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Managerial Economics and Financial Accounting
Unit 3

Ridge Lines: The Economic Region of Production:

An isoquant represents combinations of two inputs that yield the same level of output. However, not all points of an isoquant are relevant for production. Such points may be called infeasible points. One should consider only feasible portions of an isoquant. This is because of the fact that no rational producer will produce where marginal product of an input is either zero or negative.

If the isoquant is backward bending and upward sloping, marginal product of any input will be negative, and, hence, this portion of the isoquant may be considered as economically non-sensible region of production. Only the negatively sloped segment of the isoquant is relevant for production or economically feasible.

This is shown in Fig. 3.5 where we have drawn three isoquants showing different levels of output for different labour-capital combinations. This diagram separates economic region of production from uneconomic region of production. Region in which marginal products of all inputs are positive constitutes economic region of production.

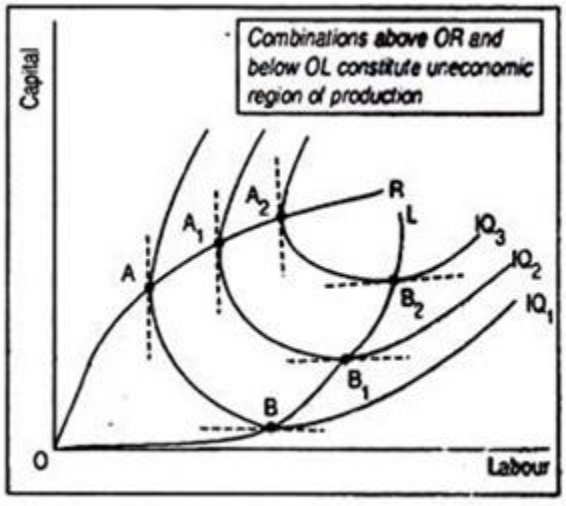

Fig. 3.5: An Isoquant Map and Feasible Region of Production

Or the region in which input substitution takes place may be called economic region of production. In an uneconomic region, as marginal product of an input becomes either zero or negative, the question of input substitution does not arise. Production in such region is, for obvious reasons, unprofitable or infeasible.

At point A on IQ_1, the firm employs certain units of labour and capital. Since the tangent to IQ_1 at point A is parallel to the vertical axis, marginal product of capital (MP_K) is zero. If more capital is used, marginal product of capital should be negative. In other words, beyond point A, MP_K is negative. At point B on IQ_1, MP_L is zero and beyond point B on IQ_1, MP_L is negative.
Thus, points between A and B represent positive marginal productivities of both labour and capital. Here substitution between two inputs takes place. Similarly, points $A_1$and A_2 on IQ_2 and IQ_3 describe zero MP_L while points beyond A_1 and A_2 describe negative MP_K. Points $B_1$and B_2 on $IQ_2$and IQ_3 represent zero MP_K and beyond B_1 and B_2 describe negative MP_L.
A rational producer will produce in that region where marginal productivities of inputs are positive. By joining points A, A_1 and A_2 (i.e., points of zero marginal products) we get OR line and by joining points B, B_1 and B_2 (points of zero marginal products) we get OL line. These lines are called ridge lines. They give the boundaries of the economic region of production where input substitution takes place.
Any point on the isoquants outside the upper ridge line OR and the lower ridge line OL constitute uneconomic region of production. Production must take place inside the ridge lines. Note that the ridge lines separate the relevant (i.e., negatively sloped) from the irrelevant portions (i.e., positively or zero sloped) of the isoquants.

ECONOMIES OF SCALE

Production may be carried on a small scale or o 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.

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.

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 manger and coordinate the activities of the for 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 mall machine. More over a larger firm is able to reduce it's 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 barrow 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 it’s 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 spilt 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 p0rocesses. 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.