Scarcity Exists

People have wants—things they desire to have. They do not want just anything, however. They want the things they think will make them happy and satisfied. Most people want cars, houses, haircuts, clothes, entertainment, better health, and countless other things. Few people are completely satisfied, even after getting their initial wants satisfied. Then they want a bigger house, a newer car, and more CDs. All the wants of all the people in the world make the list of wants unlimited.

Resources Are Needed

How do people satisfy their wants? As you probably know, in most cases you cannot get something by just wishing for it. The things we want do not simply appear on our doorsteps because we desire them. Instead, resources are needed to produce the goods and services that satisfy our wants. If you want a new desk for your room, it takes wood, tools, and labor (all of which are resources) to produce that desk. Nanette may want a computer, but she is not going to get one by simply wishing for it. It takes many resources to produce it. (You will learn more about how economists define resources, goods, and services later in this chapter.)

Resources Are Limited

Unfortunately the world’s supply of resources is limited. So, when you want a new desk or Nanette wants a computer, you and Nanette face an ongoing problem in life that we all face, an economic problem. Our wants are unlimited, but the resources available to satisfy these wants are limited. Stated in another way, people’s wants are greater than the limited resources available to satisfy all the wants.

This condition in which our wants are greater than the resources available to satisfy them is called scarcity. Scarcity is an economic fact of life, much as the law of gravity is a fact of life. In fact, scarcity is such an important, fundamental economic concept that some economists have said that the science of economics wouldn’t exist were it not for scarcity.
**A Student Asks**

**QUESTION:** I know that I must deal with scarcity, but do wealthy people, people like Bill Gates, the multibillionaire, face scarcity too? Bill Gates may have unlimited wants, but doesn’t he also have unlimited resources?

**ANSWER:** No, both you and Bill Gates have to deal with scarcity. The fact that he can buy more “things” than you can doesn’t mean that his resources are unlimited. Keep in mind that Gates wants more than just goods, such as cars, houses, and vacations; he also wants more friendship, more time to spend with his kids, more time to do some leisurely reading. In addition, he has tried to help solve many of the world’s problems by donating millions of dollars to charities, but not even his vast fortune can provide everyone in the world with everything they want.

---

**Making Choices Means Incurring Opportunity Costs**

Every time you make a choice, such as choosing to buy a sweater instead of two pairs of shoes, you incur an opportunity cost. The first lesson of economics is scarcity: There is never enough of anything to satisfy all those who want it.” —Thomas Sowell, economist

---

**Scarcity Means Making Choices**

Wants are unlimited, and resources are limited. Therefore, scarcity exists, and people must make choices. After all, without enough resources to satisfy all our wants (yours, mine, and everybody else’s), we have to choose which wants (of the unlimited number we have) we will satisfy.

**Example:** Maria earns $1,000 a month. She wants a new outfit, 10 new books, a trip to Hawaii, a new car, and many other things. The problem is that she can’t have everything she wants, given her income. She has to choose between the new outfit or the 10 new books. She also has to choose between the trip to Hawaii and a down payment on a new car.

Consider the choices a society makes because scarcity exists. Some groups of people want more health care for the poor, some want more police protection, some want more schools, and some a cleaner environment. As we know, wants are not satisfied simply by the asking. It takes resources to bring these things about. The problem, though, is that even if we could satisfy all the wants listed here, there would be more later. Even if we provided more health care to the poor, hired more police officers, built more schools, and cleaned up the environment, we would still discover other things to do—always more wants and never enough resources to satisfy those unlimited wants. Therefore, we must choose how we are going to use our limited resources. We must choose which wants we will try to satisfy and which wants will be left unsatisfied.

---

△ In a world of scarcity, we must make choices. Would you choose the most expensive or the least expensive shoes? How would this decision affect other decisions?
## Exhibit 1-1: Opportunity Cost

<table>
<thead>
<tr>
<th>What to do</th>
<th>What you would have done</th>
<th>Opportunity cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watch television</td>
<td>Read a book</td>
<td>The opportunity cost of watching television is reading a book.</td>
</tr>
<tr>
<td>Buy a computer</td>
<td>Take a vacation in France</td>
<td>The opportunity cost of buying a computer is taking a vacation in France.</td>
</tr>
<tr>
<td>Go to sleep at 9:00 p.m. instead of 11:00 p.m.</td>
<td>Watch a two-hour video</td>
<td>The opportunity cost of sleeping from 9:00 to 11:00 p.m. is watching a two-hour video.</td>
</tr>
</tbody>
</table>

The most valued opportunity or alternative you give up to do something—the next best choice—is that something’s opportunity cost.

Opportunity costs affect people’s decisions every day. In fact, a change in opportunity cost can, and often does, change a person’s behavior. Suppose Sunil has a part-time job at a local grocery store. Each day he goes to work at 2 p.m. and leaves at 6 p.m. Does he incur any opportunity costs when he chooses to work each day between 2 and 6 p.m.? He certainly does; whatever he would be doing if he weren’t working is the opportunity cost of his working.

Now let’s increase the opportunity cost of Sunil’s going to work. Suppose one day Sunil is on his way to work when someone stops him and offers to pay him $300 for doing an easy task, but doing the task means that Sunil will not be able to go to work that day. What will Sunil do? Will he continue on his way to work or take the $300 and not go to work? An economist would predict that as the opportunity cost of working at his part-time job increases, compared to the benefits of working, Sunil is less likely to go to work. According to how economists think about behavior, whether it is Sunil’s or your own behavior, the higher the cost of doing something, the less likely it will be done.

### Question: Suppose I decide to spend $50 to buy some used car stereo speakers from a friend. If I hadn’t spent the money on the speakers, I could have purchased $50 worth of new clothes, or spent $50 on a present for my girlfriend, or given $50 to my mom’s favorite charity. Because I could have done any of these things, aren’t all of them the opportunity cost of buying the speakers?

**Answer:** No. It is necessary to differentiate between what you could have done and what you would have done. Opportunity cost refers to what you would have done if you had not bought the speakers. It’s your next best choice, and only that choice. If you would have spent the $50 on your girlfriend’s present, then the present—and only the present—is what you actually gave up to buy the speakers. Your opportunity cost in this case can only be $50 worth of opportunity, not $100, $150, or $200 worth.
Chris Rock was born on February 7, 1966, in Andrews, South Carolina. Many of his early years were spent in the neighborhood of Bedford-Stuyvesant in Brooklyn, New York. He had two idols: one was boxer Sugar Ray Leonard and the other was comedian Eddie Murphy. Realizing that he wasn’t much of a boxer, Chris decided to become a comedian, like Murphy.

One night, Eddie Murphy caught Chris Rock’s act at a club. He was so impressed with Rock that he cast him in his 1987 movie, Beverly Hills Cop 2. In the early 1990s, Rock became a regular on television’s Saturday Night Live. He went on to become one of America’s funniest comedians—doing movies, HBO specials, and more. Chris’s hard work and talent began paying off for him financially, with his earnings far exceeding that of the average 21-year-old.

While Chris Rock was pursuing his comedy career, many people the same age were attending college. Why didn’t Rock go to college? He certainly could have afforded the tuition, and he would have been accepted had he applied. Could it be that the opportunity costs of attending college were just too high for Chris Rock?

“We were so poor my daddy unplugged the clocks when we went to bed.”
—Chris Rock

To understand, think what it will cost you to attend college. Let’s say that room, board, tuition, books, fees, and living expenses add up to $20,000 a year. Multiplied by 4 years that comes to $80,000. Is $80,000 really the full cost of your attending college? What would you be doing if you didn’t go to college? Chances are that you’d be earning income working at a job. For example, perhaps you could be working at a full-time job earning $25,000 annually. Multiplied by 4 years that’s $100,000. Certainly this forfeited $100,000 is part of the cost of your attending college. Even if you earn some money working part-time while in school, you will be giving up some earnings.

How do the earnings you would give up compare to the earnings that someone like Chris Rock would have to give up? Even though the tuition, room, board, and other costs of attending college are roughly the same for everyone who attends your college, the opportunity costs will not be. Some people have higher opportunity costs of attending college than others do. Can you see how it was simply too “costly” for Chris Rock to attend college?

You may not be making hundreds of thousands of dollars shortly after graduating from high school, but if you decide to go to college, you will have opportunity costs. What will be your opportunity costs for going to college?
High school teachers have observed that seniors, in their last semester in school, cut classes more often than any other time of the year. Does this behavior have a “surfer explanation,” which is really an opportunity cost explanation?

Yes, the opportunity cost explanation says that by the time their last semester at high school rolls around, many seniors have already been admitted to college. In their minds, missing a class here or there will not do much harm to their chances of getting into college. Let’s put it the way an economist would: the opportunity cost of going to class is less after a senior has been admitted to college than before he or she has been admitted to college; therefore, we would expect a higher absentee rate (among seniors) when the opportunity cost of attending class is lower.

(Be aware: Some colleges will grant admission, but on the condition that a student maintain his or her GPA. In this case, then the opportunity cost of attending class is the same before and after the senior is admitted to college.)

**One Diagram, Three Economic Concepts**

You have probably heard the saying, “A picture is worth a thousand words.” With that saying in mind, let’s look at a diagram that can be used to illustrate the three economic concepts we have discussed: scarcity, choice, and opportunity cost.

The diagram is called a production possibilities frontier (or PPF, for short). A *production possibilities frontier* shows all possible combinations of two goods that an economy can produce in a certain period of time (see Exhibit 1-2). To keep things simple, we have assumed that only two goods, snowboards and skis, can be produced in an economy. In Exhibit 1-2(a) you see the four different combinations (A–D) of these two goods that an economy can produce. For example, it can produce 50,000 snowboards and 0 sets of skis, or 40,000 snowboards and 20,000 sets of skis, and so on.

We then take each of the four combinations and plot them in Exhibit 1-2(b). If we simply connect these four points, A–D, we have a production possibilities frontier. In other words, the curve you see in Exhibit 1-2(b) is a production possibilities frontier (PPF).

**Scarcity and the PPF**

Now let’s think about scarcity in terms of the PPF. Scarcity, as you know, is the condition in which our wants are greater than the resources available to satisfy them. The PPF itself, the actual curve in Exhibit 1-2(b), illustrates this concept. The PPF tells us that certain things are available to us and certain things are not. We can’t have everything we
want. Any point on the PPF itself, such as points A–D, is available to us. For example, we can have point B, which represents 40,000 snowboards and 20,000 sets of skis. We can also have the combination of goods represented by any point below the PPF, such as point E. What we can’t have—what is unavailable to us because we don’t have enough resources to produce it—is the combination of goods represented by point F, which lies beyond the PPF.

Can you see then that the PPF itself (the actual curve) illustrates scarcity by creating two regions for us? One region—consisting of points on the PPF and below it—represents what is available to us. Another region (the points beyond the PPF) represents what is unavailable to us. Scarcity told us we couldn’t have everything we want, and the PPF makes this point visually clear.

**Choices and the PPF**

Now consider the concept of choice. We stated earlier that because of scarcity we must make choices. Looking again at Exhibit 1-2(b), we know we cannot be at points A–D at the same time. We must make a choice. Is it going to be A or B or C or D? Once we make a choice, opportunity cost “pops up.” For example, suppose we narrowed our choices down to points B and C, and in the end chose point C. What is the opportunity cost of a set of skis over this range? Well, we know that we produce 20,000 more sets of skis by choosing point C over B, but at the opportunity cost of producing 15,000 fewer snowboards. In other words, the opportunity cost of 20,000 more sets of skis is 15,000 snowboards.

**A Consequence of Scarcity: The Need for a Rationing Device**

Because scarcity exists, we need a *rationing device*, some way to decide who gets what portion of all the resources and goods available. What is the most common way in our society to determine who gets which goods, and how much each person gets? If you guessed “money,” you were on the right track. Price (a certain number of dollars) is the most widely used rationing device in our society. If you are willing and able to pay the price for something, it is yours. If you are either unwilling or unable to pay the price, it won’t be yours. In this way, by using price, all products are rationed out to the people who are willing and able to pay.

If scarcity did not exist, a rationing device would not be necessary. Everyone would get everything he or she wanted.

---

="There’s no such thing as a free lunch."

—Milton Friedman, economist

**Another Consequence of Scarcity: Competition**

Today’s world is very competitive. People compete for jobs, companies compete for profits, and students compete for grades. Economists believe that competition exists because of scarcity. If enough resources were available to satisfy all of our wants, people would not have to compete for the limited resources.

Economists also believe that competition takes the form of people trying to get more of the rationing device. If (money or dollar) price is the rationing device, people will compete to earn dollars. People compete to earn dollars every day. Say three people are up for the same promotion at their business firm. Why do they want the promotion? Certainly added prestige and responsibility may be part of the answer, but still people are more likely to seek and accept promotions that come with more money.

Suppose something other than price—muscular strength, for example—were used as the rationing device. People with more muscular strength would receive more resources and goods than people with less muscular strength. In this situation, an economist would predict that people would compete for muscular strength and would lift weights each day. The lesson is simple: whatever the rationing device, people will compete for it. See Exhibit 1-3 for a summary of the concepts described in this section.
The science of economics probably would not exist were it not for scarcity—an economic fact of life.

A Definition of Economics

In this section, you learned about three important and closely related economic concepts: scarcity, choice, and opportunity costs. You also learned something about the way economists think about the world (and you will learn more in the next section). So, now it's time for a formal definition of the term. **Economics** is the science that studies the choices people make as they try to satisfy their wants in a world of scarcity. Put another way, you could say that economics is the study of how people use their limited resources to satisfy their unlimited wants.

### Defining Terms
1. Define the following terms:
   a. scarcity  
   b. opportunity cost  
   c. economics  
   d. want  
   e. resource  
   f. production possibilities frontier  
   g. rationing device

### Reviewing Facts and Concepts
2. Because scarcity exists, people must make choices. Explain why.
3. Give an example to illustrate how a person may incur an opportunity cost without paying anyone any money.
4. Is the opportunity cost of attending high school the same for all high school students? Explain why or why not.

### Critical Thinking
5. If price were not used as a rationing device, would something else have to be used? If so, what might it be? Suppose that a local movie theatre decided to use something other than price to determine who got to see the latest movies. Devise a rationing device that would be fair to both moviegoers and theater owners.

### Applying Economic Concepts
6. Gallagher is planning on going to college in a few months. The tuition is $10,000 a year. Assuming that Gallagher goes to college for four years, is the opportunity cost of his attending college $40,000? Why or why not?
7. Explain how a PPF can be used to illustrate both choice and opportunity cost.
Economic Thinking

Economists have a particular way of looking at the world. Just as a pair of sunglasses can change how you view your surroundings (things look darker), so can the economic way of thinking.

When economists put on their “glasses,” they see choices and opportunity costs, as you learned in the last section. You will recall, the economist saw the surfer student being absent from class because, on the day the waves were high, the opportunity cost of attending class was higher than on other days. In other words, besides seeing a student, a surfer, the surfboard, the beach and the waves, the economist “saw” (in his mind’s eye) opportunity cost too.

One of the objectives of this book is to get you to understand and use the economist’s way of thinking. It is not the only way to look at the world. It is, however, one way of looking at the world that often does help you understand the world you live in. This new way of thinking will also, in many cases, help you get more of what you want in life.

Thinking in Terms of Costs and Benefits

According to an economist, almost everything we do involves costs (negatives, disadvantages) and benefits (positives, advantages). There are costs and benefits to learning economics, eating a hamburger, driving a car, asking a person out on a date, sleeping an extra hour, taking a vacation, or talking on the telephone.

Making Cost-Benefit Decisions

According to the economist, a person will want to do a particular activity only if the benefits are greater than the costs. A person will buy a computer only if the benefits of buying the computer are expected to be greater than the costs of buying it. If the costs are perceived to be greater than the benefits, then the person will not purchase the computer.

Suppose a student graduates from high school and decides to go on to college. At college, she decides to major in psychology. What do we know about her choice of a
Economists think in terms of both benefits and costs. For example, attending college has both benefits and costs. Usually, the benefits far exceed the costs. To learn more about colleges, go to the following Web site: www.cmcd.net/college.

Once at the site, click on “College Directory” and then “United States.” The next screen you see will list the 50 states and Washington, D.C. Click on the state in which you think you may want to attend college. From there, click on the names of a few colleges, and read about them. After spending some time looking at different colleges, identify what you think are the benefits and costs of attending college. Finally, do you think the benefits are greater than, less than, or equal to the costs?

**Example:** You have just eaten two chicken tacos for lunch and are trying to decide whether or not to go back for a third. You are still hungry, but if you get another taco now, you will have no money left for a soda after school. Are you really that hungry?

In making the decision described above, you are comparing the marginal benefits of one more (an additional) taco against the marginal costs of one more taco. If you decide that the marginal benefits are greater than the marginal costs, you will buy the additional taco. If, on the other hand, you decide that the marginal costs are greater than the marginal benefits, you will keep your money and go without the additional taco. An economist would say that you were “making decisions at the margin,” a process that you will encounter in several of the following chapters.

**Thinking in Terms of Incentives**

Economists often speak of incentives in reference to actions. An incentive is something that encourages or motivates a person to take an action. For example, suppose that Amy lives in a country where every dollar she earns is taxed (by government) at 100 percent. With a tax rate of 100 percent, an economist might argue that Amy does not have an incentive to produce anything for sale. Why work all day to produce a good that is sold for, say $100, when you will have to turn over the full $100 to the government in taxes?

Now let’s lower the tax rate in Amy’s country from 100 percent to 20 percent. In your mind, has the lower tax rate provided Amy with an incentive to work and produce? An economist would say it has. The lower tax rate encourages or motivates Amy toward a particular action—working and producing—because now Amy can keep 80 cents out of every dollar she earns.

**Thinking at the Margin**

An important economic term will come up throughout this text when discussing costs and benefits. That word is marginal, which means “additional.”

Why is the term marginal so important? It is because economists believe that when people make decisions, they do not think of the total costs and benefits involved in the decision. Instead, they think about the additional, or marginal, costs and benefits.
**EXAMPLE:** Kenneth, who is 15 years old, and lives with his parents, does not have an incentive to mow the lawn. There is absolutely nothing that encourages or motivates him toward mowing the lawn. Then one day Kenneth’s father offers him $10 to mow the lawn. The $10—the money—is an incentive for Kenneth to mow the lawn. It encourages or motivates him toward mowing the lawn.

**EXAMPLE:** Jimmy lives in country A, where people are not permitted to own property, so Jimmy rents a house from the government. Adam lives in country B, where people are permitted to own property, so Adam owns his house. Who is more likely to take care of the house he lives in? The answer is Adam. The reasoning is simple: Adam can sell the house he lives in (because he owns it); Jimmy cannot sell the house he lives in. Any damage Adam does to his house lowers the selling price of the house. The moral of the story? Private property ownership acts as an incentive to taking care of things.

**Thinking in Terms of Trade-Offs**

As you learned in Section 1, trade-offs involve opportunity costs. When more of one thing necessarily means less of something else, we have a trade-off. For example, when we drive our cars, we pollute the air. One way to cut down on the amount of pollution is to drive less. In other words, more driving means less clean air, and less driving means more clean air. More of one thing (driving) necessarily means less of something else (clean air). We have a trade-off between driving and clean air.

"Most of economics can be summarized in four words: People respond to incentives."  
—Steven Landsburg, economist

**Individuals Face Trade-Offs**

You might notice that when trade-offs arise in life, you sometimes have to stop and think what course of action you want to take.

▲ Like individuals, societies face trade-offs. What trade-off is represented by these two photographs?
EXAMPLE: Suppose Mary Ann loves to eat, but she has recently put on (what she considers to be) a few too many pounds. She wants to lose some weight for two reasons: (1) to feel more comfortable in her clothes and (2) to reduce the risk of heart disease, which is linked to being overweight. So Mary Ann goes on a diet and cuts her calorie intake from 2,500 to 1,800 calories a day.

Does Mary Ann face a trade-off? Sure she does. On the one hand, if she doesn’t go on a diet, she gets to continue eating what she wants to eat (that’s good), but she won’t feel as comfortable in her clothes and she increases her risk of heart disease (that’s bad). Of course, on the other hand, if she does go on the diet, she will likely feel more comfortable in her clothes and be healthier (that’s good), but she will have to avoid some of her favorite foods and feel hungry much of the day (that’s bad).

No matter what Mary Ann decides, Mary Ann gets something she likes and something she doesn’t like. She gets more of one thing (comfort and health) and less of something else (enjoyment from eating what she wants) if she chooses to diet. If she chooses not to diet, she still gets more of one thing (enjoyment from eating what she wants) and less of something else (less comfort and health).

**Societies Face Trade-Offs**

Just as individuals face trade-offs, so do societies. At any one point in time, the federal government has only so much money from tax revenues. If more tax dollars go for, say, education, it means fewer tax dollars to spend on roads and highways. If more tax dollars go for national defense, then fewer dollars can be spent on health and welfare.

Trade-offs sometimes lead to conflicts in society. One group may think it better to spend more money on national defense and less on health and welfare. Another group might prefer the opposite. A conflict arises. In a household, some members of the family might prefer to spend more of the family budget on boats, plasma TV sets, and computers. Other members might prefer to spend more of the family budget on education, vacations, and furniture. A conflict arises.

**Thinking in Terms of What Would Have Been**

Economists often think in terms of “what would have been.” It is important to be able to think in terms of what would have been, because only then do we know the opportunity costs for “what is.”

**The Story of the Broken Window**

A famous economist-journalist once wrote a book in which he told the story of a boy who threw a rock through a baker’s shop window. In the story the townspeople gather around the baker’s shop and complain about the actions of today’s youth. Then one person has a quite different perspective. He says that because the boy broke the window, the baker now has to buy a window, which means the window maker will now have more business. And because the window maker has more business, he will earn more money. And because he has more money, he will spend more money. And because he spends more money, someone else in the town will sell more goods, and on and on. So, says the person with the different perspective, what the boy has done is a good thing: he has generated economic activity for the town. After listening to this different view of the situation, the townspeople are happy. What had at first seemed like a tragedy (a boy breaking a window), now clearly appears to be the beginning of an economic boom for the town.

What do you think? Did the boy set off a chain reaction that will create work, income, and profits for many people in the town? And if so, should the townspeople hope that more boys throw more rocks through windows?

Before you begin encouraging people to throw rocks in your town, stop and ask, as the economist did, this simple question: If the baker didn’t have to buy a new window, what would he have purchased with the money he would have spent on the window? Suppose that he would have spent the money for a new suit. But, now that the window is broken, the baker will have no
money for the suit, so the suit maker will earn less money (than otherwise). Without that money, the suit maker will be able to make fewer purchases, which will translate into fewer sales for others, and so on and so on.

Simply put, the economist urges us to see "what would have been" if the boy had not broken the window. The economist urges us to see more than "what will be" because the boy broke the window.

It is easy for all of us to see "what will be": we will actually see with our eyes the window maker selling a window and getting paid for it. It is not so easy, though, to see "what would have been." We can't see with our eyes the suit maker not selling the suit.

**Seeing with Your Mind**

It takes a certain kind of vision to see "what would have been." It takes your mind (and not your eyes) to see what would have been. You have to think your way to understanding that one new window means one fewer suit.

**Example:** Suppose the federal government sets aside funds for a new interstate highway system. Thousands of people are hired to work on the project. Local newspapers in the towns along the highway write lots of stories on all the increased job activity, and soon there are more and better highways in the area. It is easy to see the "what will be" benefits of more jobs and better roads. *

We need to remind ourselves, however, that someone—namely, the taxpayers—had to pay for the new highway system. What did these taxpayers give up by paying the taxes to fund the new highway? They gave up the opportunity to buy goods for themselves, such as clothes, computers, and books. We now begin to think in terms of all the products that "would have been" produced and consumed had the highway not been built. If, say, more clothes would have been produced instead of highways, more people would have worked in the clothing industry and fewer would have worked in highway construction.

**Thinking in Terms of Unintended Effects**

Economists often look for the “unintended effects” of actions that people take. Has anything ever turned out differently from what you intended?

**Example:** On an average day a shoe store sells 100 pairs of shoes at an average price of $40 a pair, thereby earning $4,000. One day the store owner decides to raise the price of shoes from an average of $40 to $50. What do you think he expects the effect of his action to be? He probably expects to increase his earnings from $4,000 a day to some greater amount, perhaps to $5,000 (100 pairs of shoes × $50 = $5,000). The store owner might be surprised by the results. At a higher price, it is likely that he will sell fewer pairs of shoes. Suppose that at a price of $50 a pair, the owner sells an average of 70 pairs of shoes a day. What are his
Most states have mandatory seatbelt laws for drivers. Seatbelt legislation was passed to save lives. That was its intent.

Soon after states started adopting mandatory seatbelt laws, an economist undertook a study. He wanted to find out if seatbelt laws really did save lives. His study showed that the number of car deaths before seatbelt laws was the same as the number of car deaths after seatbelt laws. This finding perplexed him because common sense tells us that if you are in an accident you have a better chance of surviving if you are wearing your seatbelt. So, what explained the economist’s finding? The answer is this simple equation:

\[ \text{Number of car deaths} = \text{Number of accidents} \times \text{Probability of being killed in a car accident} \]

What seatbelt laws did was lower the “probability of being killed in a car accident.” Yet, if they lowered this probability, and the number of car deaths was still the same (before and after the seatbelt law), then the only thing that could explain this finding was that the “number of accidents” had to rise. This change is exactly what the economist found. In other words, one unintended effect of the seatbelt law was that the number of accidents increased. (Economists are interested in unintended effects.)

Why did the number of accidents increase? Some have suggested that drivers feel safer wearing a seatbelt and that drivers who feel safe are more likely to take risks on the road than drivers who do not feel safe. (Might drivers in large Hummers take more risks than drivers in Honda Civics?) Obviously, the way to be safe while driving a car is to wear your seatbelt and drive as carefully as you would if you weren’t wearing your seatbelt. In other words, don’t let wearing the seatbelt lull you into driving recklessly.

**Think About It**

The intended effect of placing a safety cap on medications is so that children don’t get into the medicine and eat it because they mistakenly think it is candy. Can you think of an unintended effect of placing safety caps on medications?

---

average daily earnings now? ($3,500 = 70 pairs of shoes \times $50) The owner did not intend for things to turn out this way; he intended to increase his earnings by raising the price of shoes. The decrease in his earnings is an unintended effect of his actions.

**Example.** Suppose that U.S. citizens are buying some Japanese goods (such as Japanese cars), and that Japanese citizens are buying some goods produced in the United States (such as U.S. computers). Then things change: the Japanese government decides to place a $200 tax on every U.S. computer sold in Japan. People in Japan who buy U.S. computers will have to pay $200 more than they would have paid without the tax. Why might the Japanese government impose this tax? It may want Japanese computers to outsell U.S. computers; it may want to generate higher profits and greater employment in the Japanese computer industry. To accomplish these goals, the government deliberately makes U.S. computers more expensive than Japanese computers by placing the tax on U.S. computers. This action ends up hurting U.S. computer companies, because they sell fewer computers.
The United States could decide to retaliate by placing a tax on Japanese cars sold in the United States. Japanese cars will be more expensive, and fewer will be sold. This action will hurt Japanese car companies.

Do you see what has happened? Japan initially takes an action—placing a tax on U.S. computers sold in Japan—hoping that the Japanese people will buy more Japanese computers and fewer U.S. computers (the intended effect of the action). The intended effect is realized: the Japanese people actually do buy more Japanese computers and fewer U.S. computers. But there is an unintended effect too: the United States places a tax on Japanese cars, which ends up hurting Japanese car companies. When the Japanese placed a tax on U.S. computers, they did not intend to do harm to Japanese car companies.

Do unintended effects matter? The answer is yes, they matter a great deal. That is why, for any action, economists think in terms of both intended and unintended effects. Can you see the advantage of being able to think about and anticipate unintended effects when making decisions?

Thinking in Terms of the Small and the Big

Economics is divided into two branches, microeconomics and macroeconomics. In microeconomics, economists look at the small picture. They study the behavior and choices of relatively small economic units, such as an individual or a single business firm. Economists who deal with macroeconomics look at the big picture, studying behavior and choices as they relate to the entire economy (see Exhibit 1-4). For example, in microeconomics, an economist would study and discuss the unemployment that exists in a particular industry, such as the car industry; in macroeconomics, an economist would investigate the unemployment that exists in the nation. In microeconomics, an economist would look at the buying behavior of consumers in regard to a single product, such as computers; an economist dealing in macroeconomics would study the buying behavior of consumers in regard to all goods. We might say that the tools of macroeconomics are telescopes, while the tools of microeconomics are microscopes. Macroeconomics stands back from the trees to see the forest. Microeconomics gets up close and examines the tree itself, including its bark, its branches, and the soil in which it grows. In this book you will learn to look at the world from both "micro" and "macro" perspectives.

Thinking in Terms of Theories

Some questions have obvious answers, and others do not. For example, if you hold a ball in your right hand and ask someone what will happen if you let go of it, the person will likely say that the ball will drop to the ground. Right answer. If the classroom clock reads 10:12 and you ask someone in the class what time it is, that person will say 10:12. Again, right answer.

Now suppose you ask someone any of the following questions:

- Why is the crime rate higher in some countries than in other countries?
- What causes the stock market to rise or fall?
- What causes some nations to be rich and others to be poor?

Economists divide economics into two major branches: microeconomics and macroeconomics.
You probably would agree that these questions have no obvious, easy answers.

Because some economic questions do not have obvious answers, economists build theories. Think of a theory as a mechanism that an economist uses to answer a question that has no obvious, easy answer. Here are only five of hundreds of questions for which economists have built theories:

1. What causes inflation?
2. What causes the unemployment rate to rise or fall?
3. How do business firms operate?
4. What causes the prices of goods and services to rise, fall, or remain stable?
5. Why do countries experience good economic times in some years and bad economic times in other years?

**Example:** Suppose you are living in the days before anyone has heard the word calorie. Over a period of three years, you notice that your weight changes. At one time you weigh 140 pounds, then 145 pounds, then 155 pounds. You wonder why you are gaining weight.

Along comes a person who gives you a simplified explanation of what is happening. She says that there are things called “calories,” and that we can measure food in terms of how many calories it has. Some foods have more calories than others. She then says that every day you use up, or burn, calories when you walk, run, and clean the house. You even burn them, she says, when you are sitting still on the couch watching television. Finally, she says that your weight depends on how many calories you take in compared to how many you burn. If you consume more calories than you burn, you will gain weight.

This calorie theory is used to explain one’s weight. You will notice that this theory explains how things work (how your body takes in and uses up calories) in order to answer a question. All theories have this structure. A theory always offers some explanation of how things work in order to answer a question that does not have an obvious answer.

**A Student Asks**

**Question:** I’ve always thought that theories were difficult to understand because they contain a lot of mathematics. Is this correct?

**Answer:** Some theories contain mathematics, but many do not. Your impression of a theory is the common one. Many people think that a theory has to be abstract, mathematical, and almost impossible to understand. But this is a misconception.

To a large extent, a theory is simply a “best guess” offered to explain something. Anyone can build a theory; in fact, you may (unknowingly) do so.

Suppose your best friend always eats lunch with you. Then, one day he doesn’t. You may wonder what explains his change in behavior.

Once you have a question in your mind—What led to the change in his behavior?—you are on your way to building a theory. Your “best guess” may be that he doesn’t like you anymore, or that you said something to upset him, or something...
altogether different. Trying to answer your question by offering your “best guess” is really no different from an economist creating a theory about some aspect of economics. The economist puts forth his or her “best guess” as to what causes inflation, high interest rates, or economic growth.

Is it Reasonable?

Many people evaluate a theory based on whether it seems reasonable. However, many theories that at first seemed very unreasonable to people turned out to be correct. Think about how it might have sounded to you if you had lived before microscopes were invented and someone told you that people were getting sick because of tiny “things” (which today we call germs) that no one could see. You might have thought that sounded ridiculous. Or suppose you had lived during the days of the Roman Empire and someone proposed the round-earth theory to answer a question. You might have said, “There is no such thing as a round earth!”

Does it Predict Accurately?

Scientists believe that we should evaluate theories based not on how they sound to us, or whether they seem right, but on how well they predict. If they predict well, then we should accept them; if they predict poorly, then we should not. No doubt, as you read this text, you will come across an economic theory here or there that you think sounds wrong. You are urged to adopt the scientific attitude and hold off judging any economic theory until you learn how well it predicts.

**Defining Terms**

1. Define:
   a. incentive
   b. microeconomics
   c. macroeconomics
   d. theory

2. Use marginal costs correctly in a sentence.

**Reviewing Facts and Concepts**

3. According to economists, almost everything we do has costs and benefits. Identify the costs and benefits of each of the following: going to the dentist for a checkup, doing your homework, and getting an extra hour of sleep.

4. Give an example of an unintended effect.

5. What is the difference between microeconomics and macroeconomics?

**Critical Thinking**

6. If there were zero opportunity cost to everything you did, would you ever face a trade-off? Explain your answer.

**Applying Economic Concepts**

7. Describe a recent situation in which you weighed marginal costs versus marginal benefits to make a decision.
Goods and Services

If you look closely at all the things people want, you will notice that some are tangible and some are intangible. Something is tangible if it can be felt or touched. A computer is tangible; you can touch it. Something is intangible if it cannot be felt by touch. Friendship is intangible.

Economists use the term goods in different ways. On the most basic level a good is anything that satisfies a person’s wants, that brings a person satisfaction, utility, or happiness. In this sense a good can be either tangible (such as a candy bar) or intangible (the feeling of being safe and secure). It might help you to think of these goods as anything that isn’t a bad, which is something that brings a person dissatisfaction, disutility, or unhappiness.

Resources

Goods and services cannot be produced without resources. Because the world has limited resources (scarcity), and because the central economic questions deal with the ways people use these limited resources to satisfy their unlimited wants, economists have spent much time studying and classifying resources.
Both the oil refinery on the left and the newly planted forest on the right represent resources, or factors of production, as economists often call resources. Into which of the four major categories of resources would you place oil and wood? In what way are these two resources different?

In economics, a synonym for resources is factors of production. Resources, or factors of production, are what people use to produce goods and services. For example, corn, other natural substances, and many different machines are resources that were used to produce the cereal that you ate for breakfast this morning. Economists place resources in four broad categories: land, labor, capital, and entrepreneurship.

Sometimes economists differentiate between renewable and nonrenewable resources. A renewable resource is a resource that can be drawn on indefinitely if it is replaced. For example, wood, or timber, is a renewable resource because once trees have been cut down, new trees can be planted. In other words, timber can be “renewed” to maintain a certain supply of it.

A nonrenewable (or exhaustible) resource is obviously a resource that cannot be replenished. For example, oil and natural gas are nonrenewable resources. There is no way to “plant” more oil the way you can plant more trees. Using a certain quantity of oil means just that much less oil is left.

**Land**

When the word land is mentioned, you may picture an acre of woods or a plowed field in your mind’s eye. The resource land is more, however. It includes all the natural resources found in nature, such as water, minerals, animals, and forests.

**Labor**

Labor refers to the physical and mental talents that people contribute to the production of goods and services. For example, a person working in a factory is considered to be the resource labor. A TV weatherperson telling you what the weather will be like tomorrow is considered to be the resource labor. Your economics teacher is a resource—a labor resource.

**Capital**

In economics, capital refers to produced goods that can be used as resources for further production. Such things as machinery, tools, computers, trucks, buildings, and factories are all considered to be capital, or
British were foolish to have worn bright red uniforms. You could see them coming for miles. Economists would not be so quick to label the British as foolish. Instead they would ask why the British troops wore bright red. For instance, David Friedman, an economist, thinks it is odd that the British, who at the time were the greatest fighting force in the world, would make such a seemingly obvious mistake. He has an alternative explanation, an economic explanation.

Friedman reasons that the British generals did not want their men to break ranks and desert, because winning the war would be hard, if not impossible, if a lot of men deserted. Thus, the generals had to think up a way to make the opportunity cost of desertion high for their soldiers. The generals reasoned that the higher the cost of desertion, the fewer deserters there would be. The British generals effectively told their soldiers that if they deserted, they would have to forfeit their freedom or their lives.

Of course, the problem is that a stiff penalty is not effective if deserters cannot be found. Therefore, the generals had to make it easy to find deserters, which they did by dressing them in bright red uniforms. Certainly it was possible for a deserter to throw off his uniform and walk through the countryside in his underwear alone, but in the harsh winters of New England, doing so would guarantee death. He had almost no choice but to wear the bright red uniform.

In battle, the British soldiers marched toward their enemy in neat rows. Was this foolish, or was this formation perhaps done based on a sound economic reason? What economic explanations would you propose for this type of formation?

capital goods. Each capital good is used to produce some other good or service. Computers are used to produce books and magazines, trucks are used to carry groceries to your local supermarket, and factories produce most, if not all, of the items you see as you look around your classroom.

QUESTION: I thought “capital” referred to money. When my uncle said he needed more capital to invest in his business, wasn’t he talking about needing more money?

ANSWER: Maybe your uncle did use the word “capital” as a synonym for “money.” But capital to an economist refers to such things as machinery, tools, and so on—things that can be used as resources for further production. So, when an economist says a firm wants to buy more capital, he is saying that the firm wants to buy more machinery and tools.
Entrepreneurship

If someone asked you to point to the resource land, you might point to a forest. For the resource labor, you might point to yourself as an example. To show capital, you might point to a computer. But what would you point to if someone asked you to give an example of entrepreneurship? This resource is not so easy to identify.

Entrepreneurship refers to the special talent that some people have for searching out and taking advantage of new business opportunities, as well as for developing new products and new ways of doing things. For example, Steve Jobs, one of the developers of the first personal computer, exhibited entrepreneurship. He saw a use for the personal computer and developed it, and hundreds of thousands of customers then purchased his product—the Apple computer. Of late, millions of dollars in revenue have been generated by a relatively new Apple product, the iPod.

**A Student Asks**

**QUESTION:** Since only people can exhibit entrepreneurship, why isn’t entrepreneurship considered a type of labor? In short, why aren’t there only three resources—land, labor, and capital—instead of four?

**ANSWER:** Economists consider entrepreneurship sufficiently different from the ordinary talents of people to deserve its own category. Consider this explanation. Both the star player on your high school basketball team and LeBron James fall into the category “basketball player,” just as entrepreneurs and laborers both fall into the category “people.” But are they the same in terms of the impact they would have on the success of a team? Even if the star of your team is an outstanding player, it is unlikely that you would consider him to be “in the same category” as LeBron James. LeBron James is considered a superstar—he has extraordinary basketball talents. So it is with labor and entrepreneurship. The ordinary mental and physical talents of people are considered labor. The special talents that are directed toward searching out and taking advantage of new business opportunities, products, and methods are considered entrepreneurship.

---

**Defining Terms**

1. Define:
   a. tangible
   b. intangible
   c. goods
   d. utility
   e. services
   f. land
   g. labor
   h. capital
   i. entrepreneurship

2. The resource that involves goods used to produce other goods is ____________.

**Reviewing Facts and Concepts**

3. Identify the following resources. Write “Ld” for land, “Lb” for labor, “C” for capital, and “E” for entrepreneurship.
   a. Francis’s work as a secretary
   b. iron ore
   c. a farm tractor
   d. a computer used to write a book
   e. a comedian telling jokes on a television show
   f. a singer singing at an outdoor concert
   g. your teacher teaching you economics
   h. someone inventing a new product
   i. crude oil
   j. oil-drilling equipment

**Critical Thinking**

4. Entrepreneurship is sometimes the “forgotten resource.” Why do you think it is easier to forget entrepreneurship than, say, labor or capital?

**Applying Economic Concepts**

5. Some economists will talk about the resource time. Under what category of resource (land, labor, capital, or entrepreneurship) would you most likely place time? Explain your answer.