CHAPTER 4

PRICE DETERMINATION IN DIFFERENT MARKETS

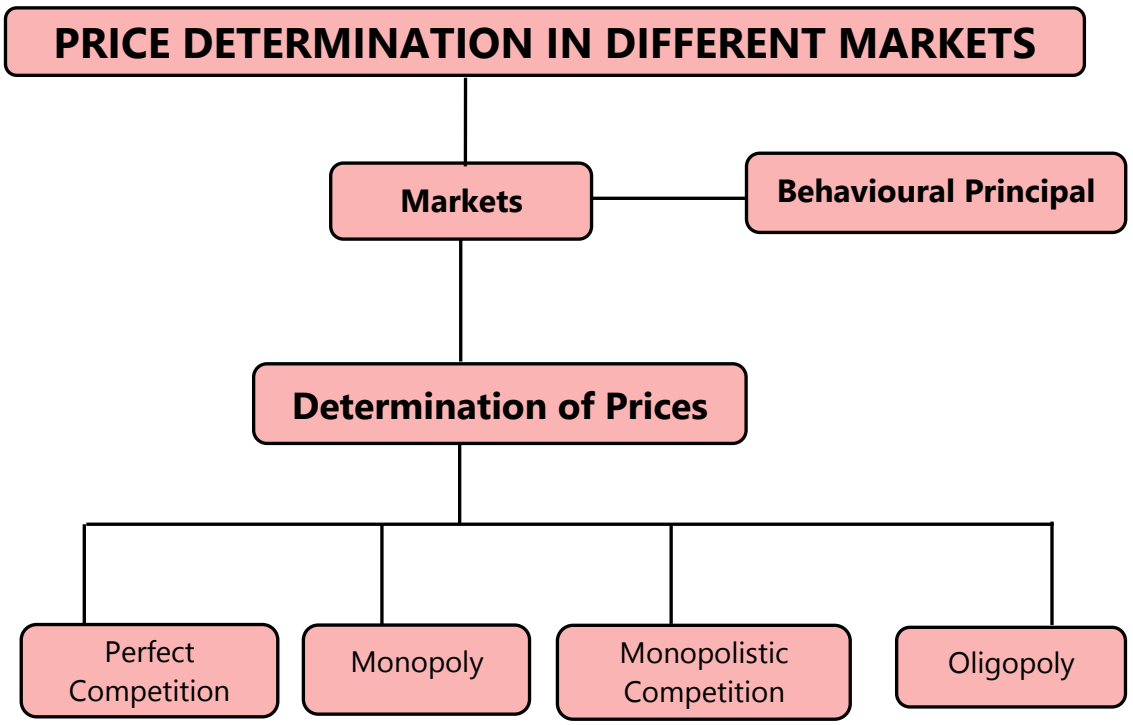
UNIT - 1: MEANING AND TYPES OF MARKETS

LEARNING OUTCOMES

After studying this unit, you would be able to:

- Explain the Meaning of Market in Economics.
- Describe the key Characteristics of the Four Basic market Types Used in Economic Analysis.
- Provide Explicit Real Examples of the Four Types of Markets.
- Explain the Behavioural Principles Underlying these Markets.

CHAPTER OVERVIEW



1.0 MEANING OF MARKET

We have seen in Chapter 1 that people cannot have all that they want because they need to pay price for goods and services and the resources at their disposal are scarce. We have come across some goods which are free or having zero prices i.e. we need not make any payment for them. Example: air, sunlight etc. These are called free goods. Free goods being abundant in supply do not have scarcity and need no cost to obtain them. In contrast, economic goods are scarce in relation to their demand and have an opportunity cost. Unlike free goods, they are exchangeable in the market and command a price. What do we understand by the term price and why do people pay a price?

In common parlance, price signifies the quantity of money necessary to acquire a good or service. Price connotes money-value i.e. the purchasing power of an article expressed in terms of money. In other words, price expresses the value of a thing in relation to money i.e. the quantity of money for which it will be exchanged. Value in exchange or exchange value,

according to Ricardo, means command over commodities in general, or power in exchange over purchasable commodities in general.

We need to distinguish between two important concepts namely, 'value in use' and 'value in exchange'. Value in use refers to usefulness or utility i.e the attribute which a thing may have to satisfy human needs. Value in exchange or economic value is the amount of goods and services which we may obtained in the market in exchange of a particular thing. It is measured by the amount someone is willing to give up in other goods and services in order to obtain a good or service. In a market economy, the amount of currency (e.g. Dollar, Rupees) is a universally accepted measure of economic value, because the number of units of money that a person is willing to pay for something tells how much of all other goods and services they are willing to give up to get that item.

In Economics, we are only concerned with exchange value. Considerations such as sentimental value mean little in a market economy. Sentimental value is subjective and reflects an exaggerated judgment about the worth of a commodity. For example, If a person says to his best friend that I like your car and if you give it to me then I will be lifetime obliged to you. In this case, lifetime obligation is a sentimental value and has no meaning as against monetary consideration.

Exchange value is determined in the market where exchange of goods and services takes place. In our day to day life, we come across many references to markets such as oil market, wheat market, vegetable market etc. These have connotations of a place where buyers and sellers gather to exchange goods at a price. In Economics, markets are crucial focus of analysis, and therefore we need to understand how this term is used. A market is a collection of buyers and sellers with the potential to trade. The actual or potential interactions of the buyers and sellers determine the price of a product or service.

A market need not be formal or held in a particular place. Second-hand cars are often bought and sold through newspaper advertisements. Second-hand goods may be disposed off by listing it in an online shop or by placing a card in the local shop window. In the present high tech world, goods and services are effortlessly bought and sold online. Online shopping has revolutionized the business world by making nearly everything people want available by the simple click of a mouse button.

While studying about market economy, it is essential to understand how price is determined. Since this is done in the market, we can define the market simply as all those buyers and sellers of a good or service who influence price.

The elements of a market are:

(i) Buyers and sellers;

(ii) A product or service;

(iii) Bargaining for a price;

(iv) Knowledge about market conditions; and

(v) One price for a product or service at a given time.

1.0.0 Classification of Market

Markets are generally classified into product markets and factor markets. Product markets are markets for goods and services in which households buy the goods and services they want from firms. Factor markets, on the other hand, are those in which firms buy the resources they need – land, labour, capital and entrepreneurship- to produce goods and services. While product markets allocate goods to consumers, factor markets allo-cate productive resources to producers and help ensure that those resources are used efficiently. The prices in factor markets are known as factor prices.

In Economics, generally the classification of markets is made on the basis of

(a) Geographical Area

(b) Time

(c) Nature of transaction

(d) Regulation

(e) Volume of business

(f) Type of Competition.

On the basis of geographical area

From the marketing perspective, the geographical area in which the product sales should be undertaken has vast implications for the firm. On the basis of geographical area covered, markets are classified into:-

Local Markets: When buyers and sellers are limited to a local area or region, the market is called a local market. Generally, highly perishable goods and bulky articles, the transport of which over a long distance is uneconomical' command a local market. In this case, the extent of the market is limited to a particular locality. For example, locally supplied services such as those of hair dressers and retailers have a narrow customer base.

Regional Markets: Regional markets cover a wider area such as a few adjacent cities, parts of states, or cluster of states. The size of the market is generally large and the nature of buyers may vary in their demand characteristics. For eg. Mekhela Chador (Traditional Assamese Saree) is primarily worn by women in Assam and adjoining areas.

National Markets: When the demand for a commodity or service is limited to the national boundaries of a country, we say that the product has a national market. The trade policy of the government may restrict the trading of a commodity to within the country. For example Hindi books may have national markets in India; outside India one may not have market for Hindi books.

International markets: A commodity is said to have international market when it is exchanged internationally. Usually, high value and small bulk commodities are demanded and traded internationally. For example Gold and Silver are examples of commodities that have international market.

The above classification has become more or less out-dated as we find that in modern days even highly perishable goods have international market.

On the basis of Time

Alfred Marshall conceived the 'Time' element in markets and on the basis of this, markets are classified into:

Very short period market: Market period or very short period refers to a period of time in which supply is fixed and cannot be increased or decreased. Commodities like vegetables, flower, fish, eggs, fruits, milk, etc., which are perishable and the supply of which cannot be changed in the very short period come under this category. Since supply is fixed, very short period price is dependent on demand. An increase in demand will raise the prices vice versa.

Short-period Market: Short period is a period which is slightly longer than the very short period. In this period, the supply of output may be increased by increasing the employment of variable factors with the given fixed factors and state of technology. Since supply can be moderately adjusted, the changes in the short period prices on account of changes in demand are less compared to market period.

Long-period Market: In the long period, all factors become variable and the supply of commodities may be changed by altering the scale of production. As such, supply may be fully adjusted to changes in demand conditions. The interaction between long run supply and demand determines long run equilibrium price or 'normal price'.

Very long-period or secular period is one when secular movements are recorded in certain factors over a period of time. The period is very long. The factors include the size of the population, capital supply, supply of raw materials etc.

On the basis of Nature of Transactions

a. **Spot or cash Market**: Spot transactions or spot markets refer to those markets where goods are exchanged for money payable either immediately or within a short

span of time. For example, grains sold in the *Mandi* at the current prices and cash is payable immediately are thus part of Spot Market.

b. **Forward or Future Market**: In this market, transactions involve contracts with a promise to pay and deliver goods at some future date. For example, purchase of foreign currency contract at future rate from bank.

On the basis of Regulation

a. **Regulated Market**: In this market, transactions are statutorily regulated so as to put an end to unfair practices. Such markets may be established for specific products or for a group of products. For example, stock exchange.

b. **Unregulated Market**: It is also called a free market as there are no stipulations on the transactions. For example. Weekly markets (*Haat Bazaar).*

On the basis of volume of Business

a. **Wholesale Market**: The wholesale market is the market where the commodities are bought and sold in bulk or large quantities. Transactions generally take place between traders. i.e. Business to Business (B2B).

b. **Retail Market**: When the commodities are sold in small quantities, it is called retail market. This is the market for ultimate consumers i.e. Business to Consumer (B2C).

On the basis of Competition

Based on the type of competition markets are classified into a) perfectly competitive market and b) imperfectly competitive market.

We shall study these markets in greater detail in the following paragraphs.

1.1 TYPES OF MARKET STRUCTURES

For a consumer, a market consists of those firms from which he can buy a well-defined product; for a producer, a market consists of those buyers to whom he can sell a single well-defined product. If a firm knows precisely the demand curve it faces, it would know its potential revenue. If it also knows its costs, it can readily discover the profit that would be associated with different levels of output and therefore can choose the output level that maximizes profit. But, suppose the firm knows its own product's costs and the market demand curve for the product but does not know its own demand curve. In other words, it does not know its own total sales. In order to find this, the firm needs to answer the following questions. How many competitors are there in the market selling similar products? If one firm changes its price, will its market share change? If it reduces its price, will other firms follow it or not? There are many other related questions that need to be answered.

Answers to questions of this type will be different in different circumstances. For example, if there is only one firm in the market, the whole of the market demand will be satisfied by this particular firm. But, if there are two large firms in the industry, they will share the market demand in some proportion. A firm has to be very cautious of the reactions of the other firm to every decision it makes. But if there are, say, more than 5,000 small firms in an industry, each firm will be less worried about the reactions of other firms to its decisions because each firm sells only a small proportion of the market. Thus, we find that the market behaviour is greatly affected by the structure of the market. We can conceive of more than thousand types of market structures, but we shall focus on a few theoretical market types which mostly cover a high proportion of cases actually found in the real world. These are:

Perfect Competition: Perfect competition is characterised by many sellers selling identical products to many buyers.

Monopolistic Competition: It differs in only one respect, namely, there are many sellers offering differentiated products to many buyers. For example, shampoo manufacturers.

Monopoly: It is a situation where there is a single seller producing for many buyers. Its product is necessarily extremely differentiated since there are no competing sellers producing products which are close substitutes. For example: Indian Railways.

Oligopoly: There are a few sellers selling competing products to many buyers. For example: Telecom Industry. Table 1 summarises the major distinguishing characteristics of these four major market forms.

Table 1 - Distinguishing Features of Major Types of Markets

Assumption	Market Types			
	Perfect Competition	Monopolistic Competition	Oligopoly	Monopoly
Number of sellers	Very large	Large	Small numbers	One
Product differentiation	None	Slight	None to substantial	Extreme
Price elasticity of demand of a firm	Infinite	Large	Small	Small
Degree of control over price	None	Some	Some	Very considerable

Before discussing each market form in greater detail, it is worthwhile to know the concepts of total, average and marginal revenue and the behavioural principles which apply to all market conditions.

1.2 CONCEPTS OF TOTAL REVENUE, AVERAGE REVENUE AND MARGINAL REVENUE

Total Revenue: If a firm sells 100 units for ₹ 10 each, what is the amount which it realises? It realises ₹ 1,000 (100 x 10), which is nothing but the total revenue for the firm. Thus, we may state that total revenue or the total expenditure incurred by the purchasers of the firm's product refers to the amount of money which a firm realises by selling certain units of a commodity. Symbolically, total revenue may be expressed as TR = P x Q.

Where,TR is total revenue

P is price of a commodity sold.

Q is quantity of a commodity sold.

This may be represented by the following diagrams. In figure A, when the price of the product is ₹ 30, the quantity sold is 40 units. The total revenue is P x Q = ₹ 1200. Panel B shows the total revenue curve of a competitive firm having a perfectly elastic demand curve. Since the firm can sell any quantity at market determined prices, the TR curve is linear and starts from the origin.

(A) **(B)**

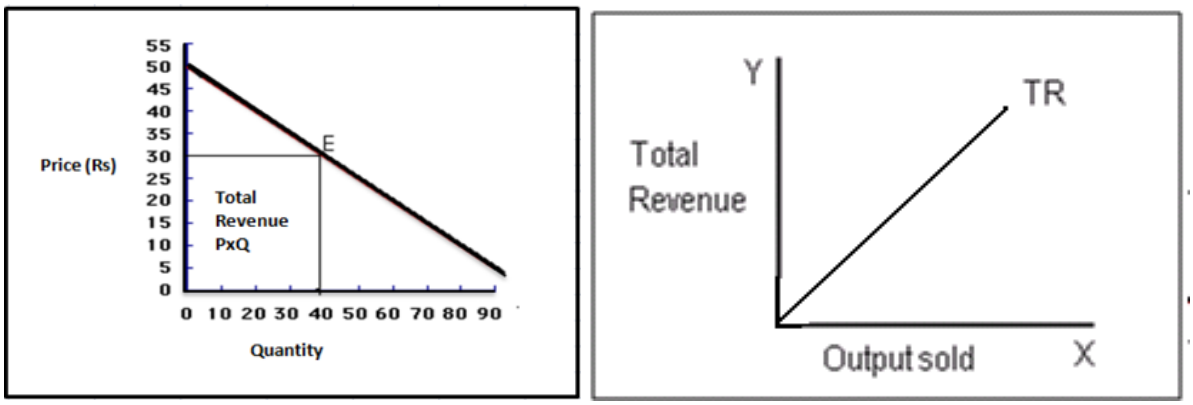


Figure 1: Total Revenue

Average Revenue: Average revenue is the revenue earned per unit of output. It is nothing but price of one unit of output because price is always per unit of a commodity. For this reason, average revenue curve is also the firms demand curve. Symbolically, average revenue is:

$$AR = \frac{TR}{Q}$$

Where AR is average revenue

TR is the total revenue

Q is quantity of a commodity sold

Or AR= $\frac{P \times Q}{Q}$

Or AR = P

If, for example, a firm realises total revenue of ₹ 1,000 by the sale of 100 units, it implies that the average revenue is ₹ 10 (1,000/100) or the firm has sold the commodity at a price of ₹ 10 per unit.

Marginal Revenue: Marginal revenue (MR) is the change in total revenue resulting from the sale of an additional unit of the commodity. Thus, if a seller realises ₹ 1,000 while selling 100 units and ₹ 1,200 while selling 101 units, we say that the marginal revenue is ₹ 200. We can say that MR is the rate of change in total revenue resulting from the sale of an additional unit of output. MR= $\frac{\Delta TR}{\Delta Q}$

Where MR is marginal revenue

TR is total revenue

Q is quantity of a commodity sold

• stands for a small change

For one unit change in output

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

Where TR is the total revenue when sales are at the rate of n units per period.

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

In order to understand the above concepts clearly, look at Table -2. In column 1, the number of units sold of commodity X is given. Column 2 shows the total revenue fetched by selling different units. Column 3 shows average revenue which is nothing but price per unit. Column 4 shows marginal revenue which is addition to the total revenue by the sale of an additional unit of output.

Table 2: Total Revenue, Average Revenue and Marginal Revenue

Units	Total Revenue	Average Revenue	Marginal Revenue
1	10	10	10
2	18	9	8

3	24	8	6
4	28	7	4
5	30	6	2
6	30	5	0
7	28	4	-2
8	24	3	-4
9	18	2	-6
10	10	1	-8

Note that the total revenue is maximum when 5 units of X are sold. It stays constant for one more unit and then begins to fall. Average revenue keeps on falling showing inverse relationship between price and quantity demanded. It represents demand function of X to the firm. Marginal revenue keeps on falling and after becoming zero it becomes negative. Also note that TR at any particular level of output is the sum of marginal revenues till that level of output which can be expressed as:-

$$TR = \sum MR$$

The question which arises is: why is the marginal revenue due to the third unit (₹ 6) not equal to price of ₹ 8 at which the third unit is sold. The answer is that when price is reduced for selling an additional unit, the two units which could be sold for ₹ 9 before will have to be sold at the reduced price of ₹ 8 per unit. The total loss on previous two units due to price fall will be equal to ₹ 2. Thus, for any falling average revenue (or price) schedule, marginal revenue is always less than the price. In the case of constant average revenue (or price) schedule, the marginal revenue is equal to average revenue (or uniform price). If TR stands for total revenue and q stands for output, marginal revenue (MR) can be expressed as:

$$MR = dTR/dQ$$

dTR/ dQ indicates the slope of the total revenue curve.

When the demand curve of the firm is a normal downward sloping one, there is a well-defined relationship between average revenue, marginal revenue and total revenue. This can be shown by the following figure presenting total revenue (TR), average revenue (AR) and marginal revenue (MR) curves. The average revenue curve in panel B is sloping downwards depicting the inverse relationship between price and quantity demanded. MR curve lies below AR curve showing that marginal revenue declines more rapidly than average revenue. Total revenue increases as long as marginal revenue is positive and declines (has a negative slope) when marginal revenue is negative. Total revenue curve initially increases at a diminishing rate due to diminishing marginal revenue and reaches maximum and then it

falls. When marginal revenue becomes zero, the total revenue is maximum and the slope of TR is zero.

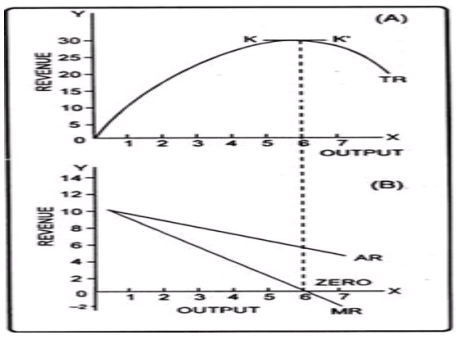
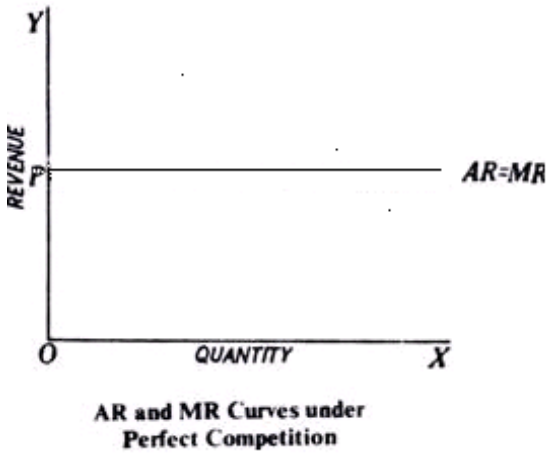


Fig. 2: Total Revenue, Average Revenue and Marginal Revenue Curves of a Firm which has downward Sloping Demand Curve

It may be noted that in all forms of imperfect competition, the average revenue curve of an individual firm slopes downwards as in these market forms, when a firm increases the price of its product, its quantity demanded decreases and vice versa. Under perfect competition, however, since the firms are price takers, the average revenue (or price) curve or demand curve is perfectly elastic. Perfectly elastic average revenue curve means that an individual firm has constant average revenue (or price). When price remains constant, marginal revenue will be equal to average revenue and thus AR curve and MR curve will coincide and will be horizontal curves as shown in figure 3 below:



AR and MR Curves under Perfect Competition

Fig 3: Average Revenue and Marginal Revenue Curves of a Perfectly Competitive Firm

1.2.0 Relationship between AR, MR, TR and Price Elasticity of Demand

It is to be noted that marginal revenue, average revenue and price elasticity of demand are uniquely related to one another through the formula:

$$MR = AR \times \frac{e-1}{e}$$

Where e = price elasticity of demand

Thus if e = 1, $MR = AR \times \frac{1-1}{1} = 0$

and if e >1, MR will be positive

and if e <1, MR will be negative

In a straight line downward falling demand curve, we know that the coefficient of price elasticity at the middle point is equal to one. It follows that the marginal revenue corresponding to the middle point of the demand curve (or AR curve) will be zero. On the upper portion of the demand curve, where the elasticity is more than one, marginal revenue will be positive and on the lower portion of the demand curve where elasticity is less than one, marginal revenue will be negative. These can be shown in diagram:

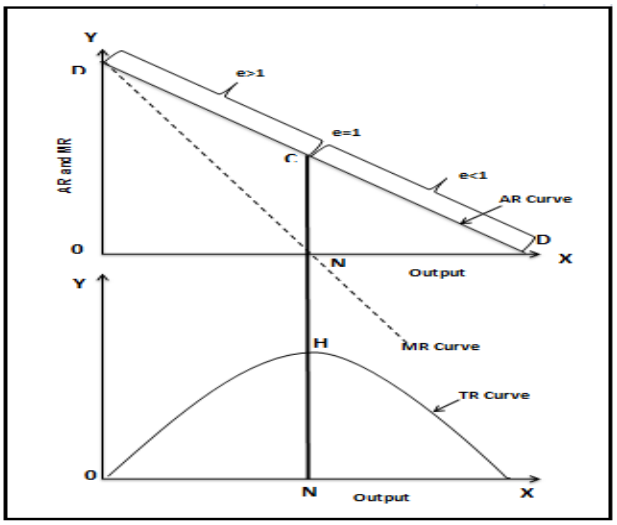


Fig.4: Relationship between AR, MR, TR and Price Elasticity of Demand

In fig. 4, DD is the AR or demand curve. At point C, elasticity is equal to one. Corresponding to C on the AR curve, the marginal revenue is zero. Thus, MR curve is touching X-axis at N (corresponding to C on the AR curve). At a greater quantity than ON, the elasticity of the AR curve is less than one and the marginal revenue is negative. Negative marginal revenue means MR curve goes below the X-axis to the fourth quadrant. Marginal revenue being negative means that total revenue will diminish if a quantity greater than ON is sold. Total revenue will be rising up to ON output since up to this the marginal revenue remains positive. It follows that total revenue will be maximum where elasticity is equal to one. Thus, TR is shown to be at its highest level at ON level of output (corresponding to the point C on AR curve). Beyond ON Level of output, the TR curve has a negative slope.

1.2.1 Behavioural principles

Principle 1- A firm should not produce at all if its total variable costs are not met.

It is a matter of common sense that a firm should produce only if it will do better by producing than by not producing. The firm always has the option of not producing at all. If a firm's total revenues are not enough to make good even the total variable costs, it is better for the firm to shut down. In other words, a competitive firm should shut down if the price is below AVC. In that case, it will minimise loss because then its total cost will be equal to its fixed costs and it will have an operating loss equal to its fixed cost. The sunk fixed cost is irrelevant to the shutdown decision because fixed costs are already incurred. This means that the minimum average variable cost is equal to the shut-down price, the price at which the firm ceases production in the short run. Shutting down is temporary and does not necessarily mean going out of business.

If price (AR) is greater than minimum AVC, but less than minimum ATC, the firm covers its variable cost and some but not all of fixed cost. If price is equal to minimum ATC, the firm covers both fixed and variable costs and earns normal profit or zero economic profit. If price is greater than minimum ATC, the firm not only covers its full cost, but also earns positive economic profit or super normal profit.

Principle 2 - The firm will be making maximum profits by expanding output to the level where marginal revenue is equal to marginal cost.

In other words, it will pay the firm to go on producing additional units of output so long as the marginal revenue exceeds marginal cost i.e., additional units add more to revenues than to cost. At the point of equality between marginal revenue and marginal cost, it will earn maximum profits.

The above principle can be better understood with the help of figure 5 which shows a set of hypothetical marginal revenue and marginal cost curves. Marginal revenue curve slopes downwards and marginal cost curve slopes upwards. They intersect each other at point E (MC= MR) which corresponds to output Q.* Up to Q* level of output, marginal revenue is greater than marginal cost and at output level *Q they are equal. The firm will be maximizing profits at E (or at Q* level of output). For all levels of output less than Q*, additional units of output add more to revenue than to cost (as their MR is more than MC) and thus it will be profitable for the firm to produce them. The firm will be foregoing profit equal to the area EFG if it stops at A. Similarly profits will fall, if a greater output than OQ is produced as they will add more to cost than to revenues. On the units from Qth to Bth, the firm will be incurring a loss equal to the area EHI.

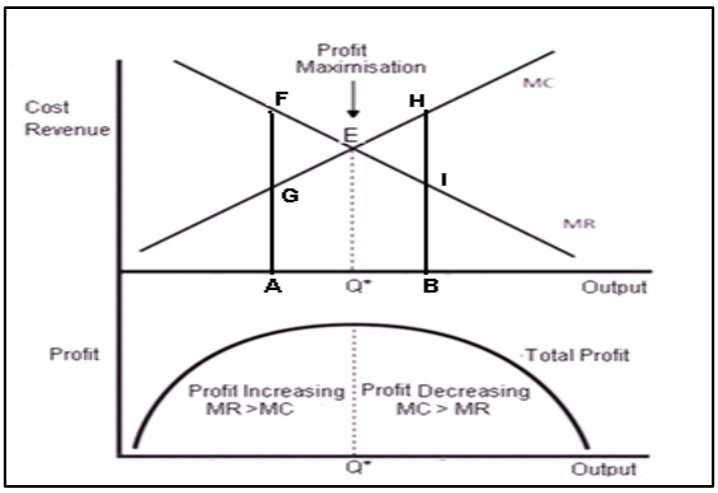


Fig: 5: Equilibrium of the Firm: Maximization of Profits

To conclude, the firm will maximize profits at the point at which marginal revenue is equal to marginal cost.

SUMMARY

- Economic goods are scarce in relation to their demand and have an opportunity cost. Unlike free goods, they are exchangeable in the market and command price.
- Price connotes money-value i.e. the purchasing power of an article expressed in terms of money.
- Value in exchange or exchange value, according to Ricardo, means command over commodities in general, or power in exchange over purchasable commodities in general.
- Market is the whole set of arrangements for buying and selling of a commodity or service. Here buyers and sellers bargain over a commodity for a price.
- The elements of a market are: buyers and sellers, a product or service, bargaining for a price, knowledge about market conditions and one price for a product or service at a given time.
- Markets are generally classified into product markets and factor markets.
- The factors which determine the type of market are: nature of commodity, size of production and extent of demand.
- Markets can be classified on the basis of area, time, nature of transaction, regulation, volume of business and types of competition.

- On the basis of area: markets are classified into four i.e. local, regional, national and international.
- On the basis of time: markets are classified into four i.e. very short period or market period, short period, long period and very long period or secular period.
- On the basis of nature of transaction: markets are classified into spot market and future market.
- On the basis of regulation: markets are classified into regulated and unregulated markets.
- On the basis of volume of business: markets are classified into wholesale and retail markets.
- On the basis of competition: On the basis of competition we have perfectly competitive market and imperfect market. The imperfect market is further divided into monopoly, monopolistically competitive market and oligopoly market.
- Total revenue refers to the amount of money which a firm realizes by selling certain units of a commodity.
- Average revenue is the revenue earned per unit of output.
- Marginal revenue is the change in total revenue resulting from the sale of an additional unit of the commodity.
- Marginal revenue, average revenue and price elasticity of demand are uniquely related to one another
- MR = AR $\times \frac{e-1}{e}$ Where e = price elasticity of demand.
- Total revenue will be maximum where elasticity is equal to one.
- If a firm's total revenues are not enough to make good even the total variable costs, it is better for the firm to shut down. In other words, a competitive firm should shut down if the price is below AVC.
- At the point of equality between marginal revenue and marginal cost, a firm will earn maximum profits.