



**SYLLABUS**

**Class: - B.com ( Hons) I Year**

**Subject: - Managerial Economics**

	Scope of Managerial Economics, Profit Maximization, Decision Making, Marginal Analysis, Demand, Types of Demand
<b>UNIT II</b>	Production function: Types of production function- one variable two variables, Law of return and return to scales, law of variable proportion, isoquant curves and economies of scales.
<b>UNIT III</b>	Market Structure- Price and Output decision under different Market Structures, Price Discrimination, Non- price Competition, Price Determination under Perfect and Monopolistic Market
	Factor Pricing, Rent, Wage, Margin
	91 Privatization, Privatization



## UNIT-II

### PRODUCTION FUNCTION

- 1) Production is the process of conversion of inputs into outputs.
- 2) It is the creation of utility and addition of value
- 3) Production function is the relationship between inputs & output of a commodity
- 4) The mathematical expression of production function is -  
$$Q_x = f(x_1, x_2, x_3, \dots, x_n)$$

$Q_x \rightarrow$  Output of commodity X.  
f = Function of  
 $x_1, x_2, x_3, \dots, x_n \rightarrow$  Inputs
- 5) The inputs/resources used for production are called factors of production. These are namely land, labour, capital & entrepreneur.

#### Attributes of production function

1. It indicates a functional relationship between physical inputs and physical outputs. For example, if we have two factors, say, labour (L) and capital (K) then the production function  $Q = f(L, K)$
2. The production function is always in relation to a period of time. It denotes the flow of inputs resulting in a flow of outputs during a particular period of time. This is due to the fact when the firm wants to increase the production, it can either employ "some factors" additionally or increase "all the factors" in accordance with availability of the time period. Later we will study it as short period and long period.
3. The production function can specify either the maximum quantity of output that can be produced by a given set of input or the minimum quantity of inputs required for producing certain level of output.
4. The quantity of inputs is dependent upon the state of technology available and firm's managerial ability to use them. In order to simplify things the state of technology is considered to be given.
5. Production function takes into account the most efficient technology and methodology available at a time.
6. Production function is purely a technology relationship between input and output. It has nothing to do with the nominal relationship between input and output. It has nothing to do with the nominal price of factors; or value of quantity produced by them.

#### Fixed factors & variable factors:

##### 1) Fixed Factor (FF)

- a. Fixed factors refer to those factors of production which cannot be changed during short run.
- b. These are used in a fixed quantity in the short run.
- c. These factors can be changed only in the long run.
- d. Example-land, plant and machinery, factory building etc.

##### 2) Variable Factor (VF)



- a. Variable factor refer to those factors of production which can be changed during short period.
- b. The quantity of variable inputs varies according to the level of output.
- c. Example-labour, raw material etc.

### Time Element in Production Function

#### Short Run and Long Run

**Short Run:** Short refer to a period of time in which a firm cannot change its fixed factors of production only variable factors can be changed.

**Long Run:** Long run refers to a time period during which a firm can change all the factors of production. In the long run, all inputs are variable. Therefore the distinction between fixed factors and variable factors will disappear.

#### Basic Concepts of Production

**1. Total product or Total physical product (TP or TPP)**

Total product refers to the total volume of a commodity produced by a firm with given inputs during a given period.

**2. Average product or Average physical product (AP or APP)**

Average product is per unit product of a variable input

It is obtained by dividing the total product (TP) by the units of a variable factor.

Symbolically,  $AP = \frac{TP}{L}$

**3. Marginal product or Marginal physical product (MP or MPP)**



Marginal product is an addition to the total product when an additional unit of variable factor (labour) is employed.

### Law of Variable Proportions

The Law of Variable Proportions (also called as returns to factor or Laws of Returns) is discussed under the situation of having one factor variable and another factor being used in fixed quantity if there are only two factors of production. This alters the proportions between factors; therefore, it is called as Law of Variable Proportions. The law is applicable for short run. Here  $Q=f(L)$ .

The law can be explained with the help of below table:

Units of Capital (K)	Units of Labour (L)	TP (Units) (Q)	AP ( $\frac{Q}{L}$ )	MP ( $\frac{\Delta Q}{\Delta L}$ )	
1	0	0	0	0	
1	1	70	70	70	Stage I
1	2	160	80	90	
1	3	270	90	110	
1	4	360	90	90	
1	5	430	86	70	Stage II
1	6	498	83	68	
1	7	546	78	48	
1	8	546	68.25	0	
1	9	522	58	-24	Stage III
1	10	470	47	-52	

#### First Stage- Stage of Increasing Returns

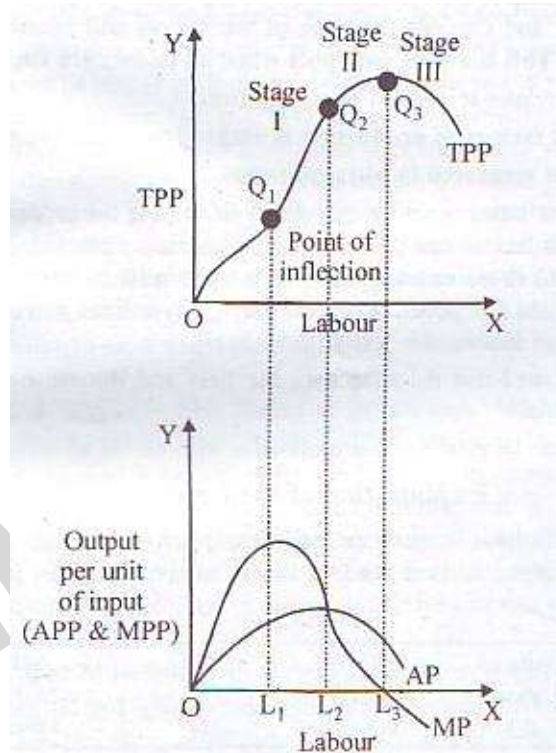
- In this stage as the input of variable factor (labour) increases, marginal product (MP) tends to increase and total product (TP) increases at increasing rate because there is underutilization of the fixed input
- MP also tends to rise along with AP.

#### Second Stage- Stage of Diminishing Returns

- In this stage, increase in the input of variable factor (Labour) is followed by a decrease in MP but it remains positive and TP increases at decreasing rate because there is pressure on fixed input.

#### Third Stage- Stage of Negative Returns

- In this stage, increase in the units of variable factor (labour) renders MP negative and TP starts declining because there is too much of variable input in relation to the fixed input.

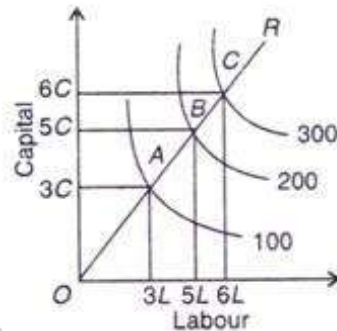


### THE LAWS OF RETURNS TO SCALE: PRODUCTION FUNCTION WITH TWO VARIABLE INPUTS

The laws of returns to scale refer to the effects of a change in the scale of factors (inputs) upon output in the long run when the combinations of factors are changed in the same proportion. If by increasing two factors, say labour and capital, in the same proportion, output increases in exactly the same proportion, there are constant returns to scale. If in order to secure equal increases in output, both factors are increased in larger proportionate units, there are decreasing returns to scale. If in order to get equal increases in output, both factors are increased in smaller proportionate units, there are increasing returns to scale.

#### Increasing Returns to Scale:

Below figure shows the case of increasing returns to scale where to get equal increases in output, lesser proportionate increases in both factors, labour and capital, are required.



**It follows that in the figure:**

100 units of output require  $3C + 3L$

200 units of output require  $5C + 5L$

300 units of output require  $6C + 6L$

So that along the expansion path OR,  $OA > AB > BC$ . In this case, the production function is homogeneous of degree greater than one. The increasing returns to scale are attributed to the existence of indivisibilities in machines, management, labour, finance, etc. Some items of equipment or some activities have a minimum size and cannot be divided into smaller units. When a business unit expands, the returns to scale increase because the indivisible factors are employed to their full capacity.

Increasing returns to scale also result from specialisation and division of labour. When the scale of the firm expands there is wide scope for specialisation and division of labour. Work can be divided into small tasks and workers can be concentrated to narrower range of processes. For this, specialized equipment can be installed.

**Thus with specialization efficiency increases and increasing returns to scale follow:**

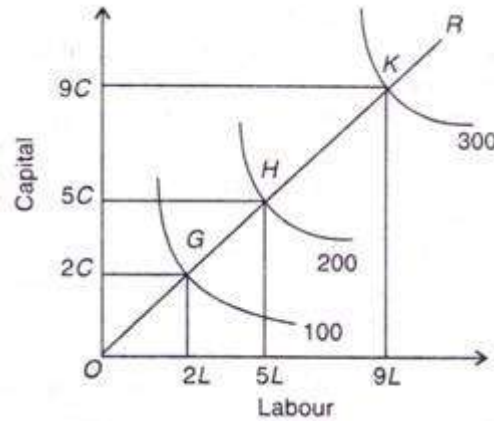
Further, as the firm expands, it enjoys internal economies of production. It may be able to install better machines, sell its products more easily, borrow money cheaply, procure the services of more efficient manager and workers, etc. All these economies help in increasing the returns to scale more than proportionately.

Not only this, a firm also enjoys increasing returns to scale due to external economies. When the industry itself expands to meet the increased long-run demand for its product, external economies appear which are shared by all the firms in the industry. When a large number of firms are concentrated at one place, skilled labour, credit and transport facilities are easily available.

Subsidiary industries crop up to help the main industry. Trade journals, research and training centres appear which help in increasing the productive efficiency of the firms. Thus these external economies are also the cause of increasing returns to scale.

**Decreasing Returns to Scale:**

Below Figure shows the case of decreasing returns where to get equal increases in output, larger proportionate increases in both labour and capital are required.



**It follows that:**

100 units of output require  $2C + 2L$

200 units of output require  $5C + 5L$

300 units of output require  $9C + 9L$

So that along the expansion path  $OR$ ,  $OG < GH < HK$ .

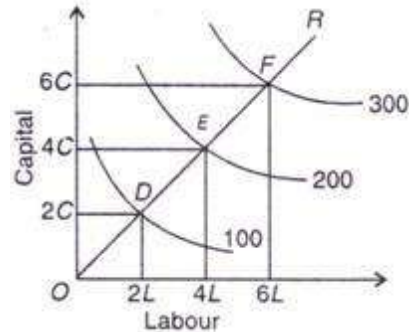
In this case, the production function is homogeneous of degree less than one. Returns to scale may start diminishing due to the following factors. Indivisible factors may become inefficient and less productive. Business may become unwieldy and produce problems of supervision and coordination.

Large management creates difficulties of control and rigidities. To these internal diseconomies are added external diseconomies of scale. These arise from higher factor prices or from diminishing productivities of the factors. As the industry continues to expand the demand for skilled labour, land, capital, etc. rises.

There being perfect competition, intensive bidding raises wages, rent and interest. Prices of raw materials also go up. Transport and marketing difficulties emerge. All these factors tend to raise costs and the expansion of the firms leads to diminishing returns to scale so that doubling the scale would not lead to doubling the output.

**Constant Returns to Scale:**

Below Figure shows the case of constant returns to scale. Where the distance between the isoquants 100, 200 and 300 along the expansion path  $OR$  is the same, i.e.,  $OD = DE = EF$ . It means that if units of both factors, labour and capital, are doubled, the output is doubled. To treble the output, units of both factors are trebled.



**It follows that:**

100 units of output require

$$1 (2C + 2L) = 2C + 2L$$

200 units of output require

$$2 (2C + 2L) = 4C + 4L$$

300 units of output require

$$3 (2C + 2L) = 6C + 6L$$

The returns to scale are constant when internal economies enjoyed by a firm are neutralised by internal diseconomies so that output increases in the same proportion. Another reason is the balancing of external economies and external diseconomies.

Constant returns to scale also result when factors of production are perfectly divisible, substitutable, homogeneous and their supplies are perfectly elastic at given prices. That is why, in the case of constant returns to scale, the production function is homogeneous of degree one.

### ECONOMIES AND DISECONOMIES OF SCALE

**Economies of scale** are advantages that arise for a firm because of its larger size, or scale of operation. These advantages translate into lower unit costs (or improved **productive efficiency**), although some economies of scale are not so easy to quantify.

In some markets, firms have to be of at least a certain size to be able to compete at all, because of the minimum level of investment required; economists call this **minimum efficient scale**.

On the other hand, inefficiencies can also creep in because of increased size, known as **diseconomies of scale**

In the correct sense of the term, **economies and diseconomies of scale** relate to advantages and disadvantages of an **increase** in the firm's productive capacity – such as moving to a larger factory or installing completely new technology. Do not confuse these terms with **capacity utilisation**, which is the degree to which the **current** scale of operations is actually being used.

Economies of scale can be 'internal' (specific to an individual firm) or external (advantages that benefit the industry as a whole).

The main kinds of **internal Economies of Scale** are:

**Purchasing** – firms producing on a larger scale should be able to *bulk buy* raw materials or product for resale in larger quantities. They may be able to cut out wholesalers by buying direct from producers, and transport costs per unit may also be reduced. The firm might also be buying in large





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enough quantities to make very specific demands about product quality, specifications, service and so on, so that supplies exactly match their needs.

**Technical** – it may be cost-effective to invest in more advanced production machinery, IT and software when operating on a larger scale.

**Managerial** – larger firms can afford to have specialist managers for different functions within a business – such as Marketing, Finance and Human Resources. Furthermore, they may be able to pay the higher salaries required to attract the best people, leading to better planning and decision making.

**Specialisation** – with a larger workforce, the firm may be better able to divide up the work and recruit people whose skills very closely match the requirements of the job.

**Marketing** – more options are available for larger firms, such as television and other national media, which would not be cost-effective for smaller producers. The marketing cost for selling 10 million items might be no greater than to sell 1 million items. Larger firms might find it easier to gain publicity for new launches simply because of their existing reputation.

**Financial** – there is a wider range of finance options available to larger firms, such as the stock market, bonds and other kinds of bank lending. Furthermore, a larger firm is likely to be perceived by banks as a lower risk and the cost of borrowing is likely to be lower.

**Risk bearing** – a larger firm can be safer from the risk of failure if it has a more diversified product range. A larger firm may have greater resilience in the case of a downturn in its market because of larger reserves and greater scope to make cutbacks.

**Social and welfare** – larger firms are more likely to be able to justify additional benefits for employees such as pension funds, healthcare, sports and social facilities, which in turn can help attract and retain good employees.

#### **External economies of scale**

External economies of scale arise from firms in related industries operating in a concentrated geographical area; suppliers of services and raw materials to all these firms can do so more efficiently. Infrastructure such as roads and sophisticated telecommunications are easier to justify.

There is also likely to be a growing local pool of skilled labour as other local firms in the industry also train workers. This gives a larger and more flexible labour market in the area.

#### **Diseconomies of scale**

These are inefficiencies that can creep in when a firm operates on a larger scale (do not confuse with high capacity utilisation). The main diseconomies of scale are:

**Lack of motivation** – in larger firms, workers can feel that they are not appreciated or valued as individuals - see **Mayo** and **Herzberg**. It can be more difficult for managers in larger firms to develop the right kind of relationship with workers. If motivation falls, productivity may fall leading to inefficiencies.

**Poor communication** – it can be easier for smaller firms to communicate with all staff in a personal way. In larger firms, there is likely to be greater use written of notes rather than by explaining personally. Messages can remain unread or misunderstood and staff are not properly informed.

**Co-ordination** – a very large business takes a lot of organising, leading to an increase in meetings and planning to ensure that all staff know what they are supposed to be doing. New layers of management may be required, adding to costs and creating further links in the chain of communication.



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UNIT-III

**What is Market?**

**Meaning**

"Market refers to an arrangement, whereby buyers and sellers come in contact with each other directly or indirectly, to buy or sell goods."

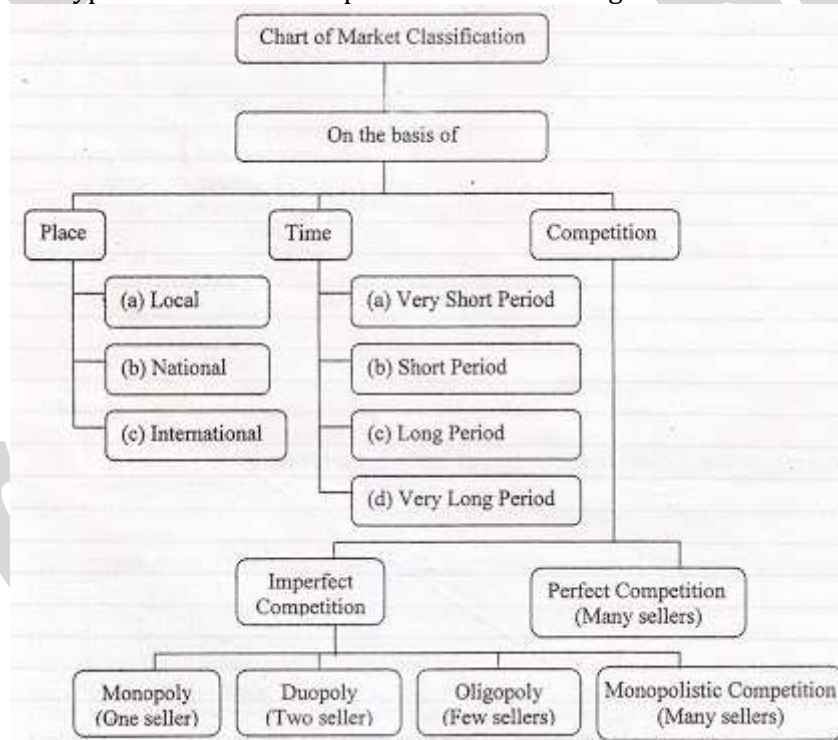
Thus, above statement indicates that face to face contact of buyer and seller is not necessary for market. E.g. In stock or share market, the buyer and seller can carry on their transactions through internet. So internet, here forms an arrangement and such arrangement also is included in the market.

**Characteristics of Market**

1. Existence of commodity which is to be bought and sold.
2. The existence of buyers and sellers.
3. A place, be it a certain region, a country or the entire world.
4. Communication between buyers and sellers that only one price should prevail for the same commodity at the same time.

**Classification or Types of Market**

The classification or types of market are depicted in the following chart.



Generally, the market is classified on the basis of:

1. Place,



2. Time and
3. Competition.

On the basis of **Place**, the market is classified into:

1. Local Market or Regional Market.
2. National Market or Countrywide Market.
3. International Market or Global Market.

On the basis of **Time**, the market is classified into:

1. Very Short Period Market.
2. Short Period Market.
3. Long Period Market.
4. Very Long Period Market.

On the basis of **Competition/Market Structure**, the market is classified into:

1. Perfectly Competitive Market Structure.
2. Imperfectly Competitive Market Structure.

(Market structure refers to number and types of firms operating in the industry.)

Both these market structures widely differ from each other in respect of their features, price, etc. Under imperfect competition, there are different forms of markets like monopoly, duopoly, oligopoly and monopolistic competition.

1. A monopoly has only one or a single (mono) seller.
2. Duopoly has two (duo) sellers.
3. Oligopoly has little or fewer (oligo) number of sellers.
4. Monopolistic competition has many or several numbers of sellers.

The suffix poly has its origin from Greek word *Polus* which means many or more than one.

### **What is Perfect Competition?**

- 1) Perfect Competition refers to a market situation where there are very large number of buyers and sellers dealing in a homogenous product at a price fixed by the market.
- 2) Perfect Competition is a market structure where there is a perfect degree of competition and single price prevails.
- 3) The concept of Perfect Competition was introduced by Dr. Alfred Marshall.
- 4) Nothing is 100% perfect in this world. So, this states that perfect competition is only a theoretical possibility and it does not exist in reality.

### **Main Features of Perfect Competition ↓**

The following are the characteristics or main features of perfect competition :-

#### **1. Many Sellers**

In this market, there are many sellers who form total of market supply. Individually, seller is a firm and collectively, it is an industry. In perfect competition, price of commodity is decided by market forces of demand and supply. i.e. by buyers and sellers collectively. Here, no individual seller is in a position to change the price by controlling supply. Because individual seller's individual supply is a very small part of total supply. So, if that seller alone raises the price, his product will become



costlier than other and automatically, he will be out of market. Hence, that seller has to accept the price which is decided by market forces of demand and supply. This ensures single price in the market and in this way, seller becomes price taker and not price maker.

## **2. Many Buyers**

Individual buyer cannot control the price by changing or controlling the demand. Because individual buyer's individual demand is a very small part of total demand or market demand. Every buyer has to accept the price decided by market forces of demand and supply. In this way, all buyers are price takers and not price makers. This also ensures existence of single price in market.

## **3. Homogenous Product**

In this case, all sellers produce homogeneous i.e. perfectly identical products. All products are perfectly same in terms of size, shape, taste, colour, ingredients, quality, trade marks etc. This ensures the existence of single price in the market.

## **4. Zero Advertisement Cost**

Since all products are identical in features like quality, taste, design etc., there is no scope for product differentiation. So advertisement cost is nil.

## **5. Free Entry and Exit**

There are no restrictions on entry and exit of firms. This feature ensures existence of normal profit in perfect competition. When profit is more, new firms enter the market and this leads to competition. Entry of new firms competing with each other results into increase in supply and fall in price. So, this reduces profit from abnormal to normal level.

When profit is low (below normal level), some firms may exit the market. This leads to fall in supply. So remaining firms raise their prices and their profits go up. So again this ensures normal level of profit.

## **6. Perfect Knowledge**

On the front of both, buyers and sellers, perfect knowledge regarding market and pricing conditions is expected. So, no buyer will pay price higher than market price and no seller will charge lower price than market price.

## **7. Perfect Mobility of Factors**

This feature is essential to keep supply at par with demand. If all factors are easily mobile (moveable) from one line of production to another, then it becomes easy to adjust supply as per demand.

Whenever demand is more additional factors should be moved into industry to increase supply and vice versa. In this way, with the help of stable demand and supply, we can maintain single price in the Market.

## **8. No Government Intervention**

Since market has been controlled by the forces of demand and supply, there is no government intervention in the form of taxes, subsidies, licensing policy, control over the supply of raw materials, etc.



### 9. No Transport Cost

It is assumed that buyers and sellers are close to market, so there is no transport cost. This ensures existence of single price in market.

### IMPERFECT COMPETITION

It is an important market category wherein individual firms exercise control over the price to a smaller or larger degree depending upon the degree of imperfection present in a case.

#### Monopoly

1. The term monopoly is derived from Greek words '*mono*' which means single and '*poly*' which means seller. So, monopoly is a market structure, where there only a single seller producing a product having no close substitutes.
2. This single seller may be in the form of an individual owner or a single partnership or a Joint Stock Company. Such a single firm in market is called monopolist. Monopolist is price maker and has a control over the market supply of goods. But it does not mean that he can set both price and output level. A monopolist can do either of the two things i.e. price or output. It means he can fix either price or output but not both at a time.

#### Characteristics / Features of Monopoly

Following are the features or characteristics of Monopoly :-

1. A single seller has complete control over the supply of the commodity.
2. There are no close substitutes for the product.
3. There is no free entry and exit because of some restrictions.
4. There is a complete negation of competition.
5. Monopolist is a price maker.
6. Since there is a single firm, the firm and industry are one and same i.e. firm coincides the industry.
7. Monopoly firm faces downward sloping demand curve. It means he can sell more at lower price and vice versa. Therefore, elasticity of demand factor is very important for him.

#### Classification / Kinds / Types of Monopoly

##### 1. Perfect Monopoly

It is also called as absolute monopoly. In this case, there is only a single seller of product having no close substitute; not even remote one. There is absolutely zero level of competition. Such monopoly is practically very rare.

##### 2. Imperfect Monopoly

It is also called as relative monopoly or simple or limited monopoly. It refers to a single seller market having no close substitute. It means in this market, a product may have a remote substitute. So, there is fear of competition to some extent e.g. Mobile (Cellphone) telcom industry (e.g. vodaphone) is having competition from fixed landline phone service industry (e.g. BSNL).



### **3. Private Monopoly**

When production is owned, controlled and managed by the individual, or private body or private organization, it is called private monopoly. e.g. Tata, Reliance, Bajaj, etc. groups in India. Such type of monopoly is profit oriented.

### **4. Public Monopoly**

When production is owned, controlled and managed by government, it is called public monopoly. It is welfare and service oriented. So, it is also called as 'Welfare Monopoly' e.g. Railways, Defence, etc.

### **5. Simple Monopoly**

Simple monopoly firm charges a uniform price or single price to all the customers. He operates in a single market.

### **6. Discriminating Monopoly**

Such a monopoly firm charges different price to different customers for the same product. It prevails in more than one market.

### **7. Legal Monopoly**

When monopoly exists on account of trademarks, patents, copy rights, statutory regulation of government etc., it is called legal monopoly. Music industry is an example of legal monopoly.

### **8. Natural Monopoly**

It emerges as a result of natural advantages like good location, abundant mineral resources, etc. e.g. Gulf countries are having monopoly in crude oil exploration activities because of plenty of natural oil resources.

### **9. Technological Monopoly**

It emerges as a result of economies of large scale production, use of capital goods, new production methods, etc. E.g. engineering goods industry, automobile industry, software industry, etc.

### **10. Joint Monopoly**

A number of business firms acquire monopoly position through amalgamation, cartels, syndicates, etc, it becomes joint monopoly. e.g. Actually, pizza making firm and burger making firm are competitors of each other in fast food industry. But when they combine their business, that leads to reduction in competition. So they can enjoy monopoly power in market.

### **Monopolistic Competition**

1. Pure monopoly and perfect competition are two extreme cases of market structure. In reality, there are markets having large number of producers competing with each other in order to sell their product in the market. Thus, there is monopoly on one hand and perfect competition on other hand. Such a mixture of monopoly and perfect competition is called as monopolistic competition. It is a case of imperfect competition.



2. Monopolistic competition has been introduced by American economist Prof. Edward Chamberlin, in his book 'Theory of Monopolistic Competition' published in 1933.

### Features of Monopolistic Competition ↓

The following are the features or characteristics of monopolistic competition :-

#### 1. Large Number of Sellers

There are large number of sellers producing differentiated products. So, competition among them is very keen. Since number of sellers is large, each seller produces a very small part of market supply. So no seller is in a position to control price of product. Every firm is limited in its size.

#### 2. Product Differentiation

It is one of the most important features of monopolistic competition. In perfect competition, products are homogeneous in nature. On the contrary, here, every producer tries to keep his product dissimilar than his rival's product in order to maintain his separate identity. This boosts up the competition in market. So, every firm acquires some monopoly power.

#### 3. Freedom of Entry and Exit

This feature leads to stiff competition in market. Free entry into the market enables new firms to come with close substitutes. Free entry or exit maintains normal profit in the market for a longer span of time.

#### 4. Selling Cost

It is a unique feature of monopolistic competition. In such type of market, due to product differentiation, every firm has to incur some additional expenditure in the form of selling cost. This cost includes sales promotion expenses, advertisement expenses, salaries of marketing staff, etc. But on account of homogeneous product in perfect competition and zero competition in monopoly, selling cost does not exist there.

#### 5. Absence of Interdependence

Large numbers of firms are different in their size. Each firm has its own production and marketing policy. So no firm is influenced by other firm. All are independent.

#### 6. Two Dimensional Competition

Monopolistic competition has two types of competition aspects viz.

- i. Price competition i.e. firms compete with each other on the basis of price.
- ii. Non price competition i.e. firms compete on the basis of brand, product quality advertisement.

#### 7. Concept of Group

In place of Marshallian concept of industry, Chamberlin introduced the concept of Group under monopolistic competition. An industry means a number of firms producing identical product. A group means a number of firms producing differentiated products which are closely related.





### 8. Falling Demand Curve

In monopolistic competition, a firm is facing downward sloping demand curve i.e. elastic demand curve. It means one can sell more at lower price and vice versa.

### Oligopoly

The term oligopoly is derived from two Greek words: 'oligi' means few and 'polein' means to sell. Oligopoly is a market structure in which there are only a few sellers (but more than two) of the homogeneous or differentiated products. So, oligopoly lies in between monopolistic competition and monopoly.

Oligopoly refers to a market situation in which there are a few firms selling homogeneous or differentiated products. Oligopoly is, sometimes, also known as 'competition among the few' as there are few sellers in the market and every seller influences and is influenced by the behaviour of other firms.

### Example of Oligopoly:

In India, markets for automobiles, cement, steel, aluminium, etc, are the examples of oligopolistic market. In all these markets, there are few firms for each particular product.

DUOPOLY is a special case of oligopoly, in which there are exactly two sellers. Under duopoly, it is assumed that the product sold by the two firms is homogeneous and there is no substitute for it. Examples where two companies control a large proportion of a market are: (i) Pepsi and Coca-Cola in the soft drink market; (ii) Airbus and Boeing in the commercial large jet aircraft market; (iii) Intel and AMD in the consumer desktop computer microprocessor market.

### Types of Oligopoly:

#### 1. Pure or Perfect Oligopoly:

If the firms produce homogeneous products, then it is called pure or perfect oligopoly. Though, it is rare to find pure oligopoly situation, yet, cement, steel, aluminum and chemicals producing industries approach pure oligopoly.

#### 2. Imperfect or Differentiated Oligopoly:

If the firms produce differentiated products, then it is called differentiated or imperfect oligopoly. For example, passenger cars, cigarettes or soft drinks. The goods produced by different firms have their own distinguishing characteristics, yet all of them are close substitutes of each other.

#### 3. Collusive Oligopoly:

If the firms cooperate with each other in determining price or output or both, it is called collusive oligopoly or cooperative oligopoly.

#### 4. Non-collusive Oligopoly:

If firms in an oligopoly market compete with each other, it is called a non-collusive or non-cooperative oligopoly.



## Features of Oligopoly:

The main features of oligopoly are elaborated as follows:

### 1. Few firms:

Under oligopoly, there are few large firms. The exact number of firms is not defined. Each firm produces a significant portion of the total output. There exists severe competition among different firms and each firm try to manipulate both prices and volume of production to outsmart each other. For example, the market for automobiles in India is an oligopolist structure as there are only few producers of automobiles.

The number of the firms is so small that an action by any one firm is likely to affect the rival firms. So, every firm keeps a close watch on the activities of rival firms.

### 2. Interdependence:

Firms under oligopoly are interdependent. Interdependence means that actions of one firm affect the actions of other firms. A firm considers the action and reaction of the rival firms while determining its price and output levels. A change in output or price by one firm evokes reaction from other firms operating in the market.

For example, market for cars in India is dominated by few firms (Maruti, Tata, Hyundai, Ford, Honda, etc.). A change by any one firm (say, Tata) in any of its vehicle (say, Indica) will induce other firms (say, Maruti, Hyundai, etc.) to make changes in their respective vehicles.

### 3. Non-Price Competition:

Under oligopoly, firms are in a position to influence the prices. However, they try to avoid price competition for the fear of price war. They follow the policy of price rigidity. Price rigidity refers to a situation in which price tends to stay fixed irrespective of changes in demand and supply conditions. Firms use other methods like advertising, better services to customers, etc. to compete with each other.

If a firm tries to reduce the price, the rivals will also react by reducing their prices. However, if it tries to raise the price, other firms might not do so. It will lead to loss of customers for the firm, which intended to raise the price. So, firms prefer non- price competition instead of price competition.

### 4. Barriers to Entry of Firms:

The main reason for few firms under oligopoly is the barriers, which prevent entry of new firms into the industry. Patents, requirement of large capital, control over crucial raw materials, etc, are some of the reasons, which prevent new firms from entering into industry. Only those firms enter into the industry which is able to cross these barriers. As a result, firms can earn abnormal profits in the long run.

### 5. Role of Selling Costs:

Due to severe competition and interdependence of the firms, various sales promotion techniques are used to promote sales of the product. Advertisement is in full swing under oligopoly, and many a times advertisement can become a matter of life-and-death. A firm under oligopoly relies more on non-price competition.



Selling costs are more important under oligopoly than under monopolistic competition.

#### **6. Group Behaviour:**

Under oligopoly, there is complete interdependence among different firms. So, price and output decisions of a particular firm directly influence the competing firms. Instead of independent price and output strategy, oligopoly firms prefer group decisions that will protect the interest of all the firms. Group Behaviour means that firms tend to behave as if they were a single firm even though individually they retain their independence.

#### **7. Nature of the Product:**

The firms under oligopoly may produce homogeneous or differentiated product.

- i. If the firms produce a homogeneous product, like cement or steel, the industry is called a pure or perfect oligopoly.
- ii. If the firms produce a differentiated product, like automobiles, the industry is called differentiated or imperfect oligopoly.

#### **8. Indeterminate Demand Curve:**

Under oligopoly, the exact behaviour pattern of a producer cannot be determined with certainty. So, demand curve faced by an oligopolist is indeterminate (uncertain). As firms are inter-dependent, a firm cannot ignore the reaction of the rival firms. Any change in price by one firm may lead to change in prices by the competing firms. So, demand curve keeps on shifting and it is not definite, rather it is indeterminate.

#### **Duopoly**

Duopoly is a limiting case of oligopoly, in the sense that it has all the characteristics of oligopoly except the number of sellers which are only two increase of duopoly as against a few in oligopoly. The main distinguishing feature of duopoly (and also of oligopoly) from other market situating is that the sellers' decisions are not independent of each other.

A change in price and output by our seller affect the former, and now the former may have to react. This process of action- reaction of the sellers may continue. This when a duopolist (or an oligopolist) takes any policy decision he also takes into account the reactions of his rivals. That is, such a market situation is characteristics by the mutual interdependence in policy-making.

Thus, Oligopoly is a situation where a few large firms complete against each other and there is an element of interdependence in the decision making of these firms. Each firm in the oligopoly recognizes this interdependence.

Any decision one firm makes (be it on price, product or promotion) will affect the trade of the competitors and so results in countermoves.

**In order to differentiate oligopoly situation from perfect and monopoly situations, it is essential to understand the following main features of oligopoly:**

- (a) Small number of large sellers.
- (b) Interdependence.



(c) Presence of monopoly element—so long products are differentiated, the firms enjoy some monopoly power, as each product will have some loyal customers.

(d) Existence of price rigidity.

(e) Advertising—Given high Gross elasticity demand for products and price rigidity in oligopoly the only way open to oligopolist is to raise his sales volume by either advertising or improving the quality.

Advertisement expenditure is aimed primarily at shifting the demand in favour of the product.

**Examples are:**

Pepsi and Coca-Cola soft drinks.

**Price Determination under Perfect Competition**

1. In perfect competition, price is determined by the market forces of demand and supply. All buyers and sellers are price takers and not price makers. Buyer represents demand side in the market. Every rational buyer aims at maximising his satisfaction by purchasing more at lower price and lower at higher price. This is called demand behaviour of buyer i.e. Law of Demand.
2. Seller represents supply side in the market. Every rational seller aims at maximizing his profits by selling more at higher price and lesser at lower price. This is called supply behaviour of seller i.e. Law of supply. But at a common price, buyer is ready to demand a particular quantity of goods and seller is also ready to supply exactly the same quantity of goods to buyer, such common price is called 'Equilibrium Price' and such quantity is called 'Equilibrium Quantity'.

**"Equilibrium Price is a price which equates both demand and supply".**

**Table - Sample Demand and Supply Schedules**

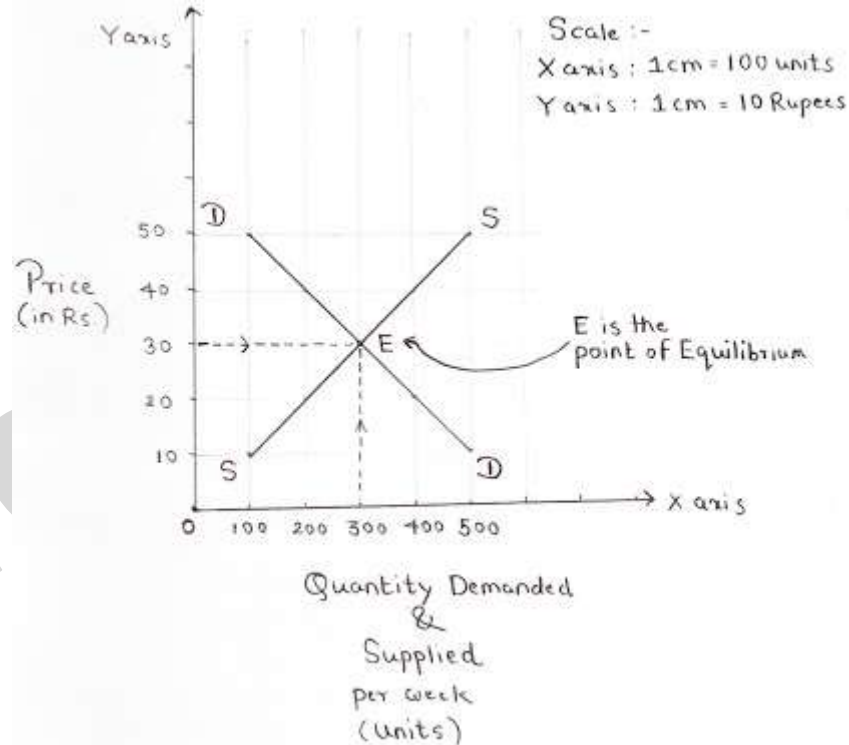
**Demand and Supply Schedules**

Price per unit of commodity (Rs.)	Quantity demanded per week (Units)	Quantity Supplied per week (Units)
50	100	500
40	200	400
30	300	300
20	400	200
10	500	100



It is the price at which total demand is exactly equal to total supply. Graphically it is the point where DD curve and SS curve intersect each other.

### Graph - Equilibrium Price Determination



In the above graphical diagram, the following points have been observed :-

1. On X axis, quantity demand and supplied per week has been given and on Y axis, price has been given.
2. Buyers are purchasing more at lower price and vice versa. This negative relationship is shown by downward sloping DD curve.
3. Sellers are selling more at higher price and vice versa. This positive relationship is shown by upward sloping SS curve.
4. As per the data given in table, Rs. 30 is that price at which demand equates supply (300 units). So, Rs. 30 is an equilibrium price and 300 units is an equilibrium quantity.
5. Suppose, price falls to Rs. 20/-, So this results into increase in demand (as per Law of Demand) and decrease in supply (as per Law of Supply). Since  $DD > SS$ , i.e. because of low supply, sellers will be dominant and competition will be among buyers, this leads to rise in price level. (i.e. from Rs. 20 to Rs. 30) Again price will come back at original level i.e. equilibrium price (Rs. 30).
6. Suppose, supply exceeds demand ( $DD < SS$ ) now buyers become dominant and competition will be among sellers. This leads to downfall in price. (i.e. from Rs. 40 to Rs.30). Again price will come back to original level. i.e. equilibrium price (Rs. 30).
7. Such automatic adjustment by demand and supply forces will keep single price in market.



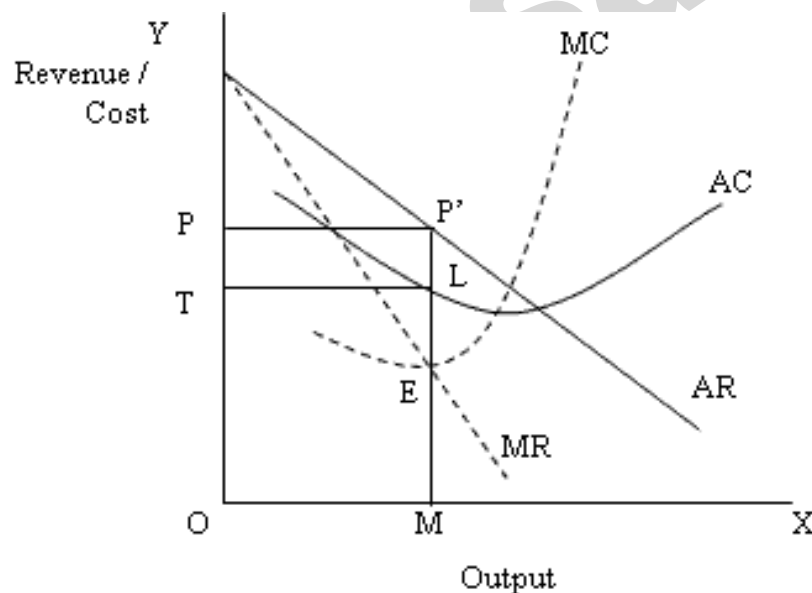
### Price Determination under Monopoly

1. *Monopoly is that market form in which a single producer controls the whole supply of a single commodity which has no close substitute.*
2. From this definition there are two points that must be noted:

**(i) Single Producer:** There must be only one producer who may be an individual, a partnership firm or a joint stock company. Thus single firm constitutes the industry. The distinction between firm and industry disappears under conditions of monopoly.

**(ii) No Close Substitute:** The commodity produced by the producer must have no closely competing substitutes, if he is to be called a monopolist. This ensures that there is no rival of the monopolist. Therefore, the cross elasticity of demand between the product of the monopolist and the product of any other producer must be very low.

3. A firm under monopoly faces a downward sloping demand curve or average revenue curve. Further, in monopoly, since average revenue falls as more units of output are sold, the marginal revenue is less than the average revenue. In other words, under monopoly the MR curve lies below the AR curve.
4. The Equilibrium level in monopoly is that level of output in which marginal revenue equals marginal cost. The producer will continue producer as long as marginal revenue exceeds the marginal cost. At the point where MR is equal to MC the profit will be maximum and beyond this point the producer will stop producing.



5. It can be seen from the diagram that up till OM output, marginal revenue is greater than marginal cost, but beyond OM the marginal revenue is less than marginal cost. Therefore, the monopolist will be in equilibrium at output OM where marginal



revenue is equal to marginal cost and the profits are the greatest. The corresponding price in the diagram is  $MP'$  or  $OP$ . It can be seen from the diagram at output  $OM$ , while  $MP'$  is the average revenue,  $ML$  is the average cost, therefore,  $P'L$  is the profit per unit. Now the total profit is equal to  $P'L$  (profit per unit) multiply by  $OM$  (total output).

6. In the short run, the monopolist has to keep an eye on the variable cost, otherwise he will stop producing. In the long run, the monopolist can change the size of plant in response to a change in demand. In the long run, he will make adjustment in the amount of the factors, fixed and variable, so that  $MR$  equals not only to short run  $MC$  but also long run  $MC$ .

### **Price Determination under Monopolistic Competition:**

Now the question arises at which price-output level the monopolistic competitive firm will be in equilibrium position? Here we have to remember that every seller, whether a monopolist or one working under perfectly or imperfectly competitive situations, wants to maximise his profits.

The seller will go on producing till the extra receipts to be had from additional production exceed the extra cost incurred in the production process. In other words, profits will be maximised when marginal revenue is equal to marginal cost. So long as marginal revenue is greater than marginal cost, the seller will find it profitable to expand his output, and if marginal revenue is less than marginal cost, obviously it is to his advantage to reduce his output to the point where marginal revenue is equal to marginal cost. In the short run, therefore, the firm will be in equilibrium when it is maximising its profits, i.e., when

$$\text{Marginal Revenue} = \text{Marginal Cost}$$

In the short run, a monopolistically competitive firm may either realise abnormal profits or be faced with losses. But, in the long run, such supernormal profits disappear. This is because we assume that entry is free and new firms will enter the industry if the existing firms are making supernormal profits.

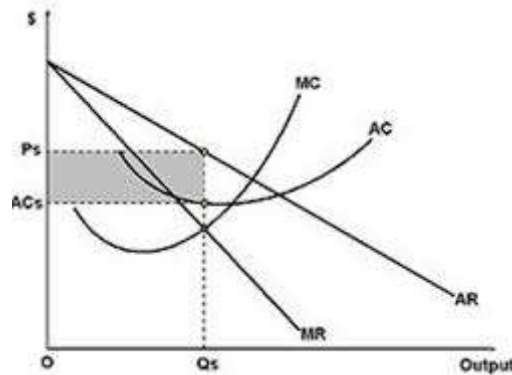
As new firms enter and start production, the demand curve or average revenue curve faced by the firms will fall (shift to the left) and, therefore, the supernormal profits will be competed away, and the firms will be earning only normal profits.

Similarly, if in the short run firms are suffering losses, then in the long run some firms will leave the industry so that the remaining firms are able to earn normal profits. Another point which is to be noted in regard to the long-run equilibrium under monopolistic competition is that average revenue curve in the long run will be more elastic, since large number of substitutes will be available in the long run. Therefore, in the long run, equilibrium is restored when firms are earning only normal profits. Now, profits are normal only when

$$\text{Average Revenue} = \text{Average Cost.}$$

Therefore, equilibrium in the long run under imperfect competition holds when

$$\text{Average Revenue} = \text{Average Cost.}$$



### Price determination under Oligopoly:

In an oligopoly, the number of sellers is small as against a sole seller under monopoly and many sellers under monopolistic competition.

### Principal Characteristics of Oligopoly

The principal features of oligopoly are as under:

#### (i) Interdependence:

Owing to a small number of sellers, the price-output decisions of one firm are taken note of by other firms and affect their decisions too.

#### (ii) Indeterminate Demand Curve:

Since no firm is able to predict the reaction or behaviour of other firms consequent on price output decision of one firm, there is uncertainty, and no firm can be sure of the quantity of the commodity it can sell at a price. The demand curve is thus indeterminate.

#### (iii) High Pressure Salesmanship:

There being only a small number of firms in the field, there is a tendency for a firm in oligopoly to increase its selling costs and indulge in advertisement so that it may capture as much of the market as possible. There is a counter-campaign by the rivals.

#### (iv) Sticky Prices:

In order to avoid adverse reaction by the rivals, there is a tendency for the firms to avoid changing the price of their products. Hence comparative price stability rules in the oligopolistic market.

### How is Price Determined under Oligopoly?

Since price-output decisions by one firm affect the decisions of other firms, nobody can be sure of their reaction. As pointed out above, the demand curve is indeterminate and no single price-output decision is possible.



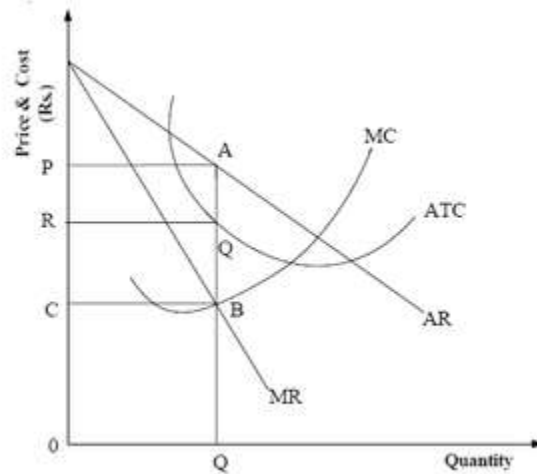


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