

## **4.1. Modern trade theory**

### **4.1.1. The Mercantilists**

During the period 1500-1800, a group of writers appeared in Europe who were concerned with the process of nation building. According to the mercantilists, the central question was how a nation could regulate its domestic and international affairs so as to promote its own interests.

The solution lay in a strong foreign-trade sector. If a country could achieve a favorable trade balance (a surplus of exports over imports), it would realize net payments received from the rest of the world in the form of gold and silver. Such revenues would contribute to increased spending and a rise in domestic output and employment. To promote a favorable trade balance, the mercantilists advocated government regulation of trade. Tariffs, quotas, and other commercial policies were proposed by the mercantilists to minimize imports in order to protect a nation's trade position.

By the eighteenth century, the economic policies of the mercantilists were under strong attack. According to David Hume's price-specie-flow doctrine, a favorable trade balance was possible only in the short run, for over time it would automatically be eliminated. To illustrate, suppose England were to achieve a trade surplus that resulted in an inflow of gold and silver. Because these precious metals would constitute part of England's money supply, their inflow would increase the amount of money in circulation. This would lead to a rise in England's price level, relative to that of its trading partners. English residents would therefore be encouraged to purchase foreign-produced goods, while England's exports would decline. As a result, the country's trade surplus would eventually be eliminated. The price specie-flow mechanism thus showed that mercantilist policies could provide at best only short-term economic advantages.

The mercantilists were also attacked for their static view of the world economy. To the mercantilists, the world's wealth was fixed. This meant that one nation's gains from trade came at the expense of its trading partners; not all nations could simultaneously enjoy the benefits of international trade. This view was challenged with the publication in 1776 of Adam Smith's *The Wealth of Nations*. According to Smith (1723-1790), the world's wealth is not a fixed quantity. International trade permits nations to take advantage of specialization and the division of labor, which increase the general level of productivity within a country and thus increase world output (wealth). Smith's dynamic view of trade suggested that both trading partners could simultaneously enjoy higher levels of production and consumption with trade. Smith's trade theory is further explained in the next section.

### 4.1.2. Absolute Advantage

A nation will import those goods in which it has an absolute cost disadvantage; it will export those goods in which it has an absolute cost advantage.

	OUTPUT PER LABOR	
	Wine	Cloth
<b>Kenya</b>	5 bottles	20 yards
<b>Ethiopia</b>	15 bottles	10 yards

An arithmetic example helps illustrate the principle of absolute advantage. Referring to Table 2.1, suppose workers in the Kenya can produce 5 bottles of wine or 20 yards of cloth in an hour's time, while workers in the Ethiopia can produce 15 bottles of wine or 10 yards of cloth in an hour's time. Clearly, the Kenya has an absolute advantage in cloth production; its cloth workers' productivity (output per worker hour) is higher than that of the Ethiopia, which leads to lower costs (less labor required to produce a yard of cloth). In like manner, the Ethiopia has an

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absolute advantage in wine production.

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According to Smith, each nation benefits by specializing in the production of the good that it produces at a lower cost than the other nation, while importing the good that it produces at a higher cost. Because the world uses its resources more efficiently as the result of specializing, an increase in world output occurs, which is distributed to the two nations through trade. All nations can benefit from trade, according to Smith.

#### **4.1.3. Comparative Advantage**

Like Smith, Ricardo emphasized the supply side of the market. The immediate basis for trade stemmed from cost differences between nations, which were underlaid by their natural and acquired advantages. Unlike Smith, who emphasized the importance of absolute cost differences among nations, Ricardo emphasized comparative (relative) cost differences. Ricardo's trade theory thus became known as the principle of comparative advantage. Indeed, countries often develop comparative advantages.

According to Ricardo's comparative-advantage principle, even if a nation has an absolute cost disadvantage in the production of both goods, a basis for mutually beneficial trade may still exist. The less efficient nation should specialize in and export the good in which it is relatively less inefficient (where its absolute disadvantage is least). The more efficient nation should specialize in and export that good in which it is relatively more efficient (where its absolute advantage is greatest).

To demonstrate the principle of comparative advantage, Ricardo formulated a simplified model based on the following assumptions:

1. The world consists of two nations, each using a single input to produce two commodities.
2. In each nation, labor is the only input (the labor theory of value). Each nation has a fixed endowment of labor, and labor is fully employed and homogeneous.

3. Labor can move a nation but is nations.
4. The level of technology is fixed for both nations. Different nations may use different technologies, but all firms within each nation utilize a common production method for each commodity.
5. Costs do not vary with the level of production and are proportional to the amount of labor used.
6. Perfect competition prevails in all markets. Because no single producer or consumer is large enough to influence the market, all are price takers. Product quality does not vary among nations, implying that all units of each product are identical. There is free entry to and exit from an industry, and the price of each product equals the product's marginal cost of production.
7. Free trade occurs between nations; that is, no government barriers to trade exist.
8. Transportation costs are zero. Consumers will thus be indifferent between domestically produced and imported versions of a product if the domestic prices of the two products are identical.
9. Firms make production decisions in an attempt to maximize profits, whereas consumers maximize satisfaction through their consumption decisions.
10. There is no money illusion; that is, when consumers make their consumption choices and firms make their production decisions, they take into account the behavior of all prices.
11. Trade is balanced (exports must pay for imports), thus ruling out flows of money between nations.

<b>OUTPUT PER LABOR</b>		
	Wine	Cloth
<b>Kenya</b>	40 bottles	40 yards
<b>Ethiopia</b>	20	10

This Table illustrates Ricardo's comparative-advantage principle when one nation has an absolute advantage in the production of both goods. Assume that in one hour's time, Kenya workers can produce 40 bottles of wine or 40 yards of cloth, while Ethiopia workers can produce 20 bottles of wine or

bottles    yards

10 yards of cloth. According to Smith's principle of absolute advantage, there is no basis for mutually beneficial specialization and trade, because the Kenyan workers are more efficient in the production of both goods. Comparative advantage, however, recognizes that Kenyan workers are four times as efficient in cloth production ( $40/10 = 4$ ) but only twice as efficient in wine production ( $40/20 = 2$ ). They thus has a greater absolute advantage in cloth than in wine, while the Ethiopia has a smaller absolute disadvantage in wine than in cloth. Each nation specializes in and exports that good in which it has a comparative advantage-the United States in cloth, the United Kingdom in wine. The output gains from specialization will be distributed to the two nations through the process of trade. Like Smith, Ricardo asserted that both nations can gain from trade.

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Simply put, Ricardo's principle of comparative advantage maintains that international trade is solely due to international differences in the productivity of labor. The basic prediction of Ricardo's principle is that countries will tend to export those goods in which their labor productivity is relatively high.

It is possible for a nation not to have an absolute advantage in anything; but it is not possible for one nation to have a comparative advantage in everything and the other nation to have a comparative advantage in nothing. That's because comparative advantage depends on relative costs. As we have seen, a nation having an absolute disadvantage in all goods would find it advantageous to specialize in the production of the good in which its absolute disadvantage

is least.

Ricardo's law of comparative advantage suggested that specialization and trade can lead to gains for both nations. His theory, however, depended on the restrictive assumption of the labor theory of value, in which labor was assumed to be the only factor input. In practice, however, labor is only one of several factor inputs.

Recognizing the shortcomings of the labor theory of value, modern trade theory provides a more generalized theory of comparative advantage. It explains the theory using a **production possibilities schedule**, also called a transformation schedule. This schedule shows various alternative combinations of two goods that a nation can produce when all of its factor inputs (land, labor, capital, entrepreneurship) are used in their most efficient manner. The production possibilities schedule thus illustrates the maximum output possibilities of a nation. Note that we are no longer assuming labor to be the only factor input, as Ricardo did.

This section illustrates the principle of comparative advantage under constant opportunity costs. Although the constant-cost case may be of limited relevance to the real world, it serves as a useful pedagogical tool for analyzing international trade. The discussion focuses on two questions. First, what are the basis for trade and the direction of trade? Second, what are the potential gains from trade, for a single nation and for the world as a whole?

There are two reasons for constant costs. First, the factors of production are perfect substitutes for each other. Second, all units of a given factor are of the same quality. As a country transfers resources from the production of wheat into the production of autos, or vice versa, the country will not have to resort to resources that are less well suited for the production of the good. Therefore, the country must sacrifice exactly the same amount of wheat for each additional auto produced, regardless of how many autos it is already producing.

### **Production Gains from Specialization**

The law of comparative advantage asserts that with trade each country will find it favorable to specialize in the production of the good of its comparative advantage and will trade part of this for the good of its comparative disadvantage. Taking advantage of specialization can result in production gains for both countries.

Gains trade in refers to net benefits to countries from voluntary trading with each other. It is commonly described as resulting from:

- specialization in production from division of labor, economies of scale, scope, and agglomeration and relative availability of factors of resources in types of output by farms, businesses, location and economics
- a resulting increase in total output possibilities.
- trade through markets from sale of one type of output for other, more highly valued goods.

Market incentives, such as reflected in prices of outputs and inputs, are theorized to attract factors of production, including labor, into activities according to comparative advantage, that is, for which they each have a low opportunity cost. The factor owners then use their increased income from such specialization to buy more-valued goods of which they would otherwise be high-cost producers, hence their gains from trade. The concept may be applied to an entire economy for the alternatives of no trade or trade. A measure of total gains from trade is the sum of consumer surplus and producer profits or, more roughly, the increased output from specialization in production with resulting trade. Gains from trade may also refer to net benefits to a country from lowering barriers to trade such as tariffs on imports.

### **Consumption Gains from Trade**

But with specialization and trade, the different nations can achieve post trade consumption points outside their domestic production possibilities schedules; that is, they can thus consume more wheat and more autos than they could consume in the absence of trade. Thus, trade can result in consumption gains for both countries.

The set of post trade consumption points that a nation can achieve is determined by the rate

at which its export product is traded for the other country's export product. This rate is known as the terms of trade. The terms of trade defines the relative prices at which two products are traded in the marketplace.

Under constant-cost conditions, the slope of the production possibilities schedule defines the domestic rate of transformation (domestic terms of trade), which represents the relative prices at which two commodities can be exchanged at home. For a country to consume at some point outside its production possibilities schedule, it must be able to exchange its export good internationally at a term of trade more favorable than the domestic terms of trade.

### **Distributing the Gains from Trade**

A shortcoming of Ricardo's principle of comparative advantage was its inability to determine the actual terms of trade. The best description that Ricardo could provide was only the outer limits within which the terms of trade would fall. This is because the Ricardian theory relied solely on domestic cost ratios (supply conditions) in explaining trade patterns; it ignored the role of demand.

### **Equilibrium Terms of Trade**

As noted, Ricardo did not explain how the actual terms of trade would be determined in international trade. This gap was filled by another classical economist, John Stuart Mill (1806-1873). Mill's theory is known as the theory of reciprocal demand. It asserts that within the outer limits of the terms of trade, the actual terms of trade is determined by the relative strength of each country's demand for the other country's product. Simply put, production costs determine the outer limits to the terms of trade, while reciprocal demand determines what the actual terms of trade will be within these limits.

The reciprocal-demand theory best applies when both nations are of equal economic size, so that

the demand of each nation has a noticeable effect on market price. If two nations are of unequal economic size, however, it is possible that the relative demand strength of the smaller nation will be dwarfed by that of the larger nation. In this case, the domestic exchange ratio of the larger nation will prevail. Assuming the absence of monopoly elements working in the markets, the small nation can export as much of the commodity as it desires, enjoying large gains from trade.

If two nations of approximately the same size and with similar taste patterns participate in international trade, the gains from trade will be shared about equally between them. However, if one nation is significantly larger than the other, the larger nation attains fewer gains from trade while the smaller nation attains most of the gains from trade. This situation is characterized as the importance of being unimportant. What's more, when nations are very dissimilar in size, there is a strong possibility that the larger nation will continue to produce its comparative-disadvantage good because the smaller nation is unable to supply all of the world's demand for this product.

An improvement in a nation's terms of trade requires that the prices of its exports rise relative to the prices of its imports over the given time period. A smaller quantity of export goods sold abroad is required to obtain a given quantity of imports. Conversely, deterioration in a nation's terms of trade is due to a rise in its import prices relative to its export prices over a time period. The purchase of a given quantity of imports would require the sacrifice of a greater quantity of exports.

We have learned that international trade tends to bring about a more efficient use of an economy's resources, which leads to higher output and income. Over time, increased income tends to result in more saving and, thus, more investment in equipment and manufacturing plants. This additional investment generally results in a higher rate of economic growth. Moreover, opening an economy to trade may lead to imported investment goods, such as machinery, which fosters higher productivity and economic growth. In a roundabout manner, the gains from international trade grow larger over time. Empirical evidence has shown that countries that are more open to international trade tend to grow faster than closed economies. Free trade also increases the possibility that a firm importing capital goods will be able to locate a supplier who will provide a good that more nearly meets its specifications. The better the match, the larger is the increase in the firm's productivity,

which promotes economic growth.

Economies of large-scale production represent another dynamic gain from trade. International trade allows small and moderately sized countries to establish and operate many plants of efficient size, which would be impossible if production were limited to the domestic market.

### **Comparative advantage under many products**

In our discussion so far, we have used trading models in which only two goods are produced and consumed and in which trade is confined to two countries. This simplified approach has permitted us to analyze many essential points about comparative advantage and trade. But the real world of international trade involves more than two products and two countries; each country produces thousands of products and trades with many countries. To move in the direction of realism, it is necessary to understand how comparative advantage functions in a world of many products and many countries. As we will see, the conclusions of comparative advantage hold when more realistic situations are encountered.

When a large number of goods is produced by two countries, operation of comparative advantage requires that the goods be ranked by the degree of comparative cost. Each country exports the product(s) in which it has the greatest comparative advantage. Conversely, each country imports the product(s) in which it has greatest comparative disadvantage.