



PART ONE INTRODUCTION

1 WHAT IS ECONOMICS?

After studying this chapter, you will be able to:

- ◆ Define economics and distinguish between microeconomics and macroeconomics
- ◆ Explain the two big questions of economics
- ◆ Explain the key ideas that define the economic way of thinking
- ◆ Explain how economists go about their work as social scientists and policy advisers
- ◆ Describe the jobs available to a graduate with a major in economics

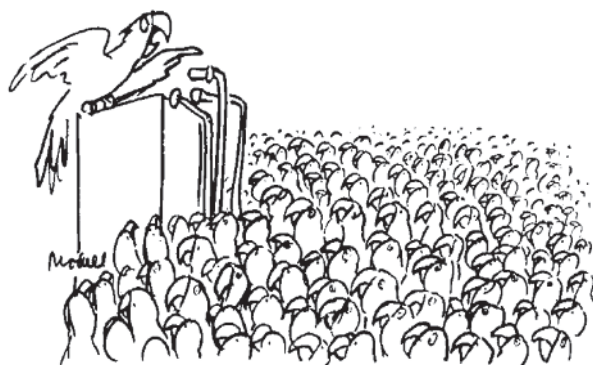
Is economics about money: How people make it and spend it? Is it about business, government, and jobs? Is it about why some people and some nations are rich and others poor?

Economics is about all these things. But its core is the study of *choices* and their *consequences*.

Your life will be shaped by the choices that you make and the challenges that you face. To face those challenges and seize the opportunities they present, you must understand the powerful forces at play. The economics that you're about to learn will become your most reliable guide. This chapter gets you started by describing the questions that economists try to answer and looking at how economists think as they search for the answers.

Definition of Economics

A fundamental fact dominates our lives: We want more than we can get. Our inability to get everything we want is called **scarcity**. Scarcity is universal. It confronts all living things. Even parrots face scarcity!



Not only do I want a cracker—we all want a cracker!

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Think about the things that *you* want and the scarcity that *you* face. You want to go to a good school, college, or university. You want to live in a well-equipped, spacious, and comfortable home. You want the latest smartphone and the fastest Internet connection for your laptop or tablet. You want some sports and recreational gear—perhaps some new running shoes, or a new bike. You want much more time than is available to go to class, do your homework, play sports and games, read novels, go to the movies, listen to music, travel, and hang out with your friends. And you want to live a long and healthy life.

What you can afford to buy is limited by your income and by the prices you must pay. And your time is limited by the fact that your day has 24 hours.

You want some other things that only governments provide. You want to live in a safe neighborhood in a peaceful and secure world, and enjoy the benefits of clean air, lakes, rivers, and oceans.

What governments can afford is limited by the taxes they collect. Taxes lower people's incomes and compete with the other things they want to buy.

What *everyone* can get—what *society* can get—is limited by the productive resources available. These resources are the gifts of nature, human labor and ingenuity, and all the previously produced tools and equipment.

Because we can't get everything we want, we must make *choices*. You can't afford *both* a laptop *and* an iPhone, so you must *choose* which one to buy. You can't spend tonight *both* studying for your next test *and* going to the movies, so again, you must *choose* which one to do. Governments can't spend a tax dollar on *both* national defense *and* environmental protection, so they must *choose* how to spend that dollar.

Your choices must somehow be made consistent with the choices of *others*. If you choose to buy a laptop, someone else must choose to sell it. Incentives reconcile choices. An **incentive** is a reward that encourages an action, or a penalty that discourages one. Prices act as incentives. If the price of a laptop is too high, more will be offered for sale than people want to buy. And if the price is too low, fewer will be offered for sale than people want to buy. But there is a price at which choices to buy and sell are consistent.

Economics is the social science that studies the *choices* that individuals, businesses, governments, and entire societies make as they cope with *scarcity* and the *incentives* that influence and reconcile those choices.

The subject has two parts:

- Microeconomics
- Macroeconomics

Microeconomics is the study of the choices that individuals and businesses make, the way these choices interact in markets, and the influence of governments. Some examples of microeconomic questions are: Why are people streaming more movies? How would a tax on on-line shopping affect Amazon?

Macroeconomics is the study of the performance of the national economy and the global economy. Some examples of macroeconomic questions are: Why does the U.S. unemployment rate fluctuate? Can the Federal Reserve make the unemployment rate fall by keeping interest rates low?

REVIEW QUIZ

- 1 List some examples of the scarcity that you face.
- 2 Find examples of scarcity in today's headlines.
- 3 During the Covid pandemic, what incentives did you face and how did you respond?
- 4 Find an example of the distinction between microeconomics and macroeconomics in today's headlines.

Two Big Economic Questions

Two big questions summarize the scope of economics:

- How do choices end up determining *what, how,* and *for whom* goods and services are produced?
- Do choices made in the pursuit of *self-interest* also promote the *social interest*?

What, How, and For Whom?

Goods and services are the objects that people value and produce to satisfy wants. *Goods* are physical objects such as smartphones and automobiles. *Services* are tasks performed for people such as wireless service and auto-repair service.

What? *What* we produce varies across countries and changes over time. In the United States today, agriculture accounts for 1 percent of total production, industry (manufactured goods) for 11 percent, and services (retail and wholesale trade, healthcare, and education are the biggest ones) for 80 percent. In contrast, in low-income Ethiopia, agriculture accounts for 35 percent of total production, industry for 22 percent, and services for 44 percent.

Figure 1.1 shows these numbers and also the percentages for China, which fall between those for the United States and Ethiopia.

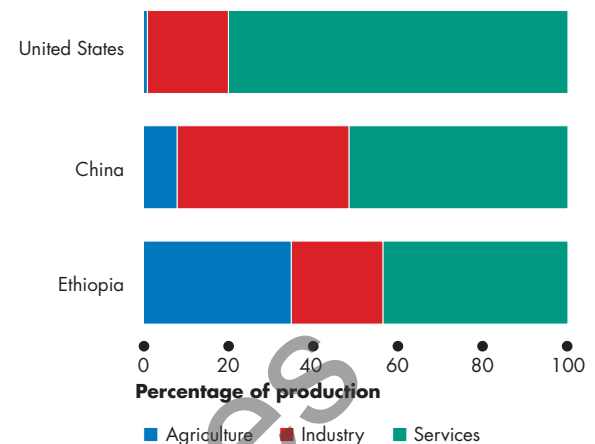
What determines these patterns of production? How do choices end up determining the quantities of smartphones, automobiles, wireless service, auto-repair service, and the millions of other items that are produced in the United States and around the world?

How? *How* we produce is described by the technologies and resources that we use. The resources used to produce goods and services are called **factors of production**, which are grouped into four categories:

- Land
- Labor
- Capital
- Entrepreneurship

Land The “gifts of nature” that we use to produce goods and services are called **land**. In economics, *land* is what in everyday language we call *natural resources*. It includes land in the everyday sense

FIGURE 1.1 What Three Countries Produce



Agriculture and industry are small percentages of production in rich countries such as the United States and large percentages of production in poor countries such as Ethiopia. Most of what is produced in the United States is services. The numbers for China fall between poor countries and rich countries.

Source of data: The World Bank Group: Data of World Bank 2021.

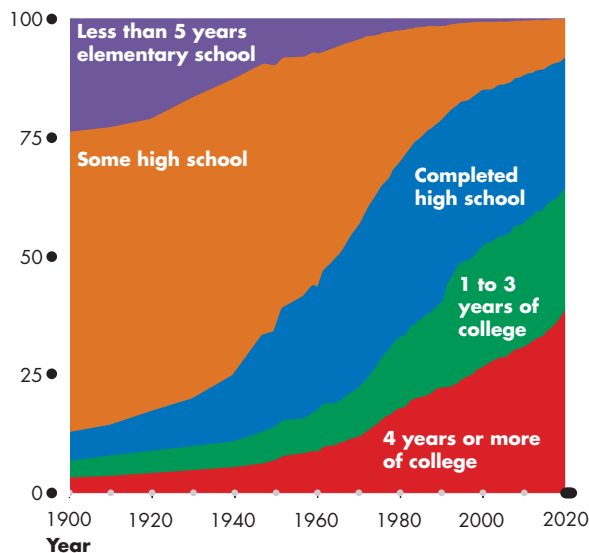
together with minerals, oil, gas, coal, water, air, forests, and fish.

Our land surface and water resources are renewable and some of our mineral resources can be recycled. But the resources that we use to create energy are nonrenewable—they can be used only once.

Labor The work time and work effort that people devote to producing goods and services is called **labor**. Labor includes the physical and mental efforts of all the people who work on farms and construction sites and in factories, shops, and offices.

The *quality* of labor depends on **human capital**, which is the knowledge and skill that people obtain from education, on-the-job training, and work experience. You are building your own human capital right now as you work on your economics course, and your human capital will continue to grow as you gain work experience.

Human capital expands over time. Today, 91 percent of the adult population of the United States have completed high school and 38 percent have a college or university degree. Figure 1.2 shows these measures of human capital in the United States and its growth since 1900.

FIGURE 1.2 A Measure of Human Capital

In 2020, 38 percent of the population aged 25 and older had 4 years or more of college, up from 2 percent in 1900. A further 53 percent had completed high school, up from 12 percent in 1900.

Source of data: U.S. Census Bureau, 2021.

Capital The tools, instruments, machines, buildings, and other constructions that businesses use to produce goods and services are called **capital**.

In everyday language, we talk about money, stocks, and bonds as being “capital.” These items are *financial capital*. Financial capital plays an important role in enabling businesses to borrow the funds that they use to buy physical capital. But financial capital is not used to produce goods and services and it is not a factor of production.

Entrepreneurship The human resource that organizes labor, land, and capital is called **entrepreneurship**. Entrepreneurs are the drivers of economic progress. They develop new ideas about what and how to produce, make business decisions, and bear the risks that arise from these decisions.

What determines how the factors of production are used to produce each good and service?

For Whom? *Who* consumes the goods and services that are produced depends on the incomes that people earn. People with large incomes can buy a wide range of goods and services. People with small

incomes have fewer options and can afford a smaller range of goods and services.

People earn their incomes by selling the services of the factors of production they own:

- Land earns **rent**.
- Labor earns **wages**.
- Capital earns **interest**.
- Entrepreneurship earns **profit**.

Which factor of production earns the most income? The answer is labor. In 2020, wages were 55 percent of total income and the incomes from land, capital, and entrepreneurship totaled 45 percent. Labor’s share has fallen slightly over the past 20 years.

Knowing how income is shared among the factors of production doesn’t tell us how it is shared among individuals. And the distribution of income among individuals is extremely unequal. You know of some people who earn very large incomes. In 2019, Stephen Curry earned \$74.4 million and LeBron James earned \$88.2 million. LeBron joined the Los Angeles Lakers in 2018 under a four-year \$153 million contract.

You know of even more people who earn very small incomes. Servers at McDonald’s average around \$11.50 an hour; checkout clerks, cleaners, and textile and leather workers all earn less than \$15 an hour.

You probably know about other persistent differences in the incomes people earn. Men, on average, earn more than women; whites earn more than minorities; college graduates earn more than high-school graduates.

We can get a good sense of who consumes the goods and services produced by looking at the percentages of total income earned by different groups of people. The 20 percent of people with the lowest incomes earn about 5 percent of total income, while the richest 20 percent earn close to 50 percent of total income. So on average, people in the richest 20 percent earn more than 10 times the incomes of those in the poorest 20 percent. There is even huge inequality within the richest 20 percent and the top 1 percent earns almost 15 percent of total income.

Why is the distribution of income so unequal?

Economics provides some answers to all these questions about *what*, *how*, and *for whom* goods and services are produced and much of the rest of this book will help you to understand those answers.

We’re now going to look at the second big question of economics: Do choices made in the pursuit of self-interest also promote the social interest?

Do Choices Made in the Pursuit of Self-Interest also Promote the Social Interest?

Every day, you and 328 million other Americans, along with 7.9 billion people in the rest of the world, make economic choices that result in *what, how, and for whom* goods and services are produced. These choices are made by people who are pursuing their self-interest.

Self-Interest You make a choice in your **self-interest** if you think that choice is the best one available for you. All the choices that people make about how to use their time and other resources are made in the pursuit of self-interest. When you allocate your time or your budget, you do what makes the most sense to you. You might think about how your choices affect other people and take into account how you feel about that, but it is how *you* feel that influences your choice. You order a home-delivery pizza because you're hungry, not because the delivery person needs a job. And when the pizza delivery person shows up at your door, he's not doing you a favor. He's pursuing *his* self-interest and hoping for a tip and another call next week.

The big question is: Is it possible that all the choices that each one of us makes in the pursuit of self-interest could end up achieving an outcome that is best for everyone?

Social Interest An outcome is in the **social interest** if it is best for society as a whole. It is easy to see how you decide what is in *your* self-interest. But how do we decide if something is in the social interest? To help you answer this question, imagine a scene like that in *Economics in the News* on p. 36.

Ted, an entrepreneur, creates a new business. He hires a thousand workers and pays them \$20 an hour, \$1 an hour more than they earned in their old jobs. Ted's business is extremely profitable and his own earnings increase by \$1 million per week.

You can see that Ted's decision to create the business is in his self-interest—he gains \$1 million a week. You can also see that for Ted's employees, their decisions to work for Ted are in their self-interest—they gain \$1 an hour (say \$40 a week). And the decisions of Ted's customers must be in their self-interest, otherwise they wouldn't buy from him. But is this outcome in the social interest?

The economist's answer is "Yes." It is in the social interest because it makes everyone better off. There are no losers.

Efficiency and the Social Interest Economists use the everyday word "efficient" to describe a situation that can't be improved upon. Resource use is **efficient** if it is *not* possible to make someone better off without making someone else worse off. If it *is* possible to make someone better off without making anyone worse off, society can be made better off and the situation is not efficient.

In the Ted story everyone is better off, so it improves efficiency and the outcome is in the social interest. But notice that it would also have been efficient if the workers and customers had gained nothing and Ted had gained even more than \$1 million a week. But would that efficient outcome be in the social interest?

Many people have trouble seeing the outcome in which Ted is the only winner as being in the social interest. They say that the social interest requires Ted to share some of his gain either with his workers in higher wages or with his customers in lower prices, or with both groups.

Fair Shares and the Social Interest The idea that the social interest requires "fair shares" is a deeply held one. Think about what you regard as a fair share. To help you, imagine the following game.

I put \$100 on the table and tell someone you don't know and who doesn't know you to *propose* a share of the money between the two of you. If you *accept* the proposed share, you each get the agreed upon shares. If you don't accept the proposed share, you both get nothing.

It would be efficient—you would both be better off—if the proposer offered to take \$99 and leave you with \$1 and you accepted that offer.

But would you accept the \$1? If you are like most people, the idea that the other person gets 99 times as much as you is just too much to stomach. "No way," you say and the \$100 disappears. That outcome is inefficient. You have both given up something.

When the game I've just described is played in a classroom experiment, about half of the players reject offers of below \$30.

So fair shares matter. But what is *fair*? There isn't a crisp definition of fairness to match that of efficiency. Reasonable people have a variety of views about it. Almost everyone agrees that too much inequality is unfair. But how much is too much? And inequality of what: income, wealth, or the *opportunity* to work, earn an income, and accumulate wealth?

You will examine efficiency again in Chapter 2 and efficiency and fairness in Chapter 5.

Questions about the social interest are hard ones to answer and they generate discussion, debate, and disagreement. Four issues in today's world put some flesh on these questions. The issues are:

- Globalization
- Information-age monopolies
- Climate change
- The Covid pandemic

Globalization The term *globalization* means the expansion of international trade, borrowing and lending, and investment.

When Nike produces sports shoes, people in Malaysia get work; and when China Airlines buys new airplanes, Americans who work at Boeing in Seattle build them. While globalization brings expanded production and job opportunities for some workers, it destroys many American jobs. Workers across the manufacturing industries must learn new skills, take service jobs, which often pay less, or retire earlier than previously planned.

Globalization is in the self-interest of those consumers who buy low-cost goods and services produced in other countries; and it is in the self-interest of the

multinational firms that produce in low-cost regions and sell in high-price regions. But is globalization in the self-interest of the low-wage worker in Malaysia who sews your new running shoes and the displaced shoemaker in Atlanta? Is it in the social interest?



ECONOMICS IN THE NEWS

The Invisible Hand

From Brewer to Bio-Tech Entrepreneur

Kiran Mazumdar-Shaw trained to become a master brewer and learned about enzymes, the stuff from which bio-pharmaceuticals are made. Discovering it was impossible for a woman in India to become a master brewer, the 25-year-old Kiran decided to create a bio-pharmaceutical business.

Kiran's firm, Biocon, employed uneducated workers who loved their jobs and the living conditions made possible by their high wages. But when a labor union entered the scene and unionized the workers, a furious Kiran fired the workers, automated their jobs, and hired a smaller number of educated workers. Biocon continued to grow and today, Kiran's wealth exceeds \$1 billion.

Kiran has become wealthy by developing and producing bio-pharmaceuticals that improve people's lives. But Kiran is sharing her wealth in creative ways. She has opened a cancer treatment center to help thousands of patients who are too poor to pay and created a health insurance scheme.

Source: Ariel Levy, "Drug Test,"
The New Yorker, January 2, 2012

THE QUESTIONS

- Whose decisions in the story were taken in self-interest?
- Whose decisions turned out to be in the social interest?
- Did any of the decisions harm the social interest?

THE ANSWERS

- All the decisions—Kiran's, the workers', the union's, and the firm's customers'—are taken in the pursuit of self-interest.
- Kiran's decisions serve the social interest: She creates jobs that benefit her workers and products that benefit her customers. And her charitable work brings yet further social benefits.
- The labor union's decision might have harmed the social interest because it destroyed the jobs of uneducated workers.

Kiran Mazumdar-Shaw,
founder and CEO of Biocon



Information-Age Monopolies The technological change of the past forty years has been called the *Information Revolution*. Bill Gates, a co-founder of Microsoft, held a privileged position in this revolution. For many years, Windows was the only available operating system for the PC. The PC and Mac competed, but the PC had a huge market share.

An absence of competition gave Microsoft the power to sell Windows at prices far above the cost of production. With lower prices, many more people would have been able to afford and buy a computer.

The information revolution has clearly served your self-interest: It has provided your smartphone, laptop, loads of handy applications, and the Internet. It has also served the self-interest of Bill Gates who has seen his wealth soar.

But did the information revolution best serve the social interest? Did Microsoft produce the best possible Windows operating system and sell it at a price that was in the social interest? Or was the quality too low and the price too high?



Climate Change Burning fossil fuels to generate electricity and to power airplanes, automobiles, and trucks pours a staggering 28 billion tons—4 tons per person—of carbon dioxide into the atmosphere each year. These carbon emissions, two thirds of which come from the United States, China, the European Union, Russia, and India, bring global warming and climate change.

Every day, when you make self-interested choices to use electricity and gasoline, you leave your carbon footprint. You can lessen this footprint by walking, riding a bike, taking a cold shower, or planting a tree.

But can each one of us be relied upon to make decisions that affect the Earth's carbon-dioxide concentration in the social interest? Must governments change the incentives we face so that our self-interested choices are also in the social interest? How

can governments change incentives? How can we encourage the use of wind and solar power to replace the burning of fossil fuels that brings climate change?



The Covid Pandemic Covid-19 spreads through close contact and social interaction. Without some degree of social isolation, one infected person infects more than one other person, each of whom in turn infect more than one other person, leading to an exponential spread of the disease.

A person who socially isolates avoids infection, but also avoids infecting others. People choose their degree of social isolation in their self-interest. But do individual choices serve the social interest?

Most likely not. To control the spread of the virus and ease the pressure on healthcare services, governments, working with economists and epidemiologists, set the rules to best serve the social interest. What are the best rules, and when should they be eased?

We've looked at four topics and asked many questions that illustrate the potential conflict between the pursuit of self-interest and the social interest. We've asked questions but not answered them because we've not yet explained the economic principles needed to do so. We will answer these questions in future chapters.

REVIEW QUIZ

- 1 Describe the broad facts about *what*, *how*, and *for whom* goods and services are produced.
- 2 Give some examples to illustrate the potential for conflict between self-interest and the social interest during the Covid pandemic.

AT ISSUE

The Protest Against Market Capitalism

Market capitalism is an economic system in which individuals own land and capital and are free to buy and sell land, capital, and goods and services in markets. Markets for goods and services, along with markets for land and capital, coordinate billions of self-interested choices, which determine what, how, and for whom goods and services are produced. A few people earn enormous incomes, many times the average income. There is no supreme planner guiding the use of scarce resources and the outcome is unintended and unforeseeable.

Centrally planned socialism is an economic system in which the government owns all the land and capital, directs workers to jobs, and decides what, how, and for whom to produce. The Soviet Union, several Eastern European countries, and China have used this system in the past but have now abandoned it. Only Cuba and North Korea use this system today. A few bureaucrats in positions of great power receive huge incomes, many times that of an average person.

Our economy today is a **mixed economy**, which is market capitalism with government regulation.

The Protest

The protest against market capitalism takes many forms. Historically, **Karl Marx** and other communist and socialist thinkers wanted to replace it with *socialism* and *central planning*. Today, thousands of people who feel let down by the economic system want less market capitalism and more government regulation. The **Occupy Wall Street** movement, with its focus on the large incomes of the top 1 percent, is a visible example of today's protest. Protesters say:

- Big corporations (especially big banks) have too much power and influence on governments.
- Democratically elected governments can do a better job of allocating resources and distributing income than uncoordinated markets.
- More regulation in the social interest is needed—to serve “human need, not corporate greed.”
- In a market, for every winner, there is a loser.
- Big corporations are the winners. Workers and unemployed people are the losers.



A Protest against Capitalism

The Economist's Response

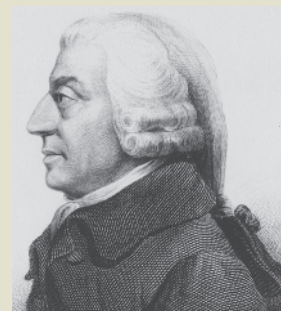
Economists agree that market capitalism isn't perfect. But they argue that it is the best system available and while some government intervention and regulation can help, government attempts to serve the social interest often end up harming it.

Adam Smith (see p. 87), who gave the first systematic account of how market capitalism works, says:

- The self-interest of big corporations is *maximum profit*.
- But an *invisible hand* leads production decisions made in pursuit of self-interest to *unintentionally* promote the social interest.
- Politicians are ill-equipped to regulate corporations or to intervene in markets, and those who think they can improve on the market outcome are most likely wrong.
- In a market, buyers get what they want for less than they would be willing to pay and sellers earn a profit. Both buyers and sellers gain. A market transaction is a “win-win” event.

“It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.”

The Wealth of Nations,
1776



Adam Smith

The Economic Way of Thinking

The questions that economics tries to answer tell us about the *scope of economics*, but they don't tell us how economists *think* and go about seeking answers to these questions. You're now going to see how economists go about their work.

We're going to look at six key ideas that define the *economic way of thinking*. These ideas are

- A choice is a *tradeoff*.
- People make *rational choices* by comparing *benefits* and *costs*.
- *Benefit* is what you gain from something.
- *Cost* is what you *must give up* to get something.
- Most choices are “*how-much*” choices made at the *margin*.
- Choices respond to *incentives*.

A Choice Is a Tradeoff

Because we face scarcity, we must make choices. And when we make a choice, we select from the available alternatives. For example, you can spend Saturday night studying for your next economics test or having fun with your friends, but you can't do both of these activities at the same time. You must choose how much time to devote to each. Whatever choice you make, you could have chosen something else.

You can think about your choices as tradeoffs. A **tradeoff** is an exchange—giving up one thing to get something else. When you choose how to spend your Saturday night, you face a tradeoff between studying and hanging out with your friends.

Making a Rational Choice

Economists view the choices that people make as rational. A **rational choice** is one that compares costs and benefits and achieves the greatest benefit over cost for the person making the choice.

Only the wants of the person making a choice are relevant to determine its rationality. For example, you might like your coffee black and strong but your friend prefers his milky and sweet. So it is rational for you to choose espresso and for your friend to choose cappuccino.

The idea of rational choice provides an answer to the first question: *What* goods and services will be

produced and in what quantities? The answer is those that people rationally choose to buy!

But how do people choose rationally? Why do more people choose an iPad rather than a Microsoft Surface? Why has the U.S. government chosen to build an interstate highway system and not an interstate high-speed railroad system? The answers turn on comparing benefits and costs.

Benefit: What You Gain

The **benefit** of something is the gain or pleasure that it brings and is determined by **preferences**—by what a person likes and dislikes and the intensity of those feelings. If you get a huge kick out of “League of Legends,” that video game brings you a large benefit. If you have little interest in listening to Yo-Yo Ma playing a Vivaldi cello concerto, that activity brings you a small benefit.

Some benefits are large and easy to identify, such as the benefit that you get from being in school. A big piece of that benefit is the goods and services that you will be able to enjoy with the boost to your earning power when you graduate. Some benefits are small, such as the benefit you get from a slice of pizza.

Economists measure benefit as the most that a person is *willing to give up* to get something. You are willing to give up a lot to be in school. But you would give up only an iTunes download for a slice of pizza.

Cost: What You Must Give Up

The **opportunity cost** of something is the highest-valued alternative that must be given up to get it.

To make the idea of opportunity cost concrete, think about *your* opportunity cost of being in school. It has two components: the things you can't afford to buy and the things you can't do with your time.

Start with the things you can't afford to buy. You've spent all your income on tuition, residence fees, books, and a laptop. If you weren't in school, you would have spent this money on tickets to ball games and movies and all the other things that you enjoy. But that's only the start of your opportunity cost. You've also given up the opportunity to get a job. Suppose that the best job you could get if you weren't in school is working at Citibank as a teller earning \$25,000 a year. Another part of your opportunity cost of being in school is all the things that you could buy with the extra \$25,000 you would have.

As you well know, being a student eats up many hours in class time, doing homework assignments, preparing for tests, and so on. To do all these school activities, you must give up many hours of what would otherwise be leisure time spent with your friends.

So the opportunity cost of being in school is all the good things that you can't afford and don't have the spare time to enjoy. You might want to put a dollar value on that cost or you might just list all the items that make up the opportunity cost.

The examples of opportunity cost that we've just considered are all-or-nothing costs—you're either in school or not in school. Most situations are not like this one. They involve choosing *how much* of an activity to do.

How Much? Choosing at the Margin

You can allocate the next hour between studying and chatting online with your friends, but the choice is not all or nothing. You must decide how many minutes to allocate to each activity. To make this decision, you compare the benefit of a little bit more study time with its cost—you make your choice at the **margin**.

The benefit that arises from an increase in an activity is called **marginal benefit**. For example, your marginal benefit from one more night of study before a test is the boost it gives to your grade. Your marginal benefit doesn't include the grade you're already achieving without that extra night of work.

The *opportunity cost* of an *increase* in an activity is called **marginal cost**. For you, the marginal cost of studying one more night is the cost of not spending that night on your favorite leisure activity.

To make your decisions, you compare marginal benefit and marginal cost. If the marginal benefit from an extra night of study exceeds its marginal cost, you study the extra night. If the marginal cost exceeds the marginal benefit, you don't study the extra night.

Choices Respond to Incentives

Economists take human nature as given and view people as acting in their self-interest. All people—you, other consumers, producers, politicians, and public servants—pursue their self-interest.

Self-interested actions are not necessarily *selfish* actions. You might decide to use your resources in ways that bring pleasure to others as well as to yourself. But a self-interested act gets the most benefit for *you* based on *your* view about benefit.

The central idea of economics is that we can predict the self-interested choices that people make by looking at the *incentives* they face. People undertake those activities for which marginal benefit exceeds marginal cost; they reject options for which marginal cost exceeds marginal benefit.

For example, your economics instructor gives you a problem set and tells you these problems will be on the next test. Your marginal benefit from working these problems is large, so you diligently work them. In contrast, your math instructor gives you a problem set on a topic that she says will never be on a test. You get little marginal benefit from working these problems, so you decide to skip most of them.

Economists see incentives as the key to reconciling self-interest and social interest. When our choices are *not* in the social interest, it is because of the incentives we face. One of the challenges for economists is to figure out the incentives that result in self-interested choices being in the social interest.

Economists emphasize the crucial role that institutions play in influencing the incentives that people face as they pursue their self-interest. Laws that protect private property and markets that enable voluntary exchange are the fundamental institutions. You will learn as you progress with your study of economics that where these institutions exist, self-interest can indeed promote the social interest.

REVIEW QUIZ

- 1 Explain the idea of a tradeoff and think of three tradeoffs that you made today.
- 2 Explain what economists mean by rational choice and think of three choices that you've made today that are rational.
- 3 Explain why opportunity cost is the best forgone alternative and provide examples of some opportunity costs that you have faced during the last week.
- 4 Explain what it means to choose at the margin and illustrate with three choices at the margin that you have made today.
- 5 Explain why choices you made during the Covid pandemic were in your self-interest. Why might your choices not have been in the social interest?

Economics as Social Science and Policy Tool

Economics is both a social science and a toolkit for advising on policy decisions.

Economist as Social Scientist

As social scientists, economists seek to discover how the economic world works. In pursuit of this goal, like all scientists, economists distinguish between positive and normative statements.

Positive Statements A *positive* statement is about what *is*. It says what is currently believed about the way the world operates. A positive statement might be right or wrong, but we can test it by checking it against the facts. “Our planet is warming because of the amount of coal that we’re burning” is a positive statement. We can test whether it is right or wrong.

A central task of economists is to test positive statements about how the economic world works and to weed out those that are wrong. Economics first got off the ground in the late 1700s, so it is a young science compared with, for example, physics, and much remains to be discovered.

Normative Statements A *normative* statement is about what *ought to be*. It depends on values and cannot be tested. Policy goals are normative statements. For example, “We ought to cut our use of coal by 50 percent” is a normative policy statement. You may agree or disagree with it, but you can’t test it. It doesn’t assert a fact that can be checked.

Unscrambling Cause and Effect Economists are particularly interested in positive statements about cause and effect. Are computers getting cheaper because people are buying them in greater quantities? Or are people buying computers in greater quantities because they are getting cheaper? Or is some third factor causing both the price of a computer to fall and the quantity of computers bought to increase?

To answer such questions, economists create and test economic models. An **economic model** is a description of some aspect of the economic world that includes only those features that are needed for the purpose at hand. For example, an economic model of a wireless network might include features such as the prices of calls, the number of smartphone users, and the volume of calls. But the model would ignore smartphone colors and ringtones.

A model is tested by comparing its predictions with the facts. But testing an economic model is difficult because we observe the outcomes of the simultaneous change of many factors. To cope with this problem, economists look for natural experiments (situations in the ordinary course of economic life in which the one factor of interest is different and other things are equal or similar); conduct statistical investigations to find correlations; and perform economic experiments by putting people in decision-making situations and varying the influence of one factor at a time to discover how they respond.

Economist as Policy Adviser

Economics is useful. It is a toolkit for advising governments and businesses and for making personal decisions. Some of the most famous economists work partly as policy advisers.

Carmen M. Reinhart at the John F. Kennedy School of Government, Harvard University, has written widely on policy issues arising from government debt and international capital markets. Gita Gopinath of Harvard University is currently on leave from her academic job and is serving as Chief Economist at the International Monetary Fund. And Cecilia Elena Rouse of Princeton University is serving as Chief Economic Adviser to President Biden.

All the policy questions on which economists provide advice involve a blend of the positive and the normative. Economics can’t help with the normative part—the policy goal. But it can help to clarify the goal. And for a given goal, economics provides the tools for evaluating alternative solutions—comparing marginal benefits and marginal costs and finding the solution that makes the best use of the available resources.

REVIEW QUIZ

- 1 Distinguish between a positive statement and a normative statement and provide examples associated with the Covid-19 vaccine rollout.
- 2 What is a model? Can you think of a model that you might use in your everyday life?
- 3 How do economists try to disentangle cause and effect?
- 4 How is economics used as a policy tool?

Economists in the Economy

What are the jobs available to an economics major? Is the number of economics jobs expected to grow or shrink? How much do economics graduates earn? And what are the skills needed for an economics job?

Jobs for an Economics Major

A major in economics opens the door to the pursuit of a master's or Ph.D. and a career as an economist. Relatively few people take this path, but for those who do, the challenges are exciting and job satisfaction is high.

Economists work in private firms, government, and international organizations.

The work of economists varies enormously but can generally be described as collecting and analyzing data on the production and use of resources, goods, and services; predicting future trends; and studying ways of using resources more efficiently.

Writing reports and giving talks are a big part of the job of an economist.

An economics major also opens the door to a range of jobs that have the word “analyst” in the title. Three of these jobs, that between them employ almost one million people, are market research analyst, financial analyst, and budget analyst.

A *market research analyst* works with data on buying patterns and tries to forecast the likely success of a product and the price that buyers are willing to pay for it.

A *financial analyst* studies trends and fluctuations in interest rates and stock and bond prices and tries to predict the cost of borrowing and the returns on investments.

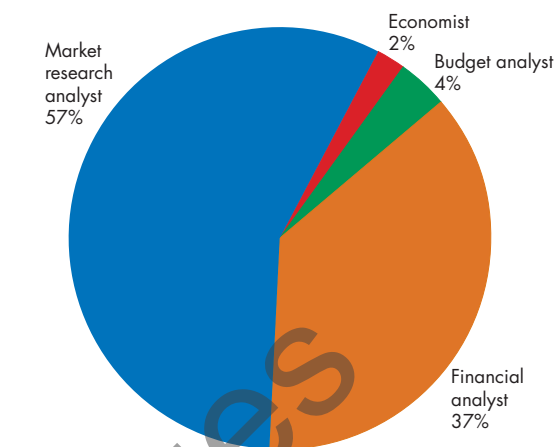
A *budget analyst* keeps track of an organization's cash flow—its receipts and payments—and prepares budget plans that incorporate predictions of future cash flows.

Figure 1.3 shows the scale and distribution of employment across the jobs for an economics major.

Will Jobs for Economics Majors Grow?

The future is always uncertain and things rarely turn out as expected. But we can't avoid trying to peer into the future when we make choices that commit to a long-term plan, and economists at the Bureau of Labor Statistics (the BLS) have done their best to provide some forecasts.

FIGURE 1.3 Economics Jobs



Employment in 2020

Economist	20,500
Budget analyst	55,400
Financial analyst	487,800
Market research analyst	738,100
Total jobs	1,301,800

The pie chart shows the relative number of jobs for economists and analysts that use economic ideas and tools. Most of the jobs for an economics major are in market research (57 percent) and finance (37 percent).

Source of data: Bureau of Labor Statistics.

The BLS has provided forecasts of employment growth from 2019 to 2029 for a large range of jobs and says average job growth will be 3 percent—for every 100 jobs in 2019, there will be 103 in 2029.

Jobs for those with a Ph.D. in economics are forecasted to grow by 14 percent. This growth is much higher than for jobs on average and reflects the fact that economists are valued by private firms as data analysts. Amazon for example employs 150 Ph.D. economists and Uber 30. Google employs about 300 economists and statisticians. Other firms with large economics teams include Facebook, Microsoft, eBay, Airbnb, and Deliveroo.

Budget analyst jobs are expected to grow by a slow 3 percent because this job is easy to replace with artificial intelligence. But jobs for financial analysts are expected to grow by 5 percent and for market research analysts by 18 percent.

These forecasts imply a bright future for people who choose to major in economics.

Earnings of Economics Majors

Earnings of economics majors vary a lot depending on the job and the level of qualifications. The Web resource payscale.com reports a pay range for economists of all types from \$56,500 to \$139,600, with a median of \$105,100.

A person who majors in economics and goes on to complete a Ph.D. and gets a job as an economist would expect to earn about \$150,000 a year by mid-career. Economists working in finance, insurance, and government jobs earn more than the average.

Pay in “analyst” jobs is lower and ranges from an average of \$55,000 a year for market research analysts to \$82,000 a year for financial analysts.

These rates of pay put economics graduates near but not at the top of the distribution as you can see in Fig. 1.4. Only graduates who majored in petroleum engineering and operations research have average pay that exceeds that of economists.

Skills Needed for Economics Jobs

What are the skills that an employer looks for in a candidate for an economics related job? Five skill requirements stand out. They are:

- Critical-thinking skills
- Analytical skills
- Math skills
- Writing skills
- Oral communication skills

Critical-Thinking Skills The ability to clarify and solve problems using logic and relevant evidence

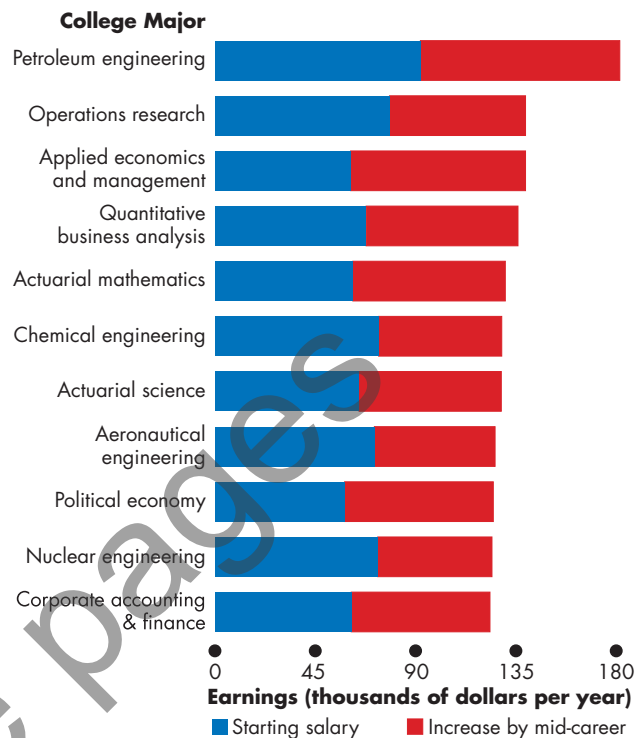
Analytical Skills The use of economic ideas and tools to examine data, notice patterns, and reach a logical conclusion

Math Skills The ability to use mathematical and statistical tools to analyze data and reach valid conclusions

Writing Skills The ability to present ideas, conclusions, and reasons in succinct written reports appropriate for the target audience

Oral Communication Skills The ability to explain ideas, conclusions, and reasons to people with a limited background in economics.

FIGURE 1.4 Earnings of College Majors



Economics majors are not the highest earners—petroleum engineers and operations research scientists earn more—but at \$140,000 a year in mid-career, economists earn more than most other majors.

Source of data: American Economics Association.

A Diversity Challenge in the Economics Profession

You’ve seen that an economics major opens a wide range of well-paid jobs and the outlook for job growth and pay is above average. But there is unequal access to these jobs. The economics profession lacks diversity.

We close this account of economists in the economy by looking at the diversity challenge in the economics profession. We begin by looking at some numbers that describe the degree of underrepresentation of women and racial and ethnic minorities. We then look at research that seeks to understand the reasons for the lack of diversity. And we close with a brief account of the efforts that some economists are making to achieve a more diverse profession.

Measuring Underrepresentation With equal representation, 50 percent of economics degrees would go to women and 30 percent to racial and ethnic minorities. In recent years, 30 percent of economics bachelor's and doctorate degrees were awarded to women and 9 percent of doctorates and 15 percent of bachelor's degrees to Blacks, Hispanics, and Native Americans.

Swarthmore economist Amanda Bayer, a leading researcher on diversity in the economics profession, and Princeton University economist Cecilia Rouse, appointed President Biden's chief economic adviser in 2021, have surveyed a very large body of research on the scale and sources of underrepresentation.

Figure 1.5 provides a view of some of what they found. Underrepresentation runs back from doctorate numbers to undergraduate degrees. And minorities and women are less represented in the economics profession than in several other disciplines, most notably in science, technology, engineering and math, the STEM disciplines.

Economics has less diversity than STEM, and while STEM has become increasingly diverse, the lack of diversity in economics has barely changed.

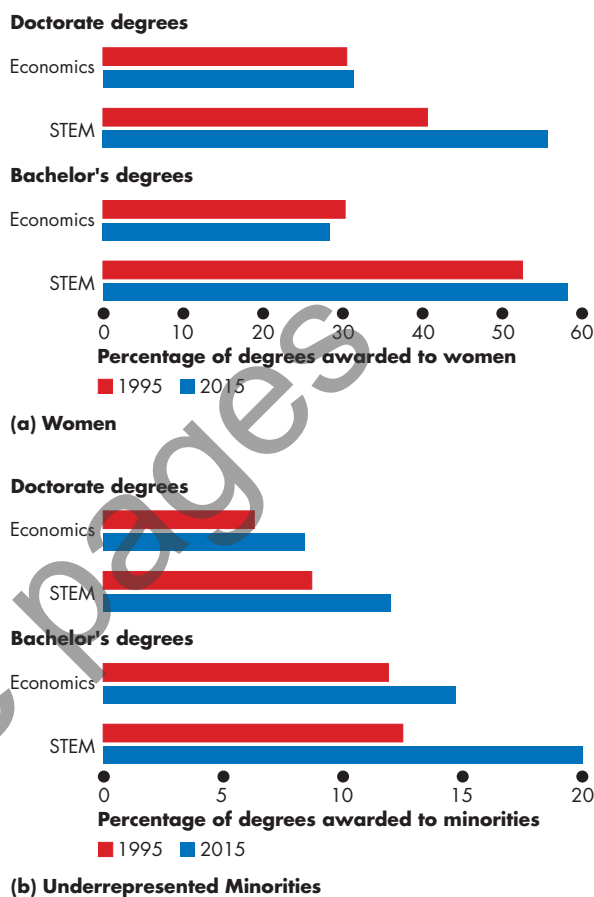
Understanding Underrepresentation Measuring the degree of underrepresentation is easy. Understanding the reasons for a lack of diversity is hard. Partly it is an economics topic, a “what, how, and for whom” question. And economists are working on research projects to better understand the choices and incentives that lead to underrepresentation. But it is also an interdisciplinary topic that draws on the full range of the social sciences.

The most likely main reason for underrepresentation is gender and racial implicit bias in selecting doctoral students and faculty. Low representation at the top of the profession leads to a lack of role models to inspire undergraduate economics students, which translates to low representation in bachelor's degrees.

Improving Representation Most economists believe that a more diverse profession would be not only fairer but also more efficient. It would improve the quality of economic research and policy advice.

University of Oklahoma Professor Gary Hoover and Yale Professor Ebonya Washington, co-chairs of an American Economic Association (AEA) committee charged with increasing the representation of minority students in economics, have introduced an undergraduate essay prize, a travel grant, and other programs to better incentivize students. Similar programs seek to increase the representation of women in undergraduate economics.

FIGURE 1.5 Degrees Awarded to Women and Minorities in Economics and STEM



In part (a), a constant fewer than 30 percent of economics degrees are awarded to women compared with more than 50 percent of STEM degrees.

In part (b), fewer than 10 percent of minorities get an economics doctorate degree, and fewer than 15 percent of minorities get an economics bachelor's degree.

Source of data: Amanda Bayer and Cecilia Elena Rouse, “Diversity in the Economics Profession: A New Attack on an Old Problem”, *Journal of Economic Perspectives*, Fall 2016.

REVIEW QUIZ

- 1 What types of jobs do economists do?
- 2 What are the skills needed for an economics job?
- 3 What is the range and median salary of economists? How do they compare to other college majors?
- 4 Why is the underrepresentation of women and minorities in economics an economic problem?

SUMMARY

Key Points

Definition of Economics (p. 32)

- All economic questions arise from scarcity—from the fact that wants exceed the resources available to satisfy them.
- Economics is the social science that studies the choices that people make as they cope with scarcity.
- The subject divides into microeconomics and macroeconomics.

Two Big Economic Questions (pp. 33–38)

- Two big questions summarize the scope of economics:
 1. How do choices end up determining *what*, *how*, and *for whom* goods and services are produced?
 2. When do choices made in the pursuit of *self-interest* also promote the *social interest*?

The Economic Way of Thinking (pp. 39–40)

- Every choice is a tradeoff—exchanging more of something for less of something else.
- People make rational choices by comparing benefit and cost.

- Cost—*opportunity cost*—is what you must give up to get something.
- Most choices are “how much” choices made at the *margin* by comparing marginal benefit and marginal cost.
- Choices respond to incentives.

Economics as Social Science and Policy Tool (p. 41)

- Economists distinguish between positive statements—what is—and normative statements—what ought to be.
- To explain the economic world, economists create and test economic models.
- Economics is a toolkit used to provide advice on government, business, and personal economic decisions.

Economists in the Economy (pp. 42–44)

- Economics majors work in a wide range of jobs as economists and analysts.
- The job growth outlook for economics majors is good and pay is above average.
- Economics has a diversity problem with a significant and persistent underrepresentation of women and minorities.

Key Terms

Benefit, 39	Interest, 34	Profit, 34
Capital, 34	Labor, 33	Rational choice, 39
Economic model, 41	Land, 33	Rent, 34
Economics, 32	Macroeconomics, 32	Scarcity, 32
Efficient, 35	Margin, 40	Self-interest, 35
Entrepreneurship, 34	Marginal benefit, 40	Social interest, 35
Factors of production, 33	Marginal cost, 40	Tradeoff, 39
Goods and services, 33	Microeconomics, 32	Wages, 34
Human capital, 33	Opportunity cost, 39	
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