Setting the Scene
Jackie and Stephanie share an apartment about a mile from West Virginia University. Both are juniors at the university; Jackie is a history major, and Stephanie is an economics major. The following events occurred one day not too long ago.

7:15 A.M.
Jackie’s alarm clock buzzes. She reaches over to the small table next to her bed and turns it off. As she pulls the covers back up, Jackie thinks about her 8:30 American history class. Should she go to class today or sleep a little longer? She worked late last night and really hasn’t had enough sleep. Besides, she’s fairly sure her professor will be discussing a subject she already knows well. Maybe it would be okay to miss class today.

11:37 A.M.
Stephanie is in the campus bookstore browsing through two economics books. She ends up buying both books. As she leaves the bookstore, she glances over at a blue jacket with the West Virginia University emblem on it. She knows that her brother, who is a junior in high school, would like to have a WVU jacket. Stephanie tells herself that she might buy him the jacket for his birthday next month.

1:27 P.M.
Jackie, who did skip her 8:30 American history class, is in her European history professor’s office talking to him about obtaining a master’s degree in history. Getting a master’s degree is something that mildly interests her, but she’s not sure whether she wants it enough or not.

9:00 P.M.
Stephanie has been studying for the past three hours for tomorrow’s midterm exam in her International Economics course. She says to herself, I don’t think more studying will do very much good. So she quits studying and turns on the television to watch a rerun of one of her favorite movies, Sleepless in Seattle.

Here are some questions to keep in mind as you read this chapter:

- Is Jackie more likely to miss some classes than she is to miss other classes? What determines which classes Jackie will attend and which classes she won’t attend?
- What does a basic economic fact have to do with Stephanie’s buying two books at her campus bookstore?
- Does whether or not Jackie will go on to get a master’s degree have anything to do with economics?
- Stephanie stopped studying at 9:00 P.M. Would she have been better off if she had studied 30 more minutes?

See analyzing the scene at the end of this chapter for answers to these questions.
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.

Goods and Bads

Economists talk about goods and bads. A good is anything that gives a person utility or satisfaction. Goods can be tangible or intangible. If a computer gives you utility or satisfaction, then it is a good. If friendship gives you utility or satisfaction, then it is a good. (A computer is a tangible good, and friendship is an intangible good.)

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 they currently have (“I’d be willing to pay you, doctor, if you can prescribe something that will shorten the time I have the flu”).

Resources

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 this category simply as natural resources.)

Labor consists of the physical and mental talents 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. This means that it has more factories, machinery, tools, and so on.

Entrepreneurship refers to the particular 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.

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 there are just not enough resources available to provide us with all the goods we want.

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 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.

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. We describe each.

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?

24

You are going to tell me what I want to know, it's just a matter of how much you want to hurt.

—Jack Bauer

The FOX show 24 is said to be one of the more suspenseful shows on television. The main character of the show, Jack Bauer (Kiefer Sutherland), is a CTU (Counter Terrorism Unit) field agent. His job is to stop whatever impending doom is hanging over the country—such things as nerve gas, a deadly virus being released on the American public, or a nuclear warhead directed at a major American city.

What is it that makes 24 as suspenseful as it is? The answer, we think, has a lot to do with “utility” and “disutility” and the chance of moving from one to the other. Essentially what the writers of 24 do, early in the series, is set up two different worlds for the viewers. The one world is the world of the status quo; it is the world that exists; it is the world where people are receiving utility in their daily lives. The second world—the world that “could be”—is the world where something awful happens, pushing hundreds of thousands, if not millions, of people into disutility. It is the world where the nerve gas has killed hundreds of thousands of people; it is the world where the nuclear warhead kills millions of people in a major American city; it is the world where millions die an excruciatingly painful death as the result of a fatal virus.

Then, after the writers of 24 have shown the audience the two worlds—the good (high-utility) world and the bad (high-disutility) world—they essentially tell the viewer that just one tiny slip-up can be the difference between living in the high-utility world and living in the high-disutility world. Sometimes, it is just a matter of Jack Bauer doing something five seconds earlier (instead of later) that makes the difference between which world we end up living in.

The same kind of suspense holds for things other than TV shows, of course. People who are avid sports fans, for example, will feel very nervous watching their favorite team. That's because who wins the game can mean the difference between utility and disutility for them. If their team wins—utility; if their team loses—disutility. And of course, the closer the two teams are in ability, the greater the suspense is. That's because the closer the two teams are in ability, the smaller the slip-up can be in deciding who wins and who loses.

Will the writers of 24 ever change the basic formula of the show? Probably not. It will most likely always be the same: Good (high-utility) world can turn into bad (high-disutility) world if just the tiniest mistake is made. Thankfully, Jack Bauer is never going to make that tiniest of mistakes.

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.
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. Scarcity implies the need for a rationing device. If people have infinite wants for goods and there are only limited resources to produce the goods, then a rationing device must be used to decide who gets the available quantity of goods. Dollar price is a rationing device. For example, there are 100 cars on the lot and everyone wants a new car. How do we decide who gets what quantity of the new cars? The answer is “use the rationing device dollar price.” Those people who pay the dollar price for the new car end up with a new car.

Is dollar price a fair rationing device? Doesn’t it discriminate against the poor? After all, the poor have fewer dollars than the rich, so the rich can get more of what they want than can the poor. True, dollar price does discriminate against the poor. But then, as the economist knows, every rationing device discriminates against someone.

Suppose that dollar price could not be used as a rationing device tomorrow. Some rationing device would still be necessary because scarcity would still exist. How would we ration gas at the gasoline station, food in the grocery store, or tickets for the Super Bowl? Let’s consider some alternatives to dollar price as a rationing device.

Suppose first come, first served is the rationing device. For example, suppose there are only 40,000 Super Bowl tickets. If you are one of the first 40,000 in line for a Super Bowl ticket, then you get a ticket. If you are the 40,001st person in line, you don’t. Such a method discriminates against those who can’t get in line quickly. What about slow walkers or people with a disability? What about people without cars who can’t drive to where the tickets are distributed?

Or suppose brute force is the rationing device. For example, if there are 40,000 Super Bowl tickets, then as long as you can take a ticket away from someone who has a ticket, the ticket is yours. Who does this rationing method discriminate against? Obviously, it discriminates against the weak.

Or suppose beauty is the rationing device. The more beautiful you are, the better your chance of getting a Super Bowl ticket. Again, the rationing device discriminates against someone.

These and many other alternatives to dollar price could be used as a rationing device. However, each discriminates against someone, and none is clearly superior to dollar price.

In addition, if first come, first served, brute force, beauty, or another alternative to dollar price is the rationing device, what incentive would the producer of a good have to produce the good? With dollar price as a rationing device, a person produces computers and sells them for money. He then takes the money and buys what he wants. But if the rationing device were, say, brute force, he would not have an incentive to produce. Why produce anything when someone will end up taking it away from you? In short, in a world where dollar price isn’t the rationing device, people are likely to produce much less than in a world where dollar price is the rationing device.

Scarcity and Competition Do you see much competition in the world today? 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 will 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) were the rationing device instead of dollar price. People with more muscular strength would receive more resources and goods than people with less muscular strength would receive. In this situation, people would compete for muscular strength. (Would they spend more time at the gym lifting weights?) The lesson is simple: Whatever the rationing device, people will compete for it.

SELF-TEST

(Answers to Self-Test questions are in the Self-Test Appendix.)

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

Key Concepts in Economics

There are numerous key concepts in economics—concepts that define the field. We discuss a few of these concepts next.

Opportunity Cost

As noted earlier, people must make choices because scarcity exists. 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 a choice is made 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, e-mailed 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 had you decided not to read this chapter is the opportunity cost of your reading this chapter. For example, if you would have watched television had you chosen not to read this chapter—if this was your next best alternative—then the opportunity cost of reading this chapter is watching television.

**Opportunity Cost and Behavior** Economists believe that a change in opportunity cost will change a person’s behavior. For example, consider Bill, who is a sophomore at the University of Kansas. He 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 the opportunity to earn $8 an hour working at a job. The opportunity cost of Bill spending an hour in class is $8.

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

**Thinking like an Economist**

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 when choices are made. Perhaps this is an obvious point, but consider how often people mistakenly assume there is a free lunch. For example, some parents think education is free because they do not pay tuition for their children to attend public elementary school. Sorry, but there is no such thing as a free lunch. Free implies no sacrifice, no opportunities forfeited, which is not true in regard to elementary school education. Resources that could be used for other things are used to provide elementary school education.

Consider the people who speak about free medical care, free housing, free bridges (“there is no charge to cross it”), and free parks. None of these is actually free. The resources that provide medical care, housing, bridges, and parks could have been used in other ways.
This is how economists think about behavior, whether it is Bill’s or your own. The higher the opportunity cost of doing something, the less likely it will be done. This is part of the economic way of thinking.

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

Benefits and Costs

If it were possible to eliminate air pollution completely, should all air pollution be eliminated? If your answer is yes, then you are probably focusing on the benefits of eliminating air pollution. 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 while there are benefits to eliminating pollution, there are costs too. To illustrate, one way to eliminate all car pollution tomorrow is to pass a law stating that anyone caught driving a car
Because of scarcity, a rationing device is needed. Whatever the rationing device, people will compete for it. Scarcity and competition are linked.

Because of scarcity, people must make choices. When choices are made, opportunity costs are incurred.

Changes in opportunity cost affect behavior.

THE COSTS AND BENEFITS OF ATTENDING CLASS

Do you attend every single class in college? Probably, there are some days when you do not. For example, you might be sick one day and thus choose not to attend class. But are there days when you are well and could attend class but choose not to? If so, do you pick these days to be absent from class randomly? We think not. We think it has to do with the costs and benefits of attending class.

In southern California, some students choose not to attend class when the surf is particularly good. In other words, the benefits of going to class that day may be just as high as going any other day, but the costs—the opportunity costs—on that particular day are higher. That's because it is a particularly good day for surfing. In other words, the opportunity cost of going to class when the surf is good might be much higher for a surfing enthusiast on this particular day. If the opportunity costs are high enough on this day, they may just be greater than the benefits of going to class, and so the student chooses not to go to class but to surf instead.

Think of costs and benefits in dollar terms for the surfer. Usually, the surfer sees the benefits of going to class as equal to $40 and the costs as equal to $30. In other words, there is a net benefit of going to class, or benefits are greater than costs, and so he goes to class. But when the surf is good, the cost rises from $30 to $55. Now the costs of going to class are greater than the benefits—there is a net cost to attending class—and so he chooses to not attend class.

Economics 24/7

What Economics Is About Chapter 1

THE COSTS AND BENEFITS OF ATTENDING CLASS

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. There are benefits from studying, but there are costs too. There are benefits from coming to class, but there are costs too. There are costs to getting up early each morning and exercising, but let's not forget that there are benefits too.
Decisions Made at the Margin

It is late at night and you have already studied three hours for your biology test tomorrow. You look at the clock and wonder if you should study another hour. How would you summarize your thinking process? What question or questions do you ask yourself to decide whether or not to study another hour?

Perhaps without knowing it, you think in terms of the costs and benefits of further study. You probably realize that there are certain benefits from studying an additional hour (you may be able to raise your grade a few points), but there are costs too (you will get less sleep or have less time to watch television or talk on the phone with a friend). Thinking in terms of costs and benefits, though, doesn’t tell us how you think in terms of costs and benefits. For example, when deciding what to do, do you look at the total costs and total benefits of the proposed action, or do you look at something less than the total costs and benefits? According to economists, for most decisions, you think in terms of additional, or marginal, costs and benefits, not total costs and benefits. That’s because most decisions deal with making a small, or additional, change.

To illustrate, suppose you just finished eating a hamburger and drinking a soda for lunch. You are still a little hungry and are considering whether or not to order another hamburger. An economist would say that in deciding whether or not to order another hamburger, you will compare the additional benefits of the additional hamburger to the additional costs of the additional hamburger. In economics, the word marginal is a synonym for additional. So we say that you will compare the marginal benefits of the (next) hamburger to the marginal costs of the (next) hamburger. If the marginal benefits are greater than the marginal costs, you obviously expect a net benefit to ordering the next hamburger, and therefore, you order the next hamburger. If, however, the marginal costs of the hamburger are greater than the marginal benefits, you obviously expect a net cost to ordering the next hamburger, and therefore, you do not order the next hamburger.

What you don’t consider when making this decision are the total benefits and total costs of hamburgers. That’s because the benefits and costs connected with the first hamburger (the one you have already eaten) are no longer relevant to the current decision. You are not deciding between eating two hamburgers and eating no hamburgers; your decision is whether to eat a second hamburger after you have already eaten a first hamburger.

According to economists, when individuals make decisions by comparing marginal benefits to marginal costs, they are making decisions at the margin. The president of the United States makes a decision at the margin when deciding whether or not to talk another 10 minutes with the speaker of the House of Representatives, the employee makes a decision at the margin when deciding whether or not to work two hours overtime, and the college professor makes a decision at the margin when deciding whether or not to put an additional question on the final exam.

Efficiency

What is the right amount of time to study for a test? In economics, the “right amount” of anything is the “optimal” or “efficient” amount, and the efficient amount is the amount for which the marginal benefits equal the marginal costs. Stated differently, you have achieved efficiency when the marginal benefits equal the marginal costs.

Suppose you are studying for an economics test, and for the first hour of studying, the marginal benefits ($MB$) are greater than the marginal costs ($MC$):

$$MB \text{ studying first hour} > MC \text{studying first hour}$$

Given this condition, you will certainly study for the first hour. After all, it is worthwhile: The additional benefits are greater than the additional costs, so there is a net benefit to studying.
Suppose for the second hour of studying, the marginal benefits are still greater than the marginal costs:

\[ MB \text{ studying second hour} > MC \text{ studying second hour} \]

You will study for the second hour because the additional benefits are still greater than the additional costs. In other words, it is worthwhile studying the second hour. In fact, you will continue to study as long as the marginal benefits are greater than the marginal costs. Exhibit 2 graphically illustrates this discussion.

The marginal benefit (\( MB \)) curve of studying is downward sloping because we have assumed that the benefits of studying for the first hour are greater than the benefits of studying for the second hour and so on. The marginal cost (\( MC \)) curve of studying is upward sloping because we assume that it costs a person more (in terms of goods forfeited) to study the second hour than the first, more to study the third than the second, and so on. (If we assume the additional costs of studying are constant over time, the \( MC \) curve is horizontal.)

In the exhibit, the marginal benefits of studying equal the marginal costs at three hours. So three hours is the efficient length of time to study in this situation. At fewer than three hours, the marginal benefits of studying are greater than the marginal costs; thus, at all these hours, there are net benefits from studying. At more than three hours, the marginal costs of studying are greater than the marginal benefits, and so it wouldn’t be worthwhile to study beyond three hours.

**MAXIMIZING NET BENEFITS** Take another look at Exhibit 2. Suppose you had stopped studying after the first hour (or after the 60th minute). Would you have given up anything? Yes, you would have given up the net benefits of studying longer. To illustrate, notice that between the first and the second hour, the marginal benefits curve (blue curve) lies above the marginal costs curve (red curve). This means there are net benefits to studying the second hour. But if you hadn’t studied that second hour—if you had

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**Exhibit 2**

**Efficiency**

\( MB = \) marginal benefits and \( MC = \) marginal costs. In the exhibit, the \( MB \) curve of studying is downward sloping and the \( MC \) curve of studying is upward sloping. As long as \( MB > MC \), the person will study. The person stops studying when \( MB = MC \). This is where efficiency is achieved.
stopped after the first hour—then you would have given up the
opportunity to collect those net benefits. (That’s like leaving a $10 bill
on the sidewalk.) The same analysis holds for the third hour. We con-
clude that by studying three hours (but not one minute longer), you
have maximized net benefits. In short, efficiency (which is consistent
with $MB = MC$) is also consistent with maximizing net benefits.

Unintended Effects

Has anything turned out differently from what you intended? No
doubt, you can provide numerous examples. Economists think in
terms of unintended effects. Consider an example. Andres, 16 years
old, currently works after school at a grocery store. He earns $6.50
an hour. Suppose the state legislature passes a law specifying that the
minimum dollar wage a person can be paid to do a job is $8.50 an
hour. The legislators’ intention in passing the law is to help people
like Andres earn more income.

Will the $8.50 an hour legislation have the intended effect? Per-
haps not. The manager of the grocery store may not find it worth-
while to continue employing Andres if she has to pay him $8.50 an hour. In other
words, Andres may have a job at $6.50 an hour but not at $8.50 an hour. If the law
specifies that no one will earn less than $8.50 an hour and the manager of the grocery
store decides to fire Andres rather than pay this amount, then an unintended effect of
the $8.50 an hour legislation is Andres’ losing his job.

As another example, let’s analyze mandatory seatbelt laws to see if they have any
unintended effects. Many states have laws that require drivers to wear seatbelts. The
intended effect is to reduce the number of car fatalities by making it more likely drivers
will survive an accident.

Could these laws have an unintended effect? Some economists think so. They look
at accident fatalities in terms of this equation:

$$\text{Total number of fatalities} = \text{Number of accidents} \times \text{Fatalities per accident}$$

For example, if there are 200,000 accidents and 0.10 fatalities per accident, the total
number of fatalities is 20,000.

The objective of a mandatory seatbelt program is to reduce the total number of
fatalities by reducing the fatalities per accident. Many studies have found that wearing
seatbelts does just this. If you are in an accident, you have a better chance of not being
killed if you are wearing a seatbelt.

Let’s assume that with seatbelts, there are 0.08 instead of 0.10 fatalities per accident.
If there are still 200,000 accidents, this means that the total number of fatalities falls from
20,000 to 16,000. Thus, there is a drop in the total number of fatalities if fatalities per
accident are reduced and the number of accidents is constant.

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<th>Number of Accidents</th>
<th>Fatalities per Accident</th>
<th>Total Number of Fatalities</th>
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<td>200,000</td>
<td>0.10</td>
<td>20,000</td>
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<td>200,000</td>
<td>0.08</td>
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However, some economists wonder if the number of accidents stays constant.
Specifically, they suggest that seatbelts may have an unintended effect: The number of acci-
dents may increase. This happens because wearing seatbelts may make drivers feel safer.
Feeling safer may cause them to take chances that they wouldn’t ordinarily take—such as
driving faster or more aggressively, or concentrating less on their driving and more on

Q&A

Does a person have to know about marginal costs and marginal benefits before he or she can achieve efficiency?

There may be people who do not know the definition of marginal cost and marginal benefit, but this doesn’t
prevent them from achieving efficiency in much the same way that a person who doesn’t know much about
how a car works can still drive a car. All the person has to “sense” is whether or not doing more of some-
thing comes with greater benefits than costs. As long as a person can do this—and there is plenty of evidence
that people do this as naturally as they breathe air or walk—then efficiency can be achieved.
the music on the radio. For example, if the number of accidents rises to 250,000, then the total number of fatalities is 20,000.

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<tr>
<td>200,000</td>
<td>0.10</td>
<td>20,000</td>
</tr>
<tr>
<td>250,000</td>
<td>0.08</td>
<td>20,000</td>
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We conclude the following: If a mandatory seatbelt law reduces the number of fatalities (intended effect) but increases the number of accidents (unintended effect), it may, contrary to popular belief, not reduce the total number of fatalities. In fact, some economic studies show just this.

What does all this mean for you? You may be safer if you know that this unintended effect exists and you adjust accordingly. To be specific, when you wear your seatbelt, your chances of getting hurt in a car accident are less than if you don’t wear your seatbelt. But if this added sense of protection causes you to drive less carefully than you would otherwise, then you could unintentionally offset the measure of protection your seatbelt provides. To reduce the probability of hurting yourself and others in a car accident, the best policy is to wear a seatbelt and to drive as carefully as you would if you weren’t wearing a seatbelt. Knowing about the unintended effect of wearing your seatbelt could save your life.

Exchange

**Exchange or trade** is the process of giving up one thing for something else. Economics is sometimes called the “science of exchange” because so much that is discussed in economics has to do with exchange.

**Exchange (Trade)**
The process of giving up one thing for another.
We start with a basic question: Why do people enter into exchanges? The answer is that they do so to make themselves better off. When a person voluntarily trades $100 for a jacket, she is saying, “I prefer to have the jacket instead of the $100.” And of course, when the seller of the jacket voluntarily sells the jacket for $100, he is saying, “I prefer to have the $100 instead of the jacket.” In short, through trade or exchange, each person gives up something he or she values less for something he or she values more.

You can think of trade in terms of utility or satisfaction. Imagine a utility scale that goes from 1 to 10, with 10 being the highest utility you can achieve. Now suppose you currently have $40 in your wallet and you are at 7 on the utility scale. A few minutes later, you are in a store looking at some new CDs. The price of each is $10. You end up buying four CDs for $40.

Before you made the trade, you were at 7 on the utility scale. Are you still at 7 on the utility scale after you traded your $40 for the four CDs? The likely answer is no. If you expected to have the same utility after the trade as you did before, it is unlikely you would have traded your $40 for the four CDs. The only reason you entered into the trade is that you expected to be better off after the trade than you were before the trade. In other words, you thought trading your $40 for the four CDs would move you up the utility scale from 7 to, say, 8.

**SELF-TEST**

1. Give an example to illustrate how a change in opportunity cost can affect behavior.

2. There are both costs and benefits of studying. If you continue to study (say, for a test) as long as the marginal benefits of studying are greater than the marginal costs and stop studying when the two are equal, will your action be consistent with having maximized the net benefits of studying? Explain your answer.

3. You stay up an added hour to study for a test. The intended effect is to raise your test grade. What might be an unintended effect of staying up an added hour to study for the test?

**Economic Categories**

Economics is sometimes broken down into different categories according to the type of questions economists ask. Four common economic categories are positive economics, normative economics, microeconomics, and macroeconomics.

**Positive and Normative Economics**

**Positive economics** attempts to determine what is. **Normative economics** addresses what should be. Essentially, positive economics deals with cause-effect relationships that can be tested. Normative economics deals with value judgments and opinions that cannot be tested.

Many topics in economics can be discussed within both a positive framework and a normative framework. Consider a proposed cut in federal income taxes. An economist practicing positive economics would want to know the effect of a cut in income taxes. For example, she may want to know how a tax cut will affect the unemployment rate, economic growth, inflation, and so on. An economist practicing normative economics would address issues that directly or indirectly relate to whether the federal income tax should be cut. For example, she may say that federal income taxes should be cut because the income tax burden on many taxpayers is currently high.

This book mainly deals with positive economics. For the most part, we discuss the economic world as it is, not the way someone might think it should be. Keep in mind, too, that no matter what your normative objectives are, positive economics can shed
some light on how they might be accomplished. For example, suppose you believe that absolute poverty should be eliminated and the unemployment rate should be lowered. No doubt you have ideas as to how these goals can be accomplished. But will your ideas work? For example, will a greater redistribution of income eliminate absolute poverty? Will lowering taxes lower the unemployment rate? There is no guarantee that the means you think will bring about certain ends will do so. This is where sound positive economics can help. It helps us see what is. As someone once said, “It is not enough to want to do good; it is important also to know how to do good.”

Microeconomics and Macroeconomics

It has been said that the tools of microeconomics are microscopes, and the tools of macroeconomics are telescopes. Macroeconomics stands back from the trees to see the forest. Microeconomics gets up close and examines the tree itself, its bark, its limbs, and its roots. Microeconomics is the branch of economics that deals with human behavior and choices as they relate to relatively small units—an individual, a firm, an industry, a single market.
Macroeconomics
The branch of economics that deals with human behavior and choices as they relate to highly aggregate markets (e.g., the goods and services market) or the entire economy.

single market. Macroeconomics is the branch of economics that deals with human behavior and choices as they relate to an entire economy. In microeconomics, economists discuss a single price; in macroeconomics, they discuss the price level. Microeconomics deals with the demand for a particular good or service; macroeconomics deals with aggregate, or total, demand for goods and services. Microeconomics examines how a tax change affects a single firm’s output; macroeconomics looks at how a tax change affects an entire economy’s output.

Microeconomists and macroeconomists ask different types of questions. A microeconomist might be interested in answering such questions as:

- How does a market work?
- What level of output does a firm produce?
- What price does a firm charge for the good it produces?
- How does a consumer determine how much of a good he or she will buy?
- Can government policy affect business behavior?
- Can government policy affect consumer behavior?

On the other hand, a macroeconomist might be interested in answering such questions as:

- How does the economy work?
- Why is the unemployment rate sometimes high and sometimes low?
- What causes inflation?
- Why do some national economies grow faster than other national economies?
- What might cause interest rates to be low one year and high the next?
- How do changes in the money supply affect the economy?
- How do changes in government spending and taxes affect the economy?

analyzing the scene

Is Jackie more likely to miss some classes than she is to miss other classes? What determines which classes Jackie will attend and which classes she won’t attend?

The lower the cost of not attending class, the more likely Jackie will not attend. On this particular day, Jackie is fairly sure that “her professor will be discussing a subject she already knows well.” Therefore, the cost of missing this class is probably lower than missing, say, a class where the professor will be discussing an unfamiliar subject or a class in which a midterm exam will be given. Not all classes are alike for Jackie because the cost of attending each class isn’t the same.

What does a basic economic fact have to do with Stephanie’s buying two books at her campus bookstore?

Stephanie uses money to buy the two books. She pays the dollar price of each book. But what is dollar price? It is a rationing device. And why do we need rationing devices in society? Because scarcity—a basic economic fact—exists. Both Stephanie and the long shadow of scarcity are together in the campus bookstore.

Does whether or not Jackie will go on to get a master’s degree have anything to do with economics?

Jackie is undecided about whether or not she will pursue a master’s degree. When she says she is not sure she wants it enough, she is really thinking about the costs and benefits of getting a master’s degree. The benefits of getting the degree relate to (1) how much higher her annual income will be with a master’s degree than without it, (2) how much she enjoys studying history, and so on. The costs relate to (1) the income she will lose while she is at graduate school working on a master’s degree, (2) the less leisure time she will enjoy during the time she is studying, writing papers, and attending classes, (3) the tuition costs of the program, and so on. Are the benefits greater than the costs, or are the costs greater than the
Goods, Bads, and Resources

- A good is anything that gives a person utility or satisfaction.
- A bad is anything that gives a person disutility or dissatisfaction.
- Economists divide resources into four categories: land, labor, capital, and entrepreneurship.
- Land includes natural resources, such as minerals, forests, water, and unimproved land.
- Labor refers to the physical and mental talents that people contribute to the production process.
- Capital consists of produced goods that can be used as inputs for further production, such as machinery, tools, computers, trucks, buildings, and factories.
- Entrepreneurship refers to the particular 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.

Scarcity

- Scarcity is the condition in which our wants are greater than the limited resources available to satisfy them.
- Scarcity implies choice. In a world of limited resources, we must choose which wants will be satisfied and which will go unsatisfied.
- Because of scarcity, there is a need for a rationing device. A rationing device is a means of deciding who gets what quantities of the available resources and goods.
- Scarcity implies competition. If there were enough resources to satisfy all our seemingly unlimited wants, people would not have to compete for the available but limited resources.

Opportunity Cost

- Every time a person makes a choice, he or she incurs an opportunity cost. Opportunity cost is the most highly valued opportunity or alternative forfeited when a choice is made. The higher the opportunity cost of doing something, the less likely it will be done.

Costs and Benefits

- What distinguishes the economist from the noneconomist is that the economist thinks in terms of both costs and benefits. Asked what the benefits of taking a walk may be, an economist will also mention the costs of taking a walk. Asked what the costs of studying are, an economist will also point out the benefits of studying.

Decisions Made at the Margin

- Marginal benefits and costs are not the same as total benefits and costs. When deciding whether to talk on the phone one more minute, an individual would not consider the total benefits and total costs of speaking on the phone. Instead, the individual would compare only the marginal benefits (additional benefits) of talking on the phone one more minute to the marginal costs (additional costs) of talking on the phone one more minute.

Efficiency

- As long as the marginal benefits of an activity are greater than its marginal costs, a person gains by continuing to do the activity—whether the activity is studying, running, eating, or watching television. The net benefits of an activity are maximized when the marginal benefits of the activity equal its marginal costs. Efficiency exists at this point.

Unintended Effects

- Economists often think in terms of causes and effects. Effects may include both intended effects and unintended effects. Economists want to denote both types of effects when speaking of effects in general.

Stephanie stopped studying at 9:00 P.M. Would she have been better off if she had studied 30 more minutes?

Stephanie stopped studying after three hours. Studying for 30 more minutes might have provided some benefits for Stephanie, but she also would have incurred some costs. Remember, Stephanie considers both the benefits and the costs of studying for 30 more minutes. If the costs are greater than the benefits, Stephanie is better off not studying for 30 more minutes. Stephanie likely believes she has studied the efficient amount of time—the amount of time at which the marginal benefits of studying equal the marginal costs of studying. It is possible to study too much ($MC > MB$), too little ($MB > MC$), or just the right amount ($MB = MC$).
Exchange

- Exchange or trade is the process of giving up one thing for something else. People enter into exchanges to make themselves better off.

Economic Categories

- Positive economics attempts to determine what is; normative economics addresses what should be.

key terms and concepts

<table>
<thead>
<tr>
<th>Good</th>
<th>Capital</th>
<th>Marginal Benefits</th>
<th>Positive Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility</td>
<td>Entrepreneurship</td>
<td>Marginal Costs</td>
<td>Normative Economics</td>
</tr>
<tr>
<td>Bad</td>
<td>Scarcity</td>
<td>Decisions at the Margin</td>
<td>Microeconomics</td>
</tr>
<tr>
<td>Disutility</td>
<td>Economics</td>
<td>Efficiency</td>
<td>Macroeconomics</td>
</tr>
<tr>
<td>Land</td>
<td>Rationing Device</td>
<td>Exchange (Trade)</td>
<td></td>
</tr>
<tr>
<td>Labor</td>
<td>Opportunity Cost</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

questions and problems

1. The United States is considered a rich country because Americans can choose from an abundance of goods and services. How can there be scarcity in a land of abundance?
2. Give two examples for each of the following: (a) an intangible good, (b) a tangible good, (c) a bad.
3. What is the difference between the resource labor and the resource entrepreneurship?
4. Explain the link between scarcity and each of the following: (a) choice, (b) opportunity cost, (c) the need for a rationing device, (d) competition.
5. Is it possible for a person to incur an opportunity cost without spending any money? Explain.
6. Discuss the opportunity costs of attending college for four years. Is college more or less costly than you thought it was? Explain.
7. Explain the relationship between changes in opportunity cost and changes in behavior.
8. Smith says that we should eliminate all pollution in the world. Jones disagrees. Who is more likely to be an economist, Smith or Jones? Explain your answer.
9. A layperson says that a proposed government project simply costs too much and therefore shouldn’t be undertaken. How might an economist’s evaluation be different?
10. Economists say that individuals make decisions at the margin. What does this mean?
11. How would an economist define the efficient amount of time spent playing tennis?
12. A change in X will lead to a change in Y; the predicted change is desirable, so we should change X. Do you agree or disagree? Explain.
13. Why do people enter into exchanges?
14. What is the difference between positive economics and normative economics? between microeconomics and macroeconomics?
A picture is worth a thousand words. With this familiar saying in mind, economists construct their diagrams or graphs. With a few lines and a few points, much can be conveyed.

Two-Variable Diagrams

Most of the diagrams in this book represent the relationship between two variables. Economists compare two variables to see how a change in one variable affects the other variable.

Suppose our two variables of interest are consumption and income. We want to show how consumption changes as income changes. Suppose we collect the data in Table 1. By simply looking at the data in the first two columns, we can see that as income rises (column 1), consumption rises (column 2). Suppose we want to show the relationship between income and consumption on a graph. We could place income on the horizontal axis, as in Exhibit 1, and consumption on the vertical axis. Point A represents income of $0 and consumption of $60, point B represents income of $100 and consumption of $120, and so on. If we draw a straight line through the various points we have plotted, we have a picture of the relationship between income and consumption, based on the data we collected.

Notice that our line in Exhibit 1 slopes upward from left to right. Thus, as income rises, so does consumption. For example, as you move from point A to point B, income rises from $0 to $100 and consumption rises from $60 to $120. The line in Exhibit 1 also shows that as income falls, so does consumption. For example, as you move from point C to point B, income falls from $200 to $100 and consumption falls from $180 to $120. When two variables—such as consumption and income—change in the same way, they are said to be directly related.

Now let’s take a look at the data in Table 2. Our two variables are price of compact discs (CDs) and quantity demanded of CDs. By simply looking at the data in the first two columns, we see that as price falls (column 1), quantity demanded rises (column 2). Suppose we want to plot these data. We could place price (of CDs) on the vertical axis, as in Exhibit 2.
Exhibit 2, and quantity demanded (of CDs) on the horizontal axis. Point A represents a price of $20 and a quantity demanded of 100, point B represents a price of $18 and a quantity demanded of 120, and so on. If we draw a straight line through the various points we have plotted, we have a picture of the relationship between price and quantity demanded, based on the data in Table 2.

Notice that as price falls, quantity demanded rises. For example, as price falls from $20 to $18, quantity demanded rises from 100 to 120. Also as price rises, quantity demanded falls. For example, when price rises from $12 to $14, quantity demanded falls from 180 to 160.

When two variables—such as price and quantity demanded—change in opposite ways, they are said to be inversely related.

As you have seen so far, variables may be directly related (when one increases, the other also increases), or they may be inversely related (when one increases, the other decreases). Variables can also be independent of each other. This condition exists if as one variable changes, the other does not.

In Exhibit 3(a), as the X variable rises, the Y variable remains the same (at 20). Obviously, the X and Y variables are independent of each other: as one changes, the other does not.

In Exhibit 3(b), as the Y variable rises, the X variable remains the same (at 30). Again, we conclude that the X and Y variables are independent of each other: as one changes, the other does not.

**Slope of a Line**

It is often important not only to know how two variables are related but also to know how much one variable changes as the other variable changes. To find out, we need only calculate the slope of the line. The slope is the ratio of the change in the variable on the vertical axis to the change in the variable on the horizontal axis. For example, if Y is on the vertical axis and X on the horizontal axis, the slope is equal to $\Delta Y/\Delta X$. (The symbol “$\Delta$” means “change in.”)

$$\text{Slope} = \frac{\Delta Y}{\Delta X}$$

Exhibit 4 shows four lines. In each case, we have calculated the slope. After studying (a)–(d), see if you can calculate the slope in each case.

**Slope of a Line Is Constant**

Look again at the line in Exhibit 4(a). We computed the slope between points A and B and found it to be $-1$. Suppose that instead of computing the slope between points A and B, we had computed the slope between points B and C or between points C and D.
### Variables X and Y are independent (neither variable is related to the other).

#### Exhibit 3

**Two Diagrams Representing Independence Between Two Variables**

In (a) and (b), the variables X and Y are independent: as one changes, the other does not.

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#### Calculating Slopes

The slope of a line is the ratio of the change in the variable on the vertical axis to the change in the variable on the horizontal axis. In (a)–(d), we have calculated the slope.

**Exhibit 4**

- **(a)**: \[ \text{Slope} = \frac{\Delta Y}{\Delta X} = \frac{-10}{10} = -1 \] (negative slope)
- **(b)**: \[ \text{Slope} = \frac{\Delta Y}{\Delta X} = \frac{10}{5} = 2 \] (positive slope)
- **(c)**: \[ \text{Slope} = \frac{\Delta Y}{\Delta X} = \frac{0}{10} = 0 \] (zero slope)
- **(d)**: \[ \text{Slope} = \frac{\Delta Y}{\Delta X} = \frac{10}{0} = \infty \] (infinite slope)
Would the slope still be $-1$? Let’s compute the slope between points $B$ and $C$. Moving from point $B$ to point $C$, the change in $Y$ is $-10$ and the change in $X$ is $+10$. So, the slope is $-1$, which is what the slope was between points $A$ and $B$.

Now let’s compute the slope between points $A$ and $D$. Moving from point $A$ to point $D$, the change in $Y$ is $-30$ and the change in $X$ is $+30$. Again the slope is $-1$.

Our conclusion is that the slope between any two points on a (straight) line is always the same as the slope between any other two points. To see this for yourself, compute the slope between points $A$ and $B$ and between points $A$ and $C$ using the line in Exhibit 4(b).

**Slope of a Curve**

Economic graphs use both straight lines and curves. The slope of a curve is not constant throughout as it is for a straight line. The slope of a curve varies from one point to another.

Calculating the slope of a curve at a given point requires two steps, as illustrated for point $A$ in Exhibit 5. First, draw a line tangent to the curve at the point (a tangent line is one that just touches the curve but does not cross it). Second, pick any two points on the tangent line and determine the slope. In Exhibit 5 the slope of the line between points $B$ and $C$ is $0.67$. It follows that the slope of the curve at point $A$ (and only at point $A$) is $0.67$.

**The 45° Line**

Economists sometimes use a 45° line to represent data. This is a straight line that bisects the right angle formed by the intersection of the vertical and horizontal axes (see Exhibit 6). As a result, the 45° line divides the space enclosed by the two axes into two equal parts. We have illustrated this by shading the two equal parts in different colors.

The major characteristic of the 45° line is that any point that lies on it is equidistant from both the horizontal and vertical axes. For example, point $A$ is exactly as far from the horizontal axis as it is from the vertical axis. It follows that point $A$ represents as much $X$ as it does $Y$. Specifically, in the exhibit, point $A$ represents 20 units of $X$ and 20 units of $Y$. 
Pie Charts

In numerous places in this text, you will come across a pie chart. A pie chart is a convenient way to represent the different parts of something that when added together equal the whole.

Let’s consider a typical 24-hour weekday for Charles Myers. On a typical weekday, Charles spends 8 hours sleeping, 4 hours taking classes at the university, 4 hours working at his part-time job, 2 hours doing homework, 1 hour eating, 2 hours watching television, and 3 hours doing nothing in particular (we’ll call it “hanging around”). Exhibit 7 shows the breakdown of a typical weekday for Charles in pie chart form.

Pie charts give a quick visual message as to rough percentage breakdowns and relative relationships. For example, it is easy to see in Exhibit 7 that Charles spends twice as much time working as doing homework.

Bar Graphs

The bar graph is another visual aid that economists use to convey relative relationships. Suppose we wanted to represent the gross domestic product for the United States in different years. The gross domestic product (GDP) is the value of the entire output produced annually within a country’s borders. A bar graph can show the actual GDP for each year and can also provide a quick picture of the relative relationships between the GDP in different years. For example, it is easy to see in Exhibit 8 that the GDP in 1990 was more than double what it was in 1980.

Line Graphs

Sometimes information is best and most easily displayed in a line graph. Line graphs are particularly useful for illustrating changes in a variable over some time period.
Suppose we want to illustrate the variations in average points per game for a college basketball team in different years. As you can see from Exhibit 9(a), the basketball team has been on a roller coaster during the years 1994–2007. Perhaps the message transmitted here is that the team’s performance has not been consistent from one year to the next.

Suppose we plot the data in Exhibit 9(a) again, except this time we use a different measurement scale on the vertical axis. As you can see in (b), the variation in the performance of the basketball team appears much less pronounced than in (a). In fact, we could choose some scale such that if we were to plot the data, we would end up with close to a straight line. Our point is simple: Data plotted in line graph form may convey different messages depending on the measurement scale used.

Sometimes economists show two line graphs on the same axes. Usually, they do this to draw attention to either (1) the relationship between the two variables or (2) the difference between the two variables. In Exhibit 10, the line graphs show the variation and trend in federal government expenditures and tax receipts for the years 1996–2007 and draw attention to what has been happening to the “gap” between the two.
The Two Line Graphs Plot the Same Data

In (a) we plotted the average number of points per game for a college basketball team in different years. The variation between the years is pronounced. In (b) we plotted the same data as in (a), but the variation in the performance of the team appears much less pronounced than in (a).

### Year Average Number of Points per Game

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Number of Points per Game</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>50</td>
</tr>
<tr>
<td>1995</td>
<td>40</td>
</tr>
<tr>
<td>1996</td>
<td>59</td>
</tr>
<tr>
<td>1997</td>
<td>51</td>
</tr>
<tr>
<td>1998</td>
<td>60</td>
</tr>
<tr>
<td>1999</td>
<td>50</td>
</tr>
<tr>
<td>2000</td>
<td>75</td>
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<tr>
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<td>2003</td>
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<td>2004</td>
<td>61</td>
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<tr>
<td>2005</td>
<td>55</td>
</tr>
<tr>
<td>2006</td>
<td>70</td>
</tr>
<tr>
<td>2007</td>
<td>64</td>
</tr>
</tbody>
</table>
appendix summary

- Two variables are directly related if one variable rises as the other rises.
- An upward-sloping line (left to right) represents two variables that are directly related.
- Two variables are inversely related if one variable rises as the other falls.
- A downward-sloping line (left to right) represents two variables that are inversely related.
- Two variables are independent if one variable rises as the other remains constant.
- The slope of a line is the ratio of the change in the variable on the vertical axis to the change in the variable on the horizontal axis. The slope of a (straight) line is the same between every two points on the line.
- To determine the slope of a curve at a point, draw a line tangent to the curve at the point and then determine the slope of the tangent line.
- Any point on a 45° line is equidistant from the two axes.
- A pie chart is a convenient way to represent the different parts of something that when added together equal the whole. A pie chart visually shows rough percentage breakdowns and relative relationships.
- A bar graph is a convenient way to represent relative relationships.
- Line graphs are particularly useful for illustrating changes in a variable over some time period.

questions and problems

1. What type of relationship would you expect between the following: (a) sales of hot dogs and sales of hot dog buns, (b) the price of winter coats and sales of winter coats, (c) the price of personal computers and the production of personal computers, (d) sales of toothbrushes and sales of cat food, (e) the number of children in a family and the number of toys in a family?

2. Represent the following data in bar graph form.

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Money Supply (billions of dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>1,182</td>
</tr>
<tr>
<td>2002</td>
<td>1,219</td>
</tr>
<tr>
<td>2003</td>
<td>1,304</td>
</tr>
<tr>
<td>2004</td>
<td>1,372</td>
</tr>
<tr>
<td>2005</td>
<td>1,369</td>
</tr>
</tbody>
</table>

3. Plot the following data and specify the type of relationship between the two variables. (Place “price” on the vertical axis and “quantity demanded” on the horizontal axis.)

<table>
<thead>
<tr>
<th>Price of Apples ($)</th>
<th>Quantity Demanded of Apples</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>1,000</td>
</tr>
<tr>
<td>0.50</td>
<td>800</td>
</tr>
<tr>
<td>0.70</td>
<td>700</td>
</tr>
<tr>
<td>0.95</td>
<td>500</td>
</tr>
<tr>
<td>1.00</td>
<td>400</td>
</tr>
<tr>
<td>1.10</td>
<td>350</td>
</tr>
</tbody>
</table>

4. In Exhibit 4(a), determine the slope between points C and D.

5. In Exhibit 4(b), determine the slope between points A and D.

6. What is the special characteristic of a 45° line?

7. What is the slope of a 45° line?

8. When would it be preferable to illustrate data using a pie chart instead of a bar graph?

9. Plot the following data and specify the type of relationship between the two variables. (Place “price” on the vertical axis and “quantity supplied” on the horizontal axis.)

<table>
<thead>
<tr>
<th>Price of Apples ($)</th>
<th>Quantity Supplied of Apples</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>350</td>
</tr>
<tr>
<td>0.50</td>
<td>400</td>
</tr>
<tr>
<td>0.70</td>
<td>500</td>
</tr>
<tr>
<td>0.95</td>
<td>700</td>
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<tr>
<td>1.00</td>
<td>800</td>
</tr>
<tr>
<td>1.10</td>
<td>1,000</td>
</tr>
</tbody>
</table>
You are probably reading this textbook as part of your first college course in economics. You may be taking this course because you need it to satisfy the requirements in your major. Economics courses are sometimes required for students who plan to major in business, history, liberal studies, social science, or computer science. Of course, you may also be taking this course because you plan to major in economics.

If you are like many college students, you may complain that not enough information is available to students about the various majors at your college or university. For example, students who major in business sometimes say they are not quite certain what a business major is all about, but then they go on to add that majoring in business is a safe bet. “After all,” they comment, “you are pretty sure of getting a job if you have a business degree. That’s not always the case with other degrees.”

Many college students choose their majors based on their high school courses. History majors sometimes say that they decided to major in history because they “liked history in high school.” Similarly, chemistry, biology, and math majors say they chose chemistry, biology, or math as a college major because they liked studying chemistry, biology, or math in high school. In addition, if a student had a hard time with chemistry in high school and found it boring, then he doesn’t usually want to major in chemistry in college. If a student found both math and economics easy and interesting in high school, then she is likely to major in math or economics.

Students also often look to the dollars at the end of the college degree. A student may enjoy history and want to learn more history in college but tell herself that she will earn a higher starting salary after graduation if she majors in computer science or engineering. Thus, when choosing a major, students often consider (1) how much they enjoy studying a particular subject, (2) what they would like to see themselves doing in the future, and (3) income prospects.

Different people may weight these three factors differently. But no matter what weights you put on each of the factors, it is always better to have more information than less information, *ceteris paribus*. (We note “*ceteris paribus*” because it is not necessarily better having more information than less information if you have to pay more for the additional information than the additional information is worth. Who wants to pay $10 for a piece of information that only provides $1 in benefits?)

We believe this appendix is a fairly low-cost way of providing you with more information about an economics major than you currently have. We start by dispelling some of the misinformation you might possess about an economics major. Stated bluntly, some things that people think about an economics major and about a career in economics are just not true. For example, some people think that economics majors almost never study social relationships; instead, they only study such things as inflation, interest rates, and unemployment. Not true. Economics majors study some of the same things that sociologists, historians, psychologists, and political scientists study. We also provide you with some information about the major that you may not have.
Next, we tell you the specifics of the economics major—what courses you study if you are an economics major, how many courses you are likely to have to take, and more.

Finally, we tell you something about a career in economics. Okay, so you have opted to become an economics major. But the day will come when you have your degree in hand. What’s next? What is your starting salary likely to be? What will you be doing? Are you going to be happy doing what economists do? (If you never thought economics was about happiness, you already have some misinformation about economics. Contrary to what most laypeople think, economics is not just about money. It is about happiness too.)

Five Myths About Economics and an Economics Major

MYTH 1: ECONOMICS IS ALL MATHEMATICS AND STATISTICS. Some students choose not to major in economics because they think economics is all mathematics and statistics. Math and statistics are used in economics, but at the undergraduate degree level, the math and statistics are certainly not overwhelming. Economics majors are usually required to take one statistics course and one math course (usually an introductory calculus course). Even students who say, “Math isn’t my subject” are sometimes happy with the amount of math they need in economics. Fact is, at the undergraduate level at many colleges and universities, economics is not a very math-intensive course of study. There are many diagrams in economics, but there is not a large amount of math.

A proviso: The amount of math in the economics curriculum varies across colleges and universities. Some economics departments do not require their students to learn much math or statistics, but others do. Speaking for the majority of departments, we still hold to our original point that there isn’t really that much math or statistics in economics at the undergraduate level. The graduate level is a different story.

MYTH 2: ECONOMICS IS ONLY ABOUT INFLATION, INTEREST RATES, UNEMPLOYMENT, AND OTHER SUCH THINGS. If you study economics at college and then go on to become a practicing economist, no doubt people will ask you certain questions when they learn your chosen profession. Here are some of the questions they ask:

- Do you think the economy is going to pick up?
- Do you think the economy is going to slow down?
- What stocks would you recommend?
- Do you think interest rates are going to fall?
- Do you think interest rates are going to rise?
- What do you think about buying bonds right now? Is it a good idea?

People ask these kinds of questions because most people believe that economists only study stocks, bonds, interest rates, inflation, unemployment, and so on. Well, economists do study these things. But these topics are only a tiny part of what economists study. It is not hard to find many economists today, both inside and outside academia, who spend most of their time studying anything but inflation, unemployment, stocks, bonds, and so on.

As we hinted earlier, much of what economists study may surprise you. There are economists who use their economic tools and methods to study crime, marriage, divorce, sex, obesity, addiction, sports, voting behavior, bureaucracies, presidential elections, and much more. In short, today’s economics is not your grandfather’s economics. Many more topics are studied today in economics than were studied in your grandfather’s time.
MYTH 3: PEOPLE BECOME ECONOMISTS ONLY IF THEY WANT TO “MAKE MONEY.” Awhile back we asked a few well-respected and well-known economists what got them interested in economics. Here is what some of them had to say:¹

Gary Becker, the 1992 winner of the Nobel Prize in Economics, said: “I got interested [in economics] when I was an undergraduate in college. I came into college with a strong interest in mathematics, and at the same time with a strong commitment to do something to help society. I learned in the first economics course I took that economics could deal rigorously, à la mathematics, with social problems. That stimulated me because in economics I saw that I could combine both the mathematics and my desire to do something to help society.”

Vernon Smith, the 2002 winner of the Nobel Prize in Economics, said: “My father’s influence started me in science and engineering at Cal Tech, but my mother, who was active in socialist politics, probably accounts for the great interest I found in economics when I took my first introductory course.”

Alice Rivlin, an economist and former member of the Federal Reserve Board, said: “My interest in economics grew out of concern for improving public policy, both domestic and international. I was a teenager in the tremendously idealistic period after World War II when it seemed terribly important to get nations working together to solve the world’s problems peacefully.”

Allan Meltzer said: “Economics is a social science. At its best it is concerned with ways (1) to improve well being by allowing individuals the freedom to achieve their personal aims or goals and (2) to harmonize their individual interests. I find working on such issues challenging, and progress is personally rewarding.”

Robert Solow, the 1987 winner of the Nobel Prize in Economics, said: “I grew up in the 1930s and it was very hard not to be interested in economics. If you were a high school student in the 1930s, you were conscious of the fact that our economy was in deep trouble and no one knew what to do about it.”

Charles Plosser said: “I was an engineer as an undergraduate with little knowledge of economics. I went to the University of Chicago Graduate School of Business to get an MBA and there became fascinated with economics. I was impressed with the seriousness with which economics was viewed as a way of organizing one’s thoughts about the world to address interesting questions and problems.”

Walter Williams said: “I was a major in sociology in 1963 and I concluded that it was not very rigorous. Over the summer I was reading a book by W.E.B. DuBois, Black Reconstruction, and somewhere in the book it said something along the lines that blacks could not melt into the mainstream of American society until they understood economics, and that was something that got me interested in economics.”

Murray Weidenbaum said: “A specific professor got me interested in economics. He was very prescient: He correctly noted that while lawyers dominated the policy-making process up until then (the 1940s), in the future economics would be an important tool for developing public policy. And he was right.”

Irma Adelman said: “I hesitate to say because it sounds arrogant. My reason [for getting into economics] was that I wanted to benefit humanity. And my perception at the time was that economic problems were the most important problems that humanity has to face. That is what got me into economics and into economic development.”

Lester Thurow said: “[I got interested in economics because of] the belief, some would see it as naïve belief, that economics was a profession where it would be possible to help make the world better.”

MYTH 4: ECONOMICS WASN’T VERY INTERESTING IN HIGH SCHOOL, SO IT’S NOT GOING TO BE VERY INTERESTING IN COLLEGE. A typical high school economics course emphasizes consumer economics and spends much time discussing this topic. Students learn about credit cards, mortgage loans, budgets, buying insurance, renting an apartment, and other such things. These are important topics because not knowing the “ins and outs” of such things can make your life much harder. Still, many students come away from a high school economics course thinking that economics is always and everywhere about consumer topics.

However, a high school economics course and a college economics course are usually as different as day and night. Simply leaf through this book and look at the variety of topics covered compared to the topics you might have covered in your high school economics course. Go on to look at texts used in other economics courses—courses that range from law and economics to history of economic thought to international economics to sports economics—and you will see what we mean.

MYTH 5: ECONOMICS IS A LOT LIKE BUSINESS, BUT BUSINESS IS MORE MARKETABLE. Although business and economics have some common topics, much that one learns in economics is not taught in business and much that one learns in business is not taught in economics. The area of intersection between business and economics is not large.

Still, many people think otherwise. And so thinking that business and economics are “pretty much the same thing,” they often choose to major in the subject they believe has greater marketability—which they believe is business.

Well, consider the following:

1. A few years ago *BusinessWeek* magazine asked the chief executive officers (CEOs) of major companies what they thought was the best undergraduate degree. Their first choice was engineering. Their second choice was economics. Economics scored higher than business administration.

2. The National Association of Colleges and Employers undertook a survey in the summer of 2005 in which they identified the starting salary offers in different disciplines. The starting salary in economics/finance was $42,928. The starting salary in business administration was 7.8 percent lower.

What Awaits You as an Economics Major?

If you become an economics major, what courses will you take? What are you going to study?

At the lower-division level, economics majors must take both the principles of macroeconomics course and the principles of microeconomics course. They usually also take a statistics course and a math course (usually calculus).

At the upper-division level, they must take intermediate microeconomics and intermediate macroeconomics, along with a certain number of electives. Some of the elective courses include: (1) money and banking, (2) law and economics, (3) history of economic thought, (4) public finance, (5) labor economics, (6) international economics, (7) antitrust and regulation, (8) health economics, (9) economics of development, (10) urban and regional economics, (11) econometrics, (12) mathematical economics, (13) environmental economics, (14) public choice, (15) global managerial economics, (16) economic approach to politics and sociology, (17) sports economics, and many more courses. Most economics majors take between 12 and 15 economics courses.

One of the attractive things about studying economics is that you will acquire many of the skills employers highly value. First, you will have the quantitative skills that are important in many business and government positions. Second, you will acquire the
writing skills necessary in almost all lines of work. Third, and perhaps most importantly, you will develop the thinking skills that almost all employers agree are critical to success.

A study published in the 1998 edition of the *Journal of Economic Education* ranked economics majors as having the highest average scores on the Law School Admission Test (LSAT). Also, consider the words of the Royal Economic Society: “One of the things that makes economics graduates so employable is that the subject teaches you to think in a careful and precise way. The fundamental economic issue is how society decides to allocate its resources: how the costs and benefits of a course of action can be evaluated and compared, and how appropriate choices can be made. A degree in economics gives a training in decision making principles, providing a skill applicable in a very wide range of careers.”

Keep in mind, too, that economics is one of the most popular majors at some of the most respected universities in the country. As of this writing, economics is the top major at Harvard, Princeton, Columbia, Stanford, University of Pennsylvania, and University of Chicago. It is the second most popular major at Brown, Yale, and the University of California at Berkeley. It is the third most popular major at Cornell and Dartmouth.

**What Do Economists Do?**

Employment for economists is projected to grow between 21 and 35 percent between 2000 and 2010. According to the *Occupational Outlook Handbook*:

Opportunities for economists should be best in private industry, especially in research, testing, and consulting firms, as more companies contract out for economic research services. The growing complexity of the global economy, competition, and increased reliance on quantitative methods for analyzing the current value of future funds, business trends, sales, and purchasing should spur demand for economists. The growing need for economic analyses in virtually every industry should result in additional jobs for economists.

Today, economists work in many varied fields. Here are some of the fields and some of the positions economists hold in those fields:

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Economists do a myriad of things. For example, in business, economists often analyze economic conditions, make forecasts, offer strategic planning initiatives, collect and analyze data, predict exchange rate movements, and review regulatory policies, among other things. In government, economists collect and analyze data, analyze international
economic situations, research monetary conditions, advise on policy, and much more. As private consultants, economists work with accountants, business executives, government officials, educators, financial firms, labor unions, state and local governments, and others.

Median annual earnings of economists were $68,550 in 2002. The middle 50 percent earned between $50,560 and $90,710. The lowest 10 percent earned less than $38,690, and the highest 10 percent earned more than $120,440.

Places to Find More Information

If you are interested in an economics major and perhaps a career in economics, here are some places where you can go and some people you can speak with to acquire more information:

- To learn about the economics curriculum, we urge you to speak with the economics professors at your college or university. Ask them what courses you would have to take as an economics major. Ask them what elective courses are available. In addition, ask them why they chose to study economics. What is it about economics that interested them?
- For more information about salaries and what economists do, you may want to visit the Occupational Outlook Handbook Web site at http://www.bls.gov/oco/.
- For starting salary information, you may want to visit the National Association of Colleges and Employers Web site at http://www.naceweb.org/.
- To see a list of famous people who have majored in economics, go to http://www.marietta.edu/~ema/econ/famous.html.

Concluding Remarks

Choosing a major is a big decision and therefore should not be made too quickly and without much thought. In this short appendix, we have provided you with some information about an economics major and a career in economics. Economics may not be for everyone (in fact, economists would say that if it were, many of the benefits of specialization would be lost), but it may be right for you. Economics is a major where many of today's most marketable skills are acquired—the skills of good writing, quantitative analysis, and thinking. It is a major in which professors and students daily ask and answer some very interesting and relevant questions. It is a major that is highly regarded by employers. It may just be the right major for you. Give it some thought.