Imperfect Competition :

In the real world, perfect competition, where all goods are homogenous and all firms are price takers, is rarely seen. Imperfect competition is very common. In this kind of a market, there are few sellers and product differentiation and price wars are common. Before we analyze the imperfect market let us look at the differences between perfect and imperfect markets.

An imperfect market can be defined as a market with many producers offering goods which are close substitutes, but not identical, as is the case in perfect competition. Since the products vary in their features, the pricing also varies.

Under imperfect competition sellers try to differentiate their products mainly on the basis of four aspects:

- Physical Features – Size, weight, color, taste, texture, scent, thickness, bottle design, particular attributes, etc.
- Location – The number and variety of locations where a product is available. Some are available everywhere; while others are available only at select outlets.
- Services – Products can be differentiated on the basis of the services that accompany them. For instance, some pizza joints undertake home delivery while some don't; some retail outlets have sales staff who help you choose things, while others don't.

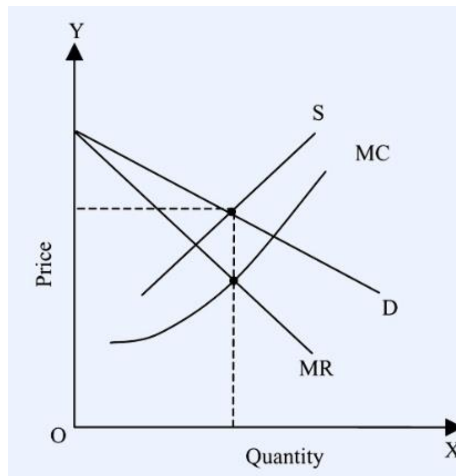
Product Image – The image that the producer tries to build up in the consumer's mind through packaging, etc. For instance, some shampoos are sold only in salons, while some clothes are associated with celebrity names.

In imperfect competition, the marginal revenue curve generally lies below the demand curve and slopes downward. In an imperfect market, the firm maximizes profit where marginal revenue is equal to marginal cost (MR = MC). In perfect competition, since all the sellers sell at the same price, and all the products are homogenous, customers have no bargaining power. In imperfect competition, the prices vary from seller to seller. This is because their average total cost is not equal to the price. In an imperfect market, the profit of the sellers is also included in the price. From the customers point of view, when the price is high, the demand is low and when the price is low, demand is high.

The supply curve in imperfect competition slopes upward from left to right. This is because, when price is high, sellers are willing to sell more and when price is low, they prefer to sell less.

The equilibrium is determined by the point at which the demand curve and supply curve intersect each other. It is clear from Figure that at the point of equilibrium, MC=MR. So the equilibrium point is where the demand curve and supply curve intersect each other.

Figure



Markets with imperfect competition may be of three types:

- **Monopoly**
- **monopolistic competition**
- **oligopoly**

Monopoly

It is a market structure in which there is only a single seller of the product. Here one firm is selling the product and has full control over the supply of the product e.g. the supply of electricity by the Rajasthan State Electricity Board or postage stamps, post cards, envelopes Indian Postal Orders etc. are supplied by the Postal Dept. This is such a situation of market where, **there** is only one producer of a commodity with no close substitutes. Hence, monopoly is a market structure in which there is only one producer of a commodity with no close substitute.

According to Ferguson, "A pure monopoly exists when there is only one producer in a market. There are no direct competitors."

According to A. Koutsoyiannis, " Monopoly is a market situation in which there is a single seller, there are no close substitutes for commodity it produces, there are barriers to entry."

Monopolies are extremely undesirable. Here the consumer loose all their power and market forces become irrelevant. However, a pure monopoly is very rare in reality.

Characteristics or features.

a) **Sole supplier of the product and large number of buyers**: The monopoly is characterised by the sole seller of product in an industry. Firm represents the industry as a whole which has complete control over the supply of product. Thus, there is only one firm under monopoly but the buyers of the product are in large number, consequently, no buyer can influence the price of the product.

b) **No close substitutes:** Under Monopoly there are no close substitutes of the product. Monopoly cannot continue if there is availability of substitute goods.

c) **One firm industry:** There being only one firm, the distinction between the firm and the industry is no longer in existence.

d) **Monopoly may vary from industry to industry:** The form and structure of a monopoly may also vary from industry to industry.

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

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

Price Discrimination:

In practice, it is difficult for firms to charge different prices for different units of the same good. However, this practice is adopted by the state electricity boards whose per unit rate increases as the number of units of power consumed increases. In general, it is easier for a monopolist to classify customers into different groups with different elasticities of demand.

When the monopolist charges different prices from different buyers for the same good, he is known as a 'discriminating monopolist'. Price discrimination is not possible under perfect competition, because everyone knows the price at which the good is being bought and sold. A monopolist, however, can charge different prices for the same good. There are two conditions which must be fulfilled forprice discrimination to be possible. Firstly, the market must be divided into submarkets with different price elasticities. Secondly, there has to be an effective separation of the submarkets, so that no reselling takes place from a low-price market to a high-price market.

Price discrimination is made possible, by three factors:

- Consumer's preferences
- The nature of the good
- Distance and frontier barriers

Types of Price Discrimination

Three types or degrees of price discrimination have been identified. There are, first, second and third degree discrimination.

First-degree discrimination :
This is the most extreme form of discrimination in which each consumer is charged the maximum price he would be willing to pay for each individual unit consumed .

Second-degree price discrimination
This is a more practical form of price discrimination. Here firms charge a different price for each set of units sold. Different prices are charged for different blocks or portions of consumption.

Third-degree price discrimination
This is the most common form of price discrimination. Consumers or markets are segmented on the basis of their price elasticity of demand. Often, third-degree price discrimination occurs in the markets that are geographically separated.

Price and Output Determination under Monopoly

Short-run Equilibrium

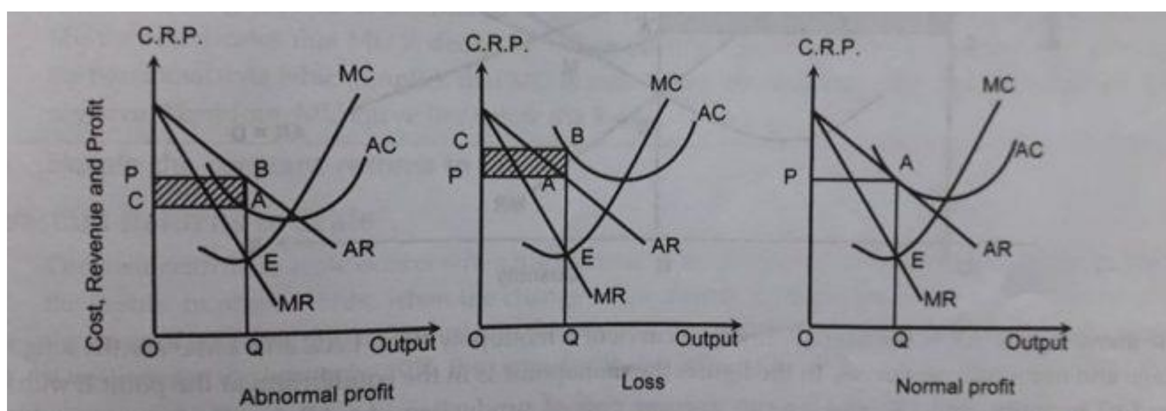
Short-run refers to that period in which time is so short that a monopolist cannot change the fixed factors like plant and machinery. However, the monopolist is free in making price decision due to the lack of competition. It means that the monopolist can fix the price for the product as she/he likes. A monopolist has control over the market supply. Hence, she/he is a price-maker. Thus, under the given cost and demand situation of his/her product in any period, she/he has to determine the price and the output simultaneously. His/Her price and output decision is motivated by profit maximization. Therefore, she/he will adjust the output and the price in such a way that the marginal cost and the marginal revenue are equal, whereby she/he achieves maximum profit. In other words, a monopolist produces the appropriate level of output at which s/he can obtain the maximum level of profit.

Conditions for Equilibrium

The following conditions must be fulfilled in order to attain equilibrium under monopoly:

1. MR = MC
2. MC must intersect MR from below.

The equilibrium position of a monopoly firm has been graphically represented in the given figure:



There are three possibilities in the short-run under monopoly. These three possibilities are explained as follows:

- **Abnormal profit (Super normal profit Excess profit):** In the above figure I, X-axis represents the output and Y-axis represents cost, revenue, and price. The downward slopping curves AR and MR represent the average revenue and the marginal revenue curves respectively. The U-shaped curves AC and MC represent the average cost curve and the marginal cost curve respectively. In the figure the point E is the equilibrium point because at this point MC and MR are equal and MC is intersecting MR from below or both conditions of equilibrium are fulfilled. Hence, the equilibrium price is OP and the quantity is OQ. The average cost of production is OC. At this price, output, and average cost of production, the monopoly firm or monopolist is earning the abnormal profit equal to the shaded rectangle area ABPC. The firm is carning abnormal profit because AR (Price) is greater than AC.

  - Total revenue (TR) = OQBP
  - Total cost (TC) = OQAC
  - Total profit (TP) = TR – TC = OQBP – UQAC = ABPC
- **Loss:** In the above figure II, the equilibrium point is E. Thus, the equilibrium amount of output is OQ and the equilibrium price is OP. The average cost of production is OC. Since, AR is lower than AC the firm is bearing loss, which is represented by the shaded rectangle area CBAP
- Normal profit: In the above figure ‘III, the equilibrium point is E. Thus, the equilibrium amount of output is OQ and the equilibrium price is OP. Since AR is equal to AC, the firm is earning just the normal profit.

Long-Term Equilibrium:

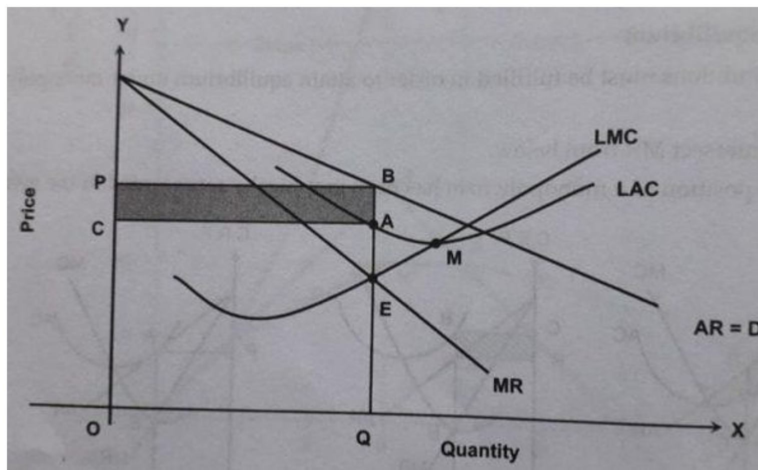
Long-run is a period in which a firm can change both fixed and variable factors. In long-run, the monopolist has enough time to adjust the size of the plant at a certain level of output to maximize its profit. In the monopoly, the entry of new firms being ruled out, the abnormal profit (super normal or excess profits) is possible even in the long-run.

Conditions for Equilibrium

The following conditions must be fulfilled in order to attain equilibrium in the long run under monopoly:

- MR = LMC
- LMC must intersect MR from below.

The long-run equilibrium under monopoly has been graphically shown in the given figure:



In the above figure, AR is the average revenue curve of a monopoly firm. LAC and LMC are the long-run averages and marginal cost curves. In the figure, the monopolist is in the equilibrium at point E with OP price, OQ quantity, and OC as the long-run average cost of production. As AR > AC the monopolist is operating under abnormal profit equal to the shaded area ABPC in the long-run.

MONOPOLISTIC COMPETITION:

As a matter of fact, monopolistic competition is a mid-way between perfect competition and monopoly. Under perfect competition the number of sellers is very large and unlimited and under monopoly there is only single seller of the product, while under monopolistic competition the number of sellers is relatively limited.

According to J.S. Bain, "Monopolistic competition is a market structure found in the industry where there are large number of small sellers, selling differentiated but close substitute products."
According to Lim Chungyoh, "Monopolistic competition is a market situation where there are many producers but each offers a slightly differentiated product."

Characteristics or features.

1) **Large number of firms:** There is a large number of firms or sellers operating under monopolistic competition but a relatively small fraction of the total market is shared by each firm or seller.

2) **Product differentiation:** The second distinct feature of monopolistic competitive market structure is product differentiation. The number of firms is large but their products differ from one another in colours, shape and size, brand, chemical composition, quality, trade mark, packaging, durability etc. For example, firms produce different kinds of bathing soap.

3) **Freedom of entry and exit:** Under monopolistic competition the firms are relatively free to enter the industry and to exit from the industry, but they have no absolute freedom of entry the industry. New firms are free to enter into the market with new brands as close substitute of the existing brands.

4) **Price policy**: Every firm has its own price policy. As under monopoly and monopolistic competition the average revenue curve and marginal revenue curve are sloping downward means that the firm will have to fix low price for fulfilling sales maximisation

5) **Selling Costs**: Under monopolistic competition each firm wants to promote the sales of its products by incurring selling costs. The expenditure incurred on advertisement and publicity to increase sales is called selling costs. The selling costs shift the demand for a firm's product and the rival firms also retaliate by incurring more and more selling costs.

6) **Close Substitutes:** Under monopolistic competitions the product are not homogeneous products but they are close substitutes to each other which tends to create competition among the firms regarding their products.

OLIGOPOLY:

An oligopoly is a market structure in which there are a few sellers of a product selling identical or differentiated products. If they are selling identical products, it is a case of pure oligopoly and if they are selling differentiated products, it is a case of differentiated oligopoly. In this case each firm has to take into account the price being charged by the others. One studies the reaction curves of the other firms and in this way the firms are interdependent. They may even charge high price if they enter into agreement and there is no pricing policy under oligopoly because of the kinky shape of demand curve which is a broken one. Thus, price rigidity and price war are the common features of oligopoly.

Features of oligopoly

1) **Relatively small number of sellers:** There are relatively small number of sellers under oligopoly market structure selling identical or differentiated products. Each seller controls a large part of the demand and the policies of every seller influence the price and output of the industry as a whole.

2) **Interdependence of the firms:** Under the oligopoly market structure all the firms are sailing in the same boat and every tilting position influences each of the firm as well with equal proportion. No firm can be neutral. They depend on each other while determining the price and output of the firm.

3) **Price rigidity and price war**: Price rigidity and price war are the common features of an oligopoly market structure. Each firm retaliates and acts according to the actions of the other firms and a tug of war starts between them which is better known as 'Price War' which further paves way to price rigidity.

4) **Difficulty in entry and exit:** Under oligopoly the entry and exit of the firms is banned. The new firms cannot enter the market as the old firms have complete hold over the market conditions and the firms are also reluctant to leave because of the huge investment made by them.

5) **Selling costs:** Under oligopoly market structure, each firm pursues an aggressive and defensive marketing strategy to control the market. Advertisement is an important method used by the oligopolists to control the bigger part of the market.

6) **Indeterminateness of the demand curve**: Under oligopoly market structure the shape of the de-mand curve is broken and is indeterminate because the firms cannot assume that the rival firms will not make a change in their price policy in response to change in price affected by it. Thus, the fact that the reaction pattern of the rival firms are indeterminate leaves the demand curve in a indeterminate position.

7) **Complex Market Structure**: The market structure of oligopoly is quite complex. As there is a possibility of rival firms to end rivalry by working out some policy of collusion and the collusive oligopoly manifests itself in the form of combination of rival firms to fix the same price and also share in output as in case of cartels. Besides it, non-

Kinked Demand Curve :

The kinked demand curve explains the interdependence of the firms inan oligopoly and why firms stick to one price. To explain the sticky price level of oligopolistic market, Hall, Hitch and Sweezy developed the kinked demand curve. The kinked demand curveexplains why the firms neither increase nor decrease the price inan oligopoly. Firms fear that if they increase the price, and competitors don't, their sales would decline and their marketshare would go down. If the firm decreases the price, othersellers will also reduce the price to match the price cut and the seller who originally reduced the price will not gain much.

Cartel Formation:

Cartels are formed when competing oligopolists enter into some kind of anagreement in order to maximize joint profits. The firms appoint acentral agency. Thecentral agency is delegated the authority to decide not only thetotal quantity and the price, but also the allocation ofproduction among the members of the cartel and the distribution ofthe maximum joint profits among them. The central agency has complete information about the costfunctions of the members. It is assumed that all members produceidentical products. Weshall look at two types of cartels:

•Cartels aiming at joint-profit maximization, i.e. maximization of industry profit, and
•Cartels aiming at the sharing of the market

Price Leadership :

Priceleadership is another form of collusion in an oligopoly market.One firm sets the price and the other firms follow it, because itis advantageous to them or because they prefer to avoiduncertainty. If theproduct is homogeneous and if there are no transport costs, thesame price will be charged by all firms. However, if the productis differentiated prices will differ but the direction of theirchange remains same and the same price differential will be moreor less maintained.

Thereare various forms of price leadership. The most common types are:

•Priceleadership by a low-cost firm

•Priceleadership by a large (dominant) firm

•Barometricprice leadership

Price and Output Determination Under Oligopoly

- Cournot's Model
- Stackelberg Model
- Bertrand Model
- Edgeworth Model
- Collusive Oligopoly

Cournot's model, each duopolist thinks that regardless of his actions and the effect upon the market of the product the other will go on producing the same commodity.Cournot model says if the output of a firm is two- thirds of the competitive output and the price is two – third, this is most profitable i.e., monopoly price.

Stackelberg Model
The producer under a duopoly structure integrates the decision level of his rival. It then integrates in its own profit function and thereby maximizes profit. Thus, Leader-follower relation emerges.

Bertrand Model
According to this model, producers try to set lower the price until the price is equal to the cost of production.

Edgeworth Model
Each duopolist thinks that his rival will continue to charge the same price as he is just doing irrespective of what price he decided to set. No determinate equilibrium will exist under duopoly.

Collusive Oligopoly
According to this model, firms form a cartel. Firms jointly fix the price and output with a view to maximizing joint profit. For example, OPEC countries form a cartel.

Explanation of Price and Output Determination Under Oligopoly

We can not explain the pricing and output decisions under duopoly a single theory. It will not be satisfactory. The reasons are:

(i) The number of firms may vary which is dominating the market. Sometimes there may be only two or three firms that dominate the entire market (Tight oligopoly). At another time there are 7 to 10 firms that capture 80% of the market (loose oligopoly).

(ii) The goods produced may or may not be standardized under oligopoly.

(iii) Sometimes the firms under oligopoly cooperate with each other in the fixing of price and output of goods. At another time, they choose to act independently.

(iv) Sometimes barriers to entry are very strong in oligopoly and at another time, they are quite loose.

(v) Sometimes a firm under oligopoly cannot certainly predict with the reaction of the rival firms if any changes occur in the prices and output of its goods. Considering the wide range of diversity of market situations, a number of models have been developed which explain the behavior of the oligopolistic firms.