

UNIT-I
(Nature and Scope of Managerial Economics)
MODULE-4: FUNDAMENTAL CONCEPTS -I

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4.0: INTRODUCTION:

There are many concepts of managerial economics and the understanding of each concept requires proper explanation. These concepts have been placed and discussed under two modules namely module-4 and module-5.

4.01: OBJECTIVES:

The basic objective of this module is to introduce to you the fundamental concepts of managerial economics. Economic theory provides a number of concepts and analytical tools which can be of considerable help to a manager in arriving at optimal decisions. The understanding of these concepts serves as a base in developing analytical rigor of the subject. After reading this module you should be able to understand the concepts of managerial economics as outlined below:

Scarcity
Marginal
Incremental
Equi-marginal
Discounting principle

4.02: SCARCITY:

This is one of the fundamental concepts of managerial economics that influences decisions of business firms to a large extent. As discussed in previous modules of unit-1, scarcity is the root cause of all economic problems. It is a fact that the resources at the disposal of functional managers are limited. For example: production manager may face scarcity of quality raw material, the marketing manager may face scarcity of sales force and the finance manager may face scarcity of funds to take up expansion activity. Not only the managers of business firms but also the finance minister of a country generally faces scarcity problem due to the expenditure exceeding the revenue. Thus scarcity is a universal phenomenon.

Scarcity is a relative term. In order to identify whether there is any scarcity of goods or services, we have to make a comparison of its supply or availability and demand or requirement. The presence of excess demand or requirement is an indicator of scarcity. The demand in relation to supply determines scarcity.

Example: Supply of resource (the resources at the disposal of a firm) 50 workers and rupees 1 crore and demand for resource (quantity of resources required) 100 workers and rupees 2 crore. Since demand is more than supply, it leads to scarcity.

Example: The demand for a commodity=1000 units at a given point of time. The supply of same commodity at the same time period=800 units. The presence of excess demand i.e demand 1000–(minus) supply 800, is 200 units. The presence of excess demand forces the price to move upwards. The significant feature of scarcity is rise in price. In recent times the prices of onions and garlic touched the sky due to short supply i.e scarcity.

Other examples:

1. The demand for jobs (number of job seekers or the workers entering the labour market) and available number of jobs.
2. Inflation is essentially a problem that arises due to scarcity of commodities.

ACTIVITY-1

1. List out a few examples of scarcity.
2. What is the rationality of scarcity concept?

403: MARGINAL:

Marginal is defined as a change in the dependent variable as a result of one additional unit change in the independent variable. Marginal is always analysed with reference to one unit change in the denominator. Since resources at the disposal of managers are scarce, while allocating these resources among competing uses they have to estimate the marginal contribution of resources i.e the contribution of additional units of resources to the total output. For example, a firm employed 10 units of rawmaterials along with a given quantity of other inputs and produced 100 units of output. The same firm employed 11 units of rawmaterials along with a given quantity of other inputs and produced 105 units of output. In this example marginal output i.e.the contribution of eleventh unit of rawmaterial alone is 105 units –(minus) 100 units= 5 units. In the production

process managers generally come across many concepts of marginal. For example:

Marginal utility : Change in total utility as a result of consuming one additional unit of a commodity.

Marginal cost: Change in total cost as a result of producing one additional unit of a commodity.

Marginal product of labour: Change in total product or output as a result of employing one additional unit of labour.

Marginal product of capital: Change in total output or output as a result of employing one additional unit of capital.

Marginal Revenue: Change in total revenue as a result of selling one additional unit of a commodity.

In order to find out marginal, the independent and dependent variables have to be defined clearly. Further the independent variable is to be changed by just one unit .The purpose behind estimation marginal is to equate sacrifice with satisfaction. For example price paid by a consumer to buy a commodity 'y'(sacrifice) must be equal to utility derived by consuming that commodity(satisfaction) i.e $P_Y = MU_Y$.

In the same way the wage paid to workers must be equal to marginal productivity of workers i.e $W = MP_L$

We can understand the concept of marginal with the help of following numerical example:

No of labourers Employed	Total product (units)	Marginal product (units)
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1	3	3
2	7	4
3	12	5
4	18	6
5	25	7
6	30	5
7	33	3
8	35	2

The generalised principle for the estimation of marginal product is shown below.

MP_n^{th} unit of labour = Total product of 'n' units of labour(TP_n) - Total product of 'n-1' (TP_{n-1}) units of labour.

4.04: INCREMENTAL CONCEPT: The marginal concept though appears very simple but in real world business situation, it is difficult to apply this concept. The problem is that the independent variable may be subject to bulk or chunk change rather than one unit change. The fact is that a business firm generally never increases the factors of production unit by unit.

For example: a firm employed 100 labourers along with other inputs and produced 1000 units of output. It increased the employment of workers to 200 and produced 1800 units of output. In this example the incremental output is 800 units. From incremental output we can find out marginal as shown below;

Incremental output

Marginal output = -----

Incremental employment

ACTIVITY-2

1. How are marginal and incremental related?. Substantiate your answer with suitable numerical examples.

4.05: EQUI-MARGINAL:

While discussing the marginal concept we implicitly assumed that input either generate income or involve cost. But in reality input performs both the functions i.e. it generates income and involves cost. In such a situation, a manager's decision to employ additional units of inputs in the production process depends on the comparison of marginal revenue and marginal cost. If marginal revenue exceeds marginal cost, additional units of inputs are employed or else production is discouraged by not employing additional units of inputs. Thus the optimum level of output should be decided at a point where marginal revenue is just equal to marginal cost. This is called as equi-marginal principle.

Example:

A multi-commodity consumer attains equilibrium when $MU_x = MU_y = \dots = MU_n$

We assume that a consumer has Rs 6 to spend on X,Y,Z commodities. Price of X or Y or Z is Re.1. A consumer is determined to have all three commodities. His expected marginal utility Re.1 expenditure is 8 utils. Subject to budget constraint his aim is to derive maximum utility. Budget constraint implies that expenditure on these three commodities should not exceed income. A hypothetical numerical example is given below to understand the equi-marginal concept.

Commodities	Marginal utility	marginal utility	marginal utility
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X/Y/Z units	from X	from Y	from Z
1	10	9	8
2	9	8	7
3	8	7	6
4	7	6	5
5	6	5	4
6	5	4	3

In this example marginal utilities are diminishing as the consumption of commodity increases. Based on the above example, a consumer is able to maximise utility by consuming 3 units of X, 2 units of Y and 1 unit of Z. Thereby he can satisfy the conditions required for maximization of utility under equi-marginalism.

ACTIVITY-3

1. What is budget constraint?
2. Assume that a consumer has Rs 19 to spend on X,Y commodities. The price of X is Rs 3 and the price of Y is Rs 2. A consumer is determined to have two commodities. His expected marginal utility Re.1 expenditure is 6 utils. Subject to budget constraint, his aim is to derive maximum utility. Budget constraint implies that expenditure on these three commodities should not exceed income. A hypothetical numerical example is given below. Identify the equilibrium quantity of X and Y commodities.

Commodities	Marginal utility	marginal utility
X/Y/Z units	from X	from Y
1	24	20

2	21	18
3	18	16
4	15	14
5	12	12
6	9	10

4.06 DISCOUNTING PRINCIPLE:

This is also known as discounting. This is borrowed from accountancy. With the help of this concept, one can find the present value of future income stream. Consider the case of a seller: A business firm may sell goods on credit, can get Rs1100 after one year from now. On the other hand it can sell the same commodity on cash payment at Rs 1000. The firm has to decide whether to sell on credit or on cash payment. Individuals always will have time preference in favor of the present. It is better for the firm to sell at cash and receive Rs 1000 and deposit the same in a bank at 10% rate of interest and earn Rs 1100 at the end of one year. In this context the present value of future sum of Rs1100 is Rs1000.

The principle for the estimation present value is:

$$PV = \frac{R_1}{(1+r)} + \frac{R_2}{(1+r)^2} + \frac{R_3}{(1+r)^3} + \dots + \frac{R_n}{(1+r)^n}$$

R_1, R_2, R_3 and R_n are prospective revenue in 1, 2, 3, n years. Where as 'r' is the rate of interest i.e discount factor.

In the above example $R_1 = \text{Rs}1100$ and $r = 10\%$.

$$PV = \frac{1100}{(1 + 10\%)} = \text{Rs } 1000.$$

ACTIVITY-3

1. The prospective revenue from a machine in different years is given below.

$R_1 = \text{Rs } 2000$, $R_2 = \text{Rs } 3000$, $R_3 = \text{Rs } 3600$ and 'r' is 10%. Estimate the present value of future income stream.

4.07: SUMMARY:

In this module you have been introduced to a few basic concepts of managerial economics. We discussed in detail the concept of scarcity, marginal, incremental, equi-marginal and time value of money. All these concepts have practical relevance in the decision making process.

4.08: ADDITIONAL REFERENCES:

1. Dominick Salvatore: *Managerial Economics in a Global Economy*, McGRAW-HILL international edition.
2. H. Craig Petersen and W. Lewis: *Managerial Economics*, Prentice –Hall of India.
3. William F. Samuleson and : *Managerial Economics*, Wiley Student Edition
Stephen G. Marks
4. Brigham, E.F & Pappas: *Managerial Economics*, the Dryden Press, Illinois, USA

4.09: SELF ASSESSMENT TEST:

1. Discuss the importance of marginal and incremental concepts in the decision making process.
2. 'Minimisation of opportunity cost is the objective of the management executive in the allocation of resources' – Discuss.

3. 'Scarcity is the root cause of all economic problems' - Discuss