

20.1

The benefits of trade

Learning outcomes

- Explain that gains from trade include lower prices for consumers, greater choice for consumers, the ability of producers to benefit from economies of scale, the ability to acquire needed resources, a more efficient allocation of resources, increased competition, and a source of foreign exchange.

A morning tale of two teenagers



Kaja's home.

Elise's home.



The sky is going from black to purple, and Kaja knows that it's time to get up. She wakes up her brother. The reeds under his head, she notices, are still wet from the blowing rains of last night. Her brother moans and crawls towards the opening of the hut. Together, they make the long, sleepy hike to the water. An hour later, the sky lighter with the rising sun, Kaja and her brother wade through the shallow water with harpoons in hand. Time passes without any luck, then Kaja spears something. A big fish, she wishes, because that would make her parents happy and they would reward her with a handful of nuts gathered the previous day. But it's a small one, though enough for breakfast, and it's getting late. The pair head back home, stopping at a stand of trees to pick up some coconuts. Their early morning chores complete, they continue home. They greet their parents an hour later, as their mum tends to their younger sisters in the hut. Soon, breakfast will be ready, and the day can begin.

At 07:00, a mechanical bird chirps; Elise reaches across her bed and pinches her phone. Ten minutes later, the bird chirps again; Elise takes the phone and starts checking her messages. She starts with text messages from her friends at school, emails from soccer pals, and then a look at the weather information for today. She checks her closet, pulls out two items and a t-shirt from under her bed. As she steps into the hallway, she's surprised by the cold. Her brother, who is always 'hot,' has turned the air conditioning up again. In 20 minutes, she has cleaned up and is taking some extra time with



her makeup. From the kitchen, she can smell her mum's coffee, the frying eggs, and a whiff of toasting bread. After a call from her mother, she rushes to breakfast. Elise skips the eggs, but eats two pieces of toast with butter and jam. Minutes later, she's on the train to her school, nearly 3 kilometres away. As she walks in, greeting friends and chatting, she checks the time: nearly 8 o'clock. Time to get to class.

Two lives could hardly be more different, but what accounts for this difference? You probably see Elise's morning as that of a typical modern teenager, while Kaja's seems to belong to an ancient time. Elise is any middle-class European teenager, while Kaja's story is based on what we know of the Sentinelese people, an isolated tribe living on one of the Andaman Islands. Elise sleeps in comfort in a secure apartment, Kaja in a hut made of thatch. Elise enjoys bread from France, butter from Germany, and jam from England. Kaja's entire food menu comes from what is available nearby. Elise sleeps late and takes the train to school. Kaja wakes early and walks nearly two hours before breakfast. Elise communicates with dozens of people every day; most are from outside her family, some are from other parts of her country, other parts of Europe, even other continents. Kaja may see a few non-family members of the tribe in the evening, but she will probably never speak to anyone outside the few hundred other Sentinelese.

The Sentinelese are among the most isolated people on earth, resisting any contact with outsiders. Only a few photos exist of them, and even the Indian government has given up on contacting them. It goes without saying that the Sentinelese have a closed economy. Their entire standard of living comes from the resources available to them and their own labour. And if we acknowledge that the simplicity of such an existence may be attractive, we must also see the limitations, inconveniences, hardships, and difficulties that go with it.

Elise, meanwhile, floats along contentedly, without direct knowledge of where her food, phone, clothes, and all the other elements in her life come from. She's aware, of course, of her father's and mother's jobs, and has a sense she will need to find one herself some day, something she's good at. She expects of course, that she will be very good at her job, maybe among the best, and will get everything she needs, materially speaking, from the money she earns doing it. In short, Elise will eventually specialize in something, and will trade her wages for everything else.

As it is with these two representative stories, so it goes with countries and trade. Economists have long argued that what is true on the individual level is true for whole nations as well: countries grow rich through trade. All countries have valuable assets or resources. Using their different resources to the fullest, through specializing and trading, should yield extra wealth for all.

Voluntary trade is mutually beneficial

The buying and selling of goods and services across country borders is called international trade. Trade has a long history, before countries as we know them existed, and even before recorded history. From the trading of flint for obsidian, to the age of empires and colonialism, and into today's modern era of globalization, the impulse to improve one's life through trade has endured. Trade increasingly accounts for greater and greater amounts of a country's well-being. Exports, the selling of goods and services to buyers outside the country, have increased tremendously worldwide, particularly in the last 20 years. Imports, the buying of goods from sellers outside the country, have also increased. Economists generally believe that this growth occurs because it benefits both parties to the transaction, and that the benefits to trade are many. These benefits are discussed below.



Free trade is a market environment where buyers and sellers can make transactions without government intervention.

Lower prices

Countries, just like individuals, can specialize in particular areas of expertise. This means they produce more efficiently than if each country tried to produce enough of everything for all its needs. Thus, a global division of labour takes place, where these multiplied efficiencies add to the overall wealth of consumers everywhere. In short, we get more output for less resources. Trade, it can be said, drives down real prices of the goods and services we all want.

Taking advantage of different factor endowments

No two countries share exactly the same resource base. Some are by the sea, some blessed with fertile farmland, some with ample deposits of minerals, and others placed well for trading between the others. Trade takes advantage of these differences between countries. The owner of a pin factory sells pins to his town, whereas the farmer from the country sells his milk and grain, which the factory owner would have enormous difficulty making on his own. Saudi Arabia, flush with oil deposits, buys technology from Japan, which has few natural resources but a very skilled technical and technology sector. Both are better off.

Economies of scale

As production levels grow ever larger to meet international demand, the specialization of managers and the introduction of expensive technology can help improve the productivity of a given business sector. The benefits of extreme specialization bring lower and lower average costs. These low costs drive down the prices of these goods. But these gains come from large-scale production and would not be likely to occur if production were limited to the domestic market.

Increased variety/choice

A brief check around your room or class will reveal an array of goods from many countries. A computer assembled in China; a glass from Russia; clothes from Thailand, Egypt and the Dominican Republic. As the number of countries in the global market has grown, so has the amount of choice. Even a simple desk lamp is now available in nearly any size, colour, design and wattage. While some find these choices overwhelming, others enjoy the power it gives to consumers to make decisions about their own purchases.

Acquisition of needed resources

Some countries lack critical goods to improve their standard of living. In some cases, production of a needed good is simply impossible. Trade is the only way to get it. This need can range from a vital natural resource like natural gas for heating, to the need to import capital goods that might improve industry or agriculture. Adding these imported goods can improve production or improve everyday life for buyers.

Competition can improve efficiency

When a company controls a market, it lacks the competitive incentive to provide good service and lower costs. To maximize profits, it seeks to set prices as high as possible and reduce service costs. With no opposition to challenge its practices, such a company thrives at the expense of consumers who have no choice. However, when domestic markets are opened to foreign competition, companies are pressed into lowering prices and improving service, or they suffer from the competition with the foreign firms.

Some economists have claimed that since China entered the global economy in the 1980s, it has been the greatest counter-inflationary force in the world. China's low-cost labour and abundant natural resources have led to it emerging as the largest manufacturer of cheap secondary goods in the world. How has China's emergence in the global economy benefited consumers in the West?





Political benefits

'Merchants have no country. The mere spot they stand on does not constitute so strong an attachment as that from which they draw their gains.' So wrote Thomas Jefferson in 1814. Indeed, trade requires relationships and attachments. Merchants want predictable supply of their imported resources and hope to maintain steady and reliable output to customers abroad. They abhor disruptions to everyday business and future planning. This, economists believe, helps keep the peace. This idea has been popularized by Thomas Friedman in *The Lexus and the Olive Tree* as 'the golden arches theory of conflict resolution', which holds that no two countries with a McDonald's have ever fought a war.

The updated version of this analogy suggests the same sort of pacifying effect to countries who are part of Apple's iPhone supply chain. However, more profound examples exist. After hundreds of years of conflict, reaching an apex of destruction and misery in two world wars in the 20th century, most of western Europe has since enjoyed a period of relative quiet and peaceful relations. They have also, not coincidentally, embarked on an extraordinary experiment in economic integration. Decade by decade, the six founding countries of the original European Common Market (1957), have been joined by 21 others while lowering barriers and opening borders to goods, services, and now workers. While this period of calm may seem small compared to the ages of bloody rivalry that preceded it, economists and political thinkers generally agree that trade and integration have consistently encouraged compromise and resolution over conflict and antagonism.

Efficiency and exports = growth and development

Development economists have concluded that exports can be a path to significant economic growth. When countries develop their comparative advantages, they become competitive and export to world markets. This results in a source of foreign exchange and a more efficient allocation of resources. The foreign exchange revenue boosts GDP, and allows more consumption of needed goods from foreign markets.

Furthermore, the growth can lead to an increase in incomes and, potentially, an overall increase in the average standard of living if devoted to education, infrastructure and healthcare. Figure 20.1 shows how exports regularly 'stay ahead' of GDP, suggesting that without consistent gains in exports, GDP might stagnate or even drop.

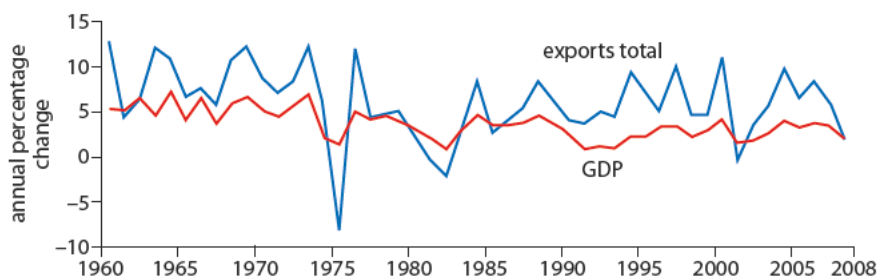


Figure 20.1
Export growth vs GDP growth.

A brief history of international trade theory

The Scottish economist and moral philosopher Adam Smith further developed our view of the division of labour at the village level with his analogy of the pin maker:

... a workman not educated to this business, nor acquainted with the use of the machinery employed in it, could scarce, perhaps, with his utmost industry, make one pin in a day, and certainly could not make

The Corn Laws were protectionist tariffs placed on imported grain to protect British land owners from foreign competition. Their repeal in 1846 marked a significant shift towards freer trade by the British empire, which had previously pursued mercantilism. This economic theory believed a country's wealth and power was derived primarily from the sale of exports and the hoarding of monetary wealth at home (primarily gold bullion).

To access Worksheet 20.1 on gains from trade, please visit www.pearsonbacconline.com and follow the onscreen instructions.

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twenty. ... But if they had all wrought separately and independently, and without any of them having been educated to this peculiar business, they certainly could not each of them have made twenty, perhaps not one pin in a day; that is, certainly, not the two hundred and fortieth, perhaps not the four thousand eight hundredth part of what they are at present capable of performing, in consequence of a proper division and combination of their different operations ...

Adam Smith, *The Wealth of Nations* (Book 1), 1776

To Smith, the benefits of specialization were obvious. Everyone develops special efficiency, and auctions off that efficiency in the free market. Thus, through self-interest and trade, prosperity is made possible.

Smith's efforts were seconded by the work of David Ricardo just a few decades later. Ricardo, a banker and Member of Parliament, disliked the British Corn Laws, which he believed protected wealthy landowners and drove food prices up for everyone else. In particular, he viewed the laws as a redirection of income and resources away from relatively new and dynamic industries. In the process of fighting the Corn Laws, Ricardo developed the theory of comparative advantage. The theory holds that even countries that are more productive in all aspects should still trade with their otherwise inferior partners. This theory is explored later in this chapter (pages 420–423).

The French economist and philosopher Frédéric Bastiat took up the theme nearly 100 years later, on the national level. In the *Petition of the Candlemakers*, Bastiat satirizes the impulse to protect this or that market. The candlemakers in this work see the Sun as a rival and propose that the illumination of buildings with natural light be made illegal, as this would benefit the candle trade. Furthermore, by protecting candlemakers, all suppliers of candle-related goods would benefit: tallow producers, whale hunters who sell the blubber, the shipping industry, by extension all of France would benefit from the new rule. However, Bastiat's ridicule did not end the impulse to restrict markets.

More recently, James Ingram presented another way to demonstrate the benefits of trade, with the story of Mr X. This secretive and mysterious businessman tells the world he can turn simple primary goods like grain, coal and cotton into TVs, radios and cars, very cheaply. Mr X opens his factory, and the results stun the world. True to his word, the basic goods go in and the relatively advanced ones roll out. Consumers love the cheaper prices, competitors loathe the competition. Mr X jealously guards his trade secrets but a little boy wanders onto the property one day and discovers the truth: there are no miraculous manufacturing techniques, no special processes. The company, it turns out, is one big import–export business. The gains Mr X produced were made by trade alone.

20.2

Absolute and comparative advantage (HL only)

Learning outcomes

- Explain the theory of absolute advantage.
- Explain, using a diagram, the gains from trade arising from a country's absolute advantage in the production of a good.
- Explain the theory of comparative advantage.
- Describe the sources of comparative advantage, including the differences between countries in factor endowments and the levels of technology.



- Draw a diagram to show comparative advantage.
- Calculate opportunity costs from a set of data in order to identify comparative advantage.
- Draw a diagram to illustrate comparative advantage from a set of data.
- Discuss the real-world relevance and limitations of the theory of comparative advantage, considering factors including the assumptions on which it rests, and the costs and benefits of specialization (a full discussion must take into account arguments in favour and against free trade and protection).

Absolute advantage

It is important to acknowledge what may be obvious: some countries are simply more efficient at some forms of production than other countries. This efficiency is called absolute advantage.

Countries that possess an absolute advantage in a good are wise to specialize and produce that good. Table 20.1 shows two countries with clear absolute advantage in their respective specialities. This table shows the limits of production for these countries: Country S can produce 30 units of oil or 5 units of wheat; Country U can produce 3 units of oil or 15 units of wheat. Country S is far superior to Country U in oil production, whereas the Country U is much more efficient at growing wheat.


 Absolute advantage is the situation that occurs in comparative advantage theory, when one country can produce more of a given product with the same or less resources than another country.

TABLE 20.1 ABSOLUTE ADVANTAGE		
Country	Oil/units produced per unit of time	Wheat/units produced per unit of time
Country S	30	5
Country U	3	15

A glance at this two-country trading scenario immediately tells you that each country should specialize and trade. With a total of 30 units of oil and 15 of wheat on the market, global output is at the highest possible point. Country S could never produce that much wheat on its own, nor could Country U produce that much oil. Absolute advantage theory states that Country S should specialize in oil and trade it for wheat from Country U, which should specialize in wheat production.

However, the world rarely has such extreme cases of clear absolute advantage. A more common real-world occurrence is when one country has absolute advantage in several types of production. Some countries, it would seem, are better at making nearly everything. Should those countries bother to trade with their inferiors?

To better grasp the problem, imagine the following scenario. Lawyer J worked her way through school as a data entry clerk. She was extraordinary, typing 110 words per minute. When she became a lawyer, she was the best in her area, but she never seemed to find a typist worth hiring. None, compared to her, were any good. It was frustrating for her to see the mistakes being made, and she found it tedious to wait for the typist to catch up with her as she dictated legal briefs. ‘What a waste of money!’ she would sometimes say to herself. So occasionally, after work hours, she would sit down and do some of the typing work herself. From an economic perspective, should Lawyer J do her own typing?

This demands some thought. In economic terms, Lawyer J possesses an absolute advantage in both typing and lawyering. In other words, she can produce more output, is more efficient, at each task. This suggests that perhaps she should do both things, as she is more efficient at both.

However, she is rewarded very differently for each activity. When she does her own typing, she saves the \$40 per hour she would normally pay her secretary. When she is working as a lawyer, she is paid an average of \$300 per hour. If the answer seems a little clearer now, let's clarify the reasons why.

If we assume that Lawyer J does one hour of typing instead of lawyering, what does she lose? What is her opportunity cost of typing? She saves \$40, but loses \$300 in lawyering fees. Therefore her opportunity cost is \$260. When she hires a typist, she loses the \$40 paid to her secretary, but keeps the \$300 for attorney fees. Therefore her opportunity cost for lawyer work is only \$40.

Because she earns so much more as a lawyer (and would lose it if she chose to type for that hour), it is logical to conclude that she should work always as a lawyer. This is the activity with the lower opportunity cost. Therefore, even though she has an absolute advantage in both jobs, her *comparative advantage* lies in lawyering.

Comparative advantage and opportunity cost

Comparative advantage is when a country produces a good at a lower domestic opportunity cost than another country.



The same principle applies to countries. Comparative advantage theory says that countries should specialize in the production of whatever has the lowest opportunity cost (saying something has the lowest opportunity cost naturally implies that it is the good whose production has the most value). Countries that specialize produce more efficiently and should trade their output with other countries to enjoy a higher standard of living.

David Ricardo was the first to show the benefits of comparative advantage mathematically, in the early 1800s. With countries, it is possible to demonstrate comparative advantage with a simplified example involving two countries producing only two goods. For a country to produce more of good A, it must sacrifice some portion of good B. This is the opportunity cost of more of good A, and the reverse holds true for shifting resources to more of good B.

Comparative advantage matrix: output model

Table 20.2 shows the output possible for each product and each country, if each produced *only* that good. For example, if Country C produced only TVs, it could produce 10 TVs and no smartphones. If Country J produced 15 smartphones, it could not make any TVs. If either country wanted to produce more of one, it would need to sacrifice some of its production of the other. In this regard, Table 20.2 represents the countries' production possibilities.

TABLE 20.2 COMPARATIVE ADVANTAGE MATRIX: OUTPUT METHOD

Country	Output of TVs	Output of smartphones
Country C	10	5
Country J	20	15

Based on their output, it is rather easy to determine who has the absolute advantage. Which country produces more efficiently? Country J produces more TVs, as well as more smartphones. Therefore, Country J has the absolute advantage in both industries. Like Lawyer J, Country J is better at both tasks. However, Country J may still benefit from trade with the clearly inferior producer, Country C.

Domestic opportunity cost

To find out who has the comparative advantage, we need to calculate the domestic opportunity costs in each country of both TVs and smartphones. In other words, what is the trade-off for production inside Country J and Country C?



In calculating domestic opportunity cost for an output problem, we use the equation:

$$\text{opportunity cost X} = \frac{\text{output Y}}{\text{output X}}$$

Worked example

For Country C:

$$\text{opportunity cost of producing 1 TV} = \frac{5 \text{ smartphone}}{10 \text{ TV}} = 0.5 \text{ smartphone}$$

$$\text{opportunity cost of producing 1 smartphone} = \frac{10 \text{ TV}}{5 \text{ smartphone}} = 2 \text{ TV}$$

For Country J:

$$\text{opportunity cost of producing 1 TV} = \frac{15 \text{ smartphone}}{20 \text{ TV}} = 0.75 \text{ smartphone}$$

$$\text{opportunity cost of producing 1 smartphone} = \frac{20 \text{ TV}}{15 \text{ smartphone}} = 1.33 \text{ TV}$$

We can now place opportunity cost values inside the matrix to clarify the choices. Table 20.3 shows the trade-offs for making one good, in terms of another. For Country C, to produce 1 TV would require the sacrifice of 0.5 of a smartphone. For Country C to make 1 smartphone, it would lose 2 TVs. For Country J, making 1 TV would require the sacrifice of 0.75 of a smartphone. Making 1 smartphone would require the sacrifice of 1.33 TVs.

TABLE 20.3 COMPARATIVE ADVANTAGE MATRIX: OUTPUT METHOD WITH OPPORTUNITY COSTS

Country	Output of TVs	Opportunity cost of producing 1 TV	Output of smartphones	Opportunity cost of producing 1 smartphone
Country C	10	0.5 smartphone	5	2 TV
Country J	20	0.75 smartphone	15	1.33 TV

Cross-market comparison

Next, to determine which country has the lowest opportunity cost of production, we make a comparison across the market for each product.

In the market for TVs, Country C has the lower opportunity cost, giving up only 0.5 of a smartphone for every TV made, whereas Country J gives up 0.75 of a smartphone for every TV made. Thus, Country C has the comparative advantage in TVs, because it has the lower opportunity cost.

In the market for smartphones, Country J has the lower opportunity cost, giving up only 1.33 of a TV for every smartphone made, whereas Country C gives up 2 TVs for every smartphone made. Thus, Country J has the comparative advantage in smartphones, because it has the lower opportunity cost.

Specialize and trade

With comparative advantage determined, it is rational for each country to specialize in the production of the good for which it has the lowest opportunity cost. This maximizes production between the two countries, which then trade their goods with each other. What is the price of these goods? Each country sells the good at some price between their own opportunity cost and the opportunity cost of the other country.

Therefore, Country C sells its TVs at a price somewhere between 0.5 and 0.75 smartphone per TV. The exact trade price is negotiable, but it is clear that Country C must get a price better than 0.5 smartphone for each TV. Otherwise it would produce smartphones itself.

Country J trades its smartphones at a price somewhere between 1.33 and 2 TVs per smartphone. The exact trade price is negotiable, but it is clear that Country J must get a price better than 1.33 TVs for each smartphone. Otherwise it would produce TVs itself.

Comparative advantage matrix: input model

● Examiner's hint

When analysing production possibilities tables, you need to be clear whether the data in them are about quantity of output produced or the number of inputs needed to produce one unit of output. If the table contains output data, then the goal is to *maximize the total output* of the goods being produced. Thus, to determine absolute advantage, we look for the country with the higher number. If the table contains input data, then the goal is to *minimize the use of inputs*. Thus, to determine absolute advantage, we look for the country with the lower number.

Calculations and determinations of comparative advantage can also be made using factor inputs, rather than market production or output. This measure of efficiency is demonstrated by how relatively few inputs go into the production of one unit of the good. In this type of matrix, high numbers reflect inefficiency, as more resources are being used; low numbers show efficiency, with fewer inputs per unit of output.

Table 20.4 shows the amount of labour needed to produce one unit of iron and one unit of butter. It is clear that Country A has the absolute advantage in both iron and butter production. It produces each product with fewer hours of labour.

TABLE 20.4 COMPARATIVE ADVANTAGE: INPUT METHOD		
Country	Input time for output of 1 unit iron/hours	Input time for output of 1 unit butter/hours
Country A	25	15
Country Z	10	5

Domestic opportunity cost

To find out who has the comparative advantage, we need to calculate the domestic opportunity costs for each country. When calculating the opportunity cost for factor input values, we use the following equation:

$$\text{opportunity cost X} = \frac{\text{input X}}{\text{input Y}}$$

Worked example

For Country A:

$$\text{opportunity cost of producing 1 unit iron} = \frac{25 \text{ hours iron}}{15 \text{ hours butter}} = 1.67 \text{ butter}$$

$$\text{opportunity cost of producing 1 unit butter} = \frac{15 \text{ hours butter}}{25 \text{ hours iron}} = 0.6 \text{ iron}$$

Country Z:

$$\text{opportunity cost of producing 1 unit iron} = \frac{10 \text{ hours iron}}{5 \text{ hours butter}} = 2 \text{ butter}$$

$$\text{opportunity cost of producing 1 unit butter} = \frac{5 \text{ hours butter}}{10 \text{ hours iron}} = 0.5 \text{ iron}$$

We can now place opportunity cost values inside the matrix to clarify the choices (Table 20.5).

TABLE 20.5 COMPARATIVE ADVANTAGE MATRIX: INPUT METHOD WITH OPPORTUNITY COSTS				
Country	Input time for output of 1 unit iron/hours	Opportunity cost of producing 1 unit iron	Input time for output of 1 unit butter/hours	Opportunity cost of producing 1 unit butter
Country A	25	1.67 butter	15	0.6 iron
Country Z	10	2 butter	5	0.5 iron



Cross-market comparison

Next, to determine which country has the lowest opportunity cost of production, we make the comparison across the market for each product.

In the market for iron, Country A has the lower opportunity cost, giving up only 1.67 of a butter unit for every unit of iron made, whereas Country Z gives up 2 butter units for every unit of iron produced. Thus, Country A has the comparative advantage in iron, because it has the lower opportunity cost.

In the market for butter, Country Z has the lower opportunity cost, giving up only 0.5 units of iron for every butter unit made, whereas Country A gives up 0.6 units of iron for every butter unit produced. Thus, Country Z has the comparative advantage in butter, because it has the lower opportunity cost.

Specialize and trade

With comparative advantage determined, it is rational for each country to specialize in the production of the good that has the lowest opportunity cost. This maximizes production between the two countries, which then trade goods with each other. Although this is a simplification of real-world realities (only two products per country), it reflects the potential benefit a country gets if it can incur lower opportunity costs to get the same or greater levels of output. After specializing, each country sells the good at some barter price between its own opportunity cost and the opportunity cost of the other country.

Therefore, Country Z trades butter at a price somewhere between 0.5 and 0.6 units of iron per unit of butter. Accordingly, Country A trades iron at a price somewhere between 1.67 and 2 units of butter per unit of iron. Country Z must get a price better than its domestic opportunity cost for butter (0.5 iron units) and Country A must get a price better than its domestic opportunity cost for iron (1.67 butter units). Assuming they both negotiate and trade, each is better off.

To access Worksheet 20.2 on payoff matrices, please visit www.pearsonbacconline.com and follow the onscreen instructions.

Absolute and comparative advantage with production possibilities curves

The concepts of absolute and comparative advantage can also be demonstrated using production possibilities curves (PPCs). Because simple PPCs assume the production of two goods, and show the trade-offs between those goods, we can deduce the relative opportunity costs.

Using the data in Table 20.1 (page 419), Figure 20.2 demonstrates the concept of absolute advantage for Country U and Country S. For the sake of simplicity, the trade-offs in each case are assumed to be constant. Thus, opportunity costs are constant, and the slope of the PPC line is a straight line.

With a fixed set of resources, Country U produces 15 units of wheat while Country S produces only 5 units. Country U has the absolute advantage in wheat. In the market for oil, however, Country S produces 30 units, compared to the Country U's 3 units. Thus, Country S has the absolute advantage in oil. From this, we deduce that Country U should produce wheat and sell it to Country

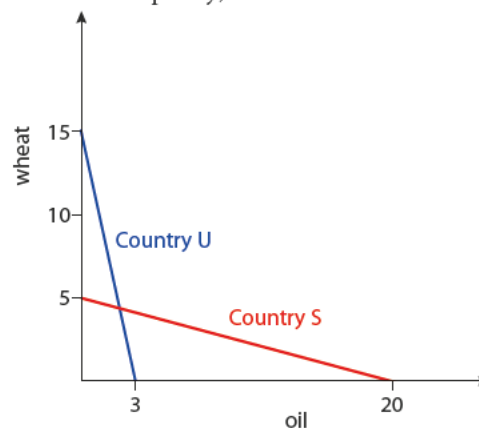


Figure 20.2
Absolute advantage on a PPC.

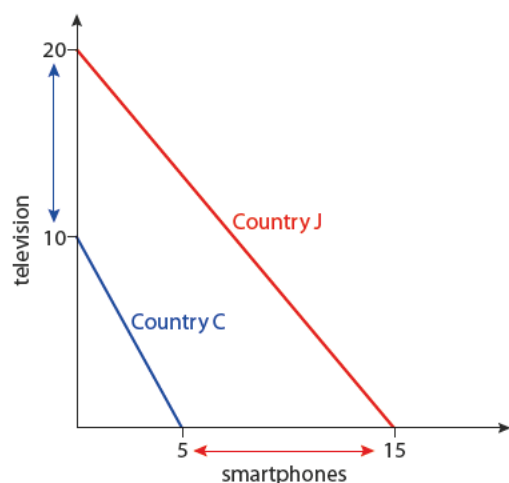


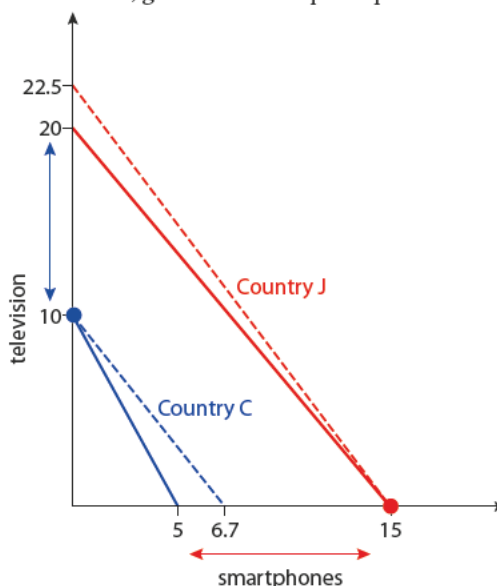
Figure 20.3
Production possibility
curves to show comparative
advantage.

S in exchange for its oil. The calculation of relative opportunity costs would support this, but it is hardly necessary since the choice of specialized goods for each country is obvious.

It is less obvious when one country is more productive in each area. Figure 20.3 shows the same information as Table 20.2. The PPC demonstrates Country J's possession of absolute advantage in both industries by having a PPC beyond Country C's in every direction. If we did not have the values to give us specific information, the slope of lines would give us a clue to the relative trade-offs for each country. Country C's line is steeper, suggesting that it probably gives up TVs more rapidly as it tries to increase its production of smartphones. We could then infer that Country J had the lower opportunity cost of smartphones. Logically, Country C would then have the better opportunity cost of TVs.

Let's assume that Country C and Country J find a trade price that's mutually agreeable. It should be something between the opportunity cost ratios they were previously experiencing. A rate of 1.5 TVs per smartphone is between 1.33 (the Country J's opportunity cost) and 2 (Country C's opportunity cost). The smartphone for TV rate would be the reciprocal of 1.5 (0.67) smartphones for every TV. In Figure 20.4, we assume that Country C specializes in TVs and makes 10, and Country J specializes in smartphones and makes 15. Each country now can trade at the new price, which means a new opportunity cost for each. This expansion of the PPC, in the area where the other country specializes, demonstrates the new, greater consumption possibilities for each country.

Figure 20.4
Expanded consumption
possibilities with
specialization and trade.



However, it is important to note that gains from comparative advantage only apply when the domestic opportunity cost ratios are different. When they are the same, when the trade-offs of one good for another are equal, there are no apparent benefits to trade. The domestic opportunity cost is the same for both countries, so there's no advantage to trading with the other country. Therefore, there is no comparative advantage.

● Examiner's hint

The production possibilities tables and curves here are unrepresentative of the real world. They would look more realistic if, instead of two specific goods, they represented two categories of goods. For instance, if we examined the output of agricultural goods and consumer electronics in South Korea and Australia, we would find that South Korea had a clear comparative advantage in consumer electronics, whereas Australia had the advantage in agricultural goods.



Sources of comparative advantage

What, then should a country produce? Where, in reality, do its comparative advantages lie? Resource endowments play a large role. A country that possesses most of the farmable land in the region is likely to have a comparative advantage in agriculture. One that has vast quantities of untapped fossil fuel or other natural resources may have a potential comparative advantage there. Other countries may have little natural resources or land, but have highly skilled workforces that provide financial, merchant, and other services to the world. Whether a country's possession of particular resources gives it a comparative advantage rests on two factors. First, the relative abundance of the resource. Second, the value of the good produced from the resource to the world market. An abundant resource that is highly valued is an obvious source of comparative advantage. Production will be efficient and opportunity costs low. A scarce resource with little value on the world markets has no advantage. Production will be costly and opportunity costs high. In selecting which industries to develop, many countries struggle to determine and exploit their true comparative advantages.

Limitations of comparative advantage

While recognized as essentially valid in theoretical form, the theory of comparative advantage is heavily criticized for not being an accurate representation of real trade.

Perils of extreme specialization

In theory, a country might devote its entire resources to the production of a single good. This makes the relative prosperity of the country dependent on the value of that good. If the good is a commodity, the country's entire income is bound to the price of the commodity. This would bring extraordinary risk to the population's well-being and potentially place the country on a roller-coaster of volatility. This overspecialization is just one of the risks of comparative advantage. A long-term concern is whether a country will be trapped in a certain type of production, thus limiting its potential for full development.

Many countries may find themselves with a comparative advantage in agricultural goods, in part because the developed world has already developed efficiencies in the making of many services and manufactured goods. With the rich world already in possession of this head start, poor agricultural economies are left producing commodities of relatively low market value while obeying the law of comparative advantage. Were they to strictly follow the law, the kind of structural change that is believed to be necessary for development might never happen. The country, in other words, might never develop industry or service sectors, and be relegated to a low standard of living and relative dependency.

W To learn more about specialization, visit www.pearsonhotlinks.com, enter the title or ISBN of this book and select weblink 20.2.

Unrealistic assumptions

Comparative advantage theory is also heavily criticized for being an inaccurate representation of the actual world of trade. Many of the assumptions underlying the theory, it is said, are simply invalid, as briefly discussed below.

- Transport costs, assumed to be irrelevant in theory, cannot be ignored in practice. They can raise costs enough to eliminate a comparative advantage.
- Goods are assumed to be identical. Wheat is wheat, whether from the USA or Ukraine. However, goods often have some differentiation, especially in the world of manufactured goods. It is difficult to assess true comparative advantage when the goods are not the same.

- Perfect information about the availability and prices of all available goods is impossible, given the vast nature of global markets. Thus, determining one's own comparative advantage is challenging at best.
- The theory assumes relatively constant costs. This is reflected in the PPCs with constant slopes. However, one would expect improvements in production that may lead to significant economies of scale. Constant cost assumptions might mask potential comparative advantages for industries that appear uncompetitive, or may overestimate an advantage that is actually less extreme than it appears.
- The two-country model is unrealistic, making the determination of comparative advantage rather difficult. However, multi-country analysis is possible with appropriate mathematical modelling.
- Full employment, a necessary condition of the theory, rarely occurs in practice. Developing countries, in particular, have massive unemployment and inefficiency.
- Finally, the assumption that countries practise free trade is highly debatable. While tariffs and other forms of protectionism have been significantly reduced in recent decades, many countries still protect markets with tariffs, subsidies, quotas and bureaucratic barriers. These practices distort the market, making the gains from comparative advantage difficult to discern, and even harder to realize.

To access Worksheet 20.3 on the Dominican Republic, please visit www.pearsonbacconline.com and follow the onscreen instructions.

HL EXERCISES

- 1 a** Given a fixed amount of resources, Country U and Country M can produce the number of soy beans and avocados indicated in the table below. Using the data in this table, draw two production possibilities curves, one for each country.

Country	soy beans/tons	avocados/tons
Country M	60	15
Country U	90	30

- b** Calculate the opportunity cost of producing soy beans and avocados in each country.
- c** Identify which country has a comparative advantage in soy beans and avocados.
- d** If the two countries were to trade, suggest a rate of exchange between soy beans and avocados, which would be favourable to both countries.
- e** Based on the rate of exchange you identified in **d**, draw a new production possibilities curve on the graph you drew in **a** showing the level of consumption in both countries with trade.

20.3

The World Trade Organization

Learning outcomes

- Describe the objectives and functions of the World Trade Organization.

A brief history

The World Trade Organization (WTO) advertises itself as the 'only international organization dealing with the global rules of trade between nations. Its main function is to ensure that trade flows as smoothly, predictably and freely as possible.' The WTO originated from negotiations on trade that followed World War II. It was generally thought that a wave of

protectionism in the 1930s drew countries closer to the war that followed. Thus, in 1948, 23 countries signed the General Agreement on Tariffs and Trade (GATT).

During the same negotiations, held in Bretton Woods, New Hampshire USA, the International Monetary Fund (IMF), the World Bank, and the Bretton Woods exchange rate system were also established with the aim of creating stability and order to world trade and income flows. In time, the GATT developed from an agreement to a forum for future negotiations, and eventually an organization in its own right.

Every few years, GATT negotiations were staged with the goal of creating standardized trade rules. After holding seven rounds of negotiations, the final round culminated in the creation of the WTO in 1993. The WTO extended and expanded the GATT mission, with greater scope over services and capital flows, as well as increased authority. It is based in Geneva, Switzerland, and has a staff of over 600. It is currently working on the Doha Round, and the stated purpose of this round is to expand the benefits of trade to less developed countries (LDCs).

The Doha round started in 2001 and is still unfinished without an end in sight. Already the longest trade round yet, the main barriers continue to be the reluctance of rich countries to reduce their heavy subsidies and protection of agricultural markets. In turn, rich countries are seeking reductions in allowable tariffs on developing country protectionist measures. At stake are hundreds of billions of dollars in new markets for developing countries.



Logos at the headquarters of the World Trade Organization.

Aims of the WTO

The WTO seeks to expand international trade by lowering trade barriers and improving the flow of trade. It has specific objectives (in bold, below) that enhance this overall goal.

- **Trade without discrimination.** WTO members are all asked to subscribe to Most Favoured Nation status. This means that goods from all WTO member countries are treated equally. A tariff applied to one is applied to all, and there are thus no real favourites. At the same time, foreign goods should be treated the same as domestic goods.
- **Freer trade through negotiation.** The success of each trade round is attributed to the combined efforts of continuous negotiation. This ensures that changes to trade policy are done by direct dealing, and also that they are done gradually. This allows affected countries to prepare for the adjustments that will probably be enacted when the new agreement comes into force.
- **Predictability through binding and transparency.** Binding refers to the commitment among members to keep tariffs at or below certain rates. This allows importers to assess markets more accurately and make better decisions about trade. Openness about trade rules also encourages more trade.
- **Promoting fair competition.** While devoted to free trade, the WTO also claims to seek trade that is more fair. Rules against dumping and intellectual property theft, for example, are aimed at increasing fair competition. More generally, the creation of a system of trade rules promotes fair play by establishing some fundamental guidelines for most trade.
- **Encouraging development.** Nearly two-thirds of WTO members are developing countries. These countries are granted special trade concessions because it is assumed that their industries need time and space to grow to a level of direct global competition.

With these objectives in mind, the WTO performs the following functions:

- provide a forum for trade negotiation
- execute WTO agreements
- evaluate and rule on trade complaints by member countries
- provide technical assistance to developing countries on trade issues
- track changes in member trade policies.

To learn more about WTO members, visit www.pearsonhotlinks.com, enter the title or ISBN of this book and select weblink 20.3.



EXERCISES

- 2** Use weblink 20.3 (see hotlinks box) to access the WTO site, select a WTO country and research its trade partners and overall trade ranking. Choose a country from the 153 current WTO members. Under 'trade statistics' for each country, identify the following aspects of your country's trade profile:
- i** the top five countries of export
 - ii** the top five importing countries
 - iii** overall rank in merchandise trade
 - iv** overall rank in exports and imports
 - v** by percentage, the top type of goods exported
 - vi** by percentage, the top type of goods imported.

Competing views of the WTO

Because the WTO is the only organization devoted to the expansion of trade, it is difficult to evaluate the achievements of the organization. There is no basis for direct comparison. However, it may be possible to arrive at some measure of understanding by evaluating the arguments and evidence of those on both sides of the issue.

Supporters' view

The WTO makes specific claims about its value, claims that are often synonymous with the benefits of free trade generally.

- The WTO system promotes peace. By increasing trade relationships between countries, the WTO helps reduce conflict as 'sales people rarely fight their customers'. 1930s Europe competed to raise barriers, which contributed to World War II, while post-war Europe has grown increasingly integrated by trade and is at peace.
- The WTO provides a place to handle disputes constructively. By providing a dispute process, with a schedule of negotiation as part of the early stages, the WTO encourages compromise.
- The WTO system is based on rules rather than power. The WTO often judges rich countries to be violators of trade policy. This rules-based system helps protect smaller, poorer trade partners when disputes arise.
- Free trade cuts the cost of living. When countries produce based on efficiencies and comparative advantage, the costs of food, clothes and other necessities are cheaper. The WTO notes that rich countries, primarily the EU and US, subsidize their farmers with nearly \$1 billion per day, enough to fly all their cows around the world first class one and a half times.
- Trade provides greater consumer choice and variety. Trade gives consumers worldwide access to goods, meaning any consumer can shop according to their preferences. More luxury goods are available, as well as a greater variety of cheaper consumer goods.

Europe's Common Agricultural Policy (CAP) is one of the largest obstacles to free trade in the world. This massive system of subsidies and tariffs supports the largest farms in Europe to the tune of millions of euros every year, providing European farmers with massive support from taxpayers. Such subsidies are a major obstacle to economic growth in the developing world because it is incredibly difficult for poor farmers to compete in global food markets.





- Trade boosts incomes. Agreements in the 1994 Uruguay round resulted in an income increase of between \$109 billion and \$510 billion. This income can be used by governments, in part, to improve services and infrastructure. However, domestic producers protest when inefficient industries face competition.
- Trade increases economic growth, which can increase employment. While trade can increase GDP, the effect on jobs, according to the WTO, is more complicated. Countries that lose jobs can smooth the adjustment with good transitional policies, or perhaps this is because countries with good policies tend to be the ones that are more likely to respond to job losses anyway. The results are, according to the WTO, mixed.
- The WTO system encourages efficiency and simplicity. Certainty about trade rules, transparency about the rules, and predictability about the trading environment all encourage trade and efficiency.
- WTO agreements shield countries from narrow interests. When asked to enact forms of protectionism, national governments resist the temptation because they want to be seen playing by international rules. Thus, governments are in a better position to ignore powerful special interest groups that would distort trade in their favour.
- The same rules create good incentives for better government. Short-term, special-interest lobbying and corruption are more difficult to enact when everyone knows the rules (transparency) and the government is pledged to support them.

Critics' view

While relatively few critics argue with the view that international trade makes everyone better off in theory, many critics take issue with the way that trade is organized by the WTO in practice.

- Despite claims to equalize the trade environment, WTO negotiations favour rich countries. These countries bring large groups of trade negotiators, far more than smaller countries. Furthermore, it has been charged that many agreements are made without consultation or involvement of poor countries. This has escalated in recent years during the Doha round – Brazil and India formed the 'G20' group to represent developing countries' needs.
- It is argued that most of the gains in trade have come from trade between rich countries, negating the claim that trade benefits everyone.
- Poor countries sometimes cannot afford trade representatives, and so have no representation in trade negotiations.
- Rich countries and individuals are getting richer faster than everyone else. Studies have shown that the rich–poor gap has been growing since 1990. Oxfam International notes that 'with only 14% of the world's population, high-income countries [still] account for 75% of global GDP, which is approximately the same share as in 1990' (*Rigged Rules and Double Standards*, 2002).
- The Uruguay round has not addressed tariff escalation. This refers to the practice of developed countries keeping tariffs on raw materials and primary goods (imported by these countries) low, while maintaining much higher tariffs on the semi-processed and higher-value goods made from the raw materials. This keeps away low-cost competition from LDCs in these semi-processed and higher-value industries. It also prevents LDCs from diversifying their production, increasing the risk of overspecialization.
- Agricultural subsidies in rich countries have not been reduced, despite pledges by countries signing up to the Uruguay round. These subsidies depress world prices, and reduce production in developing markets that would otherwise export to the developed world.



During the 1999 meeting of the WTO in Seattle, USA, protesters from around the world and all levels of society, demonstrated their opposition to the WTO's mission. When the protests turned violent, the Seattle police responded with force. Protesters would later argue that they were successful in stalling the WTO's progress towards enacting measures to reduce trade union power, endanger the environment and lead to the exploitation of poor workers in developing countries.

- The protection of intellectual property rights, an issue of far greater interest to the capital-intensive rich world, keeps innovation from spreading quickly to developing countries. In the area of pharmaceutical drugs, this issue is felt rather acutely, as it directly affects healthcare levels for countries that cannot afford to pay the prices of new drugs.
- As tariffs are dropped by successive rounds of trade agreements, rich countries appear to be resorting to other bureaucratic barriers such as product standards to keep goods out.
- Because the WTO has primarily commercial interests in mind, its agreements ignore cases of worker exploitation, as well as rights and safety issues. The WTO does little to encourage environmental protection. The promotion of trade empowers multinational corporations to campaign for relaxed environmental and worker standards. Creating and enforcing these standards is considered a local problem. Meanwhile, local authorities often compete to soften the standards to encourage companies to relocate.

To learn more about free trade, visit www.pearsonhotlinks.com, enter the title or ISBN of this book and select weblink 19.3.



A hot topic

Free trade, in theory and in practice, is among the more hotly debated international topics of our time. Research continues to inform this debate, with more and more data employed to establish some reliability to its conclusions. For one economist at least, several notions that surround trade need to be challenged. Others, it seems, tend to be true after all.

- **Economies that are open to trade grow faster.** Poor countries grow richer when more open to trade, as recent successes in India and China have helped to demonstrate.
- **Rich countries are more protectionist than poor ones.** Not true, since poor countries tend to have higher average tariffs than rich ones. This does not address the problem of tariff escalation.
- **Agricultural protectionism in the rich world worsens global poverty.** If subsidies were removed, food prices will rise. These increases could hurt nutrition levels in some poor countries that rely on food imports.

Are there moral as well as economic arguments in favour of free trade?



Arvind Panagariya, Think again: international trade, Foreign Policy, 1 November 2003

To access Quiz 20, an interactive, multiple-choice quiz on this chapter, please visit www.pearsonbacconline.com and follow the onscreen instructions.



PRACTICE QUESTIONS

- Explain three benefits (gains) which might arise from international trade. (10 marks) [AO2]
 - Assess the proposition that the WTO failed in its mission of liberalizing world trade. (15 marks) [AO3]

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- (HL only) Using a production possibilities table, explain the concepts of absolute and comparative advantage. (10 marks) [AO2], [AO4]
- (HL only) Using appropriate diagrams, explain the concepts of absolute and comparative advantage. (10 marks) [AO2], [AO4]
 - Evaluate the degree to which comparative advantage theory usefully reflects the reality of modern global trade. (15 marks) [AO3]