Chapter Five

Market Structure

Introduction

- This chapter discusses how a particular firm makes a decision to achieve its profit maximization objective.
- A firm‘s decision to achieve this goal is dependent on the type of market in which it operates.
- To this effect we distinguish between four major types of markets:

Chapter objectives

At the end of this chapter you will be able to:

✓ differentiate market in physical and digital space

✓ explain the characteristics and equilibrium condition of perfectly competitive market

✓ differentiate between different types of imperfect market structures

5.1. The concept of market in physical and digital space

- Market 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.

- Is a group of buyers and sellers whereby the buyers determine the demand and the sellers determine the supply.

- 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.

- Markets take many forms.

- The choice of the marketing mainly depends on the nature of the products and services.

?

What differs the market for

- ✓ Electricity and other basic utilities
- ✓ Clothes and shoes
- ✓ Cement products
- ✓ Agricultural products

5.2. Perfectly competitive market

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

❑ Assumptions

i. Large number of sellers and buyers

- 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.

ii. Homogeneous product

- 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.

❖ Therefore 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.

iii. Perfect mobility of factors of production

- Factors of production(labour, capital, raw materials etc) are free to move from one firm to another throughout the economy
- factors are not monopolized and labour is not unionized.

iv. Free entry and exit

- There is no restriction or market barrier on entry of new firms to the industry, and exit of firms from the industry.

v. Perfect knowledge about market conditions

- All the buyers and sellers have full information regarding the prevailing and future prices and availability of the commodity.

vi. 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.

- Where there is intervention by the government, it is intended to correct the market imperfection.

vii. Profit maximization is the goal of all firms.

- 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 as given.
- Hence, the demand curve that the firm faces in this market situation is a horizontal line drawn at the equilibrium price, Pm.

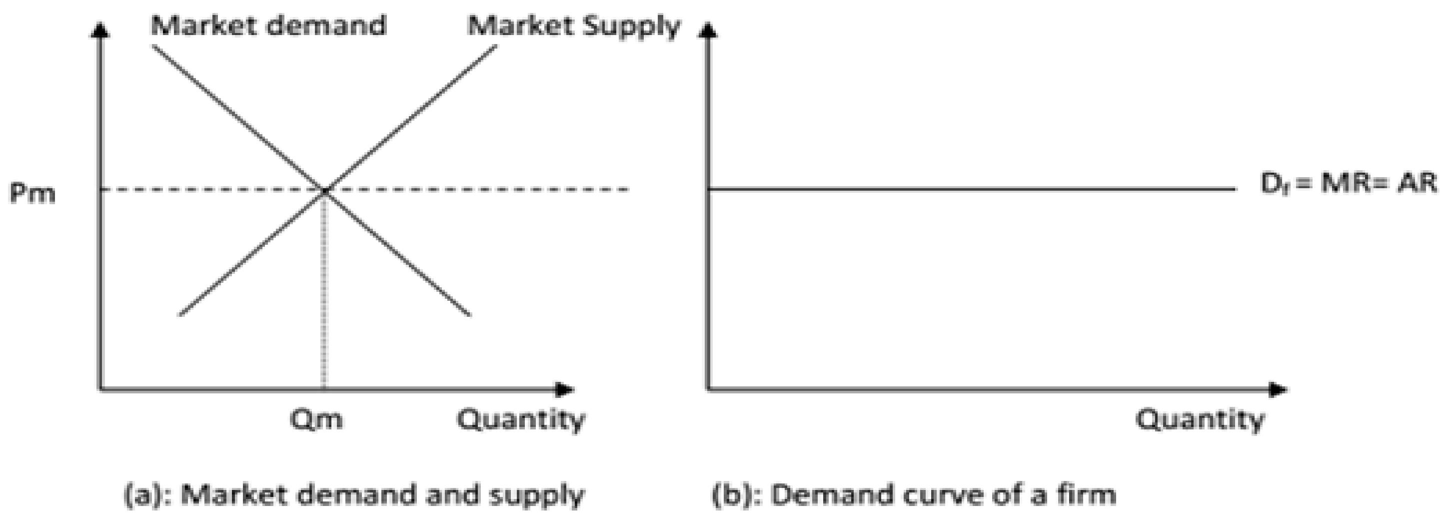

Figure 5.1: Individual and market demand curve

Short run equilibrium of the firm

- The main objective of a firm is profit maximization.
- Profit is the difference between total revenue and total cost.

❑ ***Total Revenue (TR)***

- is the total amount of money a firm receives from a given quantity of its product sold.

TR=P X Q where P = price Q = quantity sold.

❑ ***Average revenue (AR)***

- is the revenue per unit of item sold.

$$AR = \frac{TR}{Q} = \frac{PxQ}{Q} \Longrightarrow AR = P$$

- Therefore, the firm‘s demand curve is also the AR curve.

❑ *Marginal Revenue*

- is the additional amount of money/ revenue the firm receives by selling one more unit of the product.

- is the change in total revenue resulting from the sale of an extra unit of the product.

$$MR=\{\Delta TR/\Delta Q\} = \Delta\left(\frac{PxQ}{Q}\right) = P\ (\Delta Q/\Delta Q) \Longrightarrow MR=P$$

- Thus, in a perfectly competitive market, AR = MR = P =Df

- Since the purely competitive firm is a price taker, it will maximize its economic profit only by adjusting its output.

❖ There are two ways to determine the level of output at which a competitive firm will realize maximum profit or minimum loss.

a) to compare TR and TC

b) to compare MR and MC.

a) Total Approach (TR-TC approach)

- A firm maximizes total profits in the short run when the (positive) difference between TR and TC is greatest.

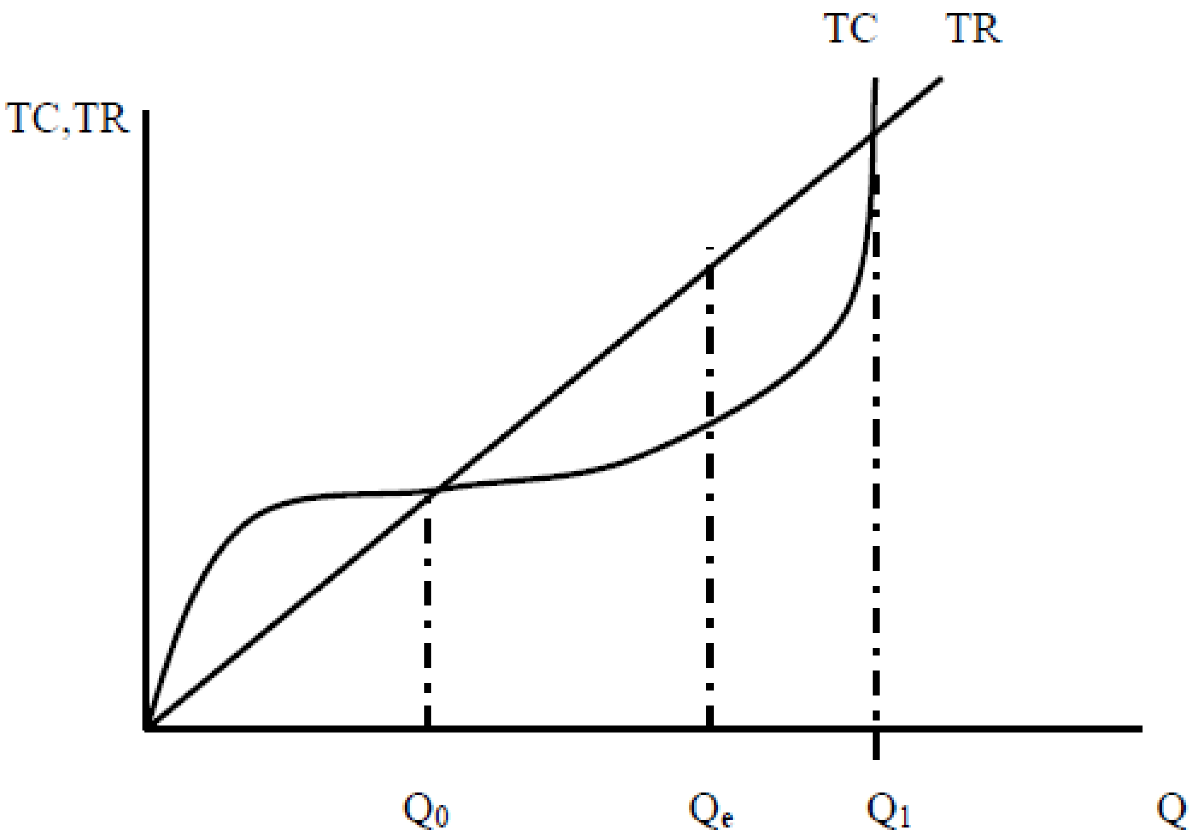

Figure 5.2: Total revenue and total cost approach of profit maximization

b) Marginal Approach (MR-MC)

- The perfectly competitive firm maximizes its short-run total profits or minimize loss at the output when the following two conditions are met:
  - ✓ MR-MC- the FO(N) condition
  - ✓ The slope of MC > slope of MR; or MC is rising). (that is, slope of MC > 0)-the SOC.

❑ Mathematically, $\prod$ =TR- TC

$\prod$ is maximized when $$\frac{d\pi}{dQ} = 0$$

That is, $$\frac{d\pi}{dQ} = \frac{dTR}{dQ} - \frac{dTC}{dQ} = 0$$

- $MR - MC = 0$
- **MR = MC ……………… First order condition (FOC)**

$$\frac{d^2\pi}{dQ^2} \prec 0$$

The $\frac{d^2\pi}{dQ^2} = \frac{d^2TR}{dQ^2} - \frac{d^2TC}{dQ^2} \prec 0$ **second order condition** of profit maximization is

That is,

$$\Rightarrow \frac{dMR}{dQ} - \frac{dMC}{dQ} \prec 0$$

$$\Rightarrow \frac{dMR}{dQ} \prec \frac{dMC}{dQ}$$

- $\frac{dMC}{dQ} \succ \frac{dMR}{dQ}$ where $\frac{dMR}{dQ}$=slope of MR and $\frac{dMC}{dQ}$=slope of MC

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

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

Graphically, the marginal approach can be shown as follows.

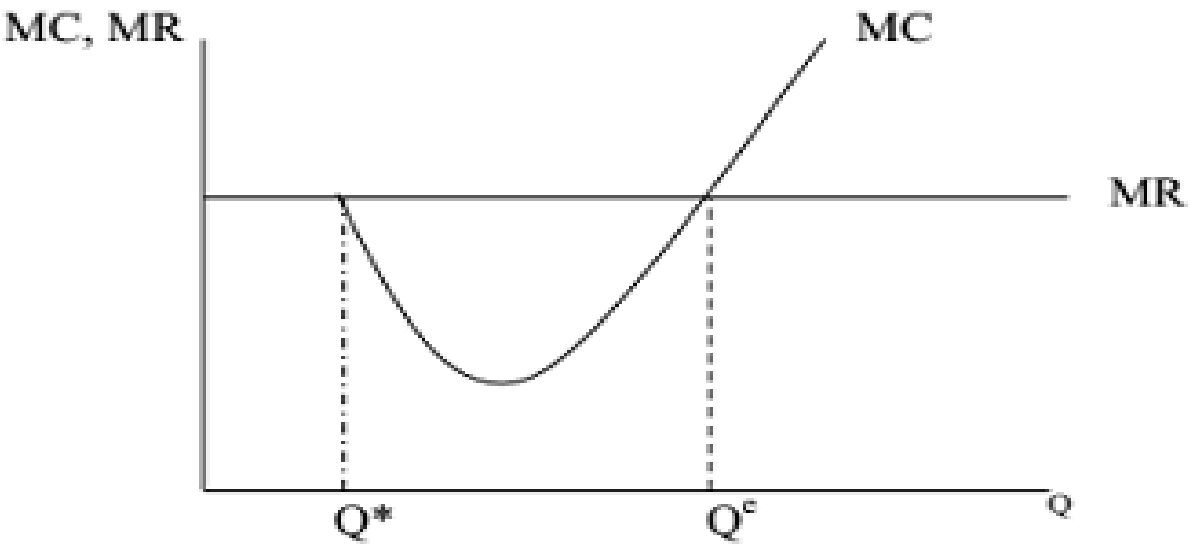

Figure 5.3: ***Marginal approach of profit maximization***

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

- 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.

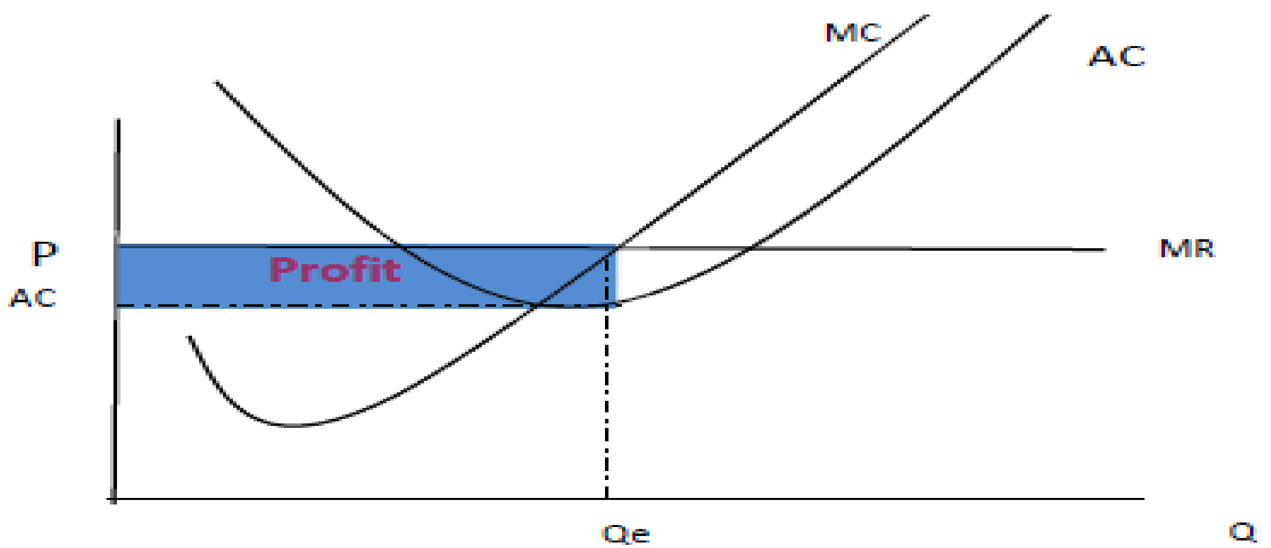

Figure 5.4: Economic profit a firm

i) Loss (negative profit)

- 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.

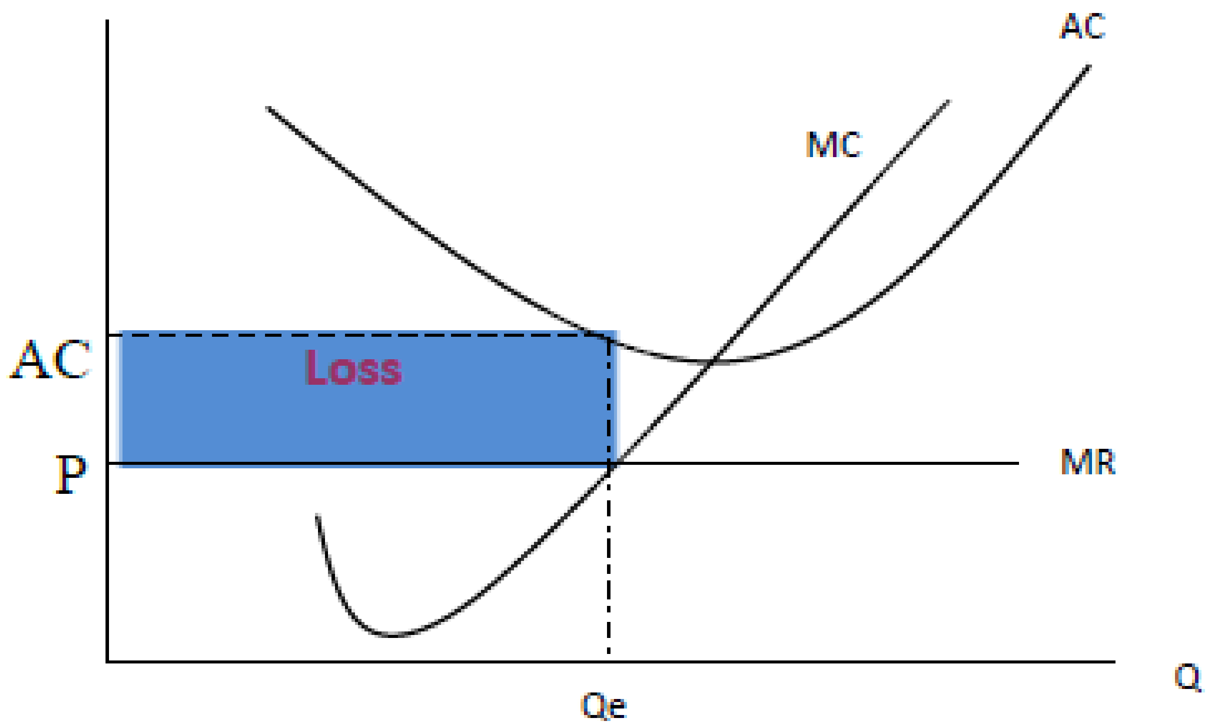

Figure 5.6: *A firm incurring a loss*

iii) Normal Profit (zero profit) or break- even point

- If the AC is equal to the market price at equilibrium.

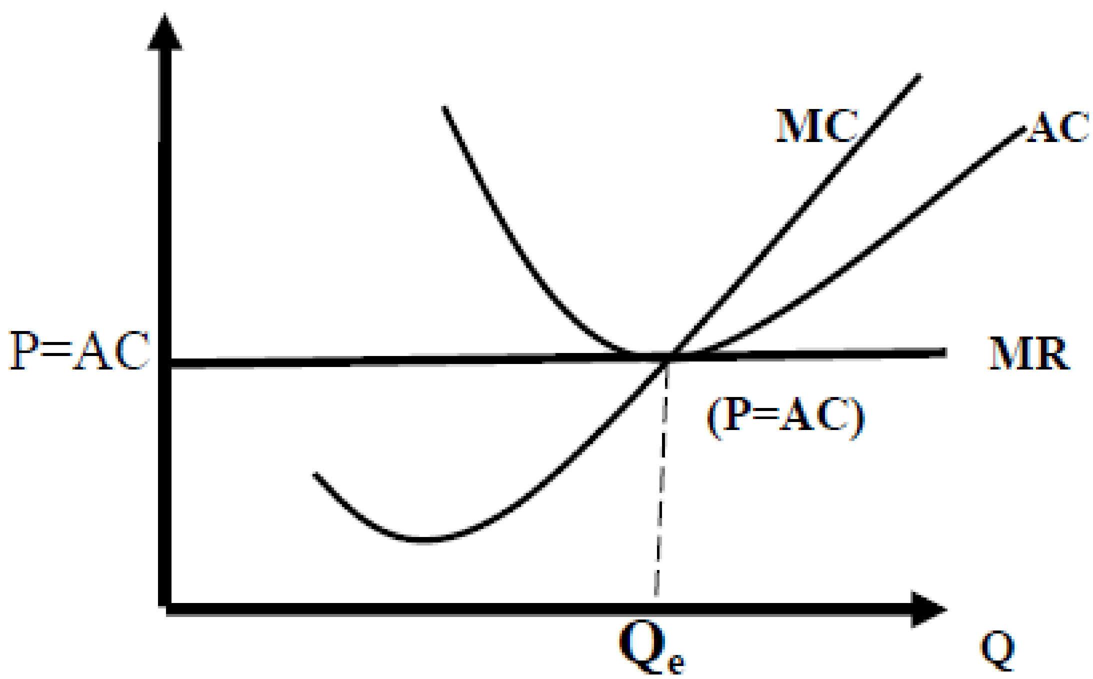

Figure 5.7: A firm earning a normal profit

iv) 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.

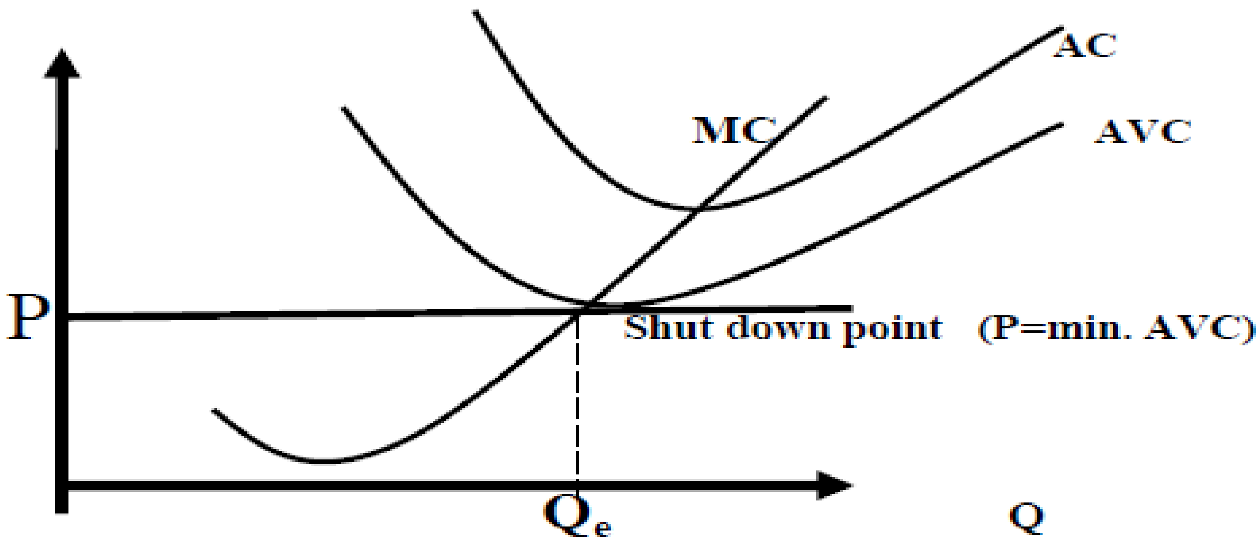

Figure 5.8: *A shut down point*

❑ ***Example:***

Suppose that the firm operates in a perfectly competitive market. The market price of its product is \$10. The firm estimates its cost of production with the following cost function: TC=2+10q-4q2 +q3.

A) What level of output should the firm produce to maximize its profit?

B) Determine the level of profit at equilibrium.

C) What minimum price is required by the firm to stay in the market?

Short run equilibrium of the industry

- Since the perfectly competitive firm always produces where P=MR=MC (as long as P exceeds AVC), the firm‘s short-run supply curve is given by the rising portion of its MC curve above its AVC, or shutdown point.

- The industry/market supply curve is a horizontal summation of the supply curves of the individual firms. Industry supply curve can be obtained by multiplying the individual supply at various prices by the number of firms, if firms have identical supply curve.

- An industry is in equilibrium in the short-run when market is cleared at a given price i.e. when the total supply of the industry equals the total demand for its product, the prices at which market is cleared is equilibrium price.

5.3. Monopoly market

- Pure monopoly exists when a single firm is the only producer sole supplier of a product for which there are no close substitutes.

Main characteristics

✓ Single seller:

- A pure or absolute monopoly is a one firm industry.
- the firm and the industry are synonymous.

✓ No close substitutes:

- the monopolist's product is unique in that there are no good or close substitutes.

✓ 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.

✓ 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.

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-

i) 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.

ii Control over key raw materials

- traditional control over certain scarce and key raw materials that are essential for the production of certain other goods.
- 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.

iii) Efficiency(economies of scale)

- 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.

iv) 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.

5.4. Monopolistically competitive market

- 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 because the difference between his product and others are small enough that they are close substitutes for one another.

Characteristics

i) Differentiated product-

- 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:

- 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

5.5. Oligopoly market

✓ 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.

✓ 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.
- the distinguishing characteristic of oligopoly.

✓ 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

- ✓ 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.

- ✓ 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.

- ✓ 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**.

Characteristics	Market models			
	Pure Competition	Monopolistic Competition	Oligopoly	Pure Monopoly
Number of firms	Large	Many	Few	One or Single
Type of product	Homogeneous	Differentiated	Homogeneous or differentiated	Unique, no close substitutes
Control over price	None	Some, but within rather narrow limits	Limited by mutual interdependence and collusion	Significant
Condition of entry	Very easy	Relatively easy	Considerable barriers/obstacles	Blocked
Examples	Agricultural products	Clothes, Shoes	Steel, Automobiles	Local utilities

THANK YOU !!!!