

Globalization and Economic Geography

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activities

Economic Geography as a Subject of Study

This chapter discusses a portion of the subject matter of geography known as economic geography. Economic geography has undergone many changes as the interaction among economic entities (both countries and large companies) has become increasingly global in scope. Economic geographers must, therefore, be aware of the complex social, cultural, and political interactions among these global entities. This article, using a few selected examples from disparate economic pursuits, attempts to illustrate the impact of this economic globalization on the daily lives of people throughout the world. The student is encouraged to think about and explore other examples of globalization. The suggested activities and critical thinking questions scattered throughout the article are designed to do just that.

Economic geography is concerned with the production, distribution, and consumption of goods and services and the human and environmental impacts of these activities. Traditionally the emphasis in economic geography has been on production and distribution. There are many factors that account for this emphasis. First, the spatial distribution of resources is uneven. That is, resources are finite and are usually available in exploitable, commercial quantities at only a few places. Second, consumers of these resources, whether they are other industrial activities or you and me as direct consumers, are more widely scattered. In order to get products and services from where they are produced to where they are consumed, transportation or communication is involved.

Since the United States and most developed countries in Europe and parts of Asia are now considered service-based (or postindustrial) economies, it is the service sectors of the economy that are growing the most rapidly. Many of these service activities are highly dependent on access to up-to-date information. So, high-speed communication linkages are vital to modern postindustrial economies.

Economic geographers are most interested in the location of economic activities, and three factors, more than any others, are often used to understand the patterns of these activities: land, labor, and capital. Land is important because of its relative location and its characteristics. A parcel of land that is accessible to major transportation facilities,

markets, and sources of raw materials is said to have a good relative location. All the better if this accessible land parcel is also relatively flat, thus reducing the cost of development. Such flat, accessible land might sell for a relatively high price, but the cost of obtaining land is often spread (i.e., amortized) over the many years that an economic activity will be produced at a particular location.

Ongoing or recurring costs such as the cost of transportation to assemble necessary raw materials and/or distribute the finished products to consumers and the cost of labor needed to make the products are more important locational factors than one-time or fixed costs such as land. The cost of moving commodities has decreased dramatically since the beginning of the Industrial Revolution in the mid-eighteenth century. Early iron and steel production had to take place near coal that was used to fire the furnaces and melt the iron ore. Since coal is rather bulky and low in value per unit of weight, transportation of this important component in the iron- and steel-making process was a major factor in the location of blast furnaces. The Midlands region of the United Kingdom was, for example, the location of both excellent deposits of coal and the earliest iron and steel manufacture. In the United States, Pittsburgh also had an excellent location relative to sources of coal from Appalachia and the Middle West. Today, both the United Kingdom and the United States import much of their iron and steel from overseas producers in countries such as India or South Korea. Such long-distance transport of this commodity has been made possible by improvements in transportation technologies that have reduced the relative cost of transportation when compared to other cost factors such as labor.

The other major cost factor affecting the location of economic activities is labor. Some industries are considered labor-intensive, because labor accounts for a considerable portion of their overall cost structure. The production of textiles and apparel is often used as an example of a labor-intensive industry. Since transportation costs have been reduced by improvements in transportation technology, a manufacturer of simply produced garments such as underwear or socks might locate a plant in a poor, lesser-developed country and pay its workers relatively low wages. To be economically viable, the savings in labor must outweigh the additional transportation costs involved in moving the finished product back to markets in the advanced economies that are often half a world away. This process of locating the manufacturing facility of a labor-intensive industry in a lesser-developed country while maintaining corporate offices and research facilities in the developed world is called **outsourcing**. This practice is sometimes referred to as **offshoring** in the UK and continental Europe. Outsourcing is a consequence of our increasingly global and interdependent world economic system.

The *maquiladora* system along the international boundary of the United States and Mexico is an example of such globalization of the economy. Even before the North American Free Trade Agreement (NAFTA) was enacted among Canada, the United States, and Mexico, many domestic companies found it less expensive to move their manufacturing activities to the Mexican side of the international boundary. Manufacturing facilities were often located in border cities such as Tijuana near San Diego or Ciudad Juárez near El Paso. The headquarters, marketing, and distribution portions of these companies would often remain on the United States side of the border. The reduction of tariff barriers between the two countries meant that taxes and fees had to be paid on only the value added in the process of production. Products manufactured in Mexico could, therefore, be marketed and distributed easily in both countries.

~~Classroom activity suggestion: Have the students take a position on the following statement:
Resolved: That the *maquiladora* program is essentially a good thing for both the United States and Mexico and that good jobs available in El Norte (i.e., the northern border states of Mexico) will eventually stem the tide of illegal immigration to the United States.~~

Dividing Economic Activities into Sectors

Overall economic activity may be divided into five major sectors: primary, secondary, tertiary, quaternary, and quinary. The **primary sector** of the economy includes activities that are directly reliant upon the processing of raw materials from the earth and surrounding seas and would include agriculture, forestry, fishing, and mining. Historically, these have been the first economic activities that are practiced because they provide the food, clothing, and shelter that are essential for life. The products of the primary sector of the economy provided for local needs but were also among the first products to enter into world trade. Thus globalization is not a particularly new phenomenon. Foodstuffs, raw materials to make cloth, and metallic ores served as the main bases for mercantile trade during the Age of Exploration (fifteenth through eighteenth centuries) and were often the underlying reason for the establishment of colonies all over the world by the European powers.

The **secondary sector** is associated with manufacturing, the process by which tangible raw materials are converted in a factory setting into more useful and valuable products. Modern manufacturing (as opposed to custom-made products of craft and guild activities) developed during the Industrial Revolution in the mid-eighteenth century and diffused from the core area in the United Kingdom into continental Europe and

eventually to the New World. When the United States was still in its infancy, two entrepreneurs, Moses Brown and Samuel Slater, started a textile mill in Rhode Island. Slater had worked for an associate of Richard Arkwright, a British businessman who had revolutionized the spinning of fibers into cloth using the spinning jenny, shuttleless loom, and other mechanical innovations. The mill was powered by falling water, but later inventor James Watt's steam engine allowed factories to be located closer to the market for the goods they produced.

Although a declining proportion of the gainfully employed work in manufacturing in most developed nations, it was manufacturing that got these countries to an advanced stage of development in the first place. And it is manufacturing that is still a major key to the development of lesser-developed countries that aspire to be players on the global stage. With the reduction in the cost of global transportation, such countries now appear to have a comparative advantage in manufacturing in the global marketplace because of their lower labor costs.

Manufacturing is dependent on the physical distribution system, and the wholesalers and retailers that get the manufactured products to their intended markets make up part of the tertiary sector of the economy. In many ways, growth in manufacturing spurred the growth of trade and the services. In the developed portions of the world, advanced services, rather than manufacturing activities per se, are now the key to the continued development of these complex economies.

Both the quaternary and quinary sectors are refinements of the tertiary sector. The quaternary sector of the economy involves services as well, but the jobs in this sector are generally the better-paid information and knowledge-based activities including, among others, producer services, computer services, and finance, insurance, and real estate (i.e., the FIRE) services. Workers in this sector are said to have "white collar" jobs.

Finally, some economic geographers designate a quinary sector for the very top-end jobs in manufacturing, services, and distribution that require individual decisions to be made that might affect the entire company or even the global economy. Individuals in this sector would include the chief executive officers, chief financial officers, researchers, and scientists.

You should bear in mind that in many ways the Industrial Revolution was also an urban revolution. Factory work was the impetus for a great rural-to-urban migration on a scale seldom seen before in the course of human history. The focus of modern manufacturing is a global one. Headquarters and research and development facilities

(e.g., it takes six pounds of beets to produce only one pound of sugar). This is the reason why there are many sugar refineries located in the Great Plains of the United States, where sugar beets are grown commercially. An added benefit of the raw material orientation of the industry is that beet pulp, a by-product of the refining process, can be fed to the Great Plains cattle, which are able to break down and digest the cellulose fibers of the pulp.

Likewise, manufacturing that greatly reduces the volume of the raw material to produce a finished product is likely to be located near the raw material source. Sawmill operations that produce dimensional lumber for the construction industry are usually located close to the source of trees because of the volume of bark and poor-quality wood that must be removed in the process.

Finally, the canning of fish, fruits, and vegetables is usually located near the source of the raw materials because of perishability concerns. The raw materials are highly perishable, but the canning process adds shelf life (i.e., longevity) to the finished product.

If, on the other hand, activities such as commercial bakeries are using raw materials such as sugar and flour that have a long shelf life and producing bread and rolls that do not, then that activity should be market oriented. In developing a theory for the location of industries, the German economist Alfred Weber introduced a concept known as the material index that could be used to estimate the orientation of different industries. The material index was simply the ratio of the weight of localized raw materials (i.e., those available only from finite sources) as the numerator in the ratio to the weight of the finished product as the denominator. If the ratio was greater than 1.0, the activity was said to involve gross (weight-losing) goods, and, other things being equal, would be raw material oriented. The greater the ratio, the more likely was the raw material orientation of the activity. If the weight of the localized raw materials about equalled that of the finished product, the activity was called a pure good. The weaving of cloth into finished garments would be an example of an activity involving a pure good. Finally, there are some examples of activities in which the weight of the finished product actually outweighs the localized raw materials (i.e., the material index would be less than 1). The only way this could happen is if a nonlocalized (i.e., ubiquitous) good was added in the process of production. Soft-drink bottling is often used as an example of such an activity. Water is considered ubiquitous, and it is heavy. It is cheaper to transport the thick concentrated syrup used to make a soft drink to the market for the beverages and then add carbonated water at the market. Such ubiquitous goods would be market oriented, other things being equal.

of major transnational corporations are often located in the advanced nations of the world, but the actual manufacturing is often done in the lesser-developed nations.

~~Critical thinking question: Have students respond to the following statement.~~

~~At the time of the Industrial Revolution, manufacturing caused growth at the scale of the region or, at best, the nation-state. Now, manufacturing must be considered a global phenomenon in order to understand how it will influence growth.~~

~~Critical thinking activity: Find out how many students think their parents or grandparents work in each of the five sectors of the economy described above. If the community is typical, there will be few in the primary sector (probably less than 5 to 10 percent), more in the secondary sector (perhaps as many as 20 to 30 percent), and the vast majority (60 to 75 percent) in the service industries involving the tertiary, quaternary, and quinary sectors. Ask them how they think this economic structure has changed since the time the first colonists settled what we now call the United States of America.~~

~~Critical thinking activity: The students could engage in a role-playing activity in which they attempt to develop the economy of a "hypothetical" lesser-developed country. In reality, the data provided could come from an actual country in Africa, South America, or Asia, and after their ideas are discussed, they could focus on the real country to determine aspects of its development trajectory.~~

Economic Location Principles: From Local to Global

In an era of slow and expensive transportation, much of the economic activity was highly localized. Commodities could not move over space without incurring great increases in cost. Other things being equal, industries will often seek sites near their markets in order to reduce the cost of transportation in distributing their product to their potential clientele.

There are three major factors that would, however, work against a market location for industries. These factors are weight, volume, and perishability. If an industry such as the refining of sugar involves a loss of weight in the process of manufacturing, then it would be better to locate the refinery closer to the source of the raw material rather than transport the heavy and expensive raw material all the way to the market for processing. When sugar is refined from sugar beets or sugar cane, there is large reduction in weight

~~Critical thinking skills: Have the students select some local industries and try to apply Weber's principles to see if they work in the cases they have chosen. If so, what are the factors of production that were most important to the location decision? If not, what other factors were important that Weber's model did not consider? Can they think of factors of production that impact industrial location that Weber did not consider? If so, how might they incorporate these factors into an "improved" model?~~

Changing Scale of Production

The basic principles of market and raw material orientation are still viable, but the scale of application has increased from the local to the global level today. A major concern among the traditional advanced nations of Europe, the United States, and Japan is that there are now areas within nations that have been labeled as "developing" in which a highly educated labor force is available and willing to work for lower wages than comparable workers in the more traditional advanced countries. Also, for many high-tech companies, the pull of either raw materials or specific markets is diminished. Such companies are sometimes said to be locationally footloose. That is, many other factors (including those that are sometimes called noneconomic, such as the quality of life of the potential location) may play a role in their location decisions. Because the market for the products of such businesses may be global, no particular location has a comparative advantage over any other. Economic development specialists are especially eager to attract such footloose activities because they are usually growing faster than traditional industries that are more place-bound.

Examples of Globalization in the Three Major Economic Sectors

It is impossible in this brief introduction to discuss all the forms of globalization that are taking place today, but a few examples drawn from each of the three major economic sectors will suffice as illustration. You are encouraged to think of other examples of your own.

One impact of the reduction of the time and cost involved in transportation is the increasing scale of activity provided by this time-space convergence. The increased geographic scope of production can be seen in the produce department of your local supermarket. It used to be that people had to do without certain vegetables and fruits when they were out of season simply because the cost of transportation from other areas was prohibitively expensive. Now it is quite possible for consumers in the Northeast to eat strawberries in the winter or lettuce all year round. The increase in geographic range has led to the creation of specialty regions in countries such as Chile devoted to providing fruits and vegetables that are out of season in the Northern Hemisphere's

winter months. Such commercial agriculture in the primary sector may irrevocably change the nature of Chile's economy by disenfranchising many small-plot cultivators in favor of large agribusiness that can supply agricultural products to distributors in amounts that make the transaction financially feasible and attractive. Many small-plot cultivators may, by the same token, stop producing a variety of crops for their families and local villages in favor of specializing in a single crop for the world market.

But there has been a reaction against globalization as well. This backlash in the example presented above is expressed in a desire by some consumers for fresher, more organically grown produce from local suppliers. It is unclear whether enough people are willing to pay higher prices for such local produce to change the attitude toward greater globalization, larger-scale production, and the application of more chemical fertilizers, herbicides, and pesticides needed to maintain or increase yields.

In the secondary sector, there has been a sea change in the nature of industrial production. An examination of the automotive industry illustrates many of these changes. United States automobile manufacturing has undergone a significant transition. At the beginning of the twentieth century, there were over 200 different manufacturers of automobiles. Steam power, electricity, and a variety of different combustion engines powered some of these early vehicles. Automobiles were toys of the rich and expensive relative to the wages of the day. Then Henry Ford built his Highland Park plant in Detroit to build the Model T, an automobile that revolutionized the industry. Ford borrowed the notion of interchangeable parts from Eli Whitney's early firearms factory in the Connecticut River Valley and added his own spin on mass production by introducing the assembly line method in which a worker repeated the same tasks. He paid his workers handsomely (\$5 per day when the prevailing wage of the time was \$1 per day), and they, in turn, bought his product.

Soon many of the other automobile manufacturers were only a distant memory. By the 1930s, there was an oligopoly in production (i.e., only a few sellers of automobiles), and automobile sales soared. By the 1960s, imported automobiles cut the proportion of sales by domestic producers (the "Big Three" of Ford, General Motors, and Chrysler), and the technology of the industry became so standardized that some of the most modern plants of these companies are now located in Mexico or Canada. The age of maturity in this industry had arrived. Now United States manufacturers have adopted the lean (i.e., flexible) production methods of their foreign competitors, including the just-in-time (JIT) system of nearby parts suppliers that supply components on demand to the assembly plant, thus keeping inventories low and decreasing the cost of production.

If a product is new in the marketplace, as were automobiles at the turn of the last century, it is a seller's market, typified by high per unit prices of the goods produced. But as the industry drives toward maturity, manufacturers struggle to drive prices down by developing more standardized ways of producing the product. Products manufactured in their growth phase, such as Henry Ford's Model T and later his Model A's, require a great deal of managerial and marketing expertise. Today, the automotive industry would be considered a mature industry, and despite the huge capital requirements required for a firm that is engaged in the manufacture of a product in its mature phase, the less-developed nations of the world could be competitive in these types of industries. Consider the recent entry of automobiles from South Korea (e.g., Kia, Hyundai, Daewoo) into the United States market. Capital, in the form of machinery and automated equipment, has been substituted for higher-cost labor. Persons with low skill levels who might be taught on the job how to work the machinery can handle the assembly line.

There have been locational shifts in the domestic automobile industry as well. The dominance of Detroit and southern Michigan is diminishing, and the importance of the mid-South—especially the corridors formed by Interstates 65 and 75—has been increasing. Much of this shift has to do with labor issues and head-to-head competition with the direct foreign investment (DFI) made by Japanese and European automobile manufacturers in the same area of the country (e.g., Honda in southern Ohio, Toyota in Kentucky, Nissan in Tennessee, Mercedes-Benz in Alabama, BMW in South Carolina).

Critical thinking activity: What if the lesser-developed nations of the world were further subdivided into those with considerable potential for near-term development (e.g., Brazil, Mexico, the four "little tigers" of Asia) and those without a history of modern manufacturing and a limited natural resource base (e.g., Bangladesh, Chad, Bolivia)? In which economic activities might countries representing these two different types of developmental levels have a comparative advantage?

In the tertiary sector, there are several examples of globalization, some of which are sometimes opaque to the customer or user. For example, many call centers specializing in direct merchandising are located in the Caribbean. Because of the colonial history of the area, many of the residents speak fluent English and work for lower wages than would comparable workers in the United States. Likewise, many help desks for technical questions are located in Bangalore, the "Silicon Valley" of India. Highly educated computer programmers, engineers, and other technical personnel will work for lower wages there. These long-distance relations are made possible by advances in telecommunications technology, including the widespread use of the Internet.

The second-largest economic entity in the world today is China, with its population of 1.3 billion, one-fifth of the world's total. Some economists predict that its economy will surpass that of the United States in less than 50 years. Ten percent of all of China's exports are destined for one retailer: Wal-Mart. Already the largest corporation in the world with sales of more than \$245 billion in 2003 (more than GM and Ford combined), Wal-Mart relies on China to supply many of the products it distributes. These products include high-end electronics and appliances as well as clothing and less-expensive items. In turn, Wal-Mart is aggressively entering the Chinese market by locating many stores there. More than one-quarter of Wal-Mart outlets are now overseas, and after a few well-documented instances of cultural insensitivity, Wal-Mart is increasingly adjusting its product mix to reflect local tastes, customs, and locally produced items. Thus globalization can be seen as a give-and-take process—one of mutual adjustment.

The Downsides: Negative Consequences of Globalization

One consequence of globalization is the increased importance of transnational (i.e., multinational) corporations. Many of these companies have operations all over the world and are among the world's largest economic entities. Giants like General Motors or ExxonMobil contribute more to the world economy than many advanced nations in terms of the dollar value of their international trade.

Corporations that operate in more than one country are not new. The famous Krupp family of Germany has been prominent in that country's iron and steel industry and had facilities located throughout Europe as early as the sixteenth century. Likewise, the pharmaceutical giant Bayer has had manufacturing facilities outside of Germany since the nineteenth century. But in the late twentieth century, the number and magnitude of this globalization expanded enormously. It is typical for such transnational firms to have their corporate headquarters in the developed world (e.g., General Motors in the United States; Unilever in the UK; Royal Dutch/Shell in the Netherlands; Nestlé in Switzerland). So too, their research and development arms are usually in the advanced nations. It is the usually the manufacturing arms of these transnationals that end up in the lesser-developed countries. When this outsourcing first began, the lesser-developed countries would often compete against each other in order to obtain some branch plant of a giant transnational corporation. After all, this is how Singapore and Hong Kong were able to rise from being mere sources of cheap labor for transnational corporations to becoming major economic powerhouses that today need to be reckoned with in their own right.

Today, lesser-developed countries are more wary of this globalization. Some

Special Focus: Globalization

transnationals still play one lesser-developed country against the other to extract the most favorable deal that they can negotiate. Far from powerless, the lesser-developed country is able to apply some tactics of its own. These strategies may ensure that more of the earnings of the transnational corporation remain in the host country and do not "leak back" to the corporate headquarters location. These strategies include requiring a certain percent of local content in the manufacturing process. This requirement can stimulate economic development in the host country. Another tactic is to require a partnership of the transnational and the host country (i.e., a joint venture). Some host countries have insisted that the indigenous population be hired in management positions within the transnational's operations. In this way, a cadre of well-trained managers is available to continue the development process. There are a variety of other means by which home industries in the host country can be protected, while at the same time the benefits that accrue from transnational operations within the host country can be channeled into even more indigenous economic development.

Sometimes polluting industries locate in lesser-developed countries to take advantage of environmental regulations that are less stringent or not enforced to the degree that they might be in the headquarters country. Workers in lesser-developed countries are, therefore, more likely to be at environmental risk in the workplace.

Critical thinking issues: Ask the students to imagine that they are the leaders of a lesser-developed country that a major transnational corporation has been "courting." What policies, other than the few specified above, might the host country enact in order to assure that the transnational corporation will be beneficial to the fragile economy rather than overwhelm it?

The practice of outsourcing the manufacturing has also affected the status of unions in the United States. It is no coincidence, for example, that the state with the highest percentage of its gainfully employed workers in manufacturing (North Carolina) is also the state with the lowest rate of unionization (less than 10 percent). Companies have sought out Sunbelt locations to get away from the strong unions, the high wages, the high taxes, and the stringent environmental regulations often found in the northeastern and north central (i.e., midwestern) states. According to manufacturing executives, a conducive business climate is one in which corporate tax rates are low, the cost of buildings and maintenance is low, workers are not unionized, and productivity is high. If these conditions are not found in the United States, it is quite likely that the next branch plant might be outsourced to some lesser-developed country. This is a fact of life in our global economy.

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There is concern also about the way that globalization has impacted the lesser-developed countries in which investments are currently being made. In China, for example, there are large disparities in wealth and opportunities between the coastal regions and special enterprise zones of eastern China, where most of the foreign investment and domestic manufacturing is taking place, and the more rural areas of western and interior China. Such disparities can lead to large-scale migrations of rural peasants seeking a better life in the bustling cities along the eastern and southern coasts. Because migrations are almost always selective, the brightest and best are the most likely to migrate from the western and interior areas, leaving behind an older and less-able population.

Many lesser-developed countries see the globalization as a threat to their indigenous culture, distorting traditional values and creating a consumerist society that may be at odds with long-held religious and ethical precepts. Ironically, processes of globalization are occurring simultaneously with tendencies toward tribalization and the rise of fundamentalism—both reactions to what is perceived as threats to traditional ways of life.

Critical thinking activity: Have the students make an inventory of the country of manufacture of everything in their own bedroom or their classroom. Which nations of the world seem overrepresented, and which ones seem underrepresented? How do they account for these differences?

Critical thinking activity: Have students map a variable that might seem to them to be unrelated to levels of economic development: sex ratios. These data can be obtained for the provinces of China, and the resulting patterns are striking. In the interior and western areas most untouched by globalization, there is a definite preponderance of males to females. In the most urban of the eastern provinces, this sex ratio between males and females is much more balanced. Have the students speculate as to why these disparities exist and how they might be related to economic activities, direct foreign investment, and governmental policies (both the establishment of special enterprise zones and the one-child policy).

Direct foreign investment (DFI): When an economic entity such as a large transnational organization decides not simply to market its products in a foreign country but to actually build a facility there (e.g., factory, distribution center), Japan's Nissan Corporation decided, for example, to build an automobile assembly plant in Smyrna, Tennessee, outside of Nashville, a form of direct foreign investment in the United States.

Distribution costs: In Weber's theory for the location of industries, the costs associated with the distribution of the finished product of the manufacturing process to its final markets. Other things being equal, these will be higher than the assembly costs.

Environmental consequences: Often the downside of older, unregulated manufacturing processes. The cleanup of some former industrial sites (sometimes called "brownfield sites") can be astronomical.

Exploitive strategy: A development strategy that is similar to that of many colonial powers: using development capital to exploit the natural resources of the area often for self-serving reasons.

Footloose industry: An economic activity that is not so tied to the natural resource base. Such an industry might locate anywhere and be successful. Many high-tech industries are said to be locationally footloose.

Gross good: A weight-losing good in the process of manufacturing. That is, the weight of the localized raw materials is greater than the weight of the finished product, creating a material index greater than 1.0.

Host country: The country that a transnational corporation decides to set up shop in. There are a variety of protective measures that the host country can adopt to assure that the transnational corporation does not exploit its relationship.

Industrial Revolution: Started with automation being introduced into the textile and apparel industry in the Midlands region of Great Britain in the 1740s and spread to Europe and America as well as to other sectors of the economy somewhat later.

Joint venture: A venture jointly sponsored by a government and a private entity such as a large transnational corporation. (There are many types of joint ventures, but this is the one of most interest in the development sphere.)

Glossary of Terms and Individuals

Individuals

Brown, Moses: Wealthy entrepreneur who started an early textile mill near Providence, Rhode Island, and later endowed the nearby Ivy League university (named for a member of his family) with his textile mill earnings.

Ford, Henry: Innovator in the automobile industry. In the teens, Ford really revolutionized the industry with the notion of interchangeable parts and the assembly line method of production, making automobiles affordable to the masses.

Slater, Samuel: Employed by Moses Brown to replicate the British textile innovations of the Industrial Revolution in America.

Watt, James: Inventor of the steam engine in Great Britain that revolutionized both transportation (especially shipping and rail) and industry, as steam power could replace falling water as the source of power for factory machines.

Weber, Alfred: German economist who developed in 1909 a theory for the location of industries that focused on transportation, labor, and agglomeration as factors of production affecting the optimal (least cost) industrial location.

Whitney, Eli: Perhaps best known for his improvements to the cotton-ginning process. He also had a firearms factory in the Connecticut River Valley that employed the concept of interchangeable parts long before Henry Ford used the idea in the automobile assembly process.

Concepts and Terminology

Assembly costs: In Weber's theory for the location of industries, the costs associated with assembling raw materials from disparate sites to the point of manufacturing.

Automation: The substitution of capital for labor in the form of labor-saving devices. This is what spurred the Industrial Revolution.

Conducive business climate: A term that has come to mean low taxes, low utility cost, and low wages paid to workers—but workers with a good work ethic and high productivity.

Maquiladora: A set of twin plants, one on the Mexican side of the border manufacturing some item with cheap labor paid in pesos and another on the American side that receives the input from the Mexican plant and distributes and markets the product throughout the United States, paying taxes on only the value added in the process of manufacturing.

Market orientation: The preference for market locations by industry (other things being equal) because the freight rates on raw material assembly are usually less than the freight rates on product distribution due to the nature of the freight rate structure in the United States. There are many exceptions to this maxim because transportation costs are not the only production factor of importance to locational decision making.

Mass market: A system of exchange adapted to large-scale production and consumption. During the era of Fordism (when assembly line methods of production held sway), products were produced for a mass market. We are now in the era of flexible accumulation where it is possible to manufacture custom orders for niches of the overall market at competitive prices.

Material index: A key in Weber's theory of the location of manufacturing. Goods may be categorized into three different types depending on the ratio of the weight of localized raw materials to the weight of the finished product. If that ratio is greater than 1.0 it is a gross good, if equal to 1.0 it is a pure good, and if less than 1.0 it is a ubiquitous good.

Newly industrializing countries (NICs): A term that has been coined for up-and-coming economies. They have not yet quite achieved the status of first world developed economies, but they are rapidly approaching that status. The four "little tigers" of Asia (Hong Kong, Singapore, South Korea, and Taiwan) are often used as examples of NICs.

North American Free Trade Agreement (NAFTA): An extension of the free trade zone that had been going on for some time between the United States and Canada and the United States and Mexico. Now all three of these North American countries are part of one free trade zone.

Oligopoly: A situation in which there are few very sellers in some product line. By the 1950s, for example, only the "Big Three" (GM, Ford, and Chrysler) remained in the automobile assembly industry, whereas at the turn of the twentieth century there were almost 200 sellers.

Outsourcing: The practice of locating branch plants in foreign countries in order to take advantage of the cheaper labor there.

Pure good: In Weber's terminology, a good like thread/yarn in which the input and the output of the manufacturing process weigh about the same. Other things being equal, such an activity would probably locate at the marketplace.

Quaternary sector: The economic sector in which knowledge-based jobs are among the fastest growing. Sometimes referred to as white collar jobs.

Quinary sector: The economic sector reserved for the very top echelon of any organization: the CEO, FEO, research scientists, and the like. These people are responsible for the top-level corporate decisions and exist in an information-rich environment. These are the "gold collar" jobs. Not all textbooks distinguish this sector of the economy as separate from quaternary activities.

Raw material orientation: The location of the manufacturing plant in relation to the source of raw materials. While most industries would prefer to locate near their markets in order to save the recurring costs of transportation, some industries—especially those that involve a loss of weight, bulk, or perishability in the process of manufacturing—might prefer to locate near their source of raw materials since their material index is much greater than 1.0.

Resource: The physical existence of some raw material that can be used under the current state of technology. If the raw material can't be of use, it isn't really a resource.

Secondary sector: The sector of the economy that takes raw materials from the earth or sea and converts them in form into something more useful (i.e., adding value to the product). Manufacturing and construction are the two most important examples of this sector; the former taking place in factories and the latter on site. Workers in this sector are called "blue collar" and achieved their greatest relative importance in the pre-World War II era.

Tertiary sector: The sector of the economy that is growing rapidly in most developed nations. Some authors divide the tertiary sector into those types of jobs that can be performed with little or no job skills (the "McJobs" of the service sector) and those better-paying jobs that require a great deal of education and information upon which to base decisions. Hence the tertiary sector dealing with services and distribution can be further subdivided into quaternary and even quinary sectors.

Traditional society: The first stage of economic development. This stage can last for thousands of years unless there is an impetus for growth in the mercantile and manufacturing areas and a change in the institutions necessary to make the transition to a more modern capitalist society.

Transnational (multinational) corporations: Corporations, usually large ones, with operations in more than one host nation. Often the headquarters and the research and development facilities are located in technologically advanced countries, while the routine manufacturing and assembly operations take place in lesser-developed countries. Markets for the products of such transnational corporations are often global in scope.

Ubiquitous good: A widely available good that might be added in the process of manufacturing at the market since the weight of the finished product would, in this case, be greater than that of the localized (i.e., nonubiquitous) raw materials of which it is composed.

References for Further Reading

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- Secondary:

- Tertiary:

- Quaternary:

- Quinary:

8. Why might LDCs have a comparative advantage in manufacturing in the global marketplace?

9. What 3 factors work against market location and in favor of resource/raw material location for industry?

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10. What is an ubiquitous good?

11. What is a footloose industry (def and ex)?

12. Chile has complementary trade with the U.S. What does that mean?

13. Why might many call centers locate in the Caribbean?

14. China has the _____ largest economy in the world. 10% of all its exports goes to
_____.

15. How do LDC host countries protect themselves to make sure that all profit (from a factory in their country, but owned by a transnational corporation) does not go back to the MDC? List two tactics:

16. Which state has the highest percentage of its workers in manufacturing? Why?

17. List 4 factors that create a "conducive business climate."

a.

b.

c.

d.