LESSON 9

CONCEPT OF REVENUE

In the previous chapter, we have studied the concept of Cost in detail. Now we will study the Income (Revenue) which, a producer acquires by sale of his product. On the basis of competition, market is classified into three categories- Perfect Competition, Monopoly and Monopolistic Market. Large variations are found in the revenues of the above markets on basis of sale of commodity and their prices.

Meaning of Revenue:

Here the word 'revenue' refers to the amount of money received by firm, on account of sale of its product. Two elements- cost of production and profit are included in total revenue.

(i) Total Revenue:- Total revenue is obtained by multiplying quantity of a commodity (Q) sold by the price (P) received for it.

Total Revenue = Quantity sold × Price

$$\boxed{TR = Q \times P}$$

E.g. if the firm sells 100 units at the rate of ` 10 per unit, then total revenue will be ( 10 × 100= ` 1000)

(ii) Average Revenue:- Average revenue of any firm is obtained when total revenue is divided by total quantity sold.

$$\text{Average Revenue} = \frac{\text{Total Revenue}}{\text{Total Quantity sold}}$$

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

E.g.If any firm's total revenue is ` 20,000 for one month, and total quantity sold is 100 units, then average revenue will be ` 200 (20,000÷100= ` 200)

Note :- Average revenue curve is also a demand curve of any firm. Demand depends on the price.

(iii) Marginal Revenue :- By sale of additional unit of product the additional revenue obtained is known as Marginal Revenue. i.e. increase in income due to increase in sale is Marginal Revenue.

$$\text{Marginal Revenue} = \frac{\text{Change in Total Revenue}}{\text{Change in Total Quantity sold}}$$

$$MR = \frac{\Delta TR}{\Delta Q}$$

(Here Δ shows changes)

E.g. If any firm's sale increases from 10 units to 11 units and total revenue increases from 100 units to 105 units then-

$\Delta TR = 105 - 100 = 5$

$\Delta Q = 11 - 10 = 1$

MR = 5 ÷ 1 = ` 5

Hence, Marginal revenue will be ` 5

From the above analysis, it is evident that average revenue and marginal revenue are calculated on the basis of total revenue.

Revenue curves in various markets :-

Revenue in different types of markets are explained as follows:-

Perfect Competition Market:- In this market there are large number of buyers and sellers. The firm accepts the price determined by the demand and supply in an industry. Thus the total revenue, average revenue and marginal revenue in this market are as follows :-

Table 9.1

Quantity Sold	Total Revenue	Marginal Revenue	Average Revenue
Q	**TR**	**MR**	**AR**
1	5	5	5
2	10	5	5
3	15	5	5
4	20	5	5
5	25	5	5

As in Perfect Competition, firm accepts the price, determined by the industries. Therefore AR curve is a horizontal straight line, parallel to x axis. TR is obtained by multiplying price with the quantity of sale. As the unit sold increases, TR also increases. Similarly, Marginal revenue (MR) is also equal to Average revenue (AR) and the curve is parallel to X axis, it is perfectly elastic, and depicts the price level. Fig. 9.1(A) and9.1(B) shows the above analysis. AR= MR= P

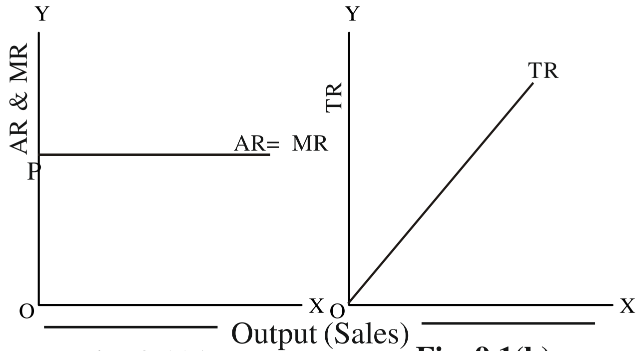


Fig. 9.1(a) **Fig. 9.1(b)**

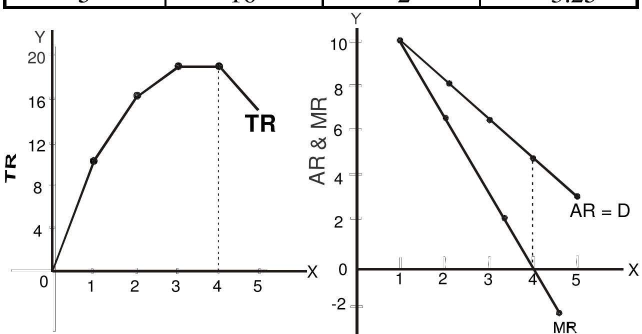
Figure 9.1

Revenue curve in Monopoly Market :-

A market where there is only one producer or one seller of a commodity is known as Monopoly Market. It is a specific type of market where producer determine both price and quantity of his product. In this market concept of revenue can be explained by the following table :-

Table 9.2

Total Sold (Unit) Q	Total Revenue (TR)	Marginal Revenue (MR)	Average Revenue (AR)
1	10	10	10
2	16	6	8
3	18	2	6
4	18	0	4.5
5	16	-2	3.25



Output (Sales) 9.2 (A) **Output (Sales)** 9.2 (B)

According to the above Figure 9.2 in Monopoly Market total revenue (TR) increases in the begining at an increasing rate, then reaches the maximum point and then decreases onward.

Similarly, both MR and AR curve decreases. MR curve falls at a rapid rate than the AR curve. Both curves are less elastic and downward sloping. AR curve lies above MR curve . Average revenue curve is also the demand curve of a firm.

Revenue curve in Imperfect Competition Market :-

In this market, some firms compete with other firms to maximize the sale of their products. Monopolistic market is a real concept and is found in every economy. Revenue concept in this market can be explained by the given table :-

Table 9.3

Total Sold (Unit) Q	Total Revenue TR	Marginal Revenue MR	Average Revenue AR
1	10	10	10
2	18	8	9
3	24	6	8
4	28	4	7
5	30	2	6
6	30	0	5
7	28	-2	4

The features of this market are the mixture of Perfect Competition and Monopoly Market. The Imperfect Market Competition includes monopolistic competition, Oligopoly and Duopoly.

Monopolistic competition:-

In this market the number of firm is large. Its main characteristic is product differentiation on basis of colour, packing, brand, quality etc. Here non-price competition is also found. In this AR curve is relatively more elastic (e > 1) which shows demand is more sensitive to price. Therefore the slope of demand curve is gradual.

In Monopolistic Market TR curve increases in the beginning at a increasing rate, reaches at maximum point and then starts decreasing. In this market AR and

MR both curve are downward sloping. AR curve lies above the MR curve. The slope of AR and MR is more elastic. AR curve is also firm's demand curve. At a point where TR is maximum, MR is zero. Fig. 9.3 explain this analysis.

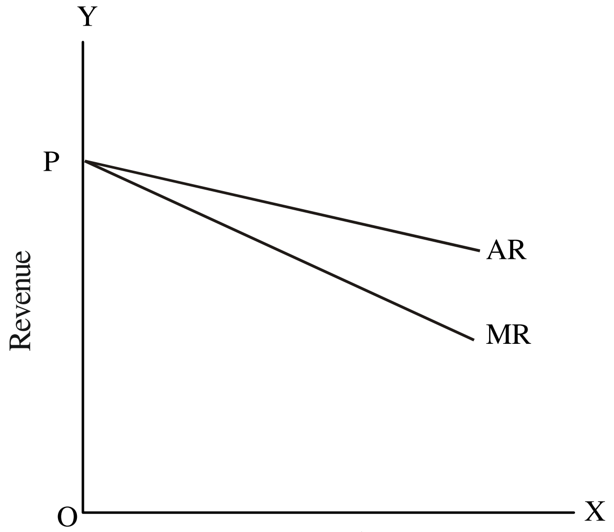


Figure 9.3

Oligopoly Market :-

In this market there are few firms which sell differentiate products. In this market number of sellers is very few therefore every seller has a large share in the total production of an industry. The Price Level increases or decreases on the basis of reaction to the changes in the price of the rival forms. Due to this uncertainty of price the demand curve of the sellers remains indefinite. The demand curve is kinked which shows price rigidity in the market.(fig. 9.4)

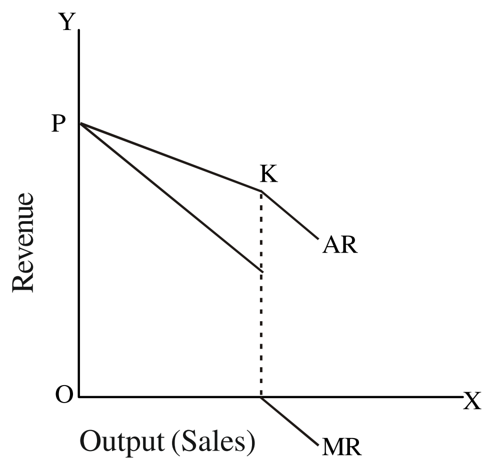


Figure 9.4

Importance of Revenue Curves :-

In this way, the concept of Marginal Revenue and Average Revenue are important to find a firm's equilibrium. Marginal revenue and average revenue play important role, in price determination. In all markets average revenue is producer's demand curve. Any firm or industry's financial condition is assessed on the basis of average revenue and average cost. If AR=AC, it means firm is getting normal profit. Similarly, to know the equilibrium of a firm, the concept of marginal revenue is important. Firm's equilibrium or optimum output is determined where marginal revenue is equal to marginal cost. Thus in economic analysis the average and marginal revenue curve are proved to be useful tools.

Important points:-

- We get total revenue of a firm by multiplying the price with total quantity sold.
- Any firm's average revenue is obtained by dividing total revenue (TR) with total sale (Q)
- The additional revenue obtained by the sale of an additional unit of product, is known as Marginal Revenue.
- In Perfect Competition there are many buyers and sellers. The firm accepts the price determined by demand and supply in an industry.
- The market, which has only one producer or one seller of a product, is known as Monopoly Market.

Exercise Questions

Objective Type Questions :-

1. When sold quantity is multiplied by the price of product we get-

   (A) Average revenue (B) Total revenue

   (C) Marginal revenue (D) Average output

2. If quantity sold is 200 units, at price` 10 per unit in a month, then the average revenue will be-

   (A) 50 (B) 20

   (C) 25 (D) 10

3. In which market AR=MR-

(A) Perfect competition

(B) Imperfect competition

(C) Monopoly

(D) All the above

4. Which curve depicts price in perfect competition?

(A) AR=MR (B) TR

(C) TR=AR (D) All above

5. In monopoly market, relationship between AR and MR is-

(A) AR = MR (B) AR > MR

(C) AR < MR (D) AR × MR

Very Short Answer Type Questions :-

1. Write the formula of Average Revenue.
2. Define Marginal Revenue.
3. Explain the term 'Revenue'.
4. What is the shape of AR and MR curve in Perfect Competition?
5. Which curve depicts price in Perfect Competition Market?

Short Answer Type Questions :-

1. Explain Average Revenue and Marginal Revenue by an imaginary table.
2. Complete the following table-

Production in unit	1	2	3	4	5
Average Revenue Rs.	6	–	4	–	–
Marginal Revenue Rs.	–	4	–	0	–
Total Revenue Rs.	6	–	–	–	10

(Ans:- MR = 6, 4, 2, 0, -2 AR = 6, 5, 4, 3, 2 TR= 6, 10, 12, 12, 10)

3. Calculate Average Revenue and Marginal Revenue from the following table-

Production in unit							
Total Revenue In Rs.							

Ans. (MR- 10,15,26,9,0,-18 AR -10,12,5,17,15,12,7)

4. Calculate Total Revenue and Marginal Revenue by the following data-

Production in unit					
Total Revenue In Rs.					

Ans. - (TR- 30,56,120,108,80 MR-26,64,-12,-28)

Essay Type Questions :-

1. Explain the relationship between Total Revenue, Average Revenue and Marginal Revenue with the help of hypothetical table and a Figure.
2. What do you mean by Perfect Competition market? Why firm's demand curve is perfectly elastic in perfect competition market? Explain.

Answer key

1	2	3	4	5
B	B	A	A	B