ECONOMICS

ROGER A. ARNOLD

TWELFTH EDITION

ECONOMICS

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ECONOMICS

Roger A. Arnold

California State University
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To Sheila, Daniel, and David

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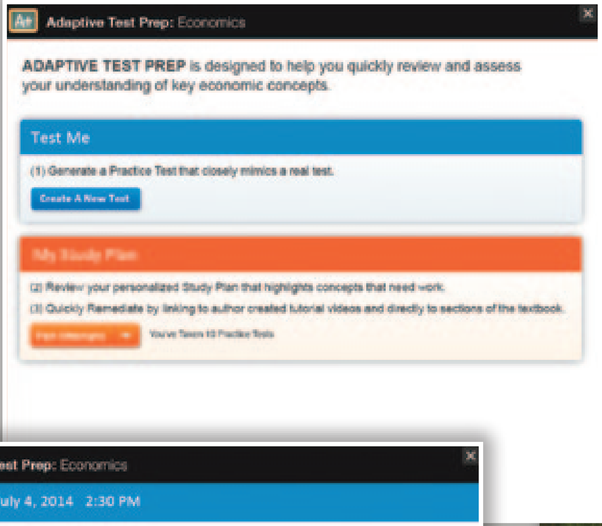

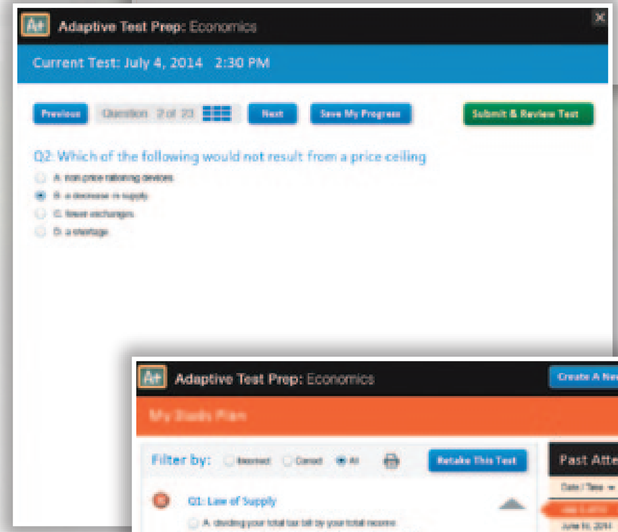

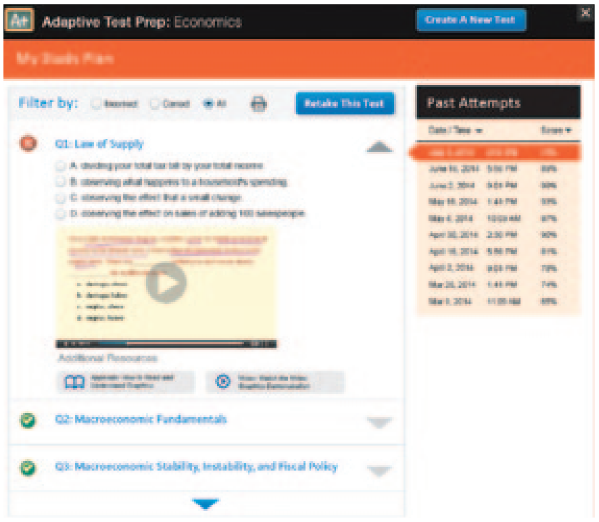

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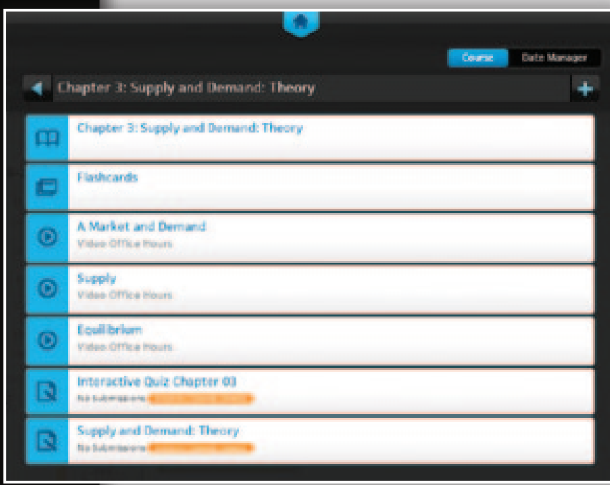

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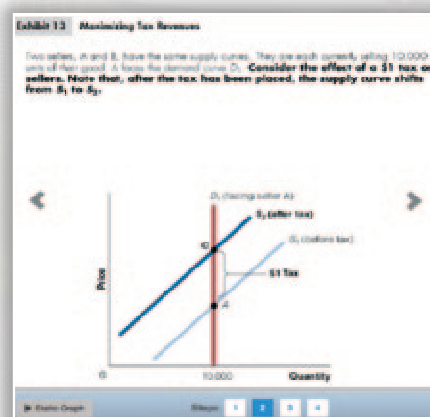

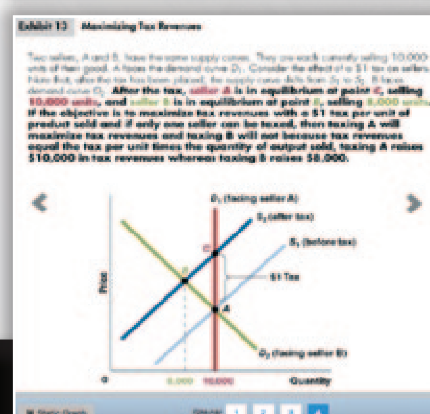

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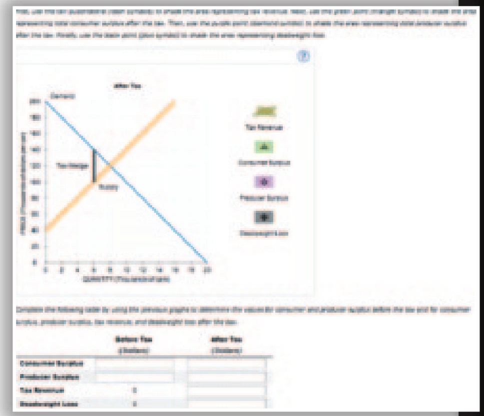

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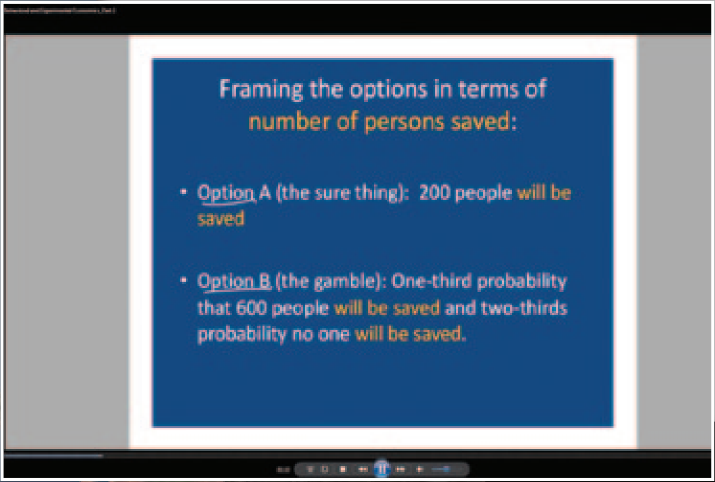

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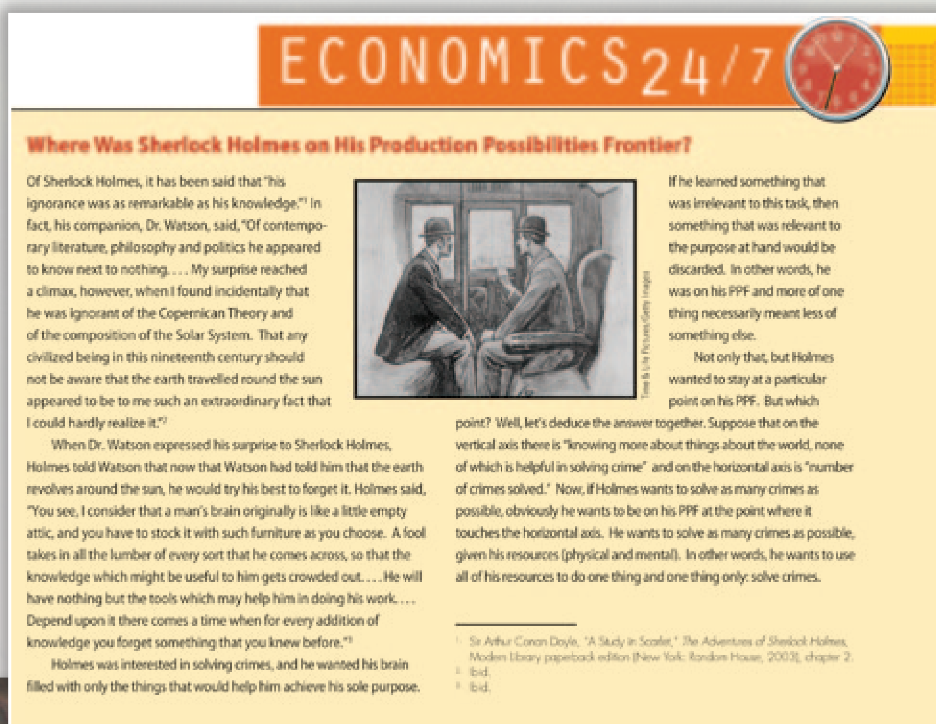
The 12th Edition also includes new sections on behavioral and experimental economics, unpaid internships, the economics of social media, democracies and deficits, a gold standard and monetary policy, quantitative easing, digital currency, and more.



ECONOMICS 24/7

Where Was Sherlock Holmes on His Production Possibilities Frontier?

Of Sherlock Holmes, it has been said that "his ignorance was as remarkable as his knowledge."[1] In fact, his companion, Dr. Watson, said, "Of contemporary literature, philosophy and politics he appeared to know next to nothing. . . . My surprise reached a climax, however, when I found incidentally that he was ignorant of the Copernican Theory and of the composition of the Solar System. That any civilized being in this nineteenth century should not be aware that the earth travelled round the sun appeared to be to me such an extraordinary fact that I could hardly realize it."[2]

When Dr. Watson expressed his surprise to Sherlock Holmes, Holmes told Watson that now that Watson had told him that the earth revolves around the sun, he would try his best to forget it. Holmes said, "You see, I consider that a man's brain originally is like a little empty attic, and you have to stock it with such furniture as you choose. A fool takes in all the lumber of every sort that he comes across, so that the knowledge which might be useful to him gets crowded out. . . . He will have nothing but the tools which may help him in doing his work. . . . Depend upon it there comes a time when for every addition of knowledge you forget something that you knew before."[3]

Holmes was interested in solving crimes, and he wanted his brain filled with only the things that would help him achieve his sole purpose.

Time & Life Pictures/Getty Images

If he learned something that was irrelevant to this task, then something that was relevant to the purpose at hand would be discarded. In other words, he was on his PPF and more of one thing necessarily meant less of something else.

Not only that, but Holmes wanted to stay at a particular point on his PPF. But which point? Well, let's deduce the answer together. Suppose that on the vertical axis there is "knowing more about things about the world, none of which is helpful in solving crime" and on the horizontal axis is "number of crimes solved." Now, if Holmes wants to solve as many crimes as possible, obviously he wants to be on his PPF at the point where it touches the horizontal axis. He wants to solve as many crimes as possible, given his resources (physical and mental). In other words, he wants to use all of his resources to do one thing and one thing only: solve crimes.

1. Sir Arthur Conan Doyle, "A Study in Scarlet," *The Adventures of Sherlock Holmes*, Modern Library paperback edition (New York: Random House, 2003), chapter 2.
2. Ibid.
3. Ibid.

IN APPRECIATION

Many colleagues have contributed to the success of this text over the last eleven editions. Their feedback continues to influence and enhance the text and ancillary package and I'm grateful for their efforts. Now into our 12th edition, space dictates that we can no longer list all of the names of all reviewers for each past edition; we are including here instructors who contributed to the development of the 12th edition, but continue to be grateful for the improvements suggested by all of the reviewers and contributors to this product over the years.

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My deepest debt of gratitude goes to my wife, Sheila, and to my two sons, David, 23 years old, and Daniel, 26 years old. They continue to make all my days happy ones.

Roger A. Arnold

WHAT ECONOMICS IS ABOUT

1 CHAPTER

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INTRODUCTION

You are about to begin your study of economics. Before discussing particular topics in economics, we think it best to give you an overview of what economics is and of some of the key concepts. The key concepts can be compared to musical notes: Just as musical notes are repeated in any song (you hear the musical note G over and over again), so are the key concepts in economics repeated. Some of these concepts are scarcity, opportunity cost, efficiency, marginal decision making, incentives, and exchange.

1-1 YOUR LIFE, 2016–2026

What will your life be like during the years 2016–2026? What kind of work will you do after college? How much will you earn in that first job after college? Where will you be living and who will your friends be? How many friends will you have? Who might you marry? Will you buy a house in the next few years? If so, how much will you pay for the house? And, perhaps most importantly, will you be happy?

The specific answers to these questions and many more have to do with economics. For example, the salary you will earn has to do with the economic concept of *opportunity cost*. What you will do in your first job after college has to do with the *state of the economy* when you graduate. Whom you marry has to do with the *costs and benefits* connected to the people you date. The price you pay for a house has to do with the state of the *housing market*. How many friends you have has to do with the economic concept of *scarcity*. Whether you are happy will depend on such things as the *net benefits* you receive in various activities, the *utility* you gain by doing certain things, and more.

In this chapter we begin our study of economics. As you read the chapter (and those which follow), ask yourself how much of what you are reading is relevant to your life today and tomorrow. Ask: What does what I am reading have to do with *my* life? Our guess is that after answering this question a few dozen times, you will be convinced that economics explains much about your present and future.

1-2 A DEFINITION OF ECONOMICS

In this section, we discuss a few key economic concepts; then we incorporate knowledge of these concepts into a definition of economics.

1-2a Goods and Bads

Good
Anything from which individuals receive utility or satisfaction.

Utility
The satisfaction one receives from a good.

Bad
Anything from which individuals receive disutility or dissatisfaction.

Disutility
The dissatisfaction one receives from a bad.

Economists talk about *goods* and *bads.* A **good** is anything that gives a person **utility**, or satisfaction. Here is a partial list of some goods: a computer, a car, a watch, a television set, friendship, and love. You will notice from our list that a good can be either tangible or intangible. A computer is a tangible good; friendship is an intangible good. Simply put, for something to be a good (whether tangible or intangible), it only has to give someone utility or satisfaction.

A **bad** is something that gives a person **disutility**, or dissatisfaction. If the flu gives you disutility or dissatisfaction, then it is a bad. If the constant nagging of an acquaintance is something that gives you disutility or dissatisfaction, then it is a bad.

People want goods, and they do not want bads. In fact, they will pay to get goods ("Here is $1,000 for the computer"), and they will pay to get rid of bads ("I'd be willing to pay you, doctor, if you can prescribe something that will shorten the time I have the flu").

Can something be a *good* for one person and a *bad* for another person? Smoking cigarettes gives some people utility; it gives others disutility. We conclude that smoking cigarettes can be a *good* for some people and a *bad* for others. This must be why the wife tells her husband, "If you want to smoke, you should do it outside." In other words, "Get those *bads* away from me."

1-2b Resources

Land
All natural resources, such as minerals, forests, water, and unimproved land.

Labor
The work brought about by the physical and mental talents that people contribute to the production process.

Capital
Produced goods, such as factories, machinery, tools, computers, and buildings, that can be used as inputs for further production.

Entrepreneurship
The talent that some people have for organizing the resources of land, labor, and capital to produce goods, seek new business opportunities, and develop new ways of doing things.

Goods do not just appear before us when we snap our fingers. It takes resources to produce goods. (Sometimes *resources* are referred to as *inputs* or *factors of production.*)

Generally, economists divide resources into four broad categories: *land, labor, capital,* and *entrepreneurship.*

- **Land** includes natural resources, such as minerals, forests, water, and unimproved land. For example, oil, wood, and animals fall into this category. (Sometimes economists refer to the category simply as *natural resources.*)
- **Labor** consists of the physical and mental talents that people contribute to the production process. For example, a person building a house is using his or her own labor.
- **Capital** consists of produced goods that can be used as inputs for further production. Factories, machinery, tools, computers, and buildings are examples of capital. One country might have more capital than another; that is, it has more factories, machinery, tools, and the like.
- **Entrepreneurship** refers to the talent that some people have for organizing the resources of land, labor, and capital to produce goods, seek new business opportunities, and develop new ways of doing things.

1-2c Scarcity and a Definition of Economics

We are now ready to define a key concept in economics: *scarcity*. **Scarcity** is the condition in which our wants (for goods) are greater than the limited resources (land, labor, capital, and entrepreneurship) available to satisfy those wants. In other words, we want goods, but not enough resources are available to provide us with all the goods we want.

Scarcity
The condition in which our wants are greater than the limited resources available to satisfy those wants.

Look at it this way: Our wants (for goods) are infinite, but our resources (which we need to produce the goods) are finite. Scarcity is the result of our infinite wants hitting up against finite resources.

Many economists say that if scarcity didn't exist, neither would economics. In other words, if our wants weren't greater than the limited resources available to satisfy them, there would be no field of study called economics. This is similar to saying that if matter and motion didn't exist, neither would physics or that if living things didn't exist, neither would biology. For this reason, we define **economics** in this text as the science of scarcity. More completely, *economics is the science of how individuals and societies deal with the fact that wants are greater than the limited resources available to satisfy those wants*.

Economics
The science of scarcity; the science of how individuals and societies deal with the fact that wants are greater than the limited resources available to satisfy those wants.

THINKING LIKE AN ECONOMIST

Scarcity Affects Everyone Everyone in the world—even a billionaire—has to face scarcity. Billionaires may be able to satisfy more of their wants for tangible goods (houses, cars) than most people, but they still may not have the resources to satisfy all their wants. Their wants might include more time with their children, more friendship, no disease in the world, peace on earth, and a hundred other things that they don't have the resources to "produce."

1-2d The Counterintuitive in Economics

As we said, scarcity is the condition in which our wants for goods and services are greater than the resources available to satisfy those wants. In other words, we want more than we can possibly have. If we stopped here—with only our definition of scarcity—we would leave thinking that we are doomed to a life of poverty—of not having enough. But that would leave the wrong impression. Scarcity can exist at the same time that wealth does. A society that faces scarcity can be a very wealthy society indeed—but there is no guarantee that it will be. Scarcity, a fact of life, can come with poverty or wealth.

To understand how scarcity can be consistent with either poverty or wealth, consider any country in the world today, either a rich one, like the United States, or a poor one, like Cuba. As measured by real output per capita, the United States is a rich country and Cuba is a poor country. Both countries, however, face scarcity. The people who live in both countries have infinite wants for goods and services and finite resources with which to produce those goods and services.

But if both countries face scarcity, then why is one of the countries rich and the other poor. If scarcity is all that matters, then why aren't both countries rich, or both countries poor? The answer is that the two countries do not function under the same economic and political systems. Stated differently, both the economic and political institutions in the two countries are different and it is the difference here that matters to poverty and wealth. To be more specific, consider how prices are determined in the two countries. In the United States, prices are determined largely by market forces. In Cuba, prices are determined largely by government edict.

Or consider the incentive to produce in the two countries. In the United States, people and firms can produce what they want to and not produce what they don't want to produce. In Cuba, these decisions are made largely by the government.

In the United States, profit and loss guide a whole host of economic choices; in Cuba, profit and loss are replaced with government officials who decide things like what gets produced, how much a worker gets paid, how much a seller can charge, and so on. In the United States, private property rights play a big role in determining how and what things get done; in Cuba, not so much.

The reason that Cuba is a poor country and the United States is a rich country isn't because Cuba faces scarcity and the United States does not—because, as we know, in both countries people must grapple with scarcity. Scarcity is a little like the sky: It exists everywhere, for everyone. The reason that Cuba is poor and the United States is rich is because of the different ways that the two countries deal with scarcity.

Economists often summarize by saying, "Institutions matter." What this means is that the economic and political institutions under which a country operates matter to the outcomes that the country faces. Or put it this way: Scarcity is a fact of life; it is how we deal with that fact of life that matters.

Thinking in Terms of Scarcity's Effects

Scarcity has effects. Here are three: (1) the need to make choices, (2) the need for a rationing device, and (3) competition.

Choices People have to make choices because of scarcity. Because our unlimited wants are greater than our limited resources, some wants must go unsatisfied. We must choose which wants we will satisfy and which we will not. Jeremy asks, "Do I go to Hawaii, or do I pay off my car loan earlier?" Ellen asks, "Do I buy the new sweater or two new shirts?"

Rationing Device
A means for deciding who gets what of available resources and goods.

Need for a Rationing Device A **rationing device** is a means of deciding who gets what of available resources and goods. Scarcity implies the need for a rationing device. If people have infinite wants for goods and if only limited resources are available to produce the goods, then a rationing device is needed to decide who gets the available quantity of goods. Dollar price is a rationing device. For example, 100 cars are on the lot, and everyone wants a new car. How do we decide who gets what quantity of the new cars? The answer is to use the rationing device called *dollar price*. The people who pay the dollar price for a new car end up with one.

Scarcity and Competition Do you see competition in the world? Are people competing for jobs? Are states and cities competing for businesses? Are students competing for grades? The answer to all these questions is yes. The economist wants to know why this competition exists and what form it takes. First, the economist concludes, *competition exists because of scarcity.* If there were enough resources to satisfy all our seemingly unlimited wants, people would not have to compete for the available, but limited, resources.

Second, the economist sees that competition takes the form of people trying to get more of the rationing device. If dollar price is the rationing device, people compete to earn dollars. Look at your own case. You are a college student working for a degree. One reason (but perhaps not the only reason) you are attending college is to earn a higher income after graduation. But why do you want a higher income? You want it because it will allow you to satisfy more of your wants.

Suppose muscular strength (measured by lifting weights), instead of dollar price, were the rationing device. Then people with more muscular strength would receive more resources and goods than people with less muscular strength. In that case, people would compete for muscular strength. (Would they spend more time at the gym lifting weights?) The lesson is simple: *Whatever the rationing device is, people will compete for it.*

FINDING ECONOMICS

At the campus bookstore To learn economics well, you must practice what you learn. One of the ways to practice economics is to find it in everyday life. Consider the following scene: You are in the campus bookstore buying a book for your computer science course, and you are handing over $85 to the cashier. Can you find the economics in this simple scene? Before you read on, think about it for a minute.

Let's work backward to find the economics. You are currently handing the cashier $85. We know that dollar price is a rationing device. But let's now ask ourselves why we would need a rationing device to get the book. The answer is scarcity. In other words, scarcity is casting its long shadow there in the bookstore as you buy a book. We have found one of the key economic concepts—scarcity—in the campus bookstore. (If you also said that a book is a good, then you have found even more economics in the bookstore. Can you find more than scarcity and a good?)

SELF-TEST

(Answers to Self-Test questions are in Answers to Self-Test Questions at the back of the book.)

1. True or false? Scarcity is the condition of finite resources. Explain your answer.
2. How does competition arise out of scarcity?
3. How does choice arise out of scarcity?

1-3 KEY CONCEPTS IN ECONOMICS

A number of key concepts in economics define the field. We discuss a few of these concepts next.

1-3a Opportunity Cost

So far, we have established that people must make choices because scarcity exists. In other words, because our seemingly unlimited wants push up against limited resources, some wants must go unsatisfied. We must therefore *choose* which wants we will satisfy and which we will not. The most highly valued opportunity or alternative forfeited when we make a choice is known as **opportunity cost**. Every time you make a choice, you incur an opportunity cost. For example, you have chosen to read this chapter. In making this choice, you denied yourself the benefits of doing something else. You could have watched television, written a text message to a friend, taken a nap, eaten a few slices of pizza, read a novel, shopped for a new computer, and so on. Whatever you *would have chosen* to do is the opportunity cost of your reading this chapter. For instance, if you would have watched television instead of reading this chapter—if that was your next best alternative—then the opportunity cost of reading the chapter is watching television.

Opportunity Cost
The most highly valued opportunity or alternative forfeited when a choice is made.

ECONOMICS 24/7

Rationing Spots at Yale


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Each year, Yale University receives more applications for admission to the freshmen class than spots are available. In most years, for every 100 applications for admission that Yale receives, it can accept only seven applicants for admission. What Yale has to do, then, is ration its available admission spots.

How does it ration its available spots? One way is simply to use money as a rationing device. In other words, raise the dollar amount of attending Yale to a high enough level so that the number of spots equals the number of students willing and available to pay for admission. To illustrate, think of Yale as auctioning off spots in its freshman class. It calls out a price of $50,000 a year, and at this price more people wish to be admitted to Yale than there are spots available. Yale keeps on raising the price until the number of students who are willing and able to pay the tuition is equal to the number of available spots. Maybe this price is, say, $200,000.

As we know, Yale does not ration its available spots this way. In fact, it uses numerous rationing devices in an attempt to whittle down the number of applicants to the number of available spots. For example, it might use the rationing device of high school grades. Anyone with a GPA in high school of less than, say, 3.50 is not going to be admitted. If, after doing this, Yale still has too many applicants, it might then make use of the rationing device of standardized test scores. Anyone with an SAT score of under, say, 2100 is eliminated from the pool of applicants. If there are still too many applicants, then perhaps other rationing devices will be used, such as academic achievements, community service, degree of interest in attending Yale, and so on.

Yale might also decide that it wants to admit certain students over others, even if the two categories of students have the same academic credentials. For example, suppose Yale wants at least one student from each state in the country, and only 10 students from Wyoming have applied to go to Yale whereas 300 students from California have applied. Then Yale could very well use the rationing device of state diversity to decide in favor of the student from Wyoming instead of the applicant from California.

In the first week of April each year, Yale sends out many more rejection letters than acceptance letters. No doubt, some students who are rejected by Yale feel that some of the students who were accepted might not be as academically strong as they are. No doubt, the student with a 4.00 GPA and a perfect SAT score of 2400 feels that he might have been slighted by Yale when he learns that a student in his high school with a 3.86 GPA and SAT score of 2180 was chosen over him. What did the 3.86–2180 student have that he didn't have? What rationing device benchmark did the rejected student score lower on?

In life, you will often hear people arguing over what the rationing device for certain things should be. Should high school grades and standardized test scores be the only two rationing devices for college admission? What role should money play as a rationing device when a high school graduate applies to college? What role should ethnic or racial diversity, or state diversity, or income diversity play in the application process? Our point is a simple one: With scarcity comes the need for a rationing device. More people want a spot at Yale than there are spots available. Yale has to use one or more rationing devices to decide who will be accepted and who will be rejected.

There Is No Such Thing as a Free Lunch Economists are fond of saying that *there is no such thing as a free lunch*. This catchy phrase expresses the idea that opportunity costs are incurred whenever choices are made. Perhaps this is an obvious point, but consider how often people mistakenly assume that there *is* a free lunch. For example, some parents think that education is free, because they do not pay tuition for their children to attend public elementary school. That's a misconception. "Free" implies no sacrifice and no opportunities forfeited, but an elementary school education requires resources that could be used for other things.

Consider the people who speak about free medical care, free housing, free bridges ("there's no charge to cross it"), and free parks. Again, free medical care, free housing, free bridges, and free parks are misconceptions. The resources that provide medical care, housing, bridges, and parks could have been used in other ways.

THINKING LIKE AN ECONOMIST

Zero Price Doesn't Mean Zero Cost A friend gives you a ticket to an upcoming concert for zero price (i.e., you pay nothing). Does it follow that zero price means zero cost? No. There is still an opportunity cost of attending the concert. Whatever you would be doing if you don't go to the concert is the opportunity cost of attending. To illustrate, if you don't attend the concert, you would hang out with friends. The value you place on hanging out with friends is the opportunity cost of your attending the concert.

1-3b Opportunity Cost and Behavior

Economists believe that a change in opportunity cost can change a person's behavior. For example, Ryan, who is a sophomore at college, attends classes Monday through Thursday of every week. Every time he chooses to go to class, he gives up the opportunity to do something else, such as earn $12 an hour working at a job. The opportunity cost of Ryan's spending an hour in class is $12.

Now let's raise the opportunity cost of attending class. On Tuesday, we offer Ryan $70 to skip his economics class. He knows that if he attends his economics class, he will forfeit $70. What will Ryan do? An economist would predict that as the opportunity cost of attending class increases relative to the benefits of attending, Ryan is less likely to go to class.

This is how economists think about behavior: *The higher the opportunity cost of doing something, the less likely it is that it will be done.* This is part of the economic way of thinking.

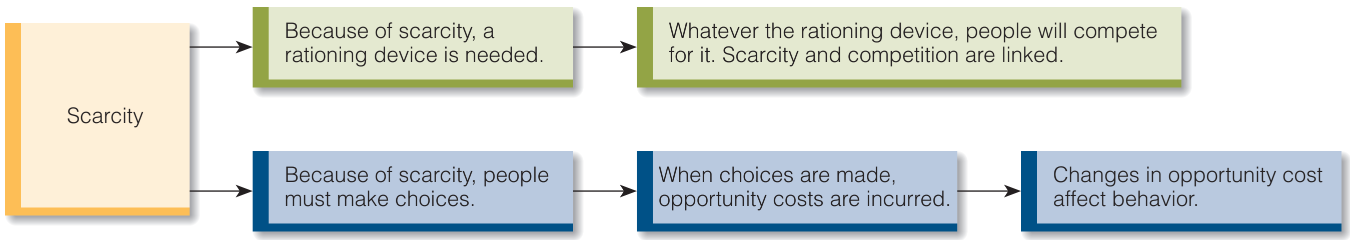
Look at Exhibit 1, which summarizes some of the things about scarcity, choice, and opportunity cost up to this point.

1-3c Benefits and Costs

If we could eliminate air pollution completely, should we do it? If your answer is yes, then you are probably focusing on the *benefits* of eliminating air pollution.

EXHIBIT 1

Scarcity and Related Concepts



FINDING ECONOMICS

In Being Late to Class John is often a few minutes late to his biology class. The class starts at 10 a.m., but John usually walks into the class at 10:03 a.m. The instructor has asked John to be on time, but John usually excuses his behavior by saying that the traffic getting to college was bad or that his alarm didn't go off at the right time or that something else happened to delay him. One thing the instructor observes, though, is that John is never late when it comes to test day. He is usually in class a few minutes before the test begins. Where is the economics?

We would expect behavior to change as opportunity cost changes. When a test is being given in class, the opportunity cost of being late to class is higher than when a test is not being given and the instructor is simply lecturing. If John is late to class on test day, he then has fewer minutes to complete the test, and having less time can adversely affect his grade. In short, the higher the opportunity cost of being late to class, the less likely it is that John will be late.

For example, one benefit might be healthier individuals. Certainly, individuals who do not breathe polluted air have fewer lung disorders than people who do breathe polluted air.

But benefits rarely come without costs. The economist reminds us that, although eliminating pollution has its benefits, it has costs too. To illustrate, one way to eliminate all car pollution tomorrow is to pass a law stating that anyone caught driving a car will go to prison for 40 years. With such a law in place and enforced, very few people would drive cars and all car pollution would be a thing of the past. Presto! Cleaner air! However, many people would think that the cost of obtaining that cleaner air is too high. Someone might say, "I want cleaner air, but not if I have to completely give up driving my car. How will I get to work?"

What distinguishes the economist from the noneconomist is that the economist thinks in terms of *both* costs *and* benefits. Often, the noneconomist thinks in terms of one or the other. Studying has its benefits, but it has costs too. Coming to class has benefits,

ECONOMICS 24/7

Scarcity and Friendship

At first glance, scarcity and the number of friends you have probably seem unrelated. But friendship implies choice, and choice implies opportunity cost; thus, if a person incurs an opportunity cost when he or she makes a friend, the link between the number of friends a person has and scarcity is established.

But does a person incur an opportunity cost when he or she makes a friend? The answer is yes. First, you have to meet someone (could you be doing something else?), you have to talk to that person (could you be doing something else?), you may have to drive over to the person's house for a party (could you be doing something else?), you may have to invite the person over to your house for dinner (could you be doing something else?), and you have to be there for the person when he or she needs your help (could you be doing something else?). In short, making friends comes at a cost. (It comes with benefits too.)

Now, the higher the opportunity cost of making friends, the fewer friends you will have, all other things remaining constant. For example, the average five-year-old may say she has 10 friends and that she plays with each of them every week. The average 40-year-old may say he has four friends and that he talks to, or gets together with, maybe one or two every two weeks. Are adults less friendly than children, or do adults simply face higher opportunity costs of making friends than children do? We suggest that it is the latter. An adult who spent as much time a week making and keeping friends as a child does would have to forfeit the opportunity to work at a job and earn an income.

Pursuing the analysis, would there be any difference between the number of friends a person would have in a large city than in a small town? In large towns there are museums, plays, numerous restaurants, libraries, concerts, sports events, and, usually, better opportunities to earn a large income than exist in small towns. We conclude that the opportunity cost of making friends is higher in a large city than in a small town and that the "average" person will have fewer friends in a large city than in a small town. Perhaps this is why large cities are so often said to be cold and impersonal and small towns are said to be friendly.

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