

# CHAPTER 4

## TRADE: FACTOR AVAILABILITY AND FACTOR PROPORTIONS ARE KEY

### Objectives of the Chapter

The previous chapter laid the foundation for our basic model in which international trade is driven by price differentials resulting only from differences in (constant) costs of production. In the real world, however, production costs are rarely constant, and demand-side factors such as tastes may affect pre-trade price differentials. Chapter 4 extends our model of international trade to account for increasing costs and for heterogeneous tastes. Here, the production possibilities curve may be non-linear, and the pre-trade prices of goods will be determined by a country's pre-trade production point on that curve. Tastes, as represented by community indifference curves, help us understand how the pre-trade point is established.

Because international taste differentials do not seem to be the major determinant of pre-trade prices, we focus our attention once again on supply-side differences in developing the Heckscher-Ohlin model of international trade. A simple H-O model posits a world with two factors of production and two goods. Countries can be characterized as relatively abundant in one factor or another; goods can be characterized as intensively using one factor or another in production. As with all trade, we assume that a country will export the good that it produces relatively cheaply compared to the rest of the world, and will import the good that it produces relatively expensively. Using H-O, we can conclude that a country will export the good that intensively uses its relatively abundant (i.e., cheap) factor of production and will import the good that intensively uses its relatively scarce (i.e., costly) factor of production.

After studying Chapter 4, you should be able to

1. explain how increasing marginal costs affect the shape of the production possibilities curves.
2. describe how tastes can be represented by community indifference curves.
3. show how the theory of comparative advantage developed in Chapter 3 can be generalized to include:
  - a. increasing marginal costs.
  - b. differences in tastes.
  - c. differences in resource endowments.
  - d. differences in how intensively goods use factors of production.
4. use the production possibilities curves and the community indifference curves to illustrate how trade affects
  - a. the production patterns in each country.
  - b. the consumption patterns in each country.
  - c. the overall well-being in each country.

## **Important Concepts**

<b>Community indifference curve:</b>	An illustration of the different combinations of two goods that would provide the community (here, the nation) with the same level of well-being.
<b>Factor abundance (scarcity):</b>	A country is relatively abundant (scarce) in a factor of production if the ratio of the endowment of that factor to other factors in the country is higher (lower) than in the rest of the world.
<b>Factor intensity:</b>	A good is intensive in a factor of production if the value of that factor accounts for a greater share of total production cost in that good than in any other good.
<b>Heckscher-Ohlin (H-O) theory:</b>	A country will export the good that intensively uses the country's abundant (cheap) factor of production and will import the good that intensively uses its scarce (expensive) factor of production.
<b>Terms of trade:</b>	The ratio of the price received for a country's exports to the price it pays for its imports.

## **Warm-up Questions**

### **True or false? Explain.**

1. T / F Under the Heckscher-Ohlin theory, a country is considered "land abundant" if it has more acres of land than another country.
2. T / F With increasing marginal costs, countries will not necessarily specialize completely in the production of one good.
3. T / F The Heckscher-Ohlin theory assumes both countries have the same preferences for goods.
4. T / F The Heckscher-Ohlin theory assumes both countries have the same access to production technologies.
5. T / F If factor intensities do not differ between goods, the H-O theory cannot tie trade patterns so tightly to differing factor endowments between countries.

## **Multiple Choice**

1. The Heckscher-Ohlin theory indicates that
  - A. nations with much labor relative to other resources cannot have any comparative advantage in production.
  - B. a nation with a high ratio of labor to non-labor resources should minimize its participation in international trade.
  - C. a nation relatively rich in non-labor resources will gain the most from international trade.
  - D. nations will be led by international market forces to specialize in the production and export of goods that heavily use their relatively abundant factors.
  
2. For Heckscher-Ohlin, the most important cause of the differences in relative commodity prices is the difference between countries in
  - A. factor endowments.
  - B. national income.
  - C. technology.
  - D. tastes.
  
3. Country J has 1 million machines and 1 million workers, while country K has 2 million machines and 3 million workers. If computers are produced mostly by capital and beer is produced mostly by labor, the H-O model predicts that
  - A. Country K will export computers in exchange for beer.
  - B. Country J will export computers in exchange for beer.
  - C. Country J is too small to be of economic interest to Country K.
  - D. computers and beer don't mix, so trade cannot increase either country's well-being.
  
4. When production is characterized by increasing costs, trade will be beneficial only if the countries involved have
  - A. similar tastes but different production possibilities curves.
  - B. different tastes but similar production possibilities curves.
  - C. different tastes and different production possibilities curves.
  - D. any combination of tastes and production possibilities curves that yield different pre-trade price ratios in the two countries.
  
5. Smith, Ricardo, and Heckscher & Ohlin are alike in that
  - A. they believed international trade was driven by differences in autarkic prices.
  - B. they believed production occurred under constant costs.
  - C. they believed everyone could be made better off through free trade.
  - D. they spent way too much time thinking.

## **Problems**

1. Let's try an application of the Heckscher-Ohlin model to our countries of Leinster and Saxony, which produce and consume bread and telephones. You may assume that the only two factors of production are labor and land.
  - a. If Leinster has 8 million acres of land and 2 million laborers, while Saxony has 2 million acres of land and 400,000 laborers, which country is "labor abundant"? Which country is "land abundant"? Explain.
  
  - b. If labor accounts for 80 percent of the total cost of producing telephones but only 20 percent of the total cost of producing bread, which country is more likely to export telephones? Which country is more likely to export bread? Why?
  
2. Suppose that Leinster's laborers traditionally work five days a week, while Saxons usually work seven days a week. How might that difference in labor hours per week cause you to modify your answer above? What does this tell you about potential limitations in the simple H-O model?
  
3. Consider two countries that have exactly the same increasing-cost production possibilities curves. Show how a difference in the tastes of the two countries' residents can then determine the pattern of trade between the two countries.

