

Exploring Economics



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The Role and Method of Economics

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- 1.3 Economic Theory
- 1.4 Pitfalls to Avoid in Scientific Thinking
- 1.5 Positive Statements and Normative Statements

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As you begin your first course in economics, you may be asking yourself why you're here. What does economics have to do with your life? Although we can list many good reasons to study economics, perhaps the best reason is that many issues in our lives are at least partly economic in character.

A good understanding of economics would allow you to answer such questions as, Why do 10 A.M. classes fill up more quickly than 8 A.M. classes during registration? Why is it so hard to find an apartment in cities such as San Francisco, Berkeley, and New York? Why is teenage



unemployment higher than adult unemployment? Why is the price of your prescription drugs so high? How does inflation impact you and your family? Will higher taxes on cigarettes reduce the number of teenagers smoking? If so, by how much? Why do female models make more than male models? Why is it easier for college graduates to find jobs in some years rather than others? Do houses with views necessarily sell faster than houses without views? Why do people buy houses near noisy airports? Why do U.S. auto producers like tariffs (taxes) on imported cars? Is outsourcing jobs to India a good idea? Is globalization good for the economy? The study of economics improves your understanding of these and many other concerns.

Economics is a unique way of analyzing many areas of human behavior. Indeed, the range of topics to which economic analysis can be applied is broad. Many researchers discover that the economic approach to human behavior sheds light on social problems that have been with us for a long time: discrimination, education, crime, divorce, political favoritism, and more. In fact, your daily newspaper is filled with economics. You can find economics on the domestic page, the international page, the business page, the sports page, the entertainment page, and even the weather page—economics is all around us.

However, before we delve into the details and models of economics, it is important that we present an overview of how economists approach problems—their methodology. How does an economist apply the logic of science to approach a problem? And what are the pitfalls that economists should avoid in economic thinking? We also discuss why economists disagree.



Why do female models make more money than male models?

Economics: A Brief Introduction

1.1

What is economics?

What is the economic problem?

What is scarcity?

Economics—A Word with Many Different Meanings

Some people think economics involves the study of the stock market and corporate finance, and it does—in part. Others think that economics is concerned with the wise use of money and other matters of personal finance, and it is—in part. Still others think that economics involves forecasting or predicting what business conditions will be in the future, and again, it does—in part. The word *economics* is, after all, derived from the Greek *Oeconomicus*, which referred to the management of household affairs.

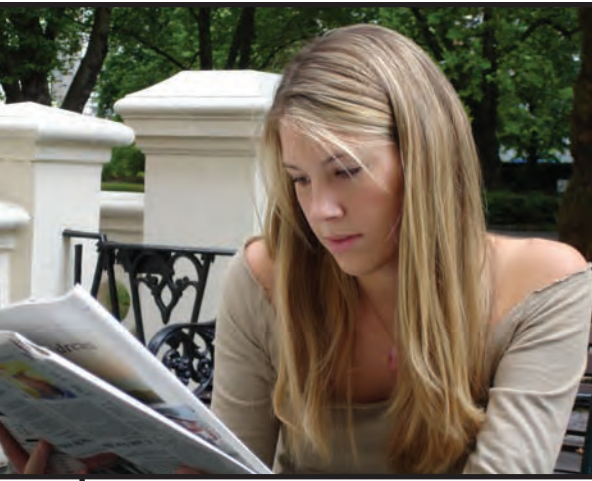
Precisely defined, **economics** is the study of the choices we make among our many wants and desires given our limited resources. What are resources? **Resources** are inputs—land, human effort, and skills, and machines and factories, for instance—used to produce goods and services. The problem is that our unlimited wants exceed our limited resources, a fact that we call **scarcity**. That is, scarcity exists because human wants for goods and services exceed the amount of goods and services that can be produced using all of our available resources. So scarcity forces us to decide how best to use our limited resources. This is **the economic problem**: Scarcity forces us to choose, and choices are costly because

economics the study of choices we make among our many wants and desires given our limited resources

resources inputs used to produce goods and services

scarcity exists because our unlimited wants exceed our limited resources

the economic problem scarcity forces us to choose, and choices are costly because we must give up other opportunities that we value



ROBERT L. SEXTON

Newspapers and websites are filled with articles related to economics—either directly or indirectly. News headlines may cover topics such as unemployment, deficits, financial markets, health care, Social Security, energy issues, war, global warming, and so on.

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economic
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Productive resources are limited. Therefore, people cannot have all the goods and services they want. As a result, they must choose some things and give up others.

we must give up other opportunities that we value. Consumers must make choices on what to buy, how much to save, and how much to invest of their limited incomes. Workers must decide what types of jobs they want, when to enter the workforce, where they will work, and number of hours they wish to work. Firms must decide what kinds of goods and services to produce, how much to produce, and how to produce those goods and services at the lowest cost. That is, consumers, workers, and firms all face choices because of scarcity, which is why economics is sometimes called the study of choice.

The economic problem is evident in every aspect of our lives. You may find that the choice between shopping for groceries and browsing at the mall, or between finishing a research paper and going to a movie, is easier to understand when you have a good handle on the “economic way of thinking.”

Economics Is All Around Us

The tools of economics are far reaching. In fact, other social scientists have accused economists of being imperialistic because their tools have been used in so many fields outside the formal area of economics, like crime, education, marriage, divorce, addiction, finance, health, law, politics, and religion. Every individual, business, social, religious, and governmental organization faces the economic problem. Every society, whether it is capitalistic, socialistic, or totalitarian, must also face the economic problem of scarcity, choices, and costs.

Even time has an economic dimension. In fact, in modern culture, time has become perhaps the single most precious resource we have. Everyone has the same limited amount of time per day, and how we divide our time between work and leisure (including study,

in the news Who Studies Economics?



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The study of economics is useful in many career paths. Here is a short list of some relatively well-known people who studied economics in college.

Politicians, Policy Makers, and Supreme Court Justices

George H. W. Bush, former U.S. President (Yale)

Ronald Reagan, former U.S. President
(Eureka College)

Gerald Ford, former U.S. President
(University of Michigan)

Arnold Schwarzenegger, body builder/actor/
governor (University of Wisconsin)

Sandra Day-O'Connor, retired U.S. Supreme Court
Justice (Stanford)

Stephen Breyer, U.S. Supreme Court Justice
(Stanford)

(continued)

in the news Who Studies Economics? (Cont.)

Anthony Kennedy, U.S. Supreme Court Justice
(Stanford and London School of Economics)
Kofi Annan, former Secretary General of the
United Nations (Macalester College)

Billionaires

Sam Walton, founder of Walmart (University of
Missouri)
Warren Buffett, financier (Columbia School of
Business, Masters in Economics)
Meg Whitman, former President and CEO of
eBay, Inc. (Princeton)
Ted Turner, media tycoon (Brown)
Steve Ballmer, CEO of Microsoft (Harvard)
Donald Trump, real-estate/television mogul
(University of Pennsylvania—Wharton)
Paul Otellini, President and CEO of Intel
(University of San Francisco)

Celebrities

John Elway, former NFL quarterback (Stanford
University)
Mick Jagger, lead singer of the Rolling Stones
(London School of Economics)
Cate Blanchett, actress (Melbourne University)
Scott Adams, cartoonist, creator of Dilbert
(Hartwick College)
Tiger Woods, golfer (Stanford)
Bill Belichick, NFL head coach, New England
Patriots (Wesleyan University)

According to Bob McTeer, former President and
CEO of the Federal Reserve Bank of Dallas, “My
take on training in economics is that it becomes
increasingly valuable as you move up the career
ladder. I can’t think of a better major for corporate
CEOs, congressmen (and women), or presidents of
the United States. You’ve learned a systematic, dis-
ciplined way of thinking that will serve you well.”

sleep, exercise, and so on) is a distinctly economic matter. If we choose more work, we must sacrifice leisure. If we choose to study, we must sacrifice time with friends or time spent sleeping or watching television. Virtually everything we decide to do, then, has an economic dimension.

Living in a world of scarcity involves trade-offs. As you are reading this text, you are giving up other things you value: shopping, spending time on Facebook, text messaging with friends, going to the movies, sleeping, or working out. When we know what the trade-offs are, we can make better choices from the options all around us, every day. George Bernard Shaw stated, “Economy is the art of making the most of life.”



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*Why can't we ever
eliminate scarcity?*

SECTION QUIZ

- If a good is scarce,
 - it only needs to be limited.
 - it is not possible to produce any more of the good.
 - our unlimited wants exceed our limited resources.
 - our limited wants exceed our unlimited resources.
- Which of the following is true of resources?
 - Their availability is unlimited.
 - They are the inputs used to produce goods and services.
 - Increasing the amount of resources available could eliminate scarcity.
 - Both b and c.

(continued)

SECTION QUIZ (Cont.)



3. If scarcity were not a fact,
 - a. people could have all the goods and services they wanted for free.
 - b. it would no longer be necessary to make choices.
 - c. poverty, defined as the lack of a minimum level of consumption, would also be eliminated.
 - d. all of the above would be true.
4. Economics is concerned with
 - a. the choices people must make because resources are scarce.
 - b. human decision makers and the factors that influence their choices.
 - c. the allocation of limited resources to satisfy unlimited wants.
 - d. all of the above.

-
1. What is the definition of economics?
 2. Why does scarcity force us to make choices?
 3. Why are choices costly?
 4. What is the economic problem?
 5. Why do even “non-economic” issues have an economic dimension?

Answers: 1. c 2. b 3. d 4. d

1.2

Economic Behavior

What is self-interest?

What is rational behavior?

Why is self-interest not the same as selfishness?



Do people really pursue their self-interest? Do people really think that way?

Self-Interest

Economists assume that most individuals act *as if* they are motivated by self-interest and respond in predictable ways to changing circumstances. In other words, self-interest is a good predictor of human behavior in most situations. For example, to a worker, self-interest means pursuing a higher-paying job and/or better working conditions. To a consumer, it means gaining a higher level of satisfaction from limited income and time.

We seldom observe employees asking employers to cut their wages and increase their workload to increase a company's profits. And how often do you think customers walk into a supermarket demanding to pay more for their groceries? In short, a great deal of human behavior can be explained and predicted by assuming that most people act *as if* they are motivated by their own self-interest in an effort to increase their *expected* personal satisfaction. When people make choices, they often do not know with certainty which choice is best. But they *expect* the best outcome from that decision—the one that will yield the greatest satisfaction.

Critics will say people don't think that way, and the critics might be right. But economists are arguing that people *act* that way. Economists are observing and studying what people do—their actions. We largely leave what people think to psychologists and sociologists.

There is no question that self-interest is a powerful force that motivates people to produce goods and services. But self-interest can include benevolence. Think of the late Mother Teresa, who spent her life caring for others. One could say that her work was in her self-interest, but who would consider her actions selfish? Similarly, workers may be pursuing self-interest when they choose to work harder and longer to increase their charitable giving or saving for their children's education. That is, self-interest to an economist is not a narrow monetary self-interest. The enormous amount of money and time donated to victims of Hurricane Katrina is an example of self-interest too—the self-interest was to help others in need. However, our charitable actions for others are influenced by cost. We would predict that most people would be more charitable when the tax deductions are greater or that you may be more likely to offer a friend a ride to the airport when the freeway was less congested. In short, the lower the cost of helping others, the more help we would expect to be offered.

In the United States, people typically give more than \$250 billion annually to charities. They also pay more money for environmentally friendly goods, “giving” a cleaner world to the future. Consumers can derive utility or satisfaction from these choices. It is clearly not selfish—it is in their best interest to care about the environment and those who are less fortunate than themselves.



REUTERS/DAVID J. PHILLIP/POOL/ANDOV

Enormous amounts of resources (time and money) were donated to the Hurricane Katrina victims. If individuals are acting to promote the things that interest them, are these self-interested acts necessarily selfish? Acting in one's own self-interest is only selfish if one's interests are selfish.

What Is Rational Behavior?

Economists assume that people, for the most part, engage in rational, or purposeful, behavior. And you might think that could not possibly apply to your brother, sister, or roommates. But the key is in the definition. To an economist, **rational behavior** merely means that people do the best they can, based on their values and information, under current and anticipated future circumstances. That is, people may not know with complete certainty which decisions will yield the most satisfaction and happiness, but they select the one that they *expect* to give them the best results among the alternatives. It is important to note that it is only the person making the choice that determines its rationality. You might like red sports cars while your friend might like black sports cars. So it would be rational for you to choose a red sports car and your friend to choose a black sports car.

Economists assume that people do not intentionally make decisions that will make them worse off. Most people act purposefully. They make decisions with some *expected* outcome in mind. Their actions are rational and purposeful, not random and chaotic. Individuals all take purposeful actions when they decide what to buy and produce. They make mistakes and are impacted by emotion, but the point is that they make their decisions with some expected results in mind. In short, rational self-interest means that individuals try to weigh the expected benefits and costs of their decisions, a topic we will return to in Chapter 2.



What do economists mean when they say people are rational?

rational behavior
people do the best they can, based on their values and information, under current and anticipated future circumstances



Does being rational mean you don't make mistakes?

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SECTION QUIZ



- Which of the following would reflect self-interested behavior to an economist?
 - worker pursuing a higher-paying job and better working conditions
 - consumer seeking a higher level of satisfaction with her current income
 - Mother Teresa using her Nobel Prize money to care for the poor
 - all of the above
- When economists assume that people act rationally, it means they
 - always make decisions based on complete and accurate information.
 - make decisions that will not be regretted later.
 - do the best they can based on their values and information under current and future circumstances.
 - make decisions based solely on what is best for society.
 - commit no errors in judgment.
- Rational self-interest can include
 - the welfare of our family.
 - our friends.
 - the poor people of the world.
 - all of the above.
- Rational self-interest means
 - people never make mistakes.
 - that our concerns for others does not involve costs.
 - we are materialistic and selfish.
 - people make decisions with some desired outcome in mind.

-
- What do economists mean by self-interest?
 - What does rational self-interest involve?
 - How are self-interest and selfishness different?
 - What is rational behavior?

Answers: 1. d 2. c 3. d 4. d

REVIEW QUESTIONS

Economic Theory

1.3

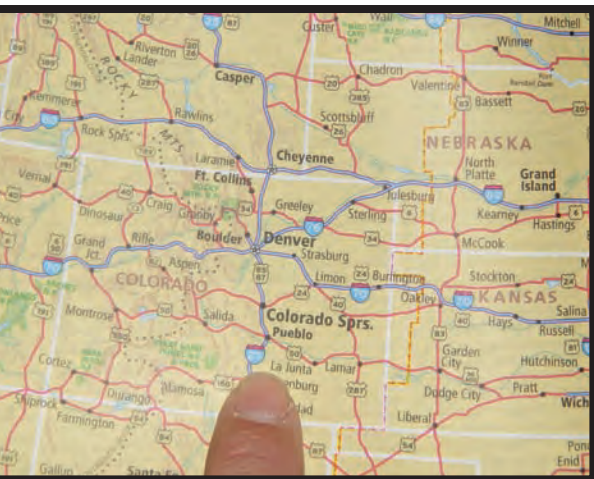
- 📁 What are economic theories?
- 📁 What can we expect from theories?
- 📁 Why do we need to abstract?
- 📁 What is a hypothesis?

- What is empirical analysis?
- What is the *ceteris paribus* assumption?
- What are microeconomics and macroeconomics?

Economic Theories

A **theory** is an established explanation that accounts for known facts or phenomena. Specifically, economic theories are statements or propositions about patterns of human behavior that occur expectedly under certain circumstances. These theories help us sort out

theory statement or proposition used to explain and predict behavior in the real world



COURTESY OF ROBERT L. SEXTON

How is economic theory like a map? Much like a road map, economic theory is more useful when it ignores details that are not relevant to the questions that are being investigated.

and understand the complexities of economic behavior and guide our analysis. We expect a good theory to explain and predict well. A good economic theory, then, should help us better understand and, ideally, predict human economic behavior.

Abstraction Is Important

Economic theories cannot realistically include every event that has ever occurred. A theory weeds out the irrelevant facts from the relevant ones. We must abstract. A road map of the United States may not include every creek, ridge, and gully between Los Angeles and Chicago; indeed, such an all-inclusive map would be too large and too detailed to be of value. A road map designating major interstate highways will provide enough information to travel by car from Los Angeles to Chicago. Likewise, an economic theory is more useful when it ignores the details that are not relevant to the questions being investigated.

Without abstraction or simplification, the world is too complex to analyze. For the same reason, economists make a number of simplifying *assumptions* in their models. Sometimes economists make

very strong assumptions, such as that all people are rational decision makers or that all firms attempt to maximize profits. Of course, this may not hold for every single person or firm. Only when we test our models using these assumptions do we find out if they were too simplified or too limiting.

Developing a Testable Proposition

hypothesis a testable proposition

The beginning of any theory is a **hypothesis**, a testable proposition that makes some type of prediction about behavior in response to certain changes in conditions based on our assumptions. In economic theory, a hypothesis is a testable prediction about how people will behave or react to a change in economic circumstances. For example, if we notice an increase in the price of coffee beans (per pound), we might hypothesize that sales of coffee beans will drop, or if the price of coffee beans (per pound) decreases, our hypothesis might be that coffee bean sales will rise. Once we state our hypothesis, we test it by comparing what it predicts will happen to what actually happens.

Using Empirical Analysis

empirical analysis the use of data to test a hypothesis

To determine whether our hypothesis is valid, we must engage in **empirical analysis**. That is, we must examine the data to see whether our hypothesis fits well with the facts. If the hypothesis is consistent with real-world observations, we can accept it; if it does not fit well with the facts, we must “go back to the drawing board.”

Determining whether a hypothesis is acceptable is more difficult in economics than it is in the natural or physical sciences. Chemists, for example, can observe chemical reactions under laboratory conditions. They can alter the environment to meet the assumptions of the hypothesis and can readily manipulate the variables (chemicals, temperatures, and so on) crucial to the proposed relationship. Such controlled experimentation is seldom possible in economics. The laboratory of economists is usually the real world. Unlike chemists in their labs, economists cannot easily control all the variables that might influence human behavior.

From Hypothesis to Theory

After gathering their data, economic researchers must evaluate the results to determine whether their hypothesis is supported or refuted. If supported, the hypothesis can be tentatively accepted as an economic theory.

Every economic theory is on life-long probation; the hypothesis underlying an economic theory is constantly being tested against empirical findings. Do the observed findings support the prediction? When a hypothesis survives a number of tests, it is accepted until it no longer predicts well.

Science and Stories

Much of scientific discovery is expressed in terms of stories, not unlike the stories told by novelists. This similarity is not accidental. The novelist tries to persuade us that a story could almost be true; the scientist tries to persuade us that certain events fall into a certain meaningful pattern. The scientist does not (or is not supposed to) invent the underlying “facts” of the story, whereas the novelist is not so constrained. However, a scientist does select *certain* facts from among many facts that could have been chosen, just as the novelist chooses from an infinite number of possible characters and situations to make the story most persuasive. In both cases, the author “invents” the story. Therefore, we should not be surprised to find order in economic theory any more than we are surprised to find order in a good novel. Scientists would not bother to write about “life” if they were not convinced that they had stories worth telling.

What makes a story “worth telling?” When we look for order in nature, we cannot suppose that the “facts” are a sufficient basis for understanding observed events. The basic problem is that the facts of a complex world simply do not organize themselves. Understanding requires that a *conceptual order* be imposed on these “facts” to counteract the confusion that would otherwise result. For example, objects of different weights falling freely in the air do **not** travel at *precisely* the same rate (largely because of the different effects of air resistance). Yet this piece of information is generally much less significant than the fact that falling bodies do travel at *almost* the same rate (which presumably would be identical in a vacuum). By focusing on the most significant fact—the similarity, not the difference—Galileo was able to impose order on the story of gravity.

In the same way, to interpret the impact of rising housing prices on the amount of housing desired, economists must separate out the impact of increasing wealth, population, and other contributing factors. Failing to do so would obscure the central insight that people tend to buy less housing at higher prices. Without a story—a theory of causation—scientists could not sort out and understand the complex reality that surrounds us.

The Ceteris Paribus Assumption

Virtually all economic theories share a condition usually expressed by the Latin phrase *ceteris paribus*. A rough translation of the phrase is “letting everything else be equal” or “holding everything else constant.” When economists try to assess the effect of one variable on another, they must keep the relationship between the two variables isolated from other events that might also influence the situation that the theory tries to explain or predict. In other words, everything else freezes so we can see how one thing affects another. For example, if the price of tomatoes falls, we would expect to see more people buy tomatoes. But if the government recently recommended not buying tomatoes because they have been infected by a bug that causes intestinal problems, people would buy fewer, not more, at lower prices. Does that mean you throw out your theory that people buy more at lower prices? No, we just did not freeze the effects of news from the government, which had a greater impact on purchases than lower prices did.

Let’s return to the gravity example. Suppose you drop a feather and a brick off the Eiffel Tower on a windy day. We would expect the brick to win the race. But if we could hold everything constant in a vacuum, then we would expect them to hit the ground at the same time. The law of gravity needs the *ceteris paribus* assumption, too.



How is scientific discovery like the stories presented by novelists?

ceteris paribus holding all other things constant



Why is the ceteris paribus so important?

Why Are Observation and Prediction Harder in the Social Sciences?

Working from observations, scientists try to make generalizations that will enable them to predict certain events. However, observation and prediction are more difficult in the social sciences than in physical sciences such as physics, chemistry, and astronomy. Why? The major reason for the difference is that the social scientists, including economists, are concerned with *human* behavior. And human behavior is more variable and often less readily predictable than the behavior of experiments observed in a laboratory. However, by looking at the actions and the incentives faced by large groups of people, economists can still make many reliable predictions about human behavior.

Why Do Economists Predict on a Group Level?

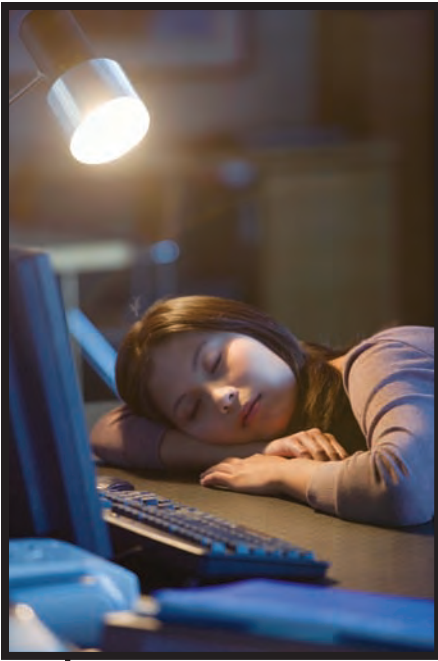
Economists' predictions usually refer to the collective behavior of large groups rather than to that of specific individuals. Why is this? Looking at the behaviors of a large group allows economists to discern general patterns of actions. For example, consider what would happen if the price of air travel from the United States to Europe was reduced drastically, say from \$1,000 to \$400, because of the invention of a more fuel-efficient jet. What type of predictions could we make about the effect of this price reduction on the buying habits of typical consumers?

What Does Individual Behavior Tell Us?

Let's look first at the responses of individuals. As a result of the price drop, some people will greatly increase their intercontinental travel, taking theater weekends in London or week-long trips to France to indulge in French food. Some people, however, are terribly afraid to fly, and the price reduction will not influence their behavior in the slightest. Others might detest Europe and, despite the lowered airfares, prefer to spend a few days in Aspen, Colorado, instead. A few people might respond to the airfare reduction in precisely the opposite way from ours: At the lower fare, they might make fewer trips to Europe, because they might believe (rightly or wrongly) that the price drop would be accompanied by a reduction in the quality of service, greater crowding, or reduced safety. In short, we cannot predict with any level of certainty how a given individual will respond to this airfare reduction.

What Does Group Behavior Tell Us?

Group behavior is often more predictable than individual behavior. When the weather gets colder, more firewood will be sold. Some individuals may not buy firewood, but we can predict with great accuracy that a group of individuals will establish a pattern of buying more firewood. Similarly, while we cannot say what each individual will do, within a group of persons, we can predict with great accuracy that more flights to Europe from Los Angeles will be sold at lower prices than at higher prices, holding other things such as income and preferences constant. We cannot predict exactly how many more airline tickets will be sold at \$400 than at \$1,000, but we can predict the direction of the impact and approximate the extent of the impact. By observing the relationship between the price of goods and services



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If I study harder, I will perform better on the test. That sounds logical, right? Holding other things constant (*ceteris paribus*), your theory is likely to be true. However, what if you studied harder but inadvertently overslept the day of the exam? What if you were so sleepy during the test that you could not think clearly? Or what if you studied the wrong material? Although it might look like additional studying did not improve your performance, the real problem could be the impact of other variables, such as sleep deficiency or how you studied.



Why is group behavior more predictable than individual behavior?

and the quantities people purchase in different places and during different time periods, it is possible to make some reliable generalizations about how much people will react to changes in the prices of goods and services. Economists use this larger picture of the group for most of their theoretical analysis.

Economists and Survey Data

Economists do not typically use survey data. Economists prefer to look at revealed preferences (how people actually behave) rather than declared preferences (how they say they behave). Participants in surveys may consciously or subconsciously fib, especially when it costs almost nothing to fib. Measuring revealed preferences will generally give us more accurate results.



Professors Oster and Jensen, by measuring revealed preferences, found that rural Indian families who had cable TV had lower birth rates than those with no television.

The Two Branches of Economics: Microeconomics and Macroeconomics

Conventionally, we distinguish between two main branches of economics: microeconomics and macroeconomics. **Microeconomics** deals with the smaller units within the economy, attempting to understand the decision-making behavior of firms and households and their interaction in markets for particular goods or services. Microeconomic topics include discussions of health care, agricultural subsidies, the price of everyday items such as running shoes, the distribution of income, and the impact of labor unions on wages. **Macroeconomics**, in contrast, deals with the **aggregate**, or total economy; it looks at economic problems as they influence the whole of society. Topics covered in macroeconomics include discussions of inflation, unemployment, business cycles, and economic growth. To put it simply, microeconomics looks at the trees while macroeconomics looks at the forest.

microeconomics

the study of household and firm behavior and how they interact in the marketplace

macroeconomics

the study of the whole economy, including the topics of inflation, unemployment, and economic growth

aggregate the total amount—such as the aggregate level of output

SECTION QUIZ

- Economists use theories to
 - abstract from the complexities of the world.
 - understand economic behavior.
 - explain and help predict human behavior.
 - do all of the above.
 - do none of the above.
- The importance of the *ceteris paribus* assumption is that it
 - allows one to separate normative economic issues from positive economic ones.
 - allows one to generalize from the whole to the individual.
 - allows one to analyze the relationship between two variables apart from the influence of other variables.
 - allows one to hold all variables constant so the economy can be carefully observed in a suspended state.

(continued)

SECTION QUIZ (Cont.)



3. When we look at a particular segment of the economy, such as a given industry, we are studying
 - a. macroeconomics.
 - b. microeconomics.
 - c. normative economics.
 - d. positive economics.
4. Which of the following is most likely a topic of discussion in macroeconomics?
 - a. an increase in the price of a pizza
 - b. a decrease in the production of stereos by a consumer electronics company
 - c. an increase in the wage rate paid to automobile workers
 - d. a decrease in the unemployment rate
 - e. the entry of new firms into the software industry

-
1. What are economic theories?
 2. What is the purpose of a theory?
 3. Why must economic theories be abstract?
 4. What is a hypothesis? How do we determine whether it is tentatively accepted?
 5. Why do economists hold other things constant (*ceteris paribus*)?
 6. Why are observation and prediction more difficult in the social sciences?
 7. Why do economic predictions refer to the behavior of groups of people rather than individuals?
 8. Why is revealed preference preferred to declared preference?
 9. Why is the market for running shoes considered a microeconomic topic?
 10. Why is inflation considered a macroeconomic topic?

Answers: 1. d 2. c 3. b 4. d

1.4

Pitfalls to Avoid in Scientific Thinking

📁 If two events usually occur together, does it mean one event caused the other to happen?

📁 What is the fallacy of composition?

In our discussion of economic theory we have not yet mentioned that there are certain pitfalls to avoid that may hinder scientific and logical thinking: confusing correlation and causation, and the fallacy of composition.

Confusing Correlation and Causation

correlation when two events occur together

causation when one event brings about another event

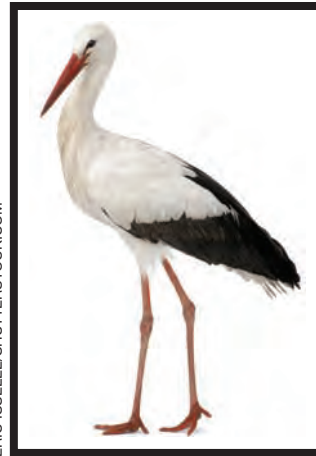
Without a theory of causation, no scientist could sort out and understand the enormous complexity of the real world. But one must always be careful not to confuse correlation with causation. In other words, the fact that two events usually occur together (**correlation**) does not necessarily mean that one caused the other to occur (**causation**). For example, say a

groundhog awakes after a long winter of hibernation, climbs out of his hole, and sees his shadow—then six weeks of bad weather ensue. Did the groundhog cause the bad weather?

Perhaps the causality runs in the opposite direction. A rooster may always crow before the sun rises, but it does not cause the sunrise; rather, the early light from the sunrise causes the rooster to crow.

Why Is the Correlation between Ice Cream Sales and Property Crime Positive?

Did you know that when ice cream sales rise, so do property crime rates? What do you think causes the two events to occur together? The explanation is that property crime



ERIC ISSELEE/SHUTTERSTOCK.COM

In Europe, the stork population has fallen and so have birth rates. Does this mean that one event caused the other to occur?

in the news Sex on Television and Teenage Pregnancy

When it comes to television programming, sex sells—maybe too well. According to a Rand Corporation study authored by Anita Chandra, there is a link between teenagers' exposure to sexual content on TV and teen pregnancies. Specifically, the study found that teens exposed to high levels of sexual content on television were twice as likely to be involved in a pregnancy in the following three years compared to teens with limited exposure. The results were published in the November 2008 edition of the journal *Pediatrics*.

The study's author is quick to point out that the factors leading to teen pregnancies are varied and complex—but warns it is important for parents, teachers, and pediatricians to understand that television can be one of them.

consider this:

While sex on television may lead to increases in teen pregnancy, isn't it possible the causality runs in the opposite direction—teenagers who are more susceptible to teen pregnancy watch shows with more sexual content? In addition, there are a host of other variables that could be much more statistically significant, such as low self-esteem, single-parent households, household income, years of schooling, heavy drug and alcohol use, GPA, child abuse, peer pressure, and so on.

In fact, more women of all ages, not just teenagers, are having children out of wedlock. Actually, the teen birth rate was much higher in 1957 than it is today. The growing



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concern is over the rise in unwed teenage mothers. However, births to single teens actually account for a smaller percentage of all non-marital births than 20 years ago—so is television to blame? Heed the author's warning: "The reasons for the rise in teen pregnancies are varied and complex."



If there is a correlation between more sex on television and increased teenage pregnancy, does that necessarily mean that television is responsible for the rise in teenage pregnancy?

peaks in the summer because of warmer weather, more people on vacations (leaving their homes vacant), teenagers out of school, and so on. It just happens that ice cream sales also peak in those months because of the weather. It is the case of a third variable causing both to occur. Or what if there were a positive correlation between sales of cigarette lighters and the incidence of cancer? The suspect might well turn out to be the omitted variable (the so-called “smoking gun”): the cigarette. Or what if research revealed that parents who bought parenting books were “better” parents. Does that prove the books work? Or is it possible that people who would buy books on parenting tend to be “better” parents? That is, it might be about the parents, not the book. Causality is tricky stuff. Be careful.

The Fallacy of Composition

fallacy of composition
the incorrect view that what is true for the individual is always true for the group

Economic thinking requires us to be aware of the problems associated with aggregation (adding up all the parts). One of the biggest problems is the **fallacy of composition**. This fallacy states that even if something is true for an individual, it is not necessarily true for many individuals as a group. For example, say you are at a football game and you decide to stand up to get a better view of the playing field. This works as long as the people seated around you don’t stand up. But what happens if everyone stands up at the same time? Then your standing up does nothing to improve your view. Thus, what is true for an individual does not always hold true in the aggregate. The same can be said of getting to school early to get a better parking place—what if everyone arrived early? Or studying harder to get a better grade in a class that is graded on a curve—what if everyone studied harder? Or what if you are a wheat farmer and you decide to clear some additional land to plant even more wheat to get more income from the additional wheat that is sold. Sounds good if you were the only one. But what if all wheat farmers do the same thing? There would be so much additional wheat produced that the price would come down and you might be worse off. These are all examples of the fallacy of composition.

SECTION QUIZ



- Which of the following statements can explain why correlation between Event A and Event B may not imply causality from A to B?
 - The observed correlation may be coincidental.
 - A third variable may be responsible for causing both events.
 - Causality may run from Event B to Event A instead of in the opposite direction.
 - All of the above can explain why the correlation may not imply causality.
- Ten-year-old Tommy observes that people who play football are larger than average and tells his mom that he’s going to play football because it will make him big and strong. Tommy is
 - committing the fallacy of composition.
 - violating the *ceteris paribus* assumption.
 - mistaking correlation for causation.
 - committing the fallacy of decomposition.
- The fallacy of composition
 - is a problem associated with aggregation.
 - assumes that if something is true for an individual, then it is necessarily true for a group of individuals.
 - is illustrated in the following statement: If I stand up at a football game, I will be able to see better; therefore, if we all stood up, we would all see better.
 - all of the above are true.

(continued)

SECTION QUIZ (Cont.)



1. What is the relationship between correlation and causation?
2. What types of misinterpretation result from confusing correlation and causation?
3. What is the fallacy of composition?
4. If you can sometimes get a high grade on an exam without studying, does it mean that additional studying does not lead to higher grades? Explain your answer.

Answers: 1. d 2. c 3. d

Positive Statements and Normative Statements

1.5

What is a positive statement?

Why do economists disagree?

What is a normative statement?

Positive Statement

Most economists view themselves as scientists seeking the truth about the way people behave. They make speculations about economic behavior, and then, ideally, they assess the validity of those predictions based on human experience. Their work emphasizes how people *do* behave, rather than how people *should* behave. In the role of scientist, an economist tries to observe patterns of behavior objectively, without reference to the appropriateness or inappropriateness of that behavior. This objective, value-free approach, based on the scientific method, is called positive analysis. In positive analysis, we want to know the impact of variable *A* on variable *B*. We want to be able to test a hypothesis. For example, the following is a **positive statement**: If rent controls are imposed, vacancy rates will fall. This statement is testable. A positive statement does not have to be a true statement, but it does have to be a testable statement.

Keep in mind, however, that it is doubtful that even the most objective scientist can be totally value free in his or her analysis. An economist may well emphasize data or evidence that supports a hypothesis, putting less weight on other evidence that might be contradictory. This tendency, alas, is human nature. But a good economist/scientist strives to be as fair and objective as possible in evaluating evidence and in stating conclusions based on the evidence. In some sense, economists are like engineers; they try to figure out how things work and then describe what would happen if you changed something.

positive statement an objective, testable statement that describes what happens and why it happen



What is the difference between positive statements and normative statements?

Normative Statement

Economists, like anyone else, have opinions and make value judgments. And when economists, or anyone else for that matter, express opinions about an economic policy or statement, they are indicating in part how they believe things should be, not stating facts about the way things are. In other words, they are performing normative analysis. **Normative statements** involve judgments about what should be or what ought to happen. For example, normative questions might include: Should the government raise the minimum wage? Should the government increase spending in the space program? Should the government give “free” prescription drugs to senior citizens?

normative statement a subjective, contestable statement that attempts to describe what should be done

Positive versus Normative Analysis

The distinction between positive and normative analysis is important. It is one thing to say that everyone should have universal health care, an untestable normative statement, and quite another to say that universal health care would lead to greater worker productivity, a testable positive statement. It is important to distinguish between positive and normative analysis because many controversies in economics revolve around policy considerations that contain both. For example, what impact would a 3 percent reduction in income taxes across the board have on the economy? This question requires positive analysis. Whether we should have a 3 percent reduction in income taxes requires normative analysis as well. When economists are trying to explain the way the world works, they are scientists. When economists start talking about how the economy should work rather than how it does work, they have entered the normative world of the policy maker. In short, positive statements are attempts to *describe* what happens and why it happens, while normative statements are attempts to *prescribe* what should be done. Positive analysis can demonstrate the consequences of a particular policy but cannot prove that a particular policy is good or bad. However, it is also important to remember that a good understanding of positive analysis is crucial to making effective policy prescriptions—normative analysis.



Does positive analysis prove a policy is good?

Disagreement Is Common in Most Disciplines

Although economists do frequently have opposing views on economic policy questions, they probably disagree less than the media would have you believe. Disagreement is common in most disciplines: Seismologists differ over predictions of earthquakes or volcanic eruption; historians can be at odds over the interpretation of historical events; psychologists disagree on proper ways to raise children; and nutritionists debate the efficacy of particular vitamins and the quantities that should be taken.

The majority of disagreements in economics stem from normative issues; differences in values or policy beliefs result in conflict. For example, a policy might increase efficiency at the expense of a sense of fairness or equity, or it might help a current generation at the expense of a future generation. Because policy decisions involve trade-offs, they will always involve the potential for conflict.

Freedom versus Fairness

Some economists are concerned about individual freedom and liberty, thinking that any encroachment on individual decision making is bad, other things being equal. People with this philosophic bent are inclined to be skeptical of any increased government involvement in the economy.

On the other hand, some economists are concerned with what they consider an unequal, “unfair,” or unfortunate distribution of income, wealth, or power, and view governmental intervention as desirable in righting injustices that they believe exist in a market economy. To these persons, the threat to individual liberty alone is not sufficient to reject governmental intervention in the face of perceived economic injustice.

The Validity of an Economic Theory

Aside from philosophic differences, a second reason helps explain why economists may differ on any given policy question. Specifically, they may disagree about the validity of a given economic theory for the policy in question—that is, they disagree over the positive analysis. Why would they disagree over positive analysis? For at least two reasons. One, a particular model may yield mixed results: some empirical evidence supporting it and some not. Two, the information available may be insufficient to make a compelling theory.

Often Economists Do Agree

Although you may not believe it after reading the previous discussion, economists don’t always disagree. In fact, according to a survey among members of the American Economic

Association, most economists agree on a wide range of issues, including the effects of rent control, import tariffs, export restrictions, the use of wage and price controls to curb inflation, and the minimum wage.

According to studies, most economists agree that these statements are correct:

1. A ceiling on rents (rent control) reduces the quantity and quality of rental housing available (93 percent agree).
2. Tariffs and import quotas usually reduce general economic welfare (93 percent agree).
3. The United States should not restrict employers from outsourcing work to foreign countries (90 percent agree).
4. Fiscal policy (e.g., tax cuts and/or increases in government expenditure) has significant stimulative impact on an economy that is less than fully employed (90 percent agree).
5. Flexible and floating exchange rates offer an effective international monetary arrangement (90 percent agree).
6. The gap between Social Security funds and expenditures will become unsustainably large within the next 50 years if the current policies remain unchanged (85 percent agree).
7. The United States should eliminate agricultural subsidies (85 percent agree).
8. Local and state governments in the United States should eliminate subsidies to professional sport franchises (85 percent agree).
9. A large budget deficit has an adverse effect on the economy (83 percent agree).
10. A minimum wage increases unemployment among young and unskilled (79 percent agree).
11. Effluent taxes and marketable pollution permits represent a better approach to pollution control than imposition of pollution ceilings (78 percent agree).
12. Economists favor expanding competition and market forces in education (67 percent agree).¹



It seems like economists always disagree on important issues. Is that true?

Steps on How to Do Well in This (or any other) Course

1. Are you motivated to learn? Link your motivation to goals. I want an A in this class. I want to graduate. I want to go to medical school or law school. I want a college degree. Setting goals demonstrates an intention to achieve and activates learning. School is really about learning to learn and hopefully, learning to enjoy learning. Students must find satisfaction in learning based on the understanding that the goals are useful to them. Put yourself in the right mind set. In short, learning is most effective when an individual is ready to learn. If you are not ready for Step 1, the other nine steps are less useful.
2. Do you attend class and take good notes? Listen actively—think before you write but be careful not to fall behind. Try to capture the main points of the lecture. You cannot take down everything. Leave space in your notebook so you can fill in with greater clarity when reading or re-reading text. This is also a good time to edit your notes. Review your notes within 24 hours of lecture. This way you will be reviewing rather than relearning!
3. Do you read before class? Stay current. If you are studying Chapter 3 when the lecture is on Chapter 6, it will harm your performance. While perfection is not necessary, do the best you can to read the material before it is covered in lecture.
4. Do you just highlight when you read? Don't. It is too passive. Finish a section and summarize it in your own words. Afterward, compare it with the section checks and summary at the end of the chapter to see if you caught all the main points. Do NOT read something without learning anything. That's a waste of time. Train your mind to learn—questioning, reciting, reviewing while you read will make you an active reader and a better student.

¹Richard M. Alston, J. R. Kearl, and Michael B. Vaughn, "Is there Consensus among Economists in the 1990s?" *American Economic Review* (May 1992): 203-09; Robert Whaples, "Do Economists Agree on Anything? Yes!" *Economists' Voice* (November 2006): 1-6.

5. When do you study? Break up your study time, to keep it fresh. Don't study when you are tired. Know when you function best. To many people, an hour of studying in the day is worth two at night! That is, reading in the morning after a good night's sleep may be much more productive than when you are tired late at night. Study in 20- to 50-minute chunks with 5- to 10-minute breaks. This has proven to be the most effective way to study.
6. How do you study? Study actively. Study by doing. Work problems, like in physics, chemistry, or engineering. Go back and forth between problems, examples, and text. That is, practice, practice, and practice. There are many problems throughout the text and on the website. Do them. The late John Wooden (famous basketball coach at UCLA) would often quote Ben Franklin, "Failing to prepare is preparing to fail." Have you worked on your self-confidence? Before you look up the answer to a question, assign a "confidence factor" to your work. On a scale of 1-10, how confident are you that you are right? Be honest with yourself. The more often you prove yourself right, the less test anxiety you will have.
7. Do you work for understanding? Can you explain the concepts to others? If you can explain it to others, perhaps in a study group, you will really know it. There is no better way to learn something than by teaching it to others.
8. Do you find a quiet place to study with few distractions? Music and TV are not conducive to quality study time. This will only impair concentration. If you find your mind wandering, get up and walk around for a couple of minutes. Try to relax before you start studying, and associate reading with relaxation, not anxiety. Set a goal of how much you want to accomplish in each session and try to increase it gradually.
9. Do you apply your reading and lectures to your daily life? Retention is always greater when you can make the connection between the course and your life. Read the *In the News* features and the real world examples throughout the text and see how the economic principles apply to your everyday life. Economics should also help you better understand the events you read about in the newspaper and on the internet.
10. Do you cram for tests? Don't. It will not work well in economics and perhaps not in any analytical field. Study regularly, with greater review being the only difference in your study habits prior to a test. Try to have all your material read two days prior to exam so the remaining time can be devoted to review. Cramming for tests leads to fatigue, test anxiety, and careless mistakes. Get plenty of sleep. Treat being in school as having a full-time job—put in your time regularly and you won't need or want to cram. In short, don't procrastinate!

SECTION QUIZ

1. Which of the following is a positive statement?
 - a. New tax laws are needed to help the poor.
 - b. Teenage unemployment should be reduced.
 - c. We should increase Social Security payments to the elderly.
 - d. An increase in tax rates will reduce unemployment.
 - e. It is only fair that firms protected from competition by government-granted monopolies pay higher corporate taxes.
2. Positive statements
 - a. are testable.
 - b. are attempts to describe what happens and why it happens.
 - c. do not have to be a true statement.
 - d. All of the above are true.

(continued)

SECTION QUIZ (Cont.)



3. Normative statements
 - a. attempt to describe what happens and why it happens.
 - b. are objective and testable.
 - c. attempt to describe the way the world works.
 - d. are subjective and attempt to prescribe what should be done.
4. The statement "the government should increase spending for the space program" is
 - a. objective and testable.
 - b. a positive statement.
 - c. subjective, prescriptive, and normative.
 - d. a fact and very important for the defense of our country.
5. Which of the following statements is (are) true?
 - a. Economists disagree but most often over normative issues.
 - b. Economists do agree over a wide range of issues.
 - c. Disagreement is also common in other disciplines.
 - d. All of the above statements are true.

1. What is a positive statement? Must positive statements be testable?
2. What is a normative statement? Is a normative statement testable?
3. Why is the positive/normative distinction important?
4. Why do policy disagreements arise among economists?

Answers: 1. d 2. d 3. d 4. c 5. d

Interactive Summary

Fill in the blanks:

1. Economics is the study of the choices we make among our many wants and desires given our _____ resources.
2. _____ occurs because our unlimited wants exceed our limited resources.
3. Resources are _____ used to produce goods and services.
4. The economic problem is that _____ forces us to choose, and choices are costly because we must give up other opportunities that we _____.
5. Living in a world of scarcity means _____.
6. _____ deals with the aggregate (the forest), or total economy, while _____ deals with the smaller units (the trees) within the economy.
7. Economists assume that individuals act as if they are motivated by _____ and respond in _____ ways to changing circumstances.
8. Economists believe that it is _____ for people to anticipate the likely future consequences of their behavior.
9. Actions have _____.
10. Rational self-interest implies that people do not make _____ mistakes.
11. Economic _____ are statements or propositions used to _____ and _____ patterns of human economic behavior.
12. Because of the complexity of human behavior, economists must _____ to focus on the most important components of a particular problem.

13. A(n) _____ in economic theory is a testable prediction about how people will behave or react to a change in economic circumstances.
14. _____ analysis is the use of data to test a hypothesis.
15. In order to isolate the effects of one variable on another, we use the _____ assumption.
16. When two events usually occur together, it is called _____.
17. When one event brings on another event, it is called _____.
18. The _____ is the incorrect view that what is true for an individual is always true for the group.
19. The objective, value-free approach to economics, based on the scientific method, is called _____ analysis.
20. _____ analysis involves judgments about what should be or what ought to happen.
21. _____ analysis is descriptive; normative analysis is _____.
22. "A tax increase will lead to a lower rate of inflation" is a(n) _____ economic statement.

Answers: 1. limited; unlimited 2. Scarcity 3. inputs 4. scarcity; value 5. trade-offs 6. Microeconomics; microeconomics 7. self-interest; predictable 8. rational 9. consequences 10. systematic 11. theories; explain; predict 12. abstract 13. hypothesis 14. Empirical 15. *ceteris paribus* 16. correlation 17. causation 18. fallacy of composition 19. positive 20. Normative 21. Positive; prescriptive 22. positive

Key Terms and Concepts

economics 3
resources 3
scarcity 3
the economic problem 3
rational behavior 7
theory 9

hypothesis 10
empirical analysis 10
ceteris paribus 11
microeconomics 13
macroeconomics 13
aggregate 13

correlation 14
causation 14
fallacy of composition 16
positive statement 17
normative statement 17

Section Quiz Answers

1.1 Economics: A Brief Introduction

1. What is the definition of economics?

Economics is the study of the choices we make among our many wants and desires given our limited resources.

2. Why does scarcity force us to make choices?

Scarcity—the fact that our wants exceed what our resources can produce—means that we are forced to make choices on how best to use these limited resources.

3. Why are choices costly?

In a world of scarcity, whenever we choose one option, we also choose to do without something else that we also desire. The want that we choose not to satisfy is the opportunity cost of that choice.

4. What is the economic problem?

Scarcity forces us to choose, and choices are costly because we must give up other opportunities that

we value. This is the economic problem. Every individual, business, social, religious, and governmental organization faces the economic problem. Every society, whether it is capitalistic, socialistic, or totalitarian, must also face the economic problem of scarcity, choices, and costs.

5. Why do even "non-economic" issues have an economic dimension?

Even apparently non-economic issues have an economic dimension because economics concerns anything worthwhile to some human being (including love, friendship, charity, etc.) and the choices we make among those things we value.

1.2 Economic Behavior

1. What do economists mean by self-interest?

By self-interest, economists simply mean that people try to improve their own situation (as they see it, not necessarily as others see it). Self-interest can also include benevolence.

2. What does rational self-interest involve?

Economists consider individuals to be acting in their rational self-interest if they are striving to do their best to achieve their goals with their limited income, time, and knowledge, and given their expectations of the likely future consequences (both benefits and costs) of their behavior.

3. How are self-interest and selfishness different?

Self-interest means people are striving to do their best to achieve their goals, which may or may not be selfish. Parents working more hours to give more to their children or a favorite charity can be self-interested but are not selfish.

4. What is rational behavior?

Rational behavior is when people do the best they can based on their values and information, under current and anticipated future consequences. Rational individuals weigh the benefits and costs of their actions and they only pursue actions if they perceive their benefits to be greater than the costs.

1.3 Economic Theory

1. What are economic theories?

A theory is an established explanation that accounts for known facts or phenomena. Economic theories are statements or propositions about patterns of human behavior that are expected to take place under certain circumstances.

2. What is the purpose of a theory?

The purpose of a theory is primarily to explain and predict well. Theories are necessary because the facts of a complex world do not organize themselves.

3. Why must economic theories be abstract?

Economic theories must be abstract because they could not possibly include every possible event, circumstance, or factor that might affect behavior. Like a road map, an economic theory abstracts from some issues to focus more clearly and precisely on the central questions it is designed to understand.

4. What is a hypothesis? How do we determine whether it is tentatively accepted?

A hypothesis is a testable proposal that makes some type of prediction about behavior in response to certain changed conditions. An economic hypothesis is a testable proposal about how people will behave or react to a change in economic circumstances. It is tentatively accepted if its predictions are consistent with what actually happens. In economics, testing involves empirical analysis to see whether the hypothesis is supported by the facts.

5. Why do economists hold other things constant (*ceteris paribus*)?

The hold other things constant, or *ceteris paribus*, assumption is used in economics because in trying to assess the effect of one variable on another, we must isolate their relationship from other important events or variables that might also influence the situation the theory tries to explain or predict.

6. Why are observation and prediction more difficult in the social sciences?

Observation and prediction are more difficult in the social sciences than in physical sciences because social sciences are concerned with human behavior, which is more variable and often less readily predictable than the behavior of experiments observed in a laboratory. Social scientists can seldom run truly “controlled” experiments like those of the biological scientists.

7. Why do economic predictions refer to the behavior of groups of people rather than individuals?

Economists’ predictions usually refer to the collective behavior of large groups rather than individuals because looking at the behaviors of a large group of individuals allows economists to discern general patterns of actions and therefore make more reliable generalizations.

8. Why is revealed preference preferred to declared preference?

Researchers find that their results are more accurate when they observe what people do (revealed preferences) rather than what they say they do (declared preferences).

9. Why is the market for running shoes considered a microeconomic topic?

Because a single industry is “small” relative to the economy as a whole, the market for running shoes (or the running-shoe industry) is a microeconomic topic.

10. Why is inflation considered a macroeconomic topic?

Inflation—a change in the overall price level—has effects throughout the entire economy, rather than just in certain small areas of the economy, which makes it a macroeconomic topic.

1.4 Pitfalls to Avoid in Scientific Thinking

1. What is the relationship between correlation and causation?

Correlation means that two things are related; causation means that one thing caused the other to occur. Even though causation implies correlation, correlation does not necessarily imply causation.

2. What types of misinterpretation result from confusing correlation and causation?

Confusing correlation between variables with causation can lead to misinterpretation where a person “sees” causation between two variables or events where none exists or where a third variable or event is responsible for causing both of them.

3. What is the fallacy of composition?

The fallacy of composition is the incorrect idea that if something is true for an individual, it must also be true for many individuals as a group.

4. If you can sometimes get a high grade on an exam without studying, does it mean that additional studying does not lead to higher grades? Explain your answer.

In some instances a student can get a high grade on an exam without studying. However, because additional studying increases mastery of the material, additional studying would typically increase test performance and grades. That is, even though added studying would not raise grades in some unusual situations, as a generalization, additional studying does lead to higher grades.

1.5 Positive Statements and Normative Statements

1. What is a positive statements? Must positive statements be testable?

Positive statements focus on how people actually behave, rather than on how people should behave.

They deal with how variable *A* impacts variable *B*. Positive statements must be testable to determine whether their predictions are borne out by the evidence.

2. What is a normative statement? Is a normative statement testable?

Normative statements focus on what should be or what ought to happen; they involve opinions about the desirability of various actions or results. Normative statements are not testable, because it is not scientifically possible to establish whether one value judgment is better than another value judgment.

3. Why is the positive/normative distinction important?

It is important to distinguish between positive and normative statements because many controversies in economics revolve around policy considerations that contain both. Deciding whether a policy is good requires both positive analysis (what will happen) and normative analysis (is what happens good or bad).

4. Why do policy disagreements arise among economists?

As with most disciplines, economists do disagree. However, the majority of those disagreements stem from differences in normative analysis, because the evidence cannot establish whether one set of value judgments is better or more appropriate than other sets of value judgments.

Problems

1. In most countries the birth rate has fallen as incomes and the economic opportunities for women have increased. Use economics to explain this pattern.
2. Write your own definition of economics. What are the main elements of the definition?
3. Are the following topics ones that would be covered in microeconomics or macroeconomics?
 - a. the effects of an increase in the supply of lumber on the home-building industry
 - b. changes in the national unemployment rate
 - c. changes in the inflation rate
 - d. changes in the country's economic growth rate
 - e. the price of concert tickets
4. Identify which of the following headlines represents a microeconomic topic and which represents a macroeconomic topic.
 - a. “U.S. Unemployment Rate Reaches Historic Lows”
 - b. “General Motors Closes Auto Plant in St. Louis”
 - c. “OPEC Action Results in a General Increase in Prices”
 - d. “Companies Increase the Cost of Health Care for Employees”
 - e. “Lawmakers Worry about the Possibility of a U.S. Recession”
 - f. “Colorado Rockies Make Outfielder Highest Paid Ballplayer”

5. The Environmental Protection Agency asks you to help it understand the causes of urban pollution. Air pollution problems are worse the higher the Air Quality Index. You develop the following two hypotheses. Hypothesis I: Air pollution will be a greater problem as the average temperature increases in the urban area. Hypothesis II: Air pollution will be a greater problem as the population increases in the urban area.

Test each hypothesis with the facts given in the following table. Which hypothesis fits the facts better? Have you developed a theory?

Metropolitan Statistical Area	Days with Polluted Air*	Average Maximum Temperature	Population (thousands)
Cincinnati, OH	30	64.0	1,979
El Paso, TX	13	77.1	680
Milwaukee, WI	12	55.9	1,690
Atlanta, GA	24	72.0	4,112
Philadelphia, PA	33	63.2	5,101
Albany, NY	8	57.6	876
San Diego, CA	20	70.8	2,814
Los Angeles, CA	80	70.6	9,519

*Air Quality Index greater than 100 (2002) Source: U.S. Dept. of Commerce, Bureau of Census, 2002 Statistical Abstract of the United States, Tables Nos. 30 and 363; U.S. EPA, Air Trends Report, 2002, EPA.Gov/airtrends/factbook.

6. Do any of the following statements involve fallacies? If so, which ones do they involve?
- Because sitting in the back of classrooms is correlated with getting lower grades in the class, students should always sit closer to the front of the classroom.
 - Historically, the stock market rises in years the NFC team wins the Super Bowl and falls when the AFC wins the Super Bowl; I am rooting for the NFC team to win for the sake of my investment portfolio.
 - When a basketball team spends more to get better players, it is more successful, which proves that all the teams should spend more to get better players.
 - Gasoline prices were higher last year than in 1970, yet people purchased more gas, which contradicts the law of demand.
 - An increase in the amount of money I have will make me better off, but an increase in the supply of money in the economy will not make Americans as a group better off.
7. In the 1940s, Dr. Melvin Page conducted a national campaign to stop people other than infants from drinking milk. According to Page, milk was a dangerous food and a leading cause of cancer. He pointed to the fact that more people died of cancer in Wisconsin, the nation's leading milk producer, than any other state as proof of his claim. How would you evaluate Dr. Page's claim?
8. Are the following statements normative or positive, or do they contain elements of both normative and positive statements?
- A higher income-tax rate would generate increased tax revenues. Those extra revenues should be used to give more government aid to the poor.
 - The study of physics is more valuable than the study of sociology, but both should be studied by all college students.
 - An increase in the price of corn will decrease the amount of corn purchased. However, it will increase the amount of wheat purchased.
 - A decrease in the price of butter will increase the amount of butter purchased, but that would be bad because it would increase Americans' cholesterol levels.
 - The birth rate is reduced as economies urbanize, but it also leads to a decreased average age of developing countries' populations.
9. In the debate about clean air standards we have often heard the statement, "A nation as rich as the United States should have no pollution." Why is this a normative statement? Would it help you make a decision on national air quality standards? Describe two positive statements that might be useful in determining the air quality standards.
10. Answer the following questions:
- What is the difference between self-interest and selfishness?
 - Why does inaction have consequences?
 - Why are observation and prediction more difficult in economics than in chemistry?
 - Why do economists look at group behavior rather than individual behavior?
11. Using the map analogy from the chapter, talk about the importance of abstraction. How do you abstract when taking notes in class?

Appendix

Working with Graphs

Graphs Are an Important Economic Tool

Sometimes the use of visual aids, such as graphs, greatly enhances our understanding of a theory. It is much the same as finding your way to a friend's house with the aid of a map rather than with detailed verbal or written instructions. Graphs are important tools for economists. They allow us to understand better the workings of the economy. To economists, a graph can be worth a thousand words. This textbook will use graphs throughout to enhance the understanding of important economic relationships. This appendix provides a guide on how to read and create your own graphs.

The most useful graph for our purposes is one that merely connects a vertical line (the **y-axis**) with a horizontal line (the **x-axis**), as seen in Exhibit 1.

y-axis

the vertical axis on a graph

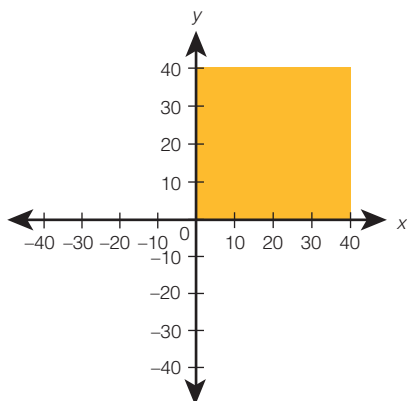
x-axis

the horizontal axis on a graph

The intersection of the two lines occurs at the *origin*, which is where the value of both variables is equal to zero. In Exhibit 1, the graph has

appendix exhibit 1

Plotting a Graph



In the upper-right corner, we see that the graph includes a positive figure for the y-axis and the x-axis. As we move to the right along the horizontal axis, the numerical values increase. As we move up along the vertical axis, the numerical values increase.

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four quadrants, or boxes. In this textbook, we will be primarily concerned with the shaded box in the upper-right corner. This portion of the graph deals exclusively with positive numbers. Always keep in mind that moving to the right on the horizontal axis and moving up along the vertical axis both lead to higher values.

Using Graphs and Charts

Exhibit 2 presents three common types of graphs. The **pie chart** in Exhibit 2(a) shows the revenues received from various taxes levied on households and corporations. Each slice in the pie chart represents the percentage of finances that are derived from different sources—for example, personal income taxes account for 43 percent of the federal government's tax revenues. Therefore, pie charts are used to show the relative size of various quantities that add up to 100 percent.

Exhibit 2(b) is a **bar graph** that shows the unemployment rate by age and sex in the United States. The height of the line represents the unemployment rate. Bar graphs are used to show a comparison of quantities.

Exhibit 2(c) is a **time-series graph**. This type of graph shows changes in the value of a variable over time. This visual tool allows us to observe important trends over a certain time period. In Exhibit 2(c) we see a graph that shows trends in the inflation rate over time. The horizontal axis shows us the passage of time, and the vertical axis shows us the inflation rate (annual percent change). From the graph, we can see the trends in the inflation rate from 1961 to 2005.

pie chart

visual display showing the relative size of various quantities that add up to 100 percent

bar graph

visual display showing the comparison of quantities

time-series graph

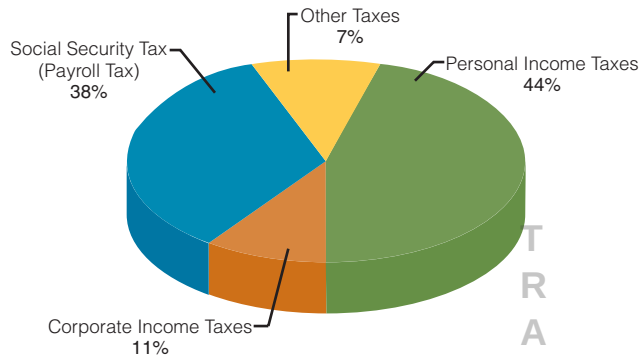
visual tool to show changes in a variable's value over time

variable

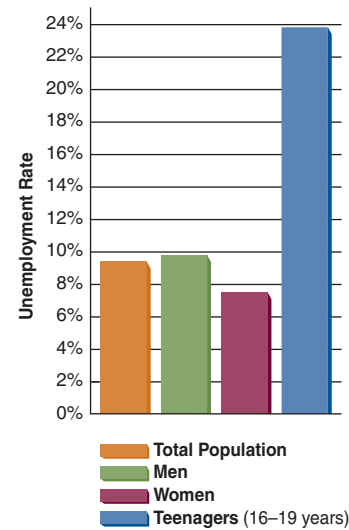
something that is measured by a number, such as your height

Using Graphs to Show the Relationship between Two Variables

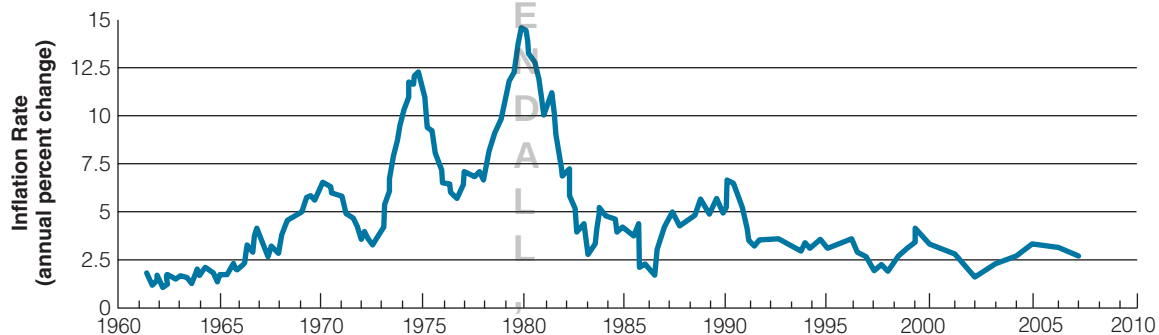
Even though the graphs and chart in Exhibit 2 are important, they do not allow us to show the relationship between two variables (a **variable** is something that is

**appendix
exhibit 2**
Pie Chart, Bar Graph, and Time-Series Graph
a. Pie Chart—Tax Revenues—Federal Government


SOURCE: Economic Report of the President and Bureau of Economic Analysis, 2009.

b. Bar Graph—U.S. Unemployment, by Sex and Age


SOURCE: Bureau of Labor Statistics, August 2009.

c. Time-Series Graph—Inflation Rate


SOURCE: Bureau of Labor Statistics, 2009.

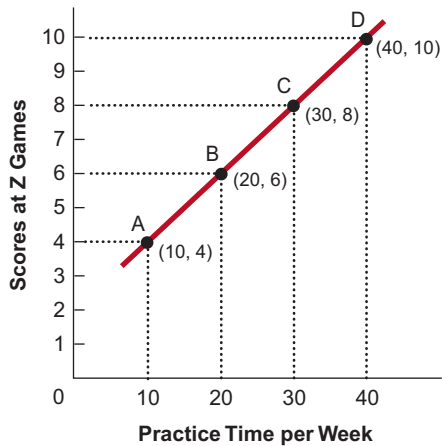
measured by a number, such as your height). To more closely examine the structures and functions of graphs, let's consider the story of Josh, an avid skateboarder who has aspirations of winning the Z Games next year. He knows that to get there, he'll need to put in many hours of practice. But how many hours? In search of information about the practice habits of other skateboarders, he searches the Internet, where he finds the results of a study that looked at the score of each Z Games competitor in relation to the amount of practice time per week spent by each skateboarder. As Exhibit 3 shows, the results of the study indicate that skateboarders had to practice 10 hours per week to receive a score of 4, 20 hours per week to receive a

score of 6, 30 hours per week to get a score of 8, and 40 hours per week to get a perfect score of 10. How does this information help Josh? By using a graph, he can more clearly understand the relationship between practice time and overall score.

A Positive Relationship

The study on scores and practice times reveals what is called a direct relationship, also called a positive relationship. A **positive relationship** means that the variables change in the same direction. That is, an increase

positive relationship
when two variables change in the same direction

**appendix
exhibit 3**
A Positive Relationship


The skateboarders' practice times and scores in the competition are plotted on the graph. Each participant is represented by a point. The graph shows that those skateboarders who practiced the most scored the highest, which indicates a positive, or direct, relationship.

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in one variable (practice time) is accompanied by an increase in the other variable (overall score), or a decrease in one variable (practice time) is accompanied by a decrease in the other variable (overall score). In short, the variables change in the same direction.

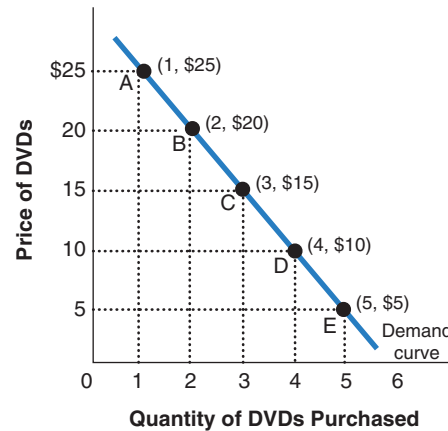
A Negative Relationship

When two variables change in opposite directions, they have an inverse relationship, also called a **negative relationship**. That is, when one variable rises, the other variable falls, or when one variable decreases, the other variable increases.

negative relationship
when two variables change in opposite directions

The Graph of a Demand Curve

Let's now examine one of the most important graphs in economics—the demand curve. In Exhibit 4, we see Emily's individual demand curve for DVDs. It shows the price of DVDs on the vertical axis and the quantity of DVDs purchased per month on the horizontal axis. Every point in the space shown

**appendix
exhibit 4**
A Negative Relationship


The downward slope of the curve means that price and quantity purchased are inversely, or negatively, related: When one increases, the other decreases. That is, moving down along the demand curve from point A to point E, we see that as the price falls, the quantity purchased increases. Moving up along the demand curve from point E to point A, we see that as the price increases, the quantity purchased falls.

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represents a price and quantity combination. The downward-sloping line, labeled "Demand curve," shows the different combinations of price and quantity purchased. Note that the higher the price of the DVDs, as shown on the vertical axis, the smaller the quantity purchased, as shown on the horizontal axis, and the lower the price shown on the vertical axis, the greater the quantity purchased shown on the horizontal axis.

In Exhibit 4, we see that moving up the vertical price axis from the origin, the price of DVDs increases from \$5 to \$25 in increments of \$5. Moving out along the horizontal quantity axis, the quantity purchased increases from zero to five DVDs per month. Point A represents a price of \$25 and a quantity of one DVD, point B represents a price of \$20 and a quantity of two DVDs, point C a price of \$15 and a quantity of three DVDs, and so on. When we connect all the points, we have what economists call a curve. As you can see, curves are sometimes drawn as straight lines for ease of illustration. Moving down along the curve, we see that as the price falls, a greater quantity is demanded; moving up the curve to higher prices, a smaller quantity is demanded. That is, when DVDs become less expensive, Emily buys more DVDs. When

DVDs become more expensive, Emily buys fewer DVDs, perhaps choosing to go to the movies or buy a pizza instead.

Using Graphs to Show the Relationship among Three Variables

Although only two variables are shown on the axes, graphs can be used to show the relationship among three variables. For example, say we add a third variable—income—to our earlier example. Our three variables are now income, price, and quantity purchased. If Emily's income rises—say she gets a raise at work—she is now able and willing to buy more DVDs than before at each possible price. As a result, the whole demand curve shifts outward (to the right) compared with the old curve. That is, the new income gives her more money to use buying more DVDs. This

shift is seen in the graph in Exhibit 5(a). On the other hand, if her income falls—say she quits her job to go back to school—she would have less income to buy DVDs. A decrease in this variable causes the whole demand curve to shift inward (to the left) compared with the old curve. This shift is seen in the graph in Exhibit 5(b).

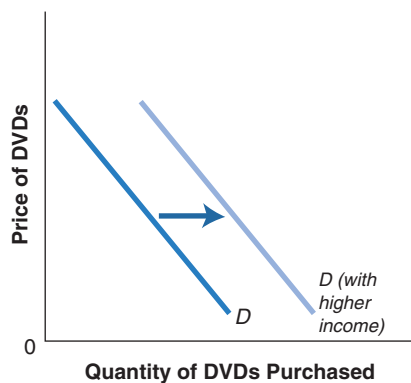
The Difference between a Movement along and a Shift in the Curve

It is important to remember the difference between a movement between one point and another along a curve and a shift in the whole curve. A change in one of the variables on the graph, like price or quantity purchased, will cause a movement along the curve, say from point A to point B, as shown in Exhibit 6. A change in one of the variables not shown (held constant in order to show only the relationship between price and quantity), such as income in our example, will cause the whole curve to shift. The change from D_1 to D_2 in Exhibit 6 shows such a shift.

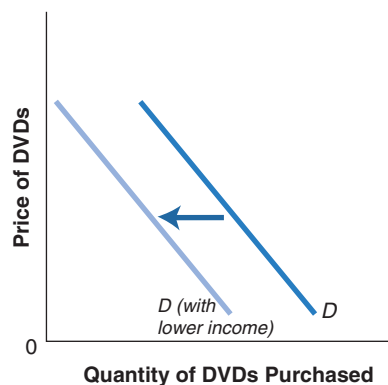
appendix exhibit 5

Shifting a Curve

a. Demand Curve with Higher Income



b. Demand Curve with Lower Income



Slope

In economics, we sometimes refer to the steepness of a line or curve on a graph as the **slope**. A slope can be either positive

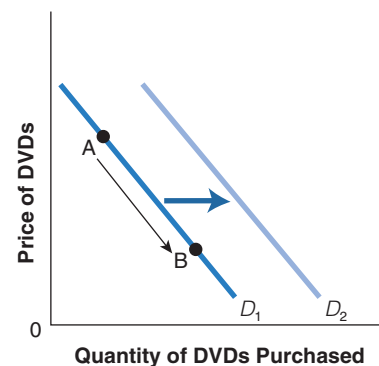
slope

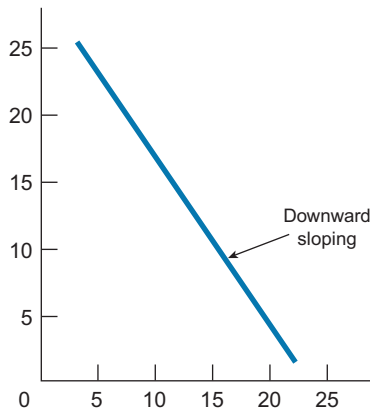
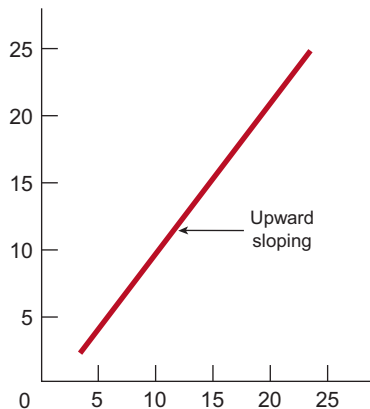
the ratio of rise (change in the y variable) over run (change in the x variable)

(upward sloping) or negative (downward sloping). A curve that is downward sloping represents an inverse, or negative, relationship between the two variables and slants downward from left to right, as seen in Exhibit 7(a). A curve that is upward sloping represents a direct, or positive, relationship between the two variables and

appendix exhibit 6

Shifts versus Movements



**appendix
exhibit 7**
**Downward- and Upward-Sloping
Linear Curves**
a. Downward-Sloping Linear Curve

b. Upward-Sloping Linear Curve


slants upward from left to right, as seen in Exhibit 7(b). The numeric value of the slope shows the number of units of change of the y -axis variable for each unit of change in the x -axis variable. Slope provides the direction (positive or negative) as well as the magnitude of the relationship between the two variables.

Measuring the Slope of a Linear Curve

A straight-line curve is called a linear curve. The slope of a linear curve between two points measures the relative rates of change of two variables. Specifically, the slope of a linear curve can be defined as the ratio of the change in the Y value to the change in the X value. The slope can also be expressed as the ratio of the rise over the run, where the rise is the vertical change and the run is the horizontal change.

Exhibit 8 shows two linear curves, one with a positive slope and one with a negative slope. In

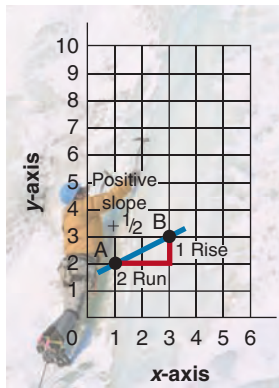
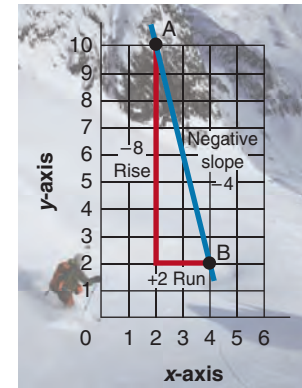
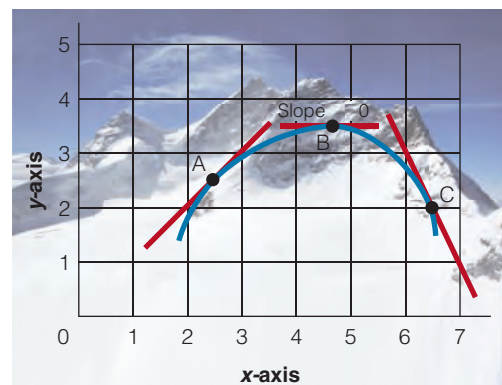
**appendix
exhibit 8**
**Slopes of Positive and
Negative Curves**
a. Positive Slope

b. Negative Slope


Exhibit 8(a), the slope of the positively sloped linear curve from point A to B is $1/2$, because the rise is 1 (from 2 to 3) and the run is 2 (from 1 to 3). In Exhibit 8(b), the negatively sloped linear curve has a slope of -4 : a rise of -8 (a fall of 8, from 10 to 2) and a run of 2 (from 2 to 4) gives us a slope of $-8/2$, or -4 . Notice the appropriate signs on the slopes: the negatively sloped line carries a minus sign and the positively sloped line, a plus sign.

Finding the Slope of a Nonlinear Curve

In Exhibit 9, we show the slope of a nonlinear curve. A nonlinear curve is a line that actually curves. Here the slope varies from point to point along the curve. However, we can find the slope of this curve at any given point by drawing a straight line tangent to that point on the curve. A tangency is when a straight line just touches the curve without actually crossing it. At

**appendix
exhibit 9**
Slopes of a Nonlinear Curve


point A, we see that the positively sloped line that is tangent to the curve has a slope of 1: the line rises 1 and runs 1. At point B, the line is horizontal, so it has zero slope. At point C, we see a slope of -2 , because the negatively sloped line has a rise of -2 (a fall of 2) for every run of 1.

Remember, many students have problems with economics simply because they fail to understand graphs, so make sure that you understand this material before going on to Chapter 2.

Key Terms and Concepts

y-axis 26
x-axis 26
pie chart 26

bar graph 26
time-series graph 26
variable 26

positive relationship 27
negative relationship 28
slope 29

Problems

- The following table gives the prices and quantity demanded of oranges (pounds) for the week of December 10–16.

Price (\$/lb.)	Quantity Demanded (lbs.)
\$0.80	0
0.70	3
0.60	4
0.50	5
0.40	7

- Plot the data from the table into a graph.
- Is it a positive or negative relationship? Explain.

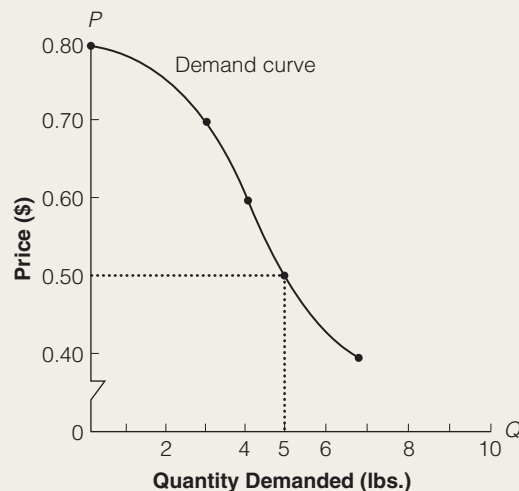
Answer

We have created a negatively sloped demand curve. That is, the price and quantity demanded of oranges are inversely related:

$$\uparrow P \Rightarrow \downarrow Q_D \quad \text{and} \quad \downarrow P \Rightarrow \uparrow Q_D$$

Individual demand curve of a customer for oranges of a certain grade, Week of December 10–16.

The demand curve records the pounds of oranges a consumer desires at various prices in a given week, holding all other factors fixed. Because the individual desires more oranges at lower prices, the demand curve slopes downward.

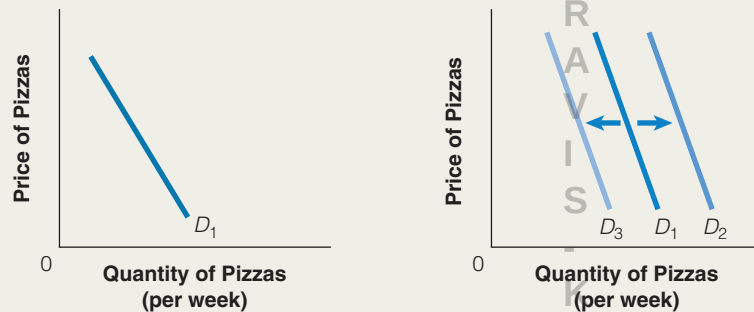


2. Which of the following will lead to a positive relationship? A negative relationship?
- hours studied and grade in a course
 - the price of ice cream and the amount of ice cream purchased
 - the amount of seasonal snowfall and the sale of snow shovels

Answer

- positive
 - negative
 - positive
3. Below is Emily's demand curve for pizza. How do we add income, a third variable, to price and quantity purchased on our graph? Using a graph, explain what would happen if Emily had an increase in income. What would happen if Emily has a decrease in income?

Answer

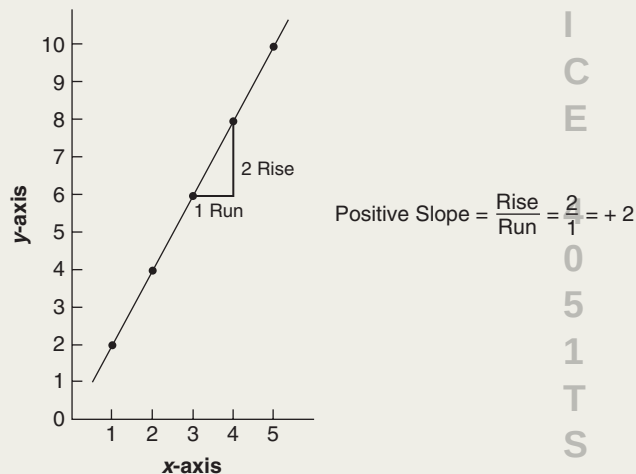


When income increases, Emily can purchase more pizzas at each and every price—a rightward shift from D_1 to D_2 . If Emily's income falls, her demand will shift leftward from D_1 to D_3 .

4. Use the information in the following table to plot a graph. Is it a positive or negative relationship? What is the slope?

x	y
1	2
2	4
3	6
4	8
5	10

Answer



5. What is a pie chart? Bar graph? Time-series graph?

Answer

Pie charts are used to show the relative size of various quantities that add up to 100 percent. Bar graphs are used to show a comparison of quantities of similar items. Time-series graphs allow us to see important trends over a period of time.

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Economics: Eight Powerful Ideas

- 2.1 IDEA 1: People Face Scarcity and Costly Trade-offs
- 2.2 IDEA 2: People Engage in Rational Decision Making and Marginal Thinking
- 2.3 IDEA 3: People Respond Predictably to Changes in Incentives
- 2.4 IDEA 4: Specialization and Trade Can Make Everyone Better Off
- 2.5 IDEA 5: Markets Can Improve Economic Efficiency
- 2.6 IDEA 6: Appropriate Government Policies Can Improve Market Outcomes
- 2.7 IDEA 7: Government Policies May Help Stabilize the Economy
- 2.8 IDEA 8: Higher Productivity Leads to Economic Growth

COURTESY OF ROBERT SEXTON

You're thinking about cutting class and going to the beach? Is the expected marginal benefit greater than the expected marginal cost? What if it is expected to be windy and rainy? What if you have a final next class period, and today is the review? Do these scenarios affect your decision?

Studying economics may teach you how to “think better,” because economics helps develop a disciplined method of



thinking about problems. A student of economics becomes aware that, at a basic level, much of economic life involves choosing one course of action rather than another—making choices among our conflicting wants and desires in a world of scarcity. Economics provides insights about how to intelligently evaluate these options and determine the most appropriate choices in given situations.

This chapter presents eight powerful ideas that will help you understand the economic way of thinking. The economic way of thinking provides a logical framework for organizing and analyzing your understanding of a broad set of issues, many of which do not even seem directly related to economics as you now know it.

The basic ideas that you learn in this chapter will occur repeatedly throughout the text. If you develop a good understanding of these principles and master the problem-solving skills inherent in them, they will serve you well for the rest of your life. Learning to think like an economist takes time. Like most disciplines, economics has its own specialized vocabulary, including such terms as *elasticity*, *comparative advantage*, *supply and demand*, *deadweight loss*, and *consumer surplus*. Learning economics requires more than picking up this new terminology; however, it also involves using its powerful tools to improve your understanding of a whole host of issues in the world around you.

IDEA 1: People Face Scarcity and Costly Trade-offs

2.1

What are goods and services?

What are tangible and intangible goods?

What are economic goods?

Why do we have to make choices?

What do we give up when we have to choose?

Introduction

This chapter presents eight powerful ideas that serve as the foundation of economics. Most of economics is really knowing certain principles well and knowing how and when to apply them. These few basic ideas will occur repeatedly throughout the text and are presented in this chapter as a preview of what is to come. If you develop a good understanding of these principles and master the problem-solving skills inherent in them, they will serve you well for the rest of your life.

The first three ideas focus on individual behavior: people face scarcity and costly trade-offs; people are rational decision makers and engage in marginal thinking; and people respond predictably to incentives. The next three ideas emphasize the interaction of people: specialization and trade makes people better off; markets can improve economic efficiency; and appropriate government policies can improve economic outcomes. The final two ideas are about how the economy as a whole interacts: government policies may help stabilize the economy, and increased productivity leads to economic growth.

scarcity
exists when human wants
(material and nonmaterial)
exceed available resources

Human Wants Exceed Available Resources

Economics is concerned primarily with **scarcity**—how we satisfy our unlimited wants in a world of limited resources. We may want “essential” items such as food, clothing, schooling, and health care.



COURTESY OF ROBERT L. SEXTON

All the things you see here—grass, trees, rocks, animals—are considered **land** to economists.

We may want many other items, such as vacations, cars, computers, and concert tickets. We may want more friendship, love, knowledge, and so on. We also may have many goals—perhaps an A in this class, a college education, and a great job. Unfortunately, people are not able to fulfill all their wants and desires, material and nonmaterial. Or, in the words of Mick Jagger, “You can’t always get what you want.” And as long as human wants exceed available resources, scarcity will exist.

Scarcity and Resources

Our desires and wants could all be met if we had unlimited resources. Unfortunately, resources are scarce: they are desirable and limited. Consequently, people have to make choices.

As we learned in the last chapter, a resource is anything that can be used to produce something else. Resources are costly because they have alternative uses. When we use land for a new football stadium that same land cannot be used for something else that is valuable like an office building or a hotel.

The scarce resources used in the production of goods and services can be grouped into four categories: labor, land, capital, and entrepreneurship.

Labor is the total of both physical and mental effort expended by people in the production of goods and services. The services of a teacher, nurse, cosmetic surgeon, professional golfer, and an electrician all fall under the general category of labor.

Land includes the “gifts of nature” or the natural resources used in the production of goods and services. Economists consider land to include trees, animals, water, minerals, and so on, along with the physical space we normally think of as land.

Capital is the equipment and structures used to produce goods and services. Office buildings, tools, machines, and factories are all considered capital goods. When we invest in factories, machines, research and development, or education, we increase the potential to create more goods and services in the future. Capital also includes **human capital**—the productive knowledge and skill people receive from education and on-the-job training.

Entrepreneurship is the process of combining labor, land, and capital to produce goods and services. Entrepreneurs make the tough and risky decisions about what and how to produce goods and services. Entrepreneurs are always looking for new ways to improve production techniques or to create new products. They are lured by the chance of making a profit. It is this opportunity to make a profit that leads entrepreneurs to take risks.

Profits provide the financial incentive and income for entrepreneurs for their effort and risk if they are successful. Losses provide the financial incentive to let entrepreneurs know that resources are not being used efficiently.

Entrepreneurship is not just about new technology. It’s also about the introduction of new goods, new production methods, new markets, new sources of raw materials, and new organizational structures.

However, not every entrepreneur is a Bill Gates or a Henry Ford. In some sense, we are all entrepreneurs when we try new products or when we find better ways to manage our households or our study time. Rather than money, then, our profits might take the form of greater enjoyment, additional time for recreation, or better grades.

What Are Goods and Services?

Goods are the items that we value or desire to satisfy our wants. Goods tend to be **tangible**—objects that can be seen, held, tasted, or smelled, such as shirts, pizzas, and perfume.

Goods that we cannot reach out and touch are called **intangible goods**, which includes fairness for all, friendship, leisure, knowledge, security, prestige, respect, and health.

Services are intangible acts for which people are willing to pay, such as legal counsel, medical care, and education. Services are intangible because they are less overtly visible, but they are certainly no less valuable than goods.

labor

the physical and human effort used in the production of goods and services

land

the natural resources used in the production of goods and services

capital

the equipment and structures used to produce goods and services

human capital

the productive knowledge and skill people receive from education, on-the-job training, health, and other factors that increase productivity

entrepreneurship

the process of combining labor, land, and capital to produce goods and services

goods

items we value or desire

tangible goods

items we value or desire that we can reach out and touch

intangible goods

goods that we cannot reach out and touch, such as friendship and knowledge

services

intangible items of value provided to consumers, such as education

All goods and services, whether tangible or intangible, are produced from scarce resources and can be subjected to economic analysis. Scarce goods created from scarce resources are called **economic goods**. These goods are *desirable but limited* in amount.

Oxygen to breathe is *not* scarce because it is desirable and abundant. Garbage is *not* scarce because it is abundant but not desirable. However, freedom, books, vacations, computers, cell phones, cars, houses, drinkable water, clean air, health, and sunlight in December in Anchorage, Alaska, are all scarce. That is, for most people, all of these things are desirable but limited in amount—that is, scarce.

Without enough economic goods for all of us, we are forced to compete. That is, scarcity ultimately leads to competition for the available goods and services, a subject we will return to often in the text.

economic goods

scarce goods created from scarce resources—goods that are desirable but limited in supply

What Are Bads?

In contrast to goods, **bads** are those items that we do not desire or want. For most people, garbage, pollution, weeds, and crime are bads. People tend to eliminate or minimize bads, so they will often pay to have bads, like garbage, removed. The elimination of the bad—garbage removal, for example—is a good.

bads

items that we do not desire or want, where less is preferred to more, like terrorism, smog, or poison oak

Does Everyone Face Scarcity?

We all face scarcity because we cannot have all the goods and services we desire. However, because we all have different wants and desires, scarcity affects everyone differently. For example, a child in a developing country may face a scarcity of food and clean drinking water, while a rich man may face a scarcity of garage space for his growing antique car collection. Likewise, a harried middle-class working mother may find time for exercise particularly scarce, while a pharmaceutical company may be concerned with the scarcity of the natural resources it uses in its production process. Its effects may vary, but no one can escape scarcity.

We often hear it said of rich people that “He has everything,” or “She can buy anything she wants.” Actually, even the richest person must live with scarcity and must, at some point, choose one want or desire over another. That is, even rich people have finite income. And of course, we all have only 24 hours in a day! The problem is that as we get more affluent, we learn of new luxuries to provide us with satisfaction. Wealth, then, creates a new set of wants to be satisfied. No evidence indicates that people would not find a valuable use for additional income, no matter how rich they became. Even the wealthy individual who decides to donate all her money to charity faces the constraints of scarcity. If she had greater resources, she could do still more for others.

Not even millionaire lottery winners can escape scarcity. They may become less content as the excitement wears off and they begin looking for new satisfactions. After winning his second \$1 million scratch-off lottery, a 78-year-old man from Michigan said, “I am now going for three.”

Will Scarcity Ever Be Eradicated?

It is probably clear by now that scarcity never has and never will be eradicated. The same creativity that develops new methods to produce goods and services in greater quantities also reveals new wants. Fashions are always changing. Clothes and shoes that are



REUTERS/JUDA NGWENYA

Scarcity even exists for billionaires Bill and Melinda Gates.



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What is the difference between a want and a need?

“in” one year will likely be “out” the next. New wants quickly replace old ones. It is also quite possible that over a period of time, a rising quantity of goods and services will not increase human happiness. Why? Because our wants may grow as fast—if not faster—than our ability to meet those wants.

Wants versus Needs

To an economist, the terms *wants* and *needs* are very different. In fact, it is difficult to objectively define a need. To most, a need is something you must have and don't currently possess. But it can be used to describe a trivial wish, a want, or something that is essential for survival. A need can be more or less urgent, depending on the circumstances. Whenever you hear somebody say, “I need a new car,” “I need a vacation,” or “I need new clothes,” always be sure to ask: What does the person really mean?

During rush hour, freeways can get very congested. Perhaps we should have an express lane for people who have urgent needs. What do you think of this idea? Imagine the number of people who would develop what they felt were urgent needs if the “urgent need” lane was much shorter than the other lanes. It would be inevitable that the system would fall apart. In fact, it would be fun to guess what might be defined as an urgent need when you are stopped by the urgent need police. It might include: “I am really in a hurry because I have to get home to clean my apartment,” or “I need to get back to the dorm to type a term paper that is overdue.” “Oh, shoot, I left the dog in the house.” Many people would perceive their needs as more urgent than other people's urgent needs. This is a reason that the concept of need falls apart as a means of explaining behavior. It is impossible to make the concept of need useful when it is so hard to define or compare those “needs” among people.

Need as a concept ignores scarcity and the fact that choices may change with circumstances and trade-offs. In a world of scarcity, we have unlimited wants in the face of limited resources. That is, we all must make choices because we have competing wants and limited resources. Whenever we choose, we can satisfy one want but we leave other wants not satisfied. We might satisfy our want for a new car but it may leave other wants, like a trip to Hawaii, tuition, or paying rent, unfilled. That is, every want that is satisfied leaves other wants that are unsatisfied.

Scarcity Forces Us to Choose



Doesn't the fact that we face scarcity mean we have to compete for the limited resources?

Each of us might want a nice home, two luxury cars, wholesome and good-tasting food, a personal trainer, and a therapist, all enjoyed in a pristine environment with zero pollution. If we had unlimited resources, and thus an ability to produce all the goods and services everyone wants, we would not have to choose among those desires. However, we all face scarcity, and as a consequence, we must make choices. If we did not have to make meaningful economic choices, the study of economics would not be necessary. The essence of economics is to understand fully the implications that scarcity has for wise decision making.

Trade-Offs

In a world of scarcity, we all face trade-offs. If you spend more time at work you might give up an opportunity to go shopping at the mall or watch your favorite television show. Time spent exercising means giving up something else that is valuable—perhaps relaxing with friends or studying for an upcoming exam. Or when you decide how to spend your income, buying a new car may mean you have to forgo a summer vacation. Businesses have trade-offs, too. If a farmer chooses to plant his land in cotton this year, he gives up the opportunity to plant his land in wheat. If a firm decides to produce only cars, it gives up the opportunity to use those resources to produce refrigerators or something else that people value. Society,

too, must make trade-offs. For example, the federal government faces trade-offs when it comes to spending tax revenues; additional resources used to enhance the environment may come at the expense of additional resources to provide health, education, or national defense.

To Choose Is to Lose

Every choice involves a cost. Anytime you are doing something, you could be doing something else. The highest or best forgone opportunity resulting from a decision is called the **opportunity cost**. Another way to put it is that “to choose is to lose,” or, “An opportunity cost is the highest valued opportunity lost.” It is important to remember that the opportunity cost involves the next highest valued alternative, not all alternatives not chosen. For example, what would you have been doing with your time if you were not reading this book? That alternative is what you give up, not all the things you could have been doing. To get more of anything that is desirable, you must accept less of something else that you also value.

Every choice you make has a cost, an opportunity cost. All productive resources have alternative uses regardless of who owns them—individuals, firms, or government. For example, if a city uses land for a new school, the cost is the next-best alternative use of that land—perhaps, a park. To have a meaningful understanding of cost, you must be able to compare the alternative opportunities that are sacrificed in that choice.

Bill Gates, Tiger Woods, and Oprah Winfrey all quit college to pursue their dreams. Tiger Woods dropped out of Stanford (an economics major) to join the PGA golf tour. Bill Gates dropped out of Harvard to start a software company. Oprah Winfrey dropped out of Tennessee State to pursue a career in broadcasting. At the early age of 19, she became the co-anchor of the evening news. LeBron James (Miami Heat), Kobe Bryant (LA Lakers), and Alex Rodriguez (New York Yankees) understood opportunity cost; they didn’t even start college, and it worked out well for them. Staying in, or starting, college would have cost each of them millions of dollars. We cannot say it would have been the wrong decision to stay in or never start college, but it would have been costly. Their opportunity cost of staying in or going to or starting college was high.

opportunity cost
the value of the best forgone alternative that was not chosen



Is an opportunity cost all the things you give up when you make a choice?

Money Costs and Nonmoney Costs

If you go to the store to buy groceries, you have to pay for the items you bought. This money cost is an opportunity cost, because you could have used that money to purchase other goods or services. However, additional opportunity costs include the nonprice costs incurred to acquire the groceries—time spent getting to the grocery store, finding a parking place, actual shopping, and waiting in the checkout line. The nonprice costs are measured by assessing the sacrifice involved—the value you place on what you would have done with that time if you had not gone shopping. So the cost of grocery shopping is the price paid for the goods, plus the nonprice costs incurred. Or your concert ticket may have only been \$50. But what if you had to wait in line for six hours in the freezing cold? Waiting and enduring the cold are costs, too. Seldom are costs just dollars and cents. Shopping at a large discount store may save you on the money price, but cost you time waiting in long checkout lines. Also, buying food in bulk quantities may be less expensive per ounce, but cost inventory space in your pantry, or the food may spoil before it is eaten.

Remember that many costs do not involve money but are still costs. Do I major in economics or engineering? Do I go to Billy Madison University or Tech State University? Should I get an MBA now or work and wait a few years to go back to school?

Choices have present and future consequences. What if I decide *not* to study for my final exams? What future consequences will I bear? Flunk out of school? Not get into graduate school?



The famous poet, Robert Frost, understood that choices have costs. In his poem, “The Road Not Taken,” he writes, “two roads diverged in a yellow wood, and sorry I could not travel both.”

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Economic questions are all around you. Take for instance the people who lined up to buy the latest Apple iPhone. Not only did it cost them money to purchase the item, but it also cost them time waiting in line—time that they might have spent doing other things. Choices like this one are all around us. By studying economics, we can better understand these choices and hopefully make better ones.

Policy makers are unavoidably faced with opportunity costs, too. Consider airline safety. Both money costs and time costs affect airline safety. New airline safety devices cost money (luggage inspection devices, smoke detectors, fuel tank safeguards, new radar equipment, and so on), and time costs are quite evident with the new security checks. Time waiting in line costs time doing something else that is valuable. New airline safety requirements could also actually cost lives. If the new safety equipment costs are passed on in the form of higher airline ticket prices, people may choose to travel by car, which is far more dangerous per mile traveled than by air. Opportunity costs are everywhere! And the real cost of anything is what you have to give up to get it.

The Opportunity Cost of Going to College or Having a Child

The average person often does not correctly calculate opportunity costs. For example, the (opportunity) cost of going to college includes not just the direct expenses of tuition and books. Of

course, those expenses do involve an opportunity cost because the money used for books and tuition could be used to buy other things that you value. But what about the nonmoney costs? That is, going to college also includes the opportunity cost of your time. Specifically, the time spent going to school is time that could have been spent on a job earning, say, \$30,000 over the course of an academic year. What about room and board? That aspect is a little tricky because you would presumably have to pay room and board whether you went to college or not. The relevant question may be how much more it costs you to live at school rather than at home (and living at home may have substantial nonmoney costs). Even if you stayed at home, your parents would sacrifice something; they could rent your room out or use the room for some other purpose such as storage, guest room, home office, a sibling's room, and so on.

How often do people consider the full opportunity of raising a child to age 18? The obvious money costs include food, visits to the doctor, clothes, piano lessons, time spent at

use
what you've learned

Is That Really a Free Lunch, a Freeway, or a Free Beach?

The expression, "There's no such thing as a free lunch," clarifies the relationship between scarcity and opportunity cost. Suppose the school cafeteria is offering "free" lunches today. Although the lunch is free to you, is it really free from society's perspective? The answer is no, because some of society's scarce resources will have been used in the preparation of the lunch. The issue is whether the resources that went into creating that lunch could have been used to produce something else of value. Clearly, the scarce resources that went into the production of the lunch—the labor and materials (food-service workers, lettuce, meat, plows, tractors,

fertilizer, and so forth)—could have been used in other ways. They had an opportunity cost and thus were not free.

Do not confuse free with a zero monetary price. A number of goods—freeways, free beaches, and free libraries, for instance—do not cost consumers money, but they are still scarce. Few things are free in the sense that they use none of society's scarce resources. So what does a free lunch really mean? It is, technically speaking, a "subsidized" lunch—a lunch using society's scarce resources, but one that the person receiving it does not have to pay for personally.

soccer practices, and so on. According to the Department of Agriculture, a middle-income family with a child born in 2011 can expect to spend about \$300,000 for food, shelter, and other necessities to raise that child through age 17. And that does not include college. Other substantial opportunity costs are incurred in raising a child as well. Consider the opportunity cost of one parent choosing to give up his or her job to stay at home. For a parent who makes that choice, the time spent in child raising is time that could have been used earning money and pursuing a career.

SECTION QUIZ



1. Scarcity occurs because our _____ wants exceed our _____ resources.
 - a. limited; unlimited
 - b. unlimited; limited
 - c. limited; unlimited
 - d. unlimited; unlimited
2. Scarcity and rarity are
 - a. the same because both words means the good is limited in supply.
 - b. different because something might be rare, but if it is not desirable, it is not scarce.
 - c. different because scarcity only affects poor people and rarity only affects rich people.
 - d. All of the above are true.
3. Scarce resources include
 - a. labor—the human effort used in producing goods and services.
 - b. land—the natural resources used in the production of goods and services.
 - c. capital—the equipment and structures used to produce goods and services.
 - d. entrepreneurship—the process of combining labor, land, and capital to produce goods and services.
 - e. all of the above.
4. To economists, needs
 - a. are difficult to define.
 - b. can be more or less urgent, depending on the circumstances.
 - c. are hard to compare among people.
 - d. ignore scarcity and the fact that choices may change with circumstances and trade-offs.
 - e. all of the above.
5. Which of the following statements is true?
 - a. The opportunity cost of a decision is always expressed in monetary terms.
 - b. The opportunity cost of a decision is the value of the best forgone alternative.
 - c. Some economic decisions have zero opportunity cost.
 - d. The opportunity cost of attending college is the same for all students at the same university but may differ among students at different universities.
 - e. None of the above statements is true.
6. Money costs
 - a. are not opportunity costs, since they involve money.
 - b. are opportunity costs, because you could have used that money to buy other goods and services.
 - c. are always the only relevant opportunity costs.
 - d. both (a) and (c).

(continued)

SECTION QUIZ (Cont.)



7. Which of the following involve an opportunity cost?
 - a. choosing to go to law school rather than business school
 - b. the money I used to pay for my new laptop
 - c. new airline safety regulations
 - d. all of the above
 8. Which of the following are the opportunity costs of going to college?
 - a. tuition
 - b. books needed for classes
 - c. the job I was going to take if I did not go to school
 - d. all of the above
-
1. What must be true for something to be an economic good?
 2. Why does scarcity affect everyone?
 3. How and why does scarcity affect each of us differently?
 4. Why might daylight be scarce in Anchorage, Alaska, in the winter but not in the summer?
 5. Would we have to make choices if we had unlimited resources?
 6. What do we mean by opportunity cost?
 7. Why was the opportunity cost of going to college higher for LeBron James (Miami Heat star) than for most undergraduates?
 8. Why is the opportunity cost of time spent getting an MBA typically lower for a 22-year-old straight out of college than for a 45-year-old experienced manager?

Answers: 1. b 2. b 3. e 4. e 5. b 6. b 7. d 8. d

2.2

IDEA 2: People Engage in Rational Decision Making and Marginal Thinking

What is rational decision making?

What do we mean by marginal thinking?

What is the rule of rational choice?

Why do we use the word *expected* with marginal benefits and costs?

Do People Engage in Rational Decision Making?

Recall from Chapter 1 that economists assume that people, for the most part, engage in rational, or purposeful, behavior. That is, people systematically and purposefully do the best they can, based on their values and information, under current and anticipated future circumstances. In short, as rational individuals, we are influenced by an array of incentives, social norms, and past experiences. We act the way we do because we do not want to make

ourselves worse off. Even if everyone does not behave rationally all the time, the assumption of **rational decision making** is still very useful in explaining most of the choices that individuals make.

rational decision making

people do the best they can, based on their values and information, under current and anticipated future circumstances.

Many Choices We Face Involve Marginal Thinking

Some decisions are “all or nothing,” like whether to start a new business or go to work for someone else, or whether to attend graduate school or take a job. But rational people know that many decisions are not black and white. Many choices we face involve *how much* of something to do rather than whether to do something. It is not *whether* you eat but *how much* will you eat? Or how many caffe lattes will I buy this week? Or how often do I change the oil in my car? Or how much of my check do I spend, and how much do I save? Your instructors hope that the question is not *whether* you study this semester but *how much* you study. You might think to yourself, “If I studied a little more, I might be able to improve my grade,” or, “If I had a little better concentration when I was studying, I could improve my grade.” That is, spending more time has an additional expected benefit (a higher grade) and an additional expected cost (giving up time to do something else that is valuable, such as watching TV or sleeping). These examples reflect what economists call **marginal thinking** because the focus is on the additional, or marginal, choices available to you. Or think of marginal as the edge—marginal decisions are made around the edge of what you are currently doing. Marginal choices involve the effects of adding or subtracting from the current situation. In short, they are the small (or large) incremental changes to a plan of action.

Businesses are constantly engaged in marginal thinking. For example, firms have to decide whether the additional (marginal) revenue received from increasing production is greater than the marginal cost of that production.

Always watch out for the difference between average and marginal costs. Suppose an airline had 10 unoccupied seats on a flight from Los Angeles to New York, and the average cost was \$400 per seat (the total cost divided by the number of seats—\$100,000/250). If 10 people are waiting on standby, each willing to pay \$300, should the airline sell them the tickets? Yes! The unoccupied seats earn nothing for the airline. What are the additional (marginal) costs of a few more passengers? The marginal costs are minimal—slight wear and tear on the airplane, handling some extra baggage, and 10 extra in-flight meals. In this case, thinking at the margin can increase total profits, even if it means selling at less than the average cost of production.

Another good example of marginal thinking is an auction. Prices are bid up marginally as the auctioneer calls out one price after another. When bidders view the new price (the marginal cost) to be greater than the value they place on the good (the marginal benefit), they withdraw from further bidding.

In trying to make themselves better off, people alter their behavior if the expected marginal benefits from doing so outweigh the expected marginal costs, which is the **rule of rational choice**. Economic theory is often called marginal analysis because it assumes that people are always weighing the expected marginal benefits against the expected marginal costs. The term *expected* is used with *marginal benefits* and *marginal costs* because the world is uncertain in many important respects, so the actual result of changing behavior may not always make people better off. However, as a matter of rationality, people are assumed to engage only in behavior that they think ahead of time will make them better off. That is, individuals will only pursue an activity if their expected

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Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Most choices involve doing a little more or a little less of something: few choices are “all or nothing” decisions.

marginal thinking

focusing on the additional, or marginal, choices; marginal choices involve the effects of adding or subtracting, from the current situation, the small (or large) incremental changes to a plan of action

rule of rational choice

individuals will pursue an activity if the expected marginal benefits are greater than the expected marginal costs



During rush hour some drivers will switch into and out of lanes if they perceive one lane is moving faster than another. This is a marginal adjustment. The same is true of lines in a supermarket. People are constantly weighing the marginal benefits and marginal costs of changing lanes and/or lines.

marginal benefits are greater than their expected marginal costs of pursuing that activity one step further, $E(MB) > E(MC)$.

This fairly unrestrictive and realistic view of individuals seeking self-betterment can be used to analyze a variety of social phenomena.

Suppose that you have to get up for an 8 A.M. class but have been up very late. When the alarm goes off at 7 A.M. you are weighing the marginal benefits and marginal costs of an extra 15 minutes of sleep. If you perceive the marginal benefits of 15 additional minutes of sleep to be greater than the marginal costs of those extra minutes, you may choose to hit the snooze button. Or perhaps you may decide to blow off class completely. But it's unlikely that you will choose that action if it's the day of the final exam—because it is now likely that the **net benefits** (the difference between the expected marginal benefits and the expected marginal costs) of skipping class have changed. When people have opportunities to make themselves better off they usually take them. And they will continue to seek those opportunities as long as they expect a net benefit from doing so.

To determine the optimal or best public policy program, voters and government officials must compare the expected marginal benefits against the expected marginal costs of providing a little more or a little less of the program's services.

Rational decision makers will follow the rule of rational choice. This is simply the rule of being sensible, and most economists believe that individuals act *as if* they are sensible and apply the rule of rational choice to their daily lives. It is a rule that can help us understand our decisions to study, walk, shop, exercise, clean house, cook, and perform just about every other action.

It is also a rule that we will continue to use throughout the text. Because whether it is consumers, producers, or policy makers, they all must compare the expected marginal benefits and the expected marginal cost to determine the best level to consume, produce, or provide public programs.

net benefit

the difference between the expected marginal benefits and the expected marginal costs



Do government policy makers have to weigh their expected marginal benefits against their expected marginal costs?

Zero Pollution Would Be Too Costly

Let's use the concept of marginal thinking to evaluate pollution levels. We all know the benefits of a cleaner environment, but what would we have to give up—that is, what marginal costs would we have to incur—to achieve zero pollution? A lot! You could not drive a car, fly in a plane, or even ride a bicycle, especially if everybody else were riding bikes, too (because congestion is a form of pollution). How would you get to school or work, or go to the movies or the grocery store? Everyone would have to grow their own food because transporting, storing, and producing food uses machinery and equipment that pollute. And even growing your own food would be a problem because many plants emit natural pollutants. We could go on and on. The point is *not* that we shouldn't be concerned about the environment; rather, we have to weigh the expected marginal benefits of a cleaner environment against the expected marginal costs of a cleaner environment. This discussion is not meant to say the environment should not be cleaner, only that zero pollution levels would be far too costly in terms of what we would have to give up.

Optimal (Best) Levels of Safety

Like pollution, crime and safety can have optimal (or best) levels that are greater than zero. Take crime. What would it cost society to have zero crime? It would be prohibitively costly to divert a tremendous amount of our valuable resources toward the complete elimination of crime. In fact, it would be impossible to eliminate crime totally. Even reducing crime significantly would be costly. Because lower crime rates are costly, society must decide how much it is willing to give up. The additional resources for crime prevention can only come from limited resources, which could be used to produce something else that people may value even more.

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If you decide to buy a more expensive diamond ring for your fiancée, what are the expected marginal benefits? What are the expected marginal costs? What did you give up—part of a down payment for a house, a nicer honeymoon?

The same is true for safer products. Nobody wants defective tires on their cars, or cars that are unsafe and roll over at low speeds. The optimal amount of risk may not be zero. The issue is not safe versus unsafe products but rather, *how much* safety we want. It is not risk versus no-risk but rather, *how much* risk we are willing to take. Additional safety can only come at higher costs. To make all products perfectly safe would be impossible, so we must weigh the benefits and costs of safer products. In fact, according to one study by Sam Peltzman, a University of Chicago economist, additional safety regulations in cars (mandatory safety belts and padded dashboards) in the late 1960s may have had little impact on highway fatalities. Peltzman found that making cars safer led to more reckless driving and more accidents. The safety regulations did result in fewer deaths per automobile accident, but the total number of deaths remained unchanged because more accidents occurred.

Reckless driving has a benefit in the form of getting somewhere more quickly, but it can also have a cost—an accident or even a fatality. Most people will compare the marginal benefits and marginal costs of safer driving and make the choices that they believe will get them to their destination safely.



Shouldn't all products be perfectly safe?

SECTION QUIZ



- Which of the following demonstrates marginal thinking?
 - deciding to never eat meat
 - deciding to spend one more hour studying economics tonight because you think the improvement on your next test will be large enough to make it worthwhile to you
 - working out an extra hour per week
 - both (b) and (c)
- Which of the following best reflects rational decision-making behavior?
 - analyzing the total costs of a decision
 - analyzing the total benefits of a decision
 - undertaking an activity as long as the total benefits exceed the total costs
 - undertaking an activity whenever the marginal benefit exceeds the marginal cost
 - undertaking activities as long as the marginal benefit exceeds zero
- Individual gallons of milk at a local grocery store are priced at \$4, but two gallons purchased at the same time are priced at \$6 for two. The marginal cost of buying a second gallon of milk on a shopping trip is
 - \$6.
 - \$4.
 - \$3.
 - \$2.
 - none of the above.
- The results of which of the following activities would marginal thinking help improve?
 - studying
 - driving
 - shopping
 - looking for a place to park your car
 - all of the above

- What are marginal choices? Why does economics focus on them?
- What is the rule of rational choice?

(continued)

SECTION QUIZ (Cont.)



3. How could the rule of rational choice be expressed in terms of net benefits?
4. Why does rational choice involve expectations?
5. What is rational decision making?
6. Why do students often stop taking lecture notes when a professor announces that the next few minutes of material will not be on any future test or assignment?
7. If you decide to speed to get to a doctor's appointment and then get in an accident due to speeding, does your decision to speed invalidate the rule of rational choice? Why or why not?
8. If pedestrians felt far safer using crosswalks to cross the street, how could adding crosswalks increase the number of pedestrian accidents?
9. Imagine driving a car with daggers sticking out of the steering wheel—pointing directly at your chest. Would you drive more safely? Why?

Answers: 1. d 2. d 3. d 4. e

2.3

IDEA 3: People Respond Predictably to Changes in Incentives

Can we predict how people will respond to changes in incentives?

What are positive incentives?

What are negative incentives?

Changes in Incentives Change Individual Behavior

Because most people are seeking opportunities to make themselves better off, they respond to changes in incentives. If you can figure out what people's incentives are, there is a good chance you can predict their behavior. That is, they are reacting to changes in expected marginal benefits and expected marginal costs. In fact, much of human behavior can be explained and predicted as a response to changing incentives. That is, changes in incentives cause people to change their behavior in predictable ways.

Positive and Negative Incentives

Almost all of economics can be reduced to incentive stories, where consumers and producers are driven by incentives that affect expected costs or benefits. An incentive induces people to respond to a reward or a punishment. We just discussed that most rational people predictably respond to changes in incentives by weighing the expected marginal benefits against the expected marginal cost. Prices, wages, profits, taxes, and subsidies are all examples of economic incentives. Incentives can be classified into two types: positive and negative. **Positive incentives** are those that either



A subsidy on hybrid electric vehicles would be a positive incentive that would encourage greater production and consumption of these vehicles. A wide variety of incentives are offered at the federal, state, and local levels to encourage the expanded use of alternative-fuel vehicles.

positive incentive

an incentive that either reduces costs or increases benefits, resulting in an increase in an activity or behavior

increase benefits or reduce costs and thus result in an increased level of the related activity or behavior. **Negative incentives**, on the other hand, either reduce benefits or increase costs, resulting in a decreased level of the related activity or behavior. For example, a tax on cars that emit lots of pollution (an increase in costs) would be a negative incentive that would lead to a reduction in emitted pollution. On the other hand, a subsidy (the opposite of a tax) on hybrid cars—part electric, part internal combustion—would be a positive incentive that would encourage greater production and consumption of hybrid cars. Human behavior is influenced in predictable ways by such changes in economic incentives, and economists use this information to predict what will happen when the benefits and costs of any choice are changed. In short, economists study the incentives and consequences of particular actions.

Because most people seek opportunities that make them better off, we can predict what will happen when incentives are changed. If salaries increase for engineers and decrease for MBAs, we would predict fewer people would go to graduate school in business and more would go into engineering. A permanent change to a much higher price of gasoline would lead us to expect fewer gas guzzlers on the highway. People who work on commission tend to work harder. If the price of downtown parking increased, we would predict that commuters would look for alternative methods to get to work that would save money. If households were taxed to conserve water, economists would expect people to use less water—and substantially less water than if they were simply asked to conserve water. Some people are charitable and some people are stingy, but if you change the tax code to give even greater deductions for charitable contributions, we can predict *more* people will be charitable, even some of those who are stingy. Incentives matter.

negative incentive

an incentive that either increases costs or reduces benefits, resulting in a decrease in the activity or behavior



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People respond predictably to positive and negative incentives.

SECTION QUIZ

- Positive incentives make actions _____ likely; negative incentives make actions _____ likely.
 - more; more
 - more; less
 - less; more
 - less; less
- A higher price is a _____ incentive to buyers and a _____ incentive to sellers.
 - positive; positive
 - positive; negative
 - negative; positive
 - negative; negative
- Because most people seek opportunities that make people better off,
 - it makes it more difficult to predict behavior.
 - we can predict what will happen when incentives are changed.
 - we cannot predict as well as we could if their behavior was random and chaotic.
 - None of the above is true.
- If households, water usage was taxed, economists would expect
 - people to use less water.
 - people to use less water, but they would not reduce their consumption by as much as they would if they were asked to conserve water.
 - they would not reduce their water consumption because people need water.
 - none of the above.

(continued)

SECTION QUIZ (Cont.)



5. Who would be most likely to drop out of college before graduation?
 - a. an economics major who wishes to go to graduate school
 - b. a math major with a B+ average
 - c. a chemistry major who has been reading about the great jobs available for people with chemistry degrees
 - d. a star baseball player who has just received a multi-million dollar contract offer after his junior year
-
1. What is the difference between positive incentives and negative incentives?
 2. According to the rule of rational choice, would you do more or less of something if its expected marginal benefits increased? Why?
 3. According to the rule of rational choice, would you do more or less of something if its expected marginal costs increased? Why?
 4. How does the rule of rational choice imply that young children are typically more likely to misbehave at a supermarket checkout counter than at home?
 5. Why do many parents refuse to let their children have dessert before they eat the rest of their dinner?

Answers: 1. b 2. c 3. b 4. a 5. d

2.4

IDEA 4: Specialization and Trade Can Make Everyone Better Off

specializing

concentrating in the production of one, or a few, goods

comparative advantage

occurs when a person or country can produce a good or service at a lower opportunity cost than others

What is the relationship between opportunity cost and specialization?

What are the advantages of specialization in production?

Why Do People Specialize?

As you look around, you can see that people specialize in what they produce. They tend to dedicate their resources to one primary activity, whether it be performing brain surgery, driving a cab, or making bagels. Why? The answer, short and simple, is opportunity costs. By concentrating their energies on only one, or a few, activities, individuals are **specializing**. This focus allows them to make the best use of (and thus gain the most benefit from) their limited resources. A person, a region, or a country can gain by specializing in the production of the good in which they have a comparative advantage. That is, if they can produce a good or service at a lower opportunity cost than others, we say that they have a **comparative advantage** in the production of that good or service. Comparative advantage changes over time for many reasons, including changes in resources, prices, and events that occur in other countries. For example, the United States once had a comparative advantage in producing shoes, but now imports most of its shoes from foreign countries.



Without specialization and division of labor, this car and crew would not be as competitive. Imagine how much time would be lost if one person was changing four tires.

We All Specialize

We all specialize to some extent and rely on others to produce most of the goods and services we want. The work that we choose to do reflects our specialization. For example, we may specialize in selling or fixing automobiles. The wages from that work can then be used to buy goods from a farmer who has chosen to specialize in the production of food. Likewise, the farmer can use the money earned from selling his produce to get his tractor fixed by someone who specializes in that activity.

Specialization is evident not only among individuals but among regions and countries as well. In fact, the story of the economic development of the United States and the rest of the world involves specialization. Within the United States, the Midwest with its wheat, the coastal waters of the Northeast with its fishing fleets, and the Northwest with its timber are each examples of regional specialization.



REUTERS/ANDREW BIRAJ/LANDOV

Bangladesh exports low-cost garments to mass-market retailers like Walmart. U.S. workers are a lot more productive in building airplanes and a little more productive in producing clothes than Bangladeshi workers. If the two countries divide the work according to comparative advantage, then the U.S. workers would specialize in the tasks at which they are most productive, airplanes. And the the Bangladeshi workers would concentrate on the tasks where their productivity is only slightly less, clothing.

The Advantages of Specialization

In a small business, every employee usually performs a wide variety of tasks—from hiring to word processing to marketing. As the size of the company increases, each employee can perform a more specialized job, with a consequent increase in output per worker. The primary advantages of specialization are that employees acquire greater skill from repetition, they avoid wasted time in shifting from one task to another, and they do the types of work for which they are best suited—and specialization promotes the use of specialized equipment for specialized tasks.

The advantages of specialization are seen throughout the workplace. For example, in larger firms, specialists conduct personnel relations, and accounting is in the hands of full-time accountants instead of someone with half a dozen other tasks. Owners of small retail stores select the locations for their stores primarily through guesswork, placing them where they believe sales will be high or where empty low-rent buildings are available. In contrast, larger chains have store sites selected by experts who have experience in analyzing the factors that make different locations relatively more desirable, such as traffic patterns, income levels, demographics, and so on. In short, workers will earn more by specializing in doing the things that they do relatively well because that entails the least sacrifice in opportunities forgone. It also important to remember that even if everyone had similar skills and resources, specialization could still lead to greater production because the concentration of production of some goods and services in one location can sometimes reduce the costs of production.

Specialization and Trade Lead to Greater Wealth and Prosperity

Trade, or voluntary exchange, directly increases wealth by making both parties better off (or they wouldn't trade). It is the prospect of wealth-increasing exchange that leads to productive specialization. That is, trade increases wealth by allowing a person, a region, or a nation to specialize in those products that it produces at a lower opportunity cost and to trade them



AP PHOTO/PRNEWSFOTO/APPLE

The entrepreneurs at Apple have learned how to combine almost 500 generic parts to make something of much greater value. The whole is greater than the sum of the parts. There is not one person at Apple or in the world who could put together an iPhone all alone. It takes many people, making many parts, living all over the world. In other words, specialization and exchange has given us the ability to do things we do not even understand.

use

what you've learned

Comparative Advantage

Q Should an attorney who types 100 words per minute hire an administrative assistant to type her legal documents, even though he can only type 50 words per minute? If the attorney does the job, she can do it in five hours; if the administrative assistant does the job, it takes him 10 hours. The attorney makes \$100 an hour, and the administrative assistant earns \$10 an hour. Which one has the comparative advantage (the lowest opportunity cost) in typing documents?

A If the attorney types her own documents, it will cost \$500 ($\$100 \text{ per hour} \times 5 \text{ hours}$). If she has the administrative assistant type her documents, it will cost \$100 ($\$10 \text{ per hour} \times 10 \text{ hours}$). Clearly, then, the lawyer should hire the administrative assistant to type her documents, because the administrative assistant has the comparative advantage (lowest opportunity cost) in this case, despite being half as good in absolute terms.

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When individuals, regions, and nations specialize in what they can produce at lower costs and then trade with others, both production and consumption increase.

for products that others produce at a lower opportunity cost. That is, we trade with others because it frees up time and resources to do other things that we do better.

In short, if we divide tasks and produce what we do *relatively* best and trade for the rest, we will be better off than if we were self-sufficient—that is, without trade. Imagine life without trade, where you were completely self-sufficient—growing your own food, making your own clothes, working on your own car, building your own house—do you think you would be better off? For example, say the United States is better at producing wheat than is Brazil, and Brazil is better at producing coffee than is the United States. The United States and Brazil would each benefit if the United States produces wheat and trades some of it to Brazil for coffee. Coffee growers in the United States could grow coffee in expensive greenhouses, but it would result in higher coffee costs and prices, while leaving fewer resources available for employment in more beneficial jobs, such as wheat production.

In the words of growth theorist, Paul Romer, “There are huge potential gains from trade. Poor countries can supply their natural and human resources. Rich countries can supply their know-how. When these are combined, everyone can be better off. The challenge is for a country to arrange its laws and institutions so that both sides can profitably engage in trade.” Standards of living can be increased through trade and exchange. In fact, the economy as a whole can create more wealth when each person specializes in a task that he or she does relatively best. And through specialization and trade, a country can gain a greater variety of goods and services at a lower cost. So while countries may be competitors in the global market, they are also partners.

SECTION QUIZ

1. The person, region, or country that can produce a good or service at a _____ opportunity cost than other producers has a _____ advantage in the production of that good or service.
 - a. higher; comparative
 - b. lower; absolute
 - c. lower; comparative
 - d. higher; absolute



(continued)

SECTION QUIZ (Cont.)



2. Specialization is important for
 - a. individuals.
 - b. businesses.
 - c. regions.
 - d. nations.
 - e. all of the above.
3. People can gain by specializing in the production of a good in which
 - a. they have a comparative advantage.
 - b. they have an absolute advantage.
 - c. they have a lower opportunity cost.
 - d. they have a higher opportunity cost.
 - e. both (a) and (c).
4. If a country wants to maximize the value of its output, each job should be carried out by the person who
 - a. has the highest opportunity cost.
 - b. has a comparative advantage in that activity.
 - c. can complete the particular job most rapidly.
 - d. enjoys that job the least.
5. If resources and goods are free to move across states, and if Florida producers choose to specialize in growing grapefruit and Georgia producers choose to specialize in growing peaches, then we could reasonably conclude that
 - a. Georgia has a comparative advantage in producing peaches.
 - b. Florida has a comparative advantage in producing peaches.
 - c. the opportunity cost of growing peaches is lower in Georgia than in Florida.
 - d. the opportunity cost of growing grapefruit is lower in Florida than in Georgia.
 - e. all of the above except (b) are true.
6. Kelly is an attorney and also an excellent typist. She can type 120 words per minute, but she is pressed for time because she has all the legal work she can handle at \$75.00 per hour. Kelly's friend Todd works as a waiter and would like some typing work (provided that he can make at least his wage as a waiter, which is \$25.00 per hour). Todd can type only 60 words per minute.
 - a. Kelly should do all the typing because she is faster.
 - b. Todd should do the typing as long as his earnings are more than \$25.00 and less than \$37.50 per hour.
 - c. Unless Todd can match Kelly's typing speed, he should remain a waiter.
 - d. Todd should do the typing, and Kelly should pay him \$20.00 per hour.
 - e. Both a and c are correct.

-
1. Why do people specialize?
 2. What do we mean by comparative advantage?
 3. Why does the combination of specialization and trade make us better off?
 4. If you can mow your lawn in half the time it takes your spouse or housemate to do it, do you have a comparative advantage in mowing the lawn?
 5. If you have a current comparative advantage in doing the dishes, and you then become far more productive than before in completing yard chores, could that eliminate your comparative advantage? Why or why not?
 6. Could a student who gets a C in one class but a D or worse in everything else have a comparative advantage over someone who gets a B in that class but an A in everything else? Explain this concept using opportunity cost.

Answers: 1. c 2. e 3. e 4. b 5. e 6. b

2.5

IDEA 5: Markets Can Improve Economic Efficiency

How does a market economy allocate scarce resources?

What are the important signals that market prices communicate?

What are the effects of price controls?

How Does the Market Work to Allocate Resources?

efficiency

when an economy gets the most out of its scarce resources

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Markets exist when and where buyers and sellers interact. This interaction determines market prices and thereby allocates goods and services.

Prices provide incentives for buyers and sellers. Higher prices for a good or service provide incentives for buyers to purchase less of that good or service and for producers to make or sell more of it. Lower prices for a good or service provide incentives for buyers to purchase more of that good or service and for producers to make or sell less of it.



What is the invisible hand?

In a world of scarcity, competition is inescapable, and one method of allocating resources among competing uses is the market economy. The market economy provides a way for millions of producers and consumers to allocate scarce resources. For the most part, markets are efficient. To an economist, **efficiency** is achieved when the economy gets the most out of its scarce resources. In short, efficiency makes the economic pie as large as possible.

Competitive markets are powerful—they can make existing products better and/or less expensive, they can improve production processes, and they can create new products, from video games to life-saving drugs. Buyers and sellers indicate their wants through their action and inaction in the marketplace, and it is this collective “voice” that determines how resources are allocated. But how is this information communicated? Market prices serve as the language of the market system. By understanding what these market prices mean, you can get a better understanding of the vital function that the market economy performs.

Markets may not always lead to your desired tastes and preferences. You may think that markets produce too many pet rocks, chia pets, breast enhancements, and face lifts. Some markets are illegal—the market for cocaine, the market for stolen body parts, the market for child pornography, and the market for indecent radio announcers. Markets do not come with a moral compass; they simply provide what buyers are willing and able to pay for and what sellers are willing and able to produce.

Market Prices Provide Important Information

Market prices send signals and provide incentives to both buyers and sellers. These prices communicate information about the relative availability of products to buyers, and they provide sellers with critical information about the relative value that consumers place on those products. In short, buyers look at the price and decide how much they are willing and able to demand and sellers look at the price and decide how much they are able and willing to supply. The market price reflects the value a buyer places on a good and the cost to society of producing that good. Thus, market prices provide a way for both buyers and sellers to communicate about the relative value of resources. To paraphrase Adam Smith, prices adjust like an “invisible hand” to direct buyers and sellers to an outcome that is socially desirable. We will see how this works beginning in Chapter 4.

The basis of a market economy is voluntary exchange and the price system that guides people’s choices and produces solutions to the questions of what goods to produce and how to produce and distribute them.

Take something as simple as the production of a pencil. Where did the wood come from? Perhaps the Northwest or Georgia. The graphite may have come from the mines in Michigan and the rubber may be from Malaysia. The paint, the glue, the metal piece that holds the eraser—who knows? The point is that market forces coordinated this production activity among literally thousands of people, some of whom live in different countries and speak different languages. The market brought these people together to make a pencil that sells for 25 cents at your bookstore. It all happened because the market economy provided the incentive

for people to pursue activities that benefit others. This same process produces millions of goods and services around the world, from automobiles and computers to pencils and paper clips.

What Effect Do Price Controls Have on the Market System?

Government policies called **price controls** sometimes force prices above or below what they would be in a market economy. Unfortunately, these controls often impose harm on the same people they are trying to help, in large part by short-circuiting the market's information-transmission function. That is, price controls effectively strip the market price of its meaning for both buyers and sellers (as we will see in Chapter 5). A sales tax also distorts price signals, leading to a misallocation of resources (as we will see in Chapter 6).

price controls
government-mandated
minimum or maximum
prices

SECTION QUIZ



1. Markets
 - a. for the most part are efficient.
 - b. provides a way for millions of producers and consumers to allocate scarce resources.
 - c. may not always lead to your desired tastes and preferences.
 - d. All of the above statements are true.
 2. Efficiency
 - a. makes the size of the economic pie as large as possible.
 - b. is achieved when the economy gets the most of its resources.
 - c. Both (a) and (b) are true.
 - d. None of the above is true.
 3. Which of the following is (are) true statement(s)?
 - a. Prices provide *incentives* for buyers and sellers.
 - b. Higher prices for a good or service provide incentives for buyers to purchase less of that good or service and for producers to make or sell more of it.
 - c. Lower prices for a good or service provide incentives for buyers to purchase more of that good or service and for producers to make or sell less of it.
 - d. All of the above statements are correct.
 4. Price controls
 - a. assure that society distributes its resources fairly.
 - b. distort price signals.
 - c. prevent the natural system of supply and demand from working.
 - d. Both (b) and (c) are true.
-
1. Why must every society choose some manner in which to allocate its scarce resources?
 2. How does a market system allocate resources?
 3. What do market prices communicate to others in society?
 4. How do price controls undermine the market as a communication device?

Answers: 1. d 2. c 3. d 4. d

2.6

IDEA 6: Appropriate Government Policies Can Improve Market Outcomes

Why is it so important that the government protect our property rights?

What are market failures?

Why can't we rely exclusively on the "invisible hand" of the market to determine economic decisions?

Does the market distribute income fairly?



An important role for government in the economy is to define, establish, and enforce property rights. A property right to a good or service includes the right to exclude others from using the good or service and the right to transfer the ownership or use of the resource to others.

Property Rights and the Legal System

In a market economy, private individuals and firms own most of the resources. For example, when consumers buy houses, cars, or pizzas, they have purchased the right to use these goods in ways they, not someone else, see fit. These rights are called property rights. Property rights are the rules of our economic game. If well-defined, property rights give individuals the incentive to use their property efficiently. That is, owners with property rights have a greater incentive to maintain, improve, and conserve their property to preserve or increase its value.

The market system can only work if the government enforces the rules. That is, one of the key functions of government is to provide a legal framework that protects and enforces property rights and contracts. Markets, like baseball games, need umpires. It is the government that plays this role when it defines and protects the rights of people and their property through the legal system and police protection. That is, by providing rules and regulations, government can make markets work more efficiently. Private enforcement is possible, but as economic life becomes more complex, political institutions have become the major instrument for defining and enforcing property rights.

The government defines and protects property rights through the legal system and public policy. The legal system ensures the rights of private ownership, the enforcement of contracts and the legal status for businesses. The legal system serves as the referee, imposing penalties on violators of our legal rules. Property rights also include intellectual property—the property rights that an owner receives through patents, copyrights and trademarks. These rights give the owner long-term protection that encourages individuals to write books, music and software programs and invent new products. In short, well-defined property rights encourage investment, innovation, exchange, conservation, and economic growth.

Market Failure

The market mechanism is a simple but effective and efficient general means of allocating resources among alternative uses. When the economy fails to allocate resources efficiently on its own, however, it is known as **market failure**. For example, a steel mill might put soot and other forms of “crud” into the air as a byproduct of making steel. When it does, it imposes costs on others not connected with using or producing steel from the steel mill. The soot may require homeowners to paint their homes more often, entailing a cost. And studies show that respiratory diseases are greater in areas with more severe air pollution, imposing costs that may even include life itself. In addition, the steel mill might discharge chemicals into a stream, thus killing wildlife and spoiling recreational activities for the local

market failure

when the economy fails to allocate resources efficiently on its own

in the news **Song Swapping on the Net**

If you were a rock star, would you want to put a stop to bootlegged music on the Internet?

- Yes, it violates copyright laws and cheats the artist.
- Yes, but unlicensed music sharing is inevitable.
- No, it will only increase the size of my audience.
- No, it hurts only record companies, which charge too much anyway.

Song swapping on the Net allows you to search for almost any song you can think of, find the song on a fellow enthusiast's hard drive, and then download it for yourself, right now—for the unbeatable cost of zero, free, nada, gratis.

consider this:

Song swapping on the Net has set the stage for an interesting battle over copyright laws and intellectual property rights. Is sharing songs with others on the Internet underground piracy, or is it sharing someone's purchased possession? Is it a "personal use" right to share music online—like sharing a CD with a friend?

Napster and Grokster may be gone, but "free" music and videos are alive and well. The network is still wide open. It is a tough war to win, and the people trading music illegally online have little chance of being caught. Also, many young music lovers do not see downloading music without paying the copyright as a crime. The industry must innovate its way out. One reason that illegal downloading took off was because the industry did not keep up with the technology. The music industry continued to sell CDs and tapes when buyers had the technology to download songs.

A recent survey by the Institute for Policy Innovation concludes that the "piracy" of recorded music costs the U.S. recording industries billions of dollars annually in lost revenue and profits. In addition, the study states that recorded



MARC PAGANI PHOTOGRAPHY/SHUTTERSTOCK.COM

music piracy costs American workers significant losses in jobs and earnings, and lost tax revenues to the government.

Incentives play an important part in this story, too. If the price is zero, the probability of being caught is close to zero, and people do not view it as illegal, then you would expect many to download music illegally rather than purchase. However, the flipside of the story is that when talented producers and artists do not get royalties for their artistic work, you will see a lot less of it—especially quality music. Incentives matter.

SOURCE: From 'Newsweek', June 5, 2000, "The Noisy War Over Napster" by Steven Levy, pp. 46, 49. Copyright © 2005 Newsweek, Inc. All rights reserved. Used by permission and protected by the Copyright Laws of the United States. The printing, copying, redistribution, or retransmission of the Material without express written permission is prohibited.

population. In this case, the steel factory does not bear the costs of its polluting actions, and it continues to emit too much pollution. In other words, by transferring the pollution costs onto society, the firm lowers its costs of production and so produces more than the ideal output—which is inefficient because it is an overallocation of resources.

Markets sometimes produce too little of a good—research, for example. Therefore, the government might decide to subsidize promising scientific research that could benefit many people—such as cancer research. When one party prevents other parties from participating in



Am I sharing or stealing if I download a song from a site like Limewire or The Pirate Bay?



Can markets fail to allocate resources efficiently?

mutually beneficial exchange, it also causes a market failure. This situation occurs in a monopoly, with its single seller of goods. Because the monopolist can raise its end price above the competitive price, some potential consumers are kept from buying the goods they would have bought at the lower price, and inefficiency occurs. Whether the market economy has produced too little (underallocation) or too much (overallocation), the government can improve society's well-being by intervening. The case of market failure will be taken up in more detail in Chapter 8.

We cannot depend on the market economy to always communicate accurately. Some firms may have market power to distort prices in their favor. For example, the only regional cement company in the area has the ability to charge a higher price and provide lower-quality services than if the company were in a highly competitive market. In this case, the lack of competition can lead to higher prices and reduced product quality. And without adequate information, unscrupulous producers may be able to misrepresent their products to the disadvantage of unwary consumers.

When such conditions of restricted competition arise, the communication system of the marketplace is disrupted, causing the market to function inefficiently, to the detriment of consumers. For this reason, since 1890, the federal government has engaged in anti-trust activities designed to encourage competition and discourage monopoly conditions. Specifically, the Antitrust Division of the Department of Justice and the Federal Trade Commission attempt to increase competition by attacking monopolistic practices.

In sum, government *can* help promote efficiency when there is a market failure—making the economic pie larger.

Does the Market Distribute Income Fairly?

Sometimes a painful trade-off exists between how much an economy can produce efficiently and how that output is distributed—the degree of equality. An efficient market rewards those that produce goods and services that others are willing and able to buy. But this does not guarantee a “fair” or equal distribution of income. That is, how the economic pie is divided up. A market economy cannot guarantee everyone adequate amounts of food, shelter, and health care. That is, not only does the market determine what goods are going to be produced and in what quantities, but it also determines the distribution of output among members of society.

As with other aspects of government intervention, the degree-of-equity argument can generate some sharp disagreements. What is “fair” for one person may seem highly “unfair” to someone else. One person may find it terribly unfair for some individuals to earn many times the amount earned by other individuals who work equally hard, and another person may find it highly unfair to ask one group, the relatively rich, to pay a much higher proportion of their income in taxes than another group pays.

Government Is Not Always the Solution

However, just because the government could improve the situation does not mean it will. After all, the political process has its own set of problems, such as special interests, shortsightedness, and imperfect information. For example, government may reduce competition through tariffs and quotas, or it may impose inefficient regulations that restrict entry. Consequently, government, like markets, has shortcomings and imperfections; the cost of government policies can exceed the benefits. Citizens failing to understand the difference between actual and ideal government performance will find it difficult to decide the appropriate role for government.



ROBERT L. SEXTON

Even though designating these parking spaces for disabled drivers may not be an efficient use of scarce parking spaces (because they are often not used), many believe it is fair to give these drivers a convenient spot. The debate between efficiency and equity is often heated.

SECTION QUIZ



1. The government defines and protects property rights through
 - a. the legal system.
 - b. police protection.
 - c. the military.
 - d. all of the above.
 2. Well-defined property rights encourage
 - a. investment.
 - b. innovation.
 - c. conservation.
 - d. exchange.
 - e. economic growth.
 - f. all of the above.
 3. A market failure is said to occur
 - a. when costs are imposed on some people without their consent.
 - b. when the market economy fails to allocate resources efficiently.
 - c. when one party prevents others from participating in mutually beneficial exchange.
 - d. All of the above are examples of market failure.
 4. The government redistributes income through
 - a. taxes.
 - b. subsidies.
 - c. transfer payments.
 - d. all of the above.
-
1. Why do owners with clear property rights have incentives to use their property efficiently?
 2. How does the government use taxes, subsidies, and transfer payments to redistribute income toward lower-income groups?
 3. Why would the government want to prevent market conditions of insufficient competition?
 4. Why can markets sometimes fail to allocate resources efficiently?

Answers: 1. d 2. f 3. d 4. d

IDEA 7: Government Policies May Help Stabilize the Economy

2.7

- | | |
|---|---|
| <ul style="list-style-type: none"> What can happen when total spending is insufficient? What can happen when total spending is excessive? What is inflation, and what causes it? | <ul style="list-style-type: none"> Why is a stable monetary environment important? How can the government policies help stabilize the economy? Can government policies used to stabilize the economy be counterproductive? |
|---|---|

The market mechanism does not always assure fulfillment of macroeconomic goals, most notably full employment and stable prices. Sometimes total spending is insufficient, and unemployment occurs; sometimes total spending is excessive, and inflation occurs. Both inflation and unemployment affect economic growth and standards of living. Almost everyone is affected directly or indirectly by high rates of unemployment or inflation.

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Unemployment imposes costs on individuals and the overall economy. Inflation, both expected and unexpected, also imposes costs on individuals and the overall economy. Unemployment increases during recessions and decreases during recoveries.

Inflation

What is inflation, and what causes it? Inflation is an increase in the overall price level in the economy. Sustained inflation is usually caused by government printing too much money. When the government prints too much money, money loses its value. In its extreme form, inflation can lead to complete erosion in faith in the value of money. In Germany after both World Wars, prices increased so rapidly that people in some cases finally refused to take paper money, insisting instead on payment in goods or metals with some intrinsic worth.

A stable monetary environment can lead to price stability and enable producers and consumers to better coordinate their plans and decisions through the market. An increase in the overall price level increases burdens on people with fixed incomes when the inflation is not anticipated. It hurts savers, but helps those who have borrowed at a fixed rate. Moreover, inflation can raise one nation's prices relative to prices in other countries, which will either lead to difficulties in financing purchases of foreign goods or to a decline in the value of the national currency relative to that of other countries. Also, inflation imposes costs on people who devote resources to protecting themselves from expected inflation. The redistributive impact of inflation need not be the result of conscious public policy; it just happens.

Both inflation and unemployment affect economic growth and standards of the living. Almost everyone is affected directly or indirectly by high rates of unemployment and inflation.

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Federal government budgetary policy (fiscal policy) and the Federal Reserve System's monetary policy influence the overall levels of employment, output, and prices.

Unemployment

When the economy is producing at less than its capacity, there will be some unemployment. Unemployment will vary by age, sex, and race. It will also vary by work experience, years of schooling, and skill level.

Unemployment statistics do not always give us an accurate picture of the economy. There are discouraged workers who are so disillusioned by the economy they stop looking for work and are no longer counted as unemployed. There are also workers who take part-time jobs when they are looking for full-time jobs.

What causes unemployment? Some of it results from a downswing in a business cycle, the unpredictable fluctuations in the economy. Other unemployment occurs because people are changing jobs, different skills needed by employers, or there are seasonal fluctuations in demand.

During the 1930s, the unemployment rate rose to more than 20 percent of the labor force, and among some groups, such as women and minority workers, unemployment rates were even higher. The concern over unemployment manifested itself in the passage of the Employment Act of 1946, committing the government to "promote maximum employment, production, and purchasing power." The act also implied that the government should respond to fluctuations in the economy through the use of stabilization policies.

More recently, as a result of a severe global recession, unemployment in many countries has remained high with many workers remaining unemployed for long periods of time. In 2009, 45 percent of unemployed workers had been without a job for at least 27 weeks. This is the longest downturn since World War II. The financial and psychological damage to the unemployed will last for years.

Government policies called fiscal policy, use taxes, and government spending to try to help stabilize the economy. If there is an unemployment problem, policy makers may lower taxes and/or increase government spending to stimulate demand. Alternatively, if there is a problem with persistent inflation, policy makers may raise taxes and/or reduce government spending.

Also, the Federal Reserve can use monetary policy to change the money supply and interest rates in an effort to achieve price stability, high employment, and economic growth. Many economists believe that these government policies play an important role in stabilizing the economy.

However, other economists believe the government policies are not effective and can be counterproductive. Because some government spending occurs for reasons other than

macroeconomic stabilization—like money spent on defense and health care—government programs may have counterproductive effects on employment and inflation. And there are problems of time lags and the higher interest rate effect of expansionary fiscal policy, which can crowd out private investment and spending. This debate is important and will be discussed in the macroeconomic portion of the text.

SECTION QUIZ



1. When total spending is insufficient, it can lead to
 - a. economic growth.
 - b. inflation.
 - c. unemployment.
 - d. none of the above.
2. When total spending is excessive it can lead to
 - a. budget surpluses.
 - b. inflation.
 - c. unemployment.
 - d. all of the above.
3. Inflation
 - a. is when there is an increase in the overall price level in the economy.
 - b. can be caused by the government printing too much money.
 - c. can cause people to lose faith in the value of money.
 - d. All of the above are true.
4. A stable monetary environment
 - a. can lead to price stability.
 - b. enables producers and consumers to better coordinate their plans and decisions.
 - c. Both (a) and (b) are true.
 - d. None of the above is true.
5. Unanticipated inflation
 - a. redistributes income.
 - b. increases burdens on people with fixed incomes when the inflation is not anticipated.
 - c. hurts savers, but helps those who have borrowed at a fixed rate.
 - d. can raise one nation's prices relative to prices in other countries.
 - e. can cause all of the above.
6. The government may help stabilize the economy
 - a. by providing a stable monetary environment.
 - b. by using changes in government spending.
 - c. by using changes in taxes.
 - d. using any of the above.

-
1. What is inflation?
 2. What causes inflation?
 3. Why is a stable monetary environment so important?
 4. What was the Employment Act of 1946?

Answers: 1. c 2. b 3. d 4. c 5. e 6. d

2.8

IDEA 8: Higher Productivity Growth Leads to Greater Long-Run Economic Growth

What is economic growth?

What is productivity?

Do differences in growth rates matter?

Defining Economic Growth

Economic growth
the economy's abilities to
produce more goods and
services

Economic growth is usually measured by the annual percentage change in real (indexed for inflation) output of goods and services per capita (real GDP per capita), reflecting the expansion of the economy over time. We focus on per capita measures because we want to adjust for the effect of increased population on economic well-being. An increase in population, *ceteris paribus*, will lower the standard of living because more people will be sharing a fixed real GDP. Long-run economic growth is a *sustained* increase in real output per capita. However, economic growth rates do not reveal anything about the distribution of output and income. For example, a country could have extraordinary growth in per capita output, and yet the poor might achieve little or no improvement in their standard of living.

In Exhibit 1, we see that most of the increase in world GDP per capita has occurred in the last 200 years. Over the past millennium, world population rose twenty-two fold. Per capita income increased thirteen fold, world GDP nearly three-hundred fold. This contrasts sharply with the preceding millennium, when world population grew by only a sixth, and there was no advance in per capita income. From the year 1000 to 1820, the advance in per capita income was a slow crawl—the world average rose about 50 percent. Most of the growth went to accommodate a fourfold increase in population—stagnant economic growth rates mean little changes in the standard of living. The average Englishman was probably no better off in 1800 than he was in 1500. Life expectancy in England was less than 40 years in 1800. The effects of the Industrial Revolution had a huge impact beginning in the mid-1800s. Since then, world development has been much more dynamic. Per capita income rose more than eightfold, population more than fivefold.

Because of increased economic growth, the people of the world are better fed, better sheltered, and better protected against diseases. Global life expectancies have risen despite increases in population. This is not to say that millions of people do not still live in poverty. Admittedly, averages conceal a lot, but even the poorest countries of the world are better off than they were 60 years ago.

According to Stanford economist Paul Romer, “Economic growth springs from better recipes, not just from more cooking.” Better recipes lead to permanent and continuing change. It is these better recipes that lead us down the path of innovation, the path of breakthroughs—organizational, intellectual, and technological. These are the ideas that can transform societies.

Small Differences in Growth Rates Matter

If Nation A and Nation B start off with the same population and the same level of real GDP, will a slight difference in their growth rates over a long period of time make much of a difference? Yes. In the first year or two, the difference will be small. However, after a decade the difference will be large, and after 50 or 100 years, it will be huge. In the words of Nobel laureate Robert Lucas, “Once one starts to think about differences in growth rates among countries, it is hard to think about anything else.”

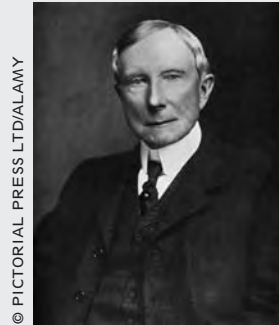


Was the standard of living higher two hundred years ago, when we had fewer people?

in the news **Rockefeller and Carnegie**

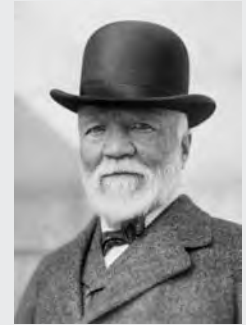
Are you richer than they were? John D. Rockefeller (left) and Andrew Carnegie (right) were the wealthiest Americans who ever lived. John D. Rockefeller had wealth valued at \$200 billion in today's dollars (Bill Gates' estimated worth is about \$50 billion), and Andrew Carnegie had wealth valued at \$100 billion in today's dollars. But were they richer than you? Look what long-run economic growth has done for you. Rockefeller and Carnegie could not travel by air, ride in a car, turn on an air conditioner on a hot and humid day, watch HDTV, text message their friends, download music, or use Facebook, Skype, or Twitter. And medicine was far less advanced. Improvements in

Rockefeller: (1839–1937)



© PICTORIAL PRESS LTD/ALAMY

Carnegie: (1835–1919)



© ARCHIVE PICS/ALAMY

medical technology and sanitation have increased life expectancies about 50 percent since their day.

Because of differences in growth rates, some countries will become richer than others over time. If they achieve relatively slower rates of economic growth, today's richest countries will not remain the richest over time. And with even slight improvements in economic growth, today's poorest countries will not remain poor for long. China and India have both experienced spectacular economic growth over the past 20 years. Because of this economic growth, much of the world is now poorer than these two heavily populated countries. Other countries, such as Ireland, once one of the poorest countries in Western Europe, is now one of the richest. Because of past economic growth, the "richest" or "most-developed" countries today have many times the market output of the "poorest" or "least-developed" countries.

Economic Growth, Productivity, and the Standard of Living

The only way an economy can increase its rate of consumption in the long run is by increasing the amount it produces. Whether a country's standard of living rises, levels off, or declines over time depends for the most part on productivity growth. **Productivity** is the amount of goods and services a worker can produce per hour. Sustained economic growth occurs when workers' productivity rises. For example, slow growth of capital investment can lead to slower growth in labor productivity and, consequently, slower growth rates in real wages. On the other hand, increases in productivity and the associated higher real wages can be the result of carefully crafted economic policies, such as tax policies that stimulate investment or programs that encourage research and development. The only way an economy can increase its rate of consumption in the long run is by increasing the amount it produces.

Productivity
output per worker

Saving and investment are critical components of long-run economic growth and living standards. Families save for many things, including housing, medical expenses, taxes, retirement, children's education, vacations, automobiles, and so on. When money is saved in a bank or other financial institution, this money will earn interest because those savings are loaned to firms. An interest rate is the price of money that is borrowed or saved and is determined by the interaction of supply and demand. Higher real (that is, adjusted for inflation) interest rates provide an incentive for people to save more and borrow less. Lower real interest rates provide an incentive for people to borrow more and save less. Thus, higher (real) interest rates reduce investment spending by firms and household spending on housing cars and other major purchases.

When firms invest in new production techniques, new capital (machines and factories), and new technology, it makes labor more productive, which in turn leads to increases in incomes and living standards. Of course, investing in new physical or human capital involves a trade-off—giving up consumption today in anticipation of greater future production and consumption. For example, college is expensive but you hope the future payoff from this investment in human capital will lead to greater consumption and production in the future.

What Factors Contribute to Increases in Productivity?

There are a number of major factors that contribute to productivity growth. These include physical capital, human capital, natural resources, technological change as well as improvements in economic institutions and incentives. Today's workers generally produce more output than workers in the past. And workers in some countries, like the United States, generally produce more output than workers in most other countries. Workers with higher productivity usually have more physical capital to work with, like buildings and computers, are more educated, and have benefited from tremendous technological advancements.

Rate of productivity growth will be higher in countries that provide incentives for innovation, investment in research and development, and physical and human capital. These incentives can be in the form of copyrights or patents.

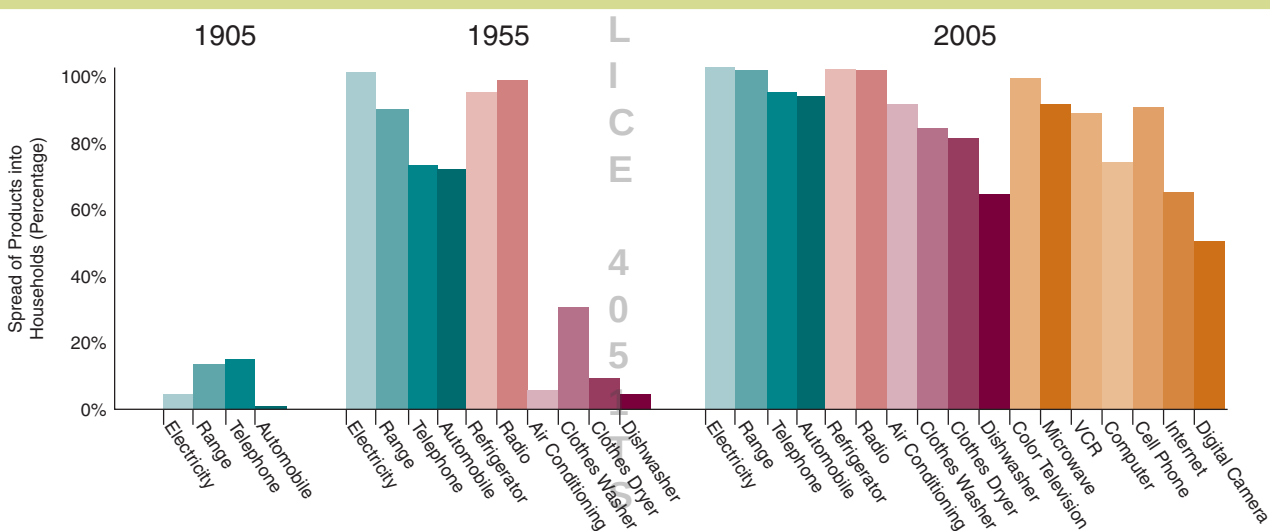
in the news Results of Long-Run Economic Growth

The American economy is in a rough patch. But the long-term trends are good—and there is a price to economic pessimism. When a presidential election year collides with iffy economic times, the public's view of the U.S. economy turns gloomy. Perspective shrinks in favor of short-term assessments that focus on such unpleasant realities as falling job counts, sluggish GDP growth, uncertain incomes, subprime mortgage woes, and wobbly financial markets.

Taken together, it's enough to shake our faith in American progress. The best path to reviving that faith lies in gaining some perspective—getting out of the short-term rut—casting off the blinders that focus us on what will turn out to be mere footnotes in a longer-term march of progress. . . . In the exhibit you can see what many goods Americans can now afford because of long-run economic growth.

SOURCE: W. Michael Cox and Richard Alm, "How Are We Doing?" *The American*, July/August 2008.

The Results of Long-Run Economic Growth



SECTION QUIZ



1. Economic growth is measured by
 - a. the percentage change in nominal GDP.
 - b. the percentage change in nominal GDP per capita.
 - c. the percentage change in real GDP.
 - d. the percentage change in real GDP per capita.
2. Growth in real per capita output
 - a. says nothing about the distribution of output.
 - b. has been far more common in the last 200 years than before.
 - c. can make poorer countries richer over time.
 - d. All of the above are true.
3. Productivity growth
 - a. is a primary determinant of a country's standard of living.
 - b. is a primary cause of growth in real wages.
 - c. is the only way in the long run for an economy to increase its potential real consumption per capita over time.
 - d. is crucially affected by saving and investment over time.
 - e. All of the above are true.
4. Which of the following can add to productivity growth?
 - a. physical capital
 - b. human capital
 - c. discovery of new natural resources
 - d. technological advances
 - e. All of the above can add to productivity growth.

-
1. What is long-run economic growth, and why do we use a per capita measure?
 2. Why is economic growth important?
 3. Do small differences in growth rates matter?
 4. What is labor productivity?
 5. What role do saving and investment have in economic growth?
 6. What factors lead to increases in labor productivity?

Answers: 1. d 2. d 3. e 4. e

Fill in the blanks:

1. As long as human _____ exceed available _____, scarcity will exist.
2. Something may be rare, but if it is not _____ it is not scarce.
3. The scarce resources that are used in the production of goods and services can be grouped into four categories: _____, _____, _____, and _____.
4. Capital includes human capital, the _____ people receive from _____.

Interactive Summary

5. Entrepreneurs are always looking for new ways to improve _____ or _____. They are lured by the chance of making a(n) _____.
6. _____ goods include fairness, friendship, knowledge, security, and health.
7. _____ are intangible items of value, such as education, provided to consumers.
8. Scarce goods created from scarce resources are called _____ goods.
9. Scarcity ultimately leads to _____ for the available goods and services.
10. Because we all have different _____, scarcity affects everyone differently.
11. Economics is the study of the choices we make among our many _____ and _____.
12. In a world of scarcity, we all face _____.
13. The highest or best forgone alternative resulting from a decision is called the _____.
14. The cost of grocery shopping is the _____ paid for the goods plus the _____ costs incurred.
15. Many choices involve _____ of something to do rather than whether to do something.
16. Economists emphasize _____ thinking because the focus is on additional, or _____, choices, which involve the effects of _____ or _____ the current situation.
17. The rule of rational choice is that in trying to make themselves better off, people alter their behavior if the _____ to them from doing so outweigh the _____ they will bear.
18. In acting rationally, people respond to _____.
19. If the benefits of some activity _____ and/or if the costs _____, economists expect the amount of that activity to rise. Economists call these _____ incentives. Likewise, if the benefits of some activity _____ and/or if the costs _____, economists expect the amount of that activity to fall. Economists call these _____ incentives.
20. Because most people seek opportunities that make them better off, we can _____ what will happen when incentives are _____.
21. People _____ by concentrating their energies on the activity to which they are best suited because individuals incur _____ opportunity costs as a result.
22. If a person, a region, or a country can produce a good or service at a lower opportunity cost than others can, we say that they have a(n) _____ in the production of that good or service.
23. The primary advantages of specialization are that employees acquire greater _____ from repetition, they avoid _____ time in shifting from one task to another, and they do the types of work for which they are _____ suited.
24. We trade with others because it frees up time and resources to do other things we do _____.
25. Produce what we do _____ best and _____ for the _____.
26. Market prices serve as the _____ of the market system. They communicate information about the _____ to buyers, and they provide sellers with critical information about the _____ that buyers place on those products. This communication results in a shifting of resources from those uses that are _____ valued to those that are _____ valued.
27. The basis of a market economy is _____ exchange and the _____ system that guides people's choices regarding what goods to produce and how to produce those goods and distribute them.
28. _____ can lead the economy to fail to allocate resources efficiently, as in the cases of pollution and scientific research.
29. Sometimes a painful trade-off exists between how much an economy can produce _____ and how that output is _____.
30. In the case of market _____, appropriate government policies could improve on market outcomes.
31. Sometimes total spending is insufficient, and _____ occurs.
32. Sometimes total spending is excessive, and _____ occurs.
33. A stable _____ environment can lead to price stability.
34. Government policies called _____ policy use taxes and government spending to try to help stabilize the economy.
35. The Federal Reserve can use _____ policy to change the money supply and interest rates in an effort to achieve price stability, high employment, and economic growth.

36. The only way an economy can increase its rate of consumption in the long run is by increasing the amount it _____.
37. Whether a country's living standard of living rises, levels off, or declines over time depends for the most part on _____ growth.
38. _____ is the amount of goods and services a worker can produce per hour and _____ economic growth occurs when workers' productivity rises.

Answers: 1. wants; resources 2. desirable 3. land; labor; capital; entrepreneurship 4. knowledge and skill; education and on-the-job training 5. production techniques; products; profit 6. intangible 7. services 8. economic 9. competition 10. wants and desires 11. wants; desires 12. trade-offs 13. opportunity cost 14. price; nonprice 15. how much 16. marginal; marginal; adding to; subtracting from 17. expected marginal benefits; expected marginal costs 18. incentives 19. rise; fall; positive; fall; rise; negative 20. predict; changed 21. specialize; lower 22. comparative advantage 23. skill; wasted; best 24. better 25. relatively; trade; rest 26. languages; relative availability of products; relative value; less; more 27. voluntary; price 28. Market failure 29. efficiency; distributed 30. failure 31. unemployment 32. inflation 33. monetary 34. fiscal 35. monetary 36. produces 37. productivity 38. productivity; sustained

Key Terms and Concepts

scarcity 35
labor 36
land 36
capital 36
human capital 36
entrepreneurship 36
goods 36
tangible goods 36
intangible goods 36

services 36
economic goods 37
bads 37
opportunity cost 39
rational decision making 43
marginal thinking 43
rule of rational choice 43
net benefit 44
positive incentive 46

negative incentive 47
specializing 48
comparative advantage 48
efficiency 52
price controls 53
market failure 54
economic growth 60
productivity 61

Section Quiz Answers

2.1 IDEA 1: People Face Scarcity and Costly Trade-offs

1. What must be true for something to be an economic good?

An economic good, tangible or intangible, is any good or service that we value or desire. This definition includes the reduction of things we don't want—bads—as a good.

2. Why does scarcity affect everyone?

Because no one can have all the goods and services that he or she desires, we all face scarcity as a fact of life.

3. How and why does scarcity affect each of us differently?

Because our desires and the extent of the resources we have available to meet those desires vary, scarcity affects each of us differently.

4. Why might daylight be scarce in Anchorage, Alaska, in the winter but not in the summer?

For a good to be scarce means we want more of it than we are able to have. Residents of Anchorage typically have all the daylight they wish in the summer, when the sun sets just before midnight, but they have only a few hours of daylight during the winter months. If daylight is desirable, it is limited in the winter.

5. Would we have to make choices if we had unlimited resources?

We would not have to make choices if we had unlimited resources, because we would then be able to produce all the goods and services anyone wanted, and having more of one thing would not require having less of other goods or services.

6. What do we mean by opportunity cost?

The opportunity cost of a choice is the highest valued forgone opportunity resulting from a decision. It can usefully be thought of as the value of the opportunity a person would have chosen if his most preferred option was taken away from him.

7. Why was the opportunity cost of going to college higher for LeBron James (Miami Heat star) than for most undergraduates?

The forgone alternative to LeBron James of going to college—starting a highly paid professional basketball career sooner than he could otherwise—was far more lucrative than the alternatives facing most undergraduates. Because his forgone alternative was more valuable for LeBron James, his opportunity cost of going to college was higher than for most.

8. Why is the opportunity cost of time spent getting an MBA typically lower for a 22-year-old straight out of college than for a 45-year-old experienced manager?

The opportunity cost of time for a 45-year-old experienced manager—the earnings he would have to give up to spend a given period getting an MBA—is higher than that of a 22-year-old straight out of college, whose income earning alternatives are far less.

2.2 IDEA 2: People Engage in Rational Decision Making and Marginal Thinking

1. What are marginal choices? Why does economics focus on them?

Marginal choices are choices of how much of something to do, rather than whether to do something. Economics focuses on marginal choices because those are the sorts of choices we usually face: Should I do a little more of this or a little less of that?

2. What is the rule of rational choice?

The rule of rational choice is that in trying to make themselves better off, people alter their behavior if the expected marginal benefits from doing so outweigh the expected marginal costs they will bear. If

the expected marginal benefits of an action exceed the expected marginal costs, a person will do more of that action; if the expected marginal benefits of an action are less than the expected marginal costs, a person will do less of that action.

3. How could the rule of rational choice be expressed in terms of net benefits?

Because net benefits are expected to be positive when expected marginal benefits exceed expected marginal cost to the decision maker, the rule of rational choice could be restated as: People will make choices for which net benefits are expected to be positive.

4. Why does rational choice involve expectations?

Because the world is uncertain in many important respects, we can seldom know for certain whether the marginal benefits of an action will in fact exceed the marginal costs. Therefore, the rule of rational choice deals with expectations decision makers hold at the time they make their decisions, recognizing that mistakes can be made.

5. What is rational decision making?

Rational decision making is when people do the best they can based on their values and information, under current and anticipated future consequences. Rational individuals weigh the marginal benefits and marginal costs of their actions and they only pursue actions if they perceive the marginal benefits to be greater than the marginal costs.

6. Why do students often stop taking lecture notes when a professor announces that the next few minutes of material will not be on any future test or assignment?

The benefit, in terms of grades, from taking notes in class falls when the material discussed will not be tested or “rewarded,” and when the benefits of lecture note taking are smaller in this situation, students do less of it.

7. If you decide to speed to get to a doctor's appointment and then get in an accident due to speeding, does your decision to speed invalidate the rule of rational choice? Why or why not?

No. Remember, the rule of rational choice deals with expectations at the time decisions were made. If you thought you would get in an accident due to speeding in this situation, you would not have decided to speed. The fact that you got in an accident doesn't invalidate the rule of rational choice; it only means your expectations at the time you decided to speed were incorrect.

8. If pedestrians felt far safer using crosswalks to cross the street, how could adding crosswalks increase the number of pedestrian accidents?

Just like safer cars can lead people to drive less safely, if pedestrians felt safer in crosswalks, they might cross less safely, such as taking less care to look both ways. The result of pedestrians taking less care may well be an increase in the number of pedestrian accidents.

9. Imagine driving a car with daggers sticking out of the steering wheel—pointing directly at your chest. Would you drive more safely? Why?

Because the cost to you of an accident would be so much higher in this case, you would drive far more safely as a result.

2.3 IDEA 3: People Respond Predictably to Changes in Incentives

1. What is the difference between positive incentives and negative incentives?

Positive incentives are those that either increase benefits or decrease costs of an action, encouraging the action; negative incentives are those that either decrease benefits or increase costs of an action, discouraging the action.

2. According to the rule of rational choice, would you do more or less of something if its expected marginal benefits increased? Why?

You would do more of something if its expected marginal benefits increased, because then the marginal expected benefits would exceed the marginal expected costs for more “units” of the relevant action.

3. According to the rule of rational choice, would you do more or less of something if its expected marginal costs increased? Why?

You would do less of something if its expected marginal costs increased, because then the marginal expected benefits would exceed the marginal expected costs for fewer “units” of the relevant action.

4. How does the rule of rational choice imply that young children are typically more likely to misbehave at a supermarket checkout counter than at home?

When a young child is at a supermarket checkout counter, the benefit of misbehaving—the potential

payoff to pestering Mom or Dad for candy—is greater. Also, because his parents are less likely to punish him, or to punish him as severely, in public as in private when he pesters them, the costs are lower as well. The benefits of misbehavior are higher and the costs are lower at a supermarket checkout counter, so more child misbehavior is to be expected there.

5. Why do many parents refuse to let their children have dessert before they eat the rest of their dinner?

Children often find that the costs of eating many foods at dinner exceed the benefits (e.g., “If it’s green, it must be disgusting.”), but that is seldom so of dessert. If parents let their children eat dessert first, children would often not eat the food that was “good for them.” But by adding the benefit of getting dessert to the choice of eating their other food, parents can often get their children to eat the rest of their dinner, too.

2.4 IDEA 4: Specialization and Trade Can Make Everyone Better Off

1. Why do people specialize?

People specialize because by concentrating their energies on the activities to which they are best suited, individuals incur lower opportunity costs. That is, they specialize in doing those things they can do at lower opportunity costs than others, and let others who can do other things at lower opportunity costs than they can specialize in doing them.

2. What do we mean by comparative advantage?

A person, region, or country has a comparative advantage in producing a good or service when it can produce it at a lower opportunity cost than other persons, regions, or countries.

3. Why does the combination of specialization and trade make us better off?

Trade increases wealth by allowing a person, region, or a nation to specialize in those products that it produces relatively better than others and to trade for those products that others produce relatively better than they do. Exploiting our comparative advantages, and then trading, allows us to produce, and therefore consume, more than we could otherwise from our scarce resources.

4. If you can mow your lawn in half the time it takes your spouse or housemate to do it, do you have a comparative advantage in mowing the lawn?

Your faster speed at mowing the lawn does not establish that you have a comparative advantage in

mowing. That can only be established relative to other tasks. The person with a comparative advantage in mowing lawns is the one with the lowest opportunity cost, and that could be your spouse or housemate in this case. For instance, if you could earn \$12 an hour, mowing the lawn in half an hour implies an opportunity cost of \$6 of forgone output elsewhere. If your spouse or housemate could only earn \$5 per hour (because he or she was less than half as productive doing other things compared to you), the opportunity cost of that person mowing the lawn in an hour is \$5. In this case, your spouse or housemate has a comparative advantage in mowing the lawn.

5. If you have a current comparative advantage in doing the dishes, and you then become far more productive than before in completing yard chores, could that eliminate your comparative advantage? Why or why not?

The opportunity cost of you doing the dishes is the value of other chores you must give up to do the dishes. Therefore, an increase in your productivity doing yard chores would increase the opportunity cost of doing the dishes, and could well eliminate your current comparative advantage in doing the dishes compared to other members of your family.

6. Could a student who gets a C in one class but a D or worse in everything else have a comparative advantage over someone who gets a B in that class but an A in everything else? Explain this concept using opportunity cost.

A student who gets a C in a class is less good, in an absolute sense, at that class than a student who gets a B in it. But if the C student gets Ds in other classes, he is relatively, or comparatively, better at the C class, while if the B student gets As in other classes, she is relatively, or comparatively, worse at that class.

2.5 IDEA 5: Markets Can Improve Economic Efficiency

1. Why must every society choose some manner in which to allocate its scarce resources?

Every society must choose some manner in which to allocate its scarce resources because the collective wants of its members always far outweigh what the scarce resources nature has provided can produce.

2. How does a market system allocate resources?

A market system allows individuals, both as producers and consumers, to indicate their wants and desires through their actions—how much they are willing to buy or sell at various prices. The market then acts to bring about that level of prices that allows buyers and sellers to coordinate their plans.

3. What do market prices communicate to others in society?

The prices charged by suppliers communicate the relative availability of products to consumers; the prices consumers are willing to pay communicate the relative value consumers place on products to producers. That is, market prices provide a way for both consumers and suppliers to communicate about the relative value of resources.

4. How do price controls undermine the market as a communication device?

Price controls—both price floors and price ceilings—prevent the market from communicating relevant information between consumers and suppliers. A price floor set above the market price prevents suppliers from communicating their willingness to sell for less to consumers. A price ceiling set below the market price prevents consumers from indicating their willingness to pay more to suppliers.

5. Why can markets sometimes fail to allocate resources efficiently?

Markets can sometimes fail to allocate resources efficiently. Such situations, called market failures, represent situations such as externalities, where costs can be imposed on some individuals without their consent (e.g., from dumping “crud” in their air or water), where information in the market may not be communicated honestly and accurately, and where firms may have market power to distort prices in their favor (against consumers’ interests).

2.6 IDEA 6: Appropriate Government Policies Can Improve Market Outcomes

1. Why must every society choose some manner in which to allocate its scarce resources?

Every society must choose some manner in which to allocate its scarce resources because the collective wants of its members always far outweigh what the scarce resources that nature has provided can produce.

2. How does a market system allocate resources?

A market system allows individuals, both as producers and consumers, to indicate their wants and desires through their actions—how much they are willing to buy or sell at various prices. The market then acts to bring about that level of prices that allows buyers and sellers to coordinate their plans.

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The prices charged by suppliers communicate the relative availability of products to consumers; the prices consumers are willing to pay communicate the relative value consumers place on products to producers. That is, market prices provide a way for both consumers and suppliers to communicate about the relative value of resources.

2.7 IDEA 7: Government Policies May Help Stabilize the Economy

1. What is inflation?

Inflation is an increase in the overall price level in the economy.

2. What causes inflation?

Sustained inflation is usually caused by government printing too much money. When the government prints too much money, money loses its value. The high inflation of the 1970s was associated with rapid growth in the quantity of money and the recent low inflation rates have been associated with slow growth in the quantity of money.

3. Why is a stable monetary environment so important?

A stable monetary environment can lead to price stability and enable producers and consumers to better coordinate their plans and decisions through the market. Inflation can redistribute income randomly. An increase in the overall price level increases burdens on people with fixed incomes when the inflation is not anticipated. Unanticipated inflation hurts savers, but helps those who have borrowed at a fixed rate. Also, inflation can raise one nation's prices relative to prices in other countries, which will either lead to difficulties in financing purchase of foreign goods or to a decline in the value of the national currency relative to that of other countries.

4. What was the Employment Act of 1946?

Answer: The passage of the Employment Act of 1946 committed the government to “promote

maximum employment, production, and purchasing power.” The act also implied that the government should respond to fluctuations in the economy through the use of stabilization policies.

5. What government policy changes might be effective in increasing employment in recessions?

Government policies to stimulate the economy, such as decreasing taxes or increasing government purchases, could potentially increase employment in recessions.

6. What government policy changes might be effective in controlling inflation?

Government policies to control inflation can include increasing taxes, decreasing government purchases, and reducing the growth in the money supply through the banking system.

2.8 IDEA 8: Higher Productivity Growth Leads to Greater Long-Run Economic Growth

1. What is long-run economic growth and why do we use a per capita measure?

Economic growth is usually measured by the annual percentage change in real output of goods and services per capita (real GDP per capita), reflecting the expansion of the economy over time. We focus on per capita because we want to isolate the effect of increased population on economic growth.

2. Why is economic growth important?

Because of increases in economic growth, the people of the world are better fed, better sheltered, and better protected against disease. Global life expectancies have risen despite increases in population.

3. Do small differences in growth rates matter?

Because of differences in growth rates, over time some countries will become richer than others. With relatively slower economic growth, today's richest countries will not be the richest for very long. On the other hand, with even slight improvements in economic growth, today's poorest countries will not remain poor for long.

4. What is labor productivity?

Whether a country's living standard rises, levels off, or declines over time depends for the most part on

productivity growth. For example, slow growth of capital investment can lead to lower labor productivity and, consequently, lower wages. On the other hand, increases in productivity and higher wages can occur as a result of carefully crafted economic policies, such as tax policies that stimulate investment or programs that encourage research and development. The only way an economy can increase its rate of consumption in the long run is by increasing the amount it produces.

5. What role do saving and investment have in economic growth?

Saving and investment are critical components of long-run economic growth and living standards. When money is put in a savings account in a bank or other financial institution, that money will earn interest because those savings are loaned to firms. An interest rate is the price of money that is borrowed or saved and is determined by the interaction of supply and demand. Higher real (that is, adjusted for inflation) rates provide an incentive

for people to save more and borrow less. Lower real interest rates provide an incentive for people to borrow more and save less. Thus, higher (real) interest rates reduce investment spending by firms and household spending on housing cars and other major purchases.

6. What factors lead to increases in labor productivity?

Labor productivity increases as firms invest in new production techniques, acquire new capital (machines and factories), and incorporate new technology. This makes labor more productive leading to increases in incomes and living standards. Of course, investing in new physical or human capital involves a trade-off—giving up consumption today in anticipation of greater future production and consumption. There are five major factors that contribute to growth in productivity. These include physical capital, human capital, natural resources, technological change, and improvements in economic institutions and incentives.

Problems

- Which of the following goods are scarce?
 - garbage
 - salt water in the ocean
 - clothes
 - clean air in a big city
 - dirty air in a big city
 - a public library
- Explain the difference between poverty and scarcity.
- The automotive revolution after World War II reduced the time involved for travel and shipping goods. This innovation allowed the U.S. economy to produce more goods and services since it freed resources involved in transportation for other uses. The transportation revolution also increased wants. Identify two ways the car and truck revealed new wants.
- The price of a one-way bus trip from Los Angeles to New York City is \$150.00. Sarah, a school teacher, pays the same price in February (during the school year) as in July (during her vacation), so the cost is the same in February as in July. Do you agree?
- McDonald's once ran a promotion that whenever St. Louis Cardinal's slugger Mark McGwire hit a home run into the upper deck at Busch Stadium, McDonald's gave anyone with a ticket to that day's game a free Big Mac. If holders of ticket stubs have to stand in line for 10 minutes, is the Big Mac really "free"?
- List some things that you need. Then ask yourself if you would still want some of those things if the price were five times higher. Would you still want them if the price were 10 times higher?
- List the opportunity costs of the following:
 - going to college
 - missing a lecture
 - withdrawing and spending \$100 from your savings account, which earns 5 percent interest annually
 - going snowboarding on the weekend before final examinations

8. Which of the following activities require marginal thinking, and why?
 - a. studying
 - b. eating
 - c. driving
 - d. shopping
 - e. getting ready for a night out
9. Should you go to the movies this Friday? List the factors that affect the possible benefits and costs of this decision. Explain where uncertainty affects the benefits and costs.
10. Explain why following the rule of rational choice makes a person better off.
11. Which of the following are positive incentives? Negative incentives? Why?
 - a. a fine for not cleaning up after your dog defecates in the park
 - b. a trip to Hawaii paid for by your parents or significant other for earning an A in your economics course
 - c. a higher tax on cigarettes and alcohol
 - d. a subsidy for installing solar panels on your house
12. Modern medicine has made organ transplants a common occurrence, yet the number of organs that people want far exceeds the available supply. According to CNN, 10 people die each day because of a lack of transplantable organs like kidneys and livers. Some economists have recommended that an organ market be established through which doctors and others could pay people for the right to use their organs when they die. The law currently forbids the sale of organs. What do you think of such a proposal? What kind of incentives would an organ market provide for people to allow others to use their organs? What would happen to the supply of organs if, instead of relying on donated kidneys, livers, and retinas, doctors and hospitals could bid for them? What drawbacks would a free market in organs have? Have you made arrangements to leave your organs to your local organ bank? Would you do so if you could receive \$50,000 for them?
13. Throughout history, many countries have chosen the path of autarky, choosing to not trade with other countries. Explain why this path would make a country poorer.
14. Farmer Fran can grow soybeans and corn. She can grow 50 bushels of soybeans or 100 bushels of corn on an acre of her land for the same cost. The price of soybeans is \$1.50 per bushel and the price of corn is \$0.60 per bushel. Show the benefits to Fran of specialization. What should she specialize in?
15. Which region has a comparative advantage in the following goods:
 - a. wheat: Colombia or the United States?
 - b. coffee: Colombia or the United States?
 - d. timber: Iowa or Washington?
 - e. corn: Iowa or Washington?
16. Why is it important that the country or region with the lower opportunity cost produce the good? How would you use the concept of comparative advantage to argue for reducing restrictions on trade between countries?
17. People communicate with each other in the market through the effect their decisions to buy or sell have on prices. Indicate how each of the following would affect prices by putting a check in the appropriate space.
 - a. People who see an energetic and lovable Jack Russell Terrier in a popular TV series want Jack Russell Terriers as pets. The price of Jack Russell Terriers _____ Rises _____ Falls
 - b. Aging retirees flock to Tampa, Florida, to live. The price of housing in Tampa _____ Rises _____ Falls
 - c. Weather-related crop failures in Colombia and Costa Rica reduce coffee supplies. The price of coffee _____ Rises _____ Falls
 - d. Sugarcane fields in Hawaii and Louisiana are replaced with housing. The price of sugar _____ Rises _____ Falls
 - e. More and more students graduate from U.S. medical schools. The wages of U.S. doctors _____ Rise _____ Fall
 - f. Americans are driving more, and they are driving bigger, gas-guzzling cars like sport utility vehicles. The price of gasoline _____ Rises _____ Falls

18. Prices communicate information about the relative value of resources. Which of the following would cause the relative value and, hence, the price of potatoes to rise?
- Fungus infestation wipes out half the Idaho potato crop.
 - The price of potato chips rises.
 - Scientists find that eating potato chips makes you better looking.
 - The prices of wheat, rice, and other potato substitutes fall dramatically.
19. Imagine that you are trying to decide whether to cross a street without using the designated crosswalk at the traffic signal. What are the expected marginal benefits of crossing? The expected marginal costs? How would the following conditions change your benefit–cost equation?
- The street was busy.
 - The street was empty, and it was 3 A.M.
 - You were in a huge hurry.
 - A police officer was standing 100 feet away.
 - The closest crosswalk was a mile away.
 - The closest crosswalk was 10 feet away.

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Scarcity, Trade-Offs, and Production Possibilities

- 3.1 The Three Economic Questions Every Society Faces
- 3.2 The Circular Flow Model
- 3.3 The Production Possibilities Curve
- 3.4 Economic Growth and the Production Possibilities Curve

Goods and services can be distributed many different

ways: prices, first come/first served, random selection (like a lottery), majority rule, according to need, equal shares, and so on. Each method has advantages and disadvantages. What are the benefits and costs of different allocative systems?

Some methods of resource allocation might seem bad and counterproductive; physical violence has been used since the beginning of time, as people, regions, and countries attacked one another to gain control over resources.

We could argue that government should allocate scarce resources on the basis of equal shares or according to need. However, this approach

VIVIANE MOOS/CORBIS



poses problems because of diverse individual preferences, the difficulty of ascertaining needs, and the negative work and investment incentives involved. In command economies, resource allocation is determined by central planners rather than in the market. Consequently, the planners do not get markets signals regarding consumers' preferences and producers' costs, and shortages and surpluses ensue. When prices are used to allocate resources, the seller produces something a consumer wants and takes the money from the sale and buys what she wants. If something other than price is used, say force, what incentive does a producer have to produce the good, if she knows it can be taken from her? People will not produce as much in this kind of world. Incentives matter. For many goods and services, consumers wait in line—called queuing. This is another way to distribute goods and services. People routinely queue at concerts or sporting events, to purchase groceries, to mail a parcel at the post office, to use a public toilet at a ball game, or to enter a congested highway. What are the costs of waiting in line?

Most queuing problems can be resolved by the market if people are willing to pay a higher price. For example, what if your grocery store charged you 5 percent to use the express lane, donating the express fee to charity? Or what if a store had a “discount line” that gave you coupons for waiting longer in line? However, the question remains, how do you create a system that simultaneously satisfies concerns about efficiency, time, money, and fairness?

This chapter builds on the foundations of the preceding chapters. We have learned that we have unlimited wants and limited resources—that is, we all face scarcity. And scarcity forces us to choose. To get one thing we like, we usually have to give up something else we want—that is, people face trade-offs. Recognizing these trade-offs will allow us to make better decisions.

Every economy must transform the resources that nature provides into goods and services. Economics is the study of that process. This chapter begins with a discussion of how every economy must respond to three fundamental questions: What goods and services will be produced? How will the goods and services be produced? Who will get the goods and services?

In this chapter, we introduce our first economic models: the circular flow model and the production possibilities curve. In the circular flow model, we show how decisions made by households and firms interact with each other. Our second model, the production possibilities curve, illustrates many of the most important concepts in economics: scarcity, trade-offs, increasing opportunity costs, efficiency, investment in capital goods, and economic growth.

3.1

The Three Economic Questions Every Society Faces

What goods and services will be produced?

Who will get the goods and services?

How will the goods and services be produced?

The Three Economic Questions

Because of scarcity, certain economic questions must be answered, regardless of a society's level of affluence or its political structure. We will consider three fundamental questions that every society inevitably faces: (1) What goods and services will be produced? (2) How will the goods and services be produced? (3) Who will get the goods and services produced? These questions are unavoidable in a world of scarcity.



If producers decide what to produce in a market economy, why do we describe it as consumer sovereignty?

What Goods and Services Will Be Produced?

How do individuals control production decisions in market-oriented economies? Questions arise such as whether society should produce more baseball stadiums or more schools. Should Apple produce more iPhones or laptops? The government has a limited budget, too, and must make choices on how much to spend on defense, health care, highways, and education. In short, consumers, firms, and governments must all make choices about what goods and services will be produced and each one of those decisions has an opportunity cost—the highest valued alternative forgone. In the marketplace, the answer to these and other similar questions is that people “vote” in economic affairs with their dollars (or pounds or yen). This concept is called **consumer sovereignty**. Consumer sovereignty explains how individual consumers in market economies determine what continues to be produced.

High-definition televisions, DVD players, cell phones, iPods, camcorders, and computers, for example, became part of our lives because consumers “voted” hundreds of dollars apiece on these goods. Consumers “voted” fewer dollars on regular color televisions and more on high definition televisions. Similarly, vinyl record albums gave way to tapes, CDs to downloadable music, as consumers voted for these items with their dollars. If consumers vote for more fuel efficient cars and healthier foods, then firms that wish to remain profitable must listen and respond.

How Different Types of Economic Systems Answer the Question “What Goods and Services Will Be Produced?”

Economies are organized in different ways to answer the question of what is to be produced. The dispute over the best way to answer this question has inflamed passions for centuries. Should a central planning board make the decisions, as in North Korea and Cuba? Sometimes this highly centralized economic system is referred to as a **command economy**. Under this type of regime, decisions about how many tractors or automobiles to produce are largely determined by a government official or committee associated with the central planning organization. That same group decides on the number and size of school buildings, refrigerators, shoes, and so on. Other countries, including the United States, much of Europe, and increasingly, Asia and elsewhere have largely adopted a decentralized decision-making process where literally millions of individual producers and consumers of goods and services determine what goods, and how many of them, will be produced. A country that uses such a decentralized decision-making process is often said to have a **market economy**. Actually, no nation has a pure market economy. The United States, along with most countries, is said to have a **mixed economy**. In such an economy, the government and the private sector together determine the allocation of resources.

How Will the Goods and Services Be Produced?

All economies, regardless of their political structure, must decide how to produce the goods and services that they want—because of scarcity. Goods and services can



How do we decide which colors and options to include with these cars?

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consumer sovereignty

consumers vote with their dollars in a market economy; this accounts for what is produced

command economy

an economy in which the government uses central planning to coordinate most economic activities

market economy

an economy that allocates goods and services through the private decisions of consumers, input suppliers, and firms

mixed economy

an economy where government and the private sector determine the allocation of resources



Consumers say no to some new products. If consumers do not like a product, like the Ford Edsel above, it becomes unprofitable and will eventually disappear. Sometimes they become collector's items years later.

04/ZUMA PRESS/NEWSCOM



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Which transplant patient should receive the available kidney?
What are benefits and costs of different allocative systems?

labor intensive

production that uses a large amount of labor

capital intensive

production that uses a large amount of capital

generally be produced in several ways. Firms may face a trade-off between using more machines or more workers. For example, a company might decide to move its production to a plant in another country that uses more workers and fewer machines.

A ditch can be dug by many workers using their hands, by a few workers with shovels, or by one person with a backhoe. Someone must decide which method is most appropriate. From this example, you might be tempted to conclude that it is desirable to use the biggest, most elaborate form of capital. But would you really want to plant your spring flowers with huge earthmoving machinery? That is, the most capital-intensive method of production may not always be the best. The best method is the least-cost method.

What Is the Best Form of Production?

The best or “optimal” form of production will usually vary from one economy to the next. For example, earthmoving machinery is used in digging large ditches in the United States and Europe, while in developing countries, shovels are often used. Why do these optimal forms of production vary? Compared with capital, labor is relatively inexpensive and plentiful in developing countries but relatively scarce and expensive in the United States. In contrast, capital (machines and tools, mainly) is comparatively plentiful and relatively inexpensive in the United States but scarcer and more costly in developing countries. That is, in developing countries, production tends to be more **labor intensive**, or labor driven. In the United States, production tends to be more **capital intensive**, or capital driven. Each nation tends to use the production processes that conserve its relatively scarce (and thus relatively more expensive) resources and use more of its relatively abundant resources.

Who Will Get the Goods and Services Produced?

In every society, some mechanism must exist to determine how goods and services are to be distributed among the population. Who gets what? Why do some people get to consume or use far more goods and services than others? This question of distribution is so important

Use

what you've learned

Market Signals

Q Adam was a college graduate with a major in art. A few years ago, Adam decided that he wanted to pursue a vocation that utilized his talent. In response, he shut himself up in his studio and created a watercolor collection. With high hopes, Adam put his collection on display for buyers. After several years of displaying his art, however, the only one interested in the collection was his 18-year-old sister, who wanted the picture frames for her room. Recognizing that Adam was having trouble pursuing his chosen occupation, Adam's friend Karl told him that the market had failed. In the meantime, Adam turned to house painting (interior and

exterior) and business was booming. Adam hired five workers and would often be painting all day and into the evenings and weekends. Do you think the market has failed?

A No. Markets provide important signals, and the signal being sent in this situation is that Adam should look for some other means of support—something that society values. Remember the function of consumer sovereignty in the marketplace. Clearly, consumers were not voting for Adam's art. The market seems to be telling Adam: less painting on canvas and more painting on walls, doors, and trim.

that wars and revolutions have been fought over it. Both the French and Russian revolutions were concerned fundamentally with the distribution of goods and services. Even in societies where political questions are usually settled peacefully, the question of the distribution of income is an issue that always arouses strong emotional responses. As we will see, in a market economy with private ownership and control of the means of production, the amounts of goods and services an individual can obtain depend on her or his income. Income, in turn, will depend on the quantity and quality of the scarce resources the individual controls. Income is also determined by the price others are willing and able to pay for what you have to sell. If you are a medical doctor and make \$300,000 a year, that is income you will have available to buy goods and services. If you also own a condominium you rent out in Aspen, Colorado, you will have an even greater amount of income to spend on goods and services. Markets reward education, hard work, and training. Education (years of schooling) and earnings are highly (positively) correlated. Oprah Winfrey made a lot of money because she had unique and marketable skills as a talk show host. This basis for distribution may or may not be viewed as “fair,” an issue we will look at in detail later in this book.



In a market economy, who decides what and how much to produce?

Castaway and Resource Allocation

In the movie *Cast Away*, a plane crash leaves Chuck Noland (Tom Hanks) stranded on a deserted island, as in the classic 18th century novel *Robinson Crusoe*. In this simple island economy, Noland had to find a way to survive. His behavior was restricted by the resources that he salvaged from the crash and what he could find on the island. He was by himself, so property rights were not an issue. However, he still had to answer the *what*, *how*, and *for whom* questions. In this chapter, you will discover these are the three questions that every society must face—even the simplest island economy. To Noland, the *for whom* question, who get the goods and services produced, was pretty easy: He was the only one on the island; he got what was produced. The *what* question, what goods and services would be produced, was pretty easy, too: He was trying to survive, so he was looking to produce food, shelter, and clothing. The *how* question, how will the goods and services be produced, was where this scene becomes interesting. How to best use his scarce resources? Noland salvaged several boxes from the plane crash. After a failed attempt to leave the island, he decided to open the boxes to see whether they contain anything useful. He first found a pair of ice skates. He uses the blade of the skate as a knife to open coconuts, to cut a dress to convert into a fishing net, and to sharpen a stick to use as a spear for catching fish. He uses the laces from the skate and the bubble wrap in the package to dress an injury. He uses the raft as a lean-to for his shelter. He builds a fire and even “makes” a friend out of a volleyball—Wilson. In short, Noland uses his entrepreneurial talents to try to make the best use of the scarce resources in order to survive on the island.



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Singer Beyoncé gets paid a lot of money because she controls scarce resources: her talent and her name recognition. As we will see in Chapter 5, people's talents and other goods and services in limited supply relative to demand will command high prices.



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Chuck Noland (Tom Hanks) had to make the best use of his scarce resources to survive on the island.

SECTION QUIZ



1. Which of the following is not a question that all societies must answer?
 - a. How can scarcity be eliminated?
 - b. What goods and services will be produced?
 - c. Who will get the goods and services?
 - d. How will the goods and services be produced?
 - e. All of the above are questions that all societies must answer.
 2. Economic disputes over the distribution of income are generally associated with which economic question?
 - a. Who should produce the goods?
 - b. What goods and services will be produced?
 - c. Who will get the goods and services?
 - d. How will the goods and services be produced?
 3. The private ownership of property and the use of the market system to direct and coordinate economic activity are most characteristic of
 - a. a command economy.
 - b. a mixed economy.
 - c. a market economy.
 - d. a traditional economy.
 4. The degree of government involvement in the economy is greatest in
 - a. a command economy.
 - b. a mixed economy.
 - c. a market economy.
 - d. a traditional economy.
 5. The best method of production is
 - a. the capital-intensive method.
 - b. the labor-intensive method.
 - c. the same under all circumstances.
 - d. the lowest cost method.
 6. When _____ is relatively scarce, _____ methods of production will be relatively less expensive.
 - a. capital; capital-intensive
 - b. capital; labor-intensive
 - c. labor; capital-intensive
 - d. labor; labor-intensive
 - e. Both (b) and (c) are true.
-
1. Why does scarcity force us to decide what to produce?
 2. How is a command economy different from a market economy?
 3. How does consumer sovereignty determine production decisions in a market economy?
 4. Do you think that what and how much an economy produces depends on who will get the goods and services produced in that economy? Why or why not?
 5. Why do consumers have to "vote" for a product with their dollars for it to be a success?
 6. Why must we choose among multiple ways of producing the goods and services we want?
 7. Why might production be labor intensive in one economy but be capital intensive in another?
 8. If a tourist from the United States on an overseas trip notices that other countries don't produce crops "like they do back home," would he be right to conclude that farmers in the other countries produce crops less efficiently than U.S. farmers?
 9. In what way does scarcity determine income?
 10. What are the most important functions of the market system?

Answers: 1. d 2. c 3. c 4. a 5. d 6. e

The Circular Flow Model

3.2

What are product markets?

What is the circular flow model?

What are factor markets?

How do we explain how the millions of people in an economy interact when it comes to buying, selling, producing, working, hiring, and so on? A continuous flow of goods and services is bought and sold between the producers of goods and services (which we call firms) and the buyers of goods and services (which we call households). A continuous flow of income also moves from firms to households as firms buy inputs to produce the goods and services they sell. In our simple economy, these exchanges take place in product markets and factor markets.

product markets

markets where households are buyers and firms are sellers of goods and services

factor (or input) markets

markets where households sell the use of their inputs (capital, land, labor, and entrepreneurship) to firms

simple circular flow model

an illustration of the continuous flow of goods, services, inputs, and payments between firms and households

Product Markets

Product markets are the markets for consumer goods and services. In the product market, households are buyers and firms are sellers. Households buy the goods and services that firms produce and sell. The payments from the households to the firms, for the purchases of goods and services, flow to the firms at the same time as goods and services flow to the households.

Factor Markets

Factor or input markets are where households sell the use of their inputs (capital, land, labor, and entrepreneurship) to firms. In the factor market, households are the sellers and firms are the buyers. Households receive money payments from firms as compensation for the labor, land, capital, and entrepreneurship needed to produce goods and services. These payments take the form of wages (salaries), rent, interest payments, and profit.

The Simple Circular Flow Model

The **simple circular flow model** is illustrated in Exhibit 1. In the top half of the exhibit, the product markets, households purchase goods and services that firms have produced. In the lower half of the exhibit, the factor (or input) markets, households sell the inputs that firms use to produce goods and services. Households receive income (wages, rent, interest, and profit) from firms for the inputs used in production (capital, land, labor, and entrepreneurship).

So we see that in the simple circular flow model, income flows from firms to households (factor markets), and spending flows from households to firms (product markets). The simple circular flow model shows how households and firms interact in product markets and factor markets and how the two markets are interrelated.



LAYLAND MASUDA/SHUTTERSTOCK.COM

A teacher's supply of labor generates personal income in the form of wages in the factor market, which she can use to buy automobiles, vacations, food, and other goods in the product market. Suppose she buys an automobile in the product market; the automobile dealer now has revenue to pay for his inputs in the factor market—wages to workers, payment for new cars to replenish his inventory, rent for his building, and so on.

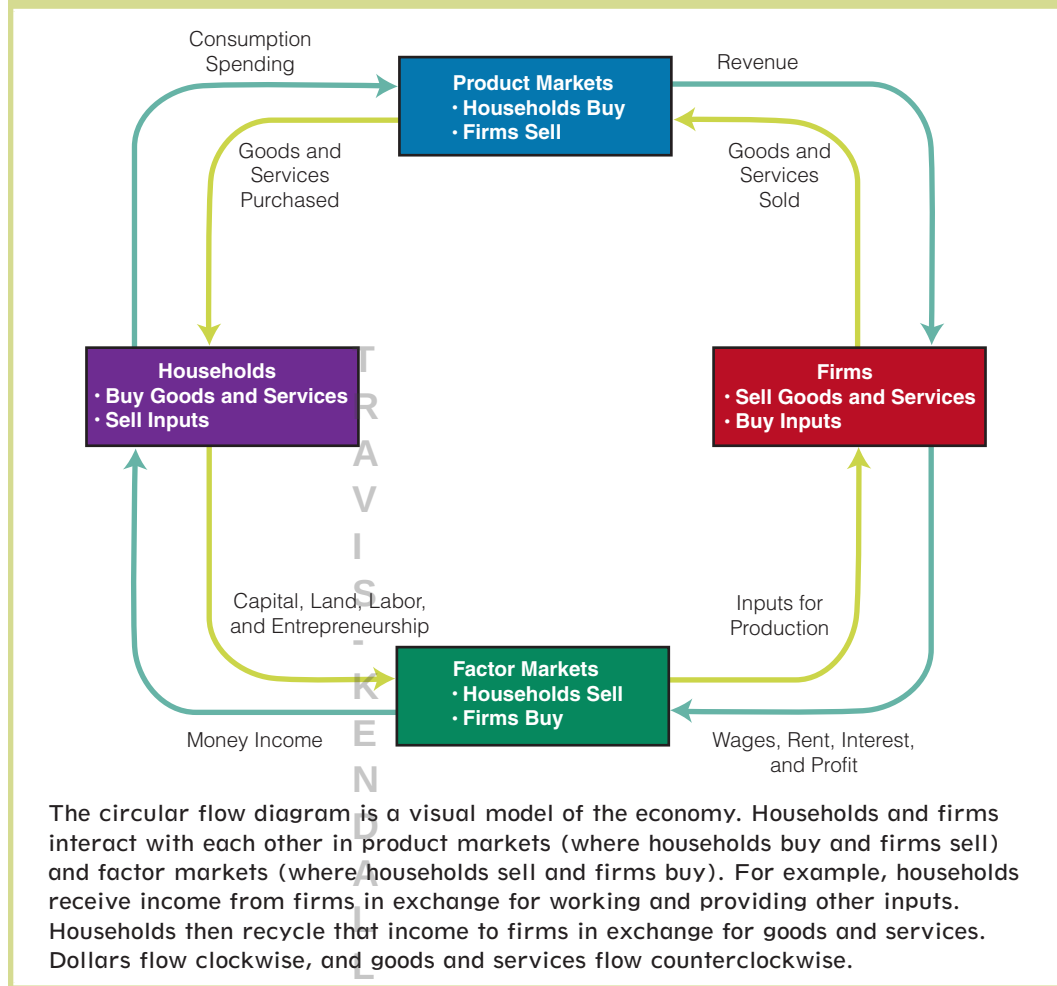
section 3.2
exhibit 1

The Circular Flow Diagram



Are households always buyers and firms always sellers?

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SECTION QUIZ

- In a circular flow diagram,
 - goods and services flow in a clockwise direction.
 - goods and services flow in a counterclockwise direction.
 - product markets appear at the top of the diagram.
 - factor markets appear at the left of the diagram.
 - both (b) and (c) are true.
- Which of the following is true?
 - In the product markets, firms are buyers and households are sellers.
 - In the factor markets, firms are sellers and households are buyers.
 - Firms receive money payments from households for capital, land, labor, and entrepreneurship.
 - All of the above are true.
 - None of the above is true.

(continued)

SECTION QUIZ (Cont.)



3. In the circular flow model,
 - a. firms supply both products and resources.
 - b. firms demand both products and resources.
 - c. firms demand resources and supply products.
 - d. firms supply resources and demand products.
4. The circular flow model
 - a. traces the flow of goods and services among firms and households.
 - b. traces the flow of payments among firms and households.
 - c. includes both product markets and factor markets.
 - d. All of the above are true.

1. Why does the circular flow of money move in the opposite direction from the flow of goods and services?
2. What is bought and sold in factor markets?
3. What is bought and sold in product markets?

Answers: 1. b 2. e 3. c 4. d

The Production Possibilities Curve

3.3

What is a production possibilities curve?

What are unemployed resources?

What are underemployed resources?

What is efficiency?

What is the law of increasing opportunity costs?

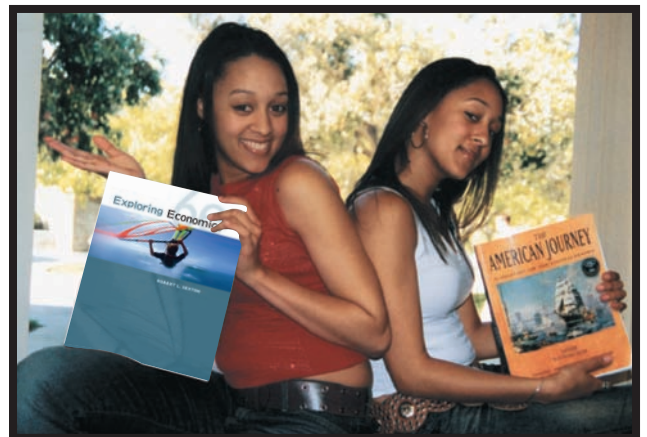
production possibilities curve
the potential total output combinations of any two goods for an economy given the available factors of production and the available production technology that firms use to turn their inputs into outputs.

The Production Possibilities Curve

The economic concepts of scarcity, choice, and trade-offs can be illustrated visually by means of a simple graph called a production possibilities curve. The **production possibilities curve** represents the potential total output combinations of any two goods for an economy, given the available factors of production and the available production technology that firms use to turn their inputs into outputs. That is, it illustrates an economy's potential for allocating its limited resources in producing various combinations of goods, in a given time period.

The Production Possibilities Curve for Grades in Economics and History

What would the production possibilities curve look like if you were “producing” grades in two of your classes—say, economics and history? Exhibit 1 shows a hypothetical production possibilities curve for your expected grade in economics (on the vertical axis), and your expected grade in

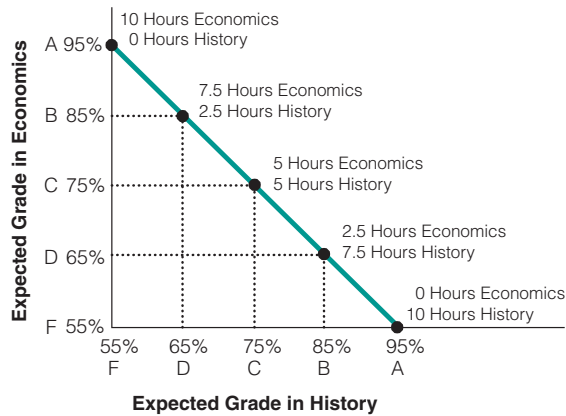


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Because Tia and Tamera only have so many hours a week to study, studying more for economics and less for history might hurt their grade in history, *ceteris paribus*. Life is full of trade-offs.

section 3.3
exhibit 1

Production Possibilities
Curve: "Producing" Grades in
Economics and History



The production possibilities curve highlights the concept of trade-offs. Assuming you choose to study a total of 10 hours a week, moving down the production possibilities curve shows that if you use your time to study history instead of economics, you can raise your expected grade in history but only at the expense of lowering your expected grade in economics. Note that, with a straight-line production possibilities curve, the opportunity costs are constant.

history (on the horizontal axis). Suppose you have a part-time restaurant job, so you choose to study 10 hours a week. You like both courses and are equally adept at studying for both.

We see in Exhibit 1 that the production possibilities curve is a straight line. For example, if you spend the full 10 hours studying economics, your expected grade in economics is 95 percent (an A), and your expected grade in history is 55 percent (an F). Of course, this outcome assumes you can study zero hours a week and still get a 55 percent average or study the full 10 hours a week and get a 95 percent average. Moving down the production possibilities curve, we see that as you spend more of your time studying history and less on economics, you can raise your expected grade in history but only at the expense of lowering your expected grade in economics. Specifically, moving down along the straight-line production possibilities curve, the trade-off is one lower percentage point in economics for one higher percentage point in history. That is, with a straight-line production possibilities curve, the opportunity costs are constant.

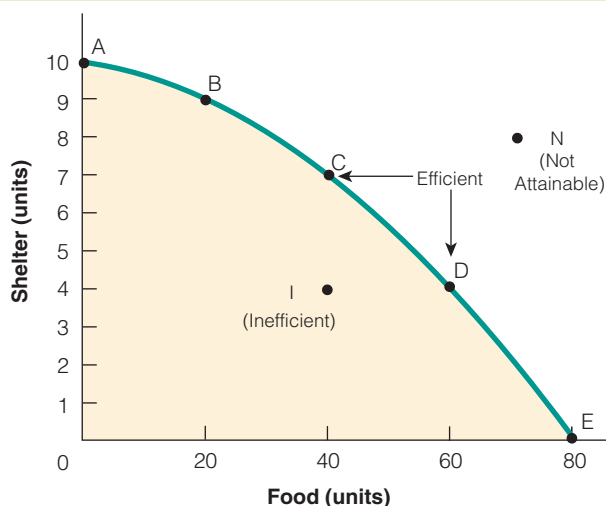
Of course, if you were to increase your overall study time, you would expect higher grades in both courses. But that would be on a different production possibilities curve. Along the production possibilities curve shown in Exhibit 1, we assume that technology and the number of study hours are given.

The Production Possibilities Curve for
Food and Shelter

To illustrate the production possibilities curve more clearly, imagine living in an economy that produces just two goods, food and shelter. The fact that we have many goods in the real world makes actual decision making more complicated, but it does not alter the basic principles being illustrated. Each point on the production possibilities curve shown in Exhibit 2 represents the potential amounts of food and shelter that we can produce in a given period, with a given quantity and quality of resources in the economy available for production.

section 3.3
exhibit 2

Production Possibilities Curve: The Trade-Off between Food and Shelter



Combinations	Shelter (units)	Food (units)
A	10	0
B	9	20
C	7	40
D	4	60
E	0	80

Each point on the production possibilities curve represents the potential amounts of food and shelter that can be produced in a given period, with a given quantity and quality of resources in the economy to use for production. All the points on the production possibilities curve are efficient. Any point in the shaded area, such as point I, is inefficient. Any point outside the production possibilities curve, such as point N, is not presently attainable.

Notice in Exhibit 2 that if we devote all our resources to making shelters, we can produce 10 units of shelter but no food (point A). If, on the other hand, we choose to devote all our resources to producing food, we end up with 80 units of food but no shelters (point E).

In reality, nations rarely opt for production possibility A or E, preferring instead to produce a mixture of goods. For example, our fictional economy might produce 9 units of shelter and 20 units of food (point B) or perhaps 7 units of shelter and 40 units of food (point C). Still other combinations along the curve, such as point D, are possible.

Off the Production Possibilities Curve

The economy cannot operate at point N (not attainable) during the given period because not enough resources are currently available to produce that level of output. However, it is possible the economy can operate inside the production possibilities curve, at point I (inefficient). If the economy is operating at point I, or any other point inside the production possibilities curve, it is not at full capacity and is operating inefficiently; perhaps because of widespread unemployment. In short, the economy is not using all its scarce resources efficiently; as a result, actual output is less than potential output.



When you are inside the production possibilities curve, is it just because there are unemployed labor resources?

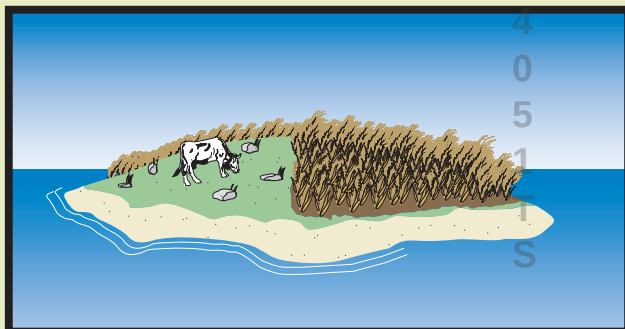
use

what you've learned

The Production Possibilities Curve

Q Imagine that you are the overseer on a small island that only produces two goods, cattle and wheat. About a quarter of the land is not fertile enough for growing wheat, so cattle graze on it. What would happen if you tried to produce more and more wheat, extending your planting even to the less fertile soil?

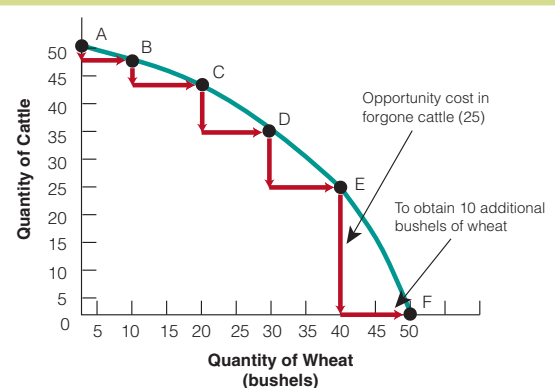
A Under the law of increasing opportunity cost, as you plant more and more of your acreage in wheat, you would move into some of the rocky, less fertile land, and, consequently, wheat yields on the additional acreage would fall. If you try to plant the entire island with wheat, you would find that some of the rocky, less fertile acreage would yield virtually no extra wheat. It would, however, have been great for cattle grazing—a large loss. Thus, the opportunity cost of using that marginal land for wheat rather than cattle grazing would be high. The law of increasing



opportunity cost occurs because resources are not homogeneous (identical) and are not equally adaptable for producing cattle and wheat; some acres are more suitable for cattle grazing, while others are more suitable for wheat growing. This relationship is shown in Exhibit 3, where the vertical lines represent the opportunity cost of growing 10 more bushels of wheat in terms of cattle production sacrificed. You can see that as wheat production increases, the opportunity cost in terms of lost cattle production rises.

section 3.3 exhibit 3

Opportunity Costs for Cattle and Wheat



The opportunity cost of each 10 bushels of wheat in terms of forgone cattle is measured by the vertical distances. Moving from point A to point F, the opportunity cost of wheat in terms of forgone cattle rises.



Why can't a point inside the production possibilities curve be best?

When is an economy efficient?

Inefficiency and Efficiency

Suppose for some reason employment is widespread or resources are not being put to their best uses. The economy would then be operating at a point inside the production possibilities curve, such as I in Exhibit 2, where the economy is operating inefficiently. At point I, 4 units of shelter and 40 units of food are being produced. By putting unemployed resources to work or by putting already employed resources to better uses, we could expand the output of shelter by 3 units (moving to point C) without giving up any units of food. Alternatively, we could boost food output by 20 units (moving to point D) without reducing shelter output. We could even get more of both food and shelter by moving to a point on the curve between C and D. Increasing or improving the utilization of resources, then, can lead to greater output of all goods. You may recall from Chapter 2, an efficient use of our resources means that more of everything we want can be available for our use. Thus, *efficiency* requires society to use its resources to the fullest extent—getting the most from our scarce resources and wasting none. If resources are being used efficiently—that is, at some point along a production possibilities curve—then more of one good or service requires the sacrifice of another good or service.

Economists say that the economy is efficient when there are no opportunities for improvement left. This is the case when the economy is on the production possibilities curve. Notice that once the efficient points on the production possibilities curve are reached, there is no way to produce more of one good without producing less of the other. This is exactly the point we made in the last chapter: people face scarcity and costly trade-offs. Efficiency does not tell us which point along the production possibilities curve is *best*, but it does tell us that points inside the curve cannot be best, because some resources are wasted.

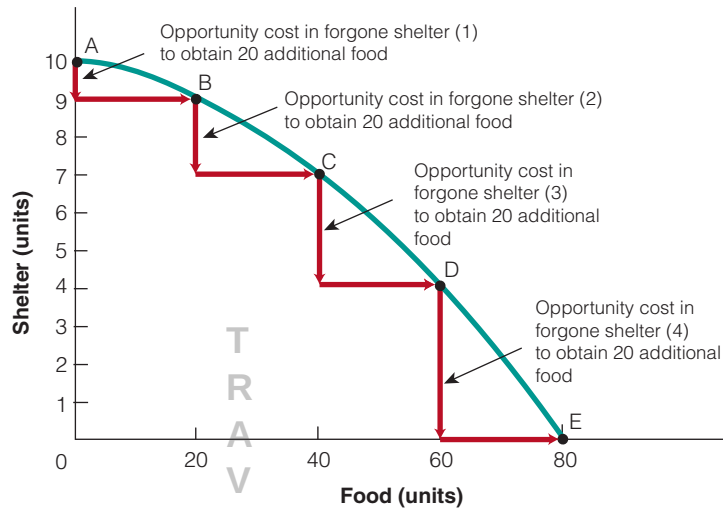
The Law of Increasing Opportunity Cost

As in Exhibit 2, the production possibilities curve in Exhibit 4 is not a straight line like that in Exhibit 1. It is concave from below (that is, bowed outward from the origin). Looking at Exhibit 4, you can see that at low food output, an increase in the amount of food produced will lead to only a small reduction in the number of units of shelter produced. For example, increasing food output from 0 to 20 (moving from point A to point B on the curve) requires the use of resources capable of producing 1 unit of shelter. In other words, for the first 20 units of food, 1 unit of shelter must be given up. When food output is higher, however, more units of shelter must be given up when switching additional resources from the production of shelter to food. Moving from point D to point E, for example, an increase in food output of 20 (from 60 to 80) reduces the production of shelters from 4 to 0. At this point, then, the cost of those 20 additional units of food is 4 units of shelter, considerably more than the 1 unit of shelter required in the earlier scenario. This difference shows us that opportunity costs do not remain constant but rise because more units of food and fewer units of shelter are produced. It is this **increasing opportunity cost**, then, that is represented by the bowed production possibilities curve.

increasing opportunity cost
the opportunity cost of producing additional units of a good rises as society produces more of that good

What Is the Reason for the Law of Increasing Opportunity Cost?

The basic reason for the increasing opportunity cost is that some resources and skills cannot be easily adapted from their current uses to alternative uses. And, the more you produce of one good, the more you are forced to employ inputs that are relatively more suitable for producing other goods. For example, at low levels of food output, additional increases in food output can be obtained easily by switching relatively low skilled carpenters from making shelters to producing food. However, to get even more food output, workers who are less well suited or appropriate for producing food (i.e., they are better adapted to making shelters) must be released from shelter making to increase food output. For example, a skilled carpenter may be an expert at making shelters but a very bad farmer because he lacks

section 3.3
exhibit 4
Increasing Opportunity Cost and the Production Possibilities Curve


The production possibilities curve also illustrates the opportunity cost of producing more of a given product. For example, if we are to increase food output from 40 units to 60 units (moving from point C to point D), we must produce 3 fewer units of shelter. The opportunity cost of those 20 additional units of food is the 3 units of shelter we must forgo. We can see that, moving down the curve from A to E, each additional 20 units of food costs society more and more shelter—the law of increasing opportunity cost.

the training and skills necessary in that occupation. So using the skilled carpenter to farm results in a relatively greater opportunity cost than using the unskilled carpenter to farm. The production of additional units of food becomes increasingly costly as progressively lower-skilled farmers (but good carpenters) convert to farming.

In short, resources tend to be specialized. As a result, we lose some of their productivity when we transfer those resources from producing what they are relatively good at to producing something they are relatively bad at.

SECTION QUIZ

- A point beyond the boundary of an economy's production possibilities curve is
 - efficient.
 - inefficient.
 - attainable.
 - unattainable.
 - both attainable and efficient.
- Which of the following is consistent with the implications of the production possibilities curve?
 - If the resources in an economy are being used efficiently, scarcity will not be a problem.
 - If the resources in an economy are being used efficiently, more of one good can be produced only if less of another good is produced.
 - Producing more of any one good will require smaller and smaller sacrifices of other goods as more of that good is being produced in an economy.
 - An economy will automatically attain that level of output at which all of its resources are fully employed.
 - Both (b) and (c) are consistent with the implications of the production possibilities curve.

(continued)

SECTION QUIZ (Cont.)



3. Consider a production possibilities curve for an economy producing bicycles and video game players. It is possible to increase the production of bicycles without sacrificing video game players if
 - a. the production possibilities curve shifts outward due to technological progress.
 - b. the production possibilities curve shifts outward due to increased immigration (which enlarges the labor force).
 - c. the economy moves from a point inside the production possibilities curve to a point on the curve.
 - d. any of the above occurs.
 - e. either (a) or (b), but not (c), occurs.
4. What determines the position and shape of a society's production possibilities curve?
 - a. the physical resources of that society
 - b. the skills of the workforce
 - c. the level of technology of the society
 - d. the number of factories available to the society
 - e. all of the above
5. Which of the following is the most accurate statement about a production possibilities curve?
 - a. An economy can produce at any point inside or outside its production possibilities curve.
 - b. An economy can produce only on its production possibilities curve.
 - c. An economy can produce at any point on or inside its production possibilities curve, but not outside the curve.
 - d. An economy can produce at any point inside its production possibilities curve, but not on or outside the curve.
6. A _____ production possibilities curve illustrates _____ costs of production.
 - a. straight-line; constant
 - b. straight-line; increasing
 - c. bowed-outward; constant
 - d. bowed-outward; increasing
 - e. Both (a) and (d) are true.
7. Which statement(s) is/are true about the law of increasing opportunity cost?
 - a. Some resources and skills cannot be easily adapted from their current uses to alternative uses.
 - b. The more you produce of one good, the more you are forced to employ inputs that are relatively more suitable for producing other goods.
 - c. Resources tend to be specialized so we lose some of their productivity when we transfer those resources from producing what they are relatively good at to producing something at which they are relatively bad.
 - d. All of the above are true.

-
1. What does a production possibilities curve illustrate?
 2. How are opportunity costs shown by the production possibilities curve?
 3. Why do the opportunity costs of added production increase with output?
 4. How does the production possibilities curve illustrate increasing opportunity costs?
 5. Why are we concerned with widespread amounts of unemployed or underemployed resources in a society?
 6. What do we mean by efficiency, and how is it related to underemployment of resources?
 7. How are efficiency and inefficiency illustrated by a production possibilities curve?
 8. Will a country that makes being unemployed illegal be more productive than one that does not? Why or why not?
 9. If a 68-year-old worker in the United States chooses not to work at all, does that mean that the United States is functioning inside its production possibilities curve? Why or why not?

Answers: 1. d 2. b 3. d 4. e 5. c 6. e 7. d

Economic Growth and the Production Possibilities Curve

3.4

How much should we sacrifice today to get more in the future?

How do we show economic growth on the production possibilities curve?

Generating Economic Growth

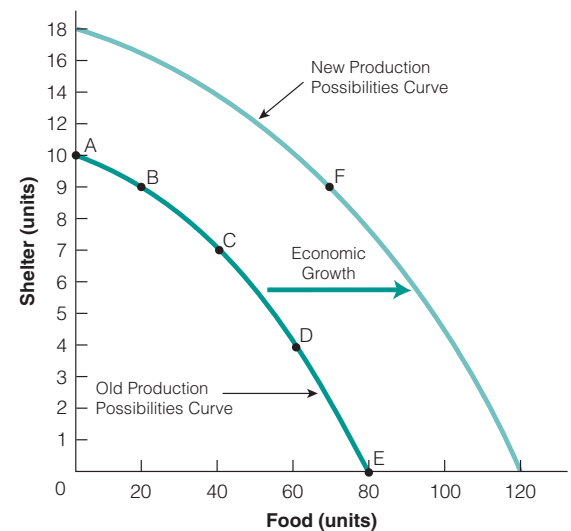
How have some nations been able to rapidly expand their outputs of goods and services over time, while others have been unable to increase their standards of living at all?

The economy can only grow with qualitative or quantitative changes in the factors of production—land, labor, capital, and entrepreneurship. Advancement in technology, improvements in labor productivity, or new sources of natural resources (such as previously undiscovered oil) could lead to outward shifts of the production possibilities curve.

In terms of the production possibilities curve, an outward shift in the possible combinations of goods and services produced leads to economic growth, as seen in Exhibit 1. With growth comes the possibility of having more of both goods than was previously available. Suppose we were producing at point C (7 units of shelter, 40 units of food) on our original production possibilities curve. Additional resources and/or new methods of using them (technological progress) can lead to new production possibilities, creating the potential for more of all goods (or more of some with no less of others). These increases will push the production possibilities curve outward. For example, if we invest in human capital by training the workers making the shelters, it will increase the productivity of those workers. As a result, they will produce more units of shelter. Ultimately, then, we will use fewer resources to make shelters, freeing them to be used for farming, which will result in more units of food. Notice that at point F (future) on the new curve, we can produce 9 units of shelter and 70 units of food, more of both goods than we previously could produce, at point C.

section 3.4
exhibit 1

Economic Growth and Production Possibilities



Economic growth shifts the production possibilities curve outward, allowing increased output of both food and shelter (compare point F with point C).

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Growth Does Not Eliminate Scarcity

With all of this discussion of growth, it is important to remember that growth, or increases in a society's output, does not make scarcity disappear. When output grows more rapidly than population, people are better off. But they still face trade-offs; at any point along the production possibilities curve, to get more of one thing, you must give up something else. There are no free lunches on the production possibilities curve.

Capital Goods versus Consumption Goods

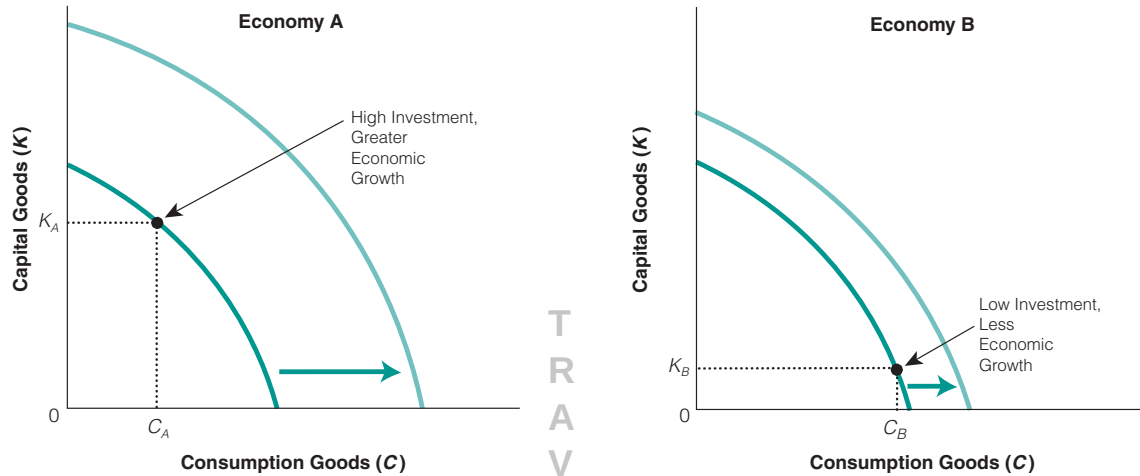
Economies that choose to invest more of their resources for the future will grow faster than those that don't. To generate economic growth, a society must produce fewer consumer goods—video games, DVD players, cell phones, cars, vacations, and so on—in the present and produce more capital goods—machines, factories, tools, education, and the like. The society that devotes a larger share of its productive capacity to capital goods than to



Can economic growth eliminate the problem of scarcity?

section 3.4
exhibit 2

Economic Growth and Production Possibilities Curve

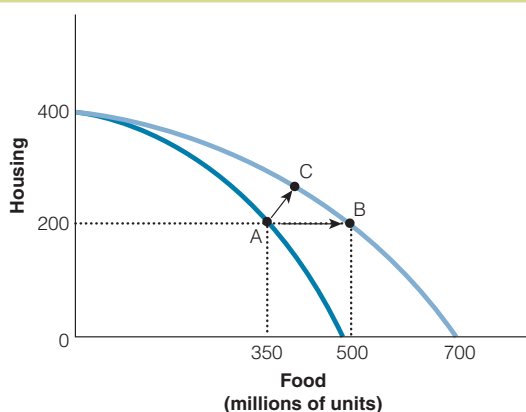


Because Economy A invests relatively more in capital goods than does Economy B, Economy A will experience greater economic growth.

consumer goods will experience greater economic growth. It must sacrifice some present consumption of consumer goods and services to experience growth in the future. Why? Investing in capital goods, such as computers and other new technological equipment, as well as upgrading skills and knowledge, expands the ability to produce in the future. It shifts the economy's production possibilities curve outward, increasing the future production capacity of the economy. That is, the economy that invests more now (consumes less now) will be able to produce, and therefore consume, more in the future. In Exhibit 2, we see that Economy A invests more in capital goods than Economy B. Consequently, Economy A's production possibilities curve shifts outward further than does Economy B's over time.

section 3.4
exhibit 3

The Effects of a Technological Change on the Production Possibilities Curve



A move from point A to point C will lead to more housing and food. A move from point A to point B will lead to more food and the same level of housing.

The Effects of a Technological Change on the Production Possibilities Curve

In Exhibit 3, we see that a technological advance does not have to impact all sectors of the economy equally. There is a technological advance in food production but not in housing production. The technological advance in agriculture causes the production possibilities curve to extend out further on the horizontal axis, which measures food production. We can move to any point on the new production possibilities curve. For example, we could move from point A on the original production possibilities curve to point B on the new production possibilities curve. This would lead to 150 more units of food and the same amount of housing—200 units. Or, we could move from point A to point C, which would allow us to produce more units of both food and housing. How do we produce more housing, when the technological

advance occurred in agriculture? The answer is that the technological advance in agriculture allows us to produce more from a given quantity of resources. That is, it allows us to shift some of our resources out of agriculture into housing. This is actually an ongoing story in U.S. economic history. In colonial days, about 90 percent of the population made a living in agriculture. Today it is less than 3 percent.



How can we produce more of two goods when there is a technology advance in only one of the goods?

SECTION QUIZ



- Which of the following is most likely to shift the production possibilities curve outward?
 - an increase in unemployment
 - a decrease in the stock of physical or human capital
 - a decrease in the labor force
 - a technological advance
 - Suppose Country A produces few consumption goods and many investment goods while Country B produces few investment goods and many consumption goods. Other things being equal, you would expect
 - per capita income to grow more rapidly in Country B.
 - population to grow faster in Country B.
 - the production possibilities curve for Country A to shift out more rapidly than that of Country B.
 - that if both countries started with identical production possibilities curves, in 20 years, people in Country B will be able to produce more consumer goods than people in Country A can.
 - that both (c) and (d) are true.
 - A virulent disease spreads throughout the population of an economy, causing death and disability. This event can be portrayed as
 - a movement from a point on the production possibilities curve to a point inside the curve.
 - a movement from a point on the production possibilities curve to the northeast.
 - a movement along the production possibilities curve to the southeast.
 - an outward shift of the production possibilities curve.
 - an inward shift of the production possibilities curve.
-
- What is the essential question behind issues of economic growth?
 - What is the connection between sacrifices and economic growth?
 - How is economic growth shown in terms of production possibilities curves?
 - Why doesn't economic growth eliminate scarcity?
 - If people reduced their saving (thus reducing the funds available for investment), what would that change do to society's production possibilities curve over time?

Answers: 1. d 2. c 3. e

Interactive Summary

Fill in the blanks:

1. Because of scarcity, certain economic questions must be answered regardless of the level of affluence of the society or its political structure. Three fundamental questions that inevitably must be faced in a world of scarcity are (1) _____ will be produced? (2) _____ the goods and services be produced? (3) _____ the goods and services produced?
2. Market economies largely rely on a(n) _____ decision-making process, where literally millions of individual producers and consumers of goods and services determine what will be produced.
3. Most countries, including the United States, have _____ economies, in which the government and private sector determine the allocation of resources.
4. The _____ -cost method is the most appropriate method for producing a given product.
5. Methods of production used where capital is relatively scarce will be _____, and methods of production used where labor is relatively scarce will be _____.
6. In a market economy, the amount of goods and services one is able to obtain depends on one's _____, which depends on the quality and quantity of the scarce _____ he or she controls.
7. The markets where households are buyers and firms are sellers of goods and services are called _____ markets.
8. The markets where households sell the use of their _____ (capital, land, labor, and entrepreneurship) to _____ are called _____ or _____ markets.
9. The simple _____ model shows the continuous flow of goods, services, inputs, and payments through the _____ and _____ markets among households and _____.
10. A(n) _____ curve represents the potential total output combinations of any two goods for an economy.
11. On a production possibilities curve, we assume that the economy has a given quantity and quality of _____ and _____ available to use for production.
12. On a straight-line production possibilities curve, the _____ are constant.
13. If an economy is operating _____ its production possibilities curve, it is not at full capacity and is operating _____. Such an economy's actual output is less than _____ output.
14. By putting _____ resources to work or by putting already employed resources to _____ uses, we could expand output.
15. _____ requires society to use its resources to the fullest extent—getting the _____ we can out of our scarce resources.
16. If the production possibilities curve is concave from below (that is, bowed outward from the origin), it reflects _____ opportunity costs of producing additional amounts of a good.
17. On a bowed production possibilities curve (concave to the origin), the opportunity costs of producing additional units of a good rises as society produces more of that good. This relationship is called the law of _____.
18. Resources tend to be specialized, so we lose some of their productivity when we transfer those resources from what they are relatively _____ at producing to something they are relatively _____ at producing.
19. To generate economic growth, a society must produce _____ consumer goods and _____ capital goods in the present.
20. Advancements in _____, improvements in _____, or new _____ could all lead to outward shifts of the production possibilities curve.
21. Increases in a society's output do not make _____ disappear. Even when output has grown more rapidly than population so that people are made better off, they still face _____.
22. The production possibilities curve can be used to illustrate the economic concepts of _____ (resource combinations outside the production possibilities curve are unattainable), _____ (selecting among the alternative bundles available along the production possibilities curve), _____ (how much of one good you give up to get another unit of the second good as you move along the production possibilities curve), _____ (being on the production possibilities curve rather than inside it), and _____ (shifting the production possibilities curve outward).

Answers: 1. what goods and services; how will; who will get 2. decentralized 3. mixed 4. least 5. labor intensive; capital intensive 6. incomes; resources 7. product 8. inputs; firms; factor; input 9. circular flow; product; factor; firms 10. production possibilities 11. resources; technology 12. opportunity costs 13. inside; inefficiently; potential 14. unemployed; better 15. Efficiency; most 16. increasing 17. increasing opportunity costs 18. good; bad 19 fewer; more 20. technology; labor productivity; natural resource finds 21. scarcity; trade-offs 22. scarcity; choice; opportunity costs; efficiency; economic growth

Key Terms and Concepts

consumer sovereignty 75
command economy 75
market economy 75
mixed economy 75

labor intensive 76
capital intensive 76
product markets 79
factor (or input) markets 79

simple circular flow model 79
production possibilities curve 81
increasing opportunity cost 84

Section Quiz Answers

3.1 The Three Economic Questions Every Society Faces

1. Why does scarcity force us to decide what to produce?

Because our wants exceed the amount of goods and services that can be produced from our limited resources, it must be decided which wants should have priority over others.

2. How is a command economy different from a market economy?

A command economy makes decisions about what and how much to produce centrally by members of a planning board or organization. A market economy makes those decisions as the result of decentralized decision making by individual producers and consumers, coordinated by their offers to buy and sell on markets.

3. How does consumer sovereignty determine production decisions in a market economy?

Consumer sovereignty determines production decisions in a market economy because producers make what they believe consumers will “vote” for by being willing to pay for them.

4. Do you think that what and how much an economy produces depends on who will get the goods and services produced in that economy? Why or why not?

Who will get the goods produced in an economy affects the incentives of the producers. The less a producer will benefit from increased production, the

smaller are incentives to increase production, and the smaller will be total output in an economy.

5. Why do consumers have to “vote” for a product with their dollars for it to be a success?

In the market sector, products can be profitable only if they attract dollar votes from consumers.

6. Why must we choose among multiple ways of producing the goods and services we want?

We must choose among multiple ways of producing the goods and services we want because goods can generally be produced in several ways, using different combinations of resources.

7. Why might production be labor intensive in one economy but be capital intensive in another?

Production will tend to be labor intensive where labor is relatively plentiful, and therefore relatively less expensive; it will tend to be capital intensive where capital is relatively plentiful, and therefore relatively less expensive. When the manner of production is different in different situations because factors of production have different relative prices, each of those methods will be more efficient where they are used.

8. If a tourist from the United States on an overseas trip notices that other countries don't produce crops “like they do back home,” would he be right to conclude that farmers in the other countries produce crops less efficiently than U.S. farmers?

No. The different ways of farming in different areas reflect the different relative scarcities of land, labor, and capital they face. Factors of production that are

relatively scarce in an economy are also relatively costly there as a result. Producers there economize on the use of those more costly resources by using more of relatively less scarce, and less costly, resources instead. For example, where land is scarce, it is intensively cultivated with relatively cheaper (less scarce) labor and capital, but where capital is scarce, relatively cheaper (less scarce) land and labor are substituted for capital.

9. In what way does scarcity determine income?

Relative scarcity determines the market values of the scarce resources people offer to others in exchange for income.

10. What are the most important functions of the market system?

They transmit information through price signals, they provide incentives, and they distribute income.

3.2 The Circular Flow Model

1. Why does the circular flow of money move in the opposite direction from the flow of goods and services?

The circular flow of money moves in the opposite direction from the flow of goods and services because the money flows are the payments made in exchange for the goods and services.

2. What is bought and sold in factor markets?

The factors of production—capital, land, labor, and entrepreneurship—are sold in factor, or input, markets.

3. What is bought and sold in product markets?

Consumer and investment goods and services are sold in product markets.

3.3 The Production Possibilities Curve

1. What does a production possibilities curve illustrate?

The production possibilities curve illustrates the potential output combinations of two goods in an economy operating at full capacity, given the inputs and technology available to the economy.

2. How are opportunity costs shown by the production possibilities curve?

Opportunity cost—the forgone output of one good necessary to increase output of another good—is illustrated by the slope, or trade-off, between the two goods at a given point on the production possibilities curve.

3. Why do the opportunity costs of added production increase with output?

Opportunity costs of added production increase with output because some resources cannot be easily adapted from their current uses to alternative uses. At first, easily adaptable resources can be switched to producing more of a good. But once those easily adapted resources have been switched, producing further output requires the use of resources less well adapted to expanding that output, raising the opportunity cost of output.

4. How does the production possibilities curve illustrate increasing opportunity costs?

Increasing opportunity costs are illustrated by a bowed (concave from below) production possibilities curve. It shows that initial units of one good can be produced by giving up little of another good, but progressive increases in output will require greater and greater sacrifices of the other good.

5. Why are we concerned with widespread amounts of unemployed or underemployed resources in a society?

We are concerned with widespread amounts of unemployed or underemployed resources in a society because, if we could reduce the extent of unemployed or underemployed resources, people could have more scarce goods and services available for their use.

6. What do we mean by *efficiency*, and how is it related to underemployment of resources?

Efficiency means getting the most we can out of our scarce resources. Underemployment of resources means a society is not getting the most it can out of these resources, either because they are not fully employed or because they are not matched to the uses best suited to them.

7. How are efficiency and inefficiency illustrated by a production possibilities curve?

Efficient combinations of outputs are illustrated by points on the production possibilities curve, along which more of one good can be produced only if less of some other good is also produced. Inefficient combinations of outputs are illustrated by points inside the production possibilities curve, because more of both goods could then be produced with the resources available to the economy.

8. Will a country that makes being unemployed illegal be more productive than one that does not? Why or why not?

A more productive economy is one that makes the best use of those who wish to work. Making unemployment illegal (as was true in the old USSR) does not eliminate underemployment, nor does

it guarantee that people and other resources are employed where they are most productive (especially because it is more difficult to search for a better job when you are working than when you are not working).

- 9. If a 68-year-old worker in the United States chooses not to work at all, does that mean that the United States is functioning inside its production possibilities curve? Why or why not?**

Individuals who choose retirement rather than work must consider themselves better off not working, when all the relevant considerations are taken into account. They are therefore as fully employed, given their circumstances, as they would like to be, and so the choice does not imply that the United States would be inside its production possibilities curve as a result. However, if such workers became more willing to work, that would shift the U.S. production possibilities curve outward.

3.4 Economic Growth and the Production Possibilities Curve

- 1. What is the essential question behind issues of economic growth?**

The essential question behind issues of economic growth is: How much are we willing to give up today to get more in the future?

- 2. What is the connection between sacrifices and economic growth?**

The more current consumption is sacrificed in an economy, the larger the fraction of its current resources it can devote to producing investment goods, which will increase its rate of economic growth.

- 3. How is economic growth shown in terms of production possibilities curves?**

Economic growth—the expansion of what an economy can produce—is shown as an outward shift in the production possibilities curve, with formerly unattainable output combinations now made possible.

- 4. Why doesn't economic growth eliminate scarcity?**

Economic growth doesn't eliminate scarcity because people's wants still exceed what they are capable of producing, so that trade-offs among scarce goods must still be made.

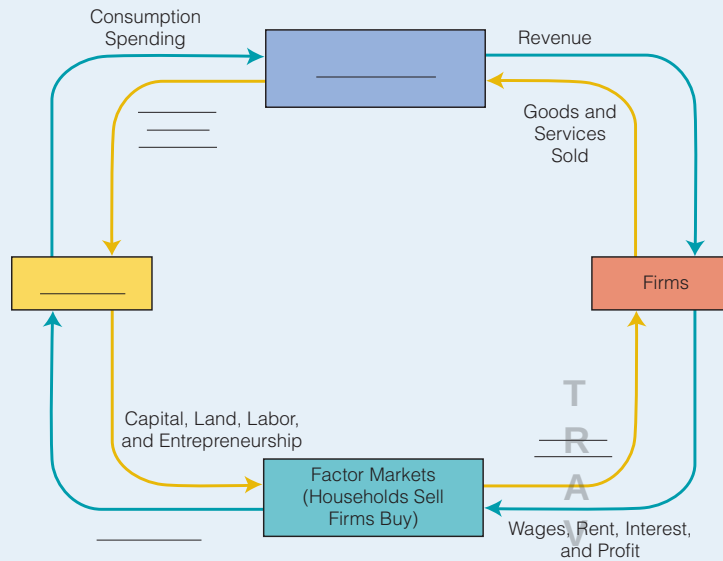
- 5. If people reduced their saving (thus reducing the funds available for investment), what would that change do to society's production possibilities curve over time?**

The less people save, the slower the capital stock of the economy will grow through new investment (because saving is the source of the funds for investment), and so the slower the production possibilities curve would shift out over time.

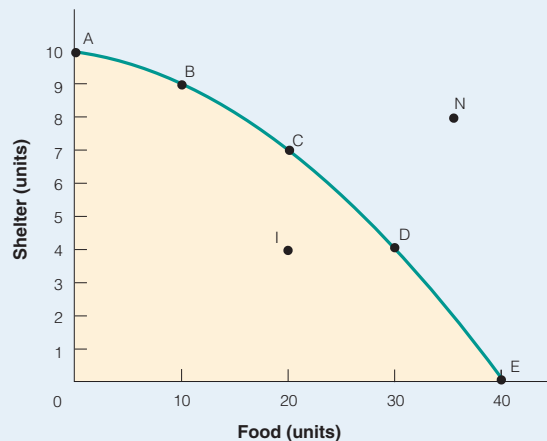
Problems

1. What are the three basic economic questions? How are decisions made differently in a market economy than in planned economies?
2. Recently the American Film Institute selected *Citizen Kane* as the best movie of all time. *Citizen Kane* is a fictional psychological biography of one of the most powerful newspaper publishers in history, William Randolph Hearst. *Avatar* has made the most money of any film in history. Unlike *Avatar*, *Citizen Kane* was not a box office success. Do you think Hollywood will make more movies like *Avatar* or like *Citizen Kane*? Why?
3. As women's wages and employment opportunities have expanded over the past 50 years, Americans have purchased more and more labor-saving home appliances like automatic washers and dryers, dishwashers, and microwave ovens. Do you think these phenomena are related? Could higher wages and better job opportunities lead to a more capital-intensive way of performing household chores? Explain.

4. Identify where the appropriate entries go in the circular flow diagram.



5. Identify whether each of the following transactions takes place in the factor market or the product market.
- Billy buys a sofa from Home Time Furniture for his new home.
 - Home Time Furniture pays its manager her weekly salary.
 - The manager buys dinner at Billy's Café.
 - After he pays all of his employees their wages and pays his other bills, the owner of Billy's Café takes his profit.
6. Given the following production possibilities curve:



- Does this production possibilities curve show increasing opportunity costs? Explain.
 - What is the opportunity cost of moving from point I to point D? Explain.
 - What is the opportunity cost of moving from point C to point B?
 - Which of points A–E is the most efficient? Explain.
7. During wartime, countries shift production from civilian goods, like automobiles and clothing, to military goods, like tanks and military uniforms. When the United States entered World War I in April 1917, for example, the federal government created the War Industries Board and charged it with determining production priorities and converting plants to meet war needs. In the following year, automobile production fell 43 percent as output of military vehicles soared. When the war ended, 19 months later, in November 1918, the government cancelled \$2.5 billion in military contracts and the nation resumed normal production. Assuming that in 1917 the United States was at point A on the production possibilities curves shown, show what happened between April 1917 and November 1918. Show what happened once the war ended.

8. How would the following events be shown using a production possibilities curve for shelter and food?
 - a. The economy is experiencing double-digit unemployment.
 - b. Economic growth is increasing at more than 5 percent per year.
 - c. Society decides it wants less shelter and more food.
 - d. Society decides it wants more shelter and less food.
9. In *A Bend in the River*, Nobel Prize winner V. S. Naipaul describes an underdeveloped country in which the government's constantly changing tax policies and vague laws regarding property ownership cause entrepreneurs to become demoralized and unresponsive to economic opportunities. Could this be a case of idle or unemployed entrepreneurs? How can tax laws and rules governing property affect entrepreneurs' willingness to start new businesses or improve existing enterprises?
10. Using the following table, answer the questions:

	Combinations				
	A	B	C	D	E
Guns	1	2	3	4	5
Butter	20	18	14	8	0

- a. What are the assumptions for a given production possibilities curve?
 - b. What is the opportunity cost of one gun when moving from point B to point C? When moving from point D to point E?
 - c. Do these combinations demonstrate constant or increasing opportunity costs?
11. Economy A produces more capital goods and fewer consumer goods than Economy B. Which economy will grow more rapidly? Draw two production possibilities curves, one for Economy A and one for Economy B. Demonstrate graphically how one economy can grow more rapidly than the other.
12. Why one nation experiences economic growth and another doesn't is a question that has intrigued economists since Adam Smith wrote *An Inquiry into the Nature and Causes of the Wealth of Nations* in 1776. Explain why each of the following would limit economic growth.
 - a. The politically connected elite secure a large share of a country's output and put the proceeds in Swiss banks.
 - b. A country has a very low output per person.
 - c. The national philosophy is to live for the moment and forget about tomorrow.
 - d. The government closes all of the schools so more people will be available for work.
 - e. The country fears military invasion and spends half of its income on military goods.
13. How does education add to a nation's capital stock?
14. A politician running for U.S. president promises to build new schools and new space stations during the next four years without sacrificing any other goods and services. Using a production possibilities curve between schools and space stations, explain under what conditions the politician would be able to keep his promise.