

The debates, the costs, the benefits, and the dilemmas of international trade have in many ways not changed significantly from the time when Marco Polo crossed the barren wastelands of Eurasia to the time of the expansion of U.S. and Canadian firms across the Rio Grande into Mexico under the North American Free Trade Agreement. At the heart of the issue is what the gains—and the risks—are to the firm and the country as a result of a seller from one country servicing the needs of a buyer in a different country. If a Spanish firm wants to sell its product to the enormous market of mainland China, whether it produces at home and ships the product from Cadiz to Shanghai (international trade) or actually builds a factory in Shanghai (international investment), the goal is still the same: to sell a product for profit in the foreign market.

This chapter provides a directed path through centuries of thought on why and how trade and investment across borders occurs. Although theories and theorists come and go with time, a few basic questions have dominated this intellectual adventure:

- Why do countries trade?
- Do countries trade or do firms trade?
- Do the elements that give rise to the competitiveness of a firm, an industry, or a country as a whole, arise from some inherent endowment of the country itself, or do they change with time and circumstance?
- Once identified, can these sources of competitiveness be manipulated or managed by firms or governments to the benefit of the traders?

International trade is expected to improve the productivity of industry and the welfare of consumers. Let us learn how and why we still seek the exotic silks of the Far East and the telecommunication-linked call centers of Manila.



THE AGE OF MERCANTILISM

1. *To understand the traditional arguments of how and why international trade improves the welfare of all countries*

autarky Self-sufficiency: a country that is not participating in international trade.

mercantilism Political and economic policy in the seventeenth and early eighteenth centuries aimed at increasing a nation's wealth and power by encouraging the export of goods in return for gold.

The evolution of trade into the form we see today reflects three events: the collapse of feudal society, the emergence of the mercantilist philosophy, and the life cycle of the colonial systems of the European nation-states. Feudal society was a state of **autarky**, a society that did not trade because all of its needs were met internally. The feudal estate was self-sufficient, although hardly “sufficient” in more modern terms, given the limits of providing entirely for oneself. Needs literally were only those of food and shelter, and all available human labor was devoted to the task of fulfilling those basic needs. As merchants began meeting in the marketplace, as travelers began exchanging goods from faraway places at the water's edge, the attractiveness of trade became evident.

In the centuries leading up to the Industrial Revolution, international commerce was largely conducted under the authority of governments. The goals of trade were, therefore, the goals of governments. As early as 1500, the benefits of trade were clearly established in Europe, as nation-states expanded their influence across the globe in the creation of colonial systems. To maintain and expand their control over these colonial possessions, the European nations needed fleets, armies, food, and all other resources the nations could muster. They needed wealth. Trade was therefore conducted to fill the governments' treasuries, at minimum expense to themselves but to the detriment of their captive trade partners. Although colonialism normally is associated with the exploitation of those captive societies, it went hand in hand with the evolving exchange of goods among the European countries themselves: **mercantilism**. The Focus on Politics: The British East India Company, details this global expansion.

FOCUS
ON
POLITICS

The British East India Company

Granted an English Royal Charter by the Queen in 1600, the East India Company was one of the first joint stock companies in the world expressly created to pursue international trade. The company, although competing head to head with both Dutch and Portuguese trading companies in the East Indies, ended up dominating much of the European trade with both India (and the Indian sub-continent) and China.

The East India Company's reign of power and influence lasted nearly 200 years. It was the beneficiary of a multitude of special rights and privileges, eventually resulting in near-monopoly power in the trade of specific commodities and spices. But no right or privilege could possibly surpass the invitation and rights granted the company and its emissaries from the British government by the Mughal Emperor Nuruddin Salim Jahangir of Surat in what is India today:

Upon which assurance of your royal love I have given my general command to all the kingdoms and ports of my

dominions to receive all the merchants of the English nation as the subjects of my friend; that in what place soever they choose to live, they may have free liberty without any restraint; and at what port soever they shall arrive, that neither Portugal nor any other shall dare to molest their quiet; and in what city soever they shall have residence, I have commanded all my governors and captains to give them freedom answerable to their own desires; to sell, buy, and to transport into their country at their pleasure.

For confirmation of our love and friendship, I desire your Majesty to command your merchants to bring in their ships of all sorts of rarities and rich goods fit for my palace; and that you be pleased to send me your royal letters by every opportunity, that I may rejoice in your health and prosperous affairs; that our friendship may be interchanged and eternal. Your Majesty is learned and quick-sighted as a prophet, and can conceive so much by few words that I need write no more.

Sources: James Harvey Robinson, ed., *Readings in European History*, 2 Vols. (Boston: Ginn and Co., 1904–1906), Vol. II: From the Opening of the Protestant Revolt to the Present Day, pp. 333–335.

Mercantilism mixed exchange through trade with accumulation of wealth. Since government controlled the patterns of commerce, it identified strength with the accumulation of **specie** (gold and silver) and maintained a general policy of exports dominating imports. Trade across borders—exports—was considered preferable to domestic trade because exports would earn gold. Import duties, tariffs, subsidization of exports, and outright restriction on the importation of many goods were used to maximize the gains from exports over the costs of imports. Laws were passed making it illegal to take gold or silver out of the country, even if such specie was needed to purchase imports to produce their own goods for sale. This was one-way trade, the trade of greed and power.

The demise of mercantilism was inevitable given class structure and the distribution of society's product. As the Industrial Revolution introduced the benefits of mass production, lowering prices and increasing the supplies of goods to all, the exploitation of colonies and trading partners came to an end. However, governments still exercise considerable power and influence on the conduct of trade.

specie Gold and silver.

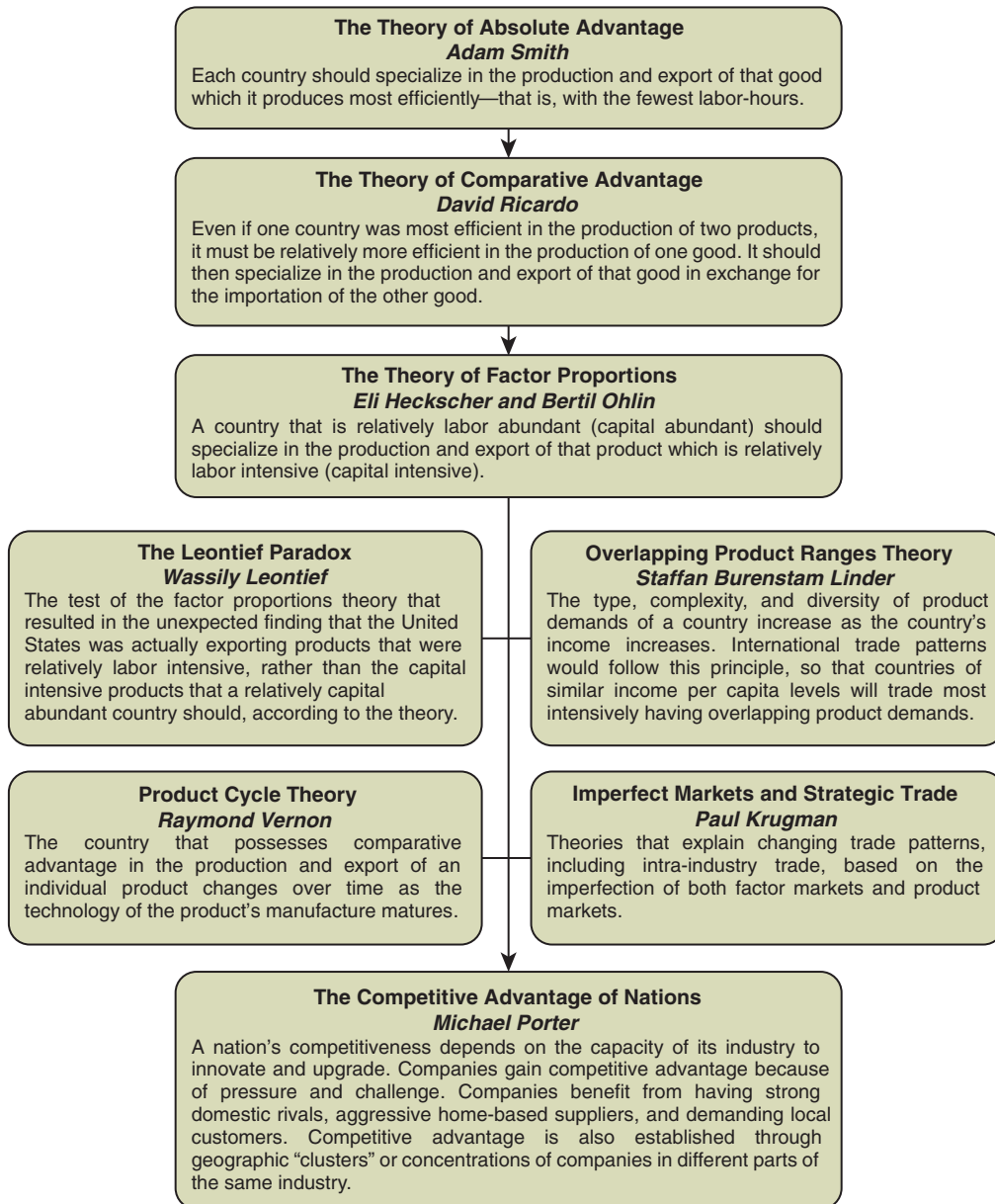


CLASSICAL TRADE THEORY

The question of why countries trade has proven difficult to answer. Since the second half of the eighteenth century, academicians have tried to understand not only the motivations and benefits of international trade, but also why some countries grow faster and wealthier than others through trade. Figure 3.1 provides an overview of the evolutionary path of trade theory since the fall of mercantilism. Although somewhat simplified, it shows the line of development of the major theories put forward over the past two centuries. It also serves as an early indication of the path of modern theory: the shifting focus from the country to the firm, from cost of production to the market as a whole, and from the perfect to the imperfect.

2. To review the history and compare the implications of trade theory from the original work of Adam Smith to the contemporary theories of Michael Porter

Figure 3.1 The Evolution of Trade Theory



THE THEORY OF ABSOLUTE ADVANTAGE

Generally considered the father of economics, Adam Smith published *The Wealth of Nations* in 1776 in London. In this book, Smith attempted to explain the process by which markets and production actually operate in society. Smith's two main areas of contribution, *absolute advantage* and the *division of labor* were fundamental to trade theory.

Production, the creation of a product for exchange, always requires the use of society's primary element of value: human labor. Smith noted that some countries, owing to the skills of their workers or the quality of their natural resources, could produce the same products as others with fewer labor-hours. He termed this efficiency **absolute advantage**.

absolute advantage The ability to produce a good or service more efficiently than it can be produced elsewhere.

Adam Smith observed the production processes of the early stages of the Industrial Revolution in England and recognized the fundamental changes that were occurring in production. In previous states of society, a worker performed all stages of a production process, with resulting output that was little more than sufficient for the worker's own needs. The factories of the industrializing world were, however, separating the production process into distinct stages, in which each stage would be performed exclusively by one individual, the **division of labor**. This specialization increased the production of workers and industries. Smith's pin factory analogy has long been considered the recognition of one of the most significant principles of the industrial age.

To take an example, therefore, from a very trifling manufacture; but one in which the division of labour has been very often taken notice of, the trade of the pin maker; a workman not educated to this business . . . could scarce, perhaps, with his utmost industry, make one pin in a day, and certainly could not make twenty. But in a way in which this business is now carried on, not only the whole work is a peculiar trade, but it is divided into a number of branches, of which the greater part are likewise peculiar trades. One man draws out the wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head: to make the head requires two or three distinct operations; to put it on is a peculiar business . . . I have seen a small manufactory of this kind where ten men only were employed, and where some of them consequently performed two or three distinct operations. But though they were very poor, and therefore but indifferently accommodated with the necessary machine, they could, when they exerted themselves, make among them about twelve pounds of pins in a day. There are in a pound upwards of four thousand pins of a middling size.¹

Adam Smith then extended his division of labor in the production process to a division of labor and specialized product across countries. Each country would specialize in a product for which it was uniquely suited. More would be produced for less. Thus, by each country specializing in products for which it possessed absolute advantage, countries could produce more in total and exchange products—trade—for goods that were cheaper in price than those produced at home.

THE THEORY OF COMPARATIVE ADVANTAGE

Although Smith's work was instrumental in the development of economic theories about trade and production, it did not answer some fundamental questions about trade. First, Smith's trade relied on a country possessing absolute advantage in production, but did not explain what gave rise to the production advantages. Second, if a country did not possess absolute advantage in any product, could it (or would it) trade?

David Ricardo, in his 1819 work entitled *On the Principles of Political Economy and Taxation*, sought to take the basic ideas set down by Smith a few steps further. Ricardo noted that even if a country possessed absolute advantage in the production of two products, it still must be relatively more efficient than the other country in one good's production than the other. Ricardo termed this the **comparative advantage**. Each country would then possess comparative advantage in the production of one of the two products, and both countries would then benefit by specializing completely in one product and trading for the other.

A NUMERICAL EXAMPLE OF CLASSICAL TRADE

To fully understand the theories of absolute advantage and comparative advantage, consider the following example. Two countries, France and England, produce only two products, wheat and cloth (or beer and pizza, guns and butter, and so forth). The relative efficiency of each country in the production of the two products is measured

division of labor The premise of modern industrial production where each stage in the production of a good is performed by one individual separately, rather than one individual being responsible for the entire production of the good.

comparative advantage The ability to produce a good or service more cheaply, relative to other goods and services, than is possible in other countries.

Table 3.1 Absolute Advantage and Comparative Advantage*

Country	Wheat	Cloth
England	2	4
France	4	2

- England has absolute advantage in the production of wheat. It requires fewer labor-hours (2 being less than 4) for England to produce one unit of wheat.
- France has absolute advantage in the production of cloth. It requires fewer labor-hours (2 being less than 4) for France to produce one unit of cloth.
- England has comparative advantage in the production of wheat. If England produces one unit of wheat, it is forgoing the production of 2/4 (0.50) of a unit of cloth. If France produces one unit of wheat, it is forgoing the production of 4/2 (2.00) of a unit of cloth. England therefore has the lower opportunity cost of producing wheat.
- France has comparative advantage in the production of cloth. If England produces one unit of cloth, it is forgoing the production of 4/2 (2.00) of a unit of wheat. If France produces one unit of cloth, it is forgoing the production of 2/4 (0.50) of a unit of wheat. France therefore has the lower opportunity cost of producing cloth.

*Labor-hours per unit of output.

by comparing the number of labor-hours needed to produce one unit of each product. Table 3.1 provides an efficiency comparison of the two countries.

England is obviously more efficient in the production of wheat. Whereas it takes France four labor-hours to produce one unit of wheat, it takes England only two hours to produce the same unit of wheat. France takes twice as many labor-hours to produce the same output. England has absolute advantage in the production of wheat. France needs two labor-hours to produce a unit of cloth that it takes England four labor-hours to produce. England therefore requires two more labor-hours than France to produce the same unit of cloth. France has absolute advantage in the production of cloth. The two countries are exactly opposite in relative efficiency of production.

David Ricardo took the logic of absolute advantages in production one step further to explain how countries could exploit their own advantages and gain from international trade. Comparative advantage, according to Ricardo, was based on what was given up or traded off in producing one product instead of the other. In this numerical example, England needs only two-fourths as many labor-hours to produce a unit of wheat as France, while France needs only two-fourths as many labor-hours to produce a unit of cloth. England therefore has comparative advantage in the production of wheat, while France has comparative advantage in the production of cloth. A country cannot possess comparative advantage in the production of both products, so each country has an economic role to play in international trade.

NATIONAL PRODUCTION POSSIBILITIES

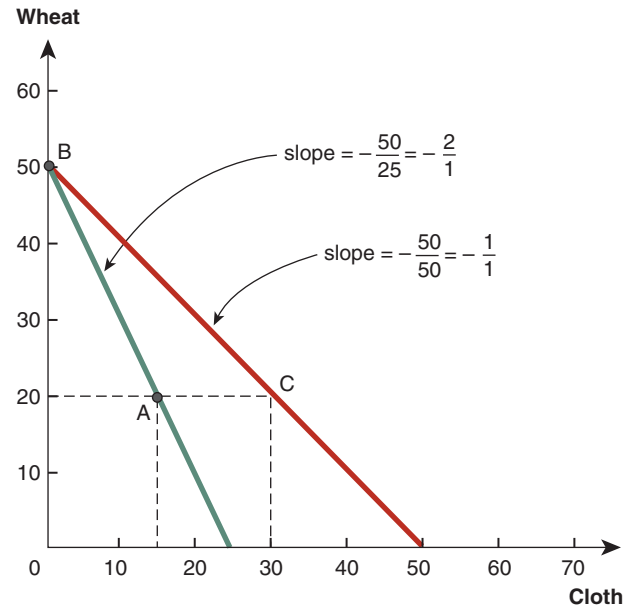
If the total labor-hours available for production within a nation were devoted to the full production of either product, wheat or cloth, the **production possibilities frontiers** of each country can be constructed. Assuming both countries possess the same number of labor-hours, for example 100, the production possibilities frontiers for each country can be graphed, as in Figure 3.2. If England devotes all labor-hours (100) to the production of wheat (which requires 2 labor-hours per unit produced), it can produce a maximum of 50 units of wheat. If England devotes all labor to the production of cloth instead, the same 100 labor-hours can produce a maximum of 25 units of cloth (100 labor-hours/4 hours per unit of cloth). If England did not trade with any other country, it could only consume the products that it produced itself.

production possibilities frontier A theoretical method of representing the total productive capabilities of a nation used in the formulation of classical and modern trade theory.

Figure 3.2 Production Possibility Frontiers, Specialization of Production, and the Benefits of Trade

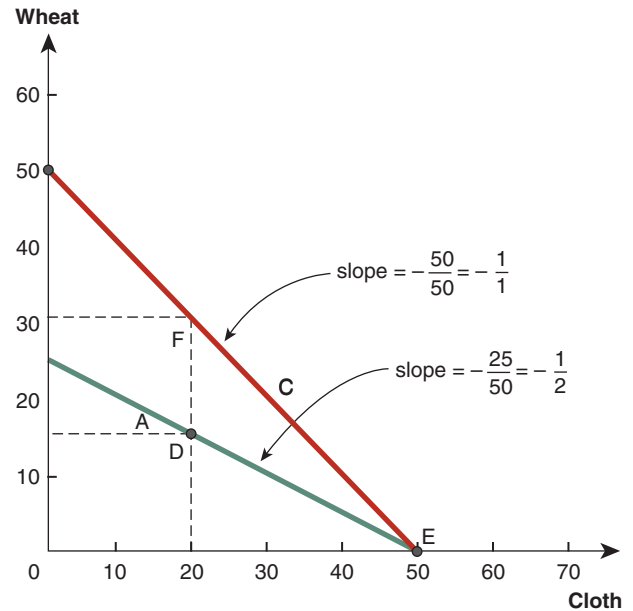
England

1. Initially produces and consumes at point A.
2. England chooses to specialize in the production of wheat and shifts production from point A to point B.
3. England now exports the unwanted wheat (30 units) in exchange for imports of cloth (30 units) from France.
4. England is now consuming at point C, where it is consuming the same amount of wheat but 15 more units of cloth than at original point A.



France

1. Initially produces and consumes at point D.
2. France chooses to specialize in the production of cloth and shifts production from point D to point E.
3. France now exports the unwanted cloth (30 units) in exchange for imports of wheat (30 units) from England.
4. France is now consuming at point F, where it is consuming the same amount of cloth but 15 more units of wheat than at original point D.



England would therefore probably produce and consume some combination of wheat and cloth such as point A in Figure 3.2 (15 units of cloth, 20 units of wheat).

France's production possibilities frontier is constructed in the same way. If France devotes all 100 labor-hours to the production of wheat, it can produce a maximum of 25 units (100 labor-hours/4 hours per unit of wheat). If France devotes all 100 labor-hours to cloth, the same 100 labor-hours can produce a maximum of 50 units of cloth (100 labor-hours/2 hours per unit of cloth). If France did not trade with other countries, it would produce and consume at some point such as point D in Figure 3.2 (20 units of cloth, 15 units of wheat).

These frontiers depict what each country could produce in isolation—without trade (sometimes referred to as *autarky*). The slope of the production possibility

opportunity costs The returns foregone on any resource or asset from using it in its next best use. The principle emphasizes that most assets or resources have alternative uses that have real value.

frontier of a nation is a measure of how one product is traded off in production with the other (moving up the frontier, England is choosing to produce more wheat and less cloth). The slope of the frontier reflects the “trade-off” of producing one product over the other; the trade-offs represent prices, or **opportunity costs**. Opportunity cost is the forgone value of a factor of production in its next-best use. If England chooses to produce more units of wheat (in fact, produce only wheat), moving from point A to point B along the production possibilities frontier, it is giving up producing cloth to produce only wheat. The “cost” of the additional wheat is the loss of cloth. The slope of the production possibilities frontier is the ratio of product prices (opportunity costs). The slope of the production possibilities frontier for England is $-50/25$, or -2.00 . The slope of the production possibilities frontier for France is flatter, $-25/50$, or -0.50 .

The relative prices of products also provide an alternative way of seeing comparative advantage. The flatter slope of the French production possibilities frontier means that to produce more wheat (move up the frontier), France would have to give up the production of relatively more units of cloth than would England, with its steeper sloped production possibilities frontier.

THE GAINS FROM INTERNATIONAL TRADE

Continuing with Figure 3.2, if England were originally not trading with France (the only other country) and it was producing at its own maximum possibilities (on the frontier and not inside the line), it would be producing at point A. Because it was not trading with another country, whatever it was producing it must also be consuming. So England could be said to be consuming at point A also. Therefore, without trade, you consume what you produce.

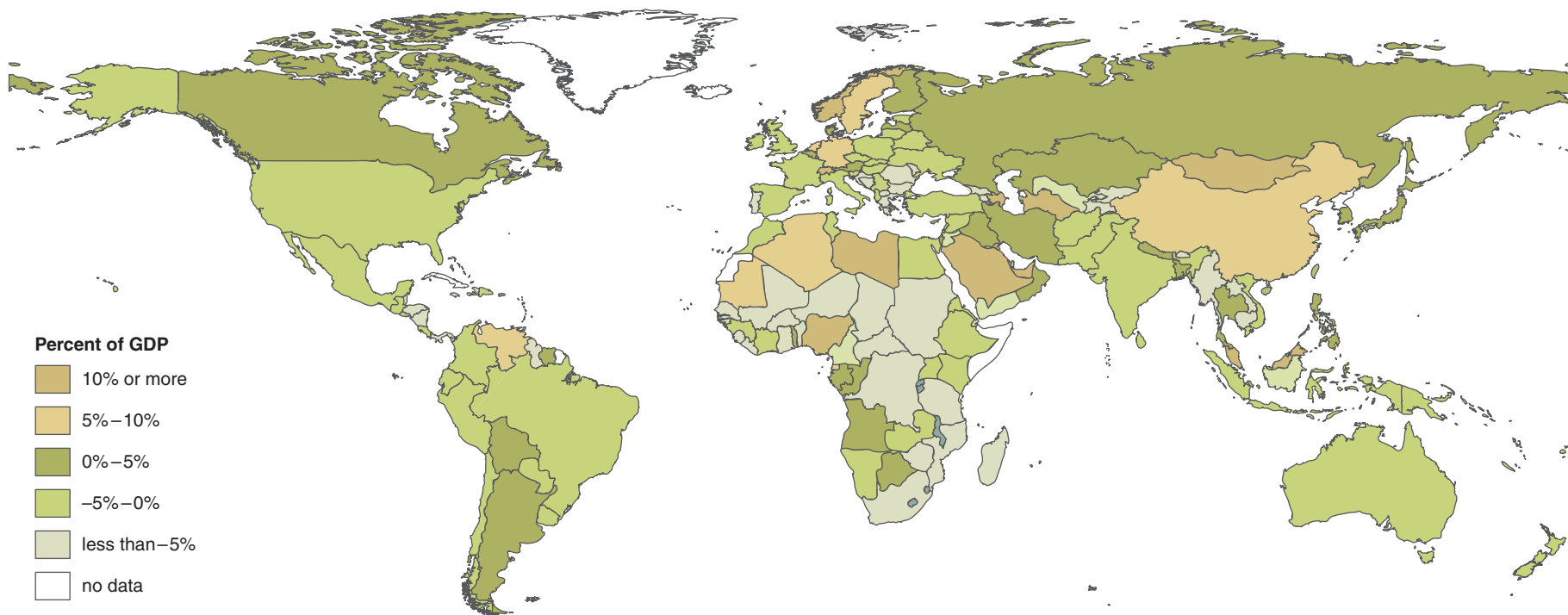
If, however, England recognized that it has comparative advantage in the production of wheat, it should move production from point A to point B. England should specialize completely in the product it produces best. It does not want to consume only wheat, however, so it would take the wheat it has produced and trade with France. For example, England may only want to consume 20 units of wheat, as it did at point A. It is now producing 50 units, and therefore has 30 units of wheat it can export to France. If England could export 30 units of wheat in exchange for imports of 30 units of cloth (a 1:1 ratio of prices), England would clearly be better off than before. The new consumption point would be point C, where it is consuming the same amount of wheat as point A, but is now consuming 30 units of cloth instead of just 15. More is better; England has benefited from international trade.

France, following the same principle of completely specializing in the product of its comparative production advantage, moves production from point D to point E, producing 50 units of cloth. If France now exported the unwanted cloth, for example 30 units, and exchanged the cloth with England for imports of 30 units of wheat (note that England’s exports are France’s imports), France too is better off as a result of international trade. Each country would do what it does best, exclusively, and then trade for the other product.

But at what prices will the two countries trade? Because each country’s production possibilities frontier has a different slope (different relative product prices), the two countries can determine a set of prices between the two domestic prices. In the above example, England’s price ratio was $-2:1$, while France’s domestic price was $-1:2$. Trading 30 units of wheat for 30 units of cloth is a price ratio of $-1:1$, a slope, or set of prices, between the two domestic price ratios. The dashed line in Figure 3.2 illustrates this set of trade prices.

Are both countries better off as a result of trade? Yes. The final step to understanding the benefits of classical trade is to note that the point where a country

IMF DATA MAPPER
Current Account Balance (Percent of GDP) 2014



Source: International Monetary Fund, *World Economic Outlook*, October 2000, Data Mapper.

produces (point B for England and point E for France in Figure 3.2) and the point where it consumes are now different. This allows each country to consume beyond its own production possibilities frontier. Society's welfare, which is normally measured in its ability to consume more wheat, cloth, or any other goods or services, is increased through trade.

CONCLUDING POINTS ABOUT CLASSICAL TRADE THEORY

Classical trade theory contributed much to the understanding of how production and trade operates in the world economy. Although like all economic theories they are often criticized for being unrealistic or out of date, the purpose of a theory is to simplify reality so that the basic elements of the logic can be seen. Several of these simplifications have continued to provide insight in understanding international business.

- **Division of labor:** Adam Smith's explanation of how industrial societies can increase output using the same labor-hours as in preindustrial society is fundamental to our thinking even today. Smith extended this specialization of the efforts of a worker to the specialization of a nation.
- **Comparative advantage:** David Ricardo's extension of Smith's work explained for the first time how countries that seemingly had no obvious reason for trade could individually specialize in producing what they did best and trade for products they did not produce.
- **Gains from trade:** The theory of comparative advantage argued that nations could improve the welfare of their populations through international trade. A nation could actually achieve consumption levels beyond what it could produce by itself. To this day, this is one of the fundamental principles underlying the arguments for all countries to strive to expand and "free" world trade.



FACTOR PROPORTIONS TRADE THEORY

3. To examine the criticisms of classical trade theory and examine alternative viewpoints of which business and economic forces determine trade patterns between countries

Trade theory changed drastically in the first half of the twentieth century. The theory developed by the Swedish economist Eli Heckscher and later expanded by his former student Bertil Ohlin formed the theory of international trade that is still widely accepted today, **factor proportions theory**.

FACTOR INTENSITY IN PRODUCTION

The Heckscher-Ohlin theory considered two **factors of production**: labor and capital. Technology determines the way they combine to form a good. Different goods required different proportions of the two factors of production.

Figure 3.3 illustrates what it means to describe a good by its factor proportions. The production of one unit of good X requires 4 units of labor and 1 unit of capital. At the same time, to produce 1 unit of good Y requires 4 units of labor and 2 units of capital. Good X therefore requires more units of labor per unit of capital (4 to 1) relative to Y (4 to 2). X is therefore classified as a relatively labor-intensive product, and Y is relatively capital intensive. These **factor intensities**, or proportions, are truly relative and are determined only on the basis of what product X requires relative to product Y and not to the specific numbers of labor to capital.

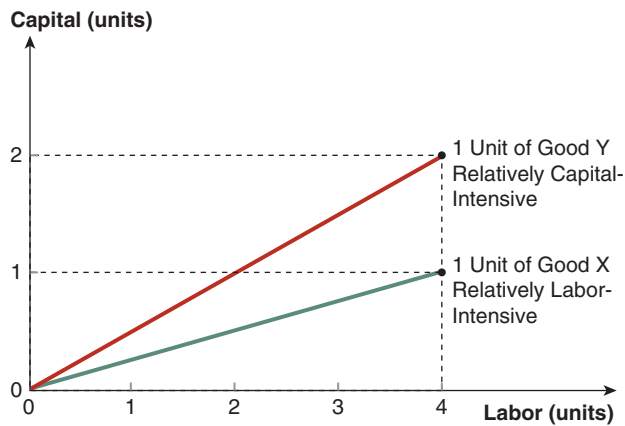
It is easy to see how the factor proportions of production differ substantially across goods. For example, the manufacturing of leather footwear is still a

factor proportions theory

Systematic explanation of the source of comparative advantage.

factors of production All inputs into the production process, including capital, labor, land, and technology.

factor intensity The proportion of capital input to labor input used in the production of a good.

Figure 3.3 Factor Proportions in Production

relatively labor-intensive process, even with the most sophisticated leather treatment and patterning machinery. Other goods, such as computer memory chips, however, although requiring some highly skilled labor, require massive quantities of capital for production. These large capital requirements include the enormous sums needed for research and development and the manufacturing facilities needed for clean production to ensure the extremely high quality demanded in the industry.

According to factor proportions theory, factor intensities depend on the state of technology—the current method of manufacturing a good. The theory assumed that the same technology of production would be used for the same goods in all countries. It is not, therefore, differences in the efficiency of production that will determine trade between countries as it did in classical theory. Classical theory implicitly assumed that technology or the productivity of labor is different across countries. Otherwise, there would be no logical explanation why one country requires more units of labor to produce a unit of output than another country. Factor proportions theory assumes no such productivity differences.

FACTOR ENDOWMENTS, FACTOR PRICES, AND COMPARATIVE ADVANTAGE

If there is no difference in technology or productivity of factors across countries, what then determines comparative advantage in production and export? The answer is that factor prices determine cost differences. And these prices are determined by the endowments of labor and capital the country possesses. The theory assumes that labor and capital are immobile; factors cannot move across borders. Therefore, the country's endowment determines the relative costs of labor and capital as compared with other countries.

Using these assumptions, factor proportions theory stated that a country should specialize in the production and export of those products that use intensively its relatively abundant factor.

- A country that is relatively labor abundant should specialize in the production of relatively labor-intensive goods. It should then export those labor-intensive goods in exchange for capital-intensive goods.

- A country that is relatively capital abundant should specialize in the production of relatively capital-intensive goods. It should then export those capital-intensive goods in exchange for labor-intensive goods.

ASSUMPTIONS OF THE FACTOR PROPORTIONS THEORY

The increasing level of theoretical complexity of the factor proportions theory, as compared with the classical trade theory, increased the number of assumptions necessary for the theory to “hold.” It is important to take a last look at the assumptions before proceeding further.

1. The theory assumes two countries, two products, and two factors of production, the so-called $2 \times 2 \times 2$ assumption. Note that if both countries were producing all of the output they could and trading only between themselves (only two countries), both countries would have to have balances in trade!
2. The markets for the inputs and the outputs are perfectly competitive. The factors of production, labor, and capital were exchanged in markets that paid them only what they were worth. Similarly, the trade of the outputs (the international trade between the two countries) was competitive so that one country had no market power over the other.
3. Increasing production of a product experiences diminishing returns. This meant that as a country increasingly specialized in the production of one of the two outputs, it eventually would require more and more inputs per unit of output. For example there would no longer be the constant “labor-hours per unit of output” as assumed under the classical theory. Production possibilities frontiers would no longer be straight lines but concave. The result was that complete specialization would no longer occur under factor proportions theory.
4. Both countries were using identical technologies. Each product was produced in the same way in both countries. This meant the only way that a good could be produced more cheaply in one country than in the other was if the factors of production used (labor and capital) were cheaper.

Although a number of additional technical assumptions were necessary, these four highlight the very specialized set of conditions needed to explain international trade with factor proportions theory. Much of the trade theory developed since has focused on how trade changes when one or more of these assumptions is not found in the real world.

THE LEONTIEF PARADOX

One of the most famous tests of any economic or business theory occurred in 1950, when economist Wassily Leontief tested whether the factor proportions theory could be used to explain the types of goods the United States imported and exported. Leontief’s premise was the following.

A widely shared view on the nature of the trade between the United States and the rest of the world is derived from what appears to be a common sense assumption that this country has a comparative advantage in the production of commodities which require for their manufacture large quantities of capital and relatively small amounts of labor. Our economic relationships with other countries are supposed to be based mainly on the export of such “capital intensive” goods in exchange for forgoing products which—if we were to make them at home—would require little capital but large quantities of American labor. Since the United States possesses a relatively large amount of capital—

so goes this oft-repeated argument—and a comparatively small amount of labor, direct domestic production of such “labor intensive” products would be uneconomical; we can much more advantageously obtain them from abroad in exchange for our capital intensive products.²

Leontief first had to devise a method to determine the relative amounts of labor and capital in a good. His solution, known as **input-output analysis**, was an accomplishment on its own. Input-output analysis is a technique of decomposing a good into the values and quantities of the labor, capital, and other potential factors employed in the good’s manufacture. Leontief then used this methodology to analyze the labor and capital content of all U.S. merchandise imports and exports. The hypothesis was relatively straightforward: U.S. exports should be relatively capital intensive (use more units of capital relative to labor) than U.S. imports. Leontief’s results were, however, a bit of a shock.

Leontief found that the products that U.S. firms exported were relatively more labor intensive than the products the United States imported.³ It seemed that if the factor proportions theory was true, the United States is a relatively labor-abundant country! Alternatively, the theory could be wrong. Neither interpretation of the results was acceptable to many in the field of international trade.

A variety of explanations and continuing studies have attempted to solve what has become known as the **Leontief Paradox**. At first, it was thought to have been simply a result of the specific year (1947) of the data. However, the same results were found with different years and data sets. Second, it was noted that Leontief did not really analyze the labor and capital contents of imports but rather the labor and capital contents of the domestic equivalents of these imports. It was possible that the United States was actually producing the products in a more capital-intensive fashion than were the countries from which it also imported the manufactured goods.⁴ Finally, the debate turned to the need to distinguish different types of labor and capital. For example, several studies attempted to separate labor factors into skilled labor and unskilled labor. These studies have continued to show results more consistent with what the factor proportions theory would predict for country trade patterns. As illustrated by the Focus on Politics: When the Numbers Don’t Add Up, the Leontief Paradox is only one of the many ways in which trade theory and statistics run into confusion.

input-output analysis A method for estimating market activities and potential that measures the factor inflows into production and the resultant outflow of products.

Leontief Paradox The general belief that the United States, as a capital-abundant country, should be exporting capital-intensive products whereas its exports are labor intensive.

FOCUS ON POLITICS

When the Numbers Don’t Add Up

The international trade statistics between countries, as reported by each, often do not match. As part of the continuing cooperation between the North American Free Trade Agreement (NAFTA) countries, the U.S. Department of Commerce recently concluded a study into the differences among the official trade statistics released by the United States, Mexico, and Canada in 1998 and 1999. The significance of these differences is compounded by the importance of trade among the three countries: 30 percent of all U.S. merchandise trade is with Canada and Mexico; 80 percent of Mexico’s merchandise and service trade is with the United States and Canada.

The primary sources of the discrepancy in statistics include *geographic coverage*, *partner country attribution*, *nonfiling of U.S. exports*, and *low-value transactions*. An example of *geographic coverage* would be that the United States considers Puerto Rico and the U.S. Virgin Islands as part of the United States for reporting reasons, while Mexico regards them as separate trading partners. *Partner country attribution* occurs, for example, in Mexico, where the import entry form allows for the reporting of only a single country of origin. As a result, some imports are misattributed to the United States.

For more details on the study of trade statistics discrepancies, see <http://www.census.gov/foreign-trade/>

LINDER'S OVERLAPPING PRODUCT RANGES THEORY

The difficulties in empirically validating the factor proportions theory led many in the 1960s and 1970s to search for new explanations of the determinants of trade between countries. The work of Staffan Burenstam Linder focused not on the production or supply side, but instead on the preferences of consumers—the demand side. Linder acknowledged that in the natural resource–based industries, trade was indeed determined by relative costs of production and factor endowments.

However, Linder argued, trade in manufactured goods was dictated not by cost concerns but rather by the similarity in product demands across countries. Linder's was a significant departure from previous theory and was based on two principles:

1. As income, or more precisely per-capita income, rises, the complexity and quality level of the products demanded by the country's residents also rises. The total range of product sophistication demanded by a country's residents is largely determined by its level of income.
2. The entrepreneurs directing the firms that produce society's needs are more knowledgeable about their own domestic market than about foreign markets. An entrepreneur could not be expected to effectively serve a foreign market that is significantly different from the domestic market because competitiveness comes from experience. A logical pattern would be for an entrepreneur to gain success and market share at home first, then expand to foreign markets that are similar in their demands or tastes.

International trade in manufactured goods would then be influenced by similarity of demands. The countries that would see the most intensive trade are those with similar per-capita income levels, for they would possess a greater likelihood of overlapping product demands. The Focus on Politics: The U.S. Trade Deficit Fix highlights how demand changes when income levels drop.

So where does trade come in? According to Linder, the overlapping ranges of product sophistication represent the products that entrepreneurs would know well from their home markets and could therefore potentially export and compete with in foreign markets. For example, the United States and Canada have almost parallel sophistication ranges, implying they would have a lot of common ground, overlapping product ranges, for intensive international trade and competition. They are quite similar in their per-capita income levels. But Mexico and the United States, or

FOCUS ON POLITICS

The U.S. Trade Deficit Fix: Global Financial Crisis

It turns out that one of the fastest ways to shrink trade deficits is to have a global financial crisis. Despite years of debate and warnings from experts, analysts, politicians, and economists, trade deficits grew and grew in the United States. All cried out the same prescription, Americans needed to spend less and save more.

The global financial crisis, largely based in the United States, proved a better cure-all for spend-thrift Americans than all of the congressional hearings or warnings from Wall Street. As the financial crisis erupted in the fall of 2008, as businesses stopped, as workers lost wages and even jobs, Americans finally stopped spending. Unfortunately, that is exactly how an economic crisis in one country spreads to the business and

commerce of other countries—as a halt in international trade today brings a globalized world economy to a halt.

U.S. bilateral trade deficits shrank in the first eight months of 2009 in shocking proportions: deficit with China down 14 percent; deficit with Japan down 20 percent, deficits with Mexico, Canada, and even the European Union down by nearly 40 percent. For U.S. policymakers, these would be wondrous statistics—if they weren't coming from economic recession and skyrocketing unemployment. Although the global economy appeared to be crawling out of its recession in the fall of 2009, it was still not clear whether the “rebalancing” of trade would be sustained and a permanent change in spending and saving would result.

Sources: Edmund Andrews, “As Americans Stop Buying, Trade Deficit Declines,” *The New York Times*, October 10, 2009; “Rebalancing the World Economy,” *The Economist*, August 6, 2009.

Mexico and Canada, would not. Mexico has a significantly different product sophistication range as a result of a different per-capita income level.

The overlapping product ranges described by Linder would today be termed **market segments**. Not only was Linder's work instrumental in extending trade theory beyond cost considerations, but it also found a place in the field of international marketing. As illustrated in the theories following the work of Linder, many of the questions that his work raised were the focus of considerable attention in the following decades.



INTERNATIONAL INVESTMENT AND PRODUCT CYCLE THEORY

A very different path was taken by Raymond Vernon in 1966 concerning what is now termed **product cycle theory**. Diverging significantly from traditional approaches, Vernon focused on the product (rather than the country and the technology of its manufacture), not its factor proportions. Most striking was the appreciation of the role of information, knowledge, and the costs and power that go hand in hand with knowledge.

. . . we abandon the powerful simplifying notion that knowledge is a universal free good, and introduce it as an independent variable in the decision to trade or to invest.

Using many of the same basic tools and assumptions of factor proportions theory, Vernon added two technology-based premises to the factor-cost emphasis of existing theory:

1. Technical innovations leading to new and profitable products require large quantities of capital and highly skilled labor. These factors of production are predominantly available in highly industrialized capital-intensive countries.
2. These same technical innovations, both the product itself and more importantly the methods for its manufacture, go through three stages of maturation as the product becomes increasingly commercialized. As the manufacturing process becomes more standardized and low-skill labor-intensive, the comparative advantage in its production and export shifts across countries. Even accurately tracking exports and imports is sometimes daunting.

THE STAGES OF THE PRODUCT CYCLE

Product cycle theory is both supply-side (cost of production) and demand-side (income levels of consumers) in its orientation. Each of these three stages that Vernon described combines differing elements of each.

Stage I: The New Product

Innovation requires highly skilled labor and large quantities of capital for research and development. The product will normally be most effectively designed and initially manufactured near the parent firm and therefore in a highly industrialized market due to the need for proximity to information and the need for communication among the many different skilled-labor components required.

In this development stage, the product is nonstandardized. The production process requires a high degree of flexibility (meaning continued use of highly skilled labor). Costs of production are therefore quite high. The innovator at this stage is a

market segment Group of customers that share characteristics and behaviors.

4. To explore the similarities and distinctions between international trade and international investment

product cycle theory A theory that views products as passing through four stages: introduction, growth, maturity, decline; during which the location of production moves from industrialized to lower-cost developing nations.

monopolist and therefore enjoys all of the benefits of monopoly power, including the high profit margins required to repay the high development costs and expensive production process. Price elasticity of demand at this stage is low; high-income consumers buy it regardless of cost.

Stage II: The Maturing Product

As production expands, its process becomes increasingly standardized. The need for flexibility in design and manufacturing declines, and therefore the demand for highly skilled labor declines. The innovating country increases its sales to other countries. Competitors with slight variations develop, putting downward pressure on prices and profit margins. Production costs are an increasing concern.

As competitors increase, as well as their pressures on price, the innovating firm faces critical decisions on how to maintain market share. Vernon argues that the firm faces a critical decision at this stage, either to lose market share to foreign-based manufacturers using lower-cost labor or to invest abroad to maintain its market share by exploiting the comparative advantages of factor costs in other countries. This is one of the first theoretical explanations of how trade and investment become increasingly intertwined.

Stage III: The Standardized Product

In this final stage, the product is completely standardized in its manufacture. Thus, with access to capital on world capital markets, the country of production is simply the one with the cheapest unskilled labor. Profit margins are thin, and competition is fierce. The product has largely run its course in terms of profitability for the innovating firm.

The country of comparative advantage has therefore shifted as the technology of the product's manufacture has matured. The same product shifts in its location of production. The country possessing the product during that stage enjoys the benefits of net trade surpluses. But such advantages are fleeting, according to Vernon. As knowledge and technology continually change, so does the country of that product's comparative advantage.

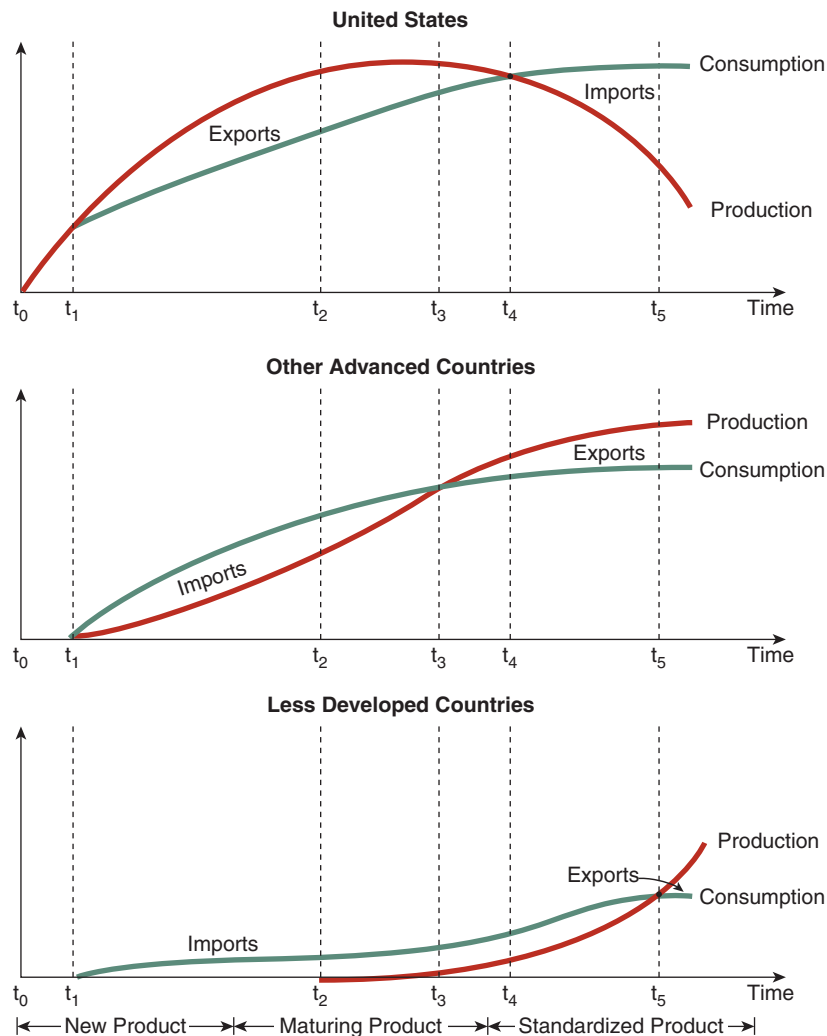
TRADE IMPLICATIONS OF THE PRODUCT CYCLE

Product cycle theory shows how specific products were first produced and exported from one country but, through product and competitive evolution, shifted their location of production and export to other countries over time. Figure 3.4 illustrates the trade patterns that Vernon visualized as resulting from the maturing stages of a specific product cycle. As the product and the market for the product mature and change, the countries of its production and export shift.

The product is initially designed and manufactured in the United States. In its early stages (from time t_0 to t_1), the United States is the only country producing and consuming the product. Production is highly capital-intensive and skilled-labor intensive at this time. At time t_1 , the United States begins exporting the product to other advanced countries, as Vernon classified them. These countries possess the income to purchase the product in its still new-product stage, in which it was relatively high priced. These other advanced countries also commence their own production at time t_1 but continue to be net importers. A few exports, however, do find their way to the less-developed countries at this time as well.

As the product moves into the second stage, the maturing product stage, production capability expands rapidly in the other advanced countries. Competitive

Figure 3.4 Trade Patterns and Product Cycle Theory



Source: Raymond Vernon, "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics* (May 1966): 199.

variations begin to appear as the basic technology of the product becomes more widely known, and the need for skilled labor in its production declines. These countries eventually also become net exporters of the product near the end of the stage (time t_3). At time t_2 the less-developed countries begin their own production, although they continue to be net importers. Meanwhile, the lower cost of production from these growing competitors turns the United States into a net importer by time t_4 . The competitive advantage for production and export is clearly shifting across countries at this time.

The third and final stage, the standardized product stage, sees the comparative advantage of production and export now shifting to the less-developed countries. The product is now a relatively mass-produced product that can be made with increasingly less-skilled labor. The United States continues to reduce domestic production and increase imports. The other advanced countries continue to produce and export, although exports peak as the less-developed countries expand production and become net exporters themselves. The product has run its course or life cycle in reaching time t_5 .

A final point: Note that throughout this product cycle, the countries of production, consumption, export, and import are identified by their labor and capital levels,

not firms. Vernon noted that it could very well be the same firms that are moving production from the United States to other advanced countries to less-developed countries. The shifting location of production was instrumental in the changing patterns of trade but not necessarily in the loss of market share, profitability, or competitiveness of the firms. The country of comparative advantage could change.

Although interesting in its own right for increasing emphasis on technology's impact on product costs, product cycle theory was most important because it explained international investment. Not only did the theory recognize the mobility of capital across countries (breaking the traditional assumption of factor immobility), it shifted the focus from the country to the product. This made it important to match the product by its maturity stage with its production location to examine competitiveness.

Product cycle theory has many limitations. It is obviously most appropriate for technology-based products. These are the products that are most likely to experience the changes in production process as they grow and mature. Other products, either resource-based (such as minerals and other commodities) or services (which employ capital but mostly in the form of human capital), are not so easily characterized by stages of maturity. And product cycle theory is most relevant to products that eventually fall victim to mass production and therefore cheap labor forces. But, all things considered, product cycle theory served to breach a wide gap between the trade theories of old and the intellectual challenges of a new, more globally competitive market in which capital, technology, information, and firms themselves were more mobile.



THE NEW TRADE THEORY: STRATEGIC TRADE

5. To evaluate the trade theories of Paul Krugman and Michael Porter and their relationship to business and government's approaches to trade policy

Global trade developments in the 1980s and 1990s led to much criticism of the existing theories of trade. First, although there was rapid growth in trade, much of it was not explained by current theory. Secondly, the massive size of the merchandise trade deficit of the United States—and the associated decline of many U.S. firms in terms of international competitiveness—served as something of a country-sized lab experiment demonstrating what some critics termed the “bankruptcy of trade theory.” Academics and policymakers alike looked for new explanations.

Two new contributions to trade theory were met with great interest. Paul Krugman, along with several colleagues, developed a theory of how trade is altered when markets are not perfectly competitive, or when production of specific products possesses economies of scale. A second and very influential development was the growing work of Michael Porter, who examined the competitiveness of industries on a global basis, rather than relying on country-specific factors to determine competitiveness.

ECONOMIES OF SCALE AND IMPERFECT COMPETITION

Paul Krugman's theoretical developments once again focused on cost of production and how cost and price drive international trade. Using theoretical developments from microeconomics and market structure analysis, Krugman focused on two types of economies of scale, *internal economies of scale* and *external economies of scale*.⁵

Internal Economies of Scale

When the cost per unit of output depends on the size of an individual firm, the larger the firm the greater the scale benefits, and the lower the cost per unit. A firm possessing internal economies of scale could potentially monopolize an industry



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According to the government, Chinese cell phone usage reached 200 million subscribers in 2002. As domestic spending grows, China will be able to sustain its economic growth and as a result be less dependent upon exports. This growing Chinese economy also helps China's trade partners.

(creating an *imperfect market*), both domestically and internationally. If it produces more, lowering the cost per unit, it can lower the market price and sell more products, because it *sets* market prices.

The link between dominating a domestic industry and influencing international trade comes from taking this assumption of imperfect markets back to the original concept of comparative advantage. For this firm to expand sufficiently to enjoy its economies of scale, it must take resources away from other domestic industries in order to expand. A country then sees its own range of products in which it specializes narrowing, providing an opportunity for other countries to specialize in these so-called **abandoned product ranges**. Countries again search out and exploit comparative advantage.

A particularly powerful implication of internal economies of scale is that it provides an explanation of intra-industry trade, one area in which traditional trade theory had indeed seemed bankrupt. **Intra-industry trade** is when a country seemingly imports and exports the same product, an idea that is obviously inconsistent with any of the trade theories put forward in the past three centuries. According to Krugman, internal economies of scale may lead a firm to specialize in a narrow product line (to produce the volume necessary for economies of scale cost benefits); other firms in other countries may produce products that are similarly narrow, yet extremely similar: **product differentiation**. If consumers in either country wish to buy both products, they will be importing and exporting products that are, for all intents and purposes, the same.⁶

Intra-industry trade has been studied in detail in the past decade. Intra-industry trade is measured with the Grubel-Lloyd Index, the ratio of imports and exports of the same product occurring between two trading nations. It is calculated as follows:

$$\text{Intra-industry trade index}_i = \frac{|X_i - M_i|}{(X_i + M_i)}$$

where i is the product category and $|X - M|$ is the absolute value of net exports of that product (exports–imports). For example, if Sweden imports 100 heavy machines for its forest products industry from Finland, and at the same time exports to Finland

abandoned product ranges

The outcome of a firm narrowing its range of products to obtain economies of scale, which provides opportunities for other firms to enter the markets for the abandoned products.

intra-industry trade The simultaneous export and import of the same good by a country. It is of interest due to the traditional theory that a country will either export or import a good, but not do both at the same time.

product differentiation The effort to build unique differences or improvements into products.

80 of the same type of equipment, the intra-industry trade (IIT) index would be:

$$\text{IIT} = \frac{|80 - 100|}{(80 + 100)} = 1 - 0.1111 = 0.89$$

The closer the index value to 1, the higher the level of intra-industry trade in that product category. The closer the index is to 0, the more one-way the trade between the countries is, as traditional trade theory would predict.

Intra-industry trade is now thought to compose roughly 25 percent of global trade. And to its credit, intra-industry trade is increasingly viewed as having additive benefits to the fundamental benefits of comparative advantage. Intra-industry trade does allow some industrial segments in some countries to deepen their specialization while simultaneously allowing greater breadth of choices and commensurate benefits to consumers. Of course, one potentially disturbing characteristic of the growth in intra-industry trade is the potential for trade of all kinds to continue to expand in breadth and depth between the most industrialized countries (those producing the majority of the more complex manufactured goods) while those less industrialized nations do not see this added boost to trade growth.

External Economies of Scale

When the cost per unit of output depends on the size of an industry, not the size of the individual firm, the industry of that country may produce at lower costs than the same industry that is smaller in size in other countries. A country can potentially dominate world markets in a particular product, not because it has one massive firm producing enormous quantities (e.g., Boeing), but rather because it has many small firms that interact to create a large, competitive, critical mass (e.g., semiconductors in Penang, Malaysia). No one firm need be all that large, but several small firms in total may create such a competitive industry that firms in other countries cannot ever break into the industry on a competitive basis.⁷

Unlike internal economies of scale, external economies of scale may not necessarily lead to imperfect markets, but they may result in an industry maintaining its dominance in its field in world markets. This provides an explanation as to why all industries do not necessarily always move to the country with the lowest-cost energy, resources, or labor. What gives rise to this critical mass of small firms and their interrelationships is a much more complex question. The work of Michael Porter provides a partial explanation of how these critical masses are sustained.

STRATEGIC TRADE

Often criticized as being simplistic or naive, trade theory in recent years has, in the words of one critic, grown up. One fundamental assumption that both classical and modern trade theories have not been willing to stray far from is the inefficiencies introduced with governmental involvement in trade. Economic theory, however, has long recognized that government can play a beneficial role when markets are not purely competitive. This theory has now been expanded to government's role in international trade as well. This growing stream of thought is termed strategic trade. There are (at least) four specific circumstances involving imperfect competition in which strategic trade may apply, which we denote as *price*, *cost*, *repetition*, and *externalities*.

Price

A foreign firm that enjoys significant international market power—monopolistic power—has the ability to both restrict the quantity of consumption and demand

higher prices. One method by which a domestic government may thwart that monopolistic power is to impose import duties or tariffs on the imported products. The monopolist, not wishing to allow the price of the product to rise too high in the target market, will often absorb some portion of the tariff. The result is roughly the same amount of product imported, and at relatively the same price to the customer, but the excessive profits (economic rent in economic theory) have been partly shifted from the monopolist to the domestic government. Governments have long fought the power of global petrochemical companies with these types of import duties.

Cost

Although much has been made in recent years about the benefits of “small and flexible,” some industries still are dominated by the firms that can gain massive productive size—**scale economies**. As the firm’s size increases, its per unit cost of production falls, allowing it a significant cost advantage in competition. Governments wishing for specific firms to gain this stature may choose to protect the domestic market against foreign competition to provide a home market of size for the company’s growth and maturity. This strategic trade theory is actually quite similar to the traditional arguments for the protection of infant industries, though this is a protection whose benefits accrue to firms in adolescence rather than childhood!

scale economies The increasing efficiency gains from greater size or scale, often described as lower cost per unit of output.

Repetition

Some firms in some industries have inherent competitive advantages, often efficiency based, from simply having produced repetitively for years. Sometimes referred to as “learning-by-doing,” these firms may achieve competitive cost advantages from producing not only more units (as in the scale economies described above) but from producing more units *over time*. A government that wishes to promote these efficiency gains by domestic firms can help the firm move down the learning curve faster by protecting the domestic market from foreign competitors. Again similar in nature to the infant industry argument, the idea is not only to allow the firm to produce more, but to produce more cumulatively over time to gain competitive knowledge from the actual process itself.

Externalities

The fourth and final category of strategic trade involves those market failures in which the costs or benefits of the business process are not borne or captured by the firm itself. If, for example, the government believes that the future of business is in specific knowledge-based industries, it may be willing to subsidize the education of workers for that industry, protect that industry from foreign competition, or even aid the industry in overcoming the costs of environmental protection in order to promote the industry’s development. This argument is similar to those used by governments in the 1970s and 1980s to support the development of certain industries in their countries (e.g., microelectronics in Japan and steel in Korea) which was then referred to as industrial policy. In fact, this strategic trade argument could be used in support of Michael Porter’s cluster theory, in which society and industry would reap benefits of reaching critical mass in experience and interactions through promotion and protection.

Although the arguments by proponents of strategic trade are often seductive, critics charge that these theories play more to emotion than rational thought. Industries do not often learn by doing or reduce costs through scale, and governments are infamous for their inability to effectively protect (and unprotect, when the time comes) in order to promote industrial development and growth. Protection and

state-supported monopolists are often some of the world's least efficient rather than most efficient. And as always, there is no assurance that foreign governments themselves will not react and retaliate, again undermining the potentially rational policies put into place in isolation. A final note of caution about strategic trade goes back to the very origins of trade theory: many of the benefits of international trade accrue to those who successfully divorce the politic from the economic.

THE COMPETITIVE ADVANTAGE OF NATIONS

The focus of early trade theory was on the country or nation and its inherent, natural, or endowment characteristics that might give rise to increasing competitiveness. As trade theory evolved, it shifted its focus to the industry and product level, leaving the national-level competitiveness question somewhat behind. Recently, many have turned their attention to the question of how countries, governments, and even private industry can alter the conditions within a country to aid the competitiveness of its firms.

The leader in this area of research has been Michael Porter of Harvard. As he states:

National prosperity is created, not inherited. It does not grow out of a country's natural endowments, its labor pool, its interest rates, or its currency's values, as classical economics insists.

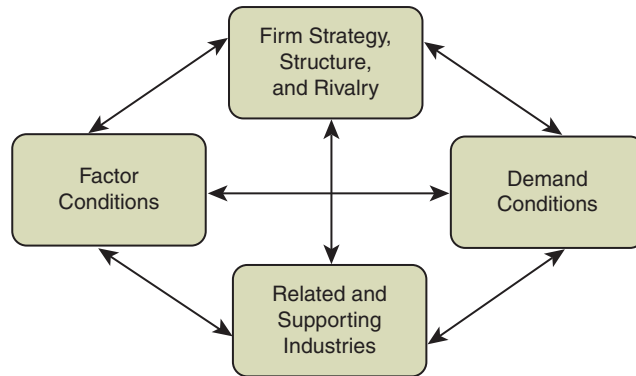
A nation's competitiveness depends on the capacity of its industry to innovate and upgrade. Companies gain advantage against the world's best competitors because of pressure and challenge. They benefit from having strong domestic rivals, aggressive home-based suppliers, and demanding local customers.

In a world of increasingly global competition, nations have become more, not less, important. As the basis of competition has shifted more and more to the creation and assimilation of knowledge, the role of the nation has grown. Competitive advantage is created and sustained through a highly localized process. Differences in national values, culture, economic structures, institutions, and histories all contribute to competitive success. There are striking differences in the patterns of competitiveness in every country; no nation can or will be competitive in every or even most industries. Ultimately, nations succeed in particular industries because their home environment is most forward-looking, dynamic, and challenging.⁸

Porter argued that innovation is what drives and sustains competitiveness. A firm must avail itself of all dimensions of competition, which he categorized into four major components of “the diamond of national advantage”:

- 1. Factor conditions:** The appropriateness of the nation's factors of production to compete successfully in a specific industry. Porter notes that although these factor conditions are very important in the determination of trade, they are not the only source of competitiveness as suggested by the classical, or factor proportions, theories of trade. Most importantly for Porter, it is the ability of a nation to continually create, upgrade, and deploy its factors (such as skilled labor) that is important, not the initial endowment.
- 2. Demand conditions:** The degree of health and competition the firm must face in its original home market. Firms that can survive and flourish in highly competitive and demanding local markets are much more likely to gain the competitive edge. Porter notes that it is the character of the market, not its size, that is paramount in promoting the continual competitiveness of the firm. And Porter translates *character* as demanding customers.
- 3. Related and supporting industries:** The competitiveness of all related industries and suppliers to the firm. A firm that is operating within a mass of

Figure 3.5 Determinants of National Competitive Advantage: Porter's Diamond



related firms and industries gains and maintains advantages through close working relationships, proximity to suppliers, and timeliness of product and information flows. The constant and close interaction is successful if it occurs not only in terms of physical proximity but also through the willingness of firms to work at it.

4. **Firm strategy, structure, and rivalry:** The conditions in the home-nation that either hinder or aid in the firm's creation and sustaining of international competitiveness. Porter notes that no one managerial, ownership, or operational strategy is universally appropriate. It depends on the fit and flexibility of what works for that industry in that country at that time.

These four points, as illustrated in Figure 3.5, constitute what nations and firms must strive to “create and sustain through a highly localized process” to ensure their success.

Porter's emphasis on innovation as the source of competitiveness reflects an increased focus on the industry and product that we have seen in the past three decades. The acknowledgment that the nation is “more, not less, important” is to many eyes a welcome return to a positive role for government and even national-level private industry in encouraging international competitiveness. Including factor conditions as a cost component, demand conditions as a motivator of firm actions, and competitiveness all combine to include the elements of classical, factor proportions, product cycle, and imperfect competition theories in a pragmatic approach to the challenges that the global markets of the twenty-first century present to the firms of today.

CLUSTERS AND THE NEW ECONOMICS

Michael Porter added an additional theoretical development to the concept of competitive advantage, that of competitive clusters.⁹ *Clusters*, according to Porter, are “critical masses—in one place—of unusual competitive success in particular fields.” Examples often cited are leather fashion product manufacturing in northern Italy, textiles in the Carolinas and wine in California in the United States, or semi-conductors on the Penang Peninsula in Malaysia. These geographic concentrations of competitive excellence seemingly fly in the face of modern thought on the mobility of capital and knowledge.

Porter's theoretical argument was based on his assertion that significant advantages accrue to companies from being in proximity to complementary products and services—within reach of all the suppliers and partners in the product value chain. The premise was quite simple: competitive advantages are gained through interconnected companies and institutions locally, not through the scale and scope of the firms themselves. Cluster theory suggests that competition is altered in at least three ways when clusters form successfully: (1) by increasing the productivity of the companies based in the area, (2) by driving and supporting the momentum of innovation in the area, and (3) by stimulating the creation of new companies and new configurations of business in the area. In effect, the cluster itself acts as an extended family or single firm, but flexibly and efficiently. Interestingly, the cluster's competitive sustainability is assured by the second change—the momentum gains to innovation—which is consistent with Porter's earlier work on what drives competitive advantage of the individual firm through time.

The writing of Porter and others has continued to be instrumental in the thinking of both business and government when approaching trade policy. Many, although supporting much of the findings of Porter's theories, see the true insights as being related to the complex relationships between knowledge and how knowledge is developed, shared, and transmitted within industries over time.



THE THEORY OF INTERNATIONAL INVESTMENT

6. *To understand the theory of international investment and how it relates to firms and buyers*

Trade is the production of a good or service in one country and its sale to a buyer in another country. In fact, it is a firm (not a country) and a buyer (not a country) that are the subjects of trade, domestically or internationally. A firm is therefore attempting to access a market and its buyers. The producing firm wants to utilize its competitive advantage for growth and profit and can also reach this goal by international investment.¹⁰

Although this sounds easy enough, consider any of the following potholes on the road to investment success. Any of the following potholes may be avoided by producing within another country.

- Sales to some countries are difficult because of tariffs imposed on your good when it is entering. If you were producing within the country, your good would no longer be an import.
- Your good requires natural resources that are available only in certain areas of the world. It is therefore imperative that you have access to the natural resources. You can buy them from that country and bring them to your production process (import) or simply take the production to them.
- Competition is constantly pushing you to improve efficiency and decrease the costs of producing your good. You therefore may want to produce where it will be cheaper—cheaper capital, cheaper energy, cheaper natural resources, or cheaper labor. Many of these factors are still not mobile, and therefore you will go to them instead of bringing them to you.

There are thousands of reasons why a firm may want to produce in another country, and not necessarily in the country that is cheapest for production or the country where the final good is sold.

The subject of international investment arises from one basic idea: the mobility of capital. Although many of the traditional trade theories assumed the immobility of the factors of production, it is the movement of capital that has allowed foreign

direct investments across the globe. If there is a competitive advantage to be gained, capital can and will get there.

THE FOREIGN DIRECT INVESTMENT DECISION

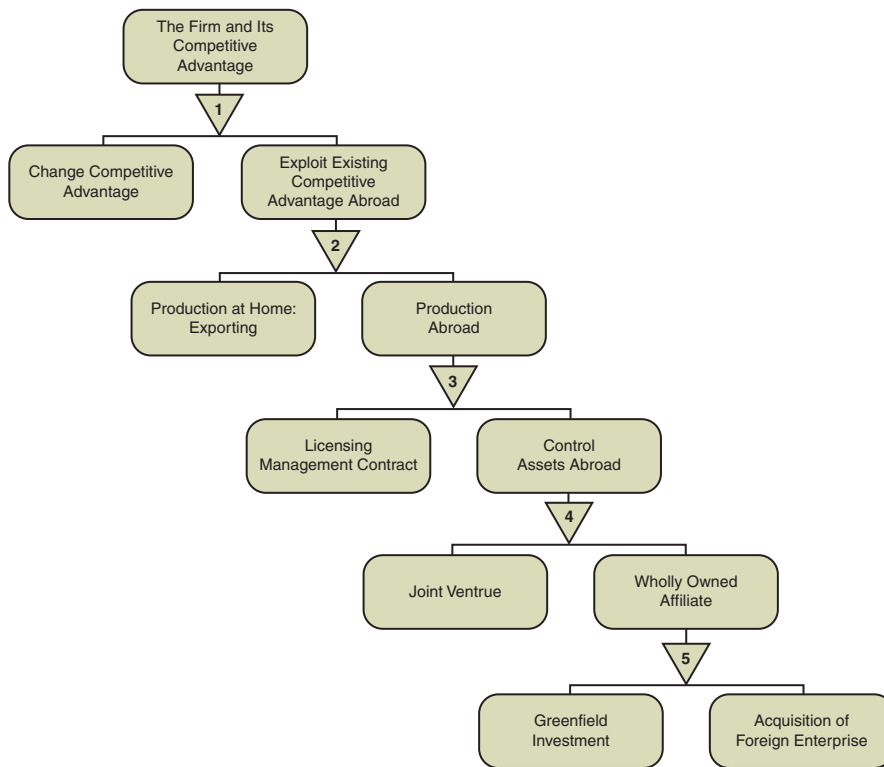
Consider a firm that wants to exploit its competitive advantage by accessing foreign markets as illustrated in the decision-sequence tree of Figure 3.6.

The first choice is whether to exploit the existing competitive advantage in new foreign markets or to concentrate its resources in the development of new competitive advantages in the domestic market. Although many firms may choose to do both as resources will allow, more and more firms are choosing to go international as at least part of their expansion strategies.

Second, should the firm produce at home and export to the foreign markets, or produce abroad? The firm will choose the path that will allow it to access the resources and markets it needs to exploit its existing competitive advantage. But it will also consider two additional dimensions of each foreign investment decision: (1) the degree of control over assets, technology, information, and operations and (2) the magnitude of capital that the firm must risk. Each decision increases the firm's control at the cost of increased capital outlays.

After choosing to produce abroad, the firm must decide how. The distinctions among different kinds of foreign direct investment (branch 3 and downward in Figure 3.6), licensing agreements to greenfield construction (building a new facility from the ground up), vary by degrees of ownership. The licensing management contract is by far the simplest and cheapest way to produce abroad. Another firm is licensed to

Figure 3.6 The Direct Foreign Investment Decision Sequence



Source: Adapted from Gunter Dufey and R. Mirus, "Foreign Direct Investment: Theory and Strategic Considerations," unpublished, University of Michigan, May 1985.

produce the product, but with your firm's technology and know-how. The question is whether the reduced capital investment of simply licensing the product to another manufacturer is worth the risk of loss of control over the product and technology.

The firm that wants direct control over the foreign production process next determines the degree of equity control: to own the firm outright, or as a joint investment with another firm. Trade-offs with joint ventures continue the debate over control of assets and other sources of the firm's original competitive advantage. Many countries try to ensure the continued growth of local firms and investors by requiring that foreign firms operate jointly with local firms.

The final decision branch between a "greenfield investment"—building a firm from the ground up—and the purchase of an existing firm, is often a question of cost. A greenfield investment is the most expensive of all foreign investment alternatives. The acquisition of an existing firm is often lower in initial cost but may also contain a number of customizing and adjustment costs that are not apparent at the initial purchase. The purchase of a going concern may also have substantial benefits if the existing business possesses substantial customer and supplier relationships that can be used by the new owner in the pursuit of its own business.

THE THEORY OF FOREIGN DIRECT INVESTMENT

What motivates a firm to go beyond exporting or licensing? What benefits does the multinational firm expect to achieve by establishing a physical presence in other countries? These are the questions that the theory of foreign direct investment has sought to answer. As with trade theory, the questions have remained largely the same over time, while the answers have continued to change. With hundreds of countries, thousands of firms, and millions of products and services, there is no question that the answer to such an enormous question will likely get messy.

The following overview of investment theory has many similarities to the preceding discussion of international trade. The theme is a global business environment that attempts to satisfy increasingly sophisticated consumer demands, while the means of production, resources, skills, and technology needed become more complex and competitive. The theory of foreign direct investment is indeed eclectic, representing a collection of forces and drivers. The man responsible for the majority of the theoretical development, John Dunning, termed the theory the **eclectic paradigm**.

eclectic paradigm Representing a collection of forces or drivers.

FIRMS AS SEEKERS

A firm that expands across borders may be seeking any of a number of specific sources of profit or opportunity.

1. **Seeking resources:** There is no question that much of the initial foreign direct investment of the eighteenth and nineteenth centuries was the result of firms seeking unique and valuable natural resources for their products. Whether it be the copper resources of Chile, the linseed oils of Indonesia, or the petroleum resources spanning the Middle East, firms establishing permanent presences around the world are seeking access to the resources at the core of their business.
2. **Seeking factor advantages:** The resources needed for production are often combined with other advantages that are inherent in the country of production. The same low-cost labor at the heart of classical trade theory provides incentives for firms to move production to countries possessing these factor advantages. As noted by Vernon's product cycle, the same firms may move their own production to locations of factor advantages as the products and markets mature.

3. **Seeking knowledge:** Firms may attempt to acquire other firms in other countries for the technical or competitive skills they possess. Alternatively, companies may locate in and around centers of industrial enterprise unique to their specific industry, such as the footwear industry of Milan or the semiconductor industry of the Silicon Valley of California.
4. **Seeking security:** Firms continue to move internationally as they seek political stability or security. For example, Mexico has experienced a significant increase in foreign direct investment as a result of the tacit support of the United States, Canada, and Mexico itself as reflected by the North American Free Trade Agreement.
5. **Seeking markets:** Not the least of the motivations, the ability to gain and maintain access to markets is of paramount importance to multinational firms. Whether following the principles of Linder, in which firms learn from their domestic market and use that information to go international, or the principles of Porter, which emphasize the character of the domestic market as dictating international competitiveness, foreign market access is necessary.

FIRMS AS EXPLOITERS OF IMPERFECTIONS

Much of the investment theory developed in the past three decades has focused on the efforts of multinational firms to exploit the imperfections in factor and product markets created by governments. The work of Hymer, Kindleberger, and Caves noted that many of the policies of governments create imperfections. These market imperfections cover the entire range of supply and demand of the market: trade policy (tariffs and quotas), tax policies and incentives, preferential purchasing arrangements established by governments themselves, and financial restrictions on the access of foreign firms to domestic capital markets.

1. **Imperfections in access:** Many of the world's developing countries have long sought to create domestic industry by restricting imports of competitive products in order to allow smaller, less competitive domestic firms to grow and prosper—so-called **import substitution** policies. Multinational firms have sought to maintain their access to these markets by establishing their own productive presence within the country, effectively bypassing the tariff restriction.
2. **Imperfections in factor mobility:** Other multinational firms have exploited the same sources of comparative advantage identified throughout this chapter—the low-cost resources or factors often located in less-developed countries or countries with restrictions on the mobility of labor and capital. However, combining the mobility of capital with the immobility of low-cost labor has characterized much of the foreign direct investment seen throughout the developing world over the past 50 years.
3. **Imperfections in management:** The ability of multinational firms to successfully exploit or at least manage these imperfections still relies on their ability to gain an “advantage.” Market advantages or powers are seen in international markets as in domestic markets: cost advantages, economies of scale and scope, product differentiation, managerial or marketing technique and knowledge, financial resources and strength.

All these imperfections are the things of which competitive dreams are made. The multinational firm needs to find these in some form or another to justify the added complexities and costs of international investments. The Focus on Politics, Bridging the Red Sea, illustrates one of the many imperfections confronted by multinationals in real-world trade.

import substitution A policy for economic growth adopted by many developing countries that involves the systematic encouragement of domestic production of goods formerly imported.

**FOCUS
ON
POLITICS**

Bridging the Red Sea

How can a border dispute between two of Africa's smallest countries threaten global trade? By being at the right spot at the wrong time. Djibouti and Eritrea have a long-simmering border dispute—a border that, for many miles, is nothing other than a rock wall. But more importantly, the two Horn of Africa countries are at the southern mouth of the Red Sea, and ultimately, influence shipping traffic in and out of the Suez Canal.

Djibouti has been the recipient of substantial foreign investment in recent years, particularly from Dubai, because it is seen as a major gateway for African trade in the coming decade. Although there are a variety of different shipping and logistics investments under way, it is “the Bridge” that has captured much of the world's attention. Tarek bin Laden, one of Osama bin Laden's half-brothers, is leading a project to build a 29-kilometer-long bridge from Djibouti to Yemen,

traversing the Red Sea. The bridge would link Arabia and Africa and provide a base for highway, railway, and pipeline conduits—all for the nominal sum of \$200 billion—linking the drought-stricken population of Djibouti, where 150,000 of its 800,000 people are today on the edge of starvation.

But all of these bridge dreams and investments could evaporate faster than water in the arid desert if Djibouti's neighbor to the north, Eritrea, stops rattling its swords and jumps the wall. Ironically, much of the border dispute dates back to a time before either existed as an independent state. The two countries are debating which colonial treaty or protocol actually defines their borders and behaviors: the 1897 Abyssinia-France treaty, the 1900–1901 France–Italy protocols, or the 1935 France–Italy treaty.

Sources: “Djibouti-Eritrea Border Tension Could Escalate, Warns UN Team,” UN News Centre, September 18, 2008; “The Red Sea: Can It Really Be Bridged?” Economist, July 31, 2008; Jeffrey Gettleman, “Eritrea and Djibouti Square Off over Wasteland at the Horn of Africa,” The New York Times, May 25, 2008.

FIRMS AS INTERNALIZERS

The question that has plagued the field of foreign direct investment is, Why can't all of the advantages and imperfections mentioned be achieved through management contracts or licensing agreements (the choice available to the international investor at step 3 in Figure 3.6)? Why is it necessary for *the firm itself* to establish a physical presence in the country? What pushes the multinational firm further down the investment decision tree?

The research of Buckley and Casson and Dunning has attempted to answer these questions by focusing on nontransferable sources of competitive advantage—proprietary information possessed by the firm and its people. Many advantages firms possess center around their hands-on knowledge of producing a good or providing a service. By establishing their own multinational operations they can internalize the production, thus keeping confidential the information that is at the core of the firm's competitiveness. **Internalization** is preferable to the use of arms-length arrangements such as management contracts or licensing agreements. They either do not allow the effective transmission of the knowledge or represent too serious a threat to the loss of the knowledge to allow the firm to successfully achieve the hoped-for benefits of international investment.

internalization Occurs when a firm establishes its own multinational operation, keeping information that is at the core of its competitiveness within the firm.

SUMMARY

The theory of international trade has changed drastically from that first put forward by Adam Smith. The classical theories of Adam Smith and David Ricardo focused on the abilities of countries to produce goods more cheaply than other countries. The earliest production and trade theories saw labor as the major factor expense that went into any product. If a country could pay that labor less, and if that labor could produce more physically than labor in other countries, the country might obtain an absolute or comparative advantage in trade.

Subsequent theoretical development led to a more detailed understanding of production and its costs. Factors of production are now believed to include labor (skilled and unskilled), capital, natural resources, and other potentially significant commodities that are difficult to reproduce or replace, such as energy. Technology, once assumed to be the same across all countries, is now seen as one of the premier driving forces in determining who holds the competitive edge or advantage. International trade is now seen as a complex combination of thousands of products, technologies, and

firms that are constantly innovating to either keep up with or get ahead of the competition.

Modern trade theory has looked beyond production cost to analyze how the demands of the marketplace alter who trades with whom and which firms survive domestically and internationally. The abilities of firms to adapt to foreign markets, both in the demands and with the competitors that form the foreign markets, have required much of international trade and investment theory to search out new and innovative approaches to what determines success and failure.

Finally, as world economies grew and the magnitude of world trade increased, the simplistic ideas that guided international trade and investment theory have had to grow with them. The choices that many firms face today require them to directly move their capital, technology, and know-how to countries that possess other unique factors or market advantages that will help them keep pace with market demands. Even then, world business conditions constitute changing fortunes.

KEY TERMS

autarky 64	factor proportions theory 72	abandoned product ranges 81
mercantilism 64	factors of production 72	intra-industry trade 81
specie 65	factor intensity 72	product differentiation 81
absolute advantage 66	input-output analysis 75	scale economies 83
division of labor 67	Leontief Paradox 75	eclectic paradigm 88
comparative advantage 67	market segment 77	import substitution 89
production possibilities frontier 68	product cycle theory 77	internalization 90
opportunity costs 70		

QUESTIONS FOR DISCUSSION

1. According to the theory of comparative advantage as explained by Ricardo, why is trade always possible between two countries, even when one is absolutely inefficient compared to the other?
2. The factor proportions theory of international trade assumes that all countries produce the same product the same way. Would international competition cause or prevent this from happening?
3. What, in your opinion, were the constructive impacts on trade theory resulting from the empirical research of Wassily Leontief?
4. Product cycle theory has always been a very “attractive theory” to many students. Why do you think that is?
5. If the product cycle theory were accepted for the basis of policymaking in the United States, what should the U.S. government do to help U.S. firms exploit the principles of the theory?
6. Many trade theorists argue that the primary contribution of Michael Porter has been to repopularize old ideas in new, more applicable ways. To what degree do you think Porter's ideas are new or old?
7. How would you analyze the statement that “international investment is simply a modern extension of classical trade”?
8. How can a crisis in Asia impact jobs and profits in the United States?

INTERNET EXERCISES

1. The differences across multinational firms are striking. Using a sample of firms such as those listed here, pull from their individual web pages the proportions of their incomes that are earned outside their country of incorporation.

Walt Disney	http://www.disney.com/
Nestlé S.A.	http://www.nestle.com/
Intel	http://www.intel.com/
Chrysler	http://www.chrysler.com/
Mitsubishi Motors	http://www.mitsubishi-motors.com/