

Von Thunen Model Reading and Activity

The von Thunen model of agricultural land use was created by farmer and amateur economist J.H. von Thunen (1783-1850) in 1826. Von Thunen's model was created before industrialization and is based on several limiting assumptions:

- The city is located centrally within an "Isolated State" which is self-sufficient and has no external influences.
- The Isolated State is surrounded by an unoccupied wilderness.
- The land of the State is completely flat and has no rivers or mountains to interrupt the terrain.
- Fertility is the same.
- The soil quality and climate are consistent throughout the State.
- Farmers in the Isolated State transport their own goods to market via oxcart, across land, directly to the central city. Therefore, there are no roads.
- Farmers act to maximize profits.
- Because the environment is uniform there is no difference in the quality of a crop no matter where it is produced, and because the environment is the same everywhere and people are the same everywhere production cost for a crop are the same everywhere. Therefore, the market price for a crop will be the same for the crop no matter where the crop is grown. Profit for an acre of product is equal to Market price per acre minus the Transportation cost plus Production costs. Profit per acre = Market price per acre - (Production cost per acre + Transportation cost per acre)

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.

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!)

- 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.
- The third zone consists of extensive field 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.
- 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.

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.