

Discussion Questions/Exercises

1. The table below summarizes the productivity of workers in bread and shirt production in two parts of a region:

	Output per Hour	
	East	West
Bread	1	5
Shirts	3	6

- What are the corresponding opportunity costs of producing bread and shirts in the East and the West? For which good does the East have a comparative advantage?
 - Assume that transport costs are zero and that the exchange rate is two shirts for one loaf. If a western household switches one hour from shirt production to bread production and exchanges all the additional bread for shirts, will the household be better off?
 - Suppose that the time required to execute the trade in **b** is one hour. Is trade still beneficial? At what transaction cost (time per trade) would the net gain from trade be zero?
 - Under what conditions will the differences in labor productivity cause the development of cities?
2. Consider a region that has a single trading city that developed as a result of comparative advantage in the production of a homogeneous good (shirts) and scale economies in transportation. Shirts produced by different households are perfect substitutes and communication between households is costless. Suppose a matter transmitter is introduced into the region, which can transport goods costlessly, but cannot be used to transport people. The transmitter is cheap enough that every household can purchase one at relatively low cost.
- Will the matter transmitter cause the trading city to grow, shrink, or disappear?
 - How would your answer to **a** change if shirts are not homogeneous (i.e., if shirts from different households are not perfect substitutes)?
3. Consider a country with two regions that are separated by a mountain range. Initially there are no cities in the country. Suppose that a tunnel is bored through the mountain, decreasing travel costs between the two regions. Under what conditions will the tunnel cause the development of trading cities?
4. Consider a region that has a single factory city (a city that developed as a result of scale economies in production). In the region, people walk to work and to purchase consumer goods. Suppose pump sneakers are introduced (selling at the same price as traditional shoes) that double walking speeds. Will pump sneakers cause the factory city to grow, shrink, or disappear?

5. Region F has a single factory city (a city that developed as a result of scale economies in production). Suppose that a matter transmitter is introduced into the region, which can transport goods costlessly, but cannot be used to transport people. The transmitter is cheap enough that every household can purchase one at a relatively low cost. Will the matter transmitter cause the factory city to grow, shrink, or disappear?
6. Consider a region that produces lemons and ice and consumes lemonade (made by combining lemons and ice). All resources are distributed uniformly throughout the region and all people are equally productive in producing lemons and ice. There are scale economies in the production of ice, causing the development of an ice factory and a factory city. Suppose that a small refrigerator is introduced and imported into the region, providing an alternative to the ice purchased from ice factories. Explain the effects of the refrigerator on **(a)** the market area of the factory and **(b)** the size of the city surrounding the ice factory.
7. Consider Retireland, a region where most residents are retired. Residents of the region consume a single good (food), which is imported from another region and sold in vending machines. Will there be any cities in Retireland? If so, how will they differ from cities in regions where most people work?
8. Some societies never developed any cities. Can you give an example of such a society? In what ways do you think these societies would differ from the societies that did develop cities?