CHAPTER 2 | Trade-offs, Comparative Advantage, and the Market System

Brief Chapter Summary and Learning Objectives

2.1 Production Possibilities Frontiers and Opportunity Costs (pages 40–46)

Use a production possibilities frontier to analyze opportunity costs and trade-offs.

- The economic resources countries have available to produce goods and services are scarce. Decision makers face trade-offs as the result of scarcity.
- The model of the production possibilities frontier is used to analyze the opportunity costs and trade-offs that individuals, firms, or countries face.

2.2 Comparative Advantage and Trade (pages 46–51)

Understand comparative advantage and explain how it is the basis for trade.

- Comparative advantage is the ability of an individual, firm, or country to produce a good or service at a lower opportunity cost than other producers.

2.3 The Market System (pages 51–58)

Explain the basic idea of how a market system works.

- Markets enable buyers and sellers of goods and services to come together to trade.
- Entrepreneurs, those who own or operate businesses, produce goods and services that consumers want and decide how these goods and services should be produced to yield the most profit.
- It is essential that government protects rights to private property in order for a market system to work well.

Key Terms

Absolute advantage, p. 48. The ability of an individual, a firm, or a country to produce more of a good or service than competitors, using the same amount of resources.

Circular-flow diagram, p. 52. A model that illustrates how participants in markets are linked.

Comparative advantage, p. 49. The ability of an individual, a firm, or a country to produce a good or service at a lower opportunity cost than competitors.

Economic growth, p. 46. The ability of the economy to increase the production of goods and services.

Entrepreneur, p. 56. Someone who operates a business, bringing together the factors of production—labor, capital, and natural resources—to produce goods and services.

Factor market, p. 51. A market for the factors of production, such as labor, capital, natural resources, and entrepreneurial ability.

Factors of production, p. 51. The inputs used to make goods and services.

Free Market, p. 52. A market with few government restrictions on how a good or service can be produced or sold or on how a factor of production can be employed.

Market, p. 51. A group of buyers and sellers of a good or service and the institution or arrangement by which they come together to trade.

Opportunity cost, p. 41. The highest-valued alternative that must be given up to engage in an activity.

Product market, p. 51. Markets for goods—such as computers—and services—such as medical treatment.

Production possibilities frontier (*PPF*), p. 40. A curve showing the maximum attainable combinations of two products that may be produced with available resources and current technology.

Property rights, p. 57. The rights individuals or firms have to the exclusive use of their property, including the right to buy or sell it.

Scarcity, p. 40. A situation in which unlimited wants exceed the limited resources available to fulfill those wants.

Trade, p. 46. The act of buying and selling.

Chapter Outline

Managers Making Choices at BMW

The managers at firms such as BMW (Bavarian Motor Works) must make decisions regarding the production and marketing of their products. These decisions include the location and relocation of manufacturing plants and the production methods used at these plants. For example, producing more of one model of automobile means producing fewer of other models.

2.1 Production Possibilities Frontiers and Opportunity Costs (pages 40–46)

Learning Objective: Use a production possibilities frontier to analyze opportunity costs and trade-offs.

Scarcity is a situation in which unlimited wants exceed the limited resources available to fulfill those wants.

A production possibilities frontier is a simple model that can be used to analyze trade-offs BMW faces in deciding how many of each type of automobile (in the textbook example, either X6 hybrid cars or X5 SUVs) it should produce given its limited resources and its technology.

A **production possibilities frontier (*PPF*)** is a curve showing the maximum attainable combinations of two products that may be produced with available resources and current technology.

A. Graphing the Production Possibilities Frontier

Combinations of products on the frontier are technically efficient because the maximum output is obtained from the available resources. Combinations inside the frontier are inefficient because some resources are not being used. Combinations outside the frontier are unattainable with current resources.

Opportunity cost is the highest-valued alternative that must be given up to engage in an activity.

B. Increasing Marginal Opportunity Costs

A "bowed out" *PPF* illustrates increasing marginal opportunity costs, which occur because some workers, machines, and other resources are better suited to one use than another. Increasing marginal opportunity costs illustrate an important concept: The more resources already devoted to any activity, the smaller the payoff to devoting additional resources to that activity.

C. Economic Growth

Economic growth is the ability of the economy to increase the production of goods and services. Economic growth can occur if more resources become available or if a technological advance makes resources more productive. Growth may lead to greater increases in production for one good than another.

2.2 Comparative Advantage and Trade (pages 46–51)

Learning Objective: Understand comparative advantage and explain how it is the basis for trade.

Trade is the act of buying or selling. One of the great benefits of trade is that it makes it possible for people to become better off by increasing both their production and their consumption.

A. Specialization and Gains from Trade

*PPF*s depict the combinations of two goods that can be produced if no trade occurs. If one individual's *PPF* shows greater production of both goods, then this individual has an absolute advantage in producing both goods.

B. Absolute Advantage versus Comparative Advantage

Absolute advantage is the ability of an individual, a firm, or a country to produce more of a good or service than competitors, using the same amount of resources.

If the two individuals have different opportunity costs for producing two goods, each individual will have a comparative advantage in the production of one of the goods. **Comparative advantage** is the ability of an individual, a firm, or a country to produce a good or service at a lower opportunity cost than competitors. Comparing the possible combinations of production and consumption before and after specialization and trade occur proves that trade is mutually beneficial.

C. Comparative Advantage and the Gains from Trade

The basis for trade is comparative advantage, not absolute advantage. Individuals, firms, and countries are better off if they specialize in producing the goods and services for which they have a comparative advantage and obtain the other goods and services they need by trading.

Teaching Tips

Even good students have difficulty understanding comparative advantage. A good example of comparative advantage is the career of baseball legend Babe Ruth. Before he achieved his greatest fame as a home run hitter and outfielder with the New York Yankees, Ruth was a star pitcher with the Boston Red Sox. Ruth may have been the best left-handed pitcher in the American League during his years with Boston (1914–1919), but he was used more as an outfielder in his last two years with the team. In fact, he established a record for home runs in a season (29) in 1919. The Yankees acquired Ruth in 1920 and made him a full-time outfielder. The opportunity cost of this decision for the Yankees was the wins he could have earned as a pitcher. But because New York already had skilled pitchers, the opportunity cost of replacing him as a pitcher was lower than the cost of replacing Ruth as a hitter. No one else on the Yankees could have hit 54 home runs, Ruth's total in 1920; the next highest total was 11. It can be argued that Ruth had an absolute advantage as both a hitter and pitcher in 1920, but a comparative advantage only as a hitter.

2.3 The Market System (pages 51–58)

Learning Objective: Explain the basic idea of how a market system works.

A **market** is a group of buyers and sellers of a good or service and the institution or arrangement by which they come together to trade. A **product market** is a market for goods—such as computers—or services—such as medical treatment. A **factor market** is a market for the factors of production, such as labor, capital, natural resources, and entrepreneurial ability. **Factors of production** are the inputs used to make goods and services.

A. The Circular Flow of Income

A **circular-flow diagram** is a model that illustrates how participants in markets are linked. The diagram demonstrates the interaction between firms and households in both product and factor markets.

B. The Gains from Free Markets

A **free market** is a market with few government restrictions on how a good or service can be produced or sold, or on how a factor of production can be employed. Adam Smith is considered the father of modern economics. His book, *An Inquiry into the Nature and Causes of the Wealth of Nations*, published in 1776, was an influential argument for the free market system.

C. The Market Mechanism

A key to understanding Adam Smith's argument is the assumption that individuals usually act in a rational, self-interested way. This assumption underlies nearly all economic analysis.

D. The Role of the Entrepreneur

Entrepreneurs are an essential part of a market economy. An **entrepreneur** is someone who operates a business, bringing together the factors of production—labor, capital, and natural resources—to produce goods and services.

Entrepreneurs often risk their own funds to start businesses and organize factors of production to produce those goods and services that consumers want.

E. The Legal Basis of a Successful Market System

The absence of government intervention is not enough for a market economy to work well. Government must provide secure rights to private property. Government can aid the working of a market by enforcing

contracts between individuals through an independent court system. **Property rights** refer to the rights individuals or firms have to the exclusive use of their property, including the right to buy or sell it. To protect intellectual property rights, the federal government grants inventors patents—exclusive rights to produce and sell a new product for twenty years from the date the patent was filed. Books, films, and software receive copyright protection. Under U.S. law, the creator of a book, film, or piece of music has an exclusive right to use the creation during the creator's lifetime. The creator's heirs retain this right for fifty years after the death of the creator.

Teaching Tips

To initiate class discussion regarding intellectual property rights, ask students these questions:

1. How many of you have downloaded music via the Internet?
2. Should the government have the right to grant exclusive rights to musicians and other artists to produce and sell their creative works?
3. Should the government fine or prosecute individuals who illegally obtain music, books, movies, and other creative works in violation of property rights laws?

Extra Solved Problem 2.3

Adam Smith's "Invisible Hand"

Alan Krueger, an economist at Princeton University who served as chair of the Council of Economic Advisers in the Obama administration, has argued that Adam Smith ". . . worried that if merchants and manufacturers pursued their self-interest by seeking government regulation and privilege, the invisible hand would not work its magic . . . ."

Source: Alan B. Krueger, "Rediscovering the Wealth of Nations," *New York Times*, August 16, 2001.

a. What types of regulation and privilege might merchants and manufacturers seek from the government?

b. How might these regulations and privileges keep the invisible hand from working?

Solving the Problem

Step 1: Review the chapter material.
This problem is about how goods and services are produced and sold and how factors of production are employed in a free market economic system as described by Adam Smith in *An Inquiry into the Nature and Causes of the Wealth of Nations*. You may want to review the section "The Gains from Free Markets," which begins on page 52.

Step 2: Answer part a. by describing the economic system in place in Europe in 1776.
At the time, governments gave guilds—associations of producers—the authority to control production. The production controls limited the amount of output of goods such as shoes and clothing, as well as the number of producers of these items. Limiting production and competition led to higher prices and fewer choices for consumers. Instead of catering to the wants of consumers, producers sought favors from government officials.

Step 3: Answer part b. by contrasting the behavior of merchants and manufacturers under a guild system and a market system.
Because governments gave producers the power to control production, producers did not have to respond to consumers' demands for better quality, greater variety, and lower prices. Under a market system, producers who sell poor quality goods at high prices suffer economic losses;

producers who provide better quality goods at low prices are rewarded with profits. Therefore, it is in the self-interest of producers to address consumer wants. This is how the invisible hand works in a free market economy, but not in most of Europe in the eighteenth century.

Extra Economics in Your Life:
International Trade and Household Income

Outsourcing refers to firms producing goods and services outside of their home country. Economists and policymakers have debated the effect of international trade and outsourcing on employment in the United States. Ben Bernanke, chairman of the Federal Reserve Board, has cited a study that examined the effect of international trade on income in the United States since World War II: ". . . the increase in trade . . . has boosted U.S. annual incomes on the order of $10,000 per household. The same study found that removing all remaining barriers to trade would raise incomes anywhere from $4,000 to $12,000 per household."

Questions: (a) Should the United States eliminate all trade barriers if this increases the risk of some workers losing their jobs to outsourcing? (b) What type of job would make you more or less vulnerable to outsourcing?

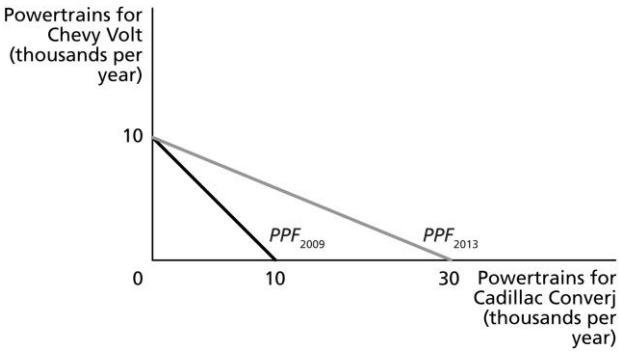
Answers: (a) Given the opposition from firms and workers in industries that would be harmed by free trade, it is unlikely that the United States would eliminate all trade barriers. But the study Ben Bernanke cited shows that opposition to free trade has a significant cost. (b) Another study Bernanke cited found that twenty-one occupations that were most vulnerable to outsourcing were primarily for relatively lower-wage positions.

Source: Ben Bernanke, "Embracing the Challenge of Free Trade: Competing and Prospering in a Global Economy," The Federal Reserve Board, May 1, 2007. http://www.federalreserve.gov/boarddocs/speeches/2007/20070501/default.htm

SOLUTIONS TO END-OF-CHAPTER EXERCISES

Answers to *Thinking Critically* Questions

1. In 2009, maximum production is 10,000 Volt powertrains or 10,000 Converj powertrains, so to gain one Volt powertrain, one Converj powertrain must be given up. In 2013, maximum production is 10,000 Volt powertrains or 30,000 Converj powertrains, so to gain one Volt powertrain, three Converj powertrains must be given up. Therefore, the opportunity cost of one Volt powertrain in 2009 is one Converj powertrain, and the opportunity cost of one Volt powertrain in 2013 is 3 Converj powertrains.



2. The production alternative of 25,000 Volts and 10,000 Converjs lies outside the 2013 production possibilities frontier and is therefore an impossible production alternative. The production possibilities frontier represents maximum production, and according to the figure, the maximum number of powertrains that can be produced for use in these vehicles is 30,000. If GM filled the 25,000 Volt orders, it would have only 5,000 powertrains left to use for Converj production. If GM filled the 10,000 Converj orders, it would have only 20,000 powertrains left to use for Volt production.

2.1 Production Possibilities Frontiers and Opportunity Costs

Learning Objective: Use a production possibilities frontier to analyze opportunity costs and trade-offs.

Review Questions

1.1 Scarcity is the situation in which wants exceed the limited resources available to fulfill those wants. There are some things that are available in such abundance that they exceed our wants. For example, for most people there is enough oxygen in the atmosphere that the amount they want to inhale equals or exceeds the amount available—so oxygen isn't scarce for them. Another example might be weeds in your garden—unlike tomato plants, the amount available exceeds the amount you desire.

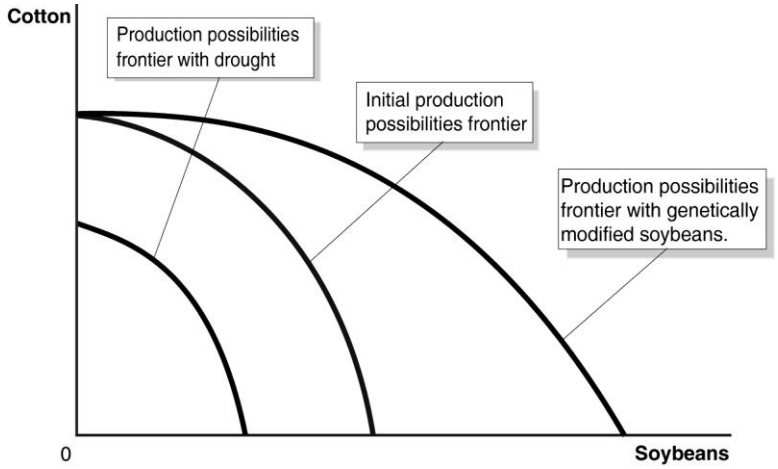
1.2 The production possibilities frontier (*PPF*) is a curve showing all the attainable combinations of two products that may be produced with available resources and existing technology. Combinations of goods that are on the frontier are efficient because all available resources are being fully utilized, and the fewest possible resources are being used to produce a given amount of output. Points inside the production possibilities frontier are inefficient, because the maximum output is not being obtained from the available resources. A production possibilities frontier will shift outward (to the right) if more resources become available for making the products or if technology improves so that firms can produce more output with the same amount of inputs.

1.3 Increasing marginal opportunity costs means that as more and more of a product is made, the opportunity cost of making each additional unit rises. It occurs because the first units of a good are made with the resources that are best suited for making it, but as more and more is made, resources must be used that are better suited for producing something else. Increasing marginal opportunity costs implies that the production possibilities frontier is bowed out —that its slope gets steeper and steeper as you move down the production possibilities frontier.

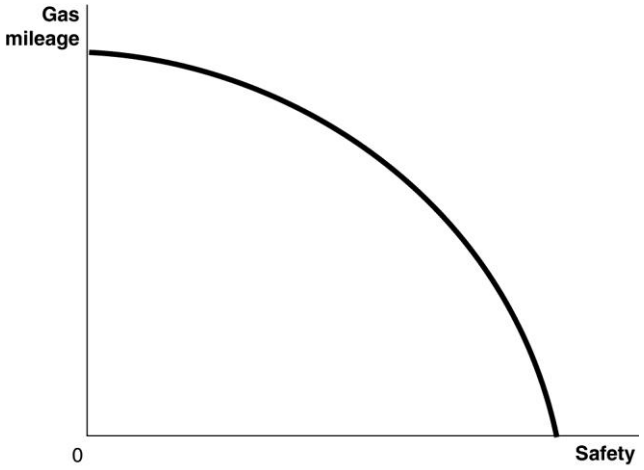
Problems and Applications

1.4 **a.** The production possibilities frontiers in the figure are bowed to the right from the origin because of increasing marginal opportunity costs. The drought causes the production possibilities frontier to shift to the left (see graph below in part b.).

b. The genetic modifications would shift to the right the maximum soybean production (doubling it), but not the maximum cotton production.

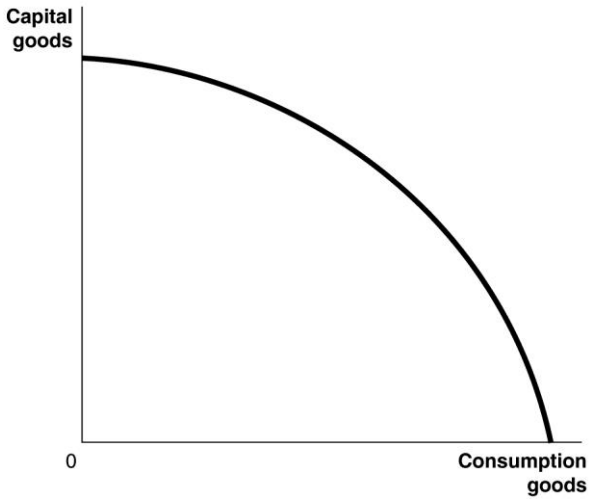


1.5 Increased safety will decrease gas mileage, as shown in the figure below. Trade-offs can be between physical goods, such as cotton and soybeans in problem 1.4, or between less tangible features like mileage and safety.

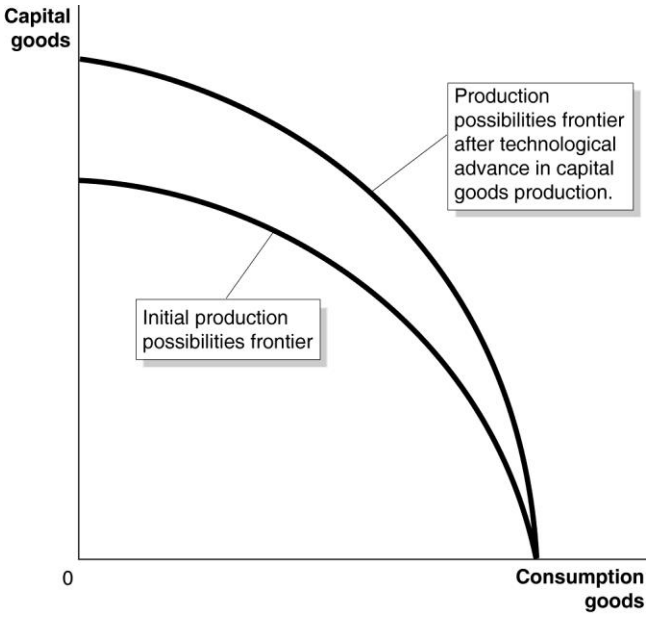


1.6 You would still have an opportunity cost represented by the next best use of your time.

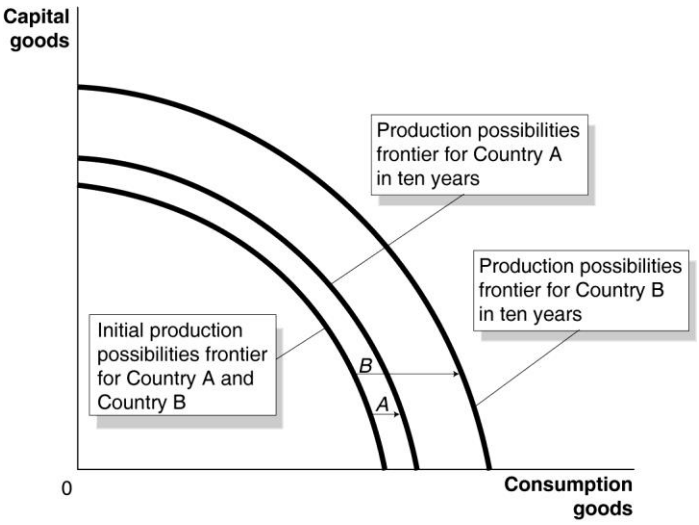
1.7 **a.** The production possibilities frontier will be bowed out like Figure 2.2 because some economic inputs are likely to be more productive when making capital goods, and others are likely to be more productive when making consumption goods.



b.



c. Because it will have more machinery and equipment, Country B is likely to experience more rapid growth in the future.



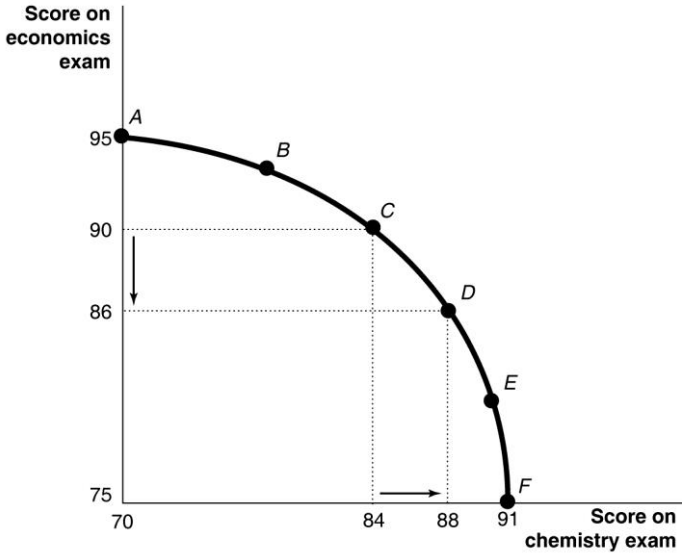
1.8 **a**. Point *E* is outside the production possibilities frontier, so it is unattainable.

b. Points *B*, *C*, and *D* are on the production possibilities frontier, so they are efficient.

c. Point *A* is inside the production possibilities frontier, so it is inefficient.

d. At point *B*, the country is devoting the most resources to producing capital goods, so production at this point is most likely to lead to the highest growth rate. The more capital goods the country produces, the greater the capacity of the country to produce goods and services in the future.

1.9 **a.**



If you spend all five hours studying for your economics exam, you will score a 95 on the exam; therefore, your production possibilities frontier will intersect the vertical axis at 95. If you devote all five hours studying for your chemistry exam, you will score a 91 on the exam; therefore, your production possibilities frontier will intersect the horizontal axis at 91.

b. The points for choices *C* and *D* can be plotted using information from the table. Moving from choice *C* to choice *D* increases your chemistry score by four points, but lowers your economics score by four points. Therefore, the opportunity cost of increasing your chemistry score by four points is the four point decline in your economics score.

c. Choice *A* might be sensible if the marginal benefits of doing well on the chemistry exam are low relative to the marginal benefits from doing well on the economics exam—for example, the chemistry exam is only a small portion of your grade, but the economics exam is a large portion of your grade; or if you are majoring in economics and don't care much about chemistry; or if you already have an A sewn up in chemistry, but the economics professor will replace a low exam grade with this exam grade.

If the federal government has a fixed budget for medical research, then the opportunity cost of funding more research on heart disease is the reduction in funding for research on other diseases. The decision should be made at the margin: to maximize the benefits from government spending on medical research, the last dollar devoted to research on heart disease should result in the same marginal benefit—less disease and fewer deaths—as the last dollar spent on research for other diseases. If the additional funding for research on heart disease comes at the expense of other non-medical research expenditures, then the opportunity cost will be different, but a similar analysis should be conducted.

1.11 Nothing is priceless. Every day we makes decisions, such as driving a car or flying in a plane, that increase by at least a small amount the chances that we will be hurt or killed. If health and life were literally priceless, every decision we make would have the sole objective of minimizing the chances of our being injured or killed. In a broader sense, we do not devote all of our resources to improving health care because resources devoted to, say, saving lives through medical resources are not available for other needs, such as improving education. We always have to consider the opportunity cost of using resources in one way rather than in another.

1.12. The government should consider if the costs involved in either of the two treatment therapies exceeds the benefits received from the therapies. If the government decides that the cost of Therapy A exceeds its benefit, it may decide that the funds would be better spent on Therapy B. Therapy A will prolong the average lifespan of a patient four more months than Therapy B, but at an extra cost of $725,000 per patient. Although this would be a very painful trade-off to consider, spending less even though a patient's life would be shortened by four fewer months would save resources that could be used for other purposes.

1.13 Resources used to reduce pollution are not available for other uses, such as saving lives via medical research, so it is more ethical to take into account the opportunity cost of reducing pollution.

1.14 Economic systems that do not allow people to keep most of the output they produce do not provide much incentive for people to work hard. Unfortunately, experience has shown that people are more self-interested and less altruistic than would be necessary for the system used in Oz to work in the real world.

2.2 Comparative Advantage and Trade

Learning Objective: Understand comparative advantage and explain how it is the basis for trade.

Review Questions

2.1 Absolute advantage is the ability to produce more of a good or service than competitors using the same amount of resources. Comparative advantage is the ability to produce a good or service at a lower opportunity cost than competitors. It is possible to have a comparative advantage in producing a good even if someone else has an absolute advantage in producing that good (and every other good). Unless the two producers have exactly the same opportunity costs of producing two goods—the same trade-off between the two goods—one producer will have a comparative advantage in making one of the goods and the other producer will have a comparative advantage in making the other good.

2.2 The basis for trade is comparative advantage. If each party specializes in making the product for which it has the comparative advantage, they can arrange a trade that makes both of them better off. Each party will be able to obtain the product made by its trading partner at a lower opportunity cost than without trade.

Problems and Applications

2.3 In the example in Figure 2.4 the opportunity cost of 1 pound of apples is one pound of cherries to you, and two pounds of cherries to your neighbor. Any price of apples between one and two pounds of cherries will be a fair trading price, and because ten pounds of apples for fifteen pounds of cherries is the same as one pound of apples for 1.5 pounds of cherries, it falls within this range. We could take any other value in this range to complete the table. Let's take, for example, 1.25 pounds of cherries per pound of apples. We will keep the pounds of apples traded as before at ten. The completed table will now be:

TABLE 2.1: A Summary of the Gains from Trade

	You		**Your Neighbor**	
	Apples (pounds)	Cherries (pounds)	Apples (pounds)	Cherries (pounds)
Production *and* consumption *without* trade	8	12	9	42
Production *with* trade	20	0	0	60
Consumption *with* trade	10	$10 \times 1.25 = 12.5$	10	$60 - 12.5 = 47.5$
Gains from trade (increased consumption)	2	$12.5 - 12 = 0.5$	1	$47.5 - 42 = 5.5$

Note that both you and your neighbor are better off after trade than before trade. Note also that this rate of trading cherries for apples is better for your neighbor than the original rate of trading and worse for you.

2.4 **a.** Canada has the comparative advantage in making boots. Canada's opportunity cost of making one boot is giving up one shirt. In the United States, the opportunity cost of making one boot is giving up three shirts. The United States has the comparative advantage in making shirts. In the United States, the opportunity cost of making one shirt is giving up one-third of a boot, but Canada's opportunity cost of making one shirt is one boot.

b. Neither country has an absolute advantage in making both goods. The United States has the absolute advantage in shirts, but Canada has the absolute advantage in boots. Remember, both

countries have the same amount of resources. If each country puts all their resources into shirts, then the United States makes twelve shirts, but Canada makes only six shirts. If each country puts all their resources into boots, then Canada makes six boots, but the United States makes only four boots.

c. If each country specializes in the production of the good in which it has a comparative advantage and then trades with the other country, both will be better off. Let's use the case in which each country trades half of what it makes for half of what the other makes. The United States will specialize by making twelve shirts and Canada will specialize by making six boots. Since each gets half of the other's production, they both end up with six shirts and three boots. This means they are better off than before trading, because they end up with the same amount of boots, but twice as many shirts. Other trades will also make them better off.

2.5 Yes, the United States would have benefited from importing those products for which Britain had a comparative advantage, which, in fact, is what happened.

2.6 **a.** When Iraq produces one more barrel of olive oil, it produces oil less barrel of crude oil. When Iran produces one more barrel of olive oil, it produces one less barrel of crude oil. Therefore, neither country has a comparative advantage in either good. In both countries, the opportunity cost of one barrel of crude oil is one barrel of olive oil. Comparative advantage arises only if someone has a lower opportunity cost, but these two countries have the same opportunity cost.

b. No, the countries can't gain from trade. Trading across the border would result in the same trade-offs that can be made within each country.

2.7 **a.** When France produces one more bottle of wine, it produces two fewer pounds of schnitzel. When Germany produces one more bottle of wine, it produces three fewer pounds of schnitzel. Therefore, France's opportunity cost of producing wine—two pounds of schnitzel—is lower than Germany's—three pounds of schnitzel. When Germany produces one more pound of schnitzel, it produces 0.33 fewer bottles of wine. When France produces one more pound of schnitzel, it produces 0.50 fewer bottles of wine. Therefore, Germany's opportunity cost of producing schnitzel—0.33 bottles of wine—is lower than that of France—0.50 bottles of wine. We can conclude that France has the comparative advantage in making wine and that Germany has the comparative advantage in making schnitzel.

b. We know that France should specialize where it has a comparative advantage and Germany should specialize where it has a comparative advantage. If both countries specialize, France will make four bottles of wine and zero pounds of schnitzel, and Germany will make zero bottles of wine and fifteen pounds of schnitzel. After both countries specialize, France could then trade three bottles of wine to Germany in exchange for seven pounds of schnitzel. This will give France the same amount of wine as they initially had, but an extra one pound of schnitzel. Germany will have three bottles of wine and eight pounds of schnitzel—that is, the same amount of wine, but more schnitzel. Other mutually beneficial trades are possible as well.

2.8 An individual or a country cannot produce beyond its production possibilities frontier. The production possibilities frontier shows the most that an individual or country can produce for a given amount of resources and technology. Without trade an individual or country cannot consume beyond its production possibilities frontier, but with specialization and trade an individual or country can consume beyond its production possibilities frontier. In Figure 2.5, both you and your neighbor were able to

consume beyond your production possibilities frontiers, and in Solved Problem 2.2, both Canada and the United States were able to consume beyond their production possibilities frontiers.

2.9 Country B could have the comparative advantage in producing coffee if Country A is more than twice as good as Country B at producing another product. Country B has the absolute disadvantage in producing coffee because Country A can produce twice as much coffee with the same amount of resources as Country B. If Country A has an even larger absolute advantage in producing another product—say Country A can produce four times more cashews than Country B—then Country B will have the comparative advantage in producing coffee.

2.10 Peyton and you are using absolute advantage, not comparative advantage, to decide what to do. Peyton has a comparative advantage at playing quarterback, even though he is five times better at selling Colts memorabilia than any other employee or player. He has an even larger absolute advantage at playing quarterback. You, as a creative and effective leader, have a comparative advantage at leading the organization. Your absolute advantage at leading is even larger than your absolute advantage at cleaning offices.

2.11 Specialization and trade are about standard of living, not jobs. In both cases, individuals and countries have jobs. You have a job if you do not trade with others and produce everything yourself, and you have a job if you specialize and trade with others. But your standard of living will be higher if you specialize and trade. A country will have jobs if does not trade with other countries and it will have jobs if it specializes and trades with other countries, but its standard of living will be higher if it specializes and trades with other countries.

2.12 Falling transportation costs allowed people to trade more easily and to specialize on the basis of comparative advantage. If people were able to specialize, they could be more productive and, in turn, earn more income.

2.13 Importing only products that could not be produced here would result in the United States producing—rather than importing—many goods for which it does not have a comparative advantage. These products would be produced at a higher opportunity cost than if they had been imported.

2.3 The Market System

Learning Objective: Explain the basic idea of how a market system works.

Review Questions

3.1 The circular-flow diagram illustrates how participants in markets are linked. It shows that in factor markets, households supply labor and other factors of production in exchange for wages and other payments from firms. In product markets, households use the payments they earn in factor markets to purchase the goods and services produced by firms.

3.2 The two main categories of market participants are households and firms. Households as consumers are of greatest importance in determining what goods and services are produced. Firms make a profit only when they produce goods and services valued by consumers. Therefore, only the goods that consumers are willing and able to purchase are produced.

3.3 A free market is one with few government restrictions on how goods or services can be produced or sold, or on how factors of production can be employed. Economic decisions are made by buyers and

sellers in the marketplace. In a centrally planned economy, the government—rather than households and firms—makes almost all the economic decisions. Free market economies have a much better track record of providing people with rising standards of living.

3.4 An entrepreneur operates a business. Entrepreneurs play a key role in the economy by bringing together the factors of production—labor, capital, and natural resources—to produce goods and services for sale. Entrepreneurs decide what to produce and how to produce it. They put their own funds or borrowed funds at risk when they start a business.

3.5 Firms are likely to produce more of a good or service if consumers want more of it. As consumer demand rises, price will rise, which will lead firms to produce more. If demand falls, price will fall, which will lead firms to cut back on production.

3.6 Private property rights are the rights individuals or firms have to the exclusive use of their property, including the right to buy or sell it. If individuals and firms believe that property rights are not well enforced, they will be reluctant to risk their wealth by opening new businesses. Therefore, the enforcement of property rights and contracts is vital for the functioning of the economy. Independent courts are crucial because property rights and contracts will be enforced only if judges make impartial decisions based on the law, rather than decisions that favor powerful or politically connected individuals.

Problems and Applications

3.7 **a.** An auto purchase takes place in the product market. The household (George) demands the good and the firm (BMW) supplies the good.

b. The labor market is a factor market. Households supply labor and the firm demands labor.

c. The labor market is a factor market. The household (George) supplies the factor of production (labor), while the firm (McDonald's) demands it.

d. The land market is a factor market. The household supplies the factor of production (land) and the firm (McDonald's) demands it.

3.8 Adam Smith was making the "invisible hand" argument that, in pursuing their self-interest, business people end up producing the goods and services most desired by consumers.

3.9 The managers in all of these firms just need to know that there is a demand for their individual components and how the components are produced. The manufacturer of the memory chip does not need to know how to manufacture the radio frequency transceiver. The CEO of Blackberry does not need to know the details of how the components are produced but does need to understand which components go into the phone. The CEO does not need to know in detail how the components are assembled in a smartphone but does need to understand the assembly process in general in order to recognize possible areas where efficiency could be improved.

3.10 We would expect more competition among producers in a market system than in a guild system. In a guild system, by controlling and restricting the number of producers, the guild could increase the profits of existing members of the guild. The producer was at the center of the guild system, and the consumer is at the center of the market system. The market system would over time lead to more innovation of new products and technologies because there is no guild system controlling who can produce and how much can be produced.

3.11 The invisible hand was a metaphor used by Adam Smith to explain that people acting in their own self-interest may actually promote the interest of society as a whole. The market system works by leading each person, motivated by self-interest, to produce goods and services demanded by other people. The invisible hand is the basic market mechanism. Understanding it is fundamental to all economic analysis.

3.12 Adam Smith realized—as economists today realize—that people's motives can be complex. But in analyzing people in the act of buying and selling, economists have concluded that in most instances, the motivation of financial reward provides the best explanation for the actions people take. Moreover, being self-interested—looking out for your own well-being and happiness—and being selfish—caring only about yourself—are not exactly the same things. Many successful business people are, in fact, generous: donating to charity, volunteering for activities, and otherwise acting in a generous way. This is not inconsistent with making business decisions that maximize profits for their companies.

3.13 Whether self-interest is an "ignoble human trait" is a matter of opinion. There are certainly more noble traits than self-interest, but without at least some self-interest, a person wouldn't survive. A market system encourages self-interest in the sense that it paradoxically allows people to enrich themselves by fulfilling the needs of others; that is, by producing goods and services that fulfill the wants of consumers.

3.14 **a**. "Psychic rewards" refer to the psychological benefits of, in this case, buying lottery tickets, which provide the excitement of playing the lottery and the chance of winning big.

b. An entrepreneur might receive the psychic rewards of creating and running his or her own business along with the chance of making large profits.

c. Answers will vary here. Elements of being an entrepreneur do appear to be similar to buying a lottery ticket with the psychic rewards of playing the game along with the possibly of large returns. Other elements may differ, such as the probability of success.

3.15 Having secure property rights would enable resource owners to use their resources in more efficient ways, because they would spend less time on activities such as guarding their property. Owners would also be able to make improvements to their property without fear that someone would seize the property. They would also better able to finance a business by borrowing money, using their property as collateral for a loan.