INDUSTRIAL LOCATION THEORY

Alfred Weber identified the most significant factors which determine industrial location in 1929. It is important to remember the ideas which Von Thunen, Christaller and Losch focused upon in order to understand Weber's focus upon transportation influencing industrial location.

Similarly, please remember that INDUSTRIAL activity is considered a secondary economic activity, and is also discussed as manufacturing. Industrial activity can be broken down further to include the following activities:

- processing
- the creation of intermediate parts
- final assembly

When Alfred Weber writes about industrial location in the 1920's, he is examining large companies whose industrial activities ALL take place within our national borders. This is not true of industrial activity today. With multi-national corporations, the three activities listed above may occur outside of the United States. Prior to 1983, all final assembly had to be completed in the USA or American corporations who imported finished products back into the USA paid a large duty (which inflated the cost of good to the consumer). Since 1983, beginning with the Maquiladora industries and continuing further with the NAFTA treaty, American corporations now pay little, or no duty at all, on the importation of finished products to the American market. We will discuss the impact of this legislation more deeply in the next lecture as we focus upon the globalization of manufacturing. But, please keep in mind that Weber's theory did not address industrial activity outside the United States.

His theory does have validity in explaining some of the causes for current movement, yet such discussion would not come from Weber himself.

Weber's industrial location theory demonstrates the unique way that geographers look at the world. I often tell my classes that Weber asked the following question; "where is industry located? Why there?" much in the same manner that a physical geographer asks why a mountain is located where it is. Given this focus, Weber found through his examination of industrial activity that similar industries located in the area where he found it the least cost to produce. What this means is that you find industries that produce the same good, clustered in regions that enable them to reduce their costs of manufacturing (materials, labor, transport) and locate the largest market. This strategy would earn them the greatest volume of sales. Least cost location then implies marketing the product at the least cost to the consumer. Much like retailers, such as Walmart, Target, and Costco, attempt to obtain large market shares today. It is explained economically as one way to make a profit, creating the cheapest product for the consumer market would lead to greater volume of sales and hence, greater profits. Therefore, companies which did not take the time to locate the cheapest inputs or the largest markets, would go out of business since their product would cost more to produce and cost the consumer more at the market.

It is important to understand that Weber's industrial location theory is an example of classical economic theory. As Smith and other classical economists thought, the consumer was ECONOMICALLY RATIONAL. What this means is that the market economy is based upon the concept that all consumers have total market knowledge (what goods are available and how much they cost to produce). Given such knowledge, EACH TIME you consume (demand) a product, you RATIONALLY select the good that is the cheapest cost of equal quality. This allows the market price to reach an equilibrium between supply and demand. Do you do this EVERY time you purchase something?

Given consumer rationality and corporate wants for profits, Weber found that the most successful businesses had located in regions which allowed the least cost of production to be actualized. Like businesses often followed the lead of pioneering companies, leading to the clustering of similar activities. Weber called this clustering agglomeration. We have previously examined this clustering when discussing suburban sprawl and megalopolis development (such as Boswash). Just remember agglomeration as the clustering of people and industry. Which type of cluster comes first is important when we start attempting to locate cheap labor or we begin to evaluate the impact of corporate movement from one location to another.

Weber's main point was that the cost of transport (another theory on this) determined the location of industry. Therefore, he uses Von Thunen's idea (that the cost of transport determines crop selection) and applies it to industry. Similar to Von Thunen, the weight of the raw materials and the weight of the end product (this difference is known as the material index) will determine the site of production depending upon how much the industry is willing to pay to get its product to the market (connecting to Christaller's ideas of market area).

Weber's theory rests primarily on four such sites, what he calls industrial orientations (see page 371).

- Material orientation
- Labor orientation
- Transport orientation
- Market orientation
1. MATERIAL ORIENTED INDUSTRIES - material oriented industries are those such as the copper industry shown on p. 350. These industries are called "weight-losing" or bulk industries, and it would be very expensive to haul raw materials to the market for processing, so that manufacturing occurs near the raw materials. Besides mining, other primary activities (or extractive industries) are considered material oriented; timber mills, furniture manufacture, most agricultural activities. The Pacific Northwest is a good example of material oriented industries. Often located in rural areas, these businesses may employ most of the population. As they leave (such as Weyerhauser, Pacific Timber...) entire cities lose their economic base.

2. LABOR ORIENTED INDUSTRIES - these are industries, such as the garment industry in New York or San Francisco which require cheap unskilled labor to complete activities that have not been mechanized, or high tech firms, such as those located in Silicon Valley, which require exceptionally skilled professionals. Either type of industry is finds that labor (quality or cost) is the primary determinant in production.

A. UNSKILLED LABOR - is often termed "ubiquitous" by geographers. What this means is that unskilled labor is found everywhere. If your factory is dependent upon unskilled labor, when you build the factory, they will come (similar to the movie "field of Dreams"). These types of industries may be retail (malls, theaters), communications (such as MCI), and even in high tech industry, most circuit board manufacture requires unskilled labor. If you are the businessman evaluating potential locations in this type of industry, you will be trying to find the areas which provide:

- low wages
- little unionization
- young employees (few healthcare costs)
- female employees (they have babies which allows you to keep wages low, and they tend not to be as demanding)

Pages 354 and 355 give some specific examples of this comparing hourly labor costs in many countries, and demonstrating true labor costs choices which may determine business location.

B. SKILLED LABOR - industries founded on the use of skilled labor faced an opposite dilemma, skilled labor is very scarce and often difficult to find. Silicon Valley is a good example of this. In 1992, the Chronicle published an article which listed the percentage of residents throughout cities in the South Bay who possessed a bachelor's degree. I recall that 70% of Mountain View residents had BA's and 88% of Los Altos residents possessed a BA. Compared to the national average of 12.5%, these numbers demonstrate the pull for industries using skilled labor to the Bay Area. Other activities which reflect skilled labor industries are corporate headquarters (quinary industry, p. 357 and p. 369), and research and development centers (quaternary industry, p. 358). Skilled labor requires higher education so this allows first world countries to retain jobs in these industries.

3. TRANSPORT ORIENTED INDUSTRIES - these are industries whose primary production cost is transport. Geographers term the location for where these industries locate as "break-in-bulk" locations. This term is used to describe a location where two or more modes of transportation may connect.

San Francisco is a great example of this, having port, rail, air, and highway linkages. Such diversity allows the business to use the cheapest transport available. Current examples of such industrial agglomeration is illustrated on the inset map 2.8, which portrays the clustering of businesses along Interstate 65 and 75. A similar pattern exists in Tracy where food distributors have built large warehouses (cheap land) for Northern California distribution. Tracy provides rail access and highway linkages to most market, so that relatively little trucking (2-3 hours) is required.

4. MARKET ORIENTED INDUSTRIES - these are industries whose product may be weight-gaining, breakable or perishable. Despite the high costs of land and labor in market regions (large cities), it is to the advantage of such industries to locate as close to the consumer as possible. Such industries are Coca-cola or bottling industries (see page 347), auto assembly plants, such as NUMI (see inset map 2.8), dairies, such as Berkeley Farms in Sonoma (close to urban market due to perishability), and computers and television assembly (due to break-ability).

Overall, Weber's theory is amazing because he was able to demonstrate how major production costs (labor, materials, transport) determined industrial location. He clearly articulated the major factors which businessmen used to identify prime locations. These factors are still the dominant factors which explain industrial location today.

Weber's theory also allows us to ask questions concerning how industry could be relocated. Could one stimulate economic development in a depressed region by investing in transportation? or education? What is the role of the market in generating economic development?