

- Scarcity exists because we have limited resources and unlimited wants. No society has ever had enough resources to produce all the goods and services its members wanted.
- Goods and services are produced from productive resources. These resources — land, labor, capital and entrepreneurship — are limited.
- Scarcity requires people to make choices. If we use scarce resources for one purpose, we cannot use them for another.
- Opportunity cost is the forgone benefit of the next best alternative when resources are used for one purpose rather than another.
- Because of scarcity, every decision has an opportunity cost.
- Economic costs take account of the opportunity cost of doing one thing rather than another.
- Economic costs include explicit costs, which are paid directly, and implicit costs, which are not paid directly. Both implicit and explicit costs are opportunity costs.
- Using free goods does not involve opportunity cost because free goods are available in unlimited quantities.
- Economics is concerned with marginal decision making. In economics, “making decisions at the margin” is very important. Marginal choices involve the effects of additions and subtractions from the current situation.
- A production possibilities curve can be used to illustrate scarcity, choices and opportunity cost diagrammatically.
- The slope of a production possibilities curve shows the opportunity cost of producing another unit of one good in terms of the amount of the other good that must be given up in order to produce the additional amount of the first good.
- Because resources are scarce, using them efficiently allows us to get the most from them. Efficiency is increased through specialization and trade. Economists use the concepts of absolute advantage and comparative advantage to explain why trade takes place between countries and between individuals. These concepts are based on the differences in the opportunity costs of producing goods and services in different areas or by different individuals.
- Because of scarcity, people and societies use economic systems to determine what to produce, how to produce and for whom to produce.
- Throughout history, nations have used tradition, command and market systems to allocate resources.
- The law of comparative advantage shows how everyone can gain through trade.
- Economic theory is useful in analyzing and understanding the world around us.
- The test of an economic theory is its ability to predict correctly the future consequences of economic actions.
- The broad social goals of a society influence decisions about how best to use resources.
- A diagram of the circular flow of resources, goods and services, and money-income payments is a simplified way of illustrating how a market economy operates. Prices in the product market and prices in the factor, or resource, market are determined by the interaction of supply and demand. This diagram is also called the circular flow of income.

Do You Think Like an Economist?

Circle T for *true* or F for *false* in the statements that follow.

- T F 1. Because it is desirable, sunshine is scarce.
- T F 2. Because it is limited, polio is scarce.
- T F 3. Because water covers three-fourths of the earth's surface and is renewable, it cannot be considered scarce.
- T F 4. The main cost of going to college is tuition, room and board.
- T F 5. If mass transportation fares are raised, almost everyone will take the trains anyway.
- T F 6. You get what you pay for.
- T F 7. If someone makes an economic gain, someone else loses.
- T F 8. If one nation produces everything better than another nation, there is no economic reason for these two nations to trade.
- T F 9. A nonregulated monopoly tends to charge the highest possible price.
- T F 10. A business owner's decision to show more care for consumers is a decision to accept lower levels of profits.

Scarcity, Opportunity Cost and Production Possibilities Curves

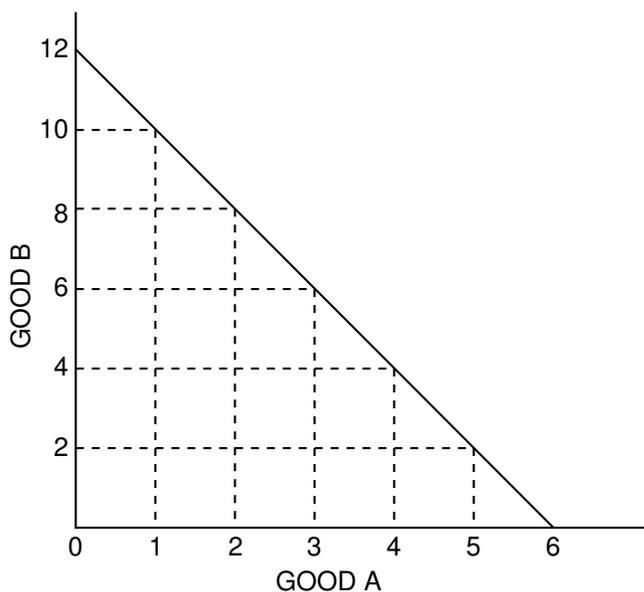
Scarcity necessitates choice. Consuming or producing more of one thing means consuming or producing less of something else. The opportunity cost of using scarce resources for one thing instead of something else is often represented in graphical form as a *production possibilities curve*.

Part A

Use Figures 2.1 and 2.2 to answer these questions. Write the correct answer on the answer blanks, or underline the correct answer in parentheses.



Figure 2.1
Production Possibilities Curve 1



- If the economy represented by Figure 2.1 is presently producing 12 units of Good B and zero units of Good A:

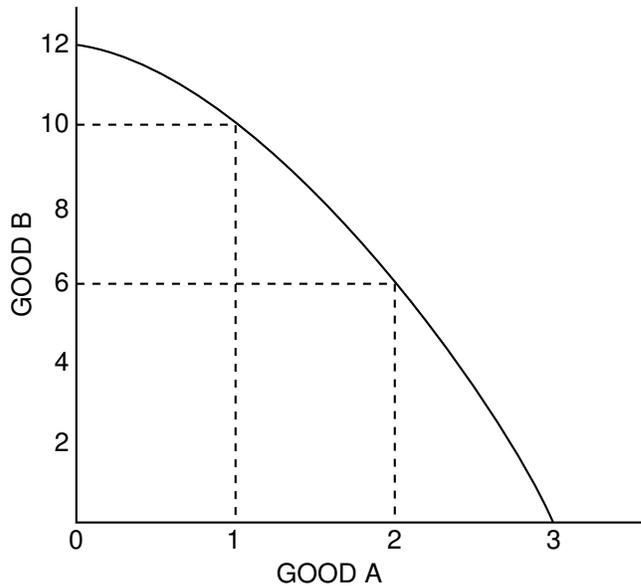
 - The opportunity cost of increasing production of Good A from zero units to one unit is the loss of _____ unit(s) of Good B.
 - The opportunity cost of increasing production of Good A from one unit to two units is the loss of _____ unit(s) of Good B.
 - The opportunity cost of increasing production of Good A from two units to three units is the loss of _____ unit(s) of Good B.
 - This is an example of (*constant / increasing / decreasing / zero*) opportunity cost per unit for Good A.

Adapted from Phillip Saunders, *Introduction to Microeconomics: Student Workbook*, 18th ed. (Bloomington, Ind., 1998). Copyright ©1998 Phillip Saunders. All rights reserved.



Figure 2.2

Production Possibilities Curve 2

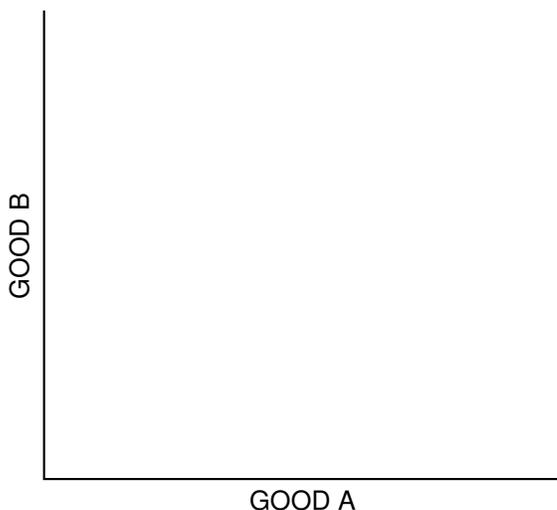


2. If the economy represented in Figure 2.2 is presently producing 12 units of Good B and zero units of Good A:
- (A) The opportunity cost of increasing production of Good A from zero units to one unit is the loss of _____ unit(s) of Good B.
 - (B) The opportunity cost of increasing production of Good A from one unit to two units is the loss of _____ unit(s) of Good B.
 - (C) The opportunity cost of increasing production of Good A from two units to three units is the loss of _____ unit(s) of Good B.
 - (D) This is an example of (*constant / increasing / decreasing / zero*) opportunity cost per unit for Good A.

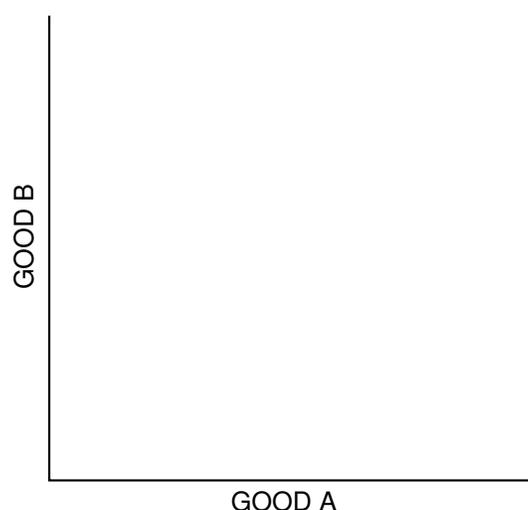
Part B

Use the axes in Figures 2.3, 2.4 and 2.5 to draw the type of curve that illustrates the label above each axis.

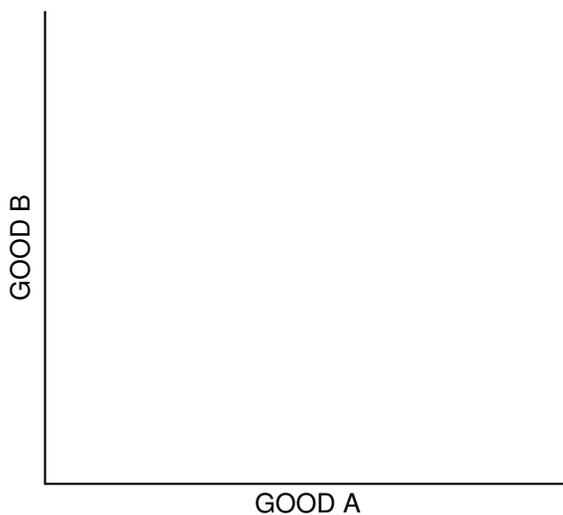
* Figure 2.3
Production Possibilities Curve 3
 Increasing opportunity cost per unit of Good B



* Figure 2.4
Production Possibilities Curve 4
 Zero opportunity cost per unit of Good B



* Figure 2.5
Production Possibilities Curve 5
 Constant opportunity cost per unit of Good B



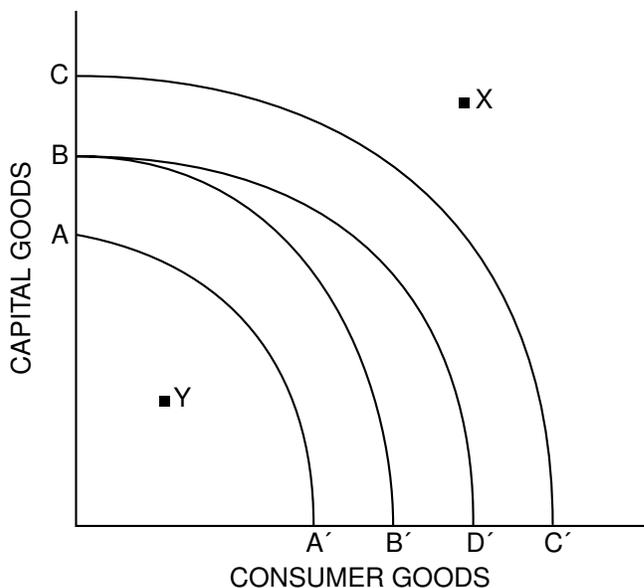
Part C

Use Figure 2.6 to answer the next five questions. Each question starts with Curve BB' as a country's production possibilities curve.



Figure 2.6

Production Possibilities Curve: Capital Goods and Consumer Goods



3. Suppose there is a major technological breakthrough in the consumer-goods industry, and the new technology is widely adopted. Which curve in the diagram would represent the new production possibilities curve? (Indicate the curve you choose with two letters.) _____
4. Suppose a new government comes into power and forbids the use of automated machinery and modern production techniques in all industries. Which curve in the diagram would represent the new production possibilities curve? (Indicate the curve you choose with two letters.) _____
5. Suppose massive new sources of oil and coal are found within the economy, and there are major technological innovations in both industries. Which curve in the diagram would represent the new production possibilities curve? (Indicate the curve you choose with two letters.) _____
6. If BB' represents a country's current production possibilities curve, what can you say about a point like X? (Write a brief statement.)
7. If BB' represents a country's current production possibilities curve, what can you say about a point like Y? (Write a brief statement.)

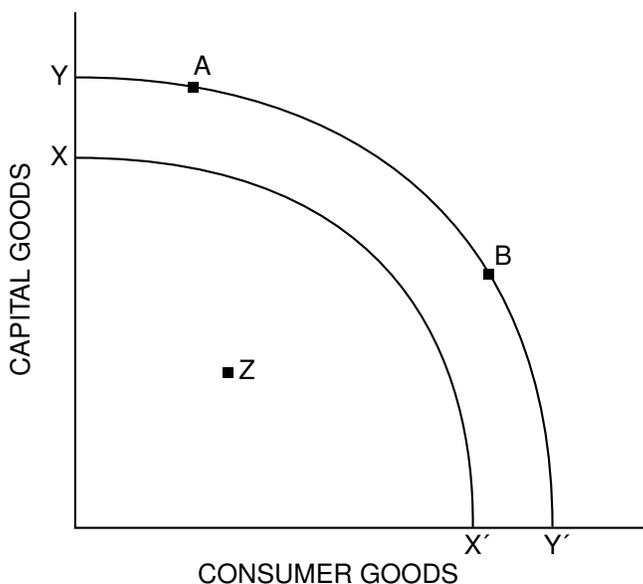
Part D

Use Figure 2.7 to answer the next three questions.



Figure 2.7

Production Possibilities Curve: Capital Goods and Consumer Goods



8. What change could cause the production possibilities curve to shift from the original curve (XX') to the new curve (YY')?

9. Under what conditions might an economy be operating at Point Z?

10. Why might a government implement policy to move the economy from Point B to Point A?

You Don't Have to Spend a Buck to Have a Cost

Last Friday night you decided to stay home and watch television instead of going to the movies with your friends. Did this decision involve any cost? Yes, because even though you didn't spend a buck, there was an *opportunity cost*, which represents the best alternative that you did not choose, such as working or participating in another activity.

Whenever consumers, producers and governments make choices, they base their decisions on the costs involved. In economics, costs include not only the out-of-pocket expenses you'd typically consider, called *explicit* costs, but also *implicit* costs, which measure the value of resources that could have been used elsewhere.

For instance, if you decide to go to the movies, your explicit costs may include the ticket, popcorn and soda. Additionally, you would include the implicit costs, such as the pay you would have earned had you worked during the time required to go to the movies. Economists refer to these combined costs as opportunity costs.

When you base decisions on explicit costs only, you can measure the number of dollars coming into your wallet versus the number flowing out. But rational people consider more than invoices and receipts when they compare marginal benefits with marginal costs. Extra benefits and extra costs include implicit costs, so making decisions by merely considering the flow of funds into and out of your wallet will lead to decisions that fail to maximize your satisfaction.

- For each of the following situations, list at least two explicit costs and two implicit costs. Place them in the correct column.

	Explicit	Implicit
(A) You decide to go to college.	_____	_____
	_____	_____
	_____	_____
(B) You take a job after school.	_____	_____
	_____	_____
	_____	_____
(C) You study for and take an AP Economics Examination.	_____	_____
	_____	_____
	_____	_____
(D) A stay-at-home dad returns to work.	_____	_____
	_____	_____
	_____	_____

Activity written by W.C. Kerby, Center for Economic Education, California State University, Sacramento, Calif.

	Explicit	Implicit
(E) Family members work in their parents' restaurant.		
Child's (employee) viewpoint	_____	_____
	_____	_____
	_____	_____
Parents' (employer) viewpoint	_____	_____
	_____	_____
	_____	_____
	_____	_____

2. Pick one of the situations in Question 1, and explain why the decision maker must have decided that the benefits he or she received exceeded, equaled or fell short of the opportunity costs to engage in the activity.

Campus Parking

Good parking spaces on the Stanford University campus (as on most campuses) are at a premium, especially on rainy days. Stanford has about 11,000 students — of whom about half live on campus — about 1,000 faculty and perhaps 8,000 nonteaching staff members and other such employees. Sampling suggests that perhaps 8,000 to 15,000 drivers may seek parking on a rainy day.

Although there is no simple way to indicate the number of desirable parking spaces available (desirability depends on where one wishes to go on the campus), perhaps 1,500 to 2,000 spaces are very convenient to different parts of the central campus. Including all outlying areas of the campus (perhaps three to five blocks from classrooms and offices), a large number of additional parking spaces are available.

For many years, by tradition the best parking spaces were exclusively set aside for faculty members (via free “A” parking stickers) and the next most desirable ones for staff members (via free “B” stickers). Other reasonably close-in spaces were allocated to students at a small charge (“C” stickers). Distant campus parking was free to all. Some special parking was provided for physically disabled persons.

Not surprisingly, students frequently complained, as indeed did faculty and staff from time to time, since on rainy days there was an excess demand for all three reserved-parking areas. In this setting, the president’s office announced that the parking situation was being reassessed and invited all concerned to submit their views. Five major approaches developed:

- 1. Leave things as they have been.** This was quite popular with the faculty, who all got “A” stickers. Faculty were seldom made late to class by a shortage of good parking, and most staff and students could manage pretty well if they allowed a little extra time for getting where they were going. But you can guess what the antiestablishment students said.
- 2. First-come, first-served.** This would let students, faculty and staff alike compete for the best parking places, which would presumably go to those who felt the greatest need for them. Your willingness to set the alarm ahead 10 minutes to get a reasonable parking space would be the best measure of how important the better place was to you. Who could make a better decision for you — and Stanford?

Advocates of this plan emphasized its equity in treatment of the various groups on campus. Everyone has the same chance at the parking spaces (faculty and students, rich and poor, sleepers and early risers), and all would have an equal chance to get there first — or would they?

- 3. Markets and a price system.** A third alternative would allocate the spaces by selling them. Put a rent on each space, and let the person who is willing to pay the most for it rent it

From George Leland Bach, *Microeconomics: Analysis, Decision Making and Policy*, 11th ed. (Englewood Cliffs, N.J.: Prentice-Hall, 1987), pp. 10-11. Reprinted by permission of Prentice-Hall Inc. All Rights Reserved.

each semester or year. It would probably be convenient to group all the spaces into three or four classes: “A” spaces and stickers for the best locations, “B” for the next best and “C” for the least attractive. A price would be set for each sticker area that would roughly equate the number of stickers bought with the number of spaces available in that class. Thus, those who would pay the most would get the “A” spaces, the most desirable areas, at a higher price. Those who paid less would get the “B” stickers. Those who paid still less would get “C” stickers, and those unwilling to pay at all would use the outlying areas. There would be a liberal sprinkling of metered areas on campus for those who wanted to buy short-term parking.

Advocates of this plan argued that it would basically give the best parking spaces to those who were willing to pay for them, which is the way we allocate almost everything else in our society, and would in essence let the students and faculty themselves determine who got the best spaces. (In this plan, as in the others, special allowances would be made for handicapped students who needed special parking assistance; there was little dispute over this point.) Faculty members, staff and students would all have the same chance to get good parking. There would be no discrimination in price within each of the three groups.

4. **Democracy.** A fourth group argued that none of these approaches was obviously superior to the present system; and that in accordance with democracy, students, faculty and staff should all together elect a special parking committee to say who should get these places each year and how. There was some dispute over how this committee should be elected and what representation should be given to each of the various parking-demand groups on campus. Support for this alternative apparently depended in considerable part on the decision about how the representatives should be chosen.
5. **Random choice.** A few hearty souls, especially those from the statistics department, proposed an allocation of parking spaces through a random process. Tickets for the various classes of parking around the campus would be given out on a basis of random choice. That is, random numbers would be put in a bowl, with one number assigned to each person (faculty, students and staff) who wanted to be in on the drawing. Then the stickers would be allocated on the basis of the numbers drawn out of the bowl in a random fashion. Many observers said this was a wasteful way of doing it since it would obviously not take advantage of the preferences of different students and faculty members for different classes of lots. A few sophisticated souls suggested that this random process be used, and then let develop on campus a market for the tickets allocated through the random process. In this market, presumably the various stickers would be bid up in price until the people who wanted them the most had obtained them by paying a higher price for them than would be paid by parkers who wanted them less strongly. Many participants argued that this would be very unfair to those who needed parking space and had to pay for the space to those who won the best places in the drawing, even though some of the latter didn't even have cars.

How should Stanford allocate its limited supply of desirable parking spaces? In addition to the questions already raised above in the general discussion of the problem, you may want to consider the following questions:

- (A) Is your main goal to maximize equity (fairness) or to obtain the most efficient allocation of resources (parking spaces)?
- (B) Should people who live on or near the campus have the same chance of getting good parking spaces as people who live a considerable distance away?
- (C) Does democracy or the price system give a more-efficient allocation of resources here? A more-equitable allocation of resources?
- (D) Is this problem significantly different from the allocation of other scarce goods in our society — for example, the supply of apartments near the campus for those who live off campus? Hamburgers? Porsche autos? High-grade doctors to provide medical services when needed?

If you choose alternative (A) above, what criterion should the administration use if it is going to charge different amounts for stickers on different parts of the campus? Should Stanford, as a substantial monopolist, maximize its profit by charging the highest price it can get so as to obtain the most funds possible from the plan?

Campus Parking Activity

1. What central problem does Stanford face in parking spaces?
2. What are the three ways societies deal with scarcity?
3. Categorize the five methods Stanford could use to allocate parking spaces. Which use tradition? Command? The market?
4. For each proposed method, explain what behaviors are encouraged or discouraged by different groups.
5. If the goal is equity, which system would you adopt and why?
6. If the goal is efficiency, which system would you adopt and why?
7. Which system of allocating parking spaces do you recommend? Why?

The Circular Flow of Resources, Goods, Services and Money Payments

One way of illustrating the overall operation of a market economy is through a *circular flow diagram* such as the one on this page. This diagram presents a highly simplified overview of how a market economy operates.

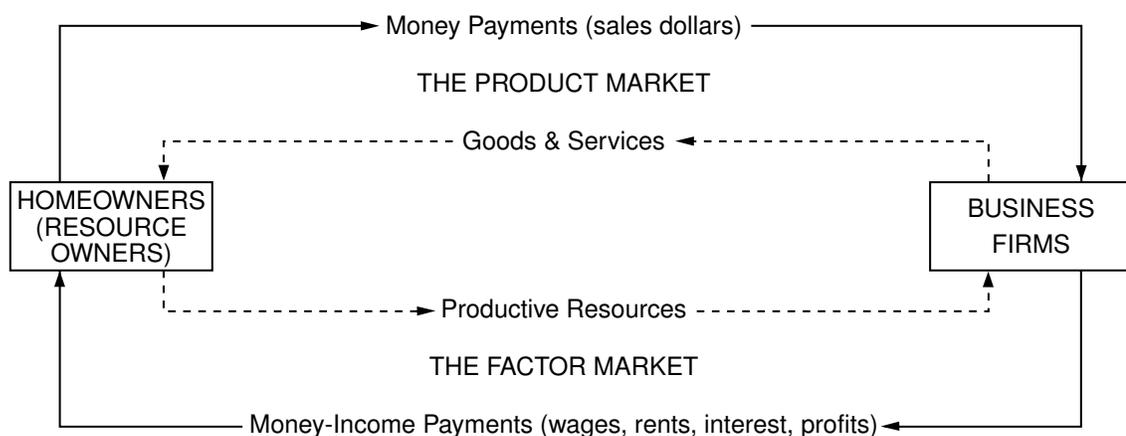
Owners of resources (families and individuals) supply the services of their land, labor and capital to business firms in exchange for money-income payments in the form of wages and salaries, rents, interest and profits. Owners of the resources in turn use these income payments to purchase the finished goods and services supplied by the business firms. Business firms then use the proceeds from these sales to pay the resource owners for the services the firms receive by employing the resources. This is how the circular flow of resources, goods and services, and money-income payments is established and maintained.

Payments in the lower part of the diagram, which is sometimes called the *factor market*, appear as income to the resource owners who sell productive services. But these same payments appear as costs to the business firms that buy productive services.

Likewise, payments in the upper part of the diagram, which represents the *product market*, appear as costs to the resource owners who buy goods and services, but these same payments appear as income to the business firms that sell goods and services.

An important point to emphasize is that all of the money payments shown in the diagram are determined by an interdependent set of markets. In a system of interdependent markets, every price depends to some extent on every other price. For example, the prices resource owners are willing to pay for finished goods and services depend on the prices (income) they receive for the use of their resources. The prices of resources, in turn, depend on how much business firms are willing to pay for the services the resources provide. The diagram shows that everyone's expenditure is someone else's income and that the interaction between the markets determines these flows.

* Figure 5.1
The Circular Flow of Resources, Goods, Services and Money Payments



Adapted from National Council on Economic Education, *Master Curriculum Guide in Economics: A Framework for Teaching the Basic Concepts* (New York: National Council on Economic Education, 1993), p. 24.

Circular Flow Activity

1. Give three examples of resource owners.
2. Define a business firm.
3. What is the product market?
4. Give three examples of transactions you made this week in the product market.
5. What is a factor market?
6. Give an example of a transaction you or your family made this month in a factor market.
7. How are businesses connected to factor and product markets?

Opportunity Cost and Comparative Advantage

People who don't know much about economics often dismiss economics as being little more than cost / benefit analysis. While it is true that this is a very important concept, economics is not that simple. In fact, one of the most difficult things in economics is understanding the opportunity cost of choosing a particular action.

We have seen that economic entities such as countries often face *increasing* opportunity costs as they try to increase production. For instance, when a country finds itself at war and needs to increase its production of armaments, at first it finds that increasing military production comes at a relatively low opportunity cost, as the first factories converted to military use are generally well-suited for such an event.

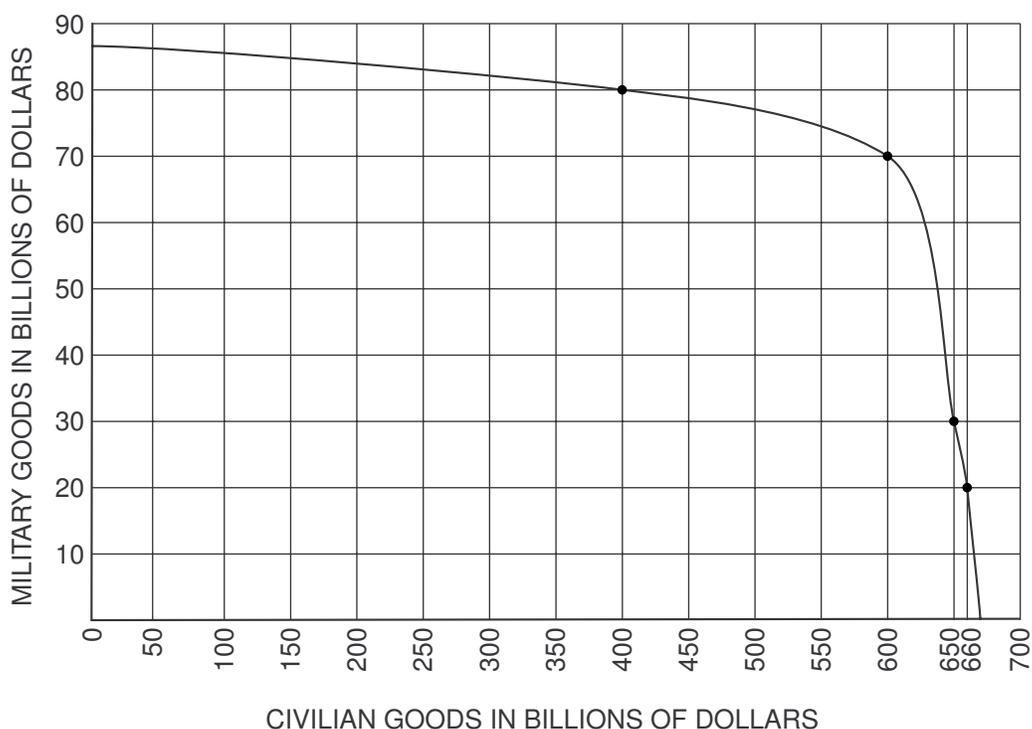
As the war goes on, however, we see factories that are not at all well-suited to producing weapons being converted to military service, at a very high opportunity cost. Little is added to the output of armaments, and a great deal is sacrificed in terms of civilian goods.

The notion of increasing opportunity costs is manifested in a production possibilities curve that is concave towards the origin. In Figure 6.1, we can see that as we increase the production of military goods, each additional unit of output costs more in terms of civilian goods. When the government initially



Figure 6.1

Production Possibilities Curve: Military and Civilian Goods



Activity written by Ike Brannon, Joint Economic Committee, U.S. Senate, Washington, D.C.

increases the output of military goods from \$20 billion to \$30 billion, the opportunity cost (in terms of civilian goods forgone) is small: only \$10 billion of military goods (\$660 billion minus \$650 billion).

However, when the country is already producing a lot of military goods and wants to produce even more, the cost is much higher. If the country is producing \$70 billion and wants to produce \$80 billion, the opportunity cost is now \$200 billion, or \$600 billion minus \$400 billion.

Opportunity cost also explains the incredible amount of trade that goes on among individuals, firms and countries. Today, of course, few of us produce our own goods and services; we rely on others to do this while we use our time earning money at a job. Instead of making our goods, we buy them. Computer manufacturers actually produce few of their own parts, but instead buy parts from suppliers.

Countries tend to specialize in the production of goods and services as well; for instance, there aren't any firms in the United States currently making television sets, and we make very few consumer electronics of any sort. Instead, our businesses concentrate on making other goods and services, and we import the televisions we need.

As we will see, we benefit from trade with other countries even if we are better at producing *everything* than the other country. Trade will benefit both countries as long as we each specialize in doing the task for which we have a lower opportunity cost. This is called *comparative advantage*.

Part A: Examples

Let's begin with a simple example. One summer two friends, Ty and Jessica, each started a business, making money by providing lawn-care services. Although they earned decent money working alone, they wondered if they could make more money by working together. The table below shows how many minutes it takes for each to complete the two tasks involved in doing one lawn: mowing and trimming, which includes the sweeping, edging and cleanup.

	Mow	Trim
Ty	60 minutes	40 minutes
Jessica	75 minutes	90 minutes

Someone who can do an activity using fewer resources is said to have an *absolute advantage*. Ty has an absolute advantage at both activities. Does this mean he should continue working alone?

If your instinct is to say that Ty should not partner with Jessica, you are wrong, but you are in good company: Adam Smith, whom many regard as the founder of modern economics, thought the same thing. It wasn't until David Ricardo came along in the early 1800s that people realized specialization and trade *can* benefit everyone *even if one of the parties has an absolute advantage at both activities!*

If Ty and Jessica are going to specialize, who should do what? Now, absolute advantage does not tell us anything, since Ty is better at both things. Instead, we have to look at *comparative advantage*.

We say someone has a comparative advantage at a task if this person can do the task at a *lower opportunity cost* than the other person.

Here, the opportunity cost of Ty mowing a lawn is how much of a lawn he could have trimmed in the same time. In this case, Ty could have used the 60 minutes it takes him to mow one lawn and he could have trimmed $1\frac{1}{2}$ lawns, or $\frac{3}{2}$ lawns.

For Jessica, the opportunity cost of mowing one lawn is what she could have trimmed during the 75 minutes she needed to mow that lawn. Jessica could have trimmed only $\frac{5}{6}$ (or $\frac{75}{90}$) of a lawn. Thus, we can see that Jessica has a comparative advantage in mowing lawns because Jessica's opportunity cost of mowing a lawn is lower than Ty's. Five-sixths of a lawn trimmed is less than $\frac{3}{2}$ lawns trimmed.

Now, we can calculate their opportunity cost to *trim* lawns. It takes Ty 40 minutes to trim one lawn, and with these 40 minutes he could instead have mowed $\frac{2}{3}$ of a lawn (or $\frac{40}{60}$). For Jessica, instead of using 90 minutes to trim one lawn, she could have spent these 90 minutes mowing one lawn and $\frac{1}{5}$ of another lawn ($\frac{90}{75}$). Thus, Ty has a comparative advantage in trimming lawns. The table below shows the relative opportunity costs.

	Opportunity cost of mowing one lawn	Opportunity cost of trimming one lawn
Ty	$\frac{3}{2}$ lawn trimmed	$\frac{2}{3}$ lawn mowed
Jessica	$\frac{5}{6}$ lawn trimmed	$\frac{6}{5}$ lawn mowed

Notice two things about our calculation of opportunity cost: First, Ty's opportunity cost of mowing one lawn ($\frac{3}{2}$ lawns trimmed) is the reciprocal of his opportunity cost of trimming one lawn ($\frac{2}{3}$). This will always be true, so in this example we did twice as much math as we would normally have to.

Second, notice that each person has a comparative advantage in precisely one activity. Unless a person is equally able at both activities, this will always be true as well.

Next, let's see whether this specialization actually increases their productivity. Before specializing, it would take Jessica 165 minutes ($90 + 75$) to mow and trim one lawn and Ty 100 minutes ($60 + 40$) to mow and trim one lawn, for a total of 265 minutes. If Jessica mows two lawns and Ty trims two lawns, then the total time needed to do two lawns would be 150 (75×2) + 80 (40×2) minutes or 230 minutes.

Thus, they save 35 minutes, or 13 percent of the total time necessary to do the lawns without specializing. Together, they can do more lawns in a week, and they can split the additional income so both are richer.

Let's look at one more example. Here, we will express the relative productivity of each person not in the number of minutes they need to do the activity but instead in *how many activities they can do in an hour*.

A few years ago Mark and Doreen were earning extra money installing car stereos for a local electronics store when they decided to go into business for themselves. After they rented a garage, they had to decide who should do what activity. The table below describes their productivity in the number of stereos and speakers installed per hour.

	Mark	Doreen
Radios installed	6	10
Speakers installed	2	5

The table below contains the breakdown of the opportunity cost for each person to do each activity.

	Mark	Doreen
Installing 1 radio	$\frac{1}{3}$ speaker	$\frac{1}{2}$ speaker
Installing 1 speaker	3 radios	2 radios

Mark has the comparative advantage in installing radios, and Doreen has the comparative advantage in installing speakers. By specializing, their total output increases.

3. Now, you're given the following information about Andy and Hannah and the time it takes each of them to clean an office and clean a jail cell:

	Andy	Hannah
Cleaning offices	60 minutes	20 minutes
Cleaning jail cells	30 minutes	15 minutes

- (A) What is Andy's opportunity cost of cleaning offices in terms of cleaning jail cells?
- (B) What is Hannah's opportunity cost of cleaning offices in terms of cleaning jail cells?
- (C) What is Andy's opportunity cost of cleaning jail cells in terms of cleaning offices?
- (D) What is Hannah's opportunity cost of cleaning jail cells in terms of cleaning offices?
- (E) Who has the *absolute* advantage in cleaning offices? _____
- (F) Who has the *absolute* advantage in cleaning jail cells? _____
- (G) Who has the *comparative* advantage in cleaning offices? _____
- (H) Who has the *comparative* advantage in cleaning jail cells? _____
- (I) Who should do which chore and why? Base your answer only on the information above and on comparative-advantage considerations.

4. Consider the following two countries. Assume they produce only these two goods. *Note that productivity is now measured in how many goods can be produced per hour, the opposite of how we measured it in Questions 2 and 3.*

	United States	Japan
Cars	12	10
Computers	4	6

- (A) What is the United States' opportunity cost of making cars?

- (B) What is Japan's opportunity cost of making cars?
- (C) What is the United States' opportunity cost of making computers?
- (D) What is Japan's opportunity cost of making computers?
- (E) Which country has the *absolute* advantage in cars? _____
- (F) Which country has the *absolute* advantage in computers? _____
- (G) Which country has the *comparative* advantage in cars? _____
- (H) Which country has the *comparative* advantage in computers? _____
- (I) Which country should produce which good and why? Base your answer only on the information above and on comparative-advantage considerations.
5. Use the law of comparative advantage to explain why self-sufficiency leads to a lower standard of living.

Is the Benefit of Doing Anything Worth the Cost of Doing It Well?

Bartlett's Familiar Quotations contains wisdom from writers separated by a millennium and a half. Whose wisdom best fits today's world?

Always take the short cut; and that is the rational one. Therefore say and do everything according to soundest reason.

Meditations iv.51
Marcus Aurelius
A.D. 120 to 181

Whatever is worth doing at all is worth doing well.

Philip Dormer Stanhope
Earl of Chesterfield
1694 to 1773

Between these two extremes, one discovers the economic way of thinking. We know that productive resources are limited, so we cannot have everything we want. We must economize by choosing among alternatives. We may want the very best product available, but we settle on a product with fewer features or less durability because the extra benefit of the product we would most like to have is simply not worth the extra cost. Resources that aren't devoted to making a good product perfect can be allocated to making other products.

Few choices we make in life are all-or-nothing decisions. We decide on the number of assigned chapters to read today based on alternative uses of our time. We frequently adjust the number of hours we study for each subject because of tests and nonschool uses of our day. Epidemic doses of "senioritis" — severely curtailing work for grades after college-acceptance letters are received — may suggest that the majority of students agree with Marcus Aurelius rather than the Earl of Chesterfield. Even the most severe victims of senioritis may admit that they are incurring a very different cost: the lost opportunities to learn the cultural and scientific knowledge that will be required in college.

An excellent academic record in high school expands the array of college choices for the graduating high school senior. "A" grades are preferred to "C" grades for reasons that don't warrant an explanation: The extra benefits of the explanation are not worth the extra costs of reading it.

This comparison of additional, or marginal, benefits and costs applies to production decisions, too. Of course, auto companies can make cars that work for a quarter century, but would the extra manufacturing cost be worthwhile over the product lifetime? Technical advances frequently lead to superior products at lower cost. Because of blindingly rapid changes in computer technology, the concept of an "old" computer is measured in months; so building a computer case that lasts for 50 years would be wasteful. Can you suggest services or products that are satisfactory, but not superior?

Thinking about the future requires that we acknowledge what we have and then make incremental changes so the marginal benefits of the changes exceed the marginal costs. Mechanical equipment in an aircraft must meet higher quality standards than the same product in a car. If the alternator fails in a car, one typically has enough time to pull off the road before the car stops. In an airplane, safe-landing options are fewer than those available to the motorist. Both quality decisions are correct because the added benefits from avoiding failure in a plane greatly exceed the marginal benefits from avoiding mechanical failure in a car.

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- After reading in *Bartlett's Familiar Quotations* that "knowledge is power," a student decides to be as knowledgeable as possible by devoting the next 20 years, without interruption, to college. From the data below, how would you advise this person to reconsider a career as a professional student? (Write the correct answer in the space, or underline the correct word in parentheses.)



Figure 7.1

Degree Earned and Expected Lifetime Earnings

Degree Earned	Expected Lifetime Earnings by Degree	Expected Lifetime Costs by Degree
High School	\$ 800,000	\$ 0
Associate	1,200,000	25,000
Bachelor's	2,000,000	100,000
Master's	2,100,000	200,000
Doctorate	2,500,000	2,500,000

- Would a master's degree and a doctorate degree be likely to build the human capital of the student? (*Yes / No*)

In the process of building knowledge, would the doctorate degree be the best example of doing a job well? (*Yes / No*)

- Assuming that inflation and interest rates are considered in these data, what is the optimal degree for this person to earn at the university?

- Which criterion did you use to determine the optimal degree this person should obtain? (*Total / Marginal*) benefits = (*total / marginal*) costs

- Since inflation is already factored into the data, what is the most likely reason that the costs of a doctorate degree rose to such a high level?

- Wrapping garbage neatly before taking it to the trash can, raking leaves on a windy day, hand-drying dishes after they have been run through a dishwasher's dry cycle and similar tasks seem to push the credibility of any value in doing a job well.

- Give examples of job requests you have heard that illustrate severely declining marginal benefits.

- (B) Give estimates of the opportunity cost of accomplishing these tasks.
3. Consider a group of small or large electronic items that you have thought about buying. Do you always choose the highest-priced goods? Explain your answer.
 4. If you wanted to eliminate “senioritis,” how would you change the college-acceptance process and/or the incentives offered by high school instructors?

