chapter

2

The Law of Comparative Advantage

LEARNING GOALS:

After reading this chapter, you should be able to:

- Understand the law of comparative advantage
- Understand the relationship between opportunity costs and relative commodity prices
- Explain the basis for trade and show the gains from trade under constant costs conditions

2.1 Introduction

In this chapter, we examine the development of trade theory from the seventeenth century through the first part of the twentieth century. This historical approach is useful not because we are interested in the history of economic thought as such, but because it is a convenient way of introducing the concepts and theories of international trade from the simple to the more complex and realistic.

The basic questions that we seek to answer in this chapter are:

1. What is the basis for trade and what are the gains from trade? Presumably (and as in the case of an individual), a nation will voluntarily engage in trade only if it benefits from trade. But how are gains from trade generated? How large are the gains and how are they divided among the trading nations?
2. What is the pattern of trade? That is, what commodities are traded and which commodities are exported and imported by each nation?

We begin with a brief discussion of the economic doctrines known as mercantilism that prevailed during the seventeenth and eighteenth centuries. We then go on to discuss the theory of absolute advantage, developed by Adam Smith. It remained, however, for David Ricardo, writing some 40 years after Smith, to truly explain the pattern of and the gains from trade with his law of comparative advantage. The law of comparative advantage is one of the most important laws of economics, with applicability to nations as well as to individuals and useful for exposing many serious fallacies in apparently logical reasoning.

One difficulty remained. Ricardo had based his explanation of the law of comparative advantage on the labor theory of value, which was subsequently rejected. In the first part of the twentieth century, Gottfried Haberler came to Ricardo's "rescue" by explaining the law of comparative advantage in terms of the opportunity cost theory, as reflected in production possibility frontiers, or transformation curves.

For simplicity, our discussion will initially refer to only two nations and two commodities. In the appendix to this chapter, the conclusions will be generalized to trade in more than two commodities and among more than two nations. It must also be pointed out that while comparative advantage is the cornerstone of international trade theory, trade can also be based on other reasons, such as economies of large-scale production and product differentiation. These are examined in Chapter 6. Furthermore, the comparative advantage of nations can change over time, especially as a result of technological change, as explained in Chapter 7.

2.2 The Mercantilists' Views on Trade

Economics as an organized science can be said to have originated with the publication in 1776 of *The Wealth of Nations* by Adam Smith. However, writings on international trade preceded this date in such countries as England, Spain, France, Portugal, and the Netherlands as they developed into modern national states. Specifically, during the seventeenth and eighteenth centuries a group of men (merchants, bankers, government officials, and even philosophers) wrote essays and pamphlets on international trade that advocated an economic philosophy known as mercantilism. Briefly, the mercantilists maintained that the way for a nation to become rich and powerful was to export more than it imported. The resulting export surplus would then be settled by an inflow of bullion, or precious metals, primarily gold and silver. The more gold and silver a nation had, the richer and more powerful it was. Thus, the government had to do all in its power to stimulate the nation's exports and discourage and restrict imports (particularly the import of luxury consumption goods). However, since all nations could not simultaneously have an export surplus and the amount of gold and silver was fixed at any particular point in time, one nation could gain only at the expense of other nations. The mercantilists thus preached economic nationalism, believing as they did that national interests were basically in conflict (see Case Study 2-1).

Note that the mercantilists measured the wealth of a nation by the stock of precious metals it possessed. In contrast, today we measure the wealth of a nation by its stock of human, man-made, and natural resources available for producing goods and services. The greater this stock of useful resources, the greater is the *flow* of goods and services to satisfy human wants, and the higher the standard of living in the nation.

At a more sophisticated level of analysis, there were more rational reasons for the mercantilists' desire for the accumulation of precious metals. This can be understood if it is remembered that the mercantilists were writing primarily for rulers and to enhance national power. With more gold, rulers could maintain larger and better armies and consolidate their power at home; improved armies and navies also made it possible for them to acquire more colonies. In addition, more gold meant more money (i.e., more gold coins) in circulation and greater business activity. Furthermore, by encouraging exports and restricting imports, the government would stimulate national output and employment.

CASE STUDY 2-1 Munn's Mercantilistic Views on Trade

Thomas Munn (1571–1641) was perhaps the most influential of the mercantilist writers, and his *England's Treasure by Foreign Trade* was the outstanding exposition of mercantilist thought on trade. Indeed, Adam Smith's attacks on mercantilist views on trade (see the next section) were directed primarily at Munn. Following is an excerpt from Munn's writing:

> *Although a Kingdom may be enriched by gifts received, or by purchase taken from some other Nations, yet these are things uncertain and of small consideration when they happen. The ordinary means therefore to encrease our wealth and treasure is by* Foreign Trade*, wherein we must ever observe this rule; to sell more to strangers yearly than we consume of theirs in value. For . . . that part of our stock [exports] which is not returned to us in wares [imports] must necessarily be brought home in treasure [bullion]. . . .*
>
> *We may . . . diminish our importations, if we would soberly refrain from excessive consumption of foreign wares in our diet and rayment [dress]. . . . In our exportations we must not only regard our superfluities, but also we must consider our neighbours necessities, that so . . . we may . . . gain so much of the manufacture as we can, and also endeavour to sell them dear, so far forth as the high price cause not a less vent in the quantity [of our exports]. But the superfluity of our commodities which strangers use, and may also have the same from other Nations, or may abate their vent by the use of some such like wares from other places, and with little inconvenience; we must in this case strive to sell as cheap as possible we can, rather than to lose the utterance [the sale] of such wares. . . .*

Source: Thomas Munn, *England's Treasure by Foreign Trade* (Reprinted, Oxford: Basil Blackwell, 1928). The words in brackets have been added to clarify the meaning.

In any event, mercantilists advocated strict government control of all economic activity and preached economic nationalism because they believed that a nation could gain in trade only at the expense of other nations (i.e., trade was a zero-sum game). These views are important for two reasons. First, the ideas of Adam Smith, David Ricardo, and other classical economists can best be understood if they are regarded as reactions to the mercantilists' views on trade and on the role of the government. Second, today there seems to be a resurgence of neo-mercantilism, as nations plagued by high levels of unemployment seek to restrict imports in an effort to stimulate domestic production and employment (this is examined in detail in Chapter 9). In fact, aside from England during the period 1815–1914, no Western nation has ever been completely free of mercantilist ideas (see Case Study 2-2).

CASE STUDY 2-2 Mercantilism Is Alive and Well in the Twenty-first Century

Although most nations claim to be in favor of free trade, most of them continue to impose many restrictions on international trade. Most industrial nations restrict imports of agricultural commodities, textiles, shoes, steel, and many other products in order to protect domestic employment. They also provide subsidies to some of their hi-tech industries, such as computers and telecommunications, deemed essential for the international competitiveness of the nation and its future growth. Developing countries are even more protective of domestic industries. As some forms of overt protection (such as tariffs and quotas) on some products have been reduced or eliminated over the years through

(continued)

CASE STUDY 2-2 Continued

multilateral negotiations, other less explicit types of protection (such as tax benefits and research and development subsidies) have been increased. This is evidenced by the numerous trade disputes that have arisen over time.

During the past few years, there have been disputes between the United States and the European Union (EU) on the latter's prohibition of U.S. beef exports from cattle raised with hormones; on the EU preferences for banana imports from African countries at the expense of bananas from Central American plantations (owned by American business interests); on EU subsidies to Airbus Industrie for the development of its new super-jumbo jet that takes sales away from Boeing's 747; on the tax rebates that the U.S. government was providing some exporters; and on the U.S. tariffs on imported steel. There are similarly many other trade disputes between the United States, Japan, other developed and developing countries, and among all these countries with one another. Indeed, the list of protected products is long and varied. Trade restrictions are demanded to protect domestic jobs from foreign competition and to encourage domestic high-tech industries—all classic mercantilist arguments. Mercantilism, though declining, is alive and well in the twenty-first century.

Sources: A. Krueger, "The Struggle to Convince the Free Trade Skeptics," *IMF Survey*, July 12, 2004, pp. 204–205; J. N. Bhagwati, *Free Trade Today* (Princeton, N.J.: Princeton University Press, 2002); D. A. Irwin, *Free Trade under Fire* (Princeton, N.J.: Princeton University Press, 2002); D. Salvatore, ed., *Protectionism and World Welfare* (New York: Cambridge University Press, 1993); and D. Salvatore, "The Challenges to the Liberal Trading System," *Journal of Policy Modeling,* July/August 2009, pp. 593–599.

2.3 Trade Based on Absolute Advantage: Adam Smith

Smith started with the simple truth that for two nations to trade with each other *voluntarily*, both nations must gain. If one nation gained nothing or lost, it would simply refuse to trade. But how does this *mutually beneficial* trade take place, and from where do these gains from trade come?

2.3A Absolute Advantage

According to Adam Smith, trade between two nations is based on absolute advantage. When one nation is more efficient than (or has an absolute advantage over) another in the production of one commodity but is less efficient than (or has an absolute disadvantage with respect to) the other nation in producing a second commodity, then both nations can gain by each *specializing* in the production of the commodity of its absolute advantage and exchanging part of its output with the other nation for the commodity of its absolute disadvantage. By this process, resources are utilized in the most efficient way and the output of *both* commodities will rise. This increase in the output of both commodities measures the gains from specialization in production available to be divided between the two nations through trade.

For example, because of climatic conditions, Canada is efficient in growing wheat but inefficient in growing bananas (hothouses would have to be used). On the other hand, Nicaragua is efficient in growing bananas but inefficient in growing wheat. Thus, Canada has an absolute advantage over Nicaragua in the cultivation of wheat but an absolute disadvantage in the cultivation of bananas. The opposite is true for Nicaragua.

Under these circumstances, both nations would benefit if each specialized in the production of the commodity of its absolute advantage and then traded with the other nation. Canada would specialize in the production of wheat (i.e., produce more than needed domestically) and exchange some of it for (surplus) bananas grown in Nicaragua. As a result, both more wheat and more bananas would be grown and consumed, and both Canada and Nicaragua would gain.

In this respect, a nation behaves no differently from an individual who does not attempt to produce all the commodities she or he needs. Rather, the individual produces only that commodity that he or she can produce most efficiently and then exchanges part of the output for the other commodities she or he needs or wants. This way, total output and the welfare of all individuals are maximized.

Thus, while the mercantilists believed that one nation could gain only at the expense of another nation and advocated strict government control of all economic activity and trade, Adam Smith (and the other classical economists who followed him) believed that all nations would gain from free trade and strongly advocated a policy of laissez-faire (i.e., as little government interference with the economic system as possible). Free trade would cause world resources to be utilized most efficiently and would maximize world welfare. There were to be only a few exceptions to this policy of laissez-faire and free trade. One of these was the protection of industries important for national defense.

In view of this belief, it seems paradoxical that today most nations impose many restrictions on the free flow of international trade. Trade restrictions are invariably rationalized in terms of national welfare. In reality, trade restrictions are advocated by the few industries and their workers who are hurt by imports. As such, trade restrictions benefit the few at the expense of the many (who will have to pay higher prices for competing domestic goods). These issues will be examined in detail in Part Two.

Also to be noted is that Smith's theory served the interest of factory owners (who were able to pay lower wages because of cheaper food imports) and harmed landowners in England (because food became less scarce due to cheaper imports), and it shows the link between social pressures and the development of new economic theories to support them.

2.3B Illustration of Absolute Advantage

We will now look at a *numerical* example of absolute advantage that will serve to establish a frame of reference for presenting the more challenging theory of comparative advantage in the next section.

Table 2.1 shows that one hour of labor time produces six bushels of wheat in the United States but only one in the United Kingdom. On the other hand, one hour of labor time produces five yards of cloth in the United Kingdom but only four in the United States. Thus, the United States is more efficient than, or has an absolute advantage over, the United

TABLE 2.1. Absolute Advantage

	U.S.	U.K.
Wheat (bushels/hour)	6	1
Cloth (yards/hour)	4	5

Kingdom in the production of wheat, whereas the United Kingdom is more efficient than, or has an absolute advantage over, the United States in the production of cloth. With trade, the United States would specialize in the production of wheat and exchange part of it for British cloth. The opposite is true for the United Kingdom.

If the United States exchanges six bushels of wheat (6W) for six yards of British cloth (6C), the United States gains 2C or saves ½ hour or 30 minutes of labor time (since the United States can only exchange 6W for 4C domestically). Similarly, the 6W that the United Kingdom receives from the United States is equivalent to or would require six hours of labor time to produce in the United Kingdom. These same six hours can produce 30C in the United Kingdom (6 hours times 5 yards of cloth per hour). By being able to exchange 6C (requiring a little over one hour to produce in the United Kingdom) for 6W with the United States, the United Kingdom gains 24C, or saves almost five labor - hours.

The fact that the United Kingdom gains much more than the United States is not important at this time. What is important is that *both* nations can gain from specialization in production and trade. (We will see in Section 2.6B how the rate at which commodities are exchanged for one another is determined, and we will also examine the closely related question of how the gains from trade are divided among the trading nations.)

Absolute advantage, however, can explain only a very small part of world trade today, such as some of the trade between developed and developing countries. Most of world trade, especially trade among developed countries, could not be explained by absolute advantage. It remained for David Ricardo, with the law of comparative advantage, to truly explain the basis for and the gains from trade. Indeed, absolute advantage will be seen to be only a special case of the more general theory of comparative advantage.

2.4 Trade Based on Comparative Advantage: David Ricardo

In 1817, Ricardo published his *Principles of Political Economy and Taxation*, in which he presented the law of comparative advantage. This is one of the most important and still unchallenged laws of economics, with many practical applications. In this section, we will first define the law of comparative advantage; then we will restate it with a simple numerical example; finally, we will prove it by demonstrating that both nations can indeed gain by each specializing in the production and exportation of the commodity of its comparative advantage. In Section 2.6A, we will prove the law *graphically*.

2.4A The Law of Comparative Advantage

According to the law of comparative advantage, even if one nation is less efficient than (has an absolute disadvantage with respect to) the other nation in the production of *both* commodities, there is still a basis for mutually beneficial trade. The first nation should specialize in the production and export of the commodity in which its absolute disadvantage is smaller (this is the commodity of its *comparative advantage*) and import the commodity in which its absolute disadvantage is greater (this is the commodity of its *comparative disadvantage*).