UNIT-III

(Production and Cost Analysis)

MODULE-1: COST CONCEPTS

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1.0: Introduction:

Cost of production plays an important role in decision making, given other factors. It is the level of cost relative to revenue that determines the firm’s overall profitability. In order to maximise profit the firm try to increase its revenue and lower its cost. While the external factors determine the level of revenue to a great extent, the cost can be brought down either by producing the optimum level output using the least cost combination of inputs or increasing factor productivities. The firm’s output level is determined by its cost. Cost of production provides the floor or base for pricing of a product. A firm which produces with low cost relative to its rival will have competitive advantage in the market. As a result no firm ignores its cost analysis.

1.01: Objectives:

The objective of this module is to explain different concepts of cost. After reading this module, you should be able to understand the meaning of:

Cost of production

Money cost

Explicit and Implicit Cost

Separable and non-separable cost

Fixed and variable cost

Incremental and sunk cost

Replacement and historical cost

Relevant and irrelevant cost

Private and social cost

1.02: Meaning of cost of production:

In general, the value of inputs used in the production process to produce a given level of output is called as cost of production. For example: a business firm employed 10 units of labor and 5 units of capital and 5 quintals of rawmaterial to produce 100 units of output. Assume that the price of labor per unit is Rs: 10 the price of capital per unit is Rs: 20 and the price of rawmaterial per unit is Rs 500 per quintal. Thus the cost of producing 100 units of output is Labor cost of Rs 100 + capital cost of Rs 100+ rawmaterial cost Rs 2500 = Rs.2700. This implies that the physical quantities of inputs have to be converted into money terms to arrive at cost of production.

1.03: Money cost:

It is the total expenditure incurred by a business firm towards producing a volume of output. Business firm may use various factors of production in the production process to produce output.

We can understand the concept of money cost with the help of following example.

Rawmaterials worth =Rs 2000

Employed workers and their wages = Rs 400

Interest on capital = Rs.100

Fuel charges Rs 50

Rent towards using building =Rs 100

The money cost of producing given level of output is Rs 2650.

1.04: Explicit and Implicit Cost:

The money cost or total cost of producing given output consists of explicit and implicit cost. The cost or expenditure incurred by a firm towards purchased or hired-in factors of production is called explicit cost or out of pocket cost. On the other hand in addition to hired-in factors of production, a firm may employ own factors of production such as own labour (family members), own capital, own building etc. The payment that a business firm is supposed to make towards using own factors of production according to market or opportunity cost is called implicit cost. These costs also known as book cost or economic cost or implicit cost or imputed cost. We can understand this cost concept with the help of following example.

Purchased Rawmaterials worth =Rs 2000

Employed workers (other than family members) and their wages = Rs 300

Employed workers (family members) and their wages = Rs 100

Interest on borrowed capital = Rs.80

Interest on own capital = Rs.20

Fuel charges Rs 50

Rent towards using own building =Rs 100

In the above example explicit cost items are:

Purchased Rawmaterials worth =Rs 2000

Employed workers (other than family members) and their wages = Rs 300

Interest on borrowed capital = Rs.80

Fuel charges Rs 50

Total explicit cost is = Rs 2430

The implicit cost items are:

Employed workers (family members) and their wages = Rs 100

Interest on own capital = Rs.20

Rent towards using own building =Rs 100

The total implicit cost is Rs 220.

This classification of cost in to explicit and implicit is useful to estimate accounting and economic profit. In general accountants' takes in to consideration accounting cost and they ignore economic costs. But economists' takes in to consideration explicit and implicit costs while calculating profit.

Accounting profit = total revenue – explicit cost

Economic profit = total revenue – (explicit + implicit cost) or

Economic profit = Accounting profit – implicit cost.

ACTIVITY-1

1. Define explicit and implicit costs.
2. What is the difference between accounting and economic profit?

1.05: Separable and non-separable cost:

These costs are also known as direct and indirect costs as well as traceable and non traceable costs. A direct or traceable cost is one which can be identified easily on the basis a department or product or size of the product. For example: rawmwterial cost can be identified based on product or size of the product. Common are indirect costs are those that are not traceable department –wise. For example: the salary of CEO of a business firm, salary of a quality control engineer, fuel charges, stationery expenses cannot be traceable.

1.06: Fixed and Variable Cost:

Total cost could be divided into two components such as fixed and variable costs. In the short-run fixed costs remain constant irrespective of changes in volume of output. They do not vary as a result of variations in volume of output. A firm has to incur fixed costs even when output is zero. There is an inverse relationship between volume of output and per unit fixed cost. The examples of fixed costs are: cost incurred on plant and machinery, buildings, salaries to permanent employees, insurance premium etc. Fixed costs are also known as over head expenses and supplementary costs.

Variable costs do change as a result of variations in volume of output. As output increases variable cost also increases and vice versa. In the initial stages, as output increases, total variable cost increases at a decreasing rate. Beyond a level if output increases, total variable cost increases at an increasing rate. The cost incurred by business firm towards rawmaterial, wages to workers, fuel charges and other working expenses are called variable costs. These costs also called as prime costs and direct costs.

ACTIVITY-1

1. Identify the fixed and variable cost items in your class room.

1.07: Incremental and Sunk cost:

Incremental cost is the change in total cost as a result of producing additionally a bulk quantity of output. For example: A business firm produced 100 units of a commodity with total cost Rs 1000. On the other hand to produce 200 units of output the firm incurred total cost of Rs 1800. Here the incremental cost is Rs 800. This increase in total cost is due to change in output by 100 units (bulk change). Sunk cost is one which is not affected by change in the level of business activity. It will remain the same whatever the level of output. The most important example of sunk cost is the amortization of past expenses i.e. depreciation.

For decision making purpose incremental costs are more important. Business firms' always look at incremental costs while allocating additional load of input in the production process. Whether to add additional load of input in the production process or not depends on comparison of incremental costs and incremental revenues. If incremental costs are less than incremental revenues, then the business firm will take a decision to add additional load of inputs or else it may withdraw inputs from the production process.

1.08: Replacement and Historical Cost:

Historical cost is the cost already incurred by the business firm. Now the firm cannot avoid or escape. For example: The expenditure incurred by a firm to buy a machine 5 years back. Since expenditure already incurred it cannot be avoided. On the other hand, replacement cost is the expenditure that a business firm has to incur in order to buy a new or advanced machine to replace the machine purchased 5 years back. Replacement cost implies the present price of new machine. For decision making purpose, managers always takes into consideration replacement costs and they simply ignore historical costs.

1.09: Relevant and irrelevant costs:

The relevant costs for decision making purpose are those costs which are incurred as a result of decision under consideration. The relevant costs are also referred to as incremental costs. Costs that have been incurred already and costs that will be incurred in the future regardless of the present decision are irrelevant costs as far as the present decision problem is concerned.

1.10: Private and social costs:

Private costs are those that accrue directly to the individuals of firms engaged in relevant activity. External costs, on the other hand, are passed on to persons i.e. society, not involved in the activity in any direct way. For example a business firm located on the banks of a river leaving the effluents in to the river. While the private cost of leaving the effluents in to the river, to the firm is zero. On the other hand social cost is definitely positive. Because the effluents pollute the river water and affects adversely the health of people located in downstream. These people have to spend money to cure diseases afflicted through the use of polluted water. These are called social costs that the society has to incur though it is in no way involved in the production of commodities which pollute the environment.

ACTIVITY-3

1. Name the industries which cause positive social cost.

1.11: Summary:

In this module an attempt has been made to understand different cost concepts that we come across while studying managerial economics. The value of factors of production employed in the production process to produce a given volume of output is called cost of production. Cost of production forms the basis for fixation of price. In modern times business firms generally concentrating on cost effective methods and adopting cost reduction policies to face competition in the market. The different cost concepts discussed in this module, play an important role in decision making process with respect arriving at decisions related to output, price fixation, to add additional quantity of factors of production, replacement of machinery etc.

1.12: References:

1. P.L.Mehta: *Managerial Economics*- *Analysis,Problems and Cases.*

2. Dominick Salvatore: *Managerial Economics in a global economy*

3. R.L Varshney and Maheswari: *Managerial Economics.*

4. H.Craig Petersen and Cris Lewis: *Managerial Economics*

1.13: Self assessment test:

1. Discuss various cost concepts which are helpful to managers' in arriving at business decisions.