

## Unit - 3      Lecture - 10 Production and Cost

The aim of the managers is to make profit for the firm.

Profit  $\pi$  is the difference between total revenue (TR) and total cost (TC). So from the producer's point of view it is very important to understand both the concepts of production and cost.

1. Commodities are produced to be sold in the market.
2. Producers will be able to sell only those commodities for which there is demand in the market.
3. Product is creation of utility for sale.

Managers make production decisions in two different decision making time frames - Short-run prod<sup>n</sup> decision and long-run prod<sup>n</sup> decision.

Let us first try to understand the difference between short-run production and long-run production.

$$Q = f(L, \bar{L}, K, O)$$

$Q \rightarrow$  output

$L \rightarrow$  land

$\bar{L} \rightarrow$  labour

$K \rightarrow$  capital

$O \rightarrow$  organisation or entrepreneur

$L, \bar{L}, K, O$  are called factor inputs used in the production process.

The prices of factor inputs constitute the cost of production.

Let

$r \rightarrow$  rent is the price of land

$\tilde{w} \rightarrow$  wage is the price of labour

$i \rightarrow$  interest is the price of capital

$\pi \rightarrow$  profit is the price of the entrepreneur

In the production of commodities, the total cost of production is the sum total of the prices of all the factor inputs used in production.

$$TC = \text{Total Cost}$$

$$TC = r + \tilde{w} + i + \pi$$

In a production process, when commodities are created, inputs get converted into output.

Difference between short-run production and long-run production.

$$\text{Let } Q = f(L, K)$$

### Short-run

In this production process at least one input remains fixed i.e.

$$Q = f(L, \bar{K})$$

Here  $K$  is a fixed input &  $L$  is variable input.

### Long-run

In the long-run all inputs are variable.

$$Q = f(L, K)$$

$L$  &  $K$  both are variable inputs.

Fixed inputs remain fixed throughout the entire production process.

e.g

Someone bought 10 acres of land to produce wheat. Here the size of land will not change even if no output is produced.

So  $L$  is a fixed input.

Variable inputs on the other hand change readily with change in output.

e.g In order to cultivate the land, he uses 10 labour ( $L$ ) as a factor input. Now if he wants to produce more he will increase the no. of labourers. Here  $L$  is changing and hence it's a variable factor.

Some basic concepts of Production Theory:

production function:

It is a link between the levels of inputs used in production and levels of output.

## Technical efficiency and economic efficiency:

Technical efficiency is achieved when maximum amount of output is produced from a given combination of inputs.

Economic efficiency is achieved when a given level of output is produced at the lowest possible cost.

## Fixed proportion and variable proportion:

Production in which only one ratio of factor inputs can be used to produce output is called fixed proportion.

e.g.  $H_2O$

Production in which a given level of output can be produced from different combinations of factor inputs is called variable proportion.

e.g. Ratio of sand & cement. Naph.