Quadrant II – Transcript and Related Materials

Programme: B.Com.

Subject: Geography

Course Code: GEO 02/16

Course Title: Geography of Commercial Activities

Unit: I-Locational Theories: Significance and their applications

Module Name: Industrial Location Theory: Alfred Weber II

Name of the Presenter: Asst. Prof. Ms. Tanvi V. Deshpande

Notes

Description of Weber's Theory

Weber aims to explain the optimum location of industry is determined by:

- I. Transport cost
- II. Labour cost
- III. Agglomeration economies

I. Role of Transportation Cost

He suggested that transportation costs are determined by two factors:

- 1. The weight of the material to be assembled together with the weight of the final product to be shipped to the market.
- 2. The distances over which the materials and the product have to be moved.

1. One market (M), one raw material (R1) condition gives rise to three situations.

- i) R<u>aw material ubiquitous:</u> The best location for the industry in this situation is the market, as it will simply eliminate the transportation costs for the manufacturing unit.
- ii) <u>Raw material fixed and pure</u>: The manufacturing unit, in this case should be located either at the market or at the source of the raw material.
- iii) <u>Raw material fixed and gross</u>: The best location for industry will be at source of the raw material.

2. One market, two raw materials (R1, R2) condition gives rise to four situations.

- i) <u>Both R1 and R2 are ubiquitous:</u> The best location for industry will be at the market, as lowest transportation cost would prevail.
- R1 is ubiquitous, R2 are fixed, both are pure: The best location for industry would be at the market. R1 being ubiquitous, transportation charges will be paid only on R2.
- iii) <u>Both R1 and R2 are fixed and pure:</u> The best location for industry will be at the market. Both the components would be sent directly to the consumption area for processing, which will give the lowest aggregate transport cost.
- iv) <u>Both R1 and R2 are fixed and gross:</u> For this complex situation, Weber introduced 'locational triangle'.

Two raw material R1 and R2 and market (M) form the three nodes of this triangle.

- Having established the triangle, Weber sought to explain the least cost location, either near the raw materials or near the market.
- In order to find out whether the industries are market oriented or raw material oriented, Weber devised a simple Material Index (MI) formula.
- The MI is calculated as follows:

Weight of localised raw material used in industry/ Weight of the finished product

- When there is no weight loss in the production, the material index equals 1 (MI=1).
- If the MI=1 and industry uses only pure raw material, it may be located anywhere.
- When there is weight loss in the production, the material index is higher than 1 (MI>1). It is called as weight loosing industry. Examples- iron and steel, sugar industry etc.
- If the MI>1 the industry is raw material oriented.
- When there is weight gain in the production, the material index is lower than 1 (MI<1). It is called as weight gaining industry. Examples- chemical industry, cotton industry etc.
- If the MI<1, the industry is market oriented.



II. Role of Labour Cost

- Labour costs also affect the location of industries.
- Industries may have tendency to get located at the place where labour costs are low.
- To determine the role of locational pattern of labour force on manufacturing location, Weber's locational triangle is placed in concentric patterns of rising transportation costs outwards from the centre.

- To analyse this situation Weber made use of Isodopanes.
- Isodopanes are lines joining places of equal additional transportation cost including assembling cost of materials and distribution cost of finished products.
- It is assumed that the labour force is dispersed outwards and the distance from the centre represents savings on account of labour costs decreases and a point comes where the savings on labour cost overcomes the rising transport costs. This is more profitable location.
- Critical isodopanes is a point where both labour cost and transportation cost are minimum as compared to their total cost anywhere else.



Role of Labour Cost

- Whether labour costs will have an upper hand in the location of an industry will be decided by labour cost index.
- This can be found by the following formula:

Labour Cost Index = Labour Cost / Weight of Product

- If labour coefficient is higher, the industry will get located at the place where costs are low.
- If labour the coefficient is lower, transportation costs may influence the decision.

III. Role of Agglomeration

- Weber visualised agglomeration economies as an important secondary factor.
- Agglomeration tendencies also deflect a factory from least cost transport point.
- Agglomeration of industries occurs when several industrial enterprises with different industries plants mutually agree to locate and operate at a clustered spatial point closely.
- Agglomeration of industries offers reduction in production costs if two or more industries operate in the same location.
- This agglomeration increases the linkage, there is an increased flow of goods between plants, yields benefits from sharing specialised equipment, services, division of labor and large scale purchasing and marketing.
- Weber visualised agglomeration economies as a strong deviational force on the location of minimum transport cost in the same way as is exerted by cheap and skilled labour.



Criticism of Weber's Theory

- Weber's industrial location theory explains some basic influences on the location of industries, but has been criticised mainly because of its assumptions and changed circumstances related with technology, transport system etc.
- The main criticism against Weber's theory is that it is too simple, unrealistic and imaginary because it does not throw sufficient light on different factors and circumstances having a bearing on location.