Industry

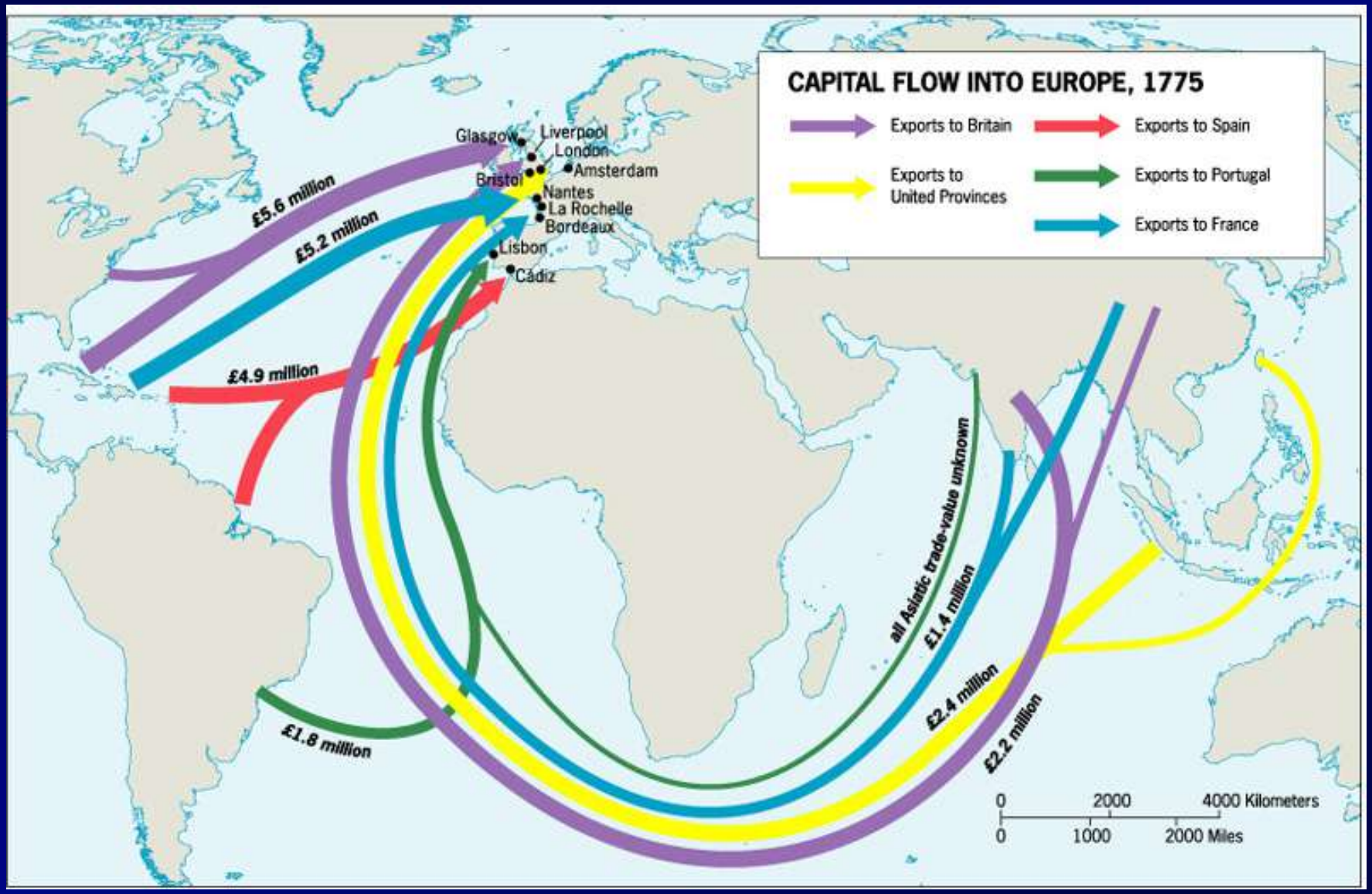
- Key Issue 1: Where did industry originate?
- Key Issue 2: Where is industry distributed?
- Key Issue 3: Why do industries have different distributions?
- Key Issue 4: Why do industries face problems?

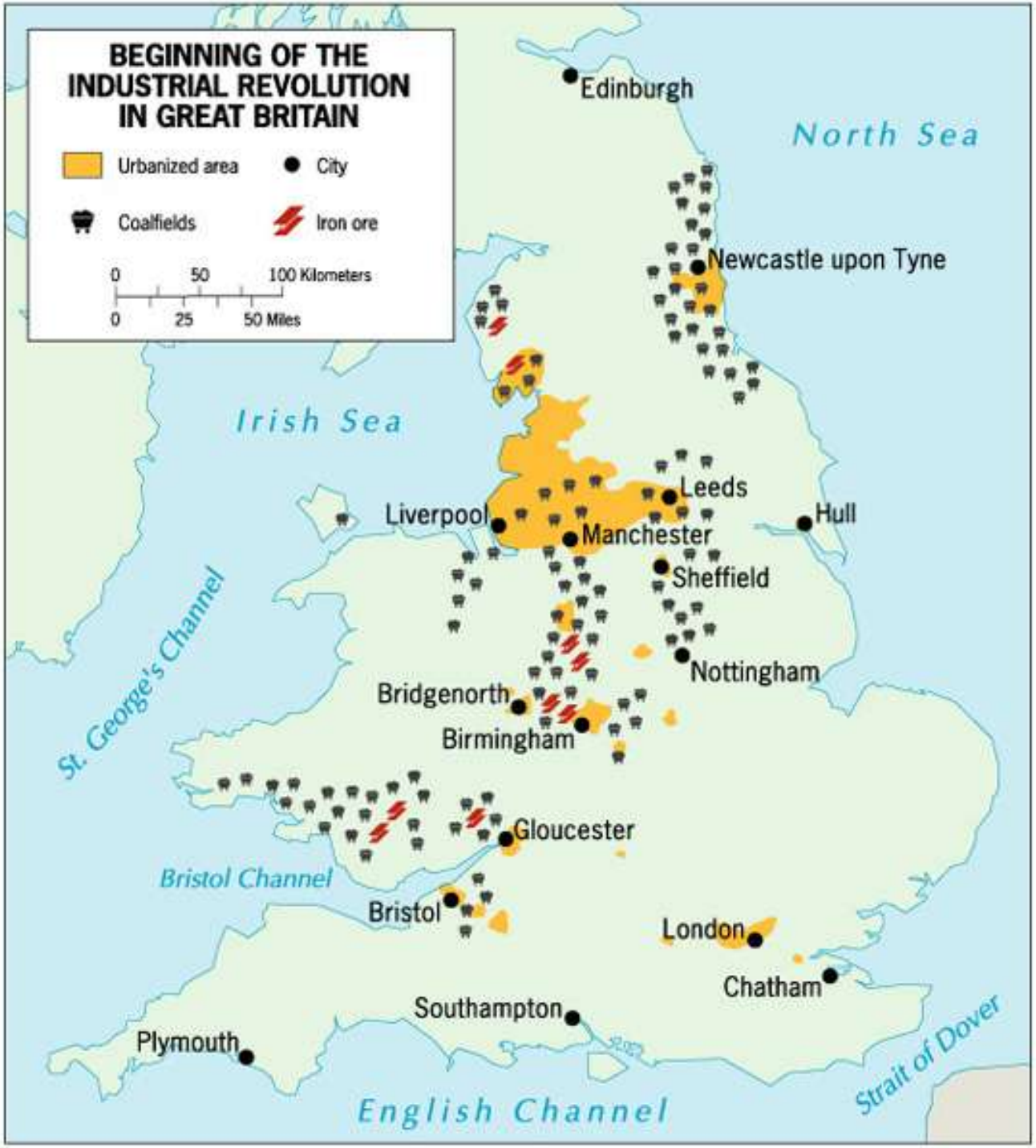
- Origin of industry
  - From cottage industries to the Industrial Revolution
  - Impact of the Industrial Revolution especially great on iron, coal, transportation, textiles, chemicals, and food processing
- Cottage industry- the home-based manufacturing that preceded the I.R.

- When and where did the industrial revolution begin?
  - In Great Britain in the mid to late 1700s
- Why Great Britain?
  - Flow of capital
  - Second agricultural revolution
  - Mercantilism and cottage industries
  - Resources: coal, iron ore, and water power

Flow of Capital into Europe, 1775

Needed flow of capital in order to fuel the industrial revolution.





Textiles Production: Liverpool and Manchester

Iron Production: Birmingham

Coal Mining: Newcastle

Ironbridge, England

World's first bridge made entirely of cast iron, constructed in late 1700s.

Diffusion of the Industrial Revolution

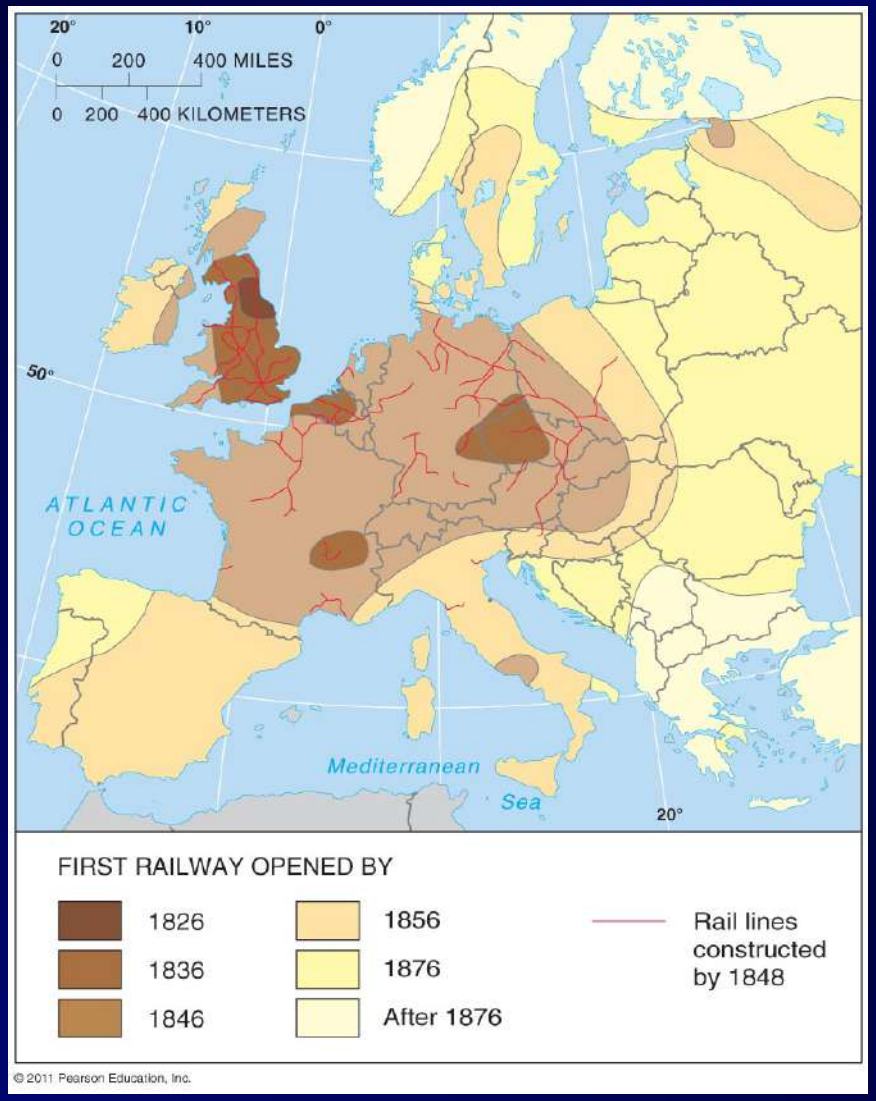


Figure 11-2

Diffusion to Mainland Europe

In early 1800s, innovations diffused into mainland Europe.

Location criteria: proximity to coal fields

connection via water to a port

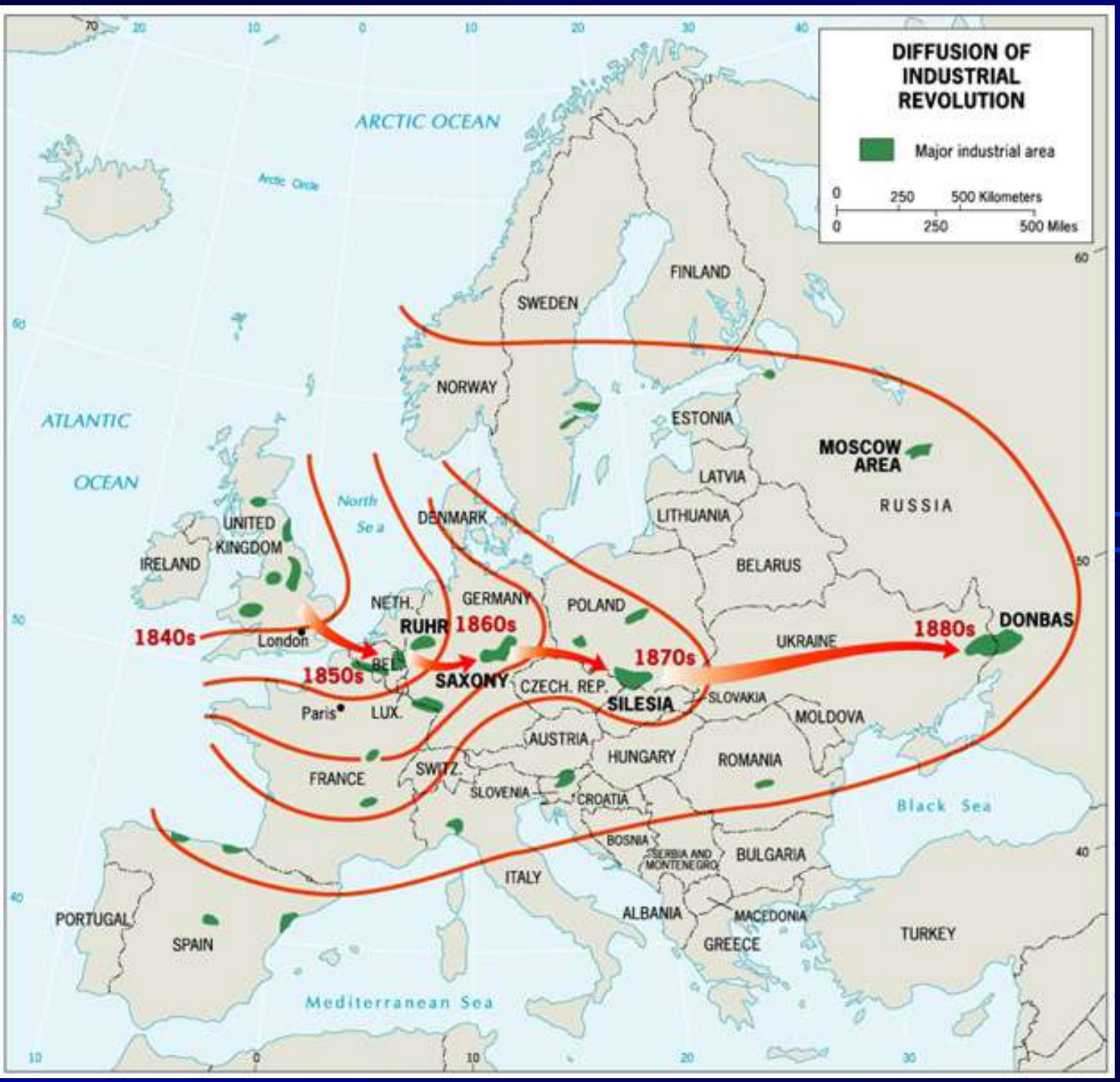
flow of capital

Later Diffusion

In late 1800s, innovations diffused to some regions without coal.

Location criteria:access to railroad

flow of capital



Diffusion of Industrial Revolution

The Paris Basin is the Industrial base of France. Rouen (pictured here) is at the head of navigation point on the Seine River.

- Diffused throughout Europe (1750) and United States.
- Generally arrived later in states, but grew at much faster rate.
- By 1860s, U.S. a major industrial nation, second only to UK

- As a result of the diffusion of the I.R. into the realm of textiles (woven fabrics), such as new machines to spin, weave, thread, and make clothing, clothing production skyrocketed.
  - In order to clean the abundant new clothes the chemical industry emerged with new chemicals and compounds.
- Due to the increased number and complexity of machines, the field of engineering was born.

- The diffusion of the principles of the I.R. was severely inhibited in Europe due to the instability of the region and continuous railroads were prevented because of war.
  - Although the I.R. spread to N. America after it did to Europe, it was adopted more quickly because of the unity of the people.
- Because the new industries required certain materials like iron, coal, flowing water, etc. the density of industries grew far more compact and concentrated around known resources

- Key inventions of the I.R. were:
  - -Steam engine 1769 James Watt
  - -Iron forge 1783 Henry Cort
  - -Coke (high-quality purified carbon made from coal) Abraham Darby
  - -Canals 1759 James Brindley
  - -THE RAILWAY more than anything, represents the I.R. because of its diffusive potential. It was not designed by an individual but by teams of people.

Key Issue 2: Where is Industry Distributed?

- Industrial regions
  - Europe
    - Emerged in late nineteenth and early twentieth centuries
  - North America
    - Industry arrived later but spread faster than in Europe
  - East Asia

- Approx ¾ of global industrial production is clustered in eastern N. America, northwestern Europe, E. Europe, and E. Asia. Less than 1% of Earth's land surface is devoted to industry.

- North America
  - -Concentrated in northeast. The region comprises only 5% of land area but 1/3 pop. and 2/3 manufacturing output.
  - -Other industrial areas in N. America are:
  - -New England- textiles originally; now skilled labor
  - -Middle Atlantic- seaports
  - -Mohawk Valley-aluminum, paper, steel
  - -Pittsburgh-Lake Eire- steel
  - -Western Great Lakes- transportation
  - -St. Lawrence Valley-Ontario Peninsula- steel, cars
- The U.S. south is dominated by right-to-work states- states that prevent employers from making employees join a union before being hired.

- Western Europe
  - -Rhine-Ruhr Valley-iron, steel, coal, most important industrial area
  - -Mid-Rhine- skilled labor
  - -U.K.- high tech industry
  - -Northern Italy- textiles, hydroelectric power from the Alps

- Eastern Europe
  - -Central Industrial District- In Russia; ¼ industrial output
  - -St. Petersburg- In Russia; ports, railways, food-processing
  - -Eastern Ukraine- coal, iron, steel
  - -Volga- In Russia; oil, natural gas
  - -Ural Mountains- In Russia; over 1,000 types of minerals
  - -Kuznetsk- In Russia; coal, iron
  - -Silesia- steel production, coal

- East Asia
  - -Japan- electronics, cars, stereos, TVs, etc.
  - -Tokyo
  - -Osaka-Kobe-Kyoto
  - -China- cheap labor, textiles
  - -Hong Kong; Yangtze River valley; and Gulf of Bo Hai

Newly Industrialized

China – major industrial growth after 1950

Industrialization in the 1960s was state-planned:

focus on:Northeast district

Shanghai and Chang district

Today, industrialization is spurred by companies that move production (not the whole company) to take advantage of Chinese labor and special economic zones (SEZs).

As China's economy continues to grow, old neighborhoods (right) are destroyed to make room for new buildings (below).

Beijing, China

Industrial Regions

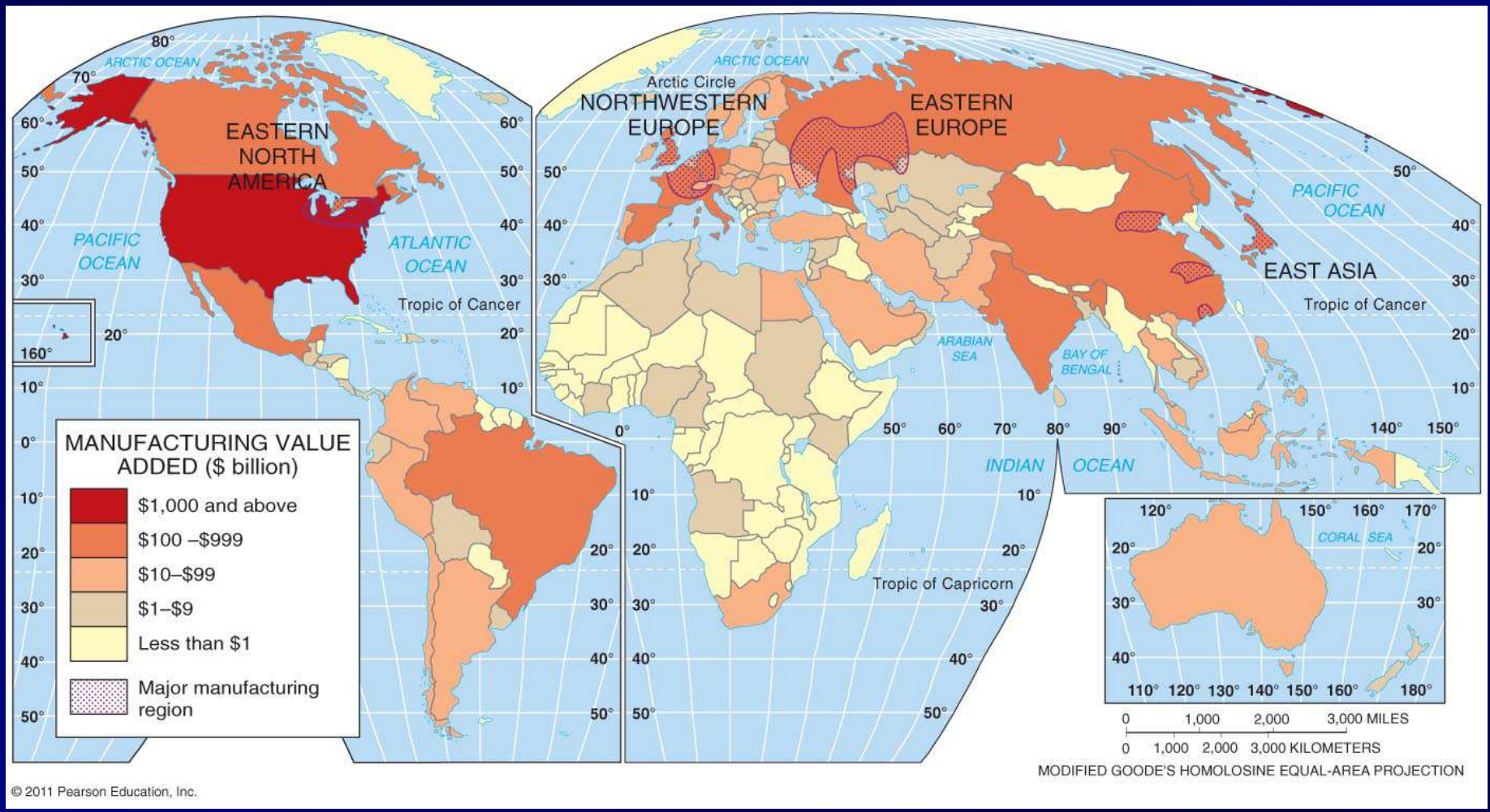


Figure 11-3

Industrial Areas in Europe

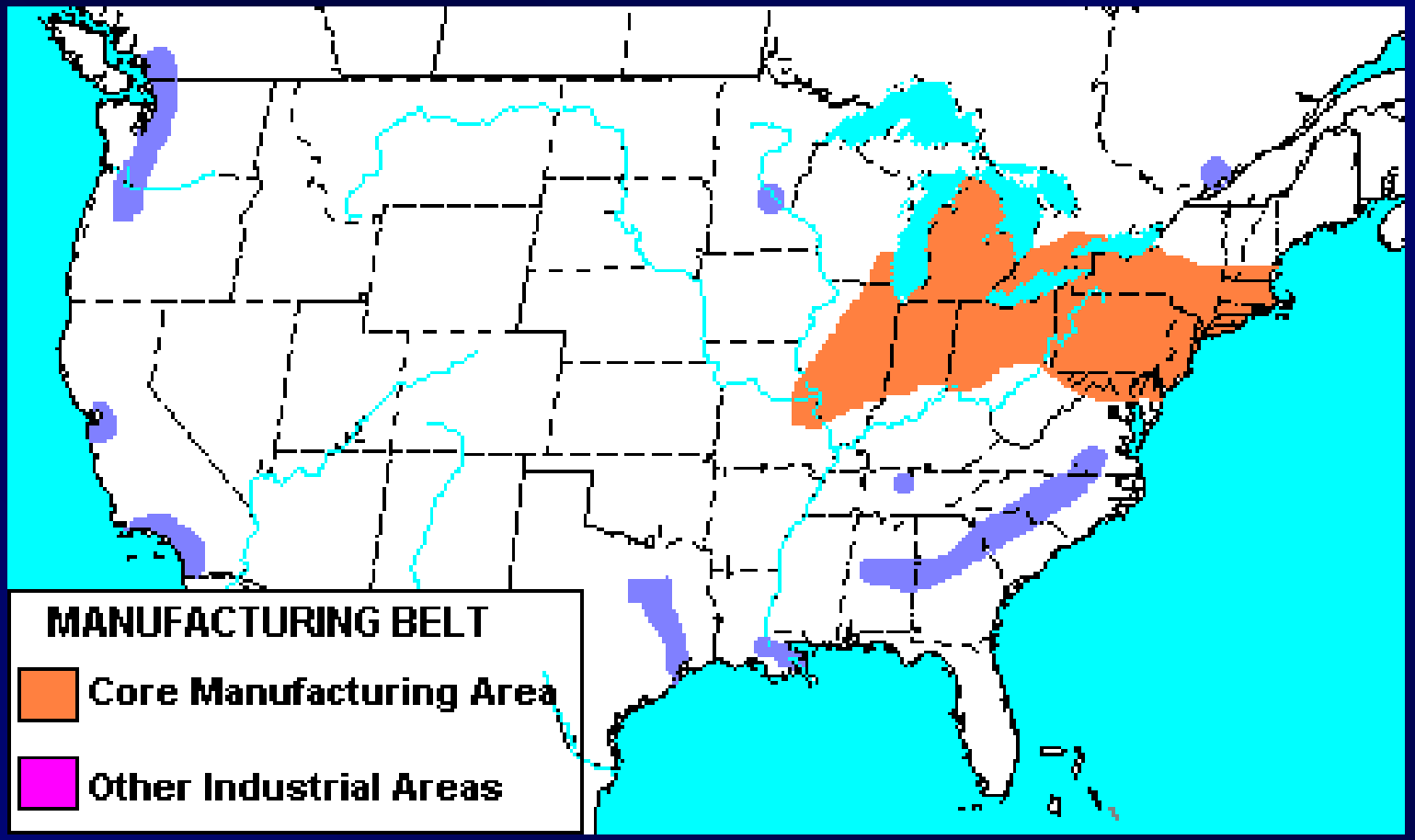
Figure 11-4

Industrial Areas in North America

Figure 11-5

Manufacturing

- Secondary Activities: Manufacturing
  - -Major manufacturing belts: NE of U.S. (Canada)
  - -Newer places in U.S?
    - -Europe (UK, Benelux countries, Germany, northern Italy…but changing-shifting eastward)
    - -Russia (Volga, Moscow, St. Petersburg, Urals)
  - -Mexico/Latin America
  - -Japan
  - *-Four Tigers (S. Korea, Hong King, Taiwan, Singapore)*
  - -China and India (SEZ in China)



- Power of place video #5

Key Issue 3: Why do industries have different distributions?

- Situation factors- involve transporting materials to and from a factory; seeks to minimize transport costs.
  - 4 Types

1. Bulk-reducing industry- an economic activity in which the final product weighs less than its inputs. These are typically concentrated near the input sources to decrease the transport cost of bulky input.
2. Bulk-gaining industry- an economic activity in which the final product weighs more or consumes more volume than its inputs. These are typically located near the market to minimize the transport costs of shipping bulky or large products.

3. Single market manufacturers also located near the market, because they sell their products primarily to one location.
4. Perishable items located near the market for obvious reasons.

- Proximity to markets
  - Bulk-gaining industries
  - Examples:
    - Fabricated metals
    - Beverage production
  - Single-market manufacturers
  - Perishable products

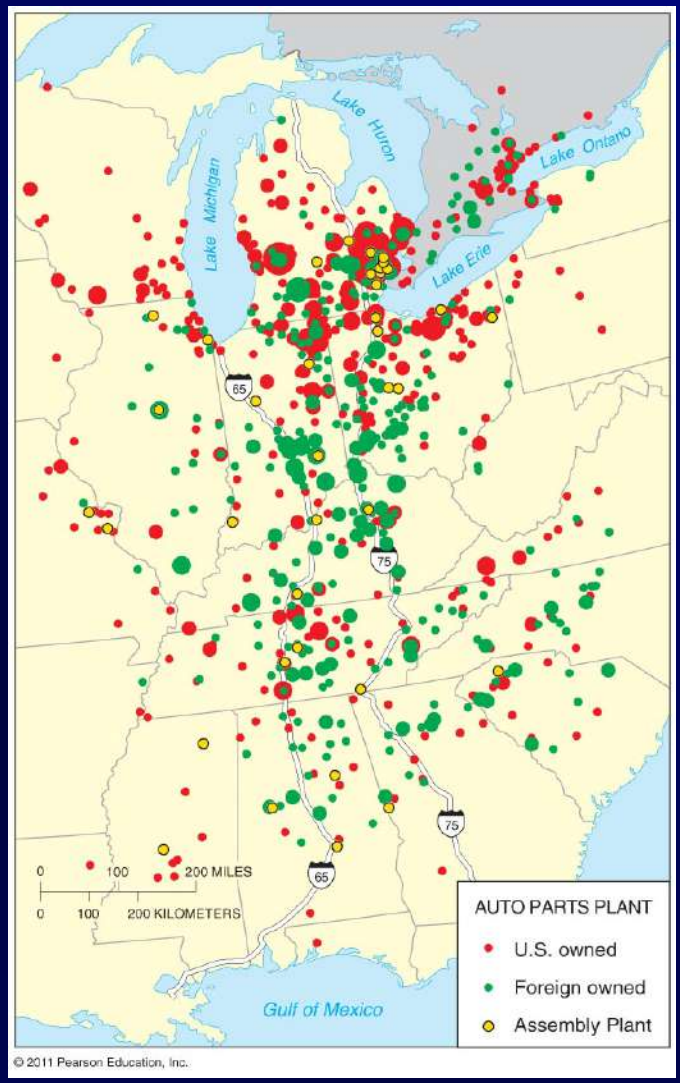


Figure 11-10

- Ship, rail, truck, or air?
  - The farther something is transported, the lower the cost per km/mile
  - Cost decreases at different rates for each of the four modes
    - Truck = most often for short-distance travel
    - Train = used to ship longer distances (1 day +)
    - Ship = slow, but very low cost per km/mile
    - Air = most expensive, but very fast

- *Site factors- land, labor, and capital are the three production factors that site encompasses.*
  1. Land- modern factories are more likely to locate in areas where land is cheap, either in the suburbs or in other countries entirely. Industries also look for land that is well powered, and has some amenities.
  2. Labor- *labor intensive industry- an industry in which labor cost is a high percentage of expense.* The unskilled industries, like textiles and clothing for instance, are more likely to search for the cheapest labor pool possible. Highly skilled labor tend to be concentrated in MDC's in cities with a high number of colleges or college graduates.
  3. Capital- industries need funds. Therefore, they will only settle where they have the ability to borrow more money. A good example is Silicon Valley in the U.S, where nearly ¼ of all U.S. capital is spent. The banks there are willing to provide loans to risky business ventures, thus explaining the large number of techno-industries concentrated there.

- Labor
  - The most important site factor
  - Labor-intensive industries
    - Examples: textiles
      - Textile and apparel spinning
      - Textile and apparel weaving
      - Textile and apparel assembly

Cotton Yarn Production

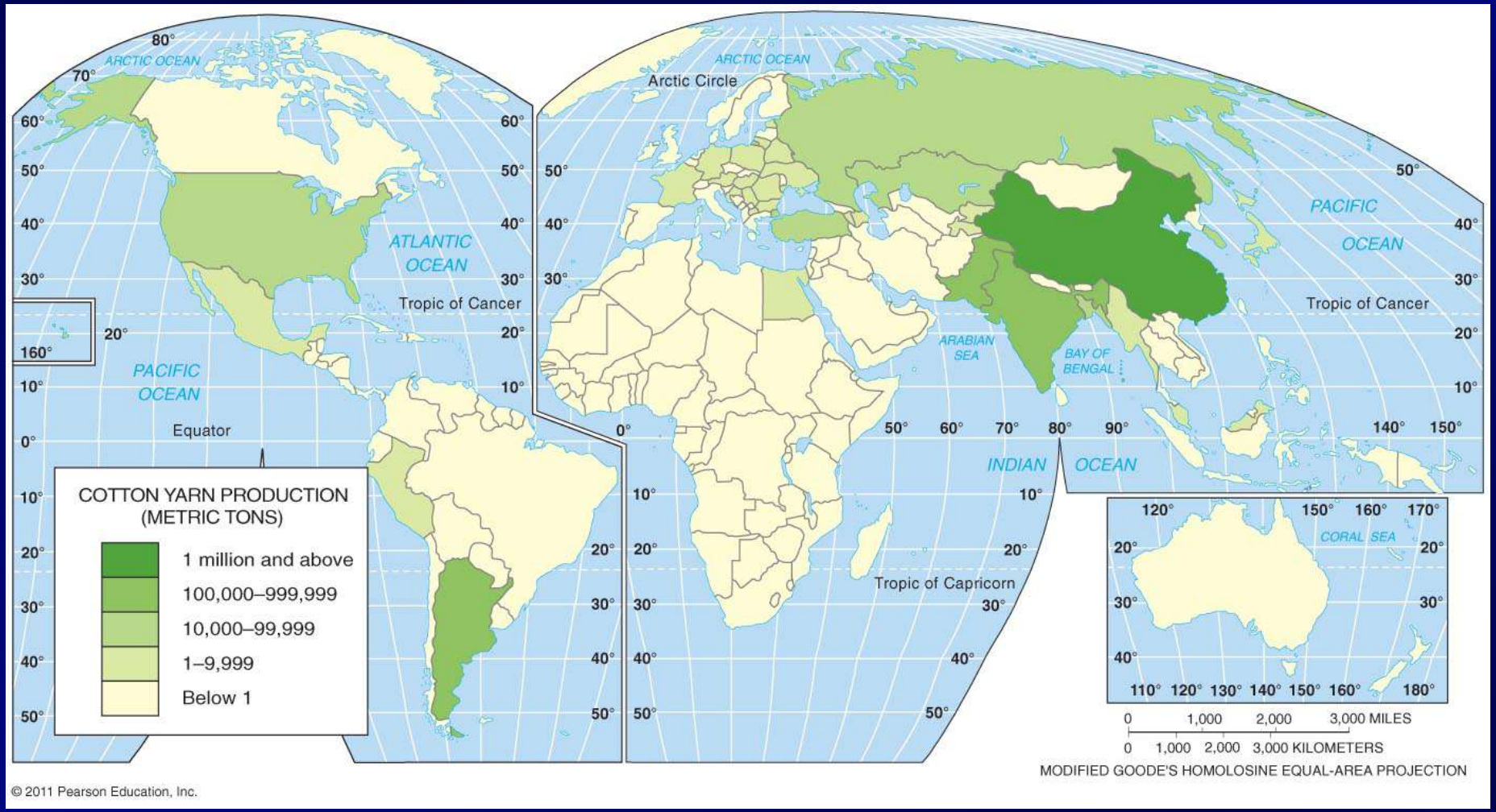


Figure 11-16

Woven Cotton Fabric Production

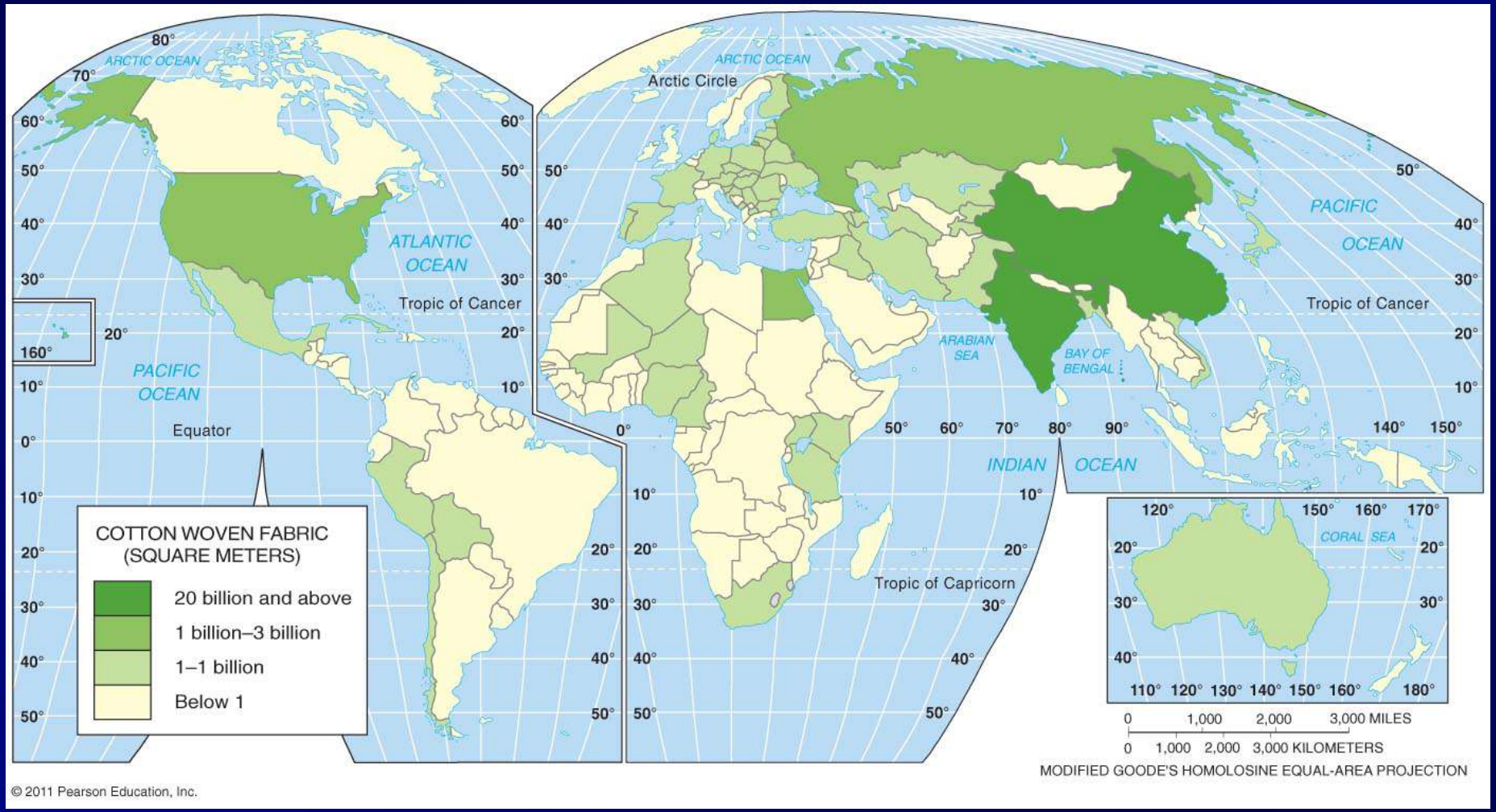


Figure 11-17

Production of Women's Blouses

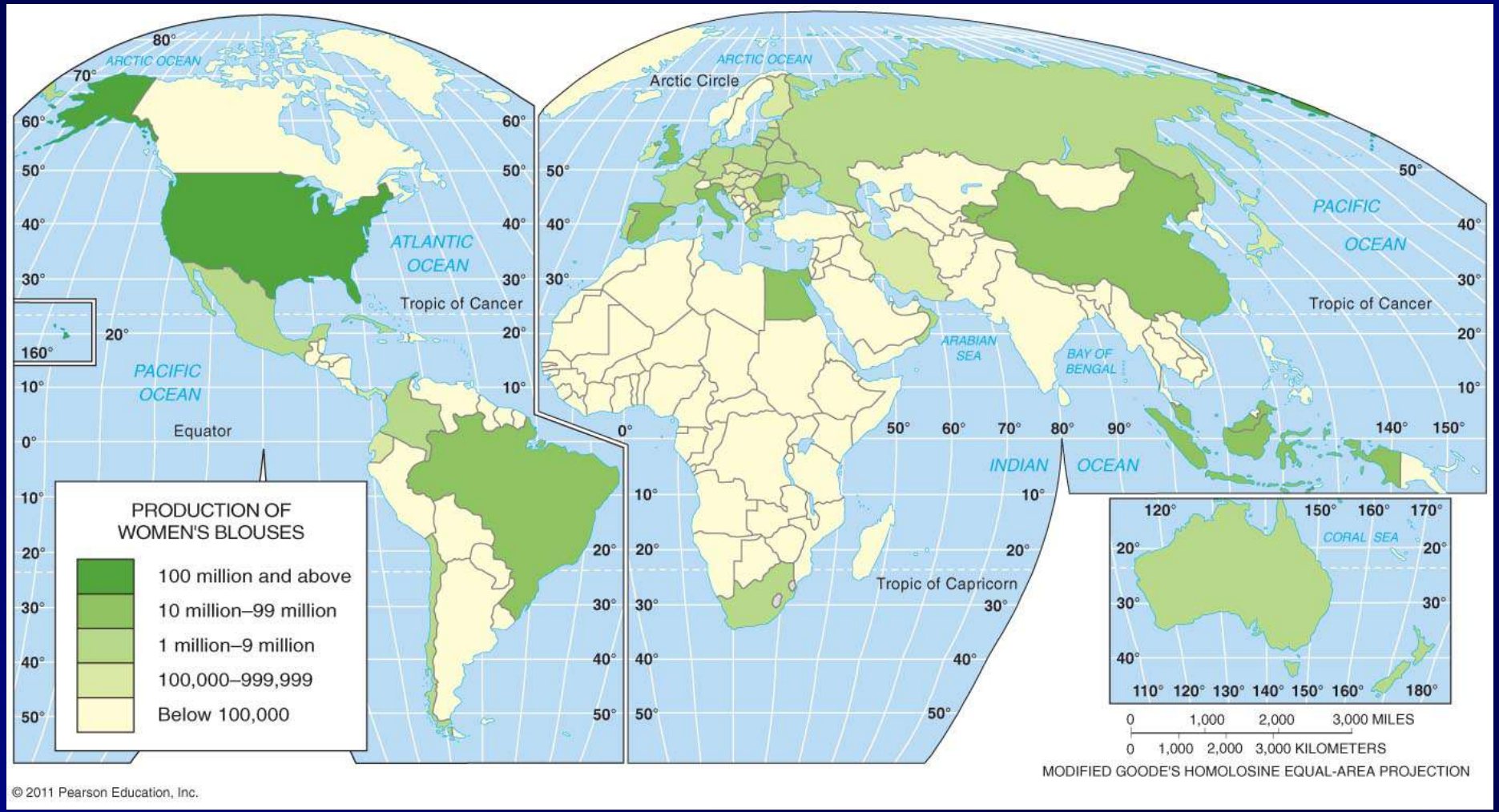


Figure 11-18

- Land
  - Rural sites
  - Environmental factors
- Capital

Figure 11-20

- Proximity to inputs
  - Bulk-reducing industries
  - Examples:
    - Copper
    - Steel

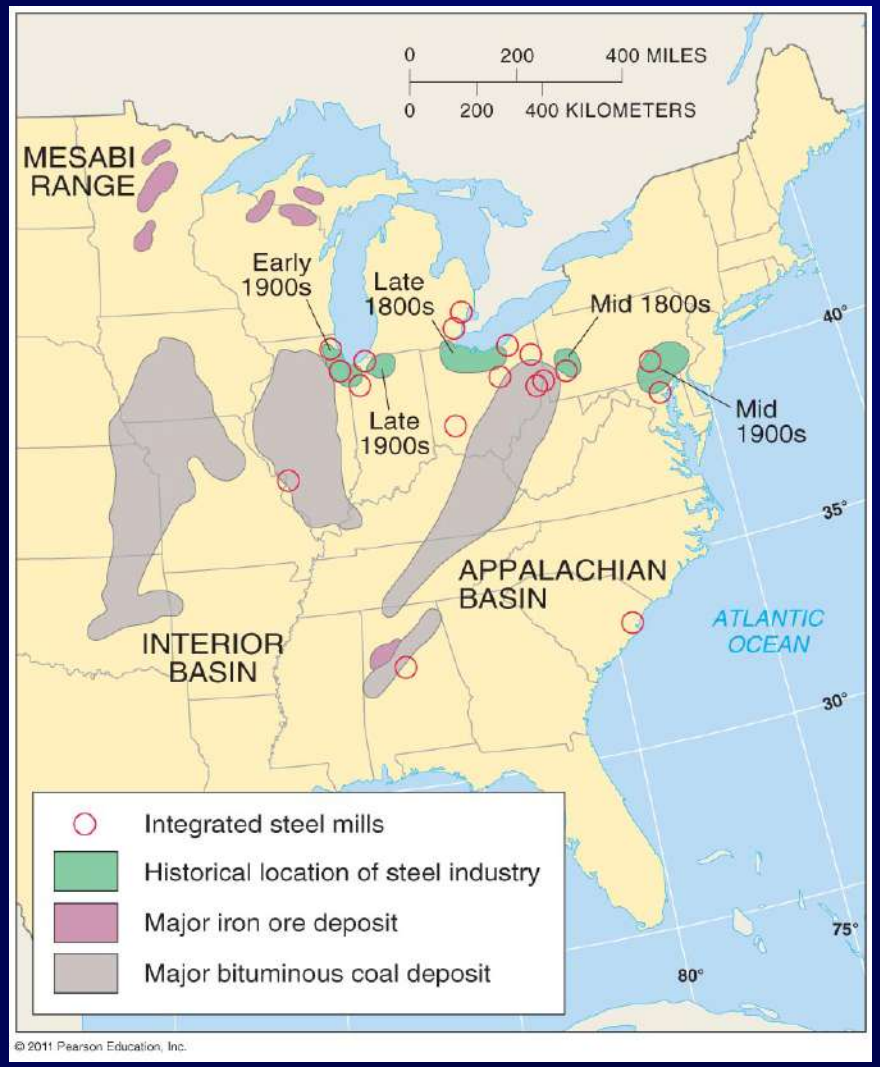


Figure 11-8

Key Issue *: Why Are Location Factors Changing?

- Attraction of new industrial regions
  - Changing industrial distribution within MDCs
    - Interregional shift within the United States
      - Right-to-work laws
      - Textile production
    - Interregional shifts in Europe
      - Convergence shifts
      - Competitive and employment regions

Changing U.S. Manufacturing

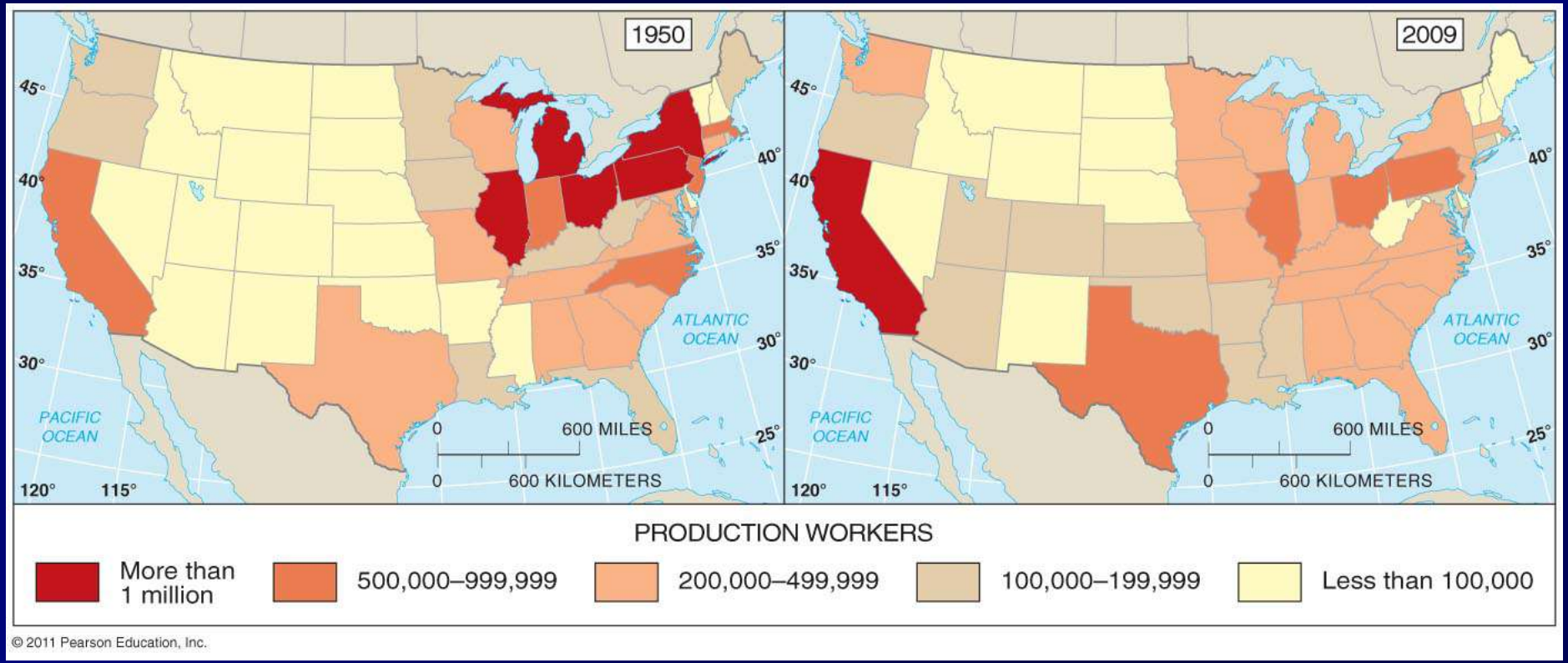


Figure 11-21

Manufacturers of Men's and Women's Socks and Hosiery

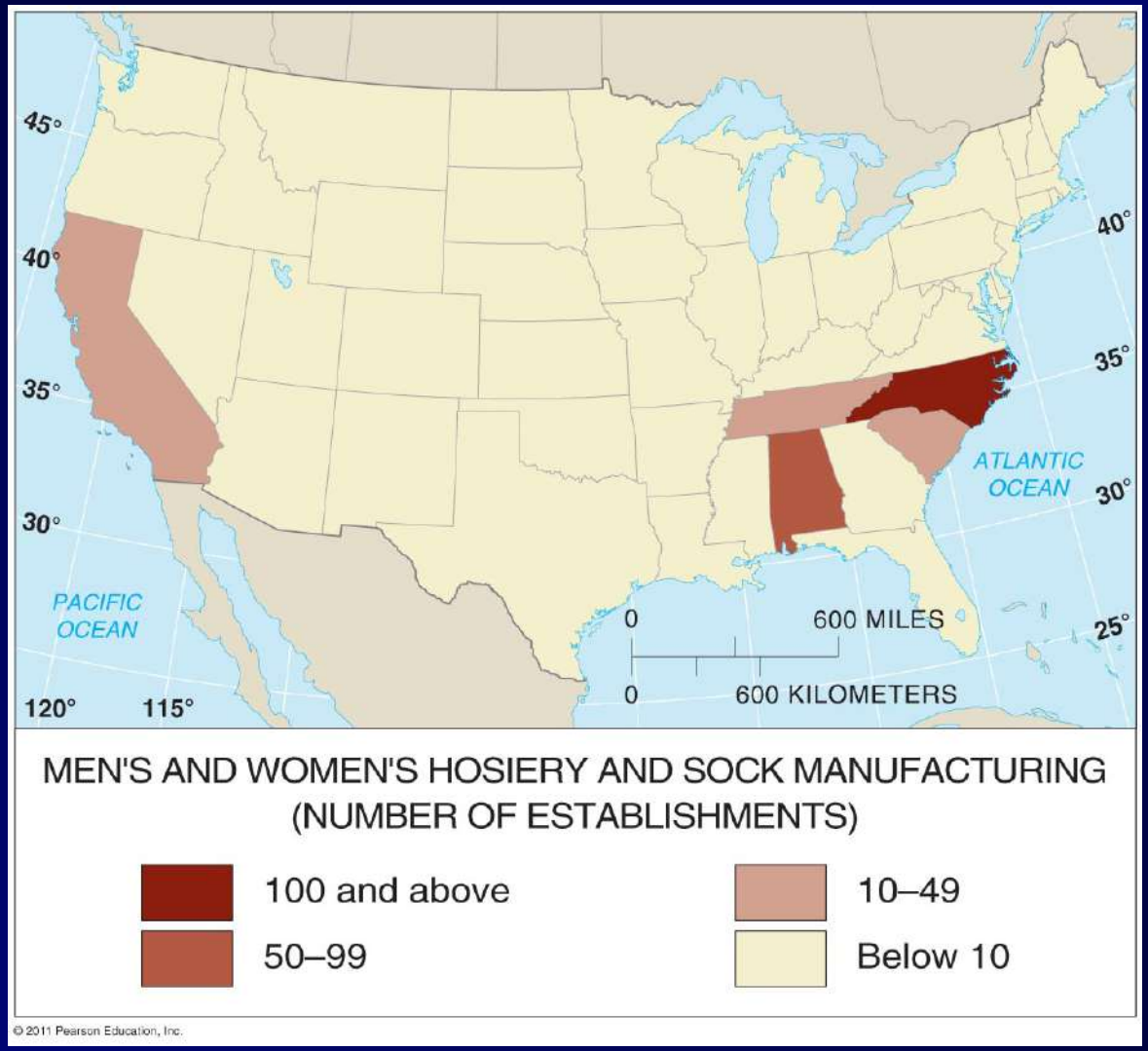


Figure 11-22

European Union Structural Funds

Figure 11-23

- Attraction of new industrial regions
  - International shifts in industry
    - East Asia
    - South Asia
    - Latin America
  - Changing distributions
  - Outsourcing

World Steel Production

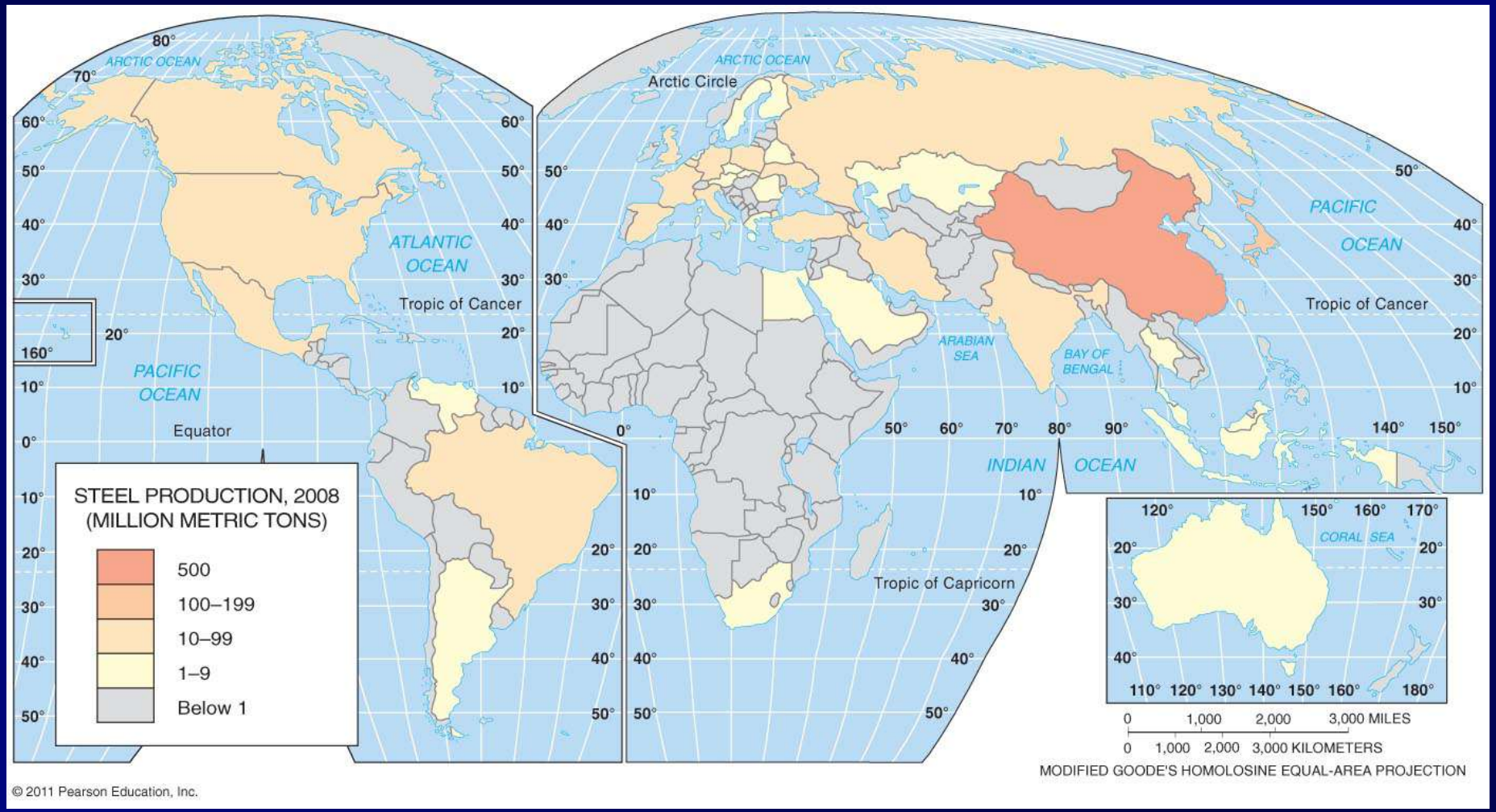


Figure 11-24

Global Production

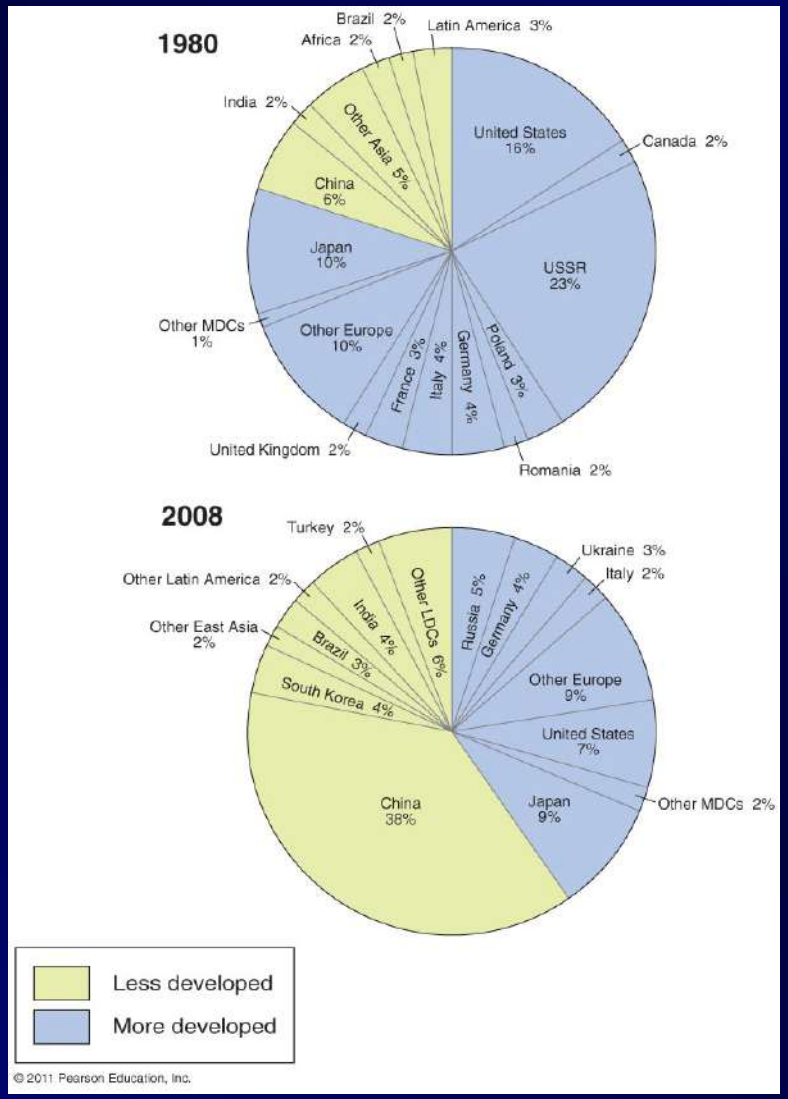


Figure 11-25

Apparel Production and Jobs in the United States

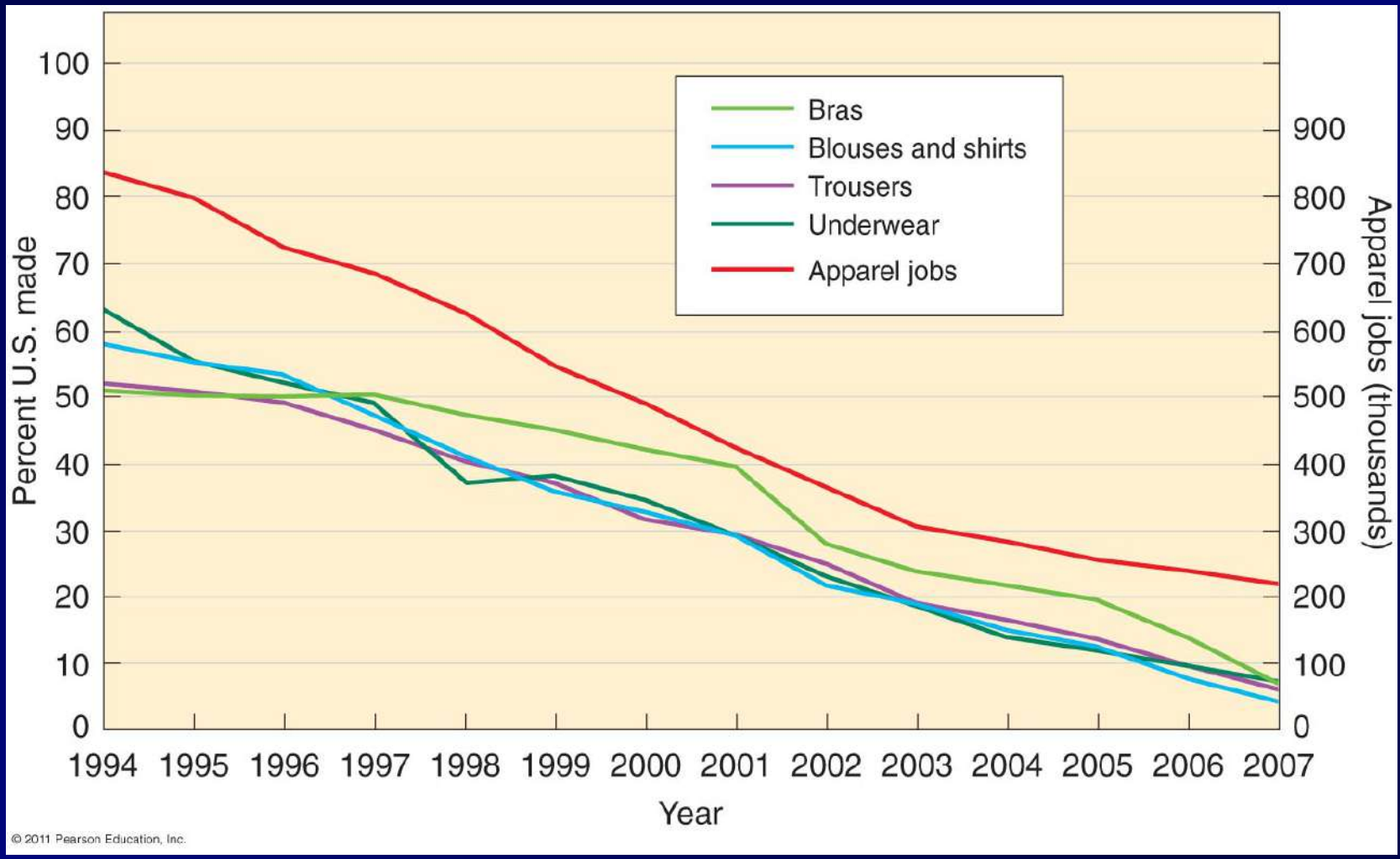


Figure 11-26

Why Are Location Factors Changing?

- Renewed attraction of traditional industrial regions
  - Proximity to skilled labor
    - *Fordist,* or mass production
    - *Post-Fordist,* or lean production
    - *Just-in-time* delivery

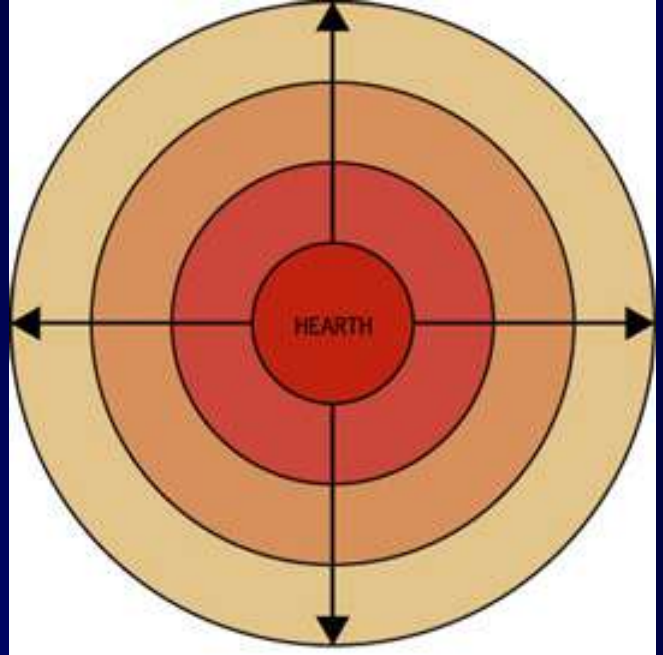
Time-Space Compression

- Just-in-time delivery

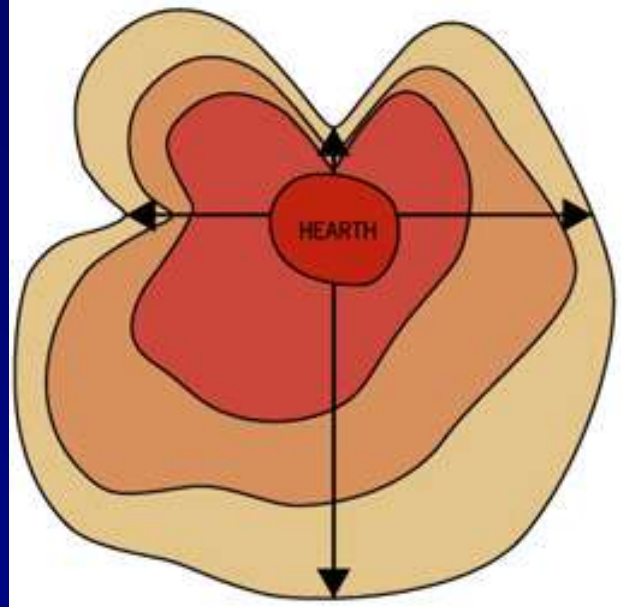
rather than keeping a large inventory of components or products, companies keep just what they need for short-term production and new parts are shipped quickly when needed.

- Global division of labor

corporations can draw from labor around the globe for different components of production.



A. DISTANCE DECAY



B. TIME-SPACE COMPRESSION

Time-Space Compression

Through improvements in transportation and communications technologies, many places in the world are more connected than ever before.

- Fordism- single line work, overproduction
- Just-in-Time- Book printing
- Outsourcing- exchange of jobs because of labor or compensation needs
- Multinational corporations- interconnected global industries- Wal-Mart, McDonalds,- corporations can produce more (GDP) then smaller countries

Location Theory

- Weber: German economic geography (early 1900s)
- Least Cost Theory—Why plants locate where they do?
  - 1. transportation
  - 2. labor
  - 3. agglomeration- cluster of like business
- He eliminated labor mobility and varying wage rates from the model

- Weber said transport costs for raw materials critical factor
- Problems? Consumption global. Labor is critical. Incentives
  - Rostow's Development Model
  - (traditional, preconditions for takeoff, takeoff, drive to maturity, age of mass consumption)

Location Models

Weber's Model

Manufacturing plants will locate where costs are the least (least cost theory)

Theory:

Least Cost Theory

Costs: Transportation, Labor, Agglomeration

Hotelling's Model

Location of an industry cannot be understood without reference to other industries of the same kind.

Theory:

Locational interdependence

Losch's Model

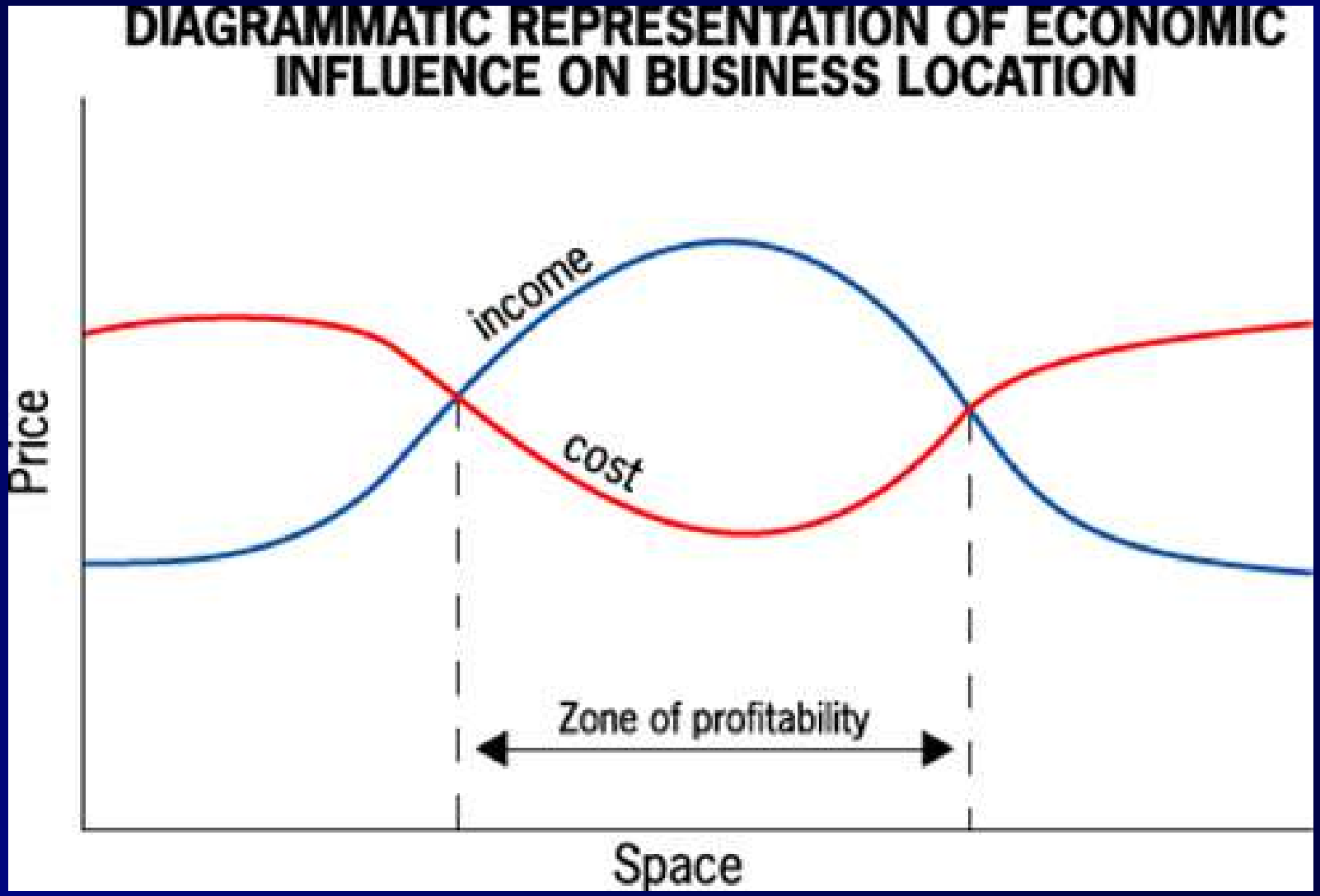
Manufacturing plants choose locations where they can maximize profit.

Theory:

Zone of Profitability

Losch's Model

Zone of Profitability



Western and Central Europe

Major Deposits of Fossil Fuels in North America

TOP STEEL PRODUCING COUNTRIES OF THE WORLD, 2003

Country	Rank	Tonnage
China	1	220.1
Japan	2	110.5
United States	3	90.4
Russia	4	62.7
South Korea	5	46.3
Germany	6	44.8
Ukraine	7	36.9
India	8	31.8
Brazil	9	31.1
Italy	10	26.7
France	11	19.8
Taiwan	12	18.8
Turkey	13	18.3
Spain	14	16.5
Canada	15	15.9
Mexico	16	15.2
United Kingdom	17	13.3
Belgium	18	11.1
South Africa	19	9.5
Poland	20	9.1

Major Manufacturing Regions of North America

Major Manufacturing Regions of Russia

Major Manufacturing Regions of East Asia

Electronic Computing Manufacturing

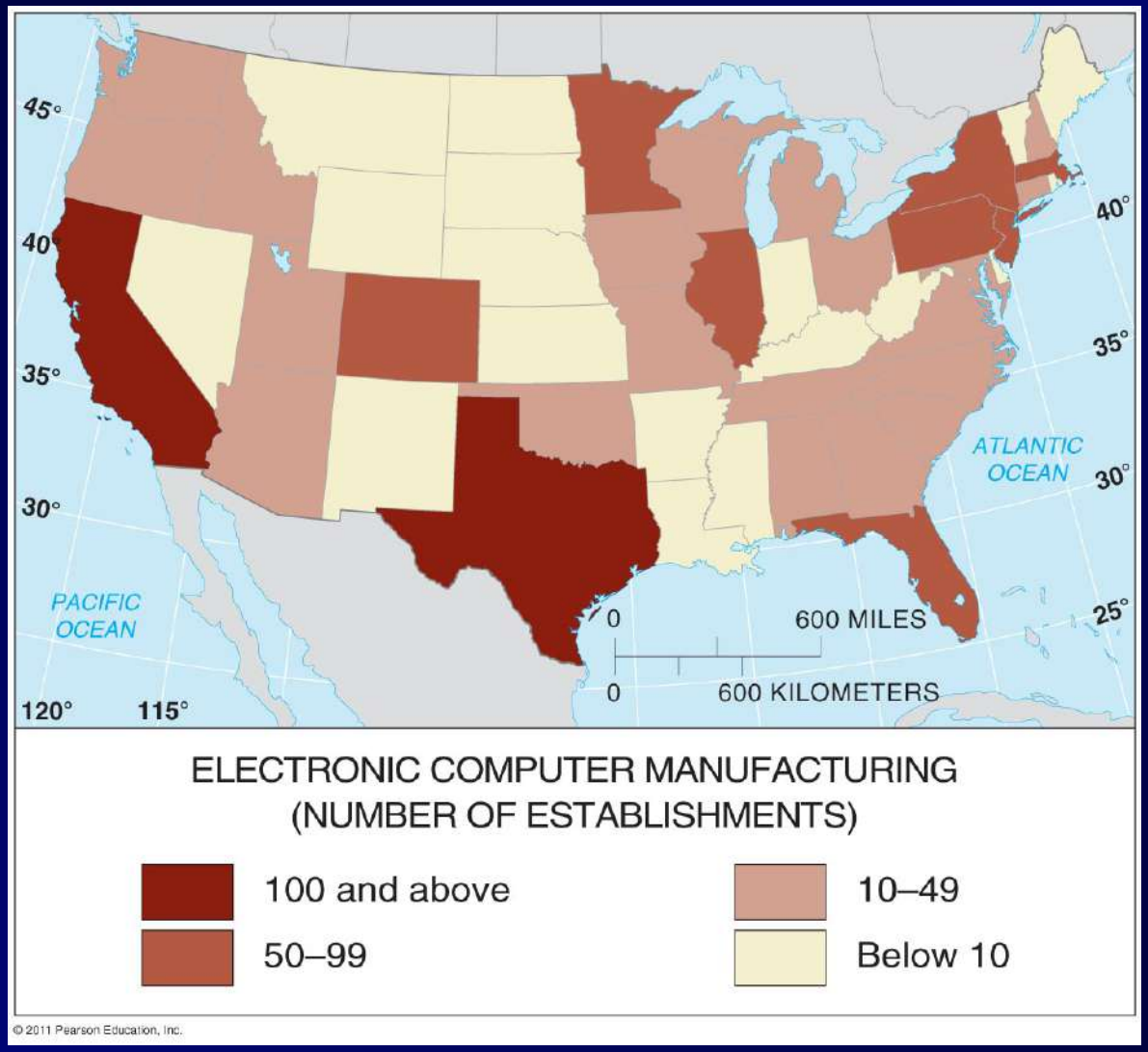


Figure 11-28

Women's and Girls' Cut and Sew Apparel Manufacturing

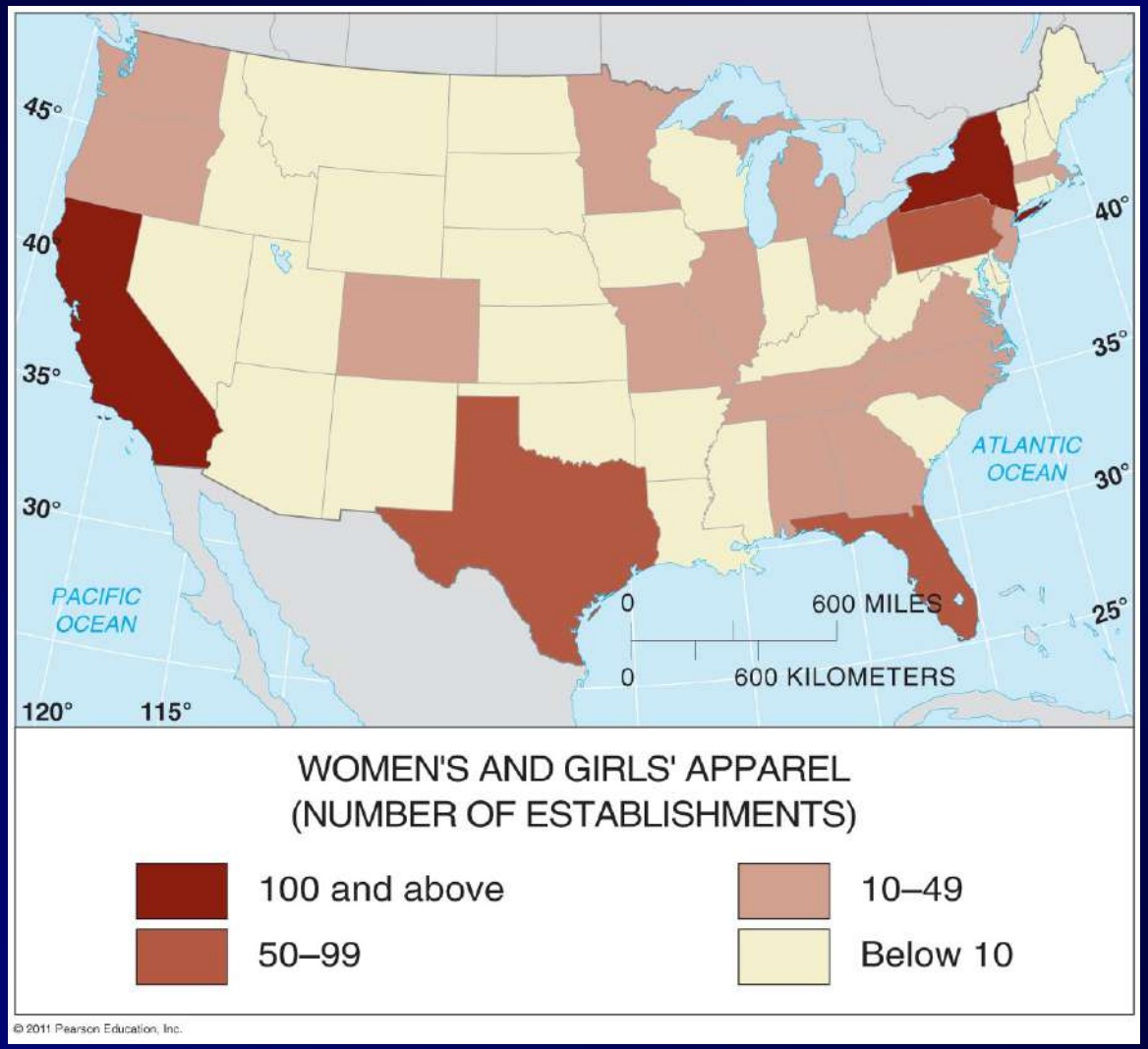
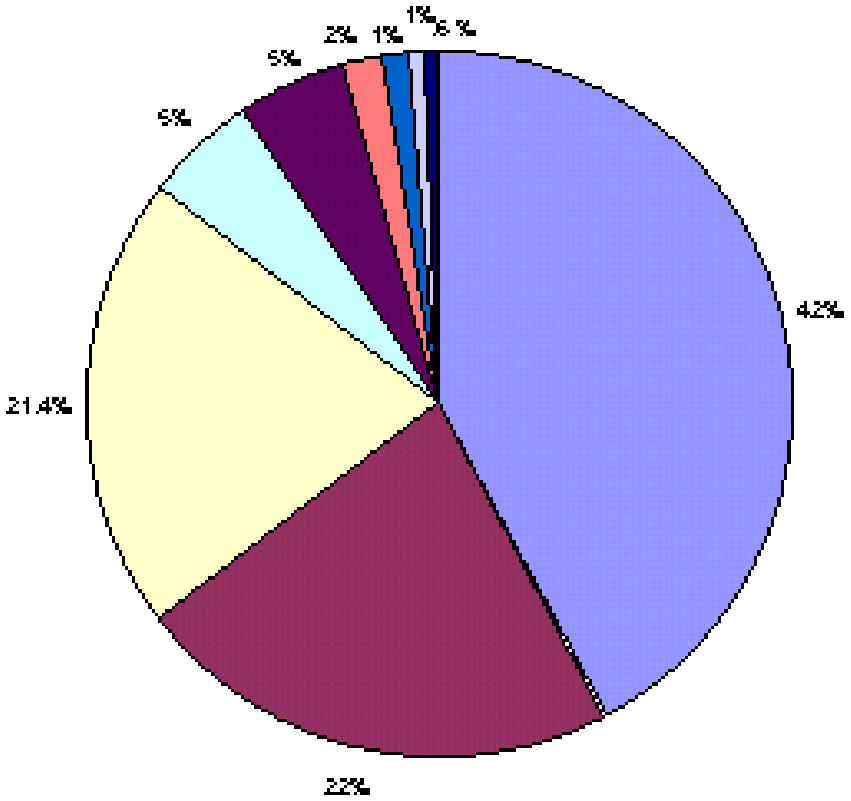


Figure 11-29

Types of Maquiladora Plants Operating in Mexico Industrial Sector Based on Number of Employees



- 42% Electronic/Electrical
- 22% Automotive
- 21.4% Textile
- 5% Wood/Metal Items
- 5% Contract Mnf./Srvcs.
- 2% Chemicals
- 1% Toys/Sporting Goods
- 1% Food Stuffs
- 0.6% Footwear/Leather Goods

- Obstacles to prime industrial location, as determined by situation and site factors, can be personal preferences of the CEO, historical locations, nostalgic attachment to a specific community, or simply the desire not to participate in the time-consuming and costly search for optimal location.

Key Issue 4: Why do industries face problems?

- Trading blocs- international economic coalitions designed to boost the economic well-being of its members. The three major blocs in the world are: the Western Hemisphere, Western Europe, and East Asia.

- On a global scale, many industries face a stagnant demand for products. Many people are simply trading in older models of an appliance, rather than purchasing one for the first time.
- The other major problem is the increased capacity of industries all over the world to produce.
  - the markets have been saturated with products.
  - The supply is plentiful, the demand is not.

- In MDC's, trading blocs stand in the way of industry. While they promote economic cooperation w/in a bloc, the three blocs seemingly do everything in their power to compete with the other blocs. Also, disparities exist w/in trading blocs.

- LDC's face the same industrial problems that the MDC's faced ½ century ago; distance from markets and inadequate infrastructure.
  - As more and more countries industrialize, fewer are left to sell goods to.
- Thus, more countries are competing for fewer markets.
- LDC's also face increasing exploitation at the hands of the MDC multinational corporations taking advantage of cheap labor.

- New international division of labor- the selective transfer of unskilled jobs to LDC's while retaining the highly skilled and managerial positions in the MDC's.

Deindustrialization –

a process by which companies move industrial jobs to other regions with cheaper labor, leaving the newly deindustrialized region to switch to a service economy and work through a period of high unemployment.

Abandoned street in Liverpool, England, where the population has decreased by one-third since deindustrialization

- Rubenstein, James- Cultural Landscape; An Introduction to Human Geography
- http://www.glendale.edu/geo/reed/cultural/cultural_lectures.htm
- http://www.quia.com/pages/mrsbellaphg.html