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BY

Dr. ALPNA JYOTI

Deptt. of Geography, Marwari College,Darbhanga

LNM University, Darbhanga

Q. - LOSCHA'S MARKET AREA OR PROFIT MAXIMISATION APPROACH

Introduction to the Profit Maximisation Theory:

August Losch, a German economist, published his theory of 'Profit Maximisation' in the year 1954. The least cost location theory of Weber was wholly discarded by Losch. In fact, he suggested that, 'profit maximization' is the only objective of the entrepreneur, whether it is state or an individual. The major objective of the industry is, therefore, to find out the place where maximum profits occur.

Unlike Weber, who postulated his entire theory in an economic state of perfect competition, Losch, on the other hand, explained his theory within the environment of monopolistic competition. According to Losch, industry will not necessarily be located within the least cost (transport cost and labour cost) location; rather it would locate in areas where maximum profit will occur. So, ignoring transport cost, labour cost and agglomeration cost, he emphasized more on the total production cost.

To get the maximum profit, as stated by Losch, total consumption is important. Higher the consumption rate, greater will be the profit.

In this case, he emphasized most on the price reduction of the commodity. Any decrease of price would automatically stimulate the volume of consumption. This can be illustrated by the following diagram.

In this simple model, it is evident that when price of the commodity drops from R to P, the consumption increases from M to N. The theory of August Losch considered demand as a most important variable. The fundamental objective behind the theory was to find out the most profitable location for industrial establishment.

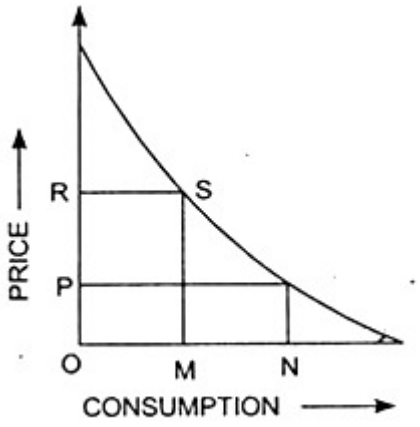

Fig. 4

To determine the location of maximum profit, Losch said, “The complexity stems from the fact that, there is more than one geographical point where the total demand of a surrounding district is at a maximum,……. We are thus reduced to determine separately for every one of a number of virtual factory location the total attainable demand, and for similar reasons the best volume of production as a function of factory price (Market and Cost analysis). The greatest profit attainable at each of these points can be determined from the cost and demand curves, and from this place of greatest money profits, the optimum location can be found”.

Losch argued that most of the existing theories are all simplified and generalizations of the complex problem of industrial location. Like Weber, he also considered certain assumptions for the success of his theory.

In the presence of certain optimum conditions the maximum profit location may occur:

1. The area under consideration should be an extensive homogenous plane where raw materials are distributed evenly.

2. The 'transport cost' is uniform and directly proportional in all the directions.

3. The people inhabiting the region have a general homogeneity either in taste, knowledge and technical skill.

4. There is no economic discriminations among the people. The economic and career building opportunities are open and uniform to all individuals.

5. The population distribution is very even and the area is self-sufficient in agricultural production.

In the case of excess production of agriculture, the status quo of economy will be distorted. To achieve homogeneity of economy within the region, the theory required some more conditions.

These are as follows

1. The entire area should be equally served by the factories. No area should be exempted from the supply; therefore, no new firm would dare to venture in the area.

2. There must be conformity in the range and quantum of profit. In case of abnormal profit, new firms may try to establish their own plant.

3. The location must satisfy both producer and consumer. The profit of the firm and satisfaction of the consumer must be optimum through the location.

4. There must be provisions for consumers to get the products from other adjacent areas.

5. The number of consumers, producers and areas should be well defined and not very extensive. Only a limited number of producers within a small area will be able to overcome the complexities and satisfy completely the handful of consumers.

According to Losch, to get the desired result from the location and sustained growth of the industry, these conditions are pre-requisites.

The major objective of the location theory is to attain equilibrium in the producing area and the product and the ability of the producer. If a single entrepreneur enters in the production process, within a vast area, the distribution cost will be very high.

But when several small producers are engaged in the production process in separate regions, the distribution cost will come down and due to increasing competition, efficiency of the product and cost of production will be lower.

The profit will increase substantially. Due to increasing competition, the area served by individual manufacturing units will be reduced. In the reduced area, several producing units will remain adjacent with each other, without leaving any area un-served. So, in this particular situation, a hexagonal area would serve the purpose. To establish his theoretical model of the theory, August Losch proposed three distinct phase of development.

The phases are as follows:

I. In this first phase Losch observed that if sufficient and symmetrical demand of a product prevails in the market, the market conditions may be explained by a demand cone. The following diagram illustrates that the effective demand of the particular product will be exactly same to the volume of the cone.

In Fig. 5, P is a producer, and demand curve is lying on QF. P or price line, controlled jointly by transport cost and distance. The price increased from P to F. Along the Y axis or PQ, demand of quantity is measured between PF and QF.

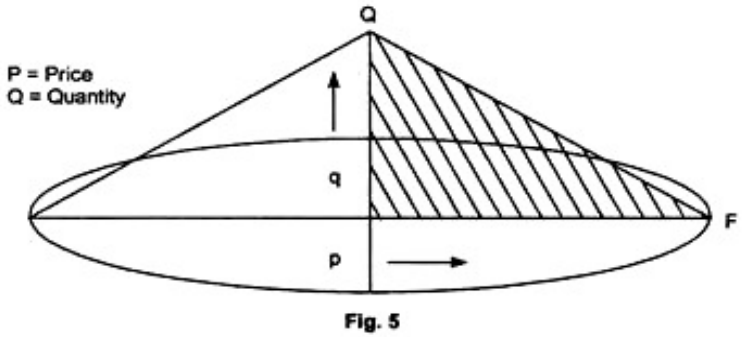

Fig. 5

When PF is taken as a measure of distance and is rotated about P, the circular market area is formed, bounded by the locus of points F, where the price becomes too high. Total sales are given by the volume of the cone produced by the rotation of PQF.

In Fig. 5, it is clear that, away from centre, with increasing distance, demand of the quantity drops drastically.

II.In the second phase, within the vast rounded area, several factories will concentrate. The virgin, extensive market area will automatically give a lucrative operational area.. But despite the growing competition among the firms to capture larger share of consumer and larger market areas, there should be some void in the boundary zones.

Like intra-molecular space, a certain amount of region will remain un-served or poorly served. Though the mal-distribution of firms may result in shrinkage of areas in some instances, some other regions will be devoid of any industry. The circular pattern of industrial hinterland in phase two will ultimately decide the future of the industry in that region.

In Fig. 6, the space situated outside the circular areas are still lying vacant. It is quite natural for the other industries to capture this potential market areas, hitherto unexploited. The influx of new industries in the region will result in shrinkage of the market areas (denoted in Fig. 6 by circle) of different production centres.

The intrusion of one market area to other will distort the circular market areas and the market areas of different production

units will further reduce. This situation will lead to the initiation of the third phase.

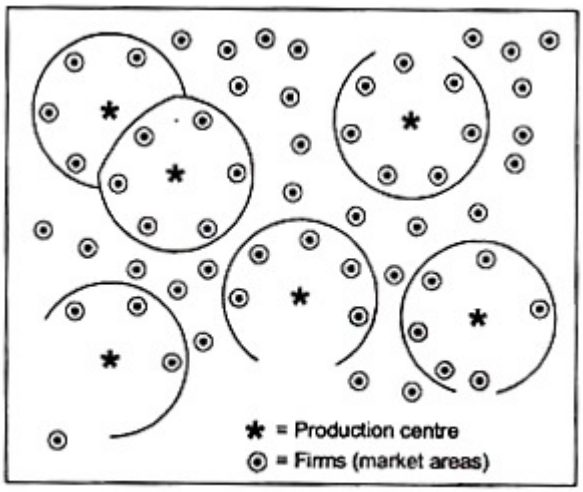

Fig. 6 : Second stage of theory of profit maximization

III.In the third phase of industrial location witness the narrowing of the intermediate space between two market areas. The areas fall vacant between the different market areas become the target of new enterprises.

As new firms set up within the vacuum, the hinterlands of earlier industries become reduced. The reduction of the market area results in rapid disruption of the early circular pattern. Gradually the market area of the industries attain a hexagonal shape.

According to Losch, when any area possesses several hexagons, lying upon each other and surrounding a particular centre, a metropolitan city will grow. In other words, it may be said that around the nucleus of a city, numerous hexagons or market areas of different commodity will grow.

So, in this fashion, industries would concentrate within a region, each having different products. So, almost all types of materials including raw materials should be available on that point. Hence, any new industry would get its required raw material within near distance. Obviously, the total transport cost in that place will be minimum. In this way, 'equilibrium conditions' as stated by Losch may be attained (Fig. 6).

Losch, however, himself hinted about the deviation of his theory in some special conditions. According to his conception, when price of the commodity of a particular firm increases,demand of the product decreases considerably.

Naturally, due to higher price, the company loses some of its market area. Automatically, that area is encroached by the adjacent firm. In this fashion, market area of a unit changes continuously. This incident was explained by the figure given by Losch in Fig. 7.

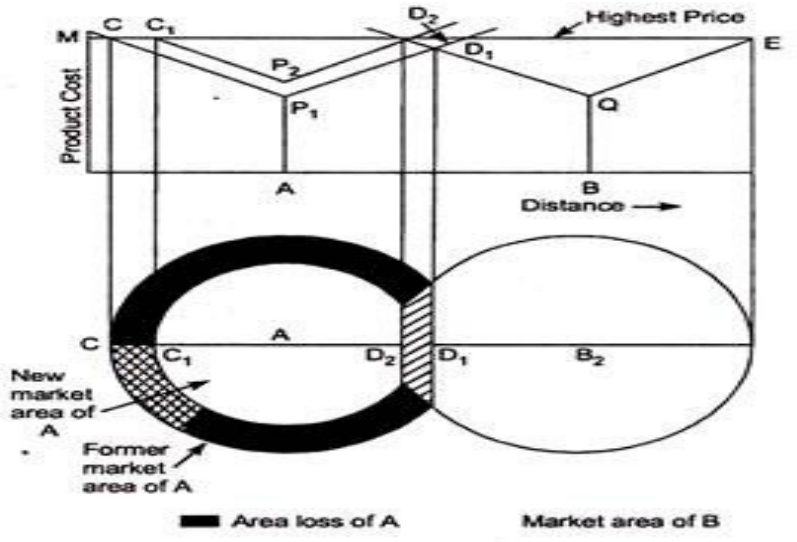

Fig. 7

Fig. 6 shows the development of hexagonal market area in the third stage. The dotted lines represent market boundaries of respective production centres. The crossed area is the production centre.

In Fig. 7, as stated by Losch, A and B are two producing centres, with total production cost of P and Q. Their respective market boundaries are CPD_1 and EQD_1. At the product cost of M, their production touches the optimum level and equilibrium is attained. But when production cost at A increase from P_1 to P_2, the equilibrium condition is disrupted. The product of A becomes less attractive than before, so market boundaries also reduces from CP_1D to $C_1P_2D_2$.

Following the reduction of market of A, automatically market area of B advances in that void region. The previous area of EQD_1 increases to EQD_2. This D_1D_2 areal increase is well reflected in the circular diagram of Losch. The BD_1 radius increases to BD_2 and former AC radius reduces to AC_1.

Merits of the Profit Maximisation Theory:

1. August Losch tried to restore a order in the former chaotic classifications of industrial location.
2. He was the first person to consider the influence of the magnitude of demand on industrial location.

3. August Losch rightly emphasizes upon the role of competition as an important determinant of location analysis.

4. The calculations adopted by Losch were simple and easily applicable to any place.

5. The theory has also a philosophical contribution on the motive of entrepreneurs' role.

6. His equilibrium concept is perhaps the greatest contribution among the location theories developed later on.

7. The least cost concept of Weber was nullified by Losch and instead more precise 'profit maximization' concept was adopted.

The major points against the theory are as follows:

1. This theory is essentially a simplified model or theorizing of an ideal condition. In reality, only in a rare occasion, these events may occur.

2. The assumed conditions of homogeneous plain region, equal distribution of raw materials and uniform transport rates never occur in the real world. Therefore, Losch's theory, as said by some critics, is nothing but only intellectual exercise.

3. Losch even assumed the cultural homogeneity and uniform taste of the people within the region. This is nothing but absurdity.

4. He ignored the variation of technological development of different regions. The difference of technical know-how may offset the theoretical model.

5. Political decisions play an important role in the industrial location. Losch ignored it.

6. The variation of the cost of raw materials and labour wage rates were not given proper weightage in the theory.

7. Losch categorically separated the role and effect of agriculture and industry. But this difference is somehow arbitrary in nature.

8. The abstract and optimum situation demanded by the theory may be available in agriculture but not in the complex production process of modern manufacturing industries. Thus, Losch theory is more practical in agriculture, rather than in industry.

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