the firm will produce that level of output at which the MC=MR.



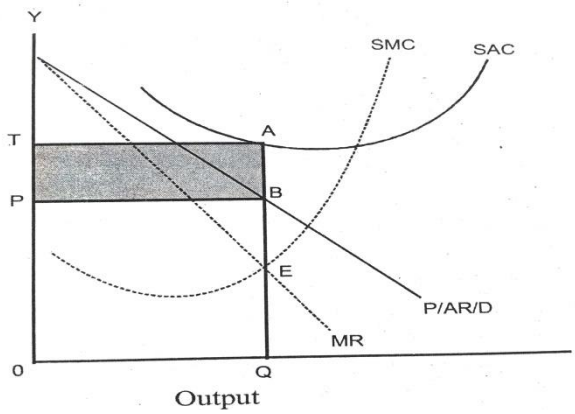
Possibility of normal profit or zero profit:

When demand of the product is not very high, the firm gets only normal profit or zero profit. Firms get normal profit when AR is slightly more than AC It gets zero profit when AR and AC are equal.



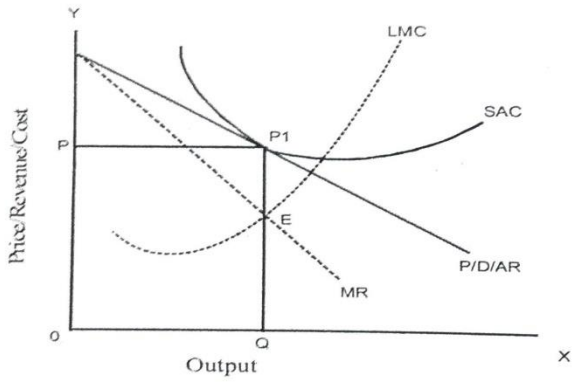
Possibility of loss:

In the short run a firm may incur loss also. It happens when the demand is very low. Due to low demand, the firm has to sell at a price less than its cost. In this case AR is less than AC.



Long run Equilibrium under Monopolistic Competition

Long term is the period in which a firm can adjust supply of its product according to its demand. In the long period all factors of production are variable. Therefore, the firm can change its size of plant to any extent. In the short period some firms under monopolistic competition may be making supernormal profits. Seeing these new firms may enter into the market in the long run. As a result of the entry of the new firms, the demand for products of the existing firms will come down slowly. Production and supply will increase. Consequently price will decrease. Therefore, in the long run the supernormal profit disappears. If a firm is suffering loss in the short period, some firms will leave the industry. As a result, the demand for products of the existing firm will increase. The production and supply will decrease. Consequently the price increases to the level of AC or slightly above the AC. Now the firm will pet normal profit. Thus it is clear that in long run, all the firms get normal profit. The free entry and exit drive to normal profit or zero economic profit. The long run equilibrium of the firm under monopolistic competition will be at level where the MR=MC and AR= AC (under short nun equilibrium MR = MC and AR may not be equal to AC).



Wastes of monopolistic competition (Evils)

- Unused capacity
- Waste of advertisement
- Unemployment
- Inefficiency
- Consumers are hypnotised

Difference between Monopoly and Monopolistic Competition

1. Under monopoly there is only one producer or seller of particular commodity. But under monopolistic competition there are large numbers of sellers

2. Under monopoly, the question of product differentiation does not arise. Under monopolistic competition, the producers make product differentiation

3. Under monopoly, there is no competition, but under monopolistic competition, there some degree of competition.

4. Under monopoly new firms cannot enter into market easily, while under monopolistic competition, new firms can enter into the market and existing firms can leave the market.

5 Under monopoly, the demand of the product is less elastic because there is no close substitute. Under monopolistic competition, demand of the product is elastic because there are some close substitutes.

6 Under monopoly, selling costs have no role to play. On the other hand, under monopolistic competition, selling costs have an important role.

Comparison between Perfect Competition and Monopolistic Competition

Similarities

1. In both markets each firm acts independently, without regard to the responses of its competitors.

2. In both market situations, free entry guarantees that firms earn normal profit in long run equilibrium

Differences

1. Under perfect competition products are identical. But under monopolistic competition product are differentiated.

2. Perfect competition is not a real concept. Monopolistic competition is a real concept.

3 Under perfect competition, there are large number of buyers and sellers. But under Monopolistic competition the number of buyers and sellers is not so large.

4 Under perfect competition, buyers and sellers have perfect knowledge of market conditions. But under Monopolistic competition the buyers and sellers do not have complete knowledge about the products.

5 Under perfect competition, selling costs do not play any role. Under Monopolistic competition, selling costs have an important role.

6. All perfectly competitive firms are price takers. But all firms under Monopolistic competition are price makers.

7. Under perfect competition demand curve is horizontal. But under Monopolistic competition the demand curve is a sloping down ward curve.

8. Under perfect competition, AR and MR are straight lines parallel to X axis. Price, demand, AR and MR all are same. Under Monopolistic competition Price, Demand, and AR age same. But MR is less than AR

Oligopoly

The term 'Oligopoly' is derived from two Greek words, 'oligoi' which means a few and 'pollein" which means to sell. Thus oligopoly is a market situation in which there are only few sellers producing homogeneous or differentiated products. It is a competition among the few because only a few big firms will be producing and competing in the market.

Features of Oligopoly

- Few Sellers
- Homogeneous or differentiated product
- Interdependence of firms
- Price rigidity
- Element of monopoly
- Excessive expenditure on advertisement
- Uncertainty of demand curve

Classification of Oligopoly

1.On the Basis of Product Differentiation

(a) Pure or perfect oligopoly: When all firms of an industry produce and sell identical or homogeneous product, it is called pure or perfect oligopoly

(b) Differentiated or imperfect oligopoly: When all the firms of an industry produce and sell differentiated products or close substitutes for each other (but not perfect substitutes), it is called differentiated or imperfect oligopoly.

2 .On the Basis of Entry of Firms

(a) Open oligopoly: In the case of open oligopoly, the firms are free to come into the market and go out of the market.

(b) Closed oligopoly: This is the market situation where new firms are not allowed to enter the industry

3. On the Basis of Price leadership

(a) Partial oligopoly: Partial oligopoly refers to that market situation where the industry is dominated by one big firm (known as the leader) and the other firms (known as the followers) of the industry follow the price policy determined by leader

(b) Full oligopoly: Full oligopoly refers to that market situation where there is no leader and no followers. Here price leadership is absent.

4.On the Basis of Agreement

(a) Collusive oligopoly: It is the market situation where the firms belonging to an industry follow a common policy of pricing. In other words, they combine together to avoid competition among themselves regarding the price and output of the industry by means of an agreement.

(b) Non-Collusive oligopoly: Under this market situation there is no agreement among the firms regarding the price and output of the entire market.

Price determination under oligopoly

1. Independent pricing

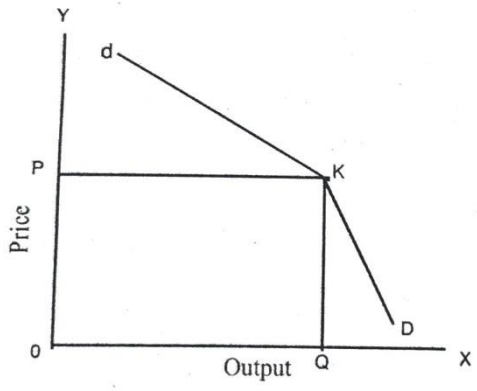
2. Pricing under-price leadership, and

3. Pricing under collusion

Price - Output Determination under Independent Pricing (Kinked Demand Model or Price Rigidity Model)

Under Independent pricing an oligopoly firm faces a kinked demand curve. The kinked demand curve model was first developed by Prof. Paul. M Sweezy in 1939 to explain price rigidity under oligopoly. An oligopolist does not know how his competitors will react. Hence he has to make guess. An oligopolist may assume that the price cut by him will be followed by a price cut by the rival firms, but the price rise by him will not be followed by a price rise by the rival firms. This hypothesis is the basis of 'kinked demand curve. Thus the assumption behind the kinked demand curve is that each oligopolist will act and react in a way that keeps conditions tolerable for all members of the industry. Such a situation is most likely to occur when products are quite similar and therefore their prices also similar. If one firm cuts the price of its product. other firms in the industry are compelled to reduce their prices to match the firm's prices. On the other hand, if one firm increases the price, the competitors do not increase their prices. So in the first situation (price reduction) the firm does not gain while in the second situation (price rise) the firm loses its customer to its rivals and thus sales decline. So firms in oligopoly do not increase the prices due to the possibility of losing customers to rivals who do not raise their prices. Firms do not cut their prices because they fear a price war. So prices in oligopoly tend to be sticky or rigid. Firms usually do not change their price in response to small changes in costs

In oligopoly under independent pricing, the demand curve will be kinked one. Kink means 'segmented'. The demand curve will be segmented at the prevailing price level. The kinked demand curve has two segments - (i) the relatively elastic portion of the demand curve, and (1) the relatively inelastic portion of the demand curve.



A kinked demand curve with a link at point K .The prevailing price is OP (or QK) and the firm is producing and selling OQ output. Here dK is the relatively elastic segment of the

demand curve and KD is the relatively inelastic segment of the demand curve. This difference in the elasticities is due to the particular competitive reaction pattern assumed by the kinky demand curve hypothesis.

Reasons for Price Rigidity

1. The firm fears a price war.

2 Frequent changes in prices may irritate the consumers.

3. The firm may be satisfied with the present level of price, output and profit

4. The present price may have been established after a prolonged period of price war or collusion

5. Instead of cutting prices, firm with falling demand may intensify the sales promotion activities to increase demand.

6. The firm may not like the unnecessary inconvenience of new price lists

Pricing under Price Leadership

Constant price war and instability will result in price leadership. Under price leadership, price will be determined by a leading firm (dominant firm) and the other firms will follow the same price. Thus under price leadership price is determined by leader firm (large firm) and all other firms of the industry follow this price. The leader firm is a price maker and the other firms are price takers. The firm which acts as the leader firm is one which is either a low-cost firm, dominant firm our experienced and respected firm.

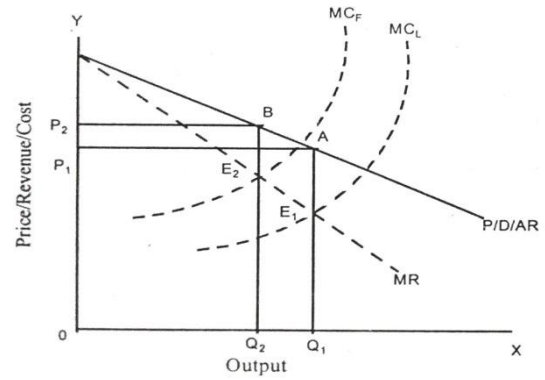
Types of Price Leadership

- Dominant price leadership
- Barometric price leadership
- Aggressive price leadership

Price-Output Determination under Price Leadership

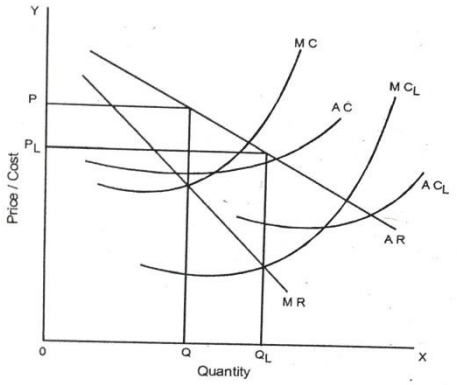
(a) Price Leadership by a Dominant Firm

Price-output determination is generally explained in terms of dominant price leadership We assume that there are two firms -Land F Cost of production of L is less than that of F. We also assume that both the firms are producing identical products.



(b)Price Leadership by Low Cost Firm

Sometimes a firm with low cost (barometric price leadership) acts as a price leader. It will fix the price and all other firms in the industry accept that price.



Necessary Conditions of Price Leadership

1. Price leader must be very efficient, so that he can study and analyse the market conditions and can forecast the demand of product. He must know the reactions of his competitors

2. Price should be determined at the level of monopoly. For this purpose, the leader firm must know the total demand and supply of the industry.

3 .The price determined by the leader firm must be followed by all the follower firms-with loyalty and honesty.

4. Price leader should not change the price again and again. It causes difficulty for the follower firms to adjust their price. Price should be changed only when there is a change in cost or demand.

5. The leader should determine the price only after taking into consideration the opinions and suggestions of his followers.

6. The price leader should avoid price reduction as far as possible. If he does so, he may& lose the faith of his followers.

Advantages of Price Leadership

1. It eliminates uncertainty
2. It also eliminates price war
3. It eliminates competition and develops co-operation
4. It gives protection to small firms which lack knowledge in costing principles
5. It is a very easy method of pricing
6. It brings uniformity in pricing

Module 5

Business Cycle

Meaning and definition of Business cycle

Business cycles refer to recurring ups and downs in the level of economic activity over several years.

According to wesley mitchell (a noted american authority on business cycles), "business cycles are a species of fluctuations in the economic activities of organised communities".

Prof. Haberler defined business cycles as, "an alternation of periods of prosperity and depression, of good and bad trade".

Characteristics of business cycles

1. A business cycle is a wave-like movement. It is characterised by alternation of expansion (prosperity) and contraction (depression) in economic activity.

2. Trade cycles are repetitive and rhythmic. The period of prosperity is followed by depression and which again is followed by a period of prosperity. Thus the economy moves from one extreme to another, almost like a pendulum.

3. A business cycle is an economy wide phenomenon. To start with, it may set in industrial sector. But once having started, it soon spreads to other sectors of the economy like agriculture, trade and transport etc.

4. Business cycles are self-reinforcing. Once the cyclical movement starts in any one direction (either prosperity or depression), it tends to feed on itself.

5. The business cycles differ in time. While some last for 2 to 4 years, others last for 8 to 10 years or even more. While the upward swing in some cycles is longer than the downward swing, the reverse is the case in some others.

6. In business cycles prices and production generally rise or fall together. Profits fluctuating more than the other incomes.

7. The business cycles are more marked in capital goods industries than in consumer goods industries.

8. The downward movement is more sudden and violent than the change from downward to upward.

9. Different trade cycles are similar but not identical in their nature. Prof. Pigou pointed out that all recorded trade cycles are the members of the same family but among them there are no twins.

10. The prosperity phase takes double the time taken by the depression phase.

11. Prof. Samuelson observes that "no two business cycles are quite the same yet they recognisable as belonging to the same family".

Types of Business Cycle

Prof .james Arthur classified Business Cycles as follows

- Major and minor trade cycles
- Building Cycles
- Long Waves

Prof .Simon Kuznets propounded new type of Business cycle

- Kuznets Cycle

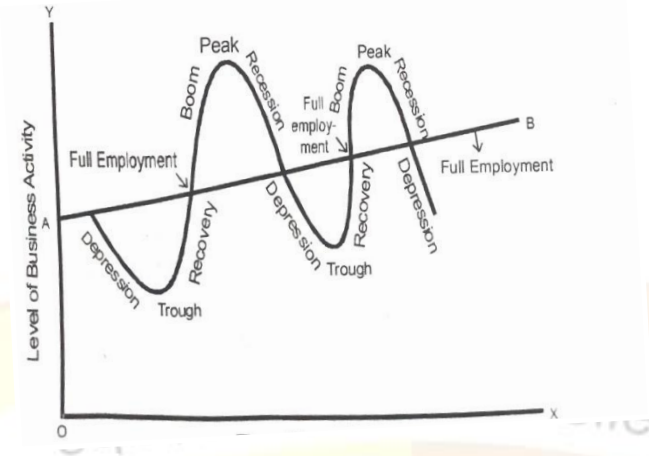
Schumpeter distinguished 3 types of trade cycle as follows

- Short kitchin Cycle
- Longer juglar Cycle
- Very Long Kondratief Cycle

Phases or Stages of a Business Cycle

- Depression
- Recovery or Revival
- Prosperity or Full employment
- Boom
- Recession

The different phases of business cycle are shown in the following diagram



Evil Effects of the Upswing of the trade cycle (Recovery, Expansion and Boom):

1. The demand for factor inputs increases. This leads to rise in their prices. Hence cost of production rapidly goes up. It may sometimes lead to cancellation of orders by the buyers. This forces the firm to increase their prices unwillingly.

2. Competition in the market becomes severe and it becomes difficult for a firm to stabilise their prices.

3. Production cost sharply rises, earnings slowly rise and the creditors demand early settlement of their accounts.

4. If business expansion and prosperity is purely temporary, the heavy investment may not bring even the normal returns and it may become a heavy burden for a firm.

Evil Effects of the Lower Turning Point (Recession and Contraction):

1. The inventory gets accumulated. The value of stock declines.

2. Market prices fall. Cost of production is high.

3. The sellers are forced to sell their products at lower prices. This will reduce their profits.

4. It becomes very difficult to maintain a balance between costs and prices.

5. Firms may be forced to reduce output, retrench workers and purchase a smaller amount of raw material. But fixed costs cannot be reduced. Thus the firms suffer losses.

6. The small units suffer much greater than the big units in all aspects. They have to wind up their business because they cannot continue to operate at loss and their risk bearing capacity is low.

Measures to Control the Effects of Business Cycle

Preventive measures

1. Agriculture should not depend upon rainfall. Adequate irrigation facilities should be developed.

2. Inequalities in the distribution of income and wealth should be reduced to minimum.

3. Speculative trend should be checked.

4. All the efforts should be made to maintain proper balance between demand and supply.

5. All business and industrial activities should be strictly controlled.

At the firm level, the following measures should be adopted by a business enterprise:

1. Avoid undue increase in plant and equipment and in dividend.

2. Manage the plant in such a way as to avoid decrease in unit production, avoid increase in unit overhead and maintain satisfactory labour conditions.

3. Avoid excessive inventories.

4. Avoid purchase commitments in excess of financial resources.

5. Avoid excessive sales which result in cancellations.

6. Avoid over investment, over production and expansion.

7 Prevent temporary diversification programmes.

Formal measures

- Monetary policy
- Fiscal policy

  The following are the measures adopted through fiscal policy:

  - ❖ During the period of depression, deficit financing should be adopted.
  - ❖ During the period of inflation, budget deficit should be limited.
  - ❖ During period of depression there should be maximum burden of taxation on consumers.The distribution of income should be in the favour of poor class.
  - ❖ During the period of inflation, new taxes should be imposed and existing tax concessions should be withdrawn.

- ❖ During the period of depression public expenditure should be increased so that effective Demand may increases. It should be curtailed during the inflationary period
- ❖ During the period of depression, public debt should be repaid, while maximum public debt should be collected during the period of inflation.

- Unemployment insurance
- Price control
- Price support policy

Business and Economic Forecasting

Meaning of Forecasting

Forecasting means to know beforehand. It is to know something about the future. It is an estimation of future activities. It is the process of making assumptions about what will happen in the future. Forecasting is sometimes referred to as predicting future events.

Types of Forecasting

Economic Forecasting: Economic forecasting relates to forecasting of general business and economic conditions such as national income, total industrial production, import and export etc

Business Forecasting: Business forecasting relates to forecasting of the activities of a business enterprise such as sales, raw materials, labour, expansion or contraction of plant, finance and investment.

Uses/Objectives/Importance of Economic and Business Forecasting

1. On the basis of economic and business forecasting, total sales for an industry can be easily forecasted. On this basis a firm can forecast its future sales.

2. Economic forecasts help in the arrangement of raw materials in adequate quantity and at proper time. These forecasts help in determining sales and production for a future period.

3. Economic forecasts help a firm in the arrangement of adequate labour, both quantitatively and qualitatively. Forecasts of sales and production help the firm in estimating the requirements of labour for a future period.

4. Economic forecasts help in estimating the amount of credit that may be collected by a firm during a future period from banks, financial institutions and other sources. A firm can easily prepare plans for capital expansion on the basis of these forecasts.

5. Economic forecasting helps to determine price trends. On the basis of forecasts of price trends, a firm can determine its investment and inventory policies.

6 Economic forecasts are useful for estimating the amount of sales and production for a future period. On the basis of these estimates, a firm can prepare plan for the expansion or contraction of its production capacity.

7. Economic forecasts give warning regarding major and minor cyclical changes in the overall business activity. This would help in making money during prosperity and avoiding losses during depression. In short, the intensity of business cycle can be reduced by better forecasting

8 .Economic forecasting helps in stabilising production, controlling inventories, proper budgeting and efficient working. Thus, it helps in better overall management of a business.

Methods or Techniques of Economic Forecasting

1. Naive Method: This is one of the oldest and crudest methods of forecasting business situation. This method is not based on any scientific approach. Projections are made purely by guesswork and sometimes by mechanical interpretation of historical data.

Advantages of Naive Method

(a) It is a simple method.

(b) It is less costly

(c) It is suitable for small firms

Disadvantages of Naive Method

(a) It is not a scientific method

(b) It is not always reliable

2.Survey Techniques: One of the simplest forecasting devices is to survey business firms or individuals and to determine what they believe will occur. Under survey techniques, interviews and mailed questionnaires are used as forecasting tools.

Advantages of Survey Techniques

(a) These methods are simple and less costly.

(b) These techniques provide substantial amount of qualitative information that may be useful in economic and business forecasting

(c) These techniques are usually used to supplement other quantitative forecasting methods

Disadvantages of Survey Techniques

(a) Different firms and individuals may give different opinions. That is, opinions differ greatly.

(b) These methods are not useful for long term forecasts.

(c) Individuals and firms may not give complete information. Then these techniques will not be reliable.

3. Expert Opinion Method: Like survey techniques, this method is a qualitative technique. Under this method an expert or informed individual uses personal or organisational experience as a basis for developing future expectations. When the opinion of several experts is sought, the approach is called forecasting through panel consensus.

Advantages of Expert Opinion Method

(a) The reasoned judgement of experts often provides valuable insight.

(b) Forecasts can be made quickly.

(c) This method is suitable for new products.

Disadvantages of Experts Opinion Method

(a) This approach is subjective. Hence, it is not reliable

(b) This method is expensive.

4. Trend Projection Method: This is one of the commonly used forecasting techniques. This method is based on the assumption that economic performance follows an established pattern and historical data can be used to predict future business activity. Under trend projection method, actual data are presented on a graph paper and forecasts for the future are prepared on the basis of analysis of trend of these data.

Advantages of Trend Projection Method

(a) This method reveals direction and trend of data.

(b) It is a simple technique.

(c) It is less expensive.

(d) It is scientific and hence reliable.

Disadvantages of Trend Projection Method

(a) When there are sudden fluctuations in data, this method is not suitable

(b) It requires considerable technical skill and experience.

5. Smoothing Techniques (Exponential Smoothing): Smoothing techniques are another form of time series forecasting models. These models assume that an underlying pattern (historical or established pattern) can be found in the historical values of a variable that is being forecast. These techniques are based on a smoothed average of several past observations.

Advantages of Smoothing Techniques

(a) These are cheap to develop and inexpensive to operate.

(b) More recent data are given greater weight in analysing time series data.

(c) It is easy to update the forecasts when additional observations are available.

Disadvantages of Smoothing Techniques

(a) If there is a significant trend in the data, the methods do not provide accurate forecasts.

(b) These involve complicated calculations.

6. Barometric Techniques: Trend projection and smoothing techniques use time series data to predict the future on the basis of past relationships. But if there is no clear pattern in a time series, the data are of little value for forecasting. In such situations, barometric techniques can be used. Barometric techniques are based on the fact that the future can be predicted on the basis of present events or developments. Here certain economic and statistical indicators from the selected time series are used to predict variables.

Advantages of Barometric Method

(a) It is a scientific method of forecasting.

(b) It is possible to predict the direction of future change in economic activity.

(c) It is a simple technique. The value of independent variable (i.e., leading indicator) is exactly known.

Disadvantages of Barometric Method

(a) It is not possible to find a leading indicator for the variable under forecast.

(b) For some of the indicators, it is more difficult to explain the correlation between two series

(c) The economic indicators reveal only a little or nothing about the magnitude of the changes,

7. Econometric Methods: Another tool of economic forecasting is econometric methods. The word econometrics is a combination of two words-'econo' and 'metrics'. Therefore, econometrics means measurement of economic variables. Econometric methods combine economic theory, statistical tools and mathematical model building to analyse economic relations. These methods take into account past economic activity and predict future by using both mathematical and statistical techniques. Under this method simultaneous equations are developed.

Advantages of Econometrics Methods

(a) These methods are more reliable.

(b) It is possible to compare forecasts with actual results. The model can be modified to improve future forecasts.

(c) These methods indicate both direction and magnitude of change in the variables.

(d) These have the ability to explain economic phenomena.

(e) The management can assess quantitatively the impact of changes in its policies.

The main **disadvantage** of econometric method is that this method involves complicated calculations.

9. Input - Output Table Method: This is another approach of economic forecasting. This method enables the forecaster to trace the effects of an increase in demand for one product to other industries.

Selection of a Forecasting Technique (Criteria used in the Selection of a Forecasting Technique).

1. The cost associated with developing the forecasting method should be compared with potential gains resulting from its use.
2. The time period of the forecast (long term or short term).
3. The accuracy required of the model
4. The complexity of the relationships that are being forecast.
5. The amount of relevant historical data that is readily available.

After considering the above factors, the firm can select the best method of forecasting. The best method is one which has the following essentials

1. The method should be accurate and reliable
2. The method should be simple and easy to operate.
3. The data should be quickly and easily available.
4. The forecast should hold good over a considerable period of time.
5. The method should less costly

Evaluation of the Accuracy of Forecasting Methods

- Regression co-efficient
- Correlation analysis
- Sample mean forecast error analysis