

UNIT - V

PRODUCTION & COST ANALYSIS

INTRODUCTION: The production function expresses a functional relationship between physical inputs and physical outputs of a firm at any particular time period. The output is thus a function of inputs. Mathematically production function can be written as

$$Q = f(A, B, C, D)$$

Where “Q” stands for the quantity of output and A, B, C, D are various input factors such as land, labour, capital and organization. Here output is the function of inputs. Hence output becomes the dependent variable and inputs are the independent variables.

The above function does not state by how much the output of “Q” changes as a consequence of change of variable inputs. In order to express the quantitative relationship between inputs and output, Production function has been expressed in a precise mathematical equation i.e.

$$Y = a + b(x)$$

Which shows that there is a constant relationship between applications of input (the only factor input ‘X’ in this case) and the amount of output (y) produced.

IMPORTANCE:

1. When inputs are specified in physical units, production function helps to estimate the level of production.
2. It becomes is equates when different combinations of inputs yield the same level of output.
3. It indicates the manner in which the firm can substitute one input for another without altering the total output.
4. When price is taken into consideration, the production function helps to select the least combination of inputs for the desired output.
5. It considers two types’ input-output relationships namely ‘law of variable proportions’ and ‘law of returns to scale’. Law of variable proportions explains the pattern of output in the short-run as the units of variable inputs are increased to increase the output. On the other hand law of returns to scale explains the pattern of output in the long run as all the units of inputs are increased.

6. The production function explains the maximum quantity of output, which can be produced, from any chosen quantities of various inputs or the minimum quantities of various inputs that are required to produce a given quantity of output.

Production function can be fitted the particular firm or industry or for the economy as whole. Production function will change with an improvement in technology.

ASSUMPTIONS:

Production function has the following assumptions.

1. The production function is related to a particular period of time.
2. There is no change in technology.
3. The producer is using the best techniques available.
4. The factors of production are divisible.
5. Production function can be fitted to a short run or to long run.

COBB-DOUGLAS PRODUCTION FUNCTION:

Production function of the linear homogenous type is invested by Junt wicksell and first tested by C. W. Cobb and P. H. Douglas in 1928. This famous statistical production function is known as Cobb-Douglas production function. Originally the function is applied on the empirical study of the American manufacturing industry. Cabb – Douglas production function takes the following mathematical form.

$$P = (B L^A C^{1-A})$$

Where P=output

C=Capital

L=Labour

B, ∞ =positive constant

ASSUMPTIONS:

It has the following assumptions

1. The function assumes that output is the function of two factors viz. capital and labour.
2. It is a linear homogenous production function of the first degree

3. The function assumes that the logarithm of the total output of the economy is a linear function of the logarithms of the labour force and capital stock.
4. There are constant returns to scale
5. All inputs are homogenous
6. There is perfect competition
7. There is no change in technology

ISOQUANTS:

The term Isoquants is derived from the words 'iso' and 'quant' – 'Iso' means equal and 'quant' implies quantity. Isoquant therefore, means equal quantity. A family of iso-product curves or isoquants or production difference curves can represent a production function with two variable inputs, which are substitutable for one another within limits.

Isoquants are the curves, which represent the different combinations of inputs producing a particular quantity of output. Any combination on the isoquant represents the same level of output.

For a given output level firm's production becomes,

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

Where 'Q', the units of output is a function of the quantity of two inputs 'L' and 'K'.

Thus an isoquant shows all possible combinations of two inputs, which are capable of producing equal or a given level of output. Since each combination yields same output, the producer becomes indifferent towards these combinations.

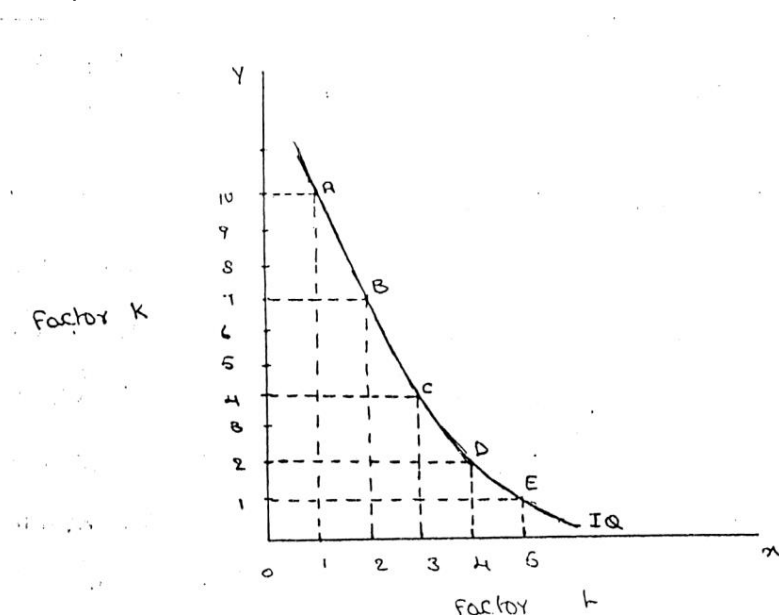
ASSUMPTIONS:

1. There are only two factors of production, viz. labour and capital.
2. The two factors can substitute each other up to a certain limit
3. The shape of the isoquant depends upon the extent of substitutability of the two inputs.
4. The technology is given over a period.

An isoquant may be explained with the help of an arithmetical example.

Combinations	Labour (units)	Capital (Units)	Output (quintals)
A	1	10	50
B	2	7	50
C	3	4	50
D	4	2	50
E	5	1	50

Combination 'A' represent 1 unit of labour and 10 units of capital and produces '50' quintals of a product all other combinations in the table are assumed to yield the same given output of a product say '50' quintals by employing any one of the alternative combinations of the two factors labour and capital. If we plot all these combinations on a paper and join them, we will get continues and smooth curve called Iso-product curve as shown below.



Labour is on the X-axis and capital is on the Y-axis. IQ is the ISO-Product curve which shows all the alternative combinations A, B, C, D, E which can produce 50 quintals of a product.

Features of an Isoquant:

1. Downward sloping: Isoquants are downward sloping curves because, if one input increases other one reduces.

2. Convex to origin: Isoquants are convex to origin. It is because the input factors are not perfect substitutes. One input factor can be substituted by other input factor in a diminishing marginal rate.

If the input factors were perfect substitutes, the iso-quant would be a falling straight line when the inputs are used in fixed proportion and substitution of one input for the other cannot take place, the iso-quant will be L shaped.

3. Do not intersect: Two iso-products do not intersect with each other. It is because each of these denote a particular level of output. If the manufacturer wants to operate at a higher level of output he has to switch over to another isoquant with a higher level of output and vice versa.

4. Do not touch axes: Isoquant touches neither X-axis nor Y-axis as both inputs are required to produce a given product.

Marginal Rate of Technical Substitution:

The Marginal Rate of Technical Substitutions (MRTS) refers to the rate at which one input factors is substituted with the other to attain a given level of output.

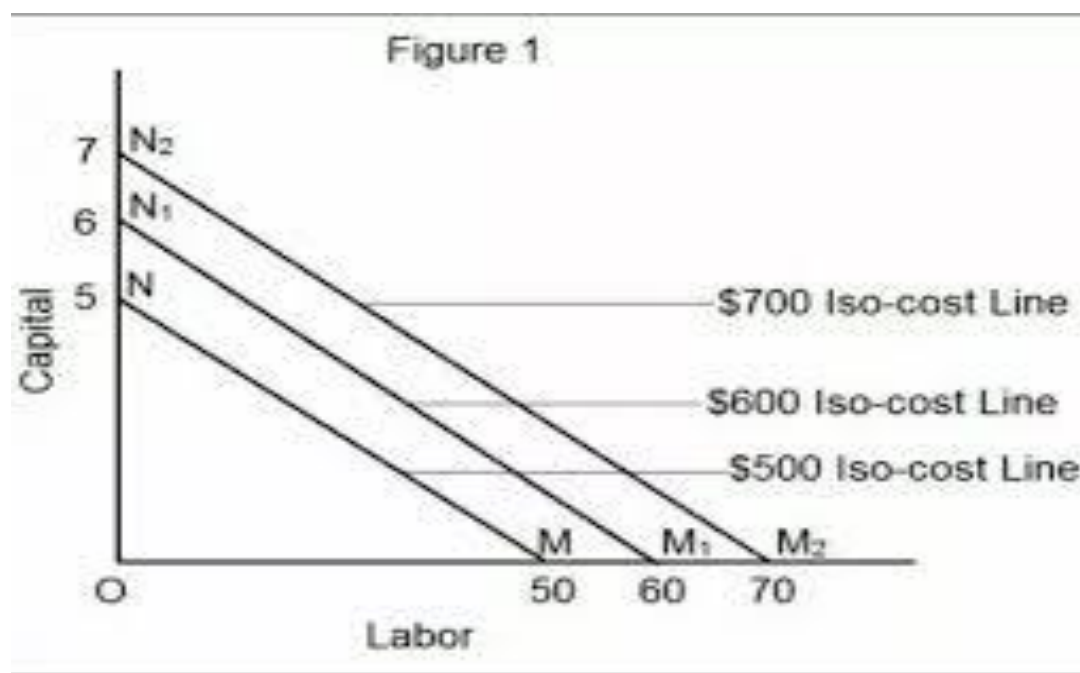
In other words, the lesser units of one input compensated by increasing amounts of another input to produce the same level of output.

Iso-costs:

Iso-cost refers to that curve that represents the combination of inputs that will cost the producer the same amount of money.

In other words, each iso-cost denotes a particular level of total cost for a given level of production.

If the level of production changes, the total cost changes and thus the iso-cost curve moves upwards, and vice versa.



Least Cost Combination of Inputs:

The manufacturer has to produce at lower costs to attain higher profits.

The isocosts and isoquants can be used to determine the input usage that minimizes the cost of production.

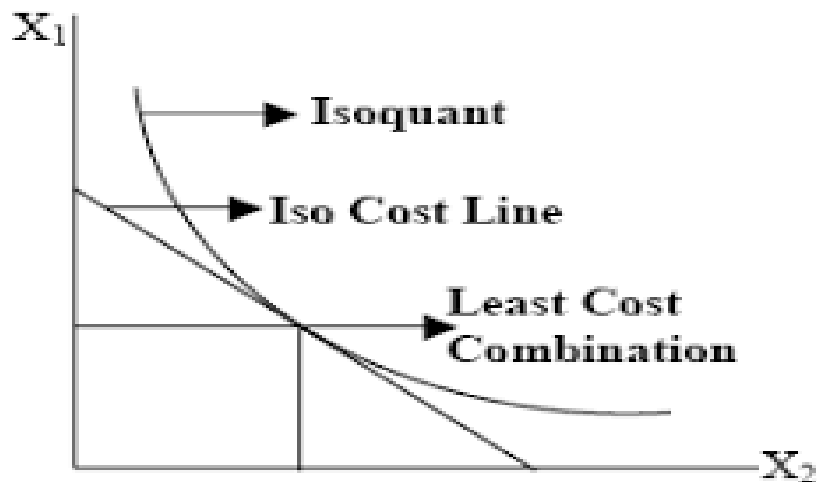
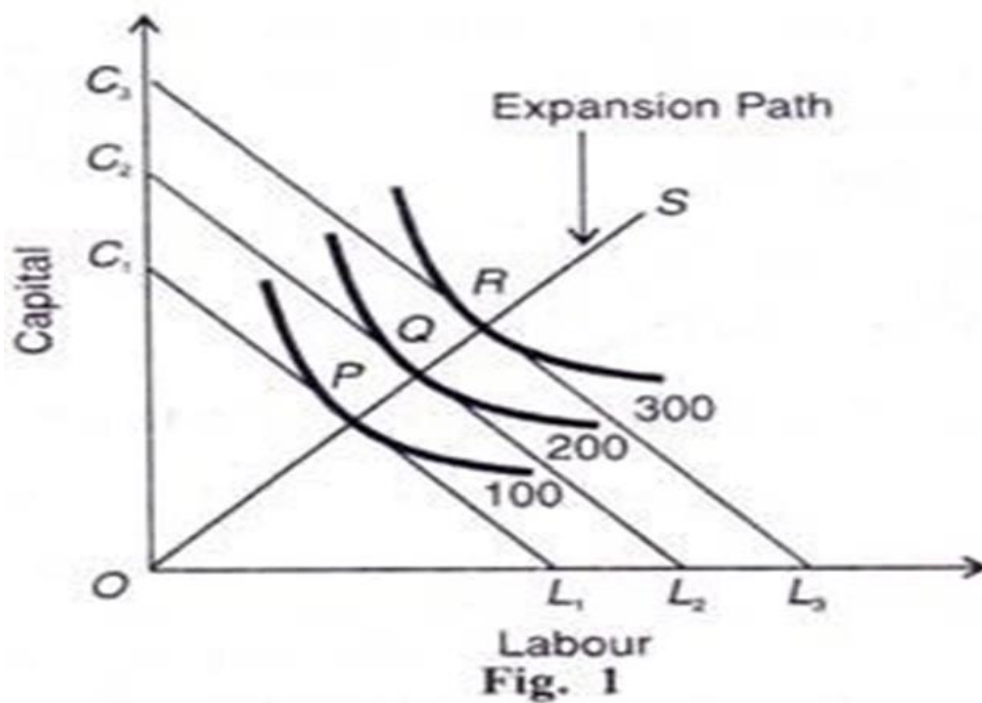


Fig.11.5 Least Cost Combination



LAW OF PRODUCTION:

Production analysis in economics theory considers two types of input-output relationships.

1. When quantities of certain inputs, are fixed and others are variable and
2. When all inputs are variable.

These two types of relationships have been explained in the form of laws.

- i) Law of variable proportions
- ii) Law of returns to scale

I. Law of variable proportions:

The law of variable proportions which is a new name given to old classical concept of “Law of diminishing returns has played a vital role in the modern economics theory. Assume that a firms production function consists of fixed quantities of all inputs (land, equipment, etc.) except labour which is a variable input when the firm expands output by employing more and more labour it alters the proportion between fixed and the variable inputs. The law can be stated as follows:

“When total output or production of a commodity is increased by adding units of a variable input while the quantities of other inputs are held constant, the increase in total production becomes after some point, smaller and smaller”.

“If equal increments of one input are added, the inputs of other production services being held constant, beyond a certain point the resulting increments of product will decrease i.e. the marginal product will diminish”. (**G. Stigler**)

“As the proportion of one factor in a combination of factors is increased, after a point, first the marginal and then the average product of that factor will diminish”. (**F. Benham**)

The law of variable proportions refers to the behaviour of output as the quantity of one Factor is increased Keeping the quantity of other factors fixed and further it states that the marginal product and average product will eventually do cline. This law states three types of productivity an input factor – Total, average and marginal physical productivity.

Assumptions of the Law: The law is based upon the following assumptions:

- i) The state of technology remains constant. If there is any improvement in technology, the average and marginal out put will not decrease but increase.
- ii) Only one factor of input is made variable and other factors are kept constant. This law does not apply to those cases where the factors must be used in rigidly fixed proportions.
- iii) All units of the variable factors are homogenous.

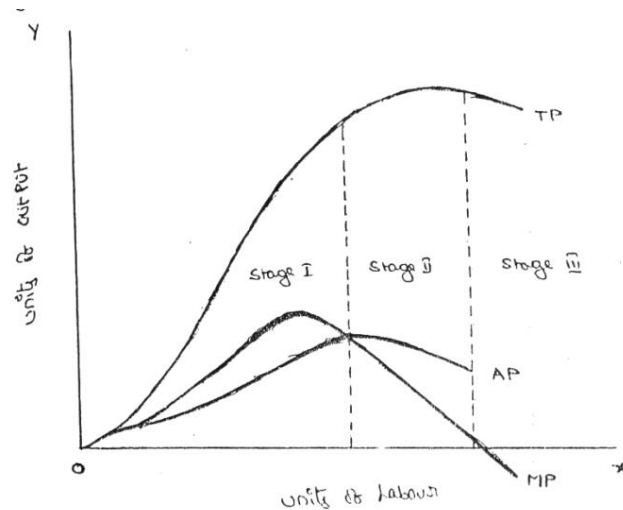
Three stages of law:

The behaviors of the Output when the varying quantity of one factor is combines with a fixed quantity of the other can be divided in to three district stages. The three stages can be better understood by following the table.

Fixed factor	Variable factor (Labour)	Total product	Average Product	Marginal Product	
1	1	100	100	-	Stage I
1	2	220	120	120	
1	3	270	90	50	
1	4	300	75	30	Stage II
1	5	320	64	20	
1	6	330	55	10	
1	7	330	47	0	Stage III
1	8	320	40	-10	

Above table reveals that both average product and marginal product increase in the beginning and then decline of the two marginal products drops of faster than average product. Total product is maximum when the farmer employs 6th worker, nothing is produced by the 7th worker and its marginal productivity is zero, whereas marginal product of 8th worker is '-10', by just creating credits 8th worker not only fails to make a positive contribution but leads to a fall in the total output.

Production function with one variable input and the remaining fixed inputs is illustrated as below



From the above graph the law of variable proportions operates in three stages. In the first stage, total product increases at an increasing rate. The marginal product in this stage increases at an increasing rate resulting in a greater increase in total product. The average product also increases. This stage continues up to the point where average product is equal to marginal product. The law of increasing returns is in operation at this stage. The law of diminishing returns starts operating from the second stage onwards. At the second stage total product increases only at a diminishing rate. The average product also declines. The second stage comes to an end where total product becomes maximum and marginal product becomes zero. The marginal product becomes negative in the third stage. So the total product also declines. The average product continues to decline.

We can sum up the above relationship thus when 'A.P.' is rising, 'M. P.' rises more than 'A. P.'; When 'A. P.' is maximum and constant, 'M. P.' becomes equal to 'A. P.' when 'A. P.' starts falling, 'M. P.' falls faster than 'A. P.'.

Thus, the total product, marginal product and average product pass through three phases, viz., increasing diminishing and negative returns stage. The law of variable proportion is nothing but the combination of the law of increasing and diminishing returns.

II. LAW OF RETURNS OF SCALE:

The law of returns to scale explains the behavior of the total output in response to change in the scale of the firm, i.e., in response to a simultaneous change in the scale of the firm, i.e., in response to a simultaneous and proportional increase in all the inputs. More precisely, the Law of

returns to scale explains how a simultaneous and proportionate increase in all the inputs affects the total output at its various levels.

The concept of variable proportions is a short-run phenomenon as in these period fixed factors can not be changed and all factors cannot be changed. On the other hand in the long-term all factors can be changed as made variable. When we study the changes in output when all factors or inputs are changed, we study returns to scale. An increase in the scale means that all inputs or factors are increased in the same proportion. In variable proportions, the cooperating factors may be increased or decreased and one factor (Ex. Land in agriculture (or) machinery in industry) remains constant so that the changes in proportion among the factors result in certain changes in output. In returns to scale all the necessary factors or production are increased or decreased to the same extent so that whatever the scale of production, the proportion among the factors remains the same.

When a firm expands, its scale increases all its inputs proportionally, then technically there are three possibilities. (i) The total output may increase proportionately (ii) The total output may increase more than proportionately and (iii) The total output may increase less than proportionately. If increase in the total output is proportional to the increase in input, it means constant returns to scale. If increase in the output is greater than the proportional increase in the inputs, it means increasing return to scale. If increase in the output is less than proportional increase in the inputs, it means diminishing returns to scale.

Let us now explain the laws of returns to scale with the help of isoquants for a two-input and single output production system.

ECONOMIES OF SCALE

Production may be carried on a small scale or on a large scale by a firm. When a firm expands its size of production by increasing all the factors, it secures certain advantages known as economies of production. Marshall has classified these economies of large-scale production into internal economies and external economies.

Internal economies are those, which are opened to a single factory or a single firm independently of the action of other firms. They result from an increase in the scale of output of a firm and cannot be achieved unless output increases. Hence internal economies depend solely upon the size of the firm and are different for different firms.

External economies are those benefits, which are shared in by a number of firms or industries when the scale of production in an industry or groups of industries increases. Hence external economies benefit all firms within the industry as the size of the industry expands.

Causes of internal economies:

Internal economies are generally caused by two factors

1. Indivisibilities
2. Specialization.

1. Indivisibilities

Many fixed factors of production are indivisible in the sense that they must be used in a fixed minimum size. For instance, if a worker works half the time, he may be paid half the salary. But he cannot be chopped into half and asked to produce half the current output. Thus as output increases the indivisible factors which were being used below capacity can be utilized to their full capacity thereby reducing costs. Such indivisibilities arise in the case of labour, machines, marketing, finance and research.

2. Specialization.

Division of labour, which leads to specialization, is another cause of internal economies. Specialization refers to the limitation of activities within a particular field of production. Specialization may be in labour, capital, machinery and place. For example, the production process may be split into four departments relation to manufacturing, assembling, packing and marketing under the charge of separate managers who may work under the overall charge of the general manager and coordinate the activities of the four departments. Thus specialization will lead to greater productive efficiency and to reduction in costs.

INTERNAL ECONOMIES:

Internal economies may be of the following types.

A). Technical Economies.

Technical economies arise to a firm from the use of better machines and superior techniques of production. As a result, production increases and per unit cost of production falls. A large firm, which employs costly and superior plant and equipment, enjoys a technical superiority over a small firm. Another technical economy lies in the mechanical advantage of using large machines. The cost of operating large machines is less than that of operating small machine. Moreover a larger firm is able

to reduce its per unit cost of production by linking the various processes of production. Technical economies may also be associated when the large firm is able to utilize all its waste materials for the development of by-products industry. Scope for specialization is also available in a large firm. This increases the productive capacity of the firm and reduces the unit cost of production.

B). Managerial Economies:

These economies arise due to better and more elaborate management, which only the large size firms can afford. There may be a separate head for manufacturing, assembling, packing, marketing, general administration etc. Each department is under the charge of an expert. Hence the appointment of experts, division of administration into several departments, functional specialization and scientific co-ordination of various works make the management of the firm most efficient.

C). Marketing Economies:

The large firm reaps marketing or commercial economies in buying its requirements and in selling its final products. The large firm generally has a separate marketing department. It can buy and sell on behalf of the firm, when the market trends are more favorable. In the matter of buying they could enjoy advantages like preferential treatment, transport concessions, cheap credit, prompt delivery and fine relation with dealers. Similarly it sells its products more effectively for a higher margin of profit.

D). Financial Economies:

The large firm is able to secure the necessary finances either for block capital purposes or for working capital needs more easily and cheaply. It can borrow from the public, banks and other financial institutions at relatively cheaper rates. It is in this way that a large firm reaps financial economies.

E). Risk bearing Economies:

The large firm produces many commodities and serves wider areas. It is, therefore, able to absorb any shock for its existence. For example, during business depression, the prices fall for every firm. There is also a possibility for market fluctuations in a particular product of the firm. Under such circumstances the risk-bearing economies or survival economies help the bigger firm to survive business crisis.

F). Economies of Research:

A large firm possesses larger resources and can establish its own research laboratory and employ trained research workers. The firm may even invent new production techniques for increasing its output and reducing cost.

G). Economies of welfare:

A large firm can provide better working conditions in-and out-side the factory. Facilities like subsidized canteens, crèches for the infants, recreation room, cheap houses, educational and medical facilities tend to increase the productive efficiency of the workers, which helps in raising production and reducing costs.

EXTERNAL ECONOMIES.

Business firm enjoys a number of external economies, which are discussed below:

A). Economies of Concentration:

When an industry is concentrated in a particular area, all the member firms reap some common economies like skilled labour, improved means of transport and communications, banking and financial services, supply of power and benefits from subsidiaries. All these facilities tend to lower the unit cost of production of all the firms in the industry.

B). Economies of Information

The industry can set up an information centre which may publish a journal and pass on information regarding the availability of raw materials, modern machines, export potentialities and provide other information needed by the firms. It will benefit all firms and reduction in their costs.

C). Economies of Welfare:

An industry is in a better position to provide welfare facilities to the workers. It may get land at concessional rates and procure special facilities from the local bodies for setting up housing colonies for the workers. It may also establish public health care units, educational institutions both general and technical so that a continuous supply of skilled labour is available to the industry. This will help the efficiency of the workers.

D). Economies of Disintegration:

The firms in an industry may also reap the economies of specialization. When an industry expands, it becomes possible to split up some of the processes which are taken over by specialist firms. For example, in the cotton textile industry, some firms may specialize in manufacturing thread, others in printing, still others in dyeing, some in long cloth, some in dhotis, some in shirting etc. As a result the efficiency of the firms specializing in different fields increases and the unit cost of production falls.

Thus internal economies depend upon the size of the firm and external economies depend upon the size of the industry.

DISECONOMIES OF LARGE SCALE PRODUCTION

Internal and external diseconomies are the limits to large-scale production. It is possible that expansion of a firm's output may lead to rise in costs and thus result diseconomies instead of economies. When a firm expands beyond proper limits, it is beyond the capacity of the manager to manage it efficiently. This is an example of an internal diseconomy. In the same manner, the expansion of an industry may result in diseconomies, which may be called external diseconomies. Employment of additional factors of production becomes less efficient and they are obtained at a higher cost. It is in this way that external diseconomies result as an industry expands.

The major diseconomies of large-scale production are discussed below:

INTERNAL DISECONOMIES:

A). Financial Diseconomies:

For expanding business, the entrepreneur needs finance. But finance may not be easily available in the required amount at the appropriate time. Lack of finance retards the production plans thereby increasing costs of the firm.

B). Managerial diseconomies:

There are difficulties of large-scale management. Supervision becomes a difficult job. Workers do not work efficiently, wastages arise, decision-making becomes difficult, coordination between workers and management disappears and production costs increase.

C). Marketing Diseconomies:

As business is expanded, prices of the factors of production will rise. The cost will therefore rise. Raw materials may not be available in sufficient quantities due to their scarcities. Additional output may depress the price in the market. The demand for the products may fall as a result of changes in tastes and preferences of the people. Hence cost will exceed the revenue.

D). Technical Diseconomies:

There is a limit to the division of labour and splitting down of production processes. The firm may fail to operate its plant to its maximum capacity. As a result cost per unit increases. Internal diseconomies follow.

E). Diseconomies of Risk-taking:

As the scale of production of a firm expands risks also increase with it. Wrong decision by the management may adversely affect production. In large firms are affected by any disaster, natural or human, the economy will be put to strains.

EXTERNAL DISECONOMIES:

When many firm get located at a particular place, the costs of transportation increases due to congestion. The firms have to face considerable delays in getting raw materials and sending finished products to the marketing centers. The localization of industries may lead to scarcity of raw material, shortage of various factors of production like labour and capital, shortage of power, finance and equipments. All such external diseconomies tend to raise cost per unit.

COST ANALYSIS

Profit is the ultimate aim of any business and the long-run prosperity of a firm depends upon its ability to earn sustained profits. Profits are the difference between selling price and cost of production. In general the selling price is not within the control of a firm but many costs are under its control. The firm should therefore aim at controlling and minimizing cost. Since every business decision involves cost consideration, it is necessary to understand the meaning of various concepts for clear business thinking and application of right kind of costs.

COST CONCEPTS:

A managerial economist must have a clear understanding of the different cost concepts for clear business thinking and proper application. The several alternative bases of classifying cost and the relevance of each for different kinds of problems are to be studied. The various relevant concepts of cost are:

1. Opportunity costs and outlay costs:

Out lay cost also known as actual costs obsolete costs are those expends which are actually incurred by the firm these are the payments made for labour, material, plant, building, machinery traveling, transporting etc., These are all those expense item appearing in the books of account, hence based on accounting cost concept.

On the other hand opportunity cost implies the earnings foregone on the next best alternative, has the present option is undertaken. This cost is often measured by assessing the alternative, which has to be scarified if the particular line is followed.

The opportunity cost concept is made use for long-run decisions. This concept is very important in capital expenditure budgeting. This concept is very important in capital expenditure budgeting. The concept is also useful for taking short-run decisions opportunity cost is the cost concept to use when the supply of inputs is strictly limited and when there is an alternative. If there is no alternative, Opportunity cost is zero. The opportunity cost of any action is therefore measured by the value of the most favorable alternative course, which had to be foregoing if that action is taken.

2. Explicit and implicit costs:

Explicit costs are those expenses that involve cash payments. These are the actual or business costs that appear in the books of accounts. These costs include payment of wages and salaries, payment for raw-materials, interest on borrowed capital funds, rent on hired land, Taxes paid etc.

Implicit costs are the costs of the factor units that are owned by the employer himself. These costs are not actually incurred but would have been incurred in the absence of employment of self – owned factors. The two normal implicit costs are depreciation, interest on capital etc. A decision maker must consider implicit costs too to find out appropriate profitability of alternatives.

3. Historical and Replacement costs:

Historical cost is the original cost of an asset. Historical cost valuation shows the cost of an asset as the original price paid for the asset acquired in the past. Historical valuation is the basis for financial accounts.

A replacement cost is the price that would have to be paid currently to replace the same asset. During periods of substantial change in the price level, historical valuation gives a poor projection of the future cost intended for managerial decision. A replacement cost is a relevant cost concept when financial statements have to be adjusted for inflation.

4. Short – run and long – run costs:

Short-run is a period during which the physical capacity of the firm remains fixed. Any increase in output during this period is possible only by using the existing physical capacity more extensively. So short run cost is that which varies with output when the plant and capital equipment in constant.

Long run costs are those, which vary with output when all inputs are variable including plant and capital equipment. Long-run cost analysis helps to take investment decisions.

5. Out-of pocket and books costs:

Out-of pocket costs also known as explicit costs are those costs that involve current cash payment. Book costs also called implicit costs do not require current cash payments. Depreciation, unpaid interest, salary of the owner is examples of back costs.

But the book costs are taken into account in determining the level dividend payable during a period. Both book costs and out-of-pocket costs are considered for all decisions. Book cost is the cost of self-owned factors of production.

6. Fixed and variable costs:

Fixed cost is that cost which remains constant for a certain level to output. It is not affected by the changes in the volume of production. But fixed cost per unit decrease, when the production is increased. Fixed cost includes salaries, Rent, Administrative expenses depreciations etc.

Variable is that which varies directly with the variation is output. An increase in total output results in an increase in total variable costs and decrease in total output results in a proportionate decline in the total variables costs. The variable cost per unit will be constant. Ex: Raw materials, labour, direct expenses, etc.

7. Post and Future costs:

Post costs also called historical costs are the actual cost incurred and recorded in the book of account these costs are useful only for valuation and not for decision making.

Future costs are costs that are expected to be incurred in the futures. They are not actual costs. They are the costs forecasted or estimated with rational methods. Future cost estimate is useful for decision making because decision are meant for future.

8. Traceable and common costs:

Traceable costs otherwise called direct cost, is one, which can be identified with a products process or product. Raw material, labour involved in production is examples of traceable cost.

Common costs are the ones that common are attributed to a particular process or product. They are incurred collectively for different processes or different types of products. It cannot be directly identified with any particular process or type of product.

9. Avoidable and unavoidable costs:

Avoidable costs are the costs, which can be reduced if the business activities of a concern are curtailed. For example, if some workers can be retrenched with a drop in a product – line, or volume or production the wages of the retrenched workers are escapable costs.

The unavoidable costs are otherwise called sunk costs. There will not be any reduction in this cost even if reduction in business activity is made. For example cost of the ideal machine capacity is unavoidable cost.

10. Controllable and uncontrollable costs:

Controllable costs are ones, which can be regulated by the executive who is in charge of it. The concept of controllability of cost varies with levels of management. Direct expenses like material, labour etc. are controllable costs.

Some costs are not directly identifiable with a process of product. They are apportioned to various processes or products in some proportion. This cost varies with the variation in the basis of allocation and is independent of the actions of the executive of that department. These apportioned costs are called uncontrollable costs.

11. Incremental and sunk costs:

Incremental cost also known as differential cost is the additional cost due to a change in the level or nature of business activity. The change may be caused by adding a new product, adding new machinery, replacing a machine by a better one etc.

Sunk costs are those which are not altered by any change – They are the costs incurred in the past. This cost is the result of past decision, and cannot be changed by future decisions. Investments in fixed assets are examples of sunk costs.

12. Total, average and marginal costs:

Total cost is the total cash payment made for the input needed for production. It may be explicit or implicit. It is the sum total of the fixed and variable costs. Average cost is the cost per unit of output. It is obtained by dividing the total cost (TC) by the total quantity produced (Q)

TC

Average cost = -----

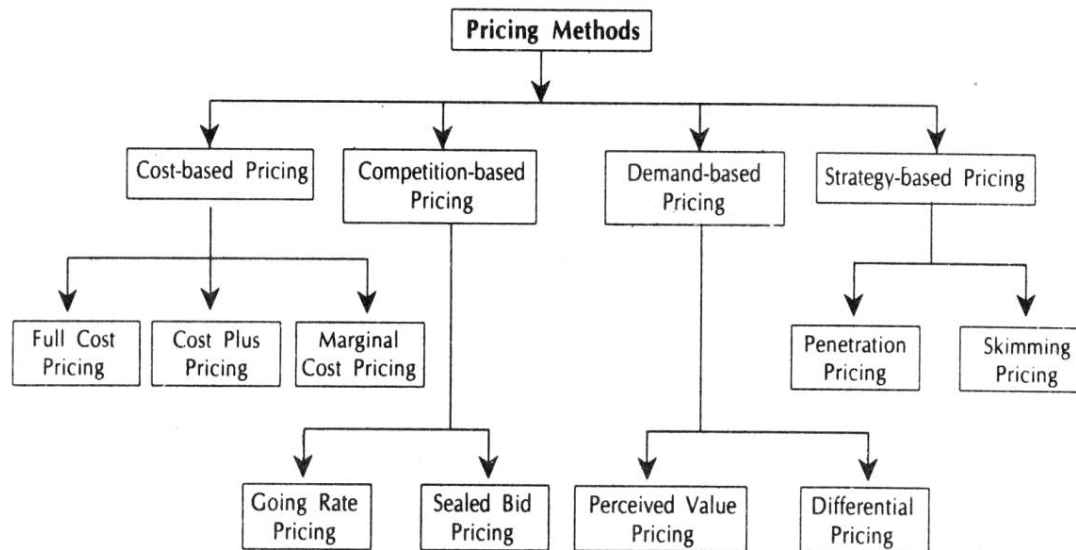
Q

Marginal cost is the additional cost incurred to produce an additional unit of output or it is the cost of the marginal unit produced.

13. Accounting and Economics costs:

Accounting costs are the costs recorded for the purpose of preparing the balance sheet and profit and loss statements to meet the legal, financial and tax purpose of the company. The accounting concept is a historical concept and records what has happened in the past.

Economics concept considers future costs and future revenues, which help future planning, and choice, while the accountant describes what has happened, the economics aims at projecting what will happen.



COST BASED PRICING

There are three versions of the cost – based pricing. Full – cost or break even pricing, cost plus pricing and the marginal cost pricing. Under the first version, price just equals the average (total) cost. In the second version, some mark-up is added to the average cost in arriving at the price. In the last version, price is set equal to the marginal cost. While all these methods appear to be easy and straight forward, they are in fact associated with a number of difficulties. Even through difficulties are there, the cost- oriented pricing is quite popular today.

The cost – based pricing has several strengths as well as limitations. The advantages are its simplicity, acceptability and consistency with the target rate of return on investment and the price stability in general. The limitations are difficulties in getting accurate estimates of cost (particularly of the future cost rather than the historic cost) Volatile nature of the variable cost and its ignoring of the demand side of the market etc.

COMPETITION BASED PRICING

Some commodities are priced according to the competition in their markets. Thus we have the going rate method of price and the sealed bid pricing technique. Under the former a firm prices its new product according to the prevailing prices of comparable products in the market. If the product is new

in the country, then its import cost – inclusive of the costs of certificates, insurance, and freight and customs duty, is used as the basis for pricing. Incidentally, the price is not necessarily equal to the import cost, but to the firm is either new in the country, or is a close substitute or complimentary to some other products, the prices of hitherto existing bands or / and of the related goods are taken in to a account while deciding its price. Thus, when television was first manufactures in India, its import cost must have been a guiding force in its price determination. Similarly, when

maruti car was first manufactured in India, it must have taken into account the prices of existing cars, price of petrol, price of car accessories, etc. Needless to say, the going rate price could be below or above the average cost and it could even be an economic price.

The sealed bid pricing method is quite popular in the case of construction activities and in the disposition of used produces. In this method the prospective seller (buyers) are asked to quote their prices through a sealed cover, all the offers are opened at a preannounce time in the presence of all the competitors, and the one who quoted the least is awarded the contract (purchase / sale deed). As it sound, this method is totally competition based and if the competitors unit by any change, the buyers (seller) may have to pay (receive) an exorbitantly high (too low) price, thus there is a great degree of risk attached to this method of pricing.

DEMAND BASED PRICING

The demand – based pricing and strategy – based pricing are quite related. The seller knows rather well that the demand for its product is a decreasing function of the price its sets for product. Thus if seller wishes to sell more he must reduce the price of his product, and if he wants a good price for his product, he could sell only a limited quantity of his good. Demand oriented pricing rules imply establishment of prices in accordance with consumer preference and perceptions and the intensity of demand.

Two general types demand oriented pricing rules can be identified.

- i. Perceived value pricing and
- ii. Differential pricing

Perceived value pricing considers the buyer's perception of the value of the product ad the basis of pricing. Here the pricing rule is that the firm must develop procedures for measuring the relative value of the product as perceived by consumers. Differential pricing is nothing but price

discrimination. It involves selling a product or service for different prices in different market segments. Price differentiation depends on geographical location of the consumers, type of consumer, purchasing quantity, season, time of the service etc. E.g. Telephone charges, APSRTC charges.

STRATEGY BASED PRICING (NEW PRODUCT PRICING)

A firm which produces a new product, if it is also new to industry, can earn very good profits if it handles marketing carefully, because of the uniqueness of the product. The price fixed for the new product must keep the competitors away. Earn good profits for the firm over the life of the product and must help to get the product accepted. The company can select either skimming pricing or penetration pricing.

- Market Skimming
- Market Penetration
- Two-Part pricing
- Block pricing
- Commodity bundling
- Peak load pricing
- Cross subsidization pricing

What is Price Skimming?

Price skimming is a **pricing strategy** where the price of goods or services is set high at the time of launch and then lowered as consumers become more familiar with it. This method targets early adopters and does not target the mass market.

A variant of this strategy is called penetration pricing, which sets high launch prices to penetrate markets.

How does Price Skimming Work?

Customers known as early adopters will pay steeper prices for a cutting-edge product if it's marketed as a "must-have", whether the price accurately reflects the value or not. Eventually, prices are lowered to follow the product demand curve and attract more price-sensitive customers. Theoretically, as each customer segment is "skimmed" off the top, a company can capture some consumer surplus by charging the maximum price each segment is willing to pay.

"Theoretically" is the keyword here because although price skimming can effectively segment the market, it's almost impossible for the strategy to capture all consumer surplus. Price skimming is most effective when the product follows an inelastic demand curve, meaning the quantity demanded doesn't rise or fall drastically in response to a change in prices (for more on this, see

our post on **price elasticity**). Necessities like gasoline and electricity are almost always inelastic. However, state-of-the-art products like the iPhone can potentially walk the same path, and businesses, therefore, can charge the highest price. Let's uncover the pros and cons of price skimming before exploring the market characteristics that make the strategy a viable tactic for your business.

Advantages of Price Skimming

❖ 1. Higher Return on Investment

Charging the highest initial price during the launch of an innovative product, particularly in high-tech industries, can help your company recoup research and development costs as well as promotional expenses. Companies like Apple benefit from high short-term profits during a product's introduction, and the initial higher prices are justified by the technological breakthroughs they achieve.

The bottom line is, if you invested all of your cash flow and resources into the development of a gadget or service no competitor can match, then you should be able to charge higher prices during the launch to recover the bulk of your investment and hopefully fund further developments.

❖ 2. It Helps Create and Maintain Your Brand Image

Price skimming can also create the perception that a product is a high-quality "must-have" for those early adopters who can't live without the latest tech products. Higher prices at the beginning of a product's life cycle enable you to build a **prestigious brand image** that actually attracts status-conscious consumers. In addition, you'll have the breathing room you need to lower prices as competitors enter the market. In some cases, a lower starting price in the beginning can also increase customer price sensitivity, making it impossible to raise rates in the future without losing sales.

❖ 3. It Segments the Market

As discussed before, price skimming is an effective way to segment your customer base, potentially allowing you to earn the greatest possible profits from different types of customers as you reduce the price. Starting with a higher price won't deter your early adopters, and as you lower the price over time, you'll attract more price-sensitive consumers. If you alter product pricing based on the product demand curve and the maximum price the customers are willing to pay, you can capture some of that consumer surplus and rake in more revenue.

❖ 4. Early Adopters Help Test New Products

One benefit of early adopter customers is they act as guinea pigs for new products. Those status-conscious consumers that purchase your innovative product first can provide valuable feedback and help you work out the kinks before the next update and foreseeably a wider user base. In

addition to being valuable testers, early adopters who love your product can act as brand evangelists that create a perception of quality via word of mouth. This free promotion will persuade new customers to buy the product when the price drops.

Market Penetration Defined

Market penetration is both a measure and a strategy. A business will utilize a market penetration strategy to attempt to enter a new market. The goal is to get in quickly with your product or service and capture a large share of the market. Market penetration is also a measure of the percentage of the market that your product or service is able to capture.

Market Penetration Tactics

Aggressive pricing is a very common tactic. You can use **penetration pricing**, which is setting the price of your product or services lower than that of your competitors. This strategy may work well in price-sensitive markets. You may be able to maintain a decent level of profits due to the volume of sales decreasing your costs per unit for the product. Additionally, once you have obtained your market share goal and have achieved a sufficient level of brand loyalty, you may be able to increase prices.

You can also achieve market penetration through **aggressive marketing campaigns** and **distribution strategies**. For example, you may saturate the market with an aggressive advertising campaign consisting of TV, radio and direct mailing ads. You may also penetrate the market by saturating your product in the market. For example, in some cities, it seems there's a Starbucks on every street corner.

Advantages of Market Penetration

Advantages of market penetration pricing include:

- It may cause quick diffusion and adoption of your product in the market. If your product is cheap enough and of similar quality to competing products, it should spread out into the market and be purchased by customers quickly.
- It may create goodwill among the first customers that purchase the product due to the aggressive pricing. This may create customer referrals.
- Efficiency is encouraged because of thinner profit margins due to the aggressive pricing. Efficiency will be needed to maintain profitability.
- It may discourage competitors from entering the market.
- If there is high product turnover for a distributor due to fast sales, it may help create enthusiasm for your product from the distributors of the product, such as retailers.

Two-Part Pricing (also called Two Part Tariff) = a form of pricing in which consumers are charged both an entry fee (fixed price) and a usage fee (per-unit price). Examples of two-part pricing include **a phone contract that charges a fixed monthly charge and a per-minute charge for use of the phone.**

Examples of two-part pricing include a phone contract that charges a fixed monthly charge and a per-minute charge for use of the phone. Amusement parks often charge an admission fee and an additional price per ride. Golf clubs typically charge an initiation fee and then usage fees based on meals eaten and golf rounds played. College football tickers usually require a “donation” to the athletic department, used for scholarships, and a per-ticket charge for the tickets.

Block Pricing

You can price a product based on several different quantity ranges, called block prices. When a sales rep adds that product to a quote, Salesforce CPQ checks where it falls in the quantity ranges and prices the quote line accordingly.

Block pricing is useful when you sell products by packs or groups of various quantities and want to represent the pack as a single quote line. For example, a pack of 1–10 units costs \$10, while a pack of 11–20 units costs \$18. Sales reps can also use decreasing per-unit costs toward the end of each range as a selling incentive.

When a sales rep searches for a block-priced product, Salesforce CPQ shows its standard price on the Add Products page. However, when they add it to a quote, Salesforce CPQ evaluates its quantity and uses the appropriate block price for the quote line’s list unit price. They can then apply discounts as needed. Salesforce CPQ also sets the quote line’s effective quantity to 1. When the sales rep syncs the quote with an opportunity, the resulting opportunity product has a quantity of 1

Bundle Pricing Strategy: Advantages and Disadvantages

In every store, you see signs that say “Buy one get one free”, “Buy this product and get a discount for that product”. The situation is the same at the fast-food restaurant “Buy meal deal, save \$3”. Everywhere you look there are special offers, discounts for buying more products, etc.

This is called a bundle pricing strategy. It's a very common pricing strategy, especially in the retail industry. But what is it really and how does it work?

Starting with an explanation of this strategy. A **bundle pricing strategy** is a pricing strategy in which the seller combines several products and then sells them at a single price instead of charging separate prices for each of them. This means that a bundle is a product on its own since it has an ID, price, attributes, etc. It's important to say that this strategy works well for services too, not just products.

The best example for illustrating bundle pricing strategy is restaurants. If you go to eat at one, you can get dinner for \$40. It will include starts, the main course, and dessert. But you can get all of those separately and pay more, for example, \$10 for starts, \$25 for the main, and \$10 for dessert. So, if you take the deal they offer you'll pay \$5 less. If we are talking about fast-food restaurants, the situation is the same, only the prices are a lot lower.

Bundle pricing has many **advantages**. The most important one is that it allows companies to sell their lesser-known or unpopular products with the popular ones. It will also help attract different kinds of buyers: buyers looking for deals, buyers looking for convenience, or buyers looking for advice on items that complement each other.

Some consumers will be spending more than they initially wanted when they see an offer they like. Especially if you offer the product that they already wanted to buy with something they wanted to try but never got the chance. Product bundles have lower marketing costs because you are promoting two or more products with an effort and resources for one.

What Is Peak Pricing?

Peak pricing is a form of congestion pricing where customers pay an additional fee during periods of high demand. Peak pricing is most frequently implemented by utility companies, which charge higher rates during times of the year when demand is the highest. The purpose of peak pricing is to regulate demand so that it stays within a manageable level of what can be supplied.

Peak pricing is also used among ride-sharing services and other transportation providers, where it is known as "surge pricing."

Peak Pricing Examples

In public transportation and road networks, [peak pricing](#) is used to encourage more efficient use of resources or time-shifting to cheaper or free off-peak travel. For example, the San Francisco Bay Bridge charges a higher toll during rush hour and on the weekend, when drivers are more

likely to be traveling. This is an effective way to boost revenue when demand is high, while also managing demand since drivers unwilling to pay the premium will avoid those times.