

# Lesson – 18

## Cost of Production

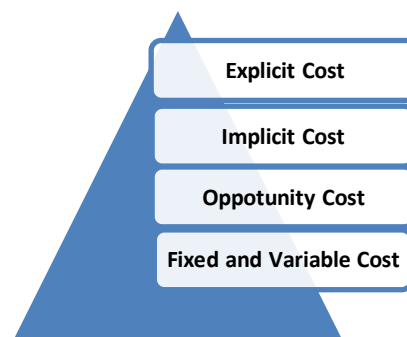
### Summary

The costs of production are the expenses to which a producer is subject as it goes through the process of generating, selling, and delivering goods and services to consumers. The various resources on which the production unit relies to produce a product (the good or service) are known as factors of production. These factors in which all represent costs to the production units, can include labor, equipment, real estate, machinery, technology, insurance, and other resources. In this lesson we will study about meaning of cost of production, different types of costs and various dimension cost of production and its calculation, process of preparing cost schedule, diagrammatic presentation, and also relationship between different dimension cost of production. Let us discuss now -

### Definition of Cost and Cost Function

- Cost of production is defined as the expenditure incurred by a firm or producer to purchase or hire factors of production in order to produce a product.
- Expenditure made on factors of production which is received by the owners in the form of rent wages and salaries, interest and profit is known as cost of production
- Cost function shows functional relationship between cost of production and level of output.  
 $C = f(Q)$  Where  $C$  = Cost of Production,  $f$  = function, and  $Q$  = Level of Output

### Types of Cost



#### **Explicit Cost (Money Cost)**

- Costs resulting in an immediate outflow of cash from the business are termed as explicit costs. Explicit costs are incurred due to the utilization of factors of production such as capital, land, labor etc.

### **Implicit Cost (Imputed Cost)**

- Implicit cost is also known as economic cost and do not require an outflow of cash from the business. Implicit cost is the value of sacrifice made by the company at the time of conducting some other action.

### **Opportunity Cost**

- Opportunity cost is the value of the next best thing you give up whenever you make a decision. It is "the loss of potential gain from other alternatives when one alternative is chosen". For example, opportunity cost is how much leisure time we give up to work.

### **Normal Profit**

- 'Normal profit' is nothing but the minimum assured profit in the next best occupation. Normal profit is the reward which an entrepreneur must receive for the risk and uncertainties he bears in the production of a commodity.
- A producer continues to produce a commodity he must get normal profit in addition to recovering his 'explicit cost' and 'implicit cost'.

### **Private and Social Cost**

#### **Private Costs**

- Private costs refer to direct costs to the producer for producing the good or service. For Example -A firm has to pay for raw material; it has to pay wages of workers; it has to pay rent of building.
- Social cost is the total cost to society. It includes private costs plus any external costs. Social cost is the total cost paid for by the society due to the activities of a firm. It is the sum of all the external cost and private cost.

### **Money Cost Vs Real Cost**

- Cost of production expressed in money terms is known as **money cost**. For example money cost includes the expenditures such as cost of raw materials, payment of wages and salaries, payment of rent, Interest on capital.
- **Real cost** is defined as the payment made to compensate the efforts and sacrifices of producers all factor owners for their services in production of goods and services.

### **Fixed Cost and Variable Cost**

- **Fixed cost** is defined as expense that does not change with change in the level of an organization's production. For example expenses under this category include building rent, equipment or machinery that are used in the manufacturing process, etc.
- **Variable cost** is defined as expenses that changes with change in level of an organization's production. Examples of variable costs are: sale commissions, hourly labor Cost, raw materials etc.

### **Nature and Calculation of Cost in Short Run**

The concept of nature of cost of production can be studied in short run and long run -

- In the short run, cost on one factor is fixed where as cost on other factors are changeable but in the case of long run all factors are variable. In the long run costs on all factors are variable in nature.

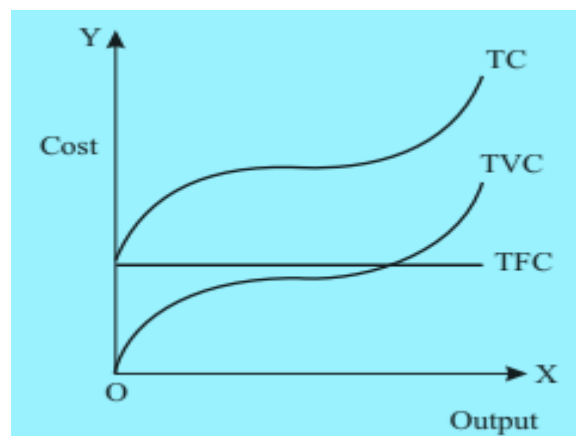
Here, We will discuss nature of cost curve only in short run not in the long run. Let us discuss about the nature of different cost curves -

### **Meaning and Nature of Total Cost, Total Fixed Cost and Total Variable Cost**

- Total expenditure made on fixed and variable factors of production for producing a given level of output is known as total cost. It is the sum total fixed cost and total variable cost.
- **TC = TFC + TVC**
- **TFC = TC - TVC**
- **TVC = TC - TFC**

Schedule for TC, TFC and TVC -

Pens (in units)	TFC (Rs.)	TVC (Rs.)	TC (Rs.)
0	0	0	60
10	10	60	120
20	20	100	160
30	30	150	210
40	40	260	320
50	50	390	450



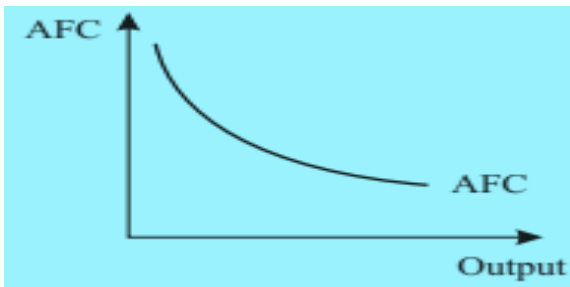
### **Meaning and Nature of Average Total Cost, Average Fixed Cost and Average Variable Cost -**

### Average Fixed Cost

Per unit fixed cost of production is called average total cost.

$$AFC = \frac{TFC}{Q}$$

Or,  $AFC = ATC - AVC$

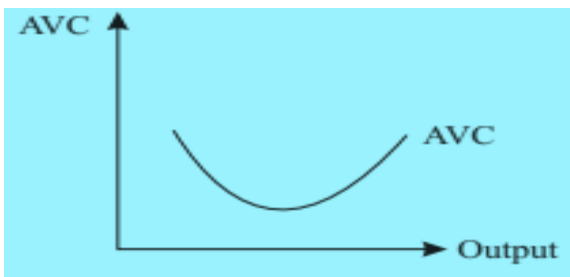


### Average Variable Cost

Per unit fixed cost of production is called average total cost.

$$AVC = \frac{TVC}{Q}$$

Or,  $AVC = ATC - AFC$

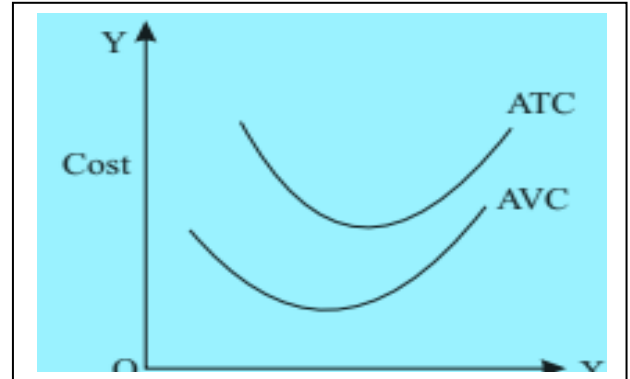


### Average Total Cost

Per unit cost of production is called average total cost.

$$ATC = \frac{TC}{Q}$$

Or,  $ATC = AFC + AVC$



Output (Units)	TFC (Rs.)	TVC (Rs.)	TC (Rs.)	AFC (Rs.)	AVC (Rs.)	AC (Rs.)
0	0	0	60	-	-	-
10	10	60	120	60	60	120
20	20	100	160	30	50	80
30	30	150	210	20	50	70
40	40	260	320	15	65	80
50	50	390	450	12	78	90

Cost schedule for calculating AFC, AVC and AC.

### Marginal Cost

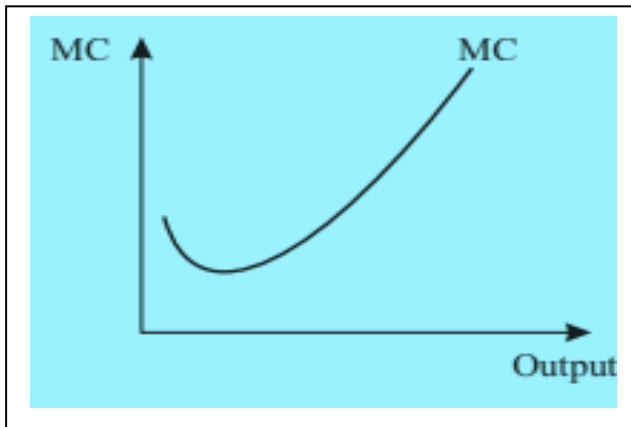
The marginal cost of production is the change in total production cost that arises for producing one additional unit of output.

$$MC_n = TC_n - TC_{n-1}$$

$$MC_n = TVC_n - TVC_{n-1}$$

Cost schedule for Marginal Cost-

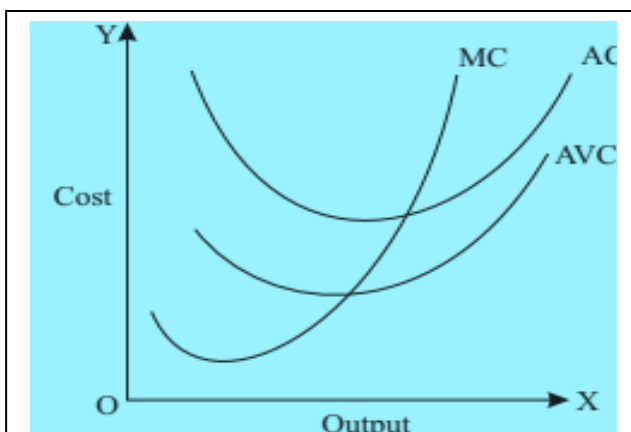
Output (Units)	TC (Rs.)	TFC (Rs.)	TVC (Rs.)	MC (Rs.)
0	60	0	0	-
10	120	10	60	60
20	160	20	100	40
30	210	30	150	50
40	320	40	260	110
50	450	50	390	130



### Relationship Between AC, AVC, and MC

The relationship between AC, AVC and MC can be illustrated with the help of the schedule and diagram –

Output (Units)	TFC (Rs.)	TVC (Rs.)	TC (Rs.)	AC (Rs.)	AFC Rs.	AVC Rs.	MC Rs.
0	10	0	10	-	-	-	-
1	10	6	16	16	10	6	6
2	10	10	20	10	5	5	4
3	10	15	25	8.3	3.3	5	5
4	10	24	34	8.5	2.5	6	9
5	10	35	45	9	2	7	11



### **Relationship between AC and MC -**

- When MC is less than AC, AC falls with increase in output.

- When MC becomes equal to AC, AC becomes minimum and constant
- When MC is more than AC, AC rises with increase in the output.

### **Relationship between AVC and MC -**

- When MC is less than AVC, AVC falls with increase in the output
- When MC becomes equal to AVC, AVC becomes minimum and constant.
- When MC is more than AVC, AVC rises with increases in the output.

### Evaluate Yourself

Q. Distinguish between AC and MC with the help of diagram.

Q. Distinguish between fixed cost and variable cost.

Q. Define TC, AC and MC and mention formula for calculation.

Q. Complete the following –

Output (Units)	Average Cost(AC)	Marginal Cost(MC)
1	12	-
2	10	-
3	-	10
4	10.5	-
5	11	-
6	-	17

