Quadrant II – Transcript and Related Materials

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Unit: Locational Theories: Significance and their applications

Module Name: Von Thunen II

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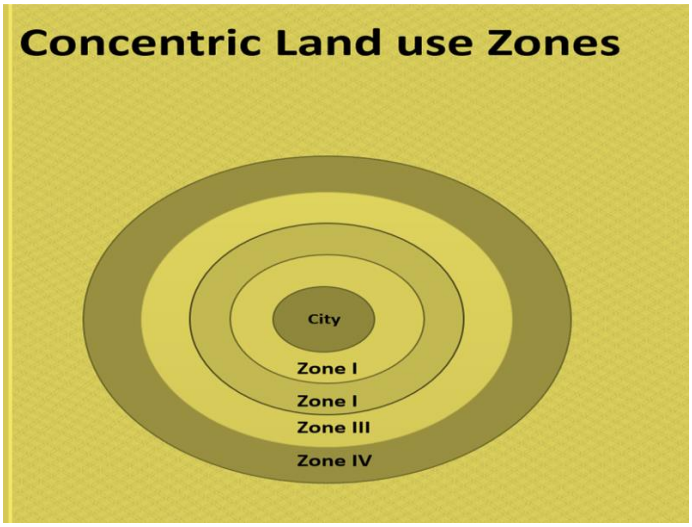
Introduction

Von Thunen's location theory on agriculture is based on the study of an agriculture field in Germany. In this theory, Von Thunen explains the crop productivity and land use pattern changes when we go away from the market.

The main aims of the Von Thunen Model of Agriculture were to explain why and how agricultural land use pattern varies when we go away from the market. It also explains the hierarchy of agricultural crops based on profit-making capacity.

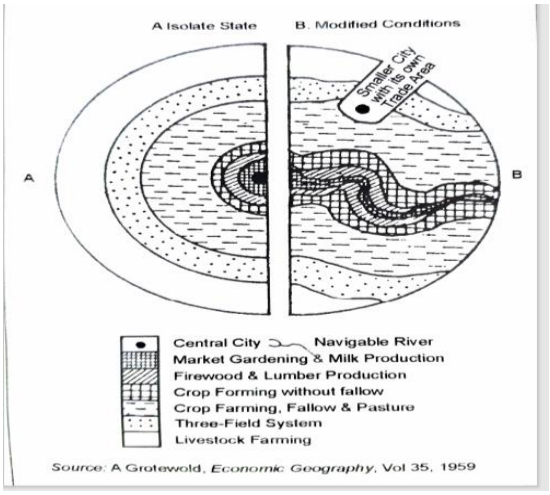
The initial land use model was explained with the help of concentric zones.



- In an Isolated State with the foregoing statements being true, Von Thunen hypothesized that a pattern of rings around the city would develop. There are four rings of agricultural activity surrounding the city.

1. **Zone I:** Dairying and intensive farming occur in the ring closest to the city. Since vegetables, fruit, milk and other dairy products must get to market quickly, they would be produced close to the city (remember, we didn't have refrigerated oxcarts!)
2. **Zone II:** Timber and firewood would be produced for fuel and building materials in the second zone. Before industrialization (and coal power), wood was a very important fuel for heating and cooking. Wood is very heavy and difficult to transport so it is located as close to the city as possible.
3. **Zone III:** The third zone consists of extensive fields crops such as grains for bread. Since grains last longer than dairy products and are much lighter than fuel, reducing transport costs, they can be located further from the city.
4. **Zone IV:** Ranching is located in the final ring surrounding the central city. Animals can be raised far from the city because they are self-transporting. Animals can walk to the central city for sale or for butchering.

- Beyond the fourth ring lies the unoccupied wilderness, which is too great a distance from the central city for any type of agricultural product.
- **The final model** was conceived having specialized agricultural enterprises and crop-livestock combination.
- Each belt, according to Von Thunen specializes in the production of those agricultural commodities to which it was best suited.



Zone I: Market Gardening & Milk Production

Production of milk, fresh fruits, vegetables and flowers was concentrated in zone I (nearest to the market) because of the perishable nature of the products. The farm fertility is maintained by manuring.

Zone II: Firewood & Lumber production

Used for production of wood, a bulky product in great demand in the city as a fuel. Firewood was needed constantly for fuel, building and other purposes.

Zone III: Crop farming without fallow land

Beyond the forest belt was third zone where rye was an important market product. Intensity of production decreased with reduction in yields. No fallowing and manuring to maintain fertility.

Zone IV: Crop farming, fallow and pasture

Land is less productive, agriculture in this zone is less intensive. Farmers used seven year crop rotation i.e. one year of rye, one year of barley, one year of oats, three years of pastures and one year of fallow.

Zone V: Three-field system

Rye is an important cereal crop. Farmers followed a three-field system, whereby one-third of land was used for rye, one-third for pastures and the rest was left fallow

Zone VI: Livestock farming

Farthest zone was devoted to livestock farming (ranching). Cattle were kept for slaughtering in the outermost zone.

Modification to the theory

- Finally, Von Thunen incorporated two examples of modifying factors in his classic model.
- The effect of a navigable river where transport was speedier and more cost only $1/10^{th}$ as much as on land.
- Even the inclusion of only two modifications produces much more complex land use pattern.
- When we relax the simplifying assumptions, in reality much complex land use pattern is expected.

Relevance of the Thunen Model to Indian context

- Prof. Jhujar & Prof. Kaur also tested the Von Thunen model in Punjab and they concluded that model cannot be applied in its original form as the extension of irrigation facilities and dense network of means of transport and communication have affected cropping pattern and land use intensity significantly.

Criticism

- The existence of the isolated estate and only market centre for agricultural commodities does not apply in the present context.
- The demand factor was not incorporated by Thunen in his theory. In fact, demand factor has influence on the pattern of agriculture.
- Man is not a rational or economic person always as assumed by Von Thunen.
- Less recognition given to environmental factors.
- The process of decision making by farmers is oversimplified. For example element of risk and uncertainty are ignored.
- At present, the cargo ships fitted with refrigeration facilities so products like milk, butter, cheese are transported miles away from the place of production.

Conclusion

- Even though the Von Thunen model was created in a time before factories, highways, and even railroads, it is still an important model in geography.
- The Von Thunen model is an excellent illustration of the balance between land cost and transportation costs. As one gets closer to a city, the price of land increases.
- The farmers of the Isolated State balance the cost of transportation, land, and profit and produce the most cost-effective product for market.
- Of course, in the real world, things don't happen as they would in a model.