Business Economics (Unit – IV)

UNIT - IV (Syllabus)
Market Structure And Pricing theory- Market Structure: - Meaning of market, Classification of Market, Concepts of Total revenue, Average revenue and Marginal revenue, Market Structure - Concept ,Features types.

Price – Cost and Output Determination under Different types of markets- Perfect Competition, Monopoly, Monopolistic Competition, Equilibrium of firms under different market structures in short run and long run. Price Discrimination in monopoly and oligopoly. Kinked demand curve.

Concept of Market

Meaning of Market

A **market** is a place where buyers and sellers can meet to facilitate the exchange or transaction of goods and services. ... Other examples include the black **market**, auction **markets**, and financial **markets**. **Markets** establish the prices of goods and services that are determined by supply and demand.

What Is a Market?

A market is a place where two parties can gather to facilitate the exchange of goods and services. The parties involved are usually buyers and sellers. The market may be physical like a retail outlet, where people meet face-to-face, or virtual like an online market, where there is no direct physical contact between buyers and sellers.

The term market also takes on other forms. For instance, it may refer to the place where securities are traded—the securities market. Alternatively, the term may also be used to describe a collection of people who wish to buy a specific product or service such as the Brooklyn housing market or as broad as the global diamond market.

In economics, we do not refer to a market as a physical place. Economists will describe a market as coming together of the buyers and sellers, i.e. an arrangement where buyers and sellers come in direct or indirect contact to sell/buy goods and services.

For example, the market for mobile will constitute all the sellers and buyers of mobile phones in an economy. It does not necessarily refer to a geographic location.

Few features of a Market :

- In Economics, the term market will refer to the market for one commodity or a set of commodities. For example a market for coffee, a market for rice, a market for TV's, etc.
- A market is also not restricted to one physical or geographical location. It covers a general wide area and the demand and supply forces of the region.
- There must be a group of buyers and sellers of the commodity to constitute a market. And the relations between these sellers and buyers must be business relations.

- Both the sellers and buyers must have access to knowledge about the market. There should be an awareness of the demand for products, consumer choices, and preferences, fashion trends, etc.
- At any given time only one price can be prevalent in the market for the goods and services. This is only possible in the existence of perfect competition.

Classification of Markets

Now we have seen what is a market. Let us learn more about the classification of markets. Broadly there are two classifications of markets – the product market and the factor market. The factor market refers to the market for the buying and selling of factors of production like land, capital, labor, etc. The other classification of markets are as follows,

Classification of Markets on the Basis of Area or Geographic Location

- **Local Markets:** In such a market the buyers and sellers are limited to the local region or area. They usually sell perishable goods of daily use since the transport of such goods can be expensive.
- **Regional Markets:** These markets cover a wider are than local markets like a district, or a cluster of few smaller states
- **National Market:** This is when the demand for the goods is limited to one specific country. Or the government may not allow the trade of such goods outside national boundaries.
- **International Market:** When the demand for the product is international and the goods are also traded internationally in bulk quantities, we call it an international market.

Classification of Markets on the Basis of Time

- **Very Short Period Market:** This is when the supply of the goods is fixed, and so it cannot be changed instantaneously. Say for example the market for flowers, vegetables. Fruits etc. The price of goods will depend on demand.
- **Short Period Market**: The market is slightly longer than the previous one. Here the supply can be slightly adjusted.
- **Long Period Market**: Here the supply can be changed easily by scaling production. So it can change according to the demand of the market. So the market will determine its equilibrium price in time.

Classification of Markets on the Basis of Nature of Transaction

- **Spot Market:** This is where spot transactions occur, that is the money is paid immediately. There is no system of credit
- **Future Market**: This is where the transactions are credit transactions. There is a promise to pay the consideration sometime in the future.

Classification of Markets on the Basis of Regulation

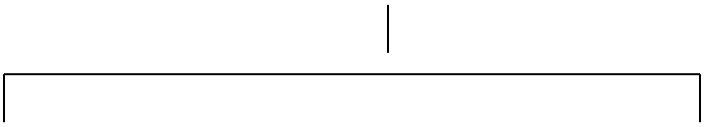
- **Regulated Market**: In such a market there is some oversight by appropriate government authorities. This is to ensure there are no unfair trade practices in the market. Such markets may refer to a product or even a group of products. For example, the stock market is a highly regulated market.
- **Unregulated Market**: This is an absolutely free market. There is no oversight or regulation, the market forces decide everything

Classification of Markets on the Basis of Competition

(i) Perfect Market: A perfect market is where there is perfect competition.

(ii) Imperfect Market: A market is imperfectly competitive if the action of one or more buyers and sellers have a perceptible influence on price.

On the basis of Nature of Competition



Perfect or Pure Competition

- **i.** No. of firms are infinite
- **ii.** Nature of the goods is homogenous

Imperfect Competition

(i) Monopolistic Competition
- No. of firms are many
- Nature of goods is differentiated,

(ii) Duopoly
- No. of firms are two
- Nature of goods is Homogenous or differentiated.

(iii) Oligopoly
- No. of firms (or sellers) are few.
- Nature of goods is Homogenous or differentiated.

(iv) Monopoly
- No, of seller (or firm) is single
- Nature of goods is Homogenous.

Meaning Of Perfect Competition

A market is said to be perfect when there is a large number of buyers and sellers of the product. The products are homogeneous so that the consumers do not mind purchasing a commodity from M/s ABC or M/s XYZ. It implies that the products of the various firms are

Essential Features of a Market

The essential features of a market are:

(1) An Area:
In economics, a market does not mean a particular place but the whole region where sellers and buyers of a product are spread. Modem modes of communication and transport have made the market area for a product very wide.

(2) One Commodity:
In economics, a market is not related to a place but to a particular product.
Hence, there are separate markets for various commodities. For example, there are separate markets for clothes, grains, jewellery, etc.

(3) Buyers and Sellers:
The presence of buyers and sellers is necessary for the sale and purchase of a product in the market. In the modem age, the presence of buyers and sellers is not necessary in the market because they can do transactions of goods through letters, telephones, business representatives, internet, etc.

(4) Free Competition:
There should be free competition among buyers and sellers in the market. This competition is in relation to the price determination of a product among buyers and sellers.

(5) One Price:
The price of a product is the same in the market because of free competition among buyers and sellers.

On the basis of above elements of a market, its general definition may be as follows:
The market for a product refers to the whole region where buyers and sellers of that product are spread and there is such free competition that one price for the product prevails in the entire region.

Concepts of Total Revenue, Average Revenue and Marginal Revenue

There are four major market types namely, perfect competition, monopoly, monopolistic competition, and oligopoly. Before we understand these market forms, it is important to know the concepts of total revenue, average revenue, and marginal revenue. In this article, we will clarify these concepts with the help of some examples and look at the behavioral principles.

Total Revenue

A firm sells 100 units of a particular commodity for Rs. 10 each. If you were to calculate the amount realized by the firm, the answer is simple – Rs. 1,000 (100 x 10). This is the total revenue for the firm.

Hence, the total revenue refers to the amount of money realized by a firm on the sale of a commodity. Total revenue is expressed as follows:

$$TR = P \times Q$$

where

- TR – Total Revenue,
- P – Price, and
- Q – Quantity of the commodity sold.

Average Revenue

Average revenue is simply the revenue earned per unit of the output. In simpler words, it is the price of one unit of the output. Average revenue is expressed as follows:

$$AR = TR / Q$$

where

- AR – Average Revenue,
- TR – Total Revenue, and
- Q – Quantity of the commodity sold.

By using the formula for total revenue, we get

$$AR = P \times Q / Q$$

Or $$AR = P$$

For example, a firm sells 100 units of a commodity and realizes a total revenue of Rs. 1,000. Therefore, its average revenue is

$$AR = 1000 / 100 = Rs.10$$

Hence, the firm sells the commodity at a price of Rs. 10 per unit.

Marginal Revenue

Marginal revenue (MR) is the change in total revenue resulting from the sale of an additional unit of a commodity.

For example, consider a firm selling 100 units of a commodity and realizing a total revenue of Rs. 1,000. Further, it realizes a total revenue of Rs. 1,200 after selling 101 units of the same commodity. Therefore, the marginal revenue is Rs. 200.

Marginal revenue is also defined as the rate of change of total revenue resulting from the sale of an additional unit of a commodity.

Therefore,

$$MR = \Delta TR / \Delta Q$$

where

- MR – Marginal revenue,
- TR – Total revenue,
- Q – Quantity of the commodity sold, and
- Δ – the rate of change.

Further, for one unit change in output, we have

$$MR_n = TR_n - TR_{n-1}$$

Where,

- TR_n – the total revenue when the sales are at the rate of 'n' units per period.
- TR_{n-1} – the total revenue when the sales are at the rate of (n-1) units per period.

Market Structure

Meaning:

Market structure refers to the nature and degree of competition in the market for goods and services. The structures of market both for goods market and service (factor) market are determined by the nature of competition prevailing in a particular market.

Determinants

There are a number of determinants of market structure for a particular good.

They are:

(1) The number and nature of sellers.
(2) The number and nature of buyers.
(3) The nature of the product.
(4) The conditions of entry into and exit from the market.
(5) Economies of scale.

They are discussed as under:

1. Number and Nature of Sellers:

The market structures are influenced by the number and nature of sellers in the market. They range from large number of sellers in perfect competition to a single seller in pure monopoly, to two sellers in duopoly, to a few sellers in oligopoly, and to many sellers of differentiated products.

2. Number and Nature of Buyers:

The market structures are also influenced by the number and nature of buyers in the market. If there is a single buyer in the market, this is buyer's monopoly and is called monopsony market. Such markets exist for local labour employed by one large employer. There may be two buyers who act jointly in the market. This is called duopsony market. They may also be a few organised buyers of a product. This is known as oligopsony. Duopsony and oligopsony markets are usually found for cash crops such as rice, sugarcane, etc. when local factories purchase the entire crops for processing.

3. Nature of Product:

It is the nature of product that determines the market structure. If there is product differentiation, products are close substitutes and the market is characterised by monopolistic competition. On the other hand, in case of no product differentiation, the market is characterised by perfect competition. And if a product is completely different from other products, it has no close substitutes and there is pure monopoly in the market.

4. Entry and Exit Conditions:

The conditions for entry and exit of firms in a market depend upon profitability or loss in a particular market. Profits in a market will attract the entry of new firms and losses lead to the exit of weak firms from the market. In a perfect competition market, there is freedom of entry or exit of firms.

But in monopoly and oligopoly markets, there are barriers to entry of new firms. Usually, governments have a monopoly in public utility services like postal, air and road transport, water and power supply services, etc. By granting exclusive franchises, entries of new supplies are barred. In oligopoly markets, there are barriers to entry of firms because of collusion, tacit agreements, cartels, etc. On the other hand, there are no restrictions in entry and exit of firms in monopolistic competition due to product differentiation.

Meaning of collusion - Collusion means agreement between people to act together secretly or illegally in order to deceive or cheat someone

Tacit agreement - If you refer to someone's **tacit agreement** or approval, you mean they are agreeing to something or approving it without actually saying so, often because they are unwilling to admit to doing so.

Meaning of cartels: An association of manufacturers or suppliers with the purpose of maintaining prices at a high level and restricting competition.

5. Economies of Scale:

Firms that achieve large economies of scale in production grow large in comparison to others in an industry. They tend to weed out the other firms with the result that a few firms are left to compete with each other. This leads to the emergency of oligopoly. If

only one firm attains economies of scale to such a large extent that it is able to meet the entire market demand, there is monopoly.

Classification/Types of **Market Structure**:

On the basis of competition, a market can be classified in the following ways:

1. Perfect Competition
2. Monopoly
3. Duopoly
4. Oligopoly
5. Monopolistic Competition

1. Perfect Competition Market:

A perfectly competitive market is one in which the number of buyers and sellers is very large, all engaged in buying and selling a homogeneous product without any artificial restrictions and possessing perfect knowledge of market at a time. In the words of A. Koutsoyiannis, “Perfect competition is a market structure characterised by a complete absence of rivalry among the individual firms.” According to R.G. Lipsey, “Perfect competition is a market structure in which all firms in an industry are price- takers and in which there is freedom of entry into, and exit from, industry.”

Rather, he adjusts his supply to the price of the product. He is “output adjuster”. Thus no buyer or seller can alter the price by his individual action. He has to accept the price for the product as fixed for the whole industry. He is a “price taker”.

(i) Freedom of Entry or Exit of Firms:

The next condition is that the firms should be free to enter or leave the industry. It implies that whenever the industry is earning excess profits, attracted by these profits some new firms enter the industry. In case of loss being sustained by the industry, some firms leave it.

(ii) Homogeneous Product:

Each firm produces and sells a homogeneous product so that no buyer has any preference for the product of any individual seller over others. This is only possible if units of the same product produced by different sellers are perfect substitutes. In other words, the cross elasticity of the products of sellers is infinite.

No seller has an independent price policy. Commodities like salt, wheat, cotton and coal are homogeneous in nature. He cannot raise the price of his product. If he does so, his customers would leave him and buy the product from other sellers at the ruling lower price.

The above two conditions between themselves make the average revenue curve of the individual seller or firm perfectly elastic, horizontal to the X-axis. It means that a firm can sell more or less at the ruling market price but cannot influence the price as the product is homogeneous and the number of sellers very large.

(iii) Absence of Artificial Restrictions:
The next condition is that there is complete openness in buying and selling of goods. Sellers are free to sell their goods to any buyers and the buyers are free to buy from any sellers. In other words, there is no discrimination on the part of buyers or sellers.

Moreover, prices are liable to change freely in response to demand-supply conditions. There are no efforts on the part of the producers, the government and other agencies to control the supply, demand or price of the products. The movement of prices is unfettered.

(iv) Profit Maximisation Goal:
Every firm has only one goal of maximising its profits.

(v) Perfect Mobility of Goods and Factors:
Another requirement of perfect competition is the perfect mobility of goods and factors between industries. Goods are free to move to those places where they can fetch the highest price. Factors can also move from a low-paid to a high-paid industry.

(vi) Perfect Knowledge of Market Conditions:
This condition implies a close contact between buyers and sellers. Buyers and sellers possess complete knowledge about the prices at which goods are being bought and sold, and of the prices at which others are prepared to buy and sell. They have also perfect knowledge of the place where the transactions are being carried on. Such perfect knowledge of market conditions forces the sellers to sell their product at the prevailing market price and the buyers to buy at that price.

(vii) Absence of Transport Costs:
Another condition is that there are no transport costs in carrying of product from one place to another. This condition is essential for the existence of perfect competition which requires that a commodity must have the same price everywhere at any time. If transport costs are added to the price of the product, even a homogeneous commodity will have different prices depending upon transport costs from the place of supply.

(viii) Absence of Selling Costs:
Under perfect competition, the costs of advertising, sales-promotion, etc. do not arise because all firms produce a homogeneous product.

Meaning Of Perfect Competition

A market is said to be perfect when there is a large number of buyers and sellers of the product. The products are homogeneous so that the consumers do not mind purchasing a commodity from M/s ABC or M/s XYZ. It implies that the products of the various firms are perfect substitutes or they are identical. There is free entry and exit of the firms. Both the buyers and the sellers have full knowledge of the market conditions. Any buyer can purchase from any seller, and conversely. Price tends to be uniform all over the

market Competitive firms may get abnormal profits and suffer loss in the short-run. However, in the long-run, they have to be contented with normal profits only. Only the efficient firms can exist in a perfect market.

From the above mentioned features it should be clear that perfect markets do not exist in real life. It is a hypothetical situation. It is so because the assumptions on which the competitive model of market is based never hold good in the real world. In spite of these limitations, the theory of competitive market provides a useful tool to understand the nature of other markets.

It should be noted that the existence of a single, uniform price in the market is the most important criterion of perfect competition. This uniform price is determined by the market forces of demand and supply. The individual firm has to accept the price fixed by the market. Hence, the price line (or demand curve or average revenue curve) is perfectly elastic in nature. Though this price is determined by total demand and total supply, yet the business motive of all the firms under perfect competition is profit maximisation. Each firm seeks to maximise its profits and no other objective is pursued. To understand this market structure we need to clearly understand its features.

Perfect competition is a market structure in which there are a large number of producers (firms) producing a homogeneous product so that no individual firm can influence the price of a commodity.

Features of Perfect Competition

1. **Large number of sellers:** In perfect competition there is an existence of large number of sellers. The number of sellers is so large that each seller sells so little that none of them is in a position to influence the price in the market.

2. **Large number of buyers:** Similarly the number of buyers is also large. Each buyer buys so little that none of them is in a position to influence the price in the market. It is natural that, when there are millions of buyers in the market none of them can be strong enough to influence the price to his advantage.

3. **Homogeneous Product:** An important feature of perfect competitive market is that, the goods sold by the large number of sellers must be identical or homogenous in the eyes of the buyers. Here, homogeneity does not mean that goods are identical in all respects. They are perfect substitutes of each other. In other words, the price of one has great influence on the other. Thus, the product is homogeneous and no seller can charge a price even slightly above the ruling market price. In case the seller changes the price, he will lose all his buyers. There are several firms operating in the market, no single firm is in position to exert any influence on the price.

4. **Free entry and free exit for firms:** In perfect competition there should be a complete freedom for firms to enter or exit the industry at their choice. Likewise, if some firms are incurring losses, they can exit from the industry. The firms that can supply at the ruling price enter the industry, while others which are inefficient and who cannot supply at the prevailing price are incurring losses. They can exit from the market.

5. **Perfect knowledge of the market :** In perfect competition there is an existence of perfect knowledge on part of the buyers and sellers about market conditions. In perfect competition there is no necessity of incurring any expenditure and advertisement due to perfect knowledge. The sellers too have perfect information about potential sales at various price-levels. In short, both the buyers and sellers have perfect knowledge of the price. At this 'price', total demand is equal to total supply and this price is known as 'market-clearing price'.

6. **No transport cost :** A perfectly competitive market assumes the non-existence of transport costs. The assumption is on the basis of a reasoning that the various firms are so close to each other that there are no transport costs.

7. **Perfect Mobility of factors of production:** The smooth functioning of perfect competition necessitates perfect mobility of factors of production. The factors of production should be free to move into any industry which they consider profitable for themselves. The existence of perfect mobility of factors is essential for fulfilling the first condition of perfect competition i.e. large number of sellers in the market.

8. **No Government Interference:** In perfect competition, it is necessary to have non- existence of any artificial restrictions on the demand, supply, prices of commodities and factors of production in the market. There must be no governmental fixation of the prices of goods and factors of production. There must be no artificial controls on demand of goods through governmental rationing.

9. **Single price:** It is assumed that price is determined by interaction of market demand and supply forces. This equilibrium price is accepted by a large number of sellers and buyers.

10. **No selling cost:** As a large number of sellers sell homogeneous products at a given price, it rules out the possibility of advertisement and other sales promotion expenses.

The foregoing discussion of features of perfect competition and pure competition can be understood in its distinction form.

Perfect competition	Pure competition
1. Meaning: For the market to be perfectly competitive, the features are large number of buyers and sellers, homogeneous goods, free entry and exit, perfect knowledge of market, perfect mobility of factors, no government interference, no transport costs.	For a market to be purely competitive, following features are to be fulfilled : large numbers of buyers and sellers, homogeneous goods, free entry and exit of firms.
2. Known as: The term 'Perfect competition' is traditionally used by the British economists, while discussing the price theory.	The term 'Pure competition' is used by the American economists while discussing the price theory
3. Concept: Perfect competition is an ideal concept for the market structure. It is an imaginary concept.	Pure competition tries to substantiate the norm of perfect competition. It is a real concept.
4. Equilibrium: Any disequilibrium in the price can be adjusted faster due to perfect knowledge of perfect mobility of factors of production in perfect competition	Lack of perfection in the market makes the adjustments in disequilibrium of price a slower process.

Perfect Competition vs Pure Competition:

Perfect competition is often distinguished from pure competition, but they differ only in degree. The first five conditions relate to pure competition while the remaining four conditions are also required for the existence of perfect competition. According to Chamberlin, pure competition means, competition unalloyed with monopoly elements," whereas perfect competition involves perfection in many other respects than in the absence of monopoly." The practical importance of perfect competition is not much in the present times for few markets are perfectly competitive except those for staple food products and raw materials. That is why, Chamberlin says that perfect competition is a rare phenomenon."

Though the real world does not fulfil the conditions of perfect competition, yet perfect competition is studied for the simple reason that it helps us in understanding the working of an economy, where competitive behaviour leads to the best allocation of resources and the most efficient organisation of production. A hypothetical model of a perfectly competitive industry provides the basis for appraising the actual working of economic institutions and organisations in any economy.

2. Monopoly Market:

Meaning of Monopoly : The word monopoly is made up of two syllables ‘mono’ and 'poly'. Mono means single while 'poly' means selling. Thus, monopoly implies one single seller a product in the market. Infact, monopoly is understood as a market situation in which there is only one seller (or producer). He controls the entire supply of a single commodity. It is single commodity as the commodity has no close substitutes. In this way the literal meaning of 'monopoly’ is a single seller of a product in the market.

Absolute Monopoly

In Economics, however, monopoly can be understood in different ways. It can be understood with the help of degree of competition present in the market. If in a market there is one single seller of a product and no competition at all of any sort, such a situation is pure or perfect or absolute monopoly. In absolute monopoly the firm and industry are one i.e. there is no distinction between the firm and the industry. Any change in the price of those other commodities has no impact on the commodity of the monopolist. Pure monopoly is seen to exist in local public utility industries such as gas, electricity, water supply etc.

In Pure Monopoly, the position of the seller is very powerful. Since there is no substitute for his product, he can fix a price to his liking.

However, the reality is, no firm anywhere is so powerful as to sell a small output at exceeding high price. In short, pure monopoly is a myth. It has never existed anywhere. It is only a theoretical imagination of economists.

Limited Monopoly

Thus, we come to a more realistic market situation i.e. limited or imperfect monopoly. It is a market situation in which there is a single seller of the product for which there are no close substitutes.

In imperfect monopoly, the monopolist's position is weaker as compared to pure monopolist. The reason is that under pure monopoly we assume that, no substitute is available for his product. But, under limited monopoly, the monopolist has the possibility of some substitutes for his product, though they may not be very close or perfect substitutes. For example, an electric supply company is an illustration of imperfect competition as light can also be supplied by gas, kerosene, candles. Now, these are no close substitutes of electricity, at the same time same substitute is available. Thus, the

average revenue curve slopes downwards. Higher the price he fixes, less is the output sold. If he lowers the price, he can sell greater output.

Features of Monopoly:

The main features of monopoly are as follows:

1. **Single seller :** The monopolist is the single producer in the market.
2. **Firm and industry identical:** The distinction between firm and industry is not there under monopoly market because, being the only seller, firm and industry are identical.
3. **No close substitute:** There are no close competitive substitutes for the product.
4. **Price-maker :** A monopolist is a price-maker and not a price-taker. In perfect competition, it is the ruling price which the seller accepts from the market i.e. the seller is a 'price-taker'. But, a monopolist is in a position to fix the price for the product. He can also vary the price from buyer to buyer, i.e. he can have price differentials.
5. **Average Revenue or Demand Curve :** A monopoly firm which is also identical to industry, faces a downward sloping demand curve for its product. In other words, it can sell more at lesser price and less at higher price.
6. **No free entry :** The fact that the monopolist is the single seller with no close substitutes, implies that, there are barriers may be legal, technical, economic or natural in nature that do not allow free entry of firms.
7. **Control over output:** In the absence of a close substitute for his product, a monopolist has a complete control over the market supply. The monopolist can restrict the supply of output in the market and fix the price high.

II. Types of Monopoly

The different types of barriers to the entry of firms and other factors in monopoly market give rise to the monopoly of different kinds.

1. **Simple and Discriminating Monopoly:** On the basis of the price policy adopted by the monopolist, it is simple monopoly and discriminating monopoly. Simple monopoly is when the firm charges a uniform price to all the buyers. Such a

monopoly operates in a single market.

Discriminating monopoly is, when the firm charges different prices to different buyers. E.g. Doctor charges less fees from poor and high fees from rich people.

2. **Private Monopoly and Public Monopoly :** On the nature of ownership; it is private and public monopolies.

Private monopoly is when a private body controls a monopoly. Private monopolies, which are confined to the private sector in a mixed economy are usually profit-oriented. E.g. Tata, Birla, Reliance etc.

Public monopoly is when production is solely owned, controlled and operated by the state. Such monopolies are generally confined to nationalised industries. Public monopolies are service-motivated and welfare-motivated. That is why they are also referred to as 'Social Monopolies'. E.g. The Industrial Policy Resolution (1991) in India has categorically stated that, certain areas like atomic energy, arms and ammunition etc. as sole monopolies of the Central Government.

3. **Pure Monopoly and Imperfect Monopoly :** On the degree of monopoly power, monopolies can be pure Monopoly and Imperfect Monopoly. Pure Monopoly is when a single seller solely controls supply of a commodity has absolutely no substitute to his product. It is an absolute monopoly. Pure monopoly is completely antithesis to competition.

Imperfect monopoly implies a limited degree of monopoly. The single seller in this case has some close substitute for his product. Imperfect monopoly is a reality, while pure monopoly is a myth.

4. **Legal, Natural, Technological Monopolies :** On basis of the source, the different kinds of monopolies are :

Legal monopoly : It arises due to legal provisions such as trade marks, copyrights etc. It is legal because the law does not allow the potential competitors to imitate the design or form of products which are registered under the given trademark, brand name etc. Eg. Postal service in India.

Natural monopoly: This type of monopoly arises due to endowment of resources by nature and natural advantages such as good location, climate conditions, availability of certain minerals or raw material, etc. The firm claiming the

use of these resources first, is said to have natural monopoly. For example, Gulf countries have monopoly in oil, South Africa in diamonds, India in jute, etc.

Technological monopoly: This monopoly exists when certain technology is registered and cannot be imitated. Thus, the firm which has that technology becomes a monopoly which is referred as technological monopoly.

Joint Monopoly : Business combinations like trusts, cartels, syndicates etc. create joint monopolies i.e. when firms unite in a group and acquire joint monopolies in the market.

E.g. Organisation of Petroleum Exporting Countries (OPEC).

3. Duopoly:

Duopoly is a special case of the theory of oligopoly in which there are only two sellers. Both the sellers are completely independent and no agreement exists between them. Even though they are independent, a change in the price and output of one will affect the other, and may set a chain of reactions. A seller may, however, assume that his rival is unaffected by what he does, in that case he takes only his own direct influence on the price.

If, on the other hand, each seller takes into account the effect of his policy on that of his rival and the reaction of the rival on himself again, then he considers both the direct and the indirect influences upon the price. Moreover, a rival seller's policy may remain unaltered either to the amount offered for sale or to the price at which he offers his product. Thus the duopoly problem can be considered as either ignoring mutual dependence or recognising it.

4. Oligopoly:

Oligopoly is a market situation in which there are a few firms selling homogeneous or differentiated products. It is difficult to pinpoint the number of firms in 'competition among the few.' With only a few firms in the market, the action of one firm is likely to affect the others. An oligopoly industry produces either a homogeneous product or heterogeneous products.

The former is called pure or perfect oligopoly and the latter is called imperfect or differentiated oligopoly. Pure oligopoly is found primarily among producers of such industrial products as aluminium, cement, copper, steel, zinc, etc. Imperfect oligopoly is found among producers of such consumer goods as automobiles, cigarettes, soaps and detergents, TVs, rubber tyres, refrigerators, typewriters, etc.

Characteristics of Oligopoly:

In addition to fewness of sellers, most oligopolistic industries have several common characteristics which are explained below:

(i) Interdependence:
There is recognised interdependence among the sellers in the oligopolistic market. Each oligopolist firm knows that changes in its price, advertising, product characteristics, etc. may lead to counter-moves by rivals. When the sellers are a few, each produces a considerable fraction of the total output of the industry and can have a noticeable effect on market conditions.

He can reduce or increase the price for the whole oligopolist market by selling more quantity or less and affect the profits of the other sellers. It implies that each seller is aware of the price-moves of the other sellers and their impact on his profit and of the influence of his price-move on the actions of rivals.

Thus there is complete interdependence among the sellers with regard to their price-output policies. Each seller has direct and ascertainable influences upon every other seller in the industry. Thus, every move by one seller leads to counter-moves by the others.

(ii) Advertisement:
The main reason for this mutual interdependence in decision making is that one producer's fortunes are dependent on the policies and fortunes of the other producers in the industry. It is for this reason that oligopolist firms spend much on advertisement and customer services.

As pointed out by Prof. Baumol, "Under oligopoly advertising can become a life-and-death matter." For example, if all oligopolists continue to spend a lot on advertising their products and one seller does not match up with them he will find his customers gradually going in for his rival's product. If, on the other hand, one oligopolist advertises his product, others have to follow him to keep up their sales.

(iii) Competition:
This leads to another feature of the oligopolistic market, the presence of competition. Since under oligopoly, there are a few sellers, a move by one seller immediately affects the rivals. So each seller is always on the alert and keeps a close watch over the moves of its rivals in order to have a counter-move. This is true competition.

(iv) Barriers to Entry of Firms:
As there is keen competition in an oligopolistic industry, there are no barriers to entry into or exit from it. However, in the long run, there are some types of barriers to entry which tend to restraint new firms from entering the industry.

They may be:
(a) Economies of scale enjoyed by a few large firms; (b) control over essential and specialised inputs; (c) high capital requirements due to plant costs, advertising costs, etc. (d) exclusive patents and licenses; and (e) the existence of unused capacity which makes the industry unattractive. When entry is restricted or blocked by such natural and artificial barriers, the oligopolistic industry can earn long-run super normal profits.

(v) Lack of Uniformity:

Another feature of oligopoly market is the lack of uniformity in the size of firms. Finns differ considerably in size. Some may be small, others very large. Such a situation is asymmetrical. This is very common in the American economy. A symmetrical situation with firms of a uniform size is rare.

(vi) Demand Curve:

It is not easy to trace the demand curve for the product of an oligopolist. Since under oligopoly the exact behaviour pattern of a producer cannot be ascertained with certainty, his demand curve cannot be drawn accurately, and with definiteness. How does an individual seller s demand curve look like in oligopoly is most uncertain because a seller's price or output moves lead to unpredictable reactions on price-output policies of his rivals, which may have further repercussions on his price and output.

The chain of action reaction as a result of an initial change in price or output, is all a guess-work. Thus a complex system of crossed conjectures emerges as a result of the interdependence among the rival oligopolists which is the main cause of the indeterminateness of the demand curve.

If the oligopolist seller does not have a definite demand curve for his product, then how does he affect his sales. Presumably, his sales depend upon his current price and those of his rivals. However, a number of conjectural demand curves can be imagined.

For example, in differentiated oligopoly where each seller fixes a separate price for his product, a reduction in price by one seller may lead to an equivalent, more, less or no price reduction by rival sellers. In each case, a demand curve can be drawn by the seller within the range of competitive and monopoly demand curves.

Leaving aside retaliatory price movements, the individual seller's demand curve under oligopoly for both price cuts and increases is neither more elastic than under perfect or monopolistic competition nor less elastic than under monopoly. It may still be indefinite and indeterminate.

This situation is shown in Figure 1 where KD_1 is the elastic demand curve and MD is the less elastic demand curve. The oligopolies' demand curve is the dotted kinked KPD. The reason is quite simple. If a seller reduces the price of his product, his rivals also lower the prices of their products so that he is not able to increase his sales.

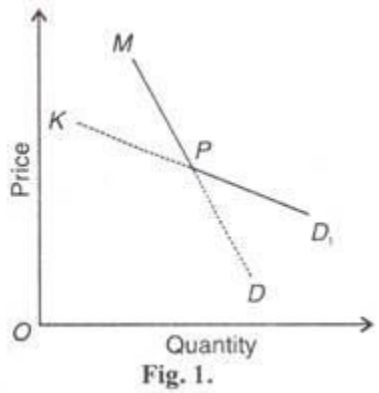


Fig. 1.

So the demand curve for the individual seller's product will be less elastic just below the present price P (where $KD_1$and MD curves are shown to intersect). On the other hand, when he raises the price of his product, the other sellers will not follow him in order to earn larger profits at the old price. So this individual seller will experience a sharp fall in the demand for his product.

Thus his demand curve above the price P in the segment KP will be highly elastic. Thus the imagined demand curve of an oligopolist has a comer or kink at the current price P. Such a demand curve is much more elastic for price increases than for price decreases.

(vii) No Unique Pattern of Pricing Behaviour:

The rivalry arising from interdependence among the oligopolists leads to two conflicting motives. Each wants to remain independent and to get the maximum possible profit. Towards this end, they act and react on the price-output movements of one another in a continuous element of uncertainty.

On the other hand, again motivated by profit maximisation each seller wishes to cooperate with his rivals to reduce or eliminate the element of uncertainty. All rivals enter into a tacit or formal agreement with regard to price-output changes. It leads to a sort of monopoly within oligopoly.

They may even recognise one seller as a leader at whose initiative all the other sellers raise or lower the price. In this case, the individual seller's demand curve is a part of the industry demand curve, having the elasticity of the latter. Given these conflicting attitudes, it is not possible to predict any unique pattern of pricing behaviour in oligopoly markets.

Table 1 : Features of Market Structures

Features	*(Market Forms)*			
	Perfect Competition	Monopoly	Monopolistic Competition	Oligopoly
1. No. of Firms	Large	One	Varied but not too many	A few
2. Nature of Product	Homoge-neous	One type	Product Differentiation	Homogeneous or Differentiated
3. Entry of Firms	Free	No entry	Free	Restricted
4. Degree of Mono-poly Power	Zero	Full	Limited	Limited due to product differentiation
5. Price Policy of Firm	Price-taker	Price-maker	Price-maker	Price-maker
6. Market Knowledge	Complete	Incomplete	Incomplete	Incomplete
7. Elasticity of Demand	Perfectly elastic	Less elastic	Less elastic	Less elastic
8. AR and MR	Equal	Different	Different	Different
9. Selling Cost	No	Small	Large	Small

Price/Cost and Output Determination under Perfect Competition

Perfect competition refers to a market situation where there are a large number of buyers and sellers dealing in homogenous products.

Moreover, under perfect competition, there are no legal, social, or technological barriers on the entry or exit of organizations.

In perfect competition, sellers and buyers are fully aware about the current market price of a product. Therefore, none of them sell or buy at a higher rate. As a result, the same price prevails in the market under perfect competition.

Under perfect competition, the buyers and sellers cannot influence the market price by increasing or decreasing their purchases or output, respectively. The market price of products in perfect competition is determined by the industry. This implies that in perfect competition, the market price of products is determined by taking into account two market forces, namely market demand and market supply.

In the words of Marshall, “Both the elements of demand and supply are required for the determination of price of a commodity in the same manner as both the blades of scissors are required to cut a cloth.” As discussed in the previous chapters, market

demand is defined as a sum of the quantity demanded by each individual organizations in the industry.

On the other hand, market supply refers to the sum of the quantity supplied by individual organizations in the industry. In perfect competition, the price of a product is determined at a point at which the demand and supply curve intersect each other. This point is known as equilibrium point as well as the price is known as equilibrium price. In addition, at this point, the quantity demanded and supplied is called equilibrium quantity. Let us discuss price determination under perfect competition in the next sections.

Demand under Perfect Competition:

Demand refers to the quantity of a product that consumers are willing to purchase at a particular price, while other factors remain constant. A consumer demands more quantity at lower price and less quantity at higher price. Therefore, the demand varies at different prices.

Figure-1 represents the demand curve under perfect competition:

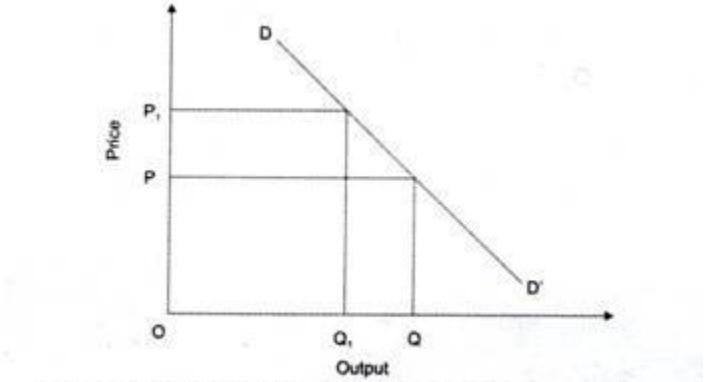


Figure-1: Demand Curve under Perfect Competition

As shown in Figure-1, when price is OP, the quantity demanded is OQ. On the other hand, when price increases to OP1, the quantity demanded reduces to OQ1. Therefore, under perfect competition, the demand curve (DD') slopes downward.

Supply under Perfect Competition:

Supply refers to quantity of a product that producers are willing to supply at a particular price. Generally, the supply of a product increases at high price and decreases at low price.

Figure-2 shows the supply curve under perfect competition:

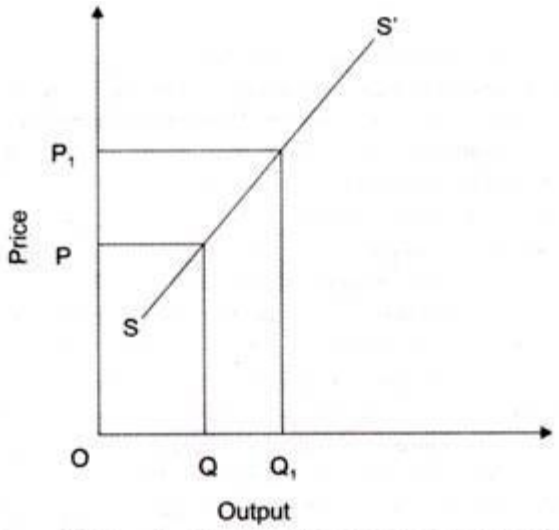


Figure-2: Supply Curve under Perfect Competition

In Figure-2, the quantity supplied is OQ at price OP. When price increases to OP1, the quantity supplied increases to OQ1. This is because the producers are able to earn large profits by supplying products at higher price. Therefore, under perfect competition, the supply curves (SS') slopes upward.

Equilibrium under Perfect Competition:

As discussed earlier, in perfect competition, the price of a product is determined at a point at which the demand and supply curve intersect each other. This point is known as equilibrium point. At this point, the quantity demanded and supplied is called equilibrium quantity.

Figure-3 shows the equilibrium under perfect competition:

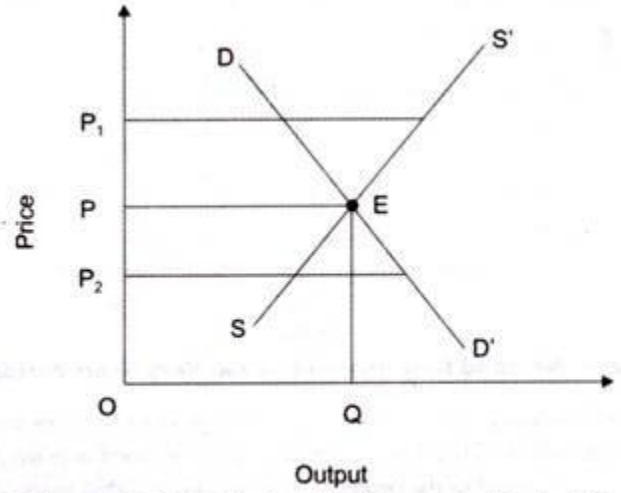


Figure-3: Price and Output Determination under Perfect Competition

In Figure-3, it can be seen that at price OP1, supply is more than the demand. Therefore, prices will fall down to OP. Similarly, at price OP2, demand is more than the

supply. Similarly, in such a case, the prices will rise to OP. Thus, E is the equilibrium at which equilibrium price is OP and equilibrium quantity is OQ.

Price/Cost and Output Determination under Monopoly

Monopoly refers to a market structure in which there is a single producer or seller that has a control on the entire market.

This single seller deals in the products that have no close substitutes and has a direct demand, supply, and prices of a product.

Therefore, in monopoly, there is no distinction between an one organization constitutes the whole industry.

Demand and Revenue under Monopoly:

n monopoly, there is only one producer of a product, who influences the price of the product by making Change m supply. The producer under monopoly is called monopolist. If the monopolist wants to sell more, he/she can reduce the price of a product. On the other hand, if he/she is willing to sell less, he/she can increase the price.

As we know, there is no difference between organization and industry under monopoly. Accordingly, the demand curve of the organization constitutes the demand curve of the entire industry. The demand curve of the monopolist is Average Revenue (AR), which slopes downward.

Figure-9 shows the AR curve of the monopolist:

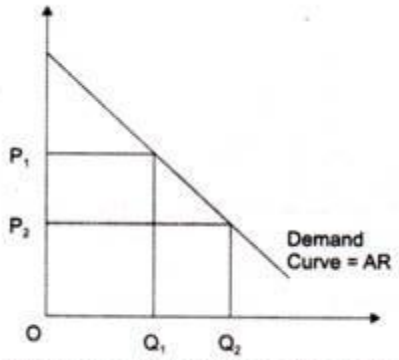


Figure-9: AR Curve under Monopoly

In Figure-9, it can be seen that more quantity (OQ_2) can only be sold at lower price (OP_2). Under monopoly, the slope of AR curve is downward, which implies that if the high prices are set by the monopolist, the demand will fall. In addition, in monopoly, AR

curve and Marginal Revenue (MR) curve are different from each other. However, both of them slope downward.

The negative AR and MR curve depicts the following facts:

i. When MR is greater than AR, the AR rises
ii. When MR is equal to AR, then AR remains constant
ii. When MR is lesser than AR, then AR falls

Here, AR is the price of a product, As we know, AR falls under monopoly; thus, MR is less than AR.

Figure-10 shows AR and MR curves under monopoly:

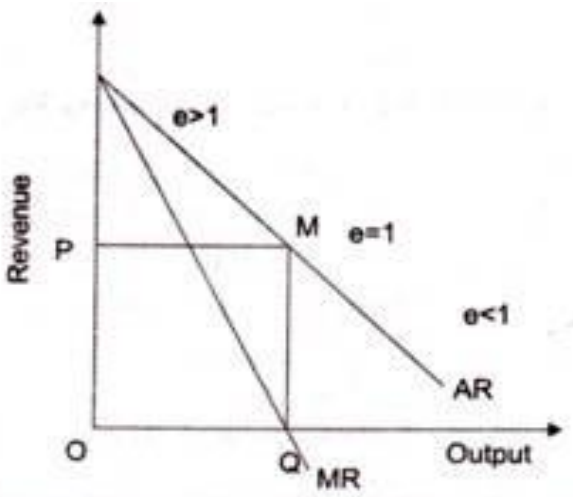


Figure-10: MR and AR Curves under Monopoly

In figure-10, MR curve is shown below the AR curve because AR falls.

Table-1 shows the numerical calculation of AR and MR under monopoly:

Table-1: AR and MR under Monopoly				
No. of Units Sold (Q)	**Price**	**TR =P *Q**	**MR**	**AR = TR /Q**
1	10	10	10	10
2	9	18	8	9
3	8	24	6	8

Table-1: AR and MR under Monopoly				
No. of Units Sold (Q)	**Price**	**TR =P *Q**	**MR**	**AR = TR /Q**
4	7	28	4	7
5	6	30	2	6
6	5	30	0	5
7	4	28	-- 2	4

As shown in Table-1, AR is equal to price. MR is less than AR and falls twice the rate than AR. For instance, when two units of

Output are sold, MR falls by Rs. 2, whereas AR falls by Re. 1.

Monopoly Equilibrium:

Single organization constitutes the whole industry in monopoly. Thus, there is no need for separate analysis of equilibrium of organization and industry in case of monopoly. The main aim of monopolist is to earn maximum profit as of a producer in perfect competition.

Unlike perfect competition, the equilibrium, under monopoly, is attained at the point where profit is maximum that is where MR=MC. Therefore, the monopolist will go on producing additional units of output as long as MR is greater than MC, to earn maximum profit.

Let us learn monopoly equilibrium through Figure-11:

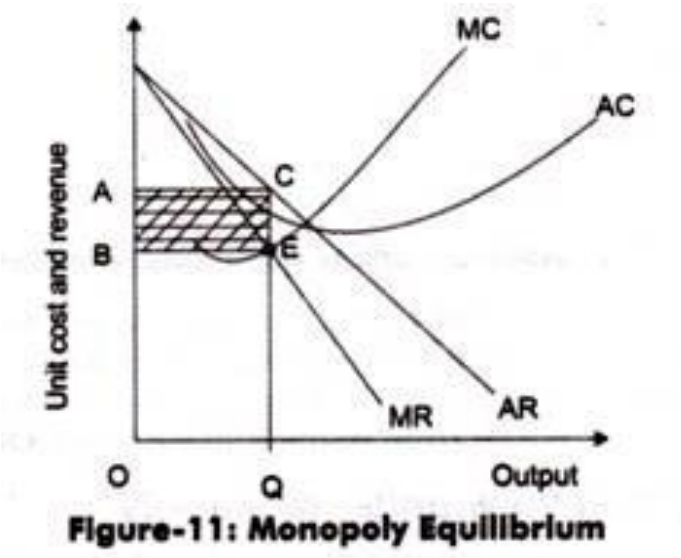


Figure-11: Monopoly Equilibrium

In Figure-11, if output is increased beyond OQ, MR will be less than MC. Thus, if additional units are produced, the organization will incur loss. At equilibrium point, total profits earned are equal to shaded area ABEC. E is the equilibrium point at which MR=MC with quantity as OQ.

It should be noted that under monopoly, price forms the following relation with the MC:

Price = AR
MR= AR [(e-1)/e]
e = Price elasticity of demand
As in equilibrium MR=MC
MC = AR [(e-1)/e]

Exhibit-2:

Determining Price and Output under Monopoly:

Suppose demand function for monopoly is Q = 200-0.4Q

Price function is P= 1000-10Q

Cost function is TC= 100 + 40Q + Q^2

Maximum profit is achieved where MR=MC

To find MR, TR is derived.

TR= (1000-10Q) Q = 1000Q-10Q^2

MR = $\Delta TR/\Delta Q$= 1000 – 20Q

MC = $\Delta TC/\Delta Q$ = 40 + 2Q

MR = MC

1000 – 20Q = 40 + 2Q

Q = 43.63 (44 approx.) = Profit Maximizing Output

Profit maximizing price = 1000 – 20*44 = 120

Total maximum profit= TR-TC= (1000Q – 10Q^2) – (100+ 40Q+Q^2)

At Q = 44

Total maximum profit = Rs. 20844

Monopoly Equilibrium in Case of Zero Marginal Cost:

In certain situations, it may happen that MC is zero, which implies that the cost of production is zero. For example, cost of production of spring water is zero. However, the monopolist will set its price to earn profit.

Figure-12 shows the monopoly equilibrium when MC is zero:

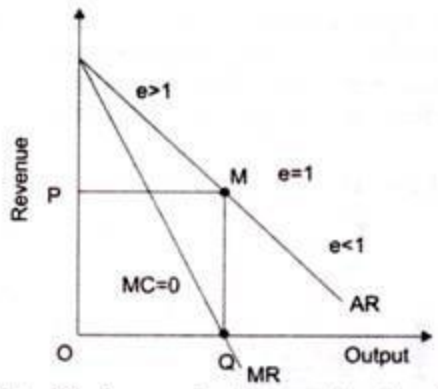


Figure-12: Equilibrium under Monopoly when MC is Zero

In Figure-12, AR is the average revenue curve and MR is the marginal revenue curve. In such a case, the total cost is zero; therefore, AR and MR are also zero. As shown in Figure-12, equilibrium position is achieved at the point where MR equals zero that is at output OQ and price P.We can see that point M is the mid-point of AR curve, where elasticity of demand is unity. Therefore, when MC = 0, the equilibrium of the monopolist is established at the output (OQ) where elasticity of demand is unity.

Short-Run and Long-Run View under Monopoly:

Till now, we have discussed monopoly equilibrium without taking into consideration the short-run and long- run period. This is because there is not so much difference under short run and long run analysis in monopoly.

In the short run, the monopolist should make sure that the price should not go below Average Variable Cost (AVC). The equilibrium under monopoly in long-run is same as in short-run. However, in long-run, the monopolist can expand the size of its plants according to demand. The adjustment is done to make MR equal to the long run MC.

In the long-run, under perfect competition, the equilibrium position is attained by entry or exit of the organizations. In monopoly, the entry of new organizations is restricted.

The monopolist may hold some patents or copyright that limits the entry of other players in the market. When a monopolist incurs losses, he/she may exit the business. On the other hand, if profits are earned, then he/she may increase the plant size to gain more profit.

5. Monopolistic Competition:

Monopolistic competition refers to a market situation where there are many firms selling a differentiated product. “There is competition which is keen, though not perfect, among many firms making very similar products.” No firm can have any perceptible influence on the price-output policies of the other sellers nor can it be influenced much by their

actions. Thus monopolistic competition refers to competition among a large number of sellers producing close but not perfect substitutes for each other.

Features of monopolistic competition:

The following are the main features of monopolistic competition:

(i) Large Number of Sellers:
In monopolistic competition the number of sellers is large. They are “many and small enough” but none controls a major portion of the total output. No seller by changing its price-output policy can have any perceptible effect on the sales of others and in turn be influenced by them. Thus there is no recognised interdependence of the price-output policies of the sellers and each seller pursues an independent course of action.

(ii) Product Differentiation:
One of the most important features of the monopolistic competition is differentiation. Product differentiation implies that products are different in some ways from each other. They are heterogeneous rather than homogeneous so that each firm has an absolute monopoly in the production and sale of a differentiated product. There is, however, slight difference between one product and other in the same category.

Products are close substitutes with a high cross-elasticity and not perfect substitutes. Product “differentiation may be based upon certain characteristics of the products itself, such as exclusive patented features; trade-marks; trade names; peculiarities of package or container, if any; or singularity in quality, design, colour, or style. It may also exist with respect to the conditions surrounding its sales.”

(iii) Freedom of Entry and Exit of Firms:
Another feature of monopolistic competition is the freedom of entry and exit of firms. As firms are of small size and are capable of producing close substitutes, they can leave or enter the industry or group in the long run.

(iv) Nature of Demand Curve:
Under monopolistic competition no single firm controls more than a small portion of the total output of a product. No doubt there is an element of differentiation nevertheless the products are close substitutes. As a result, a reduction in its price will increase the sales of the firm but it will have little effect on the price-output conditions of other firms, each will lose only a few of its customers.

Likewise, an increase in its price will reduce its demand substantially but each of its rivals will attract only a few of its customers. Therefore, the demand curve (average revenue curve) of a firm under monopolistic competition slopes downward to the right. It is elastic but not perfectly elastic within a relevant range of prices of which he can sell any amount.

(v) Independent Behaviour:
In monopolistic competition, every firm has independent policy. Since the number of sellers is large, none controls a major portion of the total output. No seller by changing its price-output policy can have any perceptible effect on the sales of others and in turn be influenced by them.

(vi) Product Groups:
There is no any 'industry' under monopolistic competition but a 'group' of firms producing similar products. Each firm produces a distinct product and is itself an industry. Chamberlin lumps together firms producing very closely related products and calls them product groups, such as cars, cigarettes, etc.

(vii) Selling Costs:
Under monopolistic competition where the product is differentiated, selling costs are essential to push up the sales. Besides, advertisement, it includes expenses on salesman, allowances to sellers for window displays, free service, free sampling, premium coupons and gifts, etc.

(viii) Non-price Competition:
Under monopolistic competition, a firm increases sales and profits of his product without a cut in the price. The monopolistic competitor can change his product either by varying its quality, packing, etc. or by changing promotional programmes.

Equilibrium of Firm under Perfect Competition

By now, you are aware of the different types of market and the objectives of a firm. In this article, we will talk about equilibrium under a perfectly competitive market, the different equilibrium states, and how a firm decides on the level of output.

Introduction

In a perfectly competitive market, a firm cannot change the price of a product by modifying the quantity of its output. Further, the input and cost conditions are given.

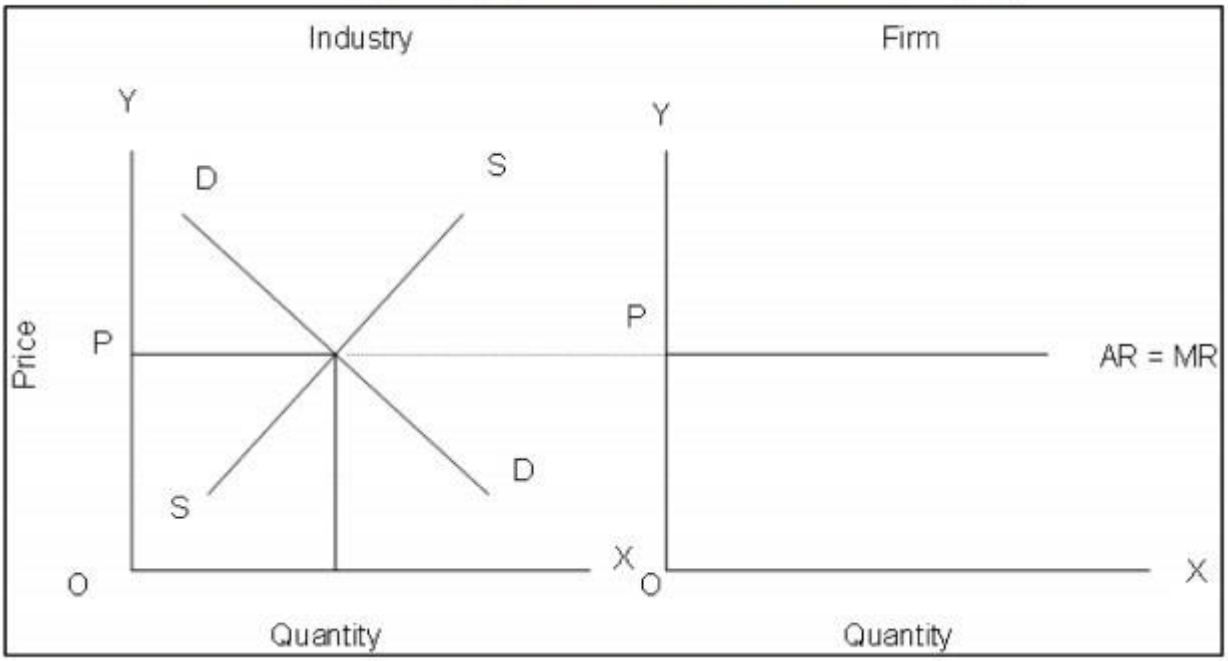
Therefore, the firm can alter the quantity of its output without changing the price of the product. We know that a firm is in equilibrium when its profits are maximum, which relies on the cost and revenue conditions of the firm.

These conditions can vary in the long and short-term. Before we take a look at the equilibrium states, let's look at the demand curve of a product under perfect competition.

Demand Curve of a Product in a Perfectly Competitive Market

Let's derive the firm's demand curve with the help of the market's demand and supply curve. In perfect competition, the equilibrium of the market's demand and supply determines the price.

Determination of Market Price under Perfect Competition



In the figure above, Price is on the Y-axis and Quantity on the X-axis. The left side of the figure represents the industry and the right side the case of a firm. The market demand curve is DD and the market supply curve is SS.

Further, the point at which the market's demand and supply curves intersect each other is the equilibrium point. The price at this level is the equilibrium price and the quantity is the equilibrium quantity.

All firms receive this price in a perfectly competitive market. Also, firms are the price-takers and the industry is the price-maker. The Average Revenue (AR) Curve is the demand curve of the firm as it can sell any quantity it wants at the market price.

Short-run Equilibrium of a Competitive Firm

In the short-run, there the following assumptions:

- The price of the product is given and the firm can sell any quantity at that price
- The size of the plant of the firm is constant
- The firm faces given short-run cost curves

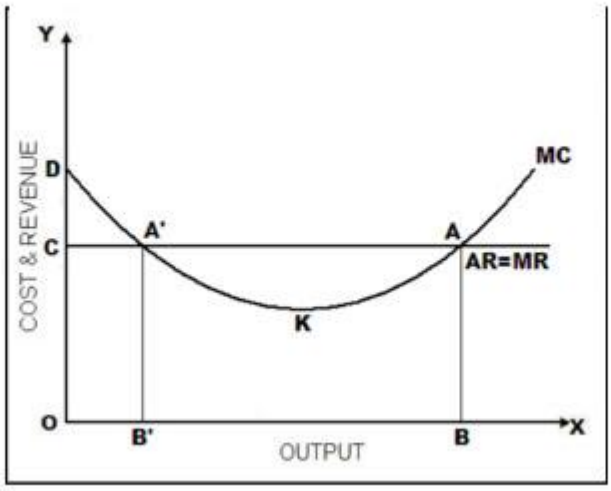
We know that the necessary and sufficient conditions for the equilibrium of a firm are:

1. MC = MR
2. MC curve cuts the MR curve from below

In other words, the MC curve must intersect the MR curve from below and after the intersection lie above the MR curve. In simpler terms, the firm must keep adding to its output as long as MR>MC.

This is because additional output adds more revenue than costs and increases its profits. Further, if MC=MR, but the firm finds that by adding to its output, MC becomes smaller than MR, then it must keep increasing its output.

Equilibrium of a Firm using MC and MR Curves



Since it is a perfectly competitive market, the demand for the product of the firm is perfectly elastic. Further, it can sell all its output at the market price. Therefore, its demand curve runs parallel to the X-axis throughout its length and its MR curve coincides with the AR curve.

On the supply side, recall the four cost curves – AFC, AVC, MC, and ATC? Of these, the supply curve is that portion of the MC curve which lies above the AVC curve and is upward sloping.

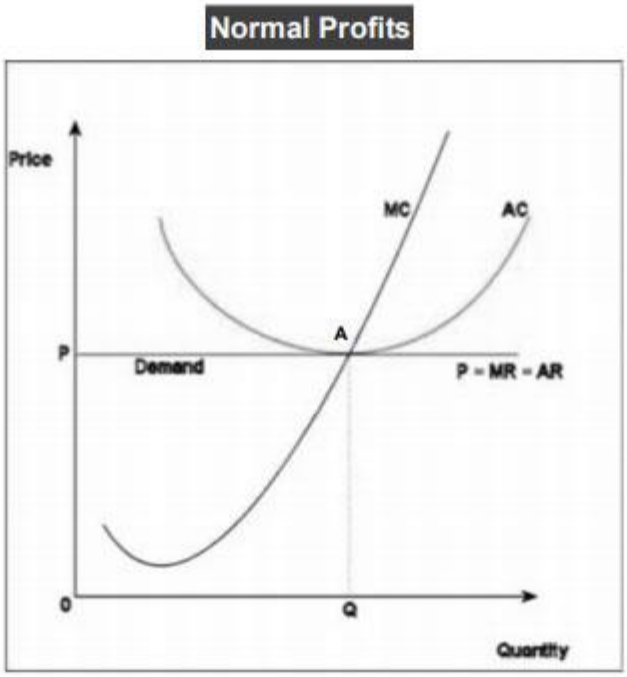
In the short-run, the firm cannot avoid fixed costs. Even if the production is zero, the firm must incur these costs. Therefore, the firm cannot avoid losses by not producing and continues producing as long as its losses do not exceed its fixed costs. In other words, a firm produces as long as its average price equals or exceeds its AVC.

Three Possibilities in Short-run

In a perfectly competitive market, a firm can earn a normal profit, super-normal profit, or it can bear a loss. At the equilibrium quantity, if the average cost is equal to the average revenue, then the firm is earning a normal profit.

On the other hand, if the average cost is greater than the average revenue, then the firm is bearing a loss. However, if the average cost is less than average revenue, then the firm is earning super-normal profits.

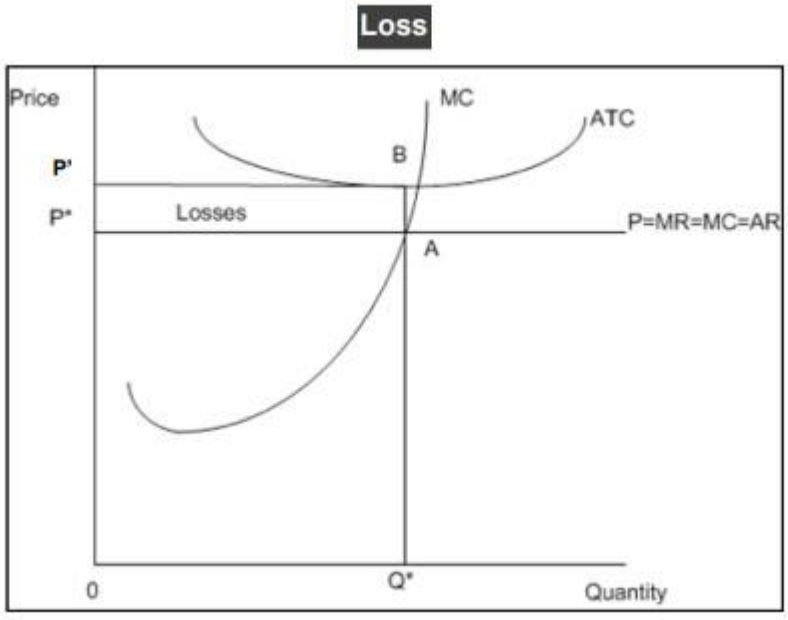
Normal Profit



In the above figure, you can see that the costs and revenue are on the Y-axis and the Quantity is on the X-axis. Further, marginal costs cut the marginal revenue curve from below at point A. At point 'A', P is the equilibrium price and 'Q' is the equilibrium quantity.

Note that corresponding to the equilibrium quantity, the average cost is equal to the average revenue. It also means that the firm is earning a normal profit.

Loss

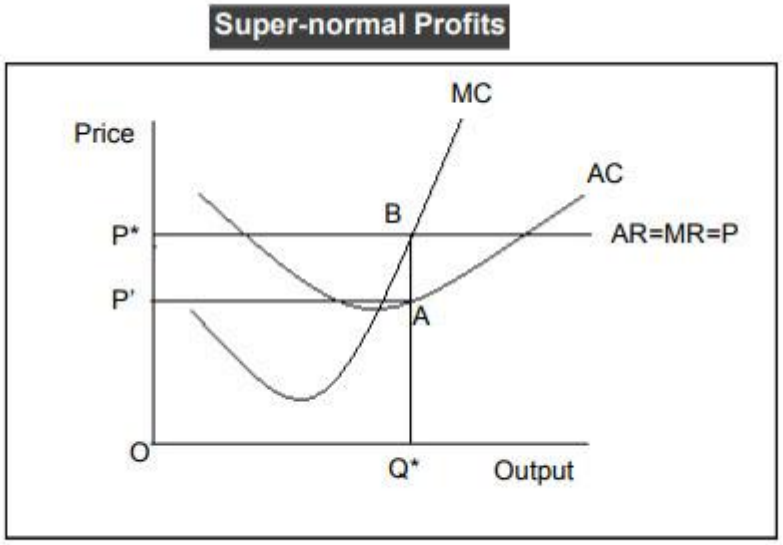


In the figure above, the cost and revenue curves are on the Y-axis and the quantity demanded is on the X-axis. Further, the marginal cost curve cuts the marginal revenue curve from below at point 'A', the equilibrium point.

Corresponding to point 'A', P* and Q* are the equilibrium price and quantity respectively. Also, corresponding to Q*, the average cost is more than the average revenue.

In this case, the per unit cost of OQ* (average cost) is more than the per unit revenue of OQ* (average revenue). As per the figure, the per unit revenue is OP and the per unit cost is OP'. this means that the per unit loss is PP'. Also, the total loss on quantity OQ* is P*P'BA.

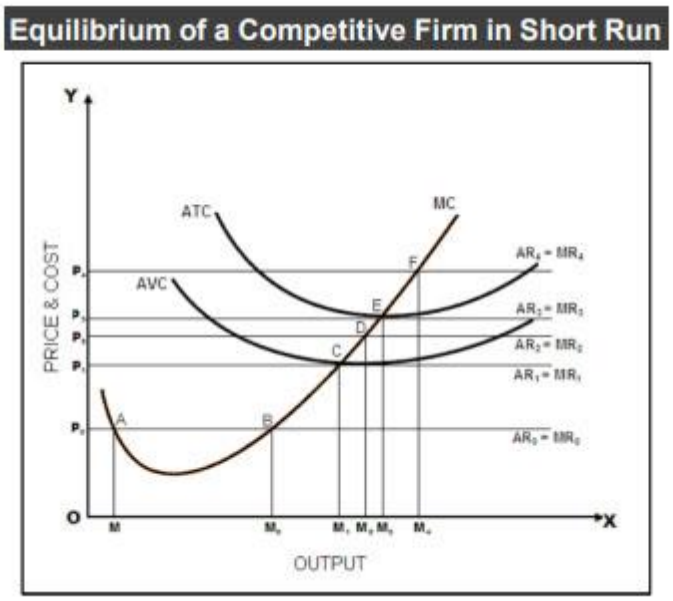
Super-normal Profit



In the figure above, the per unit revenue or average revenue is OP* while the per unit cost or average cost is OP'. Therefore, the per unit receipts are high in comparison with the per unit cost.

That's why the average revenue curve lies above the average cost curve corresponding to Q*. The firm is earning super-normal profits. The per unit profit is P'P* and the total profit is for quantity OQ* is P'P*BA.

Summary of the Equilibrium of a Competitive firm in the Short-run



In the figure above, we have taken five different prices to illustrate the supply behaviour and equilibrium of the firm. Further, each price has an average revenue curve which runs parallel to the X-axis and coincides with the MR curve.

MR_0

When the price is OP_0, the corresponding MR_0 curve cuts the MC curve at two points – A and B. At point 'A', none of the conditions of equilibrium are satisfied.

At point 'B', the MC curve cuts the MR_0 curve from below but AR is less than AVC. Therefore, the firm incurs a loss which is greater than its fixed cost if it decides to produce when the price is OP_0. Hence, the firm closes down.

MR_1

If the price is equal to OP_1 (*equal to the least possible average variable cost*), then the firm decides to produce. In this case, the MC curve cuts the MR_1 curve from below at point C and AR_1 is equal to AVC. Therefore, the firm either does not produce at all or produces equal to OM_1.

MR_2

If the price is equal to OP_2, it exceeds AVC but is less than ATC. The MR_2 and MC curves intersect each other at point D. The firm produces an output – OM_2. The firm still incurs a loss but it is less than its fixed costs.

MR_3

If the price rises to OP3, the firm can recover all its costs including the fixed costs. The MC curve cuts the MR_3 curve from below at point E and AR_3 is equal to ATC. Therefore, all the conditions of the equilibrium are satisfied and the firm produces an output – OM_3.

MR_4

If the price rises even higher, the point of intersection of MR_4 and MC curves moves to point F. In this case, the firm earns super-normal profits and produces OM_4.

Therefore, in the short-run, even if a firm incurs losses, it continues production until it loses start exceeding its fixed costs. On the other hand, if the firm earns super-normal profits, then new firms entering the market wipe it out.

Solved Question on Perfect Competition

Q1. What are the main assumptions under the short-run period of a competitive firm?

Answer: The main assumptions under the short-run period of a competitive firm are:

- The price of the product is given and the firm can sell any quantity at that price
- The size of the plant of the firm is constant
- The firm faces given short-run cost curves

Q2. What are the three possibilities for a firm's equilibrium in a perfectly competitive market?

Answer: The three possibilities are:

1. The firm earns normal profits
2. It incurs losses
3. It earns super-normal profits

Arial

Equilibrium of firms under Monopoly

The conditions for Equilibrium in Monopoly are the same as those under perfect competition. The marginal cost (MC) is equal to the marginal revenue (MR) and the MC curve cuts the MR curve from below. In this article, we will understand Equilibrium in Monopoly in detail.

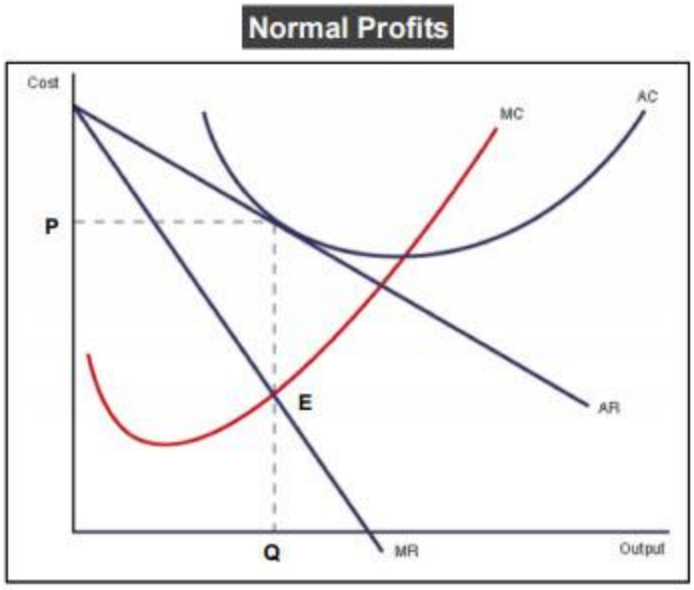
A Firm's Short-Run Equilibrium in Monopoly

Like in perfect competition, there are three possibilities for a firm's Equilibrium in Monopoly. These are:

1. The firm earns normal profits – If the average cost = the average revenue
2. It earns super-normal profits – If the average cost < the average revenue
3. It incurs losses – If the average cost > the average revenue

Normal Profits

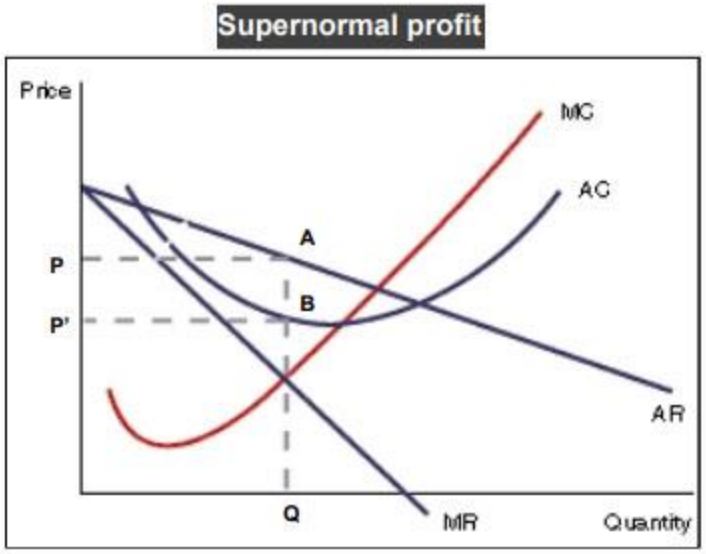
A firm earns normal profits when the average cost of production is equal to the average revenue for the corresponding output.



In the figure above, you can see that the MC curve cuts the MR curve at the equilibrium point E. Also, the AC curve touches the AR curve at a point corresponding to the same point. Therefore, the firm earns normal profits.

Super-normal Profits

A firm earns super-normal profits when the average cost of production is less than the average revenue for the corresponding output.



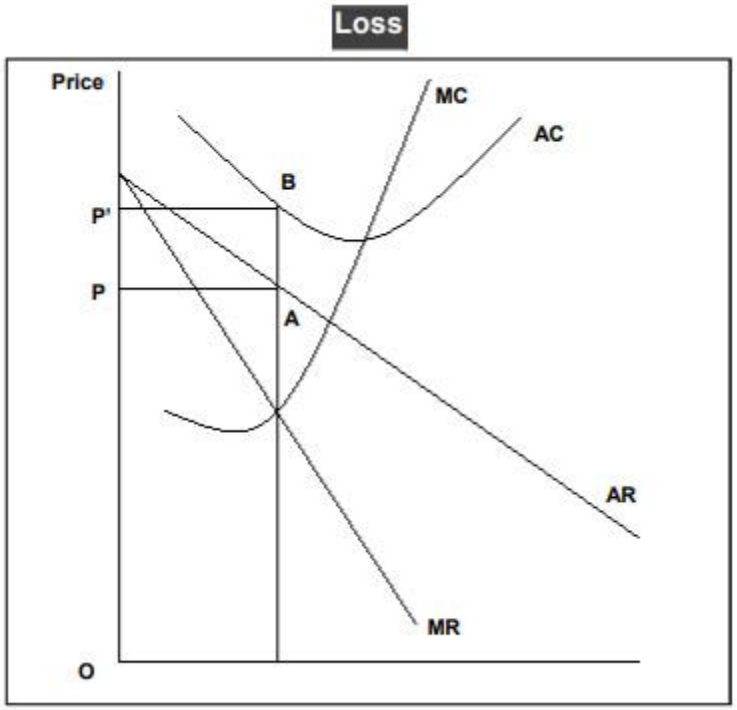
In the figure above, you can see that the price per unit = OP = QA. Also, the cost per unit = OP'. Therefore, the firm is earning more and incurring a lesser cost. In this case, the per unit profit is

OP – OP’ = PP’

Also, the total profit earned by the monopolist is PP’BA.

Losses

A firm earns losses when the average cost of production is higher than the average revenue for the corresponding output.

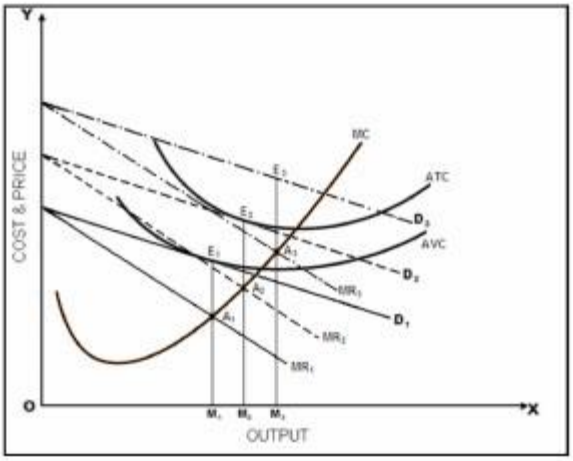


In the figure above, you can see that the average cost curve lies above the average revenue curve for the same quantity. The average revenue = OP and the average cost = OP’. Therefore, the firm is incurring an average loss of PP’ and the total loss is PP’BA. In the short-run, a monopolist sometimes sets a lower price and incurs losses to keep new firms away.

Summary of Short-run Equilibrium in Monopoly

In the short-run, a monopolist firm cannot vary all its factors of production as its cost curves are similar to a firm operating in perfect competition. Also, in the short-run, a monopolist might incur losses but will shut down only if the losses exceed its fixed costs. Further, if the demand for his product is high, then the monopolist can also make super-normal profits.

Short Run Equilibrium of a Monopolist



The figure shown above depicts a firm's short-run Equilibrium in Monopoly. The quantity is along the X-axis and price and cost of production along the Y-axis.

There are three curves – the average variable cost (AVC) curve, the average total cost (ATC) curve, and the marginal cost (MC) curve. Further, there are three demand curves to explain the possible positions of the equilibrium:

Demand Curve D_1 is tangent to the AVC curve at point E_1

Its corresponding MC curve intersects the MR_1 curve from below at point A_1. Therefore, while the monopolist satisfies the first condition of equilibrium, he is unable to recover his complete cost of production.

However, even if he closes the plant down, he cannot reduce the losses since they are fixed costs.

Therefore, he decides to produce – OM_1 quantity of output and sells it at a price E_1M_1. This ensures that he suffers a loss which is equal to his fixed costs.

It is important to note that if the demand curve lies left to the position of D_1, then there is no production since the monopolist would simply add to his losses by operating the plant. In such cases, a monopolist would close down the plan and restrict his losses to the fixed costs.

Demand curve D_2

If the demand curve lies to the right of D_1, then the monopolist can recover a part of his fixed costs. Further, if this demand curve is tangent to the ATC curve (demand curve D_2), then the monopolist can also recover his complete cost of production.

If D_2 is the demand curve, then the equilibrium position of the monopolist is at the intersection of the MC curve and the MR_2 curve at point A_2. This corresponds with the point of tangency between D_2 and the ATC curve (point E_2).

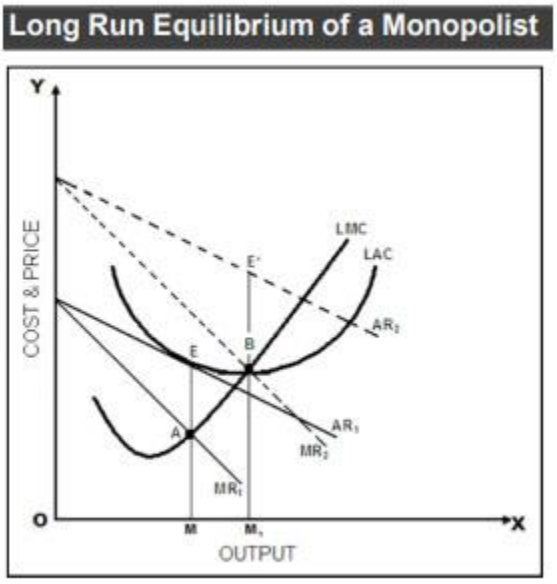
Therefore, the MC curve cuts the MR_2 curve from below and AR = ATC. Hence, the monopolist earns normal profits by producing a quantity OM_2 and selling it at a price E_2M_2.

Demand Curve D_3

If the demand curve lies further to the right of D_2 (like D_3), the monopolist can earn super-normal profits. The equilibrium position is the point of intersection between the MC curve and the MR_3 curve at point A_3. Therefore, the monopolist produces a quantity OM_3 and sells it at a price E_3M_3.

A Firm's Long-run Equilibrium in Monopoly

In the long-run, a monopolist can vary all the inputs. Therefore, to determine the equilibrium of the firm, we need only two cost curves – the AC and the MC. Further, since the monopolist exits the market if he is operating at a loss, the demand curve must be tangent to the AC curve or lie to the right and intersect it twice.



As you can see above, there are two alternative cases for the determination of Equilibrium in Monopoly:

- With normal profits
- With super-normal profits

We have not taken the loss scenario here because if the monopolist incurs losses in the long-run, he will stop operating.

Case 1

The demand curve AR_1 is tangent to AC or LAC at point E. Remember, if the demand curve lies to the left of the AC curve, then the monopolist is unable to recover his costs and closes down.

However, if the AR curve is tangent to the AC curve, then the monopolist can recover his costs and stay in the market.

Further, note that the perpendicular drawn from point E to the X-axis, the MC curve, and the MR curve are concurrent at point A.

Therefore, all the conditions of equilibrium are satisfied. The monopolist produces OM quantity and sells it at a price of EM per unit which covers its average costs + normal profits.

Case 2

The marginal revenue curve MR_2 cuts the MC curve from below at point B. The corresponding height of the AR2 curve is $E'M_1$.

Hence, the monopolist produces OM_1 quantity and sells it at $E'M_1$ per unit to earn an extra profit of E'B per unit. Being a monopoly, this extra profit is not lost to competition or newer firms entering the industry.

Solved Question on Equilibrium in Monopoly

Q1. What are the three possibilities for a firm's Equilibrium in Monopoly?

Answer: The three possibilities are:

1. The average cost = the average revenue: the firm earns normal profits.
2. The average cost < the average revenue: the firm earns super-normal profits
3. Or, the average cost > the average revenue: the firm incurs losses

Price Discrimination under Monopoly

In monopoly, there is a single seller of a product called monopolist. The monopolist has control over pricing, demand, and supply decisions, thus, sets prices in a way, so that maximum profit can be earned.

The monopolist often charges different prices from different consumers for the same product. This practice of charging different prices for identical product is called price discrimination.

According to Robinson, "Price discrimination is charging different prices for the same product or same price for the differentiated product."

According to Stigler, "Price discrimination is the sale of various products at prices which are not proportional to their marginal costs."

In the words of Dooley, "Discriminatory monopoly means charging different rates from different customers for the same good or service."

According to J.S. Bains, "Price discrimination refers strictly to the practice by a seller to charging different prices from different buyers for the same good."

Let us learn different types of price discrimination.

Types of Price Discrimination:

Price discrimination is a common pricing strategy' used by a monopolist having discretionary pricing power. This strategy is practiced by the monopolist to gain market advantage or to capture market position.

There are three types of price discrimination, which are shown in Figure-13:

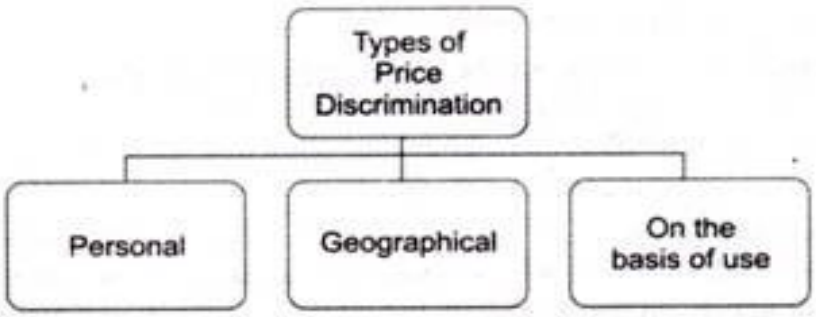


Figure-13: Price Discrimination

The different types of price discrimination (as shown in Figure-13) are explained as follows:

i. Personal:

Refers to price discrimination when different prices are charged from different individuals. The different prices are charged according to the level of income of consumers as well as their willingness to purchase a product. For example, a doctor charges different fees from poor and rich patients.

ii. Geographical:

Refers to price discrimination when the monopolist charges different prices at different places for the same product. This type of discrimination is also called dumping.

iii. On the basis of use:

Occurs when different prices are charged according to the use of a product. For instance, an electricity supply board charges lower rates for domestic consumption of electricity and higher rates for commercial consumption.

Degrees of Price Discrimination:

Price discrimination has become widespread in almost every market. In economic jargon, price discrimination is also called monopoly price discrimination or yield management. The degree of price discrimination vanes in different markets.

Figure-14 shows the degrees of price discrimination:

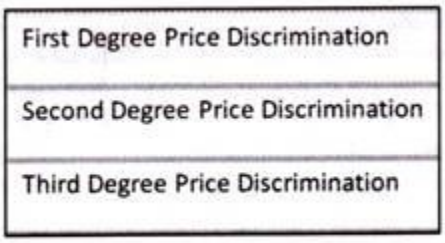


Figure-14: Degrees of Price Discrimination

These three degrees of price discrimination (as shown in Figure-14) are explained as follows:

i. First-degree Price Discrimination:

Refers to a price discrimination in which a monopolist charges the maximum price that each buyer is willing to pay. This is also known as perfect price discrimination as it involves maximum exploitation of consumers. In this, consumers fail to enjoy any consumer surplus. First degree is practiced by lawyers and doctors.

ii. Second-degree Price Discrimination:

Refers to a price discrimination in which buyers are divided into different groups and different prices are charged from these groups depending upon what they are willing to pay. Railways and airlines practice this type of price discrimination.

iii. Third-degree Price Discrimination:

Refers to a price discrimination in which the monopolist divides the entire market into submarkets and different prices are charged in each submarket. Therefore, third-degree price discrimination is also termed as market segmentation.

In this type of price discrimination, the monopolist is required to segment market in a manner, so that products sold in one market cannot be resold in another market. Moreover, he/she should identify the price elasticity of demand of different submarkets. The groups are divided according to age, sex, and location. For instance, railways charge lower fares from senior citizens. Students get discount in cinemas, museums, and historical monuments.

Necessary Conditions for Price Discrimination:

Price discrimination implies charging different prices for identical goods.

It is possible under the following conditions:

i. Existence of Monopoly:

Implies that a supplier can discriminate prices only when there is monopoly. The degree of the price discrimination depends upon the degree of monopoly in the market.

ii. Separate Market:

Implies that there must be two or more markets that can be easily separated for discriminating prices. The buyer of one market cannot move to another market and goods sold in one market cannot be resold in another market.

iii. No Contact between Buyers:

Refers to one of the most important conditions for price discrimination. A supplier can discriminate prices if there is no contact between buyers of different markets. If buyers in one market come to know that prices charged in another market are lower, they will prefer to buy it in other market and sell in own market. The monopolists should be able to separate markets and avoid reselling in these markets.

iv. Different Elasticity of Demand:

Implies that the elasticity of demand in the markets should differ from each other. In markets with high elasticity of demand, low price will be charged, whereas in markets with low elasticity of demand, high prices will be charged. Price discrimination fails in case of markets having same elasticity- of demand.

Advantages and Disadvantages of Price Discrimination:

A monopolist practices price discrimination to gain profits. However, it acts as a loss for the consumers.

Following are some of the advantages of price discrimination:

i. Helps organizations to earn revenue and stabilize the business

ii. Facilitates the expansion plans of organizations as more revenue is generated

ii. Benefits customers, such as senior citizens and students, by providing them discounts

In spite of advantages, there are certain disadvantages of price discrimination.

Some of the disadvantages of price discrimination as follows:

i. Leads to losses as some consumers end up paying higher prices

ii. Involves administration costs for separating markets.

Kinked Demand Curve

In an oligopolistic market, firms cannot have a fixed demand curve since it keeps changing as competitors change the prices/quantity of output. Since an oligopolist is not aware of the demand curve, economists have designed various price-output models based on the behavior pattern of other firms in the industry. In this article, we will look at the kinked demand curve hypothesis.

Kinked Demand Curve

In many oligopolist markets, it has been observed that prices tend to remain inflexible for a very long time. Even in the face of declining costs, they tend to change infrequently. American economist Sweezy came up with the kinked demand curve hypothesis to explain the reason behind this price rigidity under oligopoly.

According to the kinked demand curve hypothesis, the demand curve facing an oligopolist has a kink at the level of the prevailing price. This kink exists because of two reasons:

1. The segment above the prevailing price level is highly elastic.
2. The segment below the prevailing price level is inelastic.

The following figure shows a kinked demand curve dD with a kink at point P.

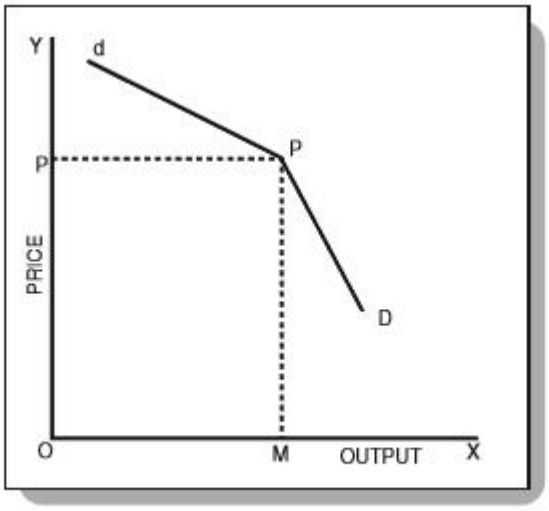


Fig. 1 : Kinked Demand Curve under oligopoly

From the figure, we know that

i. The prevailing price level = P
ii. The firm produces and sells output = OM
iii. Also, the upper segment (dP) of the demand curve (dD) is elastic.
iv. The lower segment (PD) of the demand curve (dD) is relatively inelastic.

This difference in elasticities is due to an assumption of the kinked demand curve hypothesis.

Assumption:

Each firm in an oligopoly believes the following two things:

a. If a firm lowers the price below the prevailing level, then the competitors will follow him.
b. If a firm increases the price above the prevailing level, then the competitors will not follow him.

There is logical reasoning behind this assumption. When an oligopolist lowers the price of his product, the competitors feel that if they don't follow the price cut, then their customers will leave them and buy from the firm who is offering a lower price.

Therefore, they lower their prices too in order to maintain their customers. Hence, the lower portion of the curve is inelastic. It implies that if an oligopolist lowers the price, he can obtain very little sales.

On the other hand, when a firm increases the price of its product, it experiences a substantial reduction in sales. The reason is simple – consumers will buy the same/similar product from its competitors.

This increases the competitors' sales and they will have no motivation to match the price rise. Therefore, the firm that raises the price suffers a loss and hence refrain from increasing the price.

This behavior of oligopolists can help us understand the elasticity of the upper portion of the demand curve (dP). The figure shows that if a firm raises the price of a product, then it experiences a large fall in sales.

Hence, no firm in an oligopolistic market will try to increase the price and a kink is formed at the prevailing price. This is how the kinked demand curve hypothesis explains the rigid or sticky prices.

Solved Question on Kinked Demand Curve

Q: The kinked demand curve model of oligopoly assumes that:

a. response to a price increase is less than the response to a price decrease.
b. response to a price increase is more than the response to a price decrease.
c. the elasticity of demand is constant regardless of whether price increases or decreases.
d. the elasticity of demand is perfectly elastic if price increases and perfectly inelastic if the price decreases.

Answer: In an oligopolistic market, the kinked demand curve hypothesis states that the firm faces a demand curve with a kink at the prevailing price level. The curve is more elastic above the kink and less elastic below it. This means that the response to a price increase is less than the response to a price decrease. Hence, the correct answer is option A.

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