B.A., Semester -II, Micro Economics-II

Market and Perfect Competition

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MARKET

In everyday usage, a market means an agglomeration of shops. The buyers and sellers can easily engage in transactions of commodities at the market place. However, in economics market refers to an institutional relationship between purchasers and sellers. Both buyers and sellers know how to established contact with each other. Thus, the essentials of market are:

1- Existence of both sellers and buyers
2- Contact must be established between the sellers and buyers.
3- A commodity usually has only one price in the market.
4- A place, be it a certain region, a country or the entire world.

Classification of Market Structures

A market can be of different types. Moreover, the distinction can be drawn according to different criteria.

1- The number of firms producing a product.
2- The nature of product produced by the firms, that is, whether it is homogeneous or heterogeneous.
3- The entry and exit of the firms in the industry is open or closed.
4- Another distinguishing feature of market categories is the degree of price elasticity of demand faced by an individual firm.

Based on the above criteria number of markets have been classified which are Perfect competition, Monopoly, Monopolistic competition and these are of our interest here.

PERFECT COMPETITION

The perfectly competitive market refers to a market structure where a large number of firms produce and sell similar products, and each individual firm sells the product at a market determined price to a large number of buyers. A market would be called perfectly competitive if sales and purchases in this market obey the following rules:

1- There must be many buyers and many sellers in the market.
2- All firms must produce a homogeneous product. In other words, the output of one firm would be indistinguishable from the output of another firm. These commodities/products are perfectly substitutes.
3- Any firm can enter or exit the market at any time or whenever it wants.
4- All sellers and all purchasers must have perfectly knowledge about the market as a whole. This implies that there must be close contact between the sellers and the purchasers.
5- There must be perfect mobility of the factors of production.

Brief explanation of the main characteristics of perfect competition

Large numbers of sellers and buyers

The industry or market includes a large number of firms (and buyers), so that each Individual firm, however large, supplies only a small part of the total quantity offered in the market. The buyers are also numerous so that no monopsonistic power can affect the working of the market. Under these conditions each firm alone cannot affect the price in the market by changing its output.

Product homogeneity

The industry is defined as a group of firms producing a homogeneous product. The technical characteristics of the product as well as the services associated with its sale and delivery are identical. There is no way in which a buyer could differentiate among the products of

different firms. If the product were differentiated the firm would have some discretion in setting its price. This is ruled out *ex hypothesi* in perfect competition.

The assumptions of large numbers of sellers and of product homogeneity imply that the individual firm in pure competition is a price-taker: its demand curve is infinitely elastic, indicating that the firm can sell any amount of output at the prevailing market price.

Free entry and exit of firms

There is no barrier to entry or exit from the industry. Entry or exit may take time, but firms have freedom of movement in and out of the industry. This assumption is supplementary to the assumption of large numbers. If barriers exist the number of firms in the industry may be reduced so that each one of them may acquire power to affect the price in the market.

Profit maximisation

The goal of all firms is profit maximisation. No other goals are pursued.

No government regulation

There is no government intervention in the market (tariffs, subsidies, rationing of production or demand and so on are ruled out).

The above assumptions are sufficient for the firm to be a price-taker and have an infinitely elastic demand curve. The market structure in which the above assumptions are fulfilled is called *pure competition.* It is different from *perfect competition,* which requires the fulfilment of the following additional assumptions.

Perfect mobility of factors of production

The factors of production are free to move from one firm to another throughout the economy. It is also assumed that workers can move between different jobs, which imply that skills can be learned easily. Finally, raw materials and other factors are not monopolised and labour is not unionised. In short, there is perfect competition in the markets of factors of production.

Perfect knowledge

It is assumed that all sellers and buyers have complete knowledge of the conditions of the market. This knowledge refers not only to the prevailing conditions in the current period but in all future periods as well. Information is free and costless. Under these conditions uncertainty about future developments in the market is ruled out.

EQUILIBRIUM OF THE FIRM IN THE SHORT RUN

The firm is in equilibrium when it maximises its profits (ll), defined as the difference between total cost and total revenue:

$ll = TR - TC$

Given that the normal rate of profit is included in the cost items of the firm, n is the profit above the normal rate of return on capital and the remuneration for the risk bearing function of the entrepreneur. The firm is in equilibrium when it produces the output that maximises the difference between total receipts and total costs. The equilibrium of the firm may be shown graphically in two ways. Either by using the TR and TC curves, or the MR and MC curves.

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In figure, the total revenue and total cost curves of a firm in a perfectly competitive market are shown. The total-revenue curve is a straight line through the origin, showing that the price is constant at all levels of output. The firm is a price-taker and can sell any amount of output at the going market price, with its TR increasing proportionately with its sales. The slope of the TR curve is the marginal revenue. It is constant and equal to the prevailing market price, since all units are sold at the same price. Thus in pure competition

$MR = AR = P.$

On the x- axis output and on y axis total cost and total revenue are taken. The shape of the total-cost curve reflects the U shape of the average-cost curve, that is, the law of variable proportions
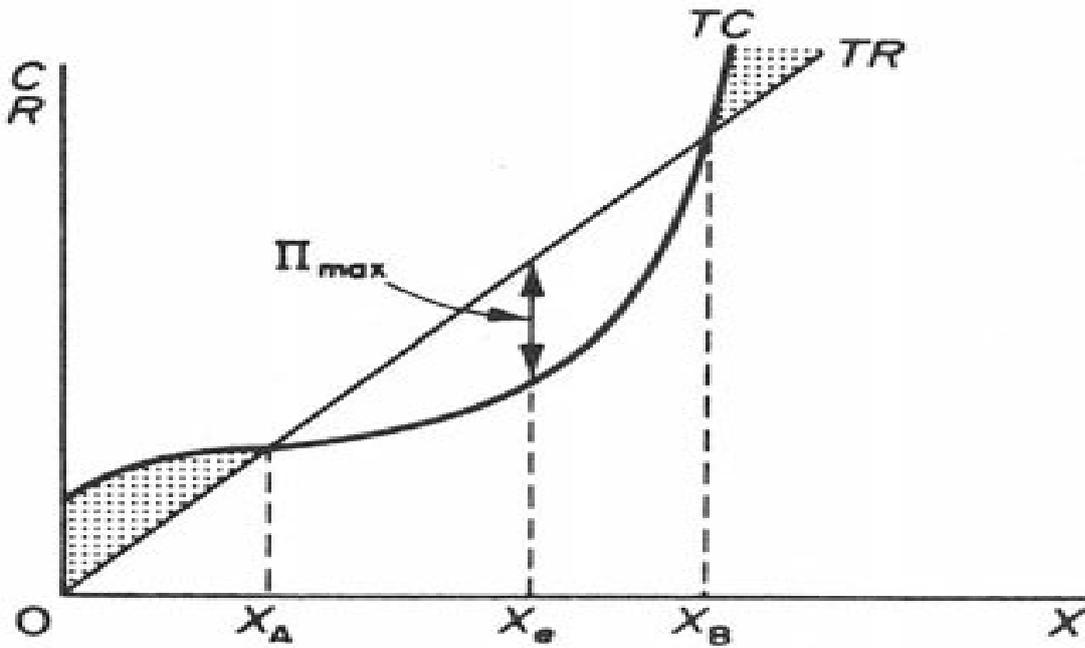
Figure 1

The firm maximises its profit at the output X_A where the distance between the TR and TC curves is the greatest. At lower and higher levels of output total profit is not maximised: at levels smaller than X_A and larger than X_B the firm has losses.

The alternative approach, which is based on marginal cost and marginal revenue, uses price as an explicit variable, and shows clearly the behavioural rule that leads to profit maximisation.

In figure it is shown that the average- and marginal-cost curves of the firm together with its demand curve.
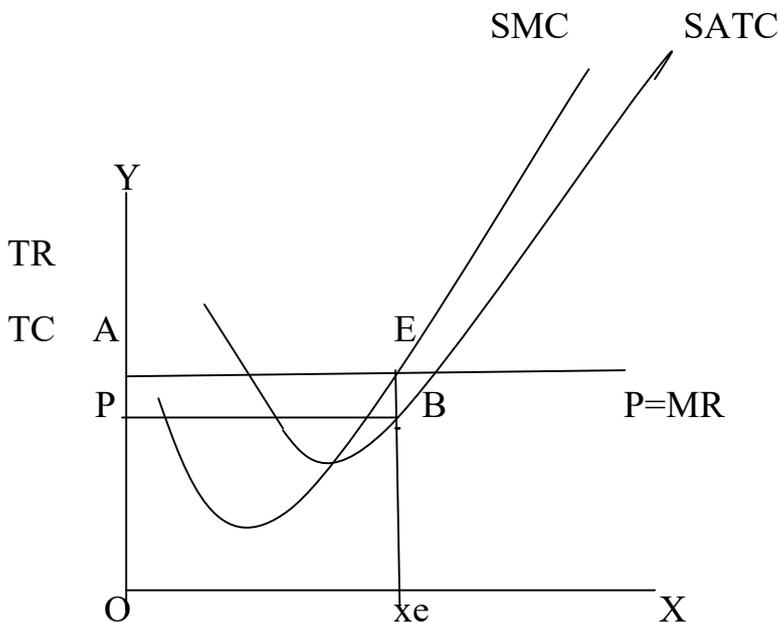
figure 2

The demand curve is also the average revenue curve and the marginal revenue curve of the firm in a perfectly competitive market. The marginal cost cuts the *SA TC* at its minimum point. Both curves are U-shaped, reflecting the law of variable proportions which is operative in the short run during which the plant is constant. The firm is in equilibrium (maximises its profit) at the level of output defined by the intersection of the *MC* and the *MR* curves (point e in figure 2). To the left of *e* profit has not reached its maximum level because each unit of output to the left of *X e* brings to the firm a revenue which is greater than its marginal cost. To the right of *Xe* each additional unit of output costs more than the revenue earned by its sale, so that a loss is made and total profit is reduced.

 In summary:

(a) If *MC* < *MR* total profit has not been maximised and it pays the firm to expand its output.

(b) If *MC* > *MR* the level of total profit is being reduced and it pays the firm to cut its production.

(c) If *MC* = *MR* short-run profits are maximised.

The fact that a firm is in (short-run) equilibrium does not necessarily mean that it makes excess profits. Whether the firm makes excess profits or losses depends on the level of the *A TC* at the short-run equilibrium.

Supernormal Profit

The firm will excess profit or supernormal profit when the short run average cost is less than the price in the short run, as shown in the figure. The firm is in equilibrium at point e where SMC = MR and SMC cuts MR from below. OXe, is the equilibrium output and OP is the equilibrium price. APeB is the supernormal profit earned by the firm.
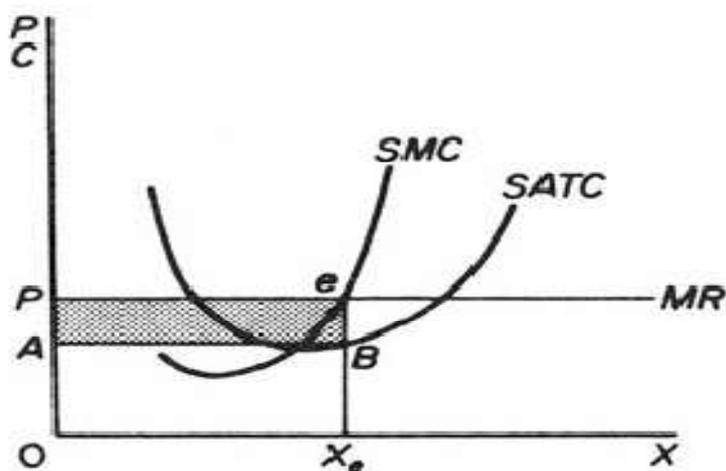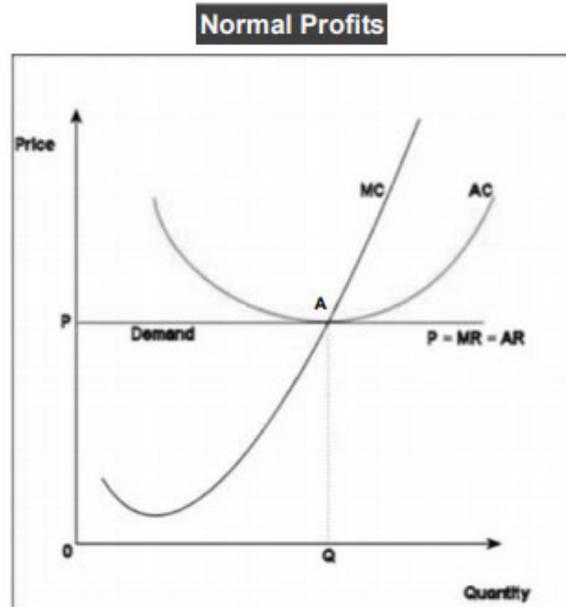

Figure 3

Normal Profits:

In the figure below, 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.

Normal Profits

Loss

In the figure below, 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 'e', the equilibrium point.

Corresponding to point 'e', P and Xe are the equilibrium price and quantity respectively. Also, corresponding to X, the average cost is more than the average revenue.

In this case, the per unit cost of OXe (average cost) is more than the per unit revenue of OXe (average revenue). As per the figure, the per unit revenue is OP and the per unit cost is OF. This means that the per unit loss is PF. Also, the total loss is PFCe.
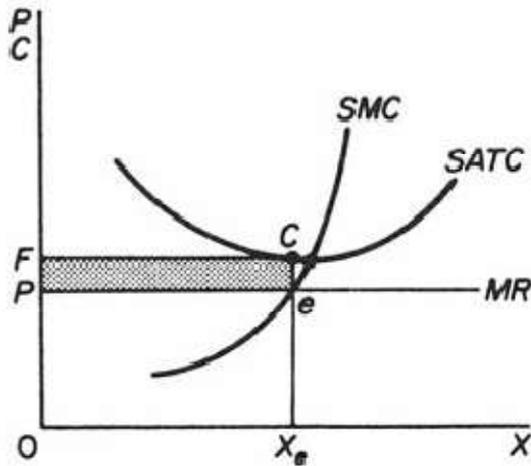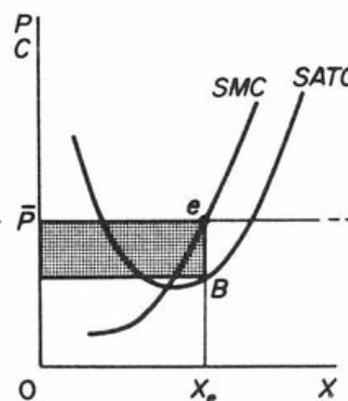
SHORT-RUN EQUILIBRIUM OF THE INDUSTRY

Given the market demand and the market supply the industry is in equilibrium at that price which *clears the market,* that is at the price at which the quantity demanded is equal to the quantity supplied. In figure 1 the industry is in equilibrium at price $P,$ at which the quantity demanded and supplied is $Q.$ However, this will be a short-run equilibrium, if at the prevailing price firms are making excess profits (figure 2) or losses (figure 3). In the long run, firms that make losses and cannot readjust their plant will close down. Those that make excess profits will expand their capacity, while excess profits will also attract new firms into the industry. Entry, exit and readjustment of the remaining firms in the industry will lead to a long-run equilibrium in which firms will just be earning normal profits and there will be no entry or exit from the industry.
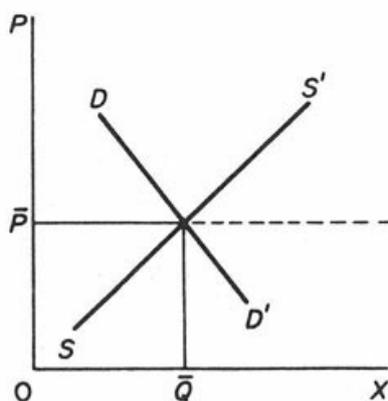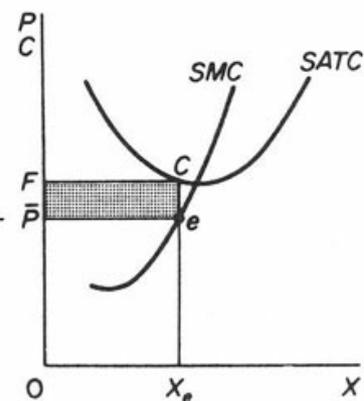

Short run industry equilibrium	firm equilibrium (excess Profit)	firm equilibrium (loss)
Figure 1	Figure 2	Figure 3

Long-Run Equilibrium of the Firm and Industry:

Long-Run Equilibrium of the Firm:

The long run is a period of time in which the firm can change its plant and scale of operations. Thus in the long-run all costs are variable and there are no fixed costs. The firm is in the long-run equilibrium under perfect competition when it does not want to change its equilibrium output.

It is earning normal profits. If some firms are earning supernormal profits, new firms will enter the industry and supernormal profits will be competed away. If some firms are incurring losses, some of the firms will leave the industry till all earn normal profits.

Thus there is no tendency for firms to enter or leave the industry because every firm must earn normal profits. **"In the long-run, firms are in equilibrium when they have adjusted their plant so as to produce at the minimum point of their long-run AC curve, which is tangent (at this point) to the demand (AR) curve defined by the market price"** so that they earn normal profits. In equilibrium, its short-run marginal cost (SMC) must equal to its long-run marginal cost (LMC) as well as its short-run average cost (SAC) and its long-run average cost (LAC) and both should equal MR=AR=P.

Thus the first equilibrium condition is:
SMC = LMC = MR = AR = P = SAC = LAC at its minimum point, and

(2) LMC curve must cut MR curve from below: Both these conditions of equilibrium are satisfied at point E in Figure 5 where SMC and LMC curves cut from below SAC and LAC curves at their minimum point E and SMC and LMC curves cut AR = MR curve from below. All curves meet at this point E and the firm produces OQ optimum output and sells it at OP price.

Fig. 5
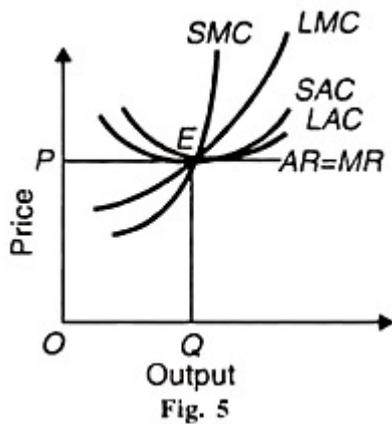
Since we assume equal costs of all the firms of industry, all firms will be in equilibrium in the long-run. At OP price a firm will have neither a tendency to neither leave nor enter the industry and all firms will earn normal profits.

Long-Run Equilibrium of the Industry:

The industry is in equilibrium in the long-run when all firms earn normal profits. There is no incentive for firms to leave the industry or for new firms to enter it. With all factors homogeneous and given their prices and the same technology, each firm and industry as a whole are in full equilibrium where LMC = MR = AR (-P) = LAC at its minimum.

Such an equilibrium position is attained when the long-run price for the industry is determined by the equality of total demand and supply of the industry.

Fig. 6
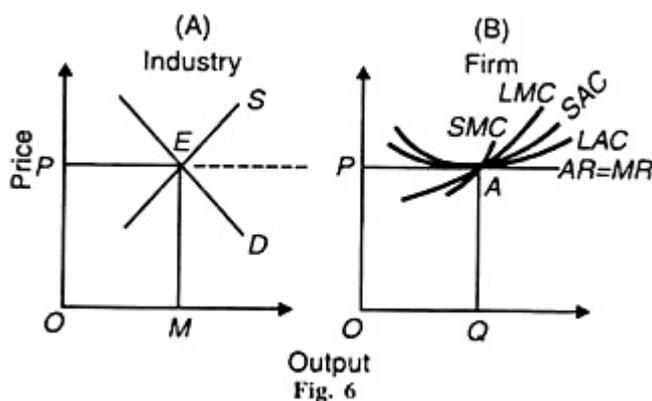
The long-run equilibrium of the industry is illustrated in Figure 6 (A) where the long-run price OP is determined by the intersection of the demand curve D and the supply curve S at point E and the industry is producing OM output. At this price OP, the firms are in equilibrium at point A in Panel (B) at OQ level of output where LMC = SMC = MR =P (= AR) = SAC = LAC at its minimum.

At this level, the firms are earning normal profits and have no incentive to enter or leave the industry. It follows that when the industry is in long-run equilibrium, each firm in the

industry is also in long-run equilibrium. If both the industry and the firms are in long-run equilibrium, they are also in short-run equilibrium.

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