Chapter Five

Market Structure

The concept of market in physical and digital space

Comprehensive definition of market according to American Marketing Association (1985) is the process of planning and executing the conception, pricing, promotion, and distribution of goods, services and ideas to create exchanges that satisfy individual and organizational objectives. So market describes place or digital space by which goods, services and ideas are exchanged to satisfy consumer need.

Digital marketing is the marketing of products or services using digital technologies, mainly on the internet but also including mobile phones, display advertising, and any other digital media. Digital marketing channels are systems on the internet that can create, accelerate and transmit product value from producer to the terminal consumer by digital networks. *Physical market* is a set up where buyers can physically meet their sellers and purchase the desired merchandise from them in exchange of money. In physical marketing, marketers will effortlessly reach their target local customers and thus they have more personal approach to show about their brands. The choice of the marketing mainly depends on the nature of the products and services.

1. Perfectly competitive market

Perfect competition is a market structure characterized by a complete absence of rivalry among the individual firms.

Assumptions of perfectly competitive market A market is said to be pure competition (perfectly competitive market) if the following assumptions are satisfied.

a) **Large number of sellers and buyers**: under perfect competition the number of sellers is assumed to be too large that the share of each seller in the total supply of a product is very small. Therefore, no single seller can influence the market price by changing the quantity supply. Similarly, the number of buyers is so large that the share of each buyer in the total demand is very small and that no single buyer or a group of buyers can influence the market price by changing their individual or group demand for a product. Therefore, in such a market structure, sellers and buyers are not price makers rather they are price takers, i.e., the price is determined by the interaction of the market supply and demand forces.
b) **Homogeneous product**: homogeneity of the product implies that buyers do not distinguish between products supplied by the various firms of an industry. Product of each firm is regarded as a perfect substitute for the products of other firms. Therefore, no firm can gain any competitive advantage over the other firm.

c) **Perfect mobility of factors of production**: factors of production are free to move from one firm to another throughout the economy. This means that labour can move from one job to another and from one region to another.
d) **Free entry and exit:** there is no restriction or market barrier on entry of new firms to the industry, and no restriction on exit of firms from the industry. A firm may enter the industry or quit it on its accord.
e) **Perfect knowledge about market conditions:** all the buyers and sellers have full information regarding the prevailing and future prices and availability of the commodity.
f) **No government interference:-** government does not interfere in any way with the functioning of the market. There are no discriminator taxes or subsidies, no allocation of inputs by the procurement, or any kind of direct or indirect control. That is, the government follows the free enterprise policy. Where there is intervention by the government, it is intended to correct the market imperfection.

From these assumptions, a single producer under perfectly competitive market is a price-taker. That is, at the market price, the firm can supply whatever quantity it would like to sell. Once the price of the product is determined in the market, the producer takes the price (Pm in the figure below) as given. Hence, the demand curve (Df) that the firm faces in this market situation is a horizontal line drawn at the equilibrium price, Pm.

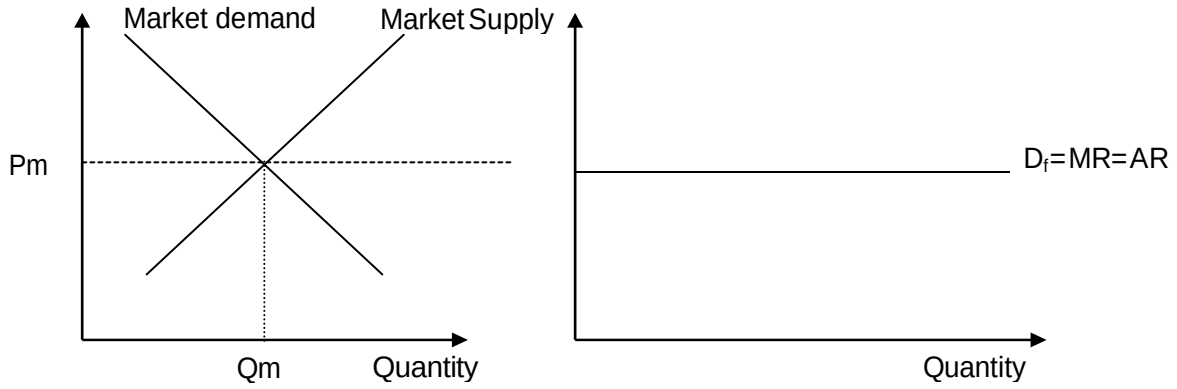


Figure 5.1: Individual and market demand curve

Short run equilibrium of the firm

The main objective of a firm is profit maximization. If the firm has to incur a loss, it aims to minimize the loss. Profit is the difference between total revenue and total cost.
Total Revenue (TR): it is the total amount of money a firm receives from a given quantity of its product sold. It is obtained by multiplying the unit price of the commodity and the quantity of that product sold.

TR=**P X Q**, where P = price of the product Q = quantity of the product sold.

Average revenue (AR):- it is the revenue per unit of item sold. It is calculated by dividing the total revenue by the amount of the product sold.

$$AR = \frac{TR}{Q} = \frac{PxQ}{Q} = P \; So \; in \; this \; market \; P = AR$$

Therefore, the firm‘s demand curve is also the average revenue curve.

Marginal Revenue: it is the additional amount of money/ revenue the firm receives by selling one more unit of the product. In other words, it is the change in total revenue resulting from the sale of an extra unit of the product. It is calculated as the ratio of the change in total revenue to the change in the sale of the product.

$$MR = \frac{dTR}{dQ} = P\left(\frac{dQ}{dQ}\right) = P \; Hence \; in \; this \; market \; P = MR$$

Thus, in a perfectly competitive market, a firm‘s average revenue, marginal revenue and price of the product are equal, i.e. AR = MR = P =Df

Since the purely competitive firm is a price taker, it will maximize its economic profit only by adjusting its *output*. In the short run, the firm has a fixed plant. Thus, it can adjust its output only through changes in the amount of variable resources. It adjusts its variable resources to achieve the output level that maximizes its profit.

There are two ways to determine the level of output at which a competitive firm will realize maximum profit or minimum loss. One method is to compare total revenue and total cost; the other is to compare marginal revenue and marginal cost.

I. ***Total Approach (TR-TC approach)*** In this approach, a firm maximizes total profits in the short run when the (positive) difference between total revenue (TR) and total costs (TC) is greatest.

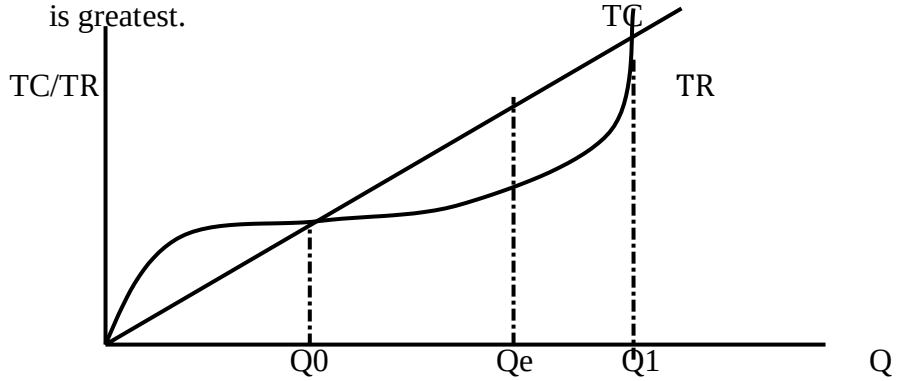
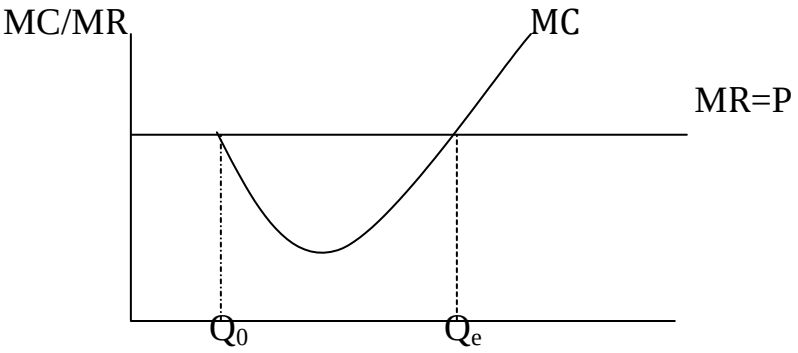


Figure 5.2: Total revenue and total cost approach of profit maximization

Note: The profit maximizing output level is Qe because it is at this output level that the vertical distance between the TR and TC curves (or profit) is maximized.

II. ***Marginal Approach (MR-MC)*** In the short run, the firm will maximize profit or minimize loss by producing the output at which marginal revenue equals marginal cost. More specifically, the perfectly competitive firm maximizes its short-run total profits at the output when the following two conditions are met:

MR = MC and The slope of MC is greater than slope of MR; or MC is rising). (That is, slope of MC is greater than zero).



The profit maximizing output is Qe, where MC=MR and MC curve is increasing. At Q0, MC=MR, but since MC is falling at this output level, it is not equilibrium output.

Mathematically, $\prod$ =**TR- TC**

$\prod$ is maximized when $\frac{\mathrm{d}\Pi}{\mathrm{dQ}} = 0$ That is $\frac{\mathrm{dTR}}{\mathrm{dQ}} - \frac{\mathrm{dTC}}{\mathrm{dQ}} = 0$

$$MR = MC \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots First\ order\ condition(FOC)$$

The second order condition for profit maximization is $\frac{d^2\Pi}{dQ^2} < 0\ hence\ \frac{d^2TR}{dQ^2} - \frac{d^2TC}{dQ^2} < 0$

$$\frac{dMR}{dQ} - \frac{dMC}{dQ} < 0\ By\ rearenging\ this\ we\ do\ have$$

$\frac{dMC}{dQ} > \frac{dMR}{dQ}$Where $\frac{dMC}{dQ}$ $is$the slope of marginal cost curve and $\frac{dMR}{dQ}$ is the slope of marginal revenue curve.

Therefore, **Slope of MC > slope of MR ------- Second order condition (SOC)**

⇨ **Slope of MC > 0** (because the slope of MR is zero)

Whether the firm in the short- run gets positive or zero or negative profit depends on the level of ATC at equilibrium. Thus, depending on the relationship between price and ATC, the firm in the

short-run may earn economic profit, normal profit or incur loss and decide to shut-down business.

i. ***Economic/positive profit*** **-** If the AC is below the market price at equilibrium, the firm earns a positive profit equal to the area between the ATC curve and the price line up to the profit maximizing output.

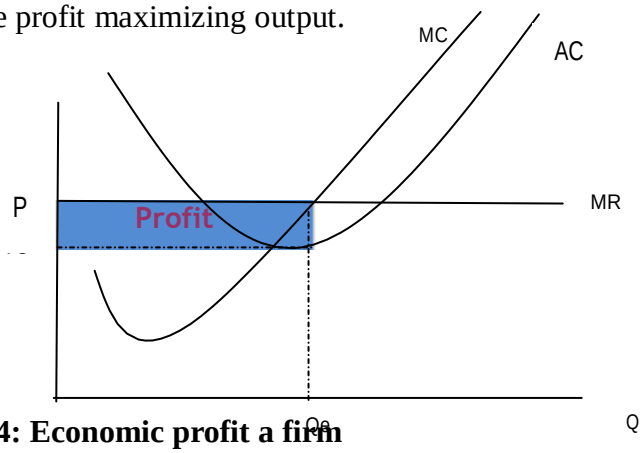


Figure 5.4: Economic profit a firm

ii. ***Loss*** **-** If the AC is above the market price at equilibrium, the firm earns a negative profit (incurs a loss) equal to the area between the AC curve and the price line.

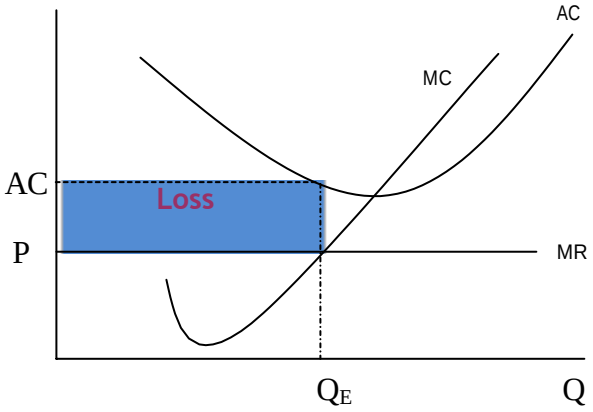
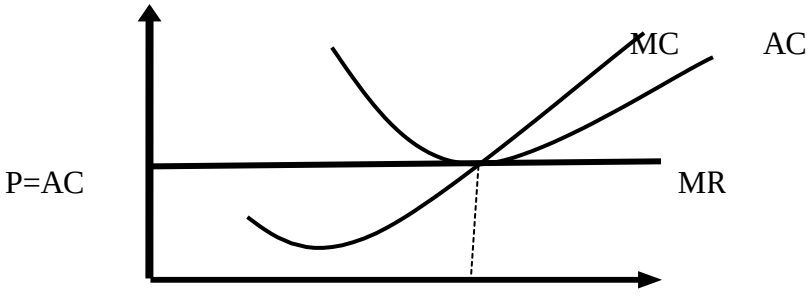


Figure 5.6*: A firm incurring a loss*

iii. ***Normal Profit (zero profit) or break- even point*** **-** If the AC is equal to the market price at equilibrium, the firm gets zero profit or normal profit**.**



Shutdown point **-** The firm will not stop production simply because AC exceeds price in the short-run. The firm will continue to produce irrespective of the existing loss as far as the price is sufficient to cover the average variable costs. This means, if *P* is larger than AVC but smaller than AC, the firm minimizes total losses. But if *P* is smaller than AVC, the firm minimizes total losses by shutting down. Thus, *P* = AVC is the shutdown point for the firm.

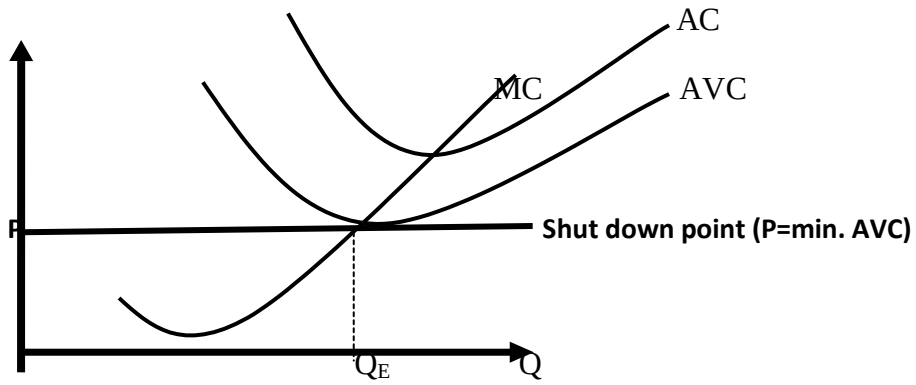


Figure 5.8: ***A shut down point***

Monopoly market

Definition and characteristics

This is at the opposite end of the spectrum of market structures. Pure monopoly exists when a single firm is the only producer of a product for which there are no close substitutes. The main characteristics of this market structure include:

1. **Single seller**: A pure or absolute monopoly is a one firm industry. A single firm is the only producer of a specific product or the sole supplier of the product; the firm and the industry are synonymous.

2. **No close substitutes**: the monopolist‘s product is unique in that there are no good or close substitutes. From the buyer‘s view point, there are no reasonable alternatives.

3. **Price maker**: the individual firm exercises a considerable control over price because it is responsible for, and therefore controls, the total quantity supplied. Confronted with the usual down ward sloping demand curve for its product, the monopolist can change product price by changing the quantity of the product supplied.

4. **Blocked entry**: A pure monopolist has no immediate competitors because there are barriers, which keep potential competitors from entering in to the industry. These barriers may be economic, legal, technological etc. Under conditions of pure monopoly, entry is totally blocked.

Sources of monopoly

The emergence and survival of monopoly is attributed to the factors which prevent the entry of other firms in to the industry. The barriers to entry are therefore the sources of monopoly power. The major sources of barriers to entry are:

- ♣ **Legal restriction:** Some monopolies are created by law in public interest. Such monopoly may be created in both public and private sectors. Most of the state monopolies in the public utility sector, including postal service, telegraph, telephone services, radio and TV services, generation and distribution of electricity, rail ways, airlines etc… are public monopolies.
- ♣ **Control over key raw materials**: Some firms acquire monopoly power from their traditional control over certain scarce and key raw materials that are essential for the production of certain other goods. For example, Aluminum Company of America had monopolized the aluminum industry because it had acquired control over almost all sources of bauxite supply; such monopolies are often called raw material monopolies.
- ♣ **Efficiency:** a primary and technical reason for growth of monopolies is economies of scale. The most efficient plant (probably large size firm,) which produces at minimum cost, can eliminate the competitors by curbing down its price for a short period and can acquire monopoly power. Monopolies created through efficiency are known as natural monopolies.
- ♣ **Patent rights**: Patent rights are granted by the government to a firm to produce commodity of specified quality and character or to use specified rights to produce the specified commodity or to use the specified technique of production. Such monopolies are called to patent monopolies.

Monopolistically competitive market

This market model can be defined as *the market organization in which there are relatively many firms selling differentiated products.* It is the blend of competition and monopoly. The competitive element arises from the existence of large number of firms and no barrier to entry or exit. The monopoly element results from differentiated products, i.e. similar but not identical products. A seller of a differentiated product has limited monopoly power over customers who prefer his product to others. His monopoly is limited because the difference between his product and others are small enough that they are close substitutes for one another. This market is characterized by:

(i) **Differentiated product**: the product produced and supplied by many sellers in the market is similar but not identical in the eyes of the buyers. There is a variety of the same product. The difference could be in style, brand name, in quality, or others. Hence, the differentiation of the product could be real (eg. quality) or fancied (e.g. difference in packing).

(ii) **Many sellers and buyers**: there are many sellers and buyers of the product, but their number is not as large as that of the perfectly competitive market.

(iii) **Easy entry and exit**: like the PCM, there is no barrier on new firms that are willing and able to produce and supply the product in the market. On the other hand, if any firm believes that it is not worth to stay in the business, it may exit.

(iv) **Existence of non-price competition**: Economic rivals take the form of non-price competition in terms of product quality, advertisement, brand name, service to customers, etc. A firm spends money in advertisement to reach the consumers about the relatively unique character of its product and thereby get new buyers and develop brand loyalty. Many retail trade activities such as clothing, shoes, soap, etc are in this type of market structure.

Oligopoly market

This is a market structure characterized by:

A. **Few dominant firms**: there are few firms although the exact number of firms is undefined. Each firm produces a significant portion of the total output.

B. **Interdependence:** since few firms hold a significant share in the total output of the industry, each firm is affected by the price and output decisions of rival firms. Therefore, the distinguishing characteristic of oligopoly is the *interdependence* among firms in the industry.

C. **Entry barrier**: there are considerable obstacles that hinder a new firm from producing and supplying the product. The barriers may include economies of scale, legal, control of strategic inputs, etc.

D. **Products may be homogenous or differentiated.** If the product is homogeneous, we have a *pure oligopoly*. If the product is differentiated, it will be a *differentiated oligopoly.*

E. **Lack of uniformity in the size of firms:** Firms differ considerably in size. Some may be small, others very large. Such a situation is asymmetrical.

F. **Non-price competition:** firms try to avoid price competition due to the fear of price wars and hence depend on non-price methods like advertising, after sales services, warranties, etc. This ensures that firms can influence demand and build brand recognition.

A special type of oligopoly in which there are only two firms in the market is known as *duopoly.*