CHAPTER 2

Economics: Eight Powerful Ideas

LEARNING OUTCOMES

After reading this chapter, you should be able to

- 2.1 Define and explain the concept of opportunity cost.
- 2.2 Explain the importance of marginal thinking in economics.
- 2.3 Discuss why people respond predictably to changes in incentives.
- 2.4 Describe why specialization and trade are so important to economic growth.
- 2.5 Explain how markets can improve economic efficiency.
- 2.6 Describe how government policies can improve economic outcomes.
- 2.7 Explain how government policies may stabilize the economy.
- 2.8 Discuss how increasing productivity leads to higher economic growth.

Robert L. 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 your final exam is today? 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.

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*. However, learning economics requires more than picking up this new terminology; it also involves using its powerful tools to improve your understanding of a whole host of issues in the world around you.

This chapter presents eight powerful ideas that serve as the foundation of economics. Most of economics is really knowing certain principles well and how and when to apply them. These few basic ideas will occur repeatedly throughout the book 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: (1) People face scarcity and costly trade-offs, (2) people are rational decision makers who engage in marginal thinking, and (3) people respond predictably to incentives. The next three ideas emphasize the interaction of people: (4) Specialization and trade make people better off, (5) markets can improve economic efficiency, and (6) appropriate government policies can improve economic outcomes. The final two ideas are about how the economy as a whole interacts: (7) Government policies may help stabilize the economy, and (8) increasing productivity leads to economic growth.

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

- 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?

2.1a 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. We may also 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.

2.1b 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, such as 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 entrepreneurial ability.

labor: the physical and mental 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

entrepreneurial ability: the ability to develop new products or improve existing products and/or production processes

entrepreneurs: those who combine labor, land, and capital to produce goods and services and assume the risk of running the operation

Labor is the total of both physical and mental effort expended by people in the production of goods and services. Many goods and services are produced with labor—everything from a baseball game to a brain surgery. Economists call the improvement in labor capabilities that results from education, training, and apprenticeships *human capital*. How much a country produces depends not only on the efforts of its workers (labor) but also on the workers' productivity, which is enhanced by education and training (human capital). The services of a teacher, a nurse, a cosmetic surgeon, a professional golfer, and an electrician all fall under the general category of labor. Economists call the factor payments that go to labor *wages*.

Land includes the "gifts of nature," or the natural resources used in the production of goods and services. Economists consider land to include trees, water, minerals, and so on, along with the physical space we normally think of as land. Economists call the factor payments that go to land *rent*.

Capital consists of the equipment and structures used to produce goods and services. Office buildings, tools, machines, and factories are all considered capital goods. Manufactured goods that are used to produce other products are also capital goods. Economists call the factor payments that go to capital *interest*.

Entrepreneurial ability is a special human resource related to labor. It is the ability to develop new products or processes of production. This unique skill comes from the entrepreneur. The **entrepreneur** combines the resources of labor, land, and capital to produce goods and services. Entrepreneurs make the tough and risky decisions about what goods and services to produce and how. 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. Every firm starts off as a risky idea of an entrepreneur, such as Ford, Microsoft, Apple, Google, and Amazon—they all began as an idea of some entrepreneur.

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

Entrepreneurs can introduce 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.

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

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

2.1c 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 than goods, but they are certainly no less valuable.

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 for most of us in most circumstances because it is desirable and abundant. Garbage is *not* scarce because it is abundant but not desirable. However, freedom, books, vacations, computers, smartphones, cars, houses, drinkable water, clean air, health, and even 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 this book.

2.1d What Are Bads?

In contrast to goods, **bads** are 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, such as garbage, removed. The elimination of the bad—garbage removal, for example—is a good. A good to one person may be a bad to another. For example, the sound of a Harley-Davidson with its pipes revving might be a good to its owner, but a bad to the neighbors—especially at 5:00 on Saturday morning.

bads: items that we do not desire or want, where less is preferred to more, such as terrorism, smog, or poison oak

2.1e 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 person may face a scarcity of garage space for his or her 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. The 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.

2.1f 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 "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 as—if not faster than—our ability to meet those wants.

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• Scarcity exists even for billionaire Bill Gates. If he had more resources at his disposal, he could do even more for others. •

2.1g 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 moved much faster 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 people are stopped by the urgent need police. Their reasoning 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," or "Oh, no, 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 why the concept of need falls apart as a means of explaining

What is the difference between a want and a need?

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behavior. It is impossible to make the concept of need useful when it is so hard to define or compare the "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 unsatisfied. We might satisfy our want for a new car, but it may leave other wants, such as a trip to Hawaii, tuition, or paying rent, unfilled.

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

2.1h Scarcity Forces Us to Choose

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.

2.1i 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 its 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 care, education, or national defense.

2.1j To Choose Is to Lose

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

Every choice involves a cost. Anytime you are doing something, you could be doing something else. The next 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? Or what if you were planning on going to the gym to work out, but then your best friend called and invited you to sit in front-row seats at a Taylor Swift concert (your favorite artist)? What just happened to the cost of going to the gym? The next best 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. The higher the opportunity cost of doing something, the less likely it will be done. So if the opportunity cost of going to class increases relative to its benefit, you will be less likely to go to class.

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.

Opportunity costs are subjective, and when you make a choice, you may not know what you are giving up with perfect certainty. You really only know what you expected to give up. For example, suppose that you stayed home from a concert to work on a research paper. Later, you found out that the concert was canceled—your decision cost you less than you thought. And the choices that you do make may turn out badly—as would be the case if you decided to take a hike in the mountains and there was an unexpected thunderstorm.

As another example, there are some noteworthy people who quit college to pursue their dreams. Tiger Woods dropped out of Stanford (as an economics major) to join the PGA golf tour. Bill Gates dropped out of Harvard to start a software company with Paul Allen, who dropped out of Washington State University. Larry Ellison of Oracle dropped out of the University of Chicago. Mark Zuckerberg dropped out of Harvard to work on Facebook. 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 (LA Laker), Kobe Bryant (former LA Laker), and Alex Rodriguez (former New York Yankee) 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 these people millions of dollars. We cannot say it would have been the wrong decision to stay in or start college, but it would have been costly. Their opportunity cost of staying in or going to college was high based on their *expected* payoffs. What would you have done in their circumstances?

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

2.1k Money Costs and Non-money Costs

If you go to the store to buy groceries, you have to pay for the items you buy. 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 non-money costs incurred to acquire the groceries—time spent getting to the grocery store, finding a parking place, shopping, and waiting in the checkout line. The non-money 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 non-money 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 to purchase your ticket? 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 the value you place on your time spent waiting in long checkout lines. Also, buying food in bulk quantities may be less expensive per ounce but may 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 Agricultural State 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?

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 latest 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.

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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."

BUSINESS WATCH

Opportunity Costs and the Decline in College Football Attendance

Between 2008 and 2015, the average attendance at college football games fell more than 6 percent. Bowl game attendance fell even further—by 15 percent during that same time period. It is not because college football is less popular—television ratings are at all-time highs. So why the fall in attendance? Some analysts have pointed to high-definition televisions (HDTVs), the price of a college football ticket and concessions, the lack of Wi-Fi availability at stadiums, few large-screen scoreboards to see replays, and inconvenient scheduling times.

In short, the opportunity cost of going to a college football game has risen over the years. You can now get a great experience at home. Imagine watching a 75-inch OLED 4K ultra HDTV from your media chair, with the kitchen—food and beverages—only a few feet way. You can watch several different games that are on at the same time. And during the commercials, you can text and tweet and go to an uncrowded, clean bathroom. And the only obnoxious fans are the ones you invited yourself.

2.1I 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 more than 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 non-money 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 with your family (and living at home may have substantial non-money costs). Even if you stayed at home, your parents would sacrifice something; they could have rented your room out or used the room for some other purpose, such as storage, a guest room, a home office, a sibling's room, and so on.

How often do people consider the full opportunity cost of raising a child to age 18? The obvious money costs include food, visits to the doctor, clothes, piano lessons, time spent at soccer practices, and so on. According to the Department of Agriculture, a middle-income family with a child born in 2017 can expect to spend roughly $250,000 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.

Andrey Rudakov/Bloomberg via Getty Images

• 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; it also cost them the value of their 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. •

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 money price. Many 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.

SECTION QUIZ

1. Scarcity occurs because our __________ wants exceed our __________ resources.
   a. limited; unlimited
   b. unlimited; limited
   c. limited; limited
   d. unlimited; unlimited
2. 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. entrepreneurs—who combine labor, land, and capital to produce goods and services.
   e. all of the above.
3. 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.
4. 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.

5. Money costs
   a. are not opportunity costs because 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).
6. Which of the following involve(s) 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
7. 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

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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 (Los Angeles Lakers) than it is for most undergraduates?
8. Why is the opportunity cost of the time spent getting an MBA typically lower for a 22-year-old straight out of college than for a 45-year-old experienced manager?

Multiple-choice answers: 1. b 2. e 3. e 4. b 5. b 6. d 7. d

rational decision making: the idea that people do the best they can, based on their values and information, under current and anticipated future circumstances

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?

ECS

economic content standards

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.

2.2a What Is Rational Decision Making?

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.

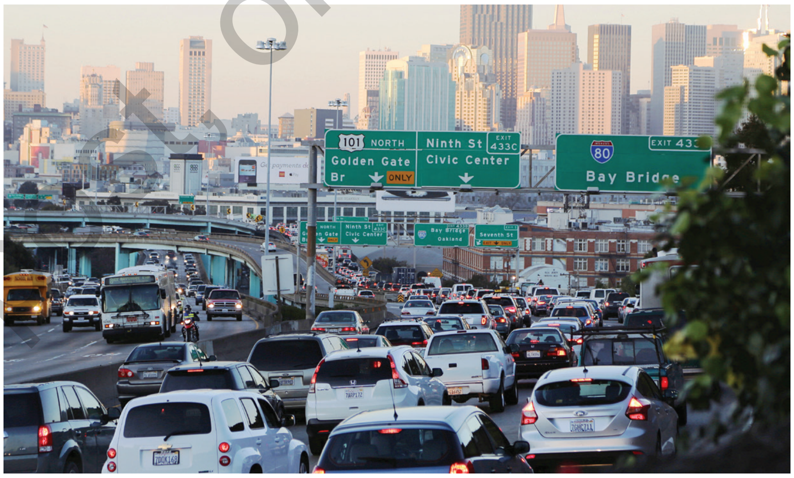
2.2b Many Choices We Face Involve Marginal Thinking

Some decisions are "all or nothing"—for example, 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* you will 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 study a little more, I might be able to improve my grade," or "If I have a little better concentration when I am 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 to or subtracting from the current situation. In short, they are the small (or large) incremental changes to a plan of action. They can involve a small decision, such as deciding whether to eat dessert; you must weigh the marginal benefits (the satisfaction gained from a piece of pie) versus the marginal cost (the extra money, time, and calories). Or these choices can involve a large decision, such as deciding to quit school and take a job.

marginal thinking: focusing on the additional, or marginal, choices; marginal choices involve the effects of adding to or subtracting from the current situation; 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. Or a firm might have to weigh the marginal benefits and marginal costs when deciding whether to build an additional new plant or relocate.

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 a few cans of soda. In this case, thinking at the margin can increase total profits, even if it means selling at less than the average cost of production.



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• During rush hour, some drivers will switch lanes if they perceive one lane to be moving faster than another. This is purposeful behavior because drivers believe it will minimize their travel costs. These are also marginal adjustments. People are constantly weighing the marginal benefits of moving a little faster and the marginal costs of changing from their current lane to a new lane. Drivers do not have perfect information when they make their decisions. They may have selected a new lane that is now moving slower, but when they made that choice, they thought it was optimal. Faced with an array of choices, consumers, workers, and firms rationally compare the expected marginal benefits and the expected marginal costs when making their decisions. •

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 pursue an activity only if their expected marginal benefits are greater than their expected marginal costs of pursuing that activity one step further, *E(MB) > E(MC)*.

rule of rational choice: the idea that individuals will pursue an activity if the expected marginal benefits are greater than the expected marginal costs

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 8:00 A.M. class but have been up very late. When the alarm goes off at 7:00 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 benefit** (the difference between the expected marginal benefits and the expected marginal costs) of skipping class has 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.

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?

To determine the optimal or best public policy program, voters and government officials must compare the expected marginal benefits with 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 book. Because whether it is consumers, producers, or policy makers, they all must compare the expected marginal benefits and the expected marginal costs to determine the best level at which to consume, produce, or provide public programs.

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 that 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.

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

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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? •

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. Another study produced similar results with the introduction of airbags. That is, drivers with airbags engaged in enough additional reckless driving to offset the safety benefits of the airbags. People still benefited from airbags but took the benefits in the form of increased reckless driving. The real losers were those with no airbags and pedestrians; they had increased accidents without deriving any of the benefits from increased safety.

Shouldn't producers try to make products perfectly safe?

In short, 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, realizing that safer driving usually requires a driver to slow down and be more careful, also requiring more of a driver's time and energy. You would expect drivers to drive more slowly when the benefits of increased safety are high, such as driving on an icy, crowded road.

How recklessly would you drive if there were six sharp daggers sticking out of your steering wheel? Would that change the marginal benefits and costs of driving recklessly? Please don't try it, but the point is that sometimes the safer you make something, the more recklessly people behave.

SECTION QUIZ

1. Which of the following demonstrates marginal thinking?
   a. Deciding to never eat meat
   b. 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
   c. Working out an extra hour per week
   d. Both (b) and (c)
2. Which of the following best reflects rational decision-making behavior?
   a. Analyzing the total costs of a decision
   b. Analyzing the total benefits of a decision
   c. Undertaking an activity as long as the total benefits exceed the total costs
   d. Undertaking an activity whenever the marginal benefit exceeds the marginal cost
   e. Undertaking activities as long as the marginal benefit exceeds zero
3. 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
   a. $6.
   b. $4.
   c. $3.
   d. $2.
   e. none of the above.
4. Marginal thinking would help improve the results of which of the following activities?
   a. Studying
   b. Driving
   c. Shopping
   d. Looking for a place to park your car
   e. All of the above

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

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?

Multiple-choice answers: 1. d 2. d 3. d 4. e

2.3 Idea 3: People Respond Predictably to Changes in Incentives

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

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

- Can we predict how people will respond to changes in incentives?
- What are positive incentives?
- What are negative incentives?

2.3a 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. In other words, changes in incentives cause people to change their behavior in predictable ways.

Atilgan Ozdil/Anadolu Agency/Getty Images

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.

2.3b 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 costs. 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 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 discourage the production and consumption of high pollution-emitting cars. 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 less-polluting 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.

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People respond predictably to positive and negative incentives.

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 that 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 markedly, 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 that *more* people will be charitable, even some of those who are stingy.

Policy makers have to be very careful of incentives, too. A poorly designed policy that does not correctly anticipate how the policy will affect behavior can have adverse consequences. In Chapter 6, we will see how a tax policy intended to tax the wealthy went awry. The luxury tax on yachts was expected to raise billions of dollars in tax revenues from the well-to-do. It didn't—the wealthy bought fewer domestic yachts at higher prices. So not only did the government not raise much tax revenue; many yacht workers lost their jobs. Finally, Congress repealed the tax.

IN THE NEWS

Cash Incentives Improve Standardized Test Scores


Chris Hondros/Newsmakers

Some students find it very difficult to be motivated to learn in the classroom. This is especially the case for students who come from disadvantaged backgrounds, where high school dropout rates are high and attendance and standardized test scores are low. Researchers have shown that money incentives improve performance on standardized test scores for students who come from disadvantaged economic backgrounds. In fact, researchers have found that even more money leads to even higher scores on standardized tests. A caveat: It is important to consider how the incentives are set up and how quickly the recipients receive their rewards, and the incentives must take into consideration the characteristics of the student. That is, wealthy students in competitive school districts may not respond as well to this set of incentives.

iStock/M-image

• In many countries of the world, the number of babies is on the decline. In several European countries and Japan, this poses a problem because fewer babies means an aging population and fewer people of working age to pay taxes to fund government pensions for older adults. What can the government do? It can subsidize those who have babies.

At one time, Estonia was one of the fastest-shrinking nations in the world. The government stepped in and provided pregnant women with monthly stipends. Without the subsidies, women could not afford to take time off work to have children. In addition, the government provides monthly subsidies for childcare. As you would expect, Estonia's fertility rate has increased. China, which once had a strict one-child-per-family policy, is now considering giving a government subsidy for a second child. Only time will tell if these policies will be effective in combating the social and economic forces that have led to declining fertility rates. •

SECTION QUIZ

1. Positive incentives make actions ___ likely; negative incentives make actions ___ likely.
   a. more; more
   b. more; less
   c. less; more
   d. less; less

2. A higher price is a ___ incentive to buyers and a ___ incentive to sellers.
   a. positive; positive
   b. positive; negative
   c. negative; positive
   d. negative; negative

3. Because most people seek opportunities that make people better off,
   a. it makes it more difficult to predict behavior.
   b. we can predict what will happen when incentives are changed.
   c. we cannot predict as well as we could if their behavior was random and chaotic.
   d. None of the above is true.

4. If household water usage was taxed, economists would expect
   a. people to use less water.
   b. 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.
   c. that people would not reduce their water consumption because people need water.
   d. none of the above.
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 multimillion-dollar contract offer after his junior year

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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?

Multiple-choice answers: 1. b 2. c 3. b 4. a 5. d

2.4 Idea 4: Specialization and Trade Can Make People Better Off

- What is the relationship between opportunity cost and specialization?
- What are the advantages of specialization in production?

2.4a 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 activity, 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. Everyone has a comparative advantage in something, and everyone has a comparative disadvantage in something.

specializing: concentrating on the production of one good, or a few goods

comparative advantage: an advantage that occurs when a person, a region, or a country can produce a good or service at a lower opportunity cost than others

2.4b Absolute versus Comparative Advantage

If one country can produce a good using fewer resources, then we say it has an *absolute advantage* over its competitor. Suppose U.S. workers can make both airplanes and auto parts in less time than Mexico. That is, the United States has an absolute advantage over Mexico in producing both goods. U.S. workers are more productive at producing auto parts and airplanes. But trade is based on comparative advantage, not absolute advantage. Individuals, firms, and countries are better off if they produce those goods where they have a comparative advantage—the ability to produce a good at a lower opportunity cost than other producers. That is, Mexico produces auto parts for the United States because Mexico has even lower productivity compared with U.S. workers in other industries, such as producing airplanes. Unless the two countries have identical opportunity costs of producing the goods, one country will have a comparative advantage in producing one good, and the other country will have a comparative advantage in producing the other good. Trade benefits everyone because it allows people to specialize in activities where they have a comparative advantage.

2.4c 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.

Mehedi Hasan/NurPhoto via Getty Images

• Bangladesh exports low-cost garments to mass-market retailers such as Walmart. U.S. workers are a lot more productive in building airplanes and a little more productive in producing clothes than Bangladeshi workers. That is, the United States has an *absolute advantage*; it can produce planes and clothes using fewer resources than Bangladesh. However, 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—building airplanes. And the Bangladeshi workers would concentrate on the tasks where their productivity is only slightly lower—creating clothing. That is, the United States would have a comparative *dis*advantage in producing cloth. •

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, examples of regional specialization include the Midwest with its wheat, the Northeast with its fishing fleets, and the Northwest with its timber.

2.4d 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 to complete. 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 is also important to remember that even if everyone had similar skills and resources, specialization could still lead to greater production because the concentration of the production of some goods and services in one location can sometimes reduce the costs of production.

Ievgeniia Pidgorna / Alamy Stock Photo

• 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 have given us the ability to do things we do not even understand. •

2.4e 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 at all). 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 the products that it produces at a lower opportunity cost and to trade them 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 would be 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?

Suppose the United States is better at producing wheat than Brazil, and Brazil is better at producing coffee than 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.

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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.

USE WHAT YOU'VE LEARNED

Comparative Advantage

Question: Should an attorney who types 100 words per minute hire an administrative assistant to type her legal documents, even though the assistant 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?

Answer: If the attorney types her own documents, it will cost $500 ($100 per hour × 5 hours). If she has the administrative assistant type her documents, it will cost $100 ($10 per hour × 10 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.

iStock/shanecotee

• Exchange, or simultaneously swapping two different things, had to be invented. There is very little evidence of one animal giving an unrelated animal one thing in exchange for a different thing. As Adam Smith, the father of modern economics, said, “No man ever saw a dog make a fair and deliberate exchange of a bone with another dog.” But the beauty of trade is that it benefits both parties because each willing participant places a higher value on what they get from another than what they have to give up to get it. And the more individuals trade, the more they gain from specialization. •

SECTION QUIZ

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

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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.

Multiple-choice answers: 1. c 2. e 3. e 4. b 5. e 6. b

efficiency: when an economy gets the most out of its scarce resources

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?

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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?

2.5a How Does the Market Work to Allocate Resources?

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—for instance, 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.

2.5b 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.

BUSINESS WATCH

Cell Phones Make Indian Fishermen More Efficient

Economist Robert Jensen has found that the introduction of cell phones has made markets more efficient for Indian fisherman. Prior to the introduction of cell phones, fishermen would have to guess to see which markets would have buyers. Buyers would also have to guess which markets had sellers. And without refrigeration, many unsold fish would be wasted by the end of the day. Cell phones made the market more efficient. Fishermen could now call ahead to see which markets would offer the best price. There soon was a better match between buyers and sellers and fewer wasted fish.

Dhiraj Singh/Bloomberg via Getty Images

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.

2.5c 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. The price controls impede the market's ability to coordinate the decisions of households and firms (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. provide 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 out 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. ensure 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?

Multiple-choice 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?
- Why can't we rely exclusively on the "invisible hand" of the market to determine economic decisions?
- What are market failures?
- Does the market distribute income fairly?

2.6a Property Rights and the Legal System

ECS

economic content standards

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.

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 the 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: when the economy fails to allocate resources efficiently on its own

externality: a benefit or a cost from consumption or production that spills over to those who are not consuming or producing the good

2.6b 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**. One type of market failure is called an *externality*. An **externality** occurs when there is a benefit or a cost that spills over to those who are not consuming or producing the good. Pollution is a classic example of an externality. A steel mill might put soot and other forms of "crud" into the air as a by-product 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 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 therefore produces more than the ideal output—which is inefficient because it is an overallocation of resources. However, well-designed public policy can act to help internalize these externalities and enhance economic efficiency (as we will see in Chapter 8).

Can markets fail to allocate resources efficiently?

When one party prevents other parties from participating in mutually beneficial exchange, it also causes a market failure. This situation occurs in a monopoly, with its single seller of goods. Because the monopolist charges a 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.

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

iStock/ginosphotos

• Did you know that the pollution from coal-burning power plants in China can end up on the West Coast of the United States? •

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 who 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. The market does determine what goods are going to be produced and in what quantities, and it also determines the distribution of output among members of society. However, a market economy cannot guarantee everyone adequate amounts of food, shelter, and health care.

As with other aspects of government intervention, the degree-of-equality argument can generate some sharp disagreements. What is "fair" to 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 policy makers make decisions recognizing that there is a trade-off between efficiency (creating a bigger pie) and equality (dividing that pie). Some policies, such as a progressive income tax system, unemployment insurance, and welfare programs, are aimed at redistributing the pie. While these programs aim to achieve a more equal distribution of income, they also may distort incentives for others to work hard and produce more goods and services. But that does not mean that the poor should be ignored because helping them distorts incentives. We just need to recognize that there are trade-offs. In short, government can help promote efficiency (the size of the pie) and equality (how the pie is divided up).

iStock/ewg3D

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

GOVERNMENT IS NOT ALWAYS THE SOLUTION

However, just because the government could improve the situation does not mean it always 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. Or policies may be passed to help the politically powerful. 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.

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. progressive income taxes.
   b. unemployment insurance.
   c. welfare programs.
   d. all of the above.

---

1. Why do owners with clear property rights have incentives to use their property efficiently?
2. When might the market fail to allocate resources efficiently?
3. Why would the government want to prevent market conditions of insufficient competition?
4. Why are policy makers often confronted with a trade-off between equality and efficiency?

Multiple-choice answers: 1. d 2. f 3. d 4. d

2.7 Idea 7: Government Policies May Help Stabilize the Economy

- What can happen when total spending is insufficient?
- What can happen when total spending is excessive?
- What is inflation, and what causes it?
- How can government policies help stabilize the economy?

ECS

economic content standards

Unemployment imposes costs on individuals and the overall economy. Inflation, both expected and unexpected, also imposes costs on individuals and the overall economy.

The market mechanism does not always ensure 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. Almost everyone is affected directly or indirectly by high rates of unemployment or high and variable rates of inflation.

2.7a Inflation

What is inflation, and what causes it? *Inflation* is an increase in the overall price level in the economy. Most economists believe that in the long run, sustained inflation is caused by the government printing too much money. When the government prints too much money, money loses its value. In the United States, the high inflation rate of the 1970s was associated with a rapid growth in the money supply, and the low inflation of the 1980s was associated with a slower growth in the money supply. In its extreme form, inflation can lead to a complete erosion of 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.

2.7b 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.

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 are needed by employers, or there are seasonal fluctuations in demand.

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 aggregate demand (the total of all planned expenditures in the economy). Alternatively, if there is a problem with persistent inflation, policy makers may raise taxes and/or reduce government spending to decrease aggregate demand. Also, the Federal Reserve can use monetary policy to change the money supply and interest rates in an effort to influence total spending. Many economists believe that these government policies play an important role in stabilizing the economy. In 2008 and 2009, the United States turned to both fiscal and monetary policy to respond to the economic downturn.

ECS *economic content standards*

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

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. The government may help stabilize the economy
   a. by changing the money supply and interest rates.
   b. by using changes in government spending.
   c. by using changes in taxes.
   d. by using any of the above.

1. What is inflation?
2. What causes inflation?
3. What government policy changes might be effective in increasing employment in recessions?
4. What government policy changes might be effective in controlling inflation?

Multiple-choice answers: 1. c 2. b 3. d 4. d

2.8 Idea 8: Increasing Productivity Leads to Economic Growth

- What is economic growth?
- Do differences in growth rates matter?
- What factors contribute to increases in productivity?

2.8a Defining Economic Growth

economic growth: the economy's ability 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 gross domestic product [GDP] per capita), reflecting the expansion of the economy over time. That is, real GDP per capita measures real GDP divided by population. We focus on per capita (per person) 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, yet the poor might achieve little or no improvement in their standard of living.

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 has risen more than eightfold, population more than fivefold.

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

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."

Because of differences in growth rates, some countries will become richer than others over time. If today's richest countries achieve relatively slower rates of economic growth, they 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 25 years. Because of this economic growth, much of the world is now poorer than these two heavily populated countries. 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.

2.8b Economic Growth, Productivity, and the Standard of Living

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 number of goods and services a worker can produce per hour. In countries where workers can produce a large quantity of goods and services per hour, most people will experience a higher standard of living. In countries where workers can only produce a small amount of goods and services per hour, most people will experience a lower standard of living. So when real wages (that is, adjusted for inflation) rise in the United States, it is because workers have become more productive, not because of labor unions or minimum wage increases. And higher real wages mean higher standards of living.

productivity: output per worker

2.8c What Factors Contribute to Increases in Productivity?

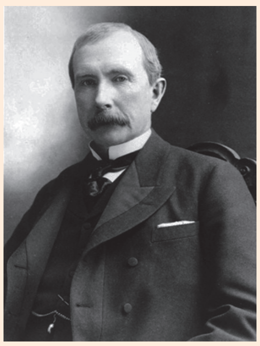
Several major factors contribute to productivity growth. These include physical capital, human capital, natural resources, and technological change, as well as improvements in economic institutions and incentives. Today's workers generally produce more output than workers in the past. And workers in some countries, such as 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 (such as 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. So to increase living standards, policy makers could raise productivity by investing in education, by providing the tools needed to produce goods and services, and by providing access to better technology.

IN THE NEWS

Rockefeller and Carnegie

Is your standard of living greater than Rockefeller and Carnegie? John D. Rockefeller (left) and Andrew Carnegie (right) were the wealthiest Americans who ever lived. John D. Rockefeller had wealth valued at $340 billion in today's dollars (Jeff Bezos's [Amazon] estimated worth is about $112 billion), and Andrew Carnegie had wealth valued at $310 billion in today's dollars. But were they richer than you? Look what 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 medical technology and sanitation have increased life expectancies about 50 percent since their day.



The Rockefeller Archive Center

• John D. Rockefeller (1839–1937) •

B.L.H. Dabbs/Library of Congress Prints and Photographs Division

• Andrew Carnegie (1835–1919) •

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. 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

---

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 factors lead to increases in labor productivity?

Multiple-choice answers: 1. d 2. d 3. e

INTERACTIVE SUMMARY

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 __________.

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. We 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 case of pollution.
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. Most economists believe that in the long run inflation is caused by printing too much __________.
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 influence total spending.

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

37. __________ is the number 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; entrepreneurial ability 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. money; non-money 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. language; relative availability of products; relative value; less; more 27. voluntary; price 28. Market failure 29. efficiently; distributed 30. failure 31. unemployment 32. inflation 33. money 34. fiscal 35. monetary 36. productivity 37. Productivity; sustained

KEY TERMS AND CONCEPTS

bads 35
capital 34
comparative advantage 47
economic goods 34
economic growth 58
efficiency 52
entrepreneurial ability 34
entrepreneurs 34
externality 54
goods 34
intangible goods 34
labor 34
land 34
marginal thinking 41
market failure 54
negative incentive 44
net benefit 42
opportunity cost 36
positive incentive 44
price controls 53
productivity 59
rational decision making 40
rule of rational choice 41
services 34
specializing 47
tangible goods 34

ADDITIONAL 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, we must 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 (Cleveland Cavaliers star) than it is for most undergraduates?**

   LeBron James's forgone alternative to going to college—starting a highly paid professional basketball career sooner than he could have otherwise—was far more lucrative than the alternatives facing most undergraduates. Because the 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 the 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 costs to the decision maker, the rule of rational choice could be restated as follows: 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 the case for dessert. If parents let their children eat dessert first, children would often not eat the food that is 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 People 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 things they can do at lower opportunity costs than others, and they 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, a region, or a nation to specialize in the products that it produces relatively better than others and to trade for the 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 not as good, in an absolute sense, at that class as 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.

2.6 Idea 6: Appropriate Government Policies Can Improve Market Outcomes

1. **Why do owners with clear property rights have incentives to use their property efficiently?**

   Private property rights mean that owners will capture the benefits and bear the cost of their choices with regard to their property, making it in their self-interest to use it efficiently, in ways in which the benefits are expected to exceed the costs. Owners with property rights have a greater incentive to maintain, improve, and conserve their property to preserve or increase its value. When the government defines and protects property rights, it encourages investment, innovation, exchange, conservation, and economic growth.

2. **When might the market fail to allocate resources efficiently?**

   Markets can sometimes fail to allocate resources efficiently in what are called *market failures*. These can represent situations such as externalities, where costs can be imposed on some individuals without their consent (e.g., by dumping "crud" in their air or water), and where firms may have market power to distort prices in their favor (against consumers' interests).

3. **Why would the government want to prevent market conditions of insufficient competition?**

   When there is insufficient or restricted competition, outputs are lower and prices paid by consumers are higher than they would be with more effective competition. By encouraging competition and discouraging monopoly, then, consumers can benefit.

4. **Why are policy makers often confronted with a trade-off between equality and efficiency?**

   Government policy makers make decisions recognizing that there is a trade-off between efficiency (creating a bigger pie) and equality (dividing that pie). Some policies, such as a progressive income tax system, unemployment insurance, and welfare programs, are aimed at redistributing the pie. While these programs aim to achieve a more equal distribution of income, they also distort incentives for others to work hard and produce more goods and services (a shrinking pie).

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 the 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 low inflation rates in the 1980s were associated with slow growth in the quantity of money.

3. **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.

4. **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: Increasing Productivity Leads to 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 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: physical capital, human capital, natural resources, technological change, and improvements in economic institutions and incentives.

PROBLEMS

1. Which of the following goods are scarce?
   a. garbage
   b. salt water in the ocean
   c. clothes
   d. clean air in a big city
   e. dirty air in a big city
   f. a public library
2. Explain the difference between poverty and scarcity.
3. The automotive revolution after World War II reduced the time involved with travel and shipping goods. This innovation allowed the U.S. economy to produce more goods and services because 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.
4. Suppose 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?
5. In 2017, Taco Bell and Major League Baseball (MLB) partnered to bring every American a “free” Doritos Locos Taco if a base was stolen during the first three games of the World Series. Is this really a “free” taco?
6. 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?
7. List the opportunity costs of the following:
   a. going to college
   b. missing a lecture
   c. withdrawing and spending $100 from your savings account, which earns 5 percent interest annually
   d. 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 such as 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 of specialization to Fran. 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?
    c. timber: Iowa or Washington?
    d. 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 effects that 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, such as 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?
    a. A fungus infestation wipes out half of the Idaho potato crop.
    b. The price of potato chips rises.
    c. Scientists find that eating potato chips makes you better looking.
    d. 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?
    a. The street is busy.
    b. The street is empty, and it is 3:00 A.M.
    c. You are in a huge hurry.
    d. A police officer is standing 100 feet away.
    e. The closest crosswalk is a mile away.
    f. The closest crosswalk is 10 feet away.