

AUGUST LOSCH MODEL OF CENTRAL PLACE

**Prof. Nizamuddin Khan D/O Geography,
AMU, Aligarh**

Introduction

- **August Losch**, a German economist, published his **Theory of 'Profit Maximisation'** in the year 1954. 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.
- The German economist August L \ddot{o} sch also expanded on Christaller's work in his book ***The Spatial Organization of the Economy* (1940)**. Unlike Christaller, whose system of central places began with the highest-order, L \ddot{o} sch began with a system of lowest-order (self-sufficient) farms, which were regularly distributed in a triangular-hexagonal pattern

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- **From this smallest scale of economic activity, Lösch mathematically derived several central-place systems, including the three systems of Christaller.**
- **Lösch's systems of central places allowed for specialized places. He also illustrated how some central places develop into richer areas than others.**
- **This theory belongs to the 'market area' or 'profit maximisation' approach and has focused on spatial variations in scales potential.**

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- □ He disregarded spatial variations in production costs by holding them constant, and instead depicted optimal location as occurring where the largest possible market area is **monopolized** □ Losch then attempts to find the maximum profit location by comparing, for different locations, both the costs of production and the market area that can be controlled. □ Within the framework of this competitive situation, the location chosen may not be the **least-cost location**, as the Weberian school predicts. Instead, it will be **the maximum profit location** built on sales revenues rather than production and distribution costs.

Losch's Modification of Christaller's Model of Central Place Location

- Starting in the 1930s, German geographer August Lösch began to build upon and modify Christaller's model.
- He did this, in part, because he noticed that the variation in K is very important in shaping the organizations of centers and the numbers of centers at each level in a hierarchy.
- Because Christaller arbitrarily choose the $K=3$, $K=4$, and $K=7$ values, Lösch argued that, in such a model, no particular K value could be considered sacrosanct.
- From the point of view of Lösch, Christaller's **three locational principles** were simply interesting special cases. Lösch suggests that, in fact, **a large number of K values can be used. The only restriction, according to Lösch, is that a hexagonal pattern must be maintained in the model.** In contrast to Christaller $K=7$ hierarchy of 1,6,42,294, Lösch put forth that a $K=7$ hierarchy would be more efficient if it were arranged 7, 13, and 19 because, in these cases, places are not divided among several different centers

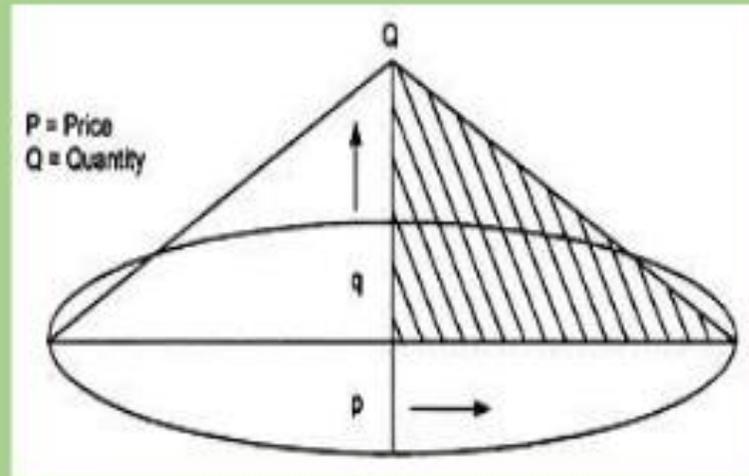
Losch's Assumption

- **August Losch also developed his model based on certain assumption as Christaller did. Important assumptions are given below**
- **An isotropic surface.**
- **Constant supply of goods or services**
- **Population is evenly distributed.**
- **Buyers are evenly dispersed over an area, and have identical demands.**
- **Demand decreases with increase in price , if the price increase in response to transport cost, the demand will decrease away from production point, the demand curve will cone shaped and market area circular.**
- **(v) Entrepreneurs act as economic men and their main aim is profit maximization.**

Market Area Development

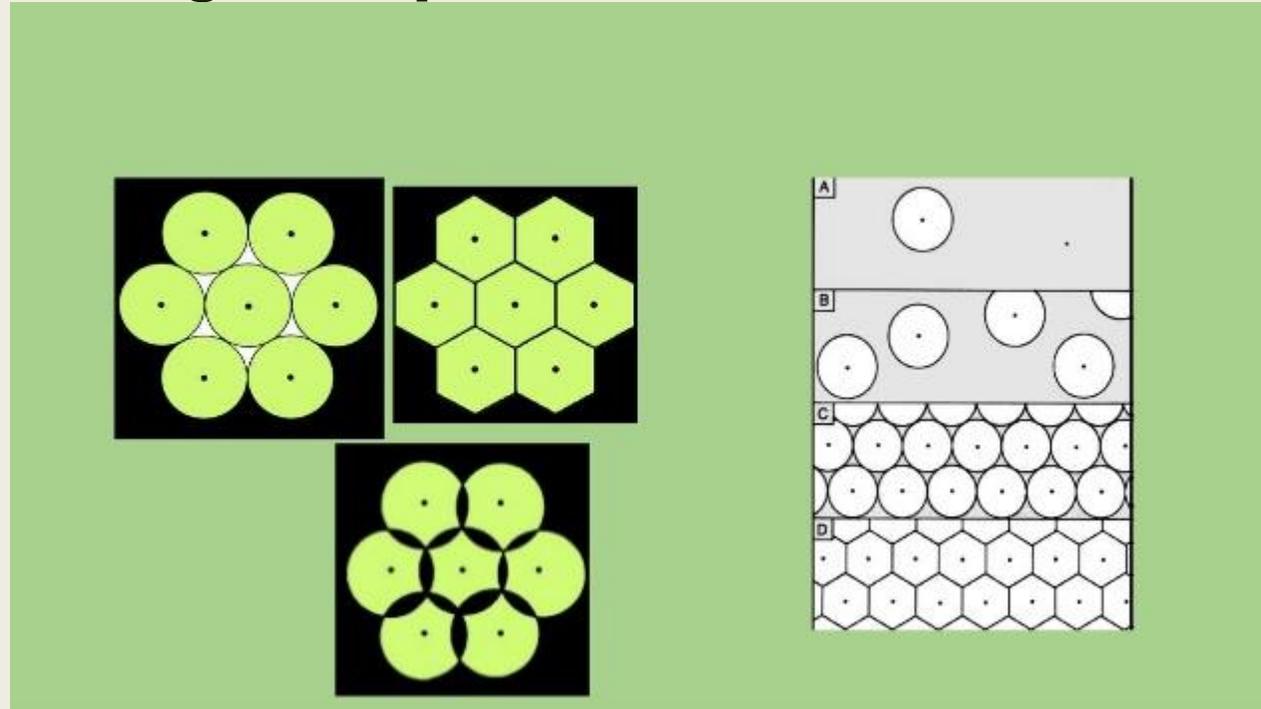
- **Development of market areas from circular to hexagonal Losch's Assumptions •**
- **Losch also opined the hexagon as the ideal market shape, and viewed the trading area of the various products as the nets of such hexagons. • A net of hexagonal market forms will completely cover any area under consideration, whereas **circular areas will either leave utilised area or will overlap.** Why Hexagon? Of all the regular polygons (hexagon, square, triangle, etc.) that will cover an area, the **hexagon deviates least from the circular form and in consequence minimises transportation expenditure in supplying a given demand****

Demand cones



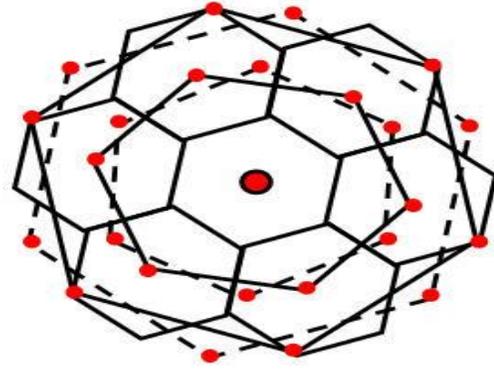
Why trade areas as hexagonal shape

- In the case of circular trade areas, two situations develop. First, circles are tangent, leaving unserved space among various centres. Second, if they overlap, common served area between centres. So hexagon shaped is considered as ideal trade area network.

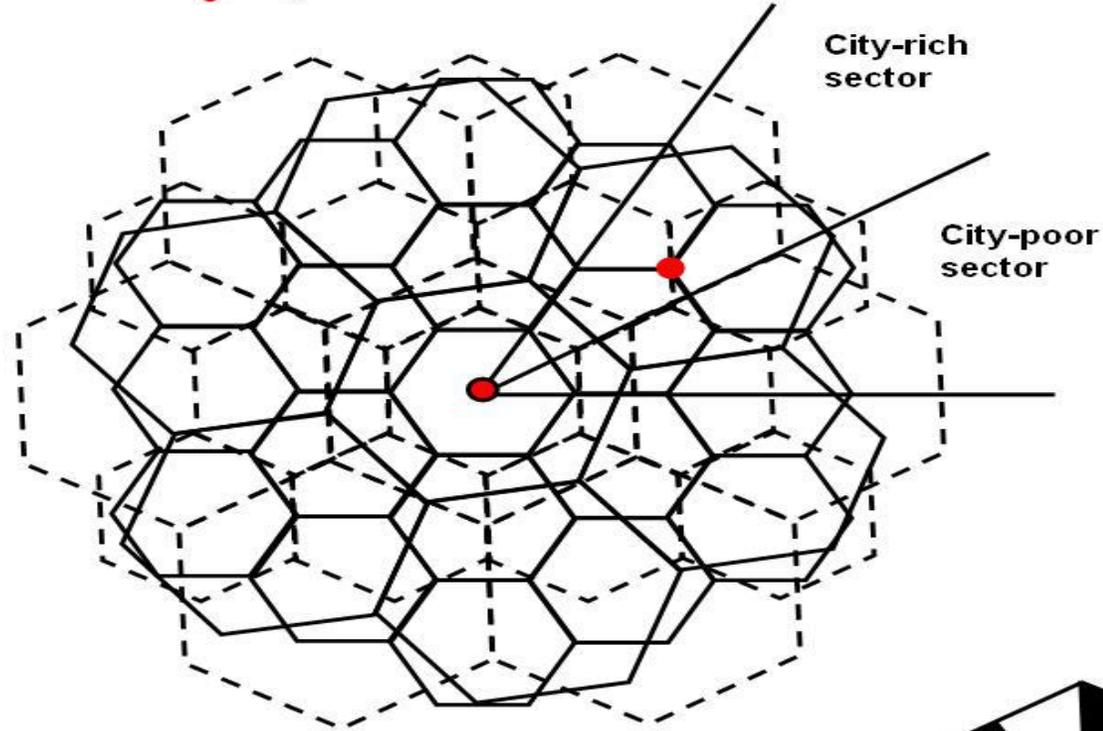


Method of Development of model

- After discussion on nature, shape and size of trade areas in response to various production centres in plane and finally most suitable hexagonal shapes, he introduced about 150 market principles unlike Christaller selected only three. $K=3$, $k=4$ & $k=7$
- All 150 services(k) have different distinct hexagonal market areas. He selected a point which could be centre for each of 150 . To identify he arbitrarily chose out one production centres from the entire set of production centres established on plane.
- He arranged all nets or hexagons in such way that the chosen centre was common to all. After this, he rotated them around the common point and brought them to rest where maximum hexagons coincided

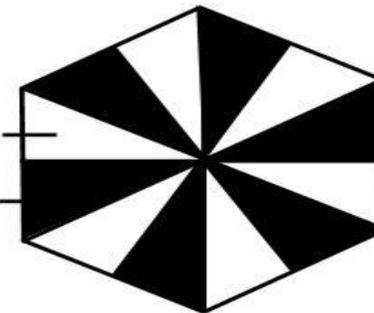


The Losch theory of settlement distribution: interlocking meshes of many different k-values produces city-poor and city-rich sectors around a regional capital city.



City-poor sector

City-rich sector



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- **Consequently , 12 sectors thus emerged alternatively 6 sectors with maximum concentration of maximum economic activities of market demands and six other have relatively few.**
- **The rich sectors with maximum economic activities is most efficient economic landscapes for location of production units seeking maximization of benefit. A large number of service centres of varying sizes concentrated in the area.**
- **The poor sectors with few economic activities is least preferred by producers as well consumers owing to minimum level of benefit incurred.**

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- **Three important derivations were made by Losch through this model given as below.**
- A. There are certain areas in the landscape which contain dense concentration of centres and with relative sparse.**
- B. Size and number relationship of different centres in the area does not follow step like hierarchy as postulated by Christaller, become blurred and centres form much more of size continuum.**
- C. The functional structure of the centres are such that those of similar size, not necessarily offer the same type of goods and services as each other. Likewise, the larger centres will not necessarily provide the complete range of goods to be found collectively in smaller centres.**

Criticism

- **Losch's theory is abstract in nature.**
- **2. It over stressed on demand.**
- **3. It has failed to take into account, problems arising from locational interdependence of plane.**
- **4. Markets often overlap and do not occur in isolation. Therefore, as pointed by Losch, location equilibrium rarely occurs between a unit/entrepreneur and its market. As more firms appear, profits are competed away.**
- **5. Losch's notion of the market demand was too simple. In reality an entrepreneur will have to deal with several issues before he estimates demand as a basis for their locational decisions.**
- **6. The empirical study might show no such pattern as that envisaged in the theory**

Comparison :

Christaller Vs Losch

Christaller	Losch
1- Christaller theory attempts to realise retail business and services better	1- Loschian model sought to explain the spatial distribution of market based on manufacturing.
2-For Christaller the hierarchy is composed of a series of discrete levels, step like .	2-Size and number relationship of different centres in the area does not follow step like hierarchy but become blurred and centres form much more of size continuum
3-Each centre in the same hierarchical level produces exactly the same array of goods. Centres of high order provide their own range of goods as well as all range of goods/ services offered by all successive lower order centres.	3-The functional structure of the centres are such that those of similar size , not necessarily offer the same type of goods and services as each other. Likewise , the larger centres will not necessarily provide the complete range of goods to be found collectively in smaller centres.

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4-Christaller began his hierarchy from the highest centres such as metropolis	4-Lösch began with a system of lowest-order (self-sufficient) farms,
5- Christaller's pattern is best suited for those cities which developed in sparse settlement regions but that of Losch's for densely populated regions	5-Losch pattern is best suited for those cities which developed for densely populated regions.
6-He was Geographer	6- He was Economics
7- He was German	7- He was American



■ Thanks