ESSENTIAL FOUNDATIONS OF

ECONOMICS

NINTH EDITION

Bade | Parkin

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Essential Foundations of ECONOMICS

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NINTH EDITION

Pearson

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To Erin, Tessa, Jack, Abby, and Sophie

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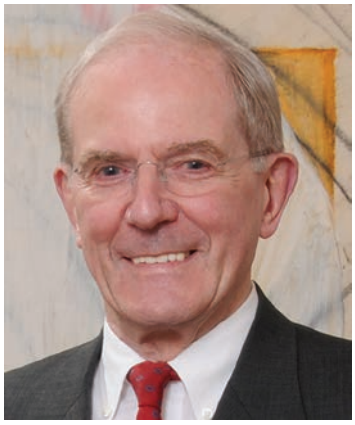
About the Authors

Robin Bade was an undergraduate at the University of Queensland, Australia, where she earned degrees in mathematics and economics. After a spell teaching high school math and physics, she enrolled in the Ph.D. program at the Australian National University, from which she graduated in 1970. She has held faculty appointments at the University of Edinburgh in Scotland, at Bond University in Australia, and at the Universities of Manitoba, Toronto, and Western Ontario in Canada. Her research on international capital flows appears in the *International Economic Review* and the *Economic Record.*

Robin first taught the principles of economics course in 1970 and has taught it (alongside intermediate macroeconomics and international trade and finance) most years since then. She developed many of the ideas found in this text while conducting tutorials with her students at the University of Western Ontario.



Michael Parkin studied economics in England and began his university teaching career immediately after graduating with a B.A. from the University of Leicester. He learned the subject on the job at the University of Essex, England's most exciting new university of the 1960s, and at the age of 30 became one of the youngest full professors. He is a past president of the Canadian Economics Association and has served on the editorial boards of the *American Economic Review* and the *Journal of Monetary Economics.* His research on macroeconomics, monetary economics, and international economics has resulted in more than 160 publications in journals and edited volumes, including the *American Economic Review*, the *Journal of Political Economy*, the *Review of Economic Studies*, the *Journal of Monetary Economics*, and the *Journal of Money, Credit, and Banking*. He is author of the best-selling textbook, *Economics* (Pearson), now in its Thirteenth Edition.

Robin and Michael are a wife-and-husband team. Their most notable joint research created the Bade-Parkin Index of central bank independence and spawned a vast amount of research on that topic. They don't claim credit for the independence of the new European Central Bank, but its constitution and the movement toward greater independence of central banks around the world were aided by their pioneering work. Their joint textbooks include *Macroeconomics* (Prentice Hall), *Modern Macroeconomics* (Pearson Education Canada), and *Economics: Canada in the Global Environment*, the Canadian adaptation of Parkin, *Economics* (Pearson). They are dedicated to the challenge of explaining economics ever more clearly to a growing body of students.

Music, the theater, art, walking on the beach, and five grandchildren provides their relaxation and fun.

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ECONOMICS

Brief Contents

Contents

PART 2 A CLOSER LOOK AT MARKETS

PART 5 UNDERSTANDING THE MACROECONOMY

ESSENTIAL FOUNDATIONS OF ECONOMICS

delivers a complete, hands-on learning system designed around active learning.

A Learning-by-Doing Approach

The **Checklist** that begins each chapter highlights the key topics covered and the chapter is divided into sections that directly correlate to the Checklist.

The **Checkpoint** that ends each section provides a full page of practice problems to encourage students to review the material while it is fresh in their minds.

Each chapter opens with a question about a central issue that sets the stage for the material.

Why does the price of avocados fluctuate?

4

Demand and Supply

CHAPTER CHECKLIST

When you have completed your study of this chapter, you will be able to

1. Distinguish between quantity demanded and demand, and explain what determines demand.
2. Distinguish between quantity supplied and supply, and explain what determines supply.
3. Explain how demand and supply determine price and quantity in a market, and explain the effects of changes in demand and supply.

CHECKPOINT 4.1

Distinguish between quantity demanded and demand, and explain what determines demand.

Practice Problems

The following events occur one at a time in the market for smartphones:

- The price of a smartphone falls.
- Producers announce that the price of a smartphone will fall next month.
- The price of a call made from a smartphone falls.
- The price of a call made from a land-line phone increases.
- An increase in memory makes smartphones more popular.

1. Explain the effect of each event on the demand for smartphones.
2. Use a graph to illustrate the effect of each event.
3. Does any event (or events) illustrate the law of demand?

In the News

Netflix hikes its price

Eye On boxes apply theory to important issues and problems that shape our global society and individual decisions.

Confidence-Building Graphs

use color to show the direction of shifts and detailed, numbered captions guide students step-by-step through the action.

EYE on the PRICE OF AVOCADOS

Why Does the Price of Avocados Fluctuate?

In August each year, the Californian avocado crop winds down and the Mexican crop takes over. But if Mexican production is not ramped up enough to replace the Californian crop, the quantity of avocados produced decreases and the price rises.

The table below provides some data on the quantity and price of avocados at

You can answer this question from the information provided. You know that an increase in demand brings a rise in the price and an increase in the quantity traded, while a decrease in supply brings a rise in the price and a decrease in the quantity traded.

Because the quantity of avocados bought decreased and the price

avocados, which we will assume was the same in both months.

At the end of July, the supply curve was S_{Jul}, the equilibrium price was $1.03 per avocado, and the equilibrium quantity of avocados was 48 million pounds.

During August, decreased production in California decreased supply to

FIGURE 4.4

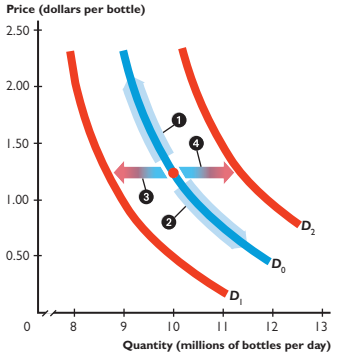
Change in Quantity Demanded Versus Change in Demand

1 A decrease in the quantity demanded
The quantity demanded decreases and there is a movement up along the demand curve D_0 if the price of the good rises and other things remain the same.

3 A decrease in demand
Demand decreases and the demand curve shifts leftward (from D_0 to D_1) if

- The price of a substitute falls or the price of a complement rises.
- The price of the good is expected to fall.
- Income decreases.*
- Expected future income or credit decreases.
- The number of buyers decreases.

* Bottled water is a normal good.



2 An increase in the quantity demanded
The quantity demanded increases and there is a movement down along the demand curve D_0 if the price of the good falls and other things remain the same.

4 An increase in demand
Demand increases and the demand curve shifts rightward (from D_0 to D_2) if

- The price of a substitute rises or the price of a complement falls.
- The price of the good is expected to rise.
- Income increases.
- Expected future income or credit increases.
- The number of buyers increases.

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Preface

Students know that throughout their lives they will make economic decisions and be influenced by economic forces. They want to understand the economic principles that can help them navigate these forces and guide their decisions. *Essential Foundations of Economics* is our attempt to satisfy this want.

The response to our earlier editions from hundreds of colleagues across the United States and throughout the world tells us that most of you agree with our view that the principles course must do four things well. It must

- Motivate with compelling issues and questions
- Focus on core ideas
- Steer a path between an overload of detail and too much left unsaid
- Encourage and aid learning by doing

The Foundations icon with its four blocks (on the cover and throughout the book) symbolizes this four-point approach that has guided all our choices in writing this text and creating its comprehensive teaching and learning features.

WHAT'S NEW IN THE NINTH EDITION

New in this Ninth Edition revision are: Fine-tuning of the content; several notable content changes in micro and macro; an emphasis on economics as a foundation for effective citizenship; and highlighting the role of economics as a life skill and a job skill.

Fine-Tuning the Content

The content of this revision is driven by the drama of the extraordinary period of economic history in which we are living and its rich display of events and forces through which students can be motivated to discover the economic way of thinking. Persistent slow economic growth; increasing concentration of wealth; headwinds from Europe's stagnant economy and the UK decision to leave the economic union (Brexit); ongoing tensions arising from the loss of American jobs to offshore outsourcing and the political popularity of trade protection; a slowing pace of China's expansion; enhanced concern about carbon emission and climate change; relentless pressure on the federal budget from the demands of an aging

population and a sometimes dysfunctional Congress with its associated rising government debt; the dilemma posed by slow, more than decade-long recovery from a global financial crisis and recession and the related question of when and how fast to exit an era of extreme monetary stimulus. These are just a few of these interest-arousing events. All of them feature at the appropriate points in our new edition.

Every chapter contains many small changes, all designed to enhance clarity and currency, and the text and examples are all updated to reflect the most recently available data and events.

Notable Content Changes

In Chapter 1, Getting Started, we have expanded and reorganized our explanation of economics as a social science and as a policy decision tool. And we have broadened our explanation of how economics is used as an aid to critical thinking and a job tool. In a new section, Economics as a Life Skill and Job Skill, we describe the jobs that economics majors do and the incomes they earn.

In Chapter 4, Demand and Supply, we explain and illustrate the power of the demand-supply model to predict and explain large recent swings in the price of avocados.

In Chapter 6, Efficiency and Fairness of Markets, we have replaced a discussion of gouging with a new exploration of the efficiency and fairness of ticket scalping.

In Chapter 8, Global Markets in Action, provides the student with the tools needed to evaluate the Trump upheaval of global trade and illustrates the effects of protection by examining U.S. tariffs on Canadian softwood imports and the U.S. import quota on sugar.

In Chapter 9, Externalities: Pollution, Education, and Healthcare, we have expanded our discussion of externalites in everyday life with compelling current examples. And we have revised and improved our coverage of policies for dealing with carbon emissions and the global challenge of achieving an efficient use of energy resources. We describe command-and-control proposals like the Green New Deal and explain why economists favor pricing and taxing emissions.

In Chapter 12, Monopoly, we have updated our discussion of information-age monopolies.

In Chapter 13, Monopolistic Competition and Oligopoly, we have updated our examination of wireless oligopolies and a wireless service merger decision.

In Chapter 14, GDP: A Measure of Total Production and Income, Chapter 15, Jobs and Unemployment, Chapter 16, The CPI and the Cost of Living, Chapter 17, Potential GDP and Economic Growth, Chapter 18, Money and Inflation, Chapter 19, Aggregate Supply and Aggregate Demand, and Chapter 20, Fiscal Policy and Monetary Policy, have all been updated to include the latest available data on the national accounts,the labor market, price indexes, global economic growth, banks and the money market, and recent developments in fiscal policy and monetary policy.

THE FOUNDATIONS VISION

Focus on Core Concepts

Each chapter of *Foundations* concentrates on a manageable number of main ideas (most commonly three or four) and reinforces each idea several times throughout the chapter. This patient, confidence-building approach guides students through unfamiliar terrain and helps them to focus their efforts on the most important tools and concepts of our discipline.

Showing the Action and Telling the Whole Story

Through earlier editions, we have developed the style of our diagrams and set the standard of their clarity. The ninth edition continues to uphold this tradition. Our goal is to show "where the economic action is." Our diagrams continue to generate an enormously positive response, which confirms our view that graphical analysis is the most powerful tool available for teaching and learning economics at the principles level. Recognizing that some students find graphs hard to work with, we have developed the entire art program with the study and review needs of the student in mind.

Because beginning students of economics are often apprehensive about working with graphs, we have made a special effort to present the information in as many as three ways—with graphs, words, and tables—in the same figure. In an innovation that seems necessary, but is to our knowledge unmatched, nearly all of the information supporting a figure appears on the same page as the figure itself. No more flipping pages back and forth!

Real-World Connections That Bring Theory to Life

Students learn best when they can see the purpose of what they are studying, apply it to illuminate the world around them, and use it in their lives.

Eye On boxes offer fresh new examples to help students see that economics is everywhere. Current and recent events appear in *Eye on the U.S. Economy* boxes; we place current U.S. economic events in global and historical perspectives in our *Eye on the Global Economy* and *Eye on the Past* boxes; and we show how students can use economics in day-to-day decisions in *Eye on Your Life* boxes.

Each chapter-opening question is answered in an Eye On box that helps students see the economics behind a key issue facing the world and highlights a major aspect of the chapter's story.

Foundation for Job and Life

A centerpiece of the Foundations vision is enabling the principles of economics course to prepare the student for a productive career and life. It identifies three skills that further this goal:

- Problem solving
- Critical thinking
- Decision making

Problem solving is central to the Foundations story. A Checkpoint at the end of each topic, typically three per chapter, provides a pause and opportunity to check understanding with problems, one of which is driven by a recent news clip, and worked solutions.

Critical thinking is encouraged and supported through a series of exercises. In each chapter, there is one exercise that is based on the question or issue that opens and motivates the chapter, and a second that builds from an *Economics in Your Life* feature.

Decision making is at the core of economics, and the principles course, with its emphasis on choice at the margin and opportuntiy cost, teaches decision-making skills like no other subject.

Foundation for Effective Citizenship

An effective citizen is a person who participates in the public conversation and votes in elections with a solid sense of the efficiency and fairness of alternative public, collective decisions.

This text lays the foundation for effective citizenship by explaining the principles of welfare economics and the competing ideas about fairness, and repeatedly applying these principles to a comprehensive range of public choice problems. And our *Economics in Your Life* feature connects these principles with the student's own life and public choices.

ORGANIZATION

We have organized the sequence of topics and chapters in what we think is the most natural order in which to cover the material. But we recognize that there are alternative views on the best order. We have kept this fact and the need for flexibility firmly in mind throughout the text. Many alternative sequences work, and the Flexibility Chart on p. xxxi explain the alternative pathways through the chapters. In using the flexibility information, keep in mind that the best sequence is the one in which we present the topics. And even chapters that the flexibility charts identify as strictly optional are better covered than omitted.

ACKNOWLEDGMENTS

Working on a project such as this one generates many debts that can never be repaid. But they can be acknowledged, and it is a special pleasure to be able to do so here and to express our heartfelt thanks to each and every one on the following long list, without whose contributions we could not have produced *Foundations*.

Mark Rush again coordinated, managed, and contributed to our Solutions Manual, Instructor's Manual, and Test Item Files. He assembled, polished, wrote, and rewrote these materials to ensure their close consistency with the text. He and we were in constant contact as all the elements of our text and package came together. Mark also made many valuable suggestions for improving the text and the Checkpoint Problems. His contribution went well beyond that of a reviewer, and his effervescent sense of humor kept us all in good spirits along the way.

The ideas from which *Foundations* grew began to form over dinner at the Andover Inn in Andover, Massachusetts, with Denise Clinton and Sylvia Mallory. We gratefully acknowledge Sylvia's role not only at the birth of this project but also in managing its initial development team. Denise was an ongoing inspiration for 15 years, and we are privileged to have had the benefit of her enormous experience.

The success of *Foundations* owes much to its outstanding editors: Director of Product Management, Adrienne D'Ambrosio. Adrienne's acute intelligence and sensitive understanding of the market have helped sharpen our vision of this text and package over earlier editions. The value-added of Adrienne has been huge and we hope it will, for many future editions, remain a joy to work with her.

As the revision progressed, Christopher DeJohn, Samantha Lewis, and Thomas Hayward brought fresh new ideas to our ninth edition.

Sugandh Juneja, our Content Producer, worked with a talented team at Integra, Project Editor, Heather Johnson, and the designer, art coordinator, and typesetter. Our copy editor, Catherine Baum, gave our work a thorough review and helpful polish, and our proofreader ensured the most error-free text we have yet produced.

Our marketing team, comprised of Nayke Heine and Ashley DePace, has been an integral part of this revision process. They have provided great knowledge and strategies to help continuously improve our suite of materials and keep them relevant and valuable in these ever-changing times.

Richard Parkin, our technical illustrator, created the figures in the text and the PowerPoint presentations. Jeannie Shearer, our long-standing personal assistant, worked closely with us to create assignment problems.

Finally, our reviewers, whose names appear on the following pages, have made an enormous contribution to this text. Once again we find ourselves using superlatives, but they are called for. In the many texts that we've written, we've not seen reviewing of the quality that we enjoyed on this revision. It has been a pleasure (if at times a challenge) to respond constructively to their many excellent suggestions.

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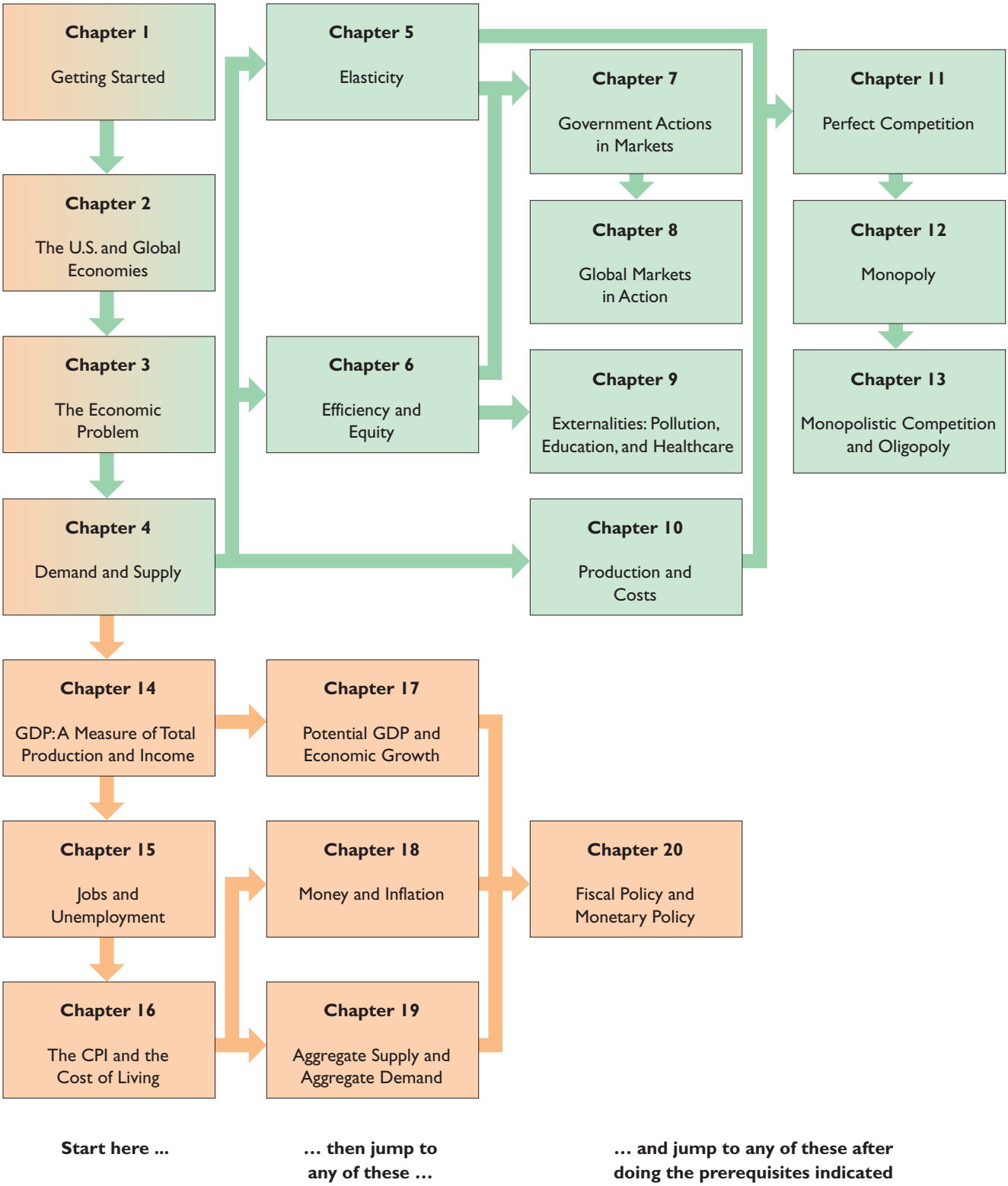
ESSENTIAL FOUNDATIONS OF ECONOMICS: FLEXIBILITY CHART

Flexibility



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Jerry Schwartz, Broward Community College
Gautam Sethi, Bard College
Margaret Anne Shannon, Georgia Southern University
Mushtaq Sheikh, Union County College
Michelle Sheran-Andrews, University of North Carolina at Greensboro
Virginia Shingleton, Valparaiso University
Steven S. Shwiff, Texas A & M University—Commerce
Charles Sicotte, Rock Valley College
Issoufou Soumaila, Texas Tech University
Martin Spechler, Indiana University
Leticia Starkov, Elgin Community College
Stela Stefanova, University of Delaware
John Stiver, University of Connecticut
Richard W. Stratton, The University of Akron
Abdulhamid Sukar, Cameron University
Terry Sutton, Southeast Missouri State University
Janet M. Thomas, Bentley College
Donna Thompson, Brookdale Community College
Deborah Thorsen, Palm Beach State College

James Thorson, Southern Connecticut State University
Marc Tomljanovich, Colgate University
Cynthia Royal Tori, Valdosta State University
Ngoc-Bich Tran, San Jacinto College South
Nora Underwood, University of California, Davis
Jogindar S. Uppal, State University of New York
Va Nee L. Van Vleck, California State University, Fresno
Victoria Vernon, Empire State College / SUNY
Christian Weber, Seattle University
Ethel Weeks, Nassau Community College
Jack Wegman, Santa Rosa Junior College
Jason White, Northwest Missouri State University
Benjamin Widner, Colorado State University
Barbara Wiens-Tuers, Pennsylvania State University, Altoona
Katherine Wolfe, University of Pittsburgh
Kristen Wolfe, St. Johns River State College

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You're in school!
Did you make the right decision?

1

Getting Started

CHAPTER CHECKLIST

When you have completed your study of this chapter, you will be able to

1. Define economics and explain the kinds of questions that economists try to answer.
2. Explain the ideas that define the economic way of thinking.
3. Explain how economists work as social scientists and policy advisers.
4. Describe the jobs available to an economics major and explain how economics is useful as a job skill and life skill.

1.1 DEFINITION AND QUESTIONS

Well, did you make the right decision? Is being in school the best use of your time? You'll soon know how an economist answers this question—for it is an economic question. It arises from the fact that you want more than you can get. You want to be in school. But you also want the time to enjoy your favorite sports and movies, to travel, and to hang out with friends—time that right now you don't have because you've got classes to attend and assignments due. Your time is scarce.

Scarcity

Scarcity
The condition that arises because wants exceed the ability of resources to satisfy them.

Our inability to satisfy all our wants is called **scarcity**. The ability of each of us to satisfy our wants is limited by the time we have, the incomes we earn, and the prices we pay for the things we buy. These limits mean that everyone has unsatisfied wants. The ability of all of us as a society to satisfy our wants is limited by the productive resources that exist. These resources include the gifts of nature, our labor and ingenuity, and the tools and equipment that we have made.

Everyone, poor and rich alike, faces scarcity. A student wants Ariana Grande's latest album and a paperback but has only $10.00 in his pocket. He faces scarcity. John Legend wants to spend a week on the set of *The Voice* in L.A., but he also wants to devote time and energy to pursuing Broadway opportunities. He faces scarcity. The U.S. government wants to increase spending on homeland security and cut taxes. It faces scarcity. Your state government wants improved healthcare, an Internet connection in every classroom, clean lakes and rivers, and so on. It, too, faces scarcity. Scarcity is everywhere: Even parrots face scarcity!

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

Frank Modell/The New Yorker Collection/The Cartoon Bank

Faced with scarcity, we must make choices. We must choose among the available alternatives. The student must choose the download or the paperback. John Legend must choose shooting episodes of *The Voice* or pursuing Broadway projects. Governments must choose among greater security, tax cuts, improved healthcare, classroom computers, the environment, and so on.

Economics Defined

Economics
The social science that studies the choices that individuals, businesses, and governments make as they cope with *scarcity*, all the things that influence those choices, and the arrangements that coordinate them.

Economics is the social science that studies the choices that individuals, businesses, and governments make as they cope with *scarcity*, all the things that influence those choices, and the arrangements that coordinate them.

The subject has two broad parts:

- Microeconomics, and
- Macroeconomics

Microeconomics

Microeconomics
The study of the choices that individuals and businesses make and the way these choices interact and are influenced by governments.

Microeconomics is the study of the choices that individuals and businesses make and the way these choices interact and are influenced by governments. Some examples of microeconomic questions are: Will you buy a 4K TV or a standard one? Will Nintendo sell more units of Wii if it cuts the price? Will a cut in the income tax rate encourage people to work longer hours? Will a hike in the gas tax encourage more people to drive hybrid or smaller automobiles? Is video streaming killing movie theaters?

Macroeconomics

Macroeconomics is the study of the aggregate (or total) effects on the national economy and the global economy of the choices that individuals, businesses, and governments make. Some examples of macroeconomic questions are: Why did production and jobs expand in the United States during 2017 and 2018? Why are incomes growing much faster in China and India than in the United States? Why is unemployment in Europe so high? Why are Americans borrowing more than $1 billion a day from the rest of the world?

Macroeconomics
The study of the aggregate (or total) effects on the national economy and the global economy of the choices that individuals, businesses, and governments make.

Two big questions define the scope of economics:

- How do choices end up determining *what*, *how*, and *for whom* goods and services get produced?
- When 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 and actions that people value and produce to satisfy human wants. Goods are *objects* that satisfy wants. Sports shoes and ketchup are examples. Services are *actions* that satisfy wants. Haircuts and rock concerts are examples. We produce a dazzling array of goods and services that range from necessities such as food, houses, and healthcare to leisure items such as video streaming and roller coaster rides.

Goods and services
The objects (goods) and the actions (services) that people value and produce to satisfy human wants.

What?

What determines the quantities of corn we grow, homes we build, and healthcare services we produce? Sixty years ago, farm output was 5 percent of total U.S. production. Today, it is 1 percent. Over the same period, the output of mines, construction, and utilities slipped from 9 percent to 8 percent of total production and manufacturing fell from 28 percent to 13 percent. These decreases in output are matched by increases in the production of a wide range of services, up from 58 percent of total production 60 years ago to 78 percent today. How will these quantities change in the future as ongoing changes in technology make an ever-wider array of goods and services available to us?

How?

How are goods and services produced? In a vineyard in France, bucket-carrying workers pick the annual grape crop by hand. In a vineyard in California, a huge machine does the same job. Look around and you will see many examples of this phenomenon—the same job being done in different ways. In some stores, check-out clerks scan the goods and in others, shoppers choose self-checkout. One farmer uses paper-and-pencil records to track his livestock feeding schedules and inventories while another uses a computer. In some plants, GM hires workers to weld auto bodies and in others it uses robots to do the job.

Why do we use machines in some cases and people in others? Do mechanization and technological change destroy more jobs than they create? Do they make us better off or worse off?

In France, grape pickers do the same job as a huge machine in a California vineyard.

For Whom?

A doctor gets more of the goods and services produced than a nurse or a medical assistant gets.

For whom are goods and services produced? The answer depends on the incomes that people earn and the prices they pay for the goods and services they buy. At given prices, a person who has a high income is able to buy more goods and services than a person who has a low income. Doctors earn much higher incomes than do nurses and medical assistants, so doctors get more of the goods and services produced than nurses and medical assistants get.

You probably know about many other persistent differences in incomes. Men, on average, earn more than women. Whites, on average, earn more than minorities. College graduates, on average, earn more than high school graduates. Americans, on average, earn more than Europeans, who in turn earn more, on average, than Asians and Africans. But there are some significant exceptions. The people of Japan and Hong Kong now earn an average income similar to that of Americans. And there is a lot of income inequality throughout the world.

What determines the incomes we earn? Why do doctors earn larger incomes than nurses? Why do men earn more, on average, than women? Why do college graduates earn more, on average, than high school graduates? Why do Americans earn more, on average, than Africans?

Economics explains how the choices that individuals, businesses, and governments make and the interactions of those choices end up determining *what*, *how*, and *for whom* goods and services are produced. In answering these questions, we have a deeper agenda in mind. We're not interested in just knowing how many Alexa devices are produced, how they are produced, and who gets to enjoy them. We ultimately want to know the answer to the second big economic question that we'll now explore.

Can the Pursuit of Self-Interest Be in the Social Interest?

Every day, you and 329 million other Americans, along with 7.6 billion people in the rest of the world, make economic choices that result in *"what," "how,"* and *"for whom"* goods and services are produced.

Are the goods and services produced, and the quantities in which they are produced, the right ones? Are the scarce resources used in the best possible way? Do the goods and services we produce go to those who benefit most from them?

Self-Interest and the Social Interest

Self-interest
The choices that are best for the individual who makes them.

Social interest
The choices that are best for society as a whole.

Choices that are the best for the individual who makes them are choices made in the pursuit of **self-interest**. Choices that are the best for everyone are said to be in the **social interest**. The social interest has two dimensions: *efficiency* and *equity*. We'll explore these concepts in later chapters. For now, think of efficiency as being achieved by baking the biggest possible pie, and think of equity as being achieved by sharing the pie in the fairest possible way.

You know that your own choices are the best ones for you—or at least you *think* they're the best at the time that you make them. You use your time and other resources in the way that you think is best. You might consider how your choices affect other people, but you order a home delivery pizza because you're hungry and want to eat, not because you're concerned that the delivery person or the cook needs an income. You make choices that are in your self-interest—choices that you think are best for you.

When you act on your economic decisions, you come into contact with thousands of other people who produce and deliver the goods and services that you decide to buy or who buy the things that you sell. These people have made their own decisions—what to produce and how to produce it, whom to hire or whom to work for, and so on. Like you, all these people make choices that they think are best for them. When the pizza delivery person shows up at your home, he's not doing you a favor. He's earning his income and hoping for a good tip.

Can it be possible that when each one of us makes choices that are in our own best interest—in our self-interest—it turns out that these choices are also the best choices for society as a whole—in the social interest?

Adam Smith, regarded as the founder of economic science, (see *Eye on the Past* on p. 20) said the answer is *yes*. He believed that when we pursue our self-interest, we are led by an *invisible hand* to promote the social interest.

Is Adam Smith correct? Can it really be possible that the pursuit of self-interest promotes the social interest? Much of the rest of this book helps you to learn what economists know about this question and its answer. To help you start thinking about the question, we're going to illustrate it with four topics that generate heated discussion in today's world. You're already at least a little bit familiar with each one of them. They are

- Globalization
- The information revolution
- Climate change
- Government budget deficit and debt

Globalization

Globalization—the expansion of international trade and the production of components and services by firms in other countries—has been going on for centuries. But in recent years, its pace has accelerated. Microchips, satellites, and fiber-optic cables have lowered the cost of communication and globalized production decisions. When Nike produces more sports shoes, people in Malaysia get more work. When Steven Spielberg makes a new movie, programmers in New Zealand write the code that makes magical animations. And when China Airlines wants a new airplane, Americans who work for Boeing build it.

Workers in Asia make our shoes.

Globalization is bringing rapid income growth, especially in Asia. But globalization is leaving some people behind. Jobs in manufacturing and routine services are shrinking in the United States, and some nations of Africa and South America are not sharing in the prosperity enjoyed in other parts of the world.

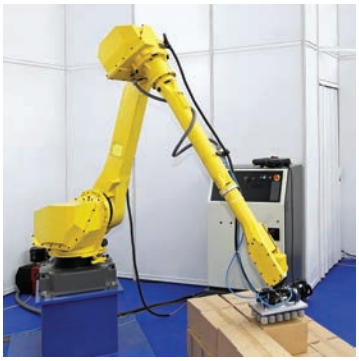
The owners of multinational firms benefit from lower production costs and consumers benefit from low-cost imported goods. But don't displaced American workers lose? And doesn't even the worker in Malaysia, who sews your new shoes for a few cents an hour, also lose? Is globalization in the social interest, or does globalization benefit just some at the expense of others?

The Information Revolution

We are living at a time of extraordinary economic change that has been called the *Information Revolution*. This name suggests a parallel with the *Industrial Revolution* of the 1800s and the *Agricultural Revolution* of 12,000 years ago.

The changes that have occurred during the last 40 years are based on one major technology: the microprocessor or computer chip. The spin-offs from faster

and cheaper computing have been widespread in telecommunications, music, and the automation of millions of tasks that previously required human decisions. You encounter some of these tasks when you check out at the grocery store or use an ATM. Less visible, but larger in scope, are the robots that assemble cars and move goods around warehouses. Over the next 20 years, more than one third of today's jobs will be done by a new generation of robots.



Robots fill orders at Amazon.

The computing and robot revolution resulted from people pursuing their self-interest. Gordon Moore, the chip maker who set up Intel, and Bill Gates, who quit Harvard to set up Microsoft, weren't thinking how much easier it would be for you to turn in your essay on time if you had a computer. Moore and Gates and thousands of other entrepreneurs were in pursuit of big rewards. Yet their actions made many other people better off. They advanced the social interest.

But are resources used in the best possible way? Or do Intel and Microsoft set their prices too high and put their products out of reach for too many people? And is it in the social interest for robots to take people's jobs?

Climate Change

Human activity is raising the Earth's surface temperature.

The Earth is getting hotter and the ice at the two poles is melting. Since 1880, the Earth's surface temperature has increased by 1.4 degrees Fahrenheit, and two thirds of that increase has occurred since 1975.

Most climate scientists believe that the current warming has come at least in part from human economic activity—from self-interested choices—and that, if left unchecked, the warming will bring large future economic costs.

Are the individual energy choices that each of us makes damaging the social interest? What needs to be done to make our choices serve the social interest? Would the United States joining with other nations to limit carbon emissions serve the social interest? What other measures might be introduced?

Government Budget Deficit and Debt

A government budget time bomb is ticking as spending grows faster than tax revenues.

Every year since 2000, the U.S. government has run a budget deficit. On average, the government has spent $1.66 billion a day more than it has received in taxes. The government's debt has increased each day by that amount. Over the period from 2000 to 2019, government debt increased by $12 trillion. Your personal share of the government debt in 2019 is $35,000.

This large deficit and debt is just the beginning of an even bigger problem. From about 2020 onwards, the retirement and healthcare benefits to which older Americans are entitled are going to cost increasingly more than current taxes can cover. With no changes in tax or benefit rates, the budget deficit will increase and the debt will swell ever higher.

Deficits and the debts they create cannot persist indefinitely, and debts must somehow be repaid. They will most likely be repaid by you, not by your parents. When we make our voter choices, we pursue our self-interest. Do our choices serve the social interest? Do the choices made by politicians and bureaucrats in Washington and the state capitals promote the social interest, or do they only serve their own self-interests?

The four issues we've just reviewed raise questions that are hard to answer. We'll return to each of them at various points throughout this text and explain when the social interest is served and when there remain problems to be solved.

CHECKPOINT 1.1

Define economics and explain the kinds of questions that economists try to answer.

Practice Problems

1. Economics studies choices that arise from one fact. What is that fact?
2. Provide three examples of wants in the United States today that are especially pressing but not satisfied.
3. In the following three news items, find examples of the *what*, *how*, and *for whom* questions: "With more research, we will cure cancer"; "A good education is the right of every child"; "Congress raises taxes to curb the deficit."
4. How does a new Starbucks in Beijing, China, influence self-interest and the social interest?
5. How does Facebook influence self-interest and the social interest?

In the News

1. The Bureau of Labor Statistics (BLS) reports that high-paying jobs in healthcare and jobs in leisure, hospitality, and education will expand quickly over the next five years. How does the BLS expect *what* and *for whom* goods and services are produced to change in the next five years?
2. Tesla will cut 3,000 jobs to save costs and lower the price of its Model 3 car.
   Source: *New York Times*, January 18, 2019

   Explain why Tesla's decision made in its self-interest might also be in the social interest.

Solutions to Practice Problems

1. The fact is scarcity—human wants exceed the resources available.
2. Examples would include security from terrorism, cleaner air in our cities, better public schools, and better public infrastructure. (Think of others.)
3. More research is a *how* question, and a cure for cancer is a *what* question. Good education is a *what* question, and every child is a *for whom* question. Raising taxes is a *for whom* question.
4. Decisions made by Starbucks are in Starbucks' self-interest but they also serve the self-interest of its customers and so contribute to the social interest.
5. Facebook serves the self-interest of its investors, users, and advertisers. It also serves the social interest by enabling people to share information.

Solutions to In the News

1. The BLS expects the quantities of goods and services produced by workers in healthcare, leisure, hospitality, and education to increase. For whom they are produced depends on how people's incomes and the prices of goods and services will change in the next five years. The BLS expects workers in these high-paying jobs and expanding industries will get more of the goods and services.
2. Telsa's car price might fall and benefit its customers. The laid-off workers will find new jobs, some of which might pay higher wages.

1.2 THE ECONOMIC WAY OF THINKING

The definition of economics and the kinds of questions that economists try to answer give you a flavor of the scope of economics. But they don't tell you how economists *think* about these questions and how they go about seeking answers to them. You're now going to see how economists approach their work.

We'll break this task into two parts. First, we'll explain the ideas that economists use to frame their view of the world. These ideas will soon have you thinking like an economist. Second, we'll look at economics both as a social science and as a policy tool that governments, businesses, and *you* can use.

Six ideas define the *economic way of thinking*:

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

A Choice Is a Tradeoff

Tradeoff
An exchange—giving up one thing to get something else.

A **tradeoff** is an exchange—giving up one thing to get something else. Because we face scarcity, we must make choices. And when we make a choice, we select from the available alternatives. You can think about choices as tradeoffs. When you choose one thing, you give up something else that you could have chosen.

Think about what you will do on Saturday night. You can spend the 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. When you choose how to spend your Saturday night, you face a tradeoff between studying and hanging out with your friends. To get more study time, you must give up some time with your friends.

Cost: What You *Must* Give Up

Opportunity cost
The opportunity cost of something is the best thing you must give up to get it.

The **opportunity cost** of something is the best thing you must give up to get it. You most likely think about the cost of something as the money you must spend to get it. But dig a bit deeper. If you spend $10 on a movie ticket, you can't spend it on a sandwich. The movie ticket really costs a sandwich. The *cost* of something is what must be given up to get it, not the money spent on it. Economists use the term *opportunity cost* to emphasize this view of cost.

The opportunity cost of being in school includes things you can't buy and do.

The biggest opportunity cost you face is that of being in school. This opportunity cost has two components: things you can't afford to buy and 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 the things you can't afford to buy because you're in school. You've also given up the opportunity to get a job and buy the things that you could afford with your higher income. Suppose that the

best job you could get if you weren't in school is working as a coffee shop manager earning $24,000 a year. Another part of your opportunity cost of being in school is all the things that you would buy with that extra $24,000.

Now think about the time that being a student eats up. You spend many hours each week in class, doing homework assignments, preparing for tests, and so on. To do all these school activities, you must give up what would otherwise be time spent playing your favorite sport, time watching movies, and leisure time spent with your friends.

The opportunity cost of being in school is the best alternative things that you can't afford and that you don't have the time to enjoy. You might put a dollar value on this cost but the cost is the goods and services and time that you give up, not dollars.

The opportunity cost of being in school includes forgone earnings.

Benefit: What You Gain

The **benefit** of something is the gain or pleasure that it brings, measured by what you are *willing to give up* to get it. Benefit is determined by personal *preferences*—by what a person likes and dislikes and the intensity of those feelings. If you get a huge kick out of Fortnite, that video game brings you a large benefit. And if you have little interest in listening to Yo Yo Ma playing a Vivaldi cello concerto, that activity brings you a small benefit.

Benefit
The benefit of something is the gain or pleasure that it brings, measured by what you are *willing to give up* to get it.

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 receive 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 for something that brings a large benefit. For example, because being in school brings a large benefit, you're *willing to give up* a lot of time and goods and services to get that benefit. But you're willing to give up very little for something that brings a small benefit. For example, you might be willing to give up one iTunes download to get a slice of pizza.

Rational Choice

A basic idea of economics is that in making choices, people act rationally. A **rational choice** is one that uses the available resources to best achieve the objective of the person making the choice.

Rational choice
A choice that uses the available resources to best achieve the objective of the person making the choice.

But how do people choose rationally? The answer is by comparing the *benefits* and *costs* of the alternative choices and choosing the alternative that makes *net benefit*—benefit minus cost—as large as possible.

You have chosen to be a student. If that choice is rational, as economists assume, your benefit from being in school exceeds the cost, so your net benefit is maximized by being in school. For an outstanding baseball player, a high earning potential makes the opportunity cost of school higher than the benefit from school, so for that person, net benefit is maximized by choosing full-time sport. (*Eye on the Benefit and Cost of School* on p. 12 explores these examples more closely.)

The benefit of a choice is determined by the preferences of the person making the choice, so two people can make different rational choices even if they face the same cost. For example, you might like chocolate ice cream more than vanilla ice cream, but your friend prefers vanilla. So it is rational for you to choose chocolate and for your friend to choose vanilla.

A rational choice might turn out not to have been the best choice after the fact. For example, a farmer might decide to plant wheat rather than soybeans. Then, when the crop comes to market, the price of soybeans might be much higher than the price of wheat. The farmer's choice was rational when it was made, but subsequent events made it less profitable than the alternative choice.

All the rational choices we've just considered (school or not, chocolate or vanilla ice cream, soybeans or wheat) involve choosing between two things. One or the other is chosen. We call such choices *all-or-nothing* choices. Many choices are of this type, but most choices involve *how much* of an activity to do.

How Much? Choosing at the Margin

You can allocate the next hour between studying and video chatting 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*.

Margin
A choice on the margin is a choice that is made by comparing *all* the relevant alternatives systematically and incrementally.

Other words for "margin" are "border" or "edge." You can think of a choice at the margin as one that adjusts the border or edge of a plan to determine the best course of action. Making a choice at the **margin** means comparing the relevant alternatives systematically and incrementally.

Marginal Cost

Marginal cost
The opportunity cost that arises from a one-unit increase in an activity. The marginal cost of something is what you *must* give up to get *one additional* unit of it.

The opportunity cost of a one-unit increase in an activity is called **marginal cost**. The marginal cost of something is what you *must* give up to get *one additional* unit of it. Think about your marginal cost of going to the movies for a third time in a week. Your marginal cost of seeing the movie is what you must give up to see that one additional movie. It is *not* what you give up to see all three movies. The reason is that you've already given up something to see two movies, so you don't count that cost when making a decision to see the third movie.

The marginal cost of any activity increases as you do more of it. You know that going to the movies decreases your study time and lowers your grade. Suppose that seeing a second movie in a week lowers your grade by five percentage points. Seeing a third movie will lower your grade by more than five percentage points. Your marginal cost of moviegoing is increasing as you see more movies.

Marginal Benefit

Marginal benefit
The benefit that arises from a one-unit increase in an activity. The marginal benefit of something is *measured* by what you *are willing* to give up to get *one additional* unit of it.

The benefit of a one-unit increase in an activity is called **marginal benefit**. Marginal benefit is what you gain from having *one more* unit of something. But the marginal benefit of something is *measured* by what you *are willing* to give up to get that *one additional* unit of it.

A fundamental feature of marginal benefit is that it diminishes. Think about movies and your marginal benefit. If you've been studying hard and haven't seen a movie this week, your marginal benefit of seeing your next movie is large. But if you've been on a movie binge this week, you now want a break and seeing another movie gives you a small marginal benefit.

Because the marginal benefit of a movie decreases as you see more movies, you are willing to give up less to see one additional movie. For example, you know that going to the movies decreases your study time and lowers your grade. You pay for seeing a movie with a lower grade. You might be willing to give up ten percentage points to see your first movie in a week, but you won't be willing to take such a big hit on your grade to see a second movie in a week. Your willingness to pay to see a movie decreases as the number of movies increases.

Making a Rational Choice

So, will you go to the movies for that third time in a week? The answer is found by comparing marginal benefit and marginal cost.

If the marginal cost of the movie is less than its marginal benefit, seeing the third movie adds more to benefit than to cost. Your net benefit increases, so your rational choice is to see the third movie.

If the marginal cost of the movie exceeds its marginal benefit, seeing the third movie adds more to cost than to benefit. Your net benefit decreases, so your rational choice is to spend the evening studying.

When the marginal benefit of something equals its marginal cost, the choice is rational and it is not possible to make a better choice. Scarce resources are being used in the best possible way.

Choices Respond to Incentives

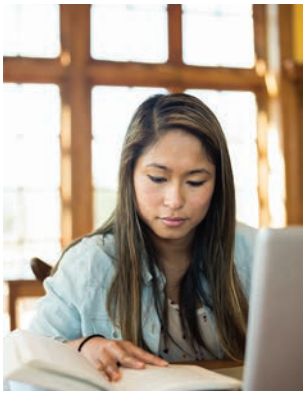
The choices we make depend on the incentives we face. An **incentive** is a reward or a penalty—a "carrot" or a "stick"—that encourages or discourages an action. We respond positively to "carrots" and negatively to "sticks." The carrots are marginal benefits; the sticks are marginal costs. A change in marginal benefit or a change in marginal cost changes the incentives that we face and leads us to change our actions.

Incentive
A reward or a penalty—a "carrot" or a "stick"—that encourages or discourages an action.

Most students believe that the payoff from studying just before a test is greater than the payoff from studying a month before a test. In other words, as a test date approaches, the marginal benefit from studying increases and the incentive to study becomes stronger. For this reason, we observe an increase in study time and a decrease in leisure pursuits during the last few days before a test. And the more important the test, the greater is this effect.

A change in marginal cost also changes incentives. For example, suppose that last week, you found your course work easy and you scored 100 percent on your practice quizzes. You figured that the marginal cost of taking an evening off to enjoy a movie was low and that your grade on the next test would not suffer, so you headed to the Cineplex. But this week the going has gotten tough. You're just not getting it, and your practice test scores are low. If you take off even one evening this week, your grade on the next test will suffer. The marginal cost of seeing a movie is now high, so you decide to give the movies a miss.

A central idea of economics is that by observing *changes in incentives*, we can predict how *choices change*.



Changes in marginal benefit and marginal cost change the incentive to study or to enjoy a movie.

EYE on the BENEFIT AND COST OF SCHOOL

Did You Make the Right Decision?

Your decision to be in school is an economic decision. You faced a tradeoff between school, a job, and leisure time. You compared benefits and costs, and you responded to incentives.

Did you make the right decision when you chose school over a full-time job? Or, if you have a full-time job and you're studying in what would be your leisure time, did you make the right choice? Does school provide a big enough benefit to justify its cost?

The Benefits of School

Being in school has many benefits for which people are willing to pay. They fall into two broad categories: present enjoyment and a higher future income.

You can easily make a list of all the fun things you do with your friends in school that would be harder to do if you didn't have these friends and opportunities for social interaction that school provides.

Putting a dollar value on the items in your list would be hard, but it is possible to put a dollar value, or rather an expected dollar value, on the other benefit—a higher future income.

A high-school graduate earns, on average, an annual income of $40,000 a year. A graduate with a bachelor's degree earns, on average, $76,000 a year.

So by being in school, you can expect (on average) to increase your annual earnings by $36,000 a year.

This number is likely to grow as the economy becomes more productive and prices and earnings rise.

The Costs of School

The opportunity cost of being in school is your best forgone alternative. It is all the things you would have been able to enjoy if you were not in school. An opportunity cost is goods and services and time that must be forgone. Putting a dollar value on opportunity cost for a full-time student includes

- Tuition
- Expenditure on books and other study aids
- Forgone earnings

For a student attending a state university in her or his home state, tuition is around $10,000 per year.

Books and other study aids cost around $1,000 per year.

Forgone earnings are the wage of a high-school graduate in a starter job, which is around $24,000 a year.

So the total cost of being in school is about $35,000 per year or $105,000 for a 3-year degree and $140,000 for a 4-year degree.

Net Benefit

The benefit of extra earnings alone brings in $36,000 a year or $360,000 in 10 years and $1,440,000 in a working life of 40 years.

But you are incurring the costs now while you won't enjoy the benefits until some time in the future. We need to lower the benefits to compare them properly with the costs. You'll learn how to do that later in your economics course. But even allowing for the fact that the costs are incurred now while the benefits are received in the future, the net benefit is big!

Is School Always Best?

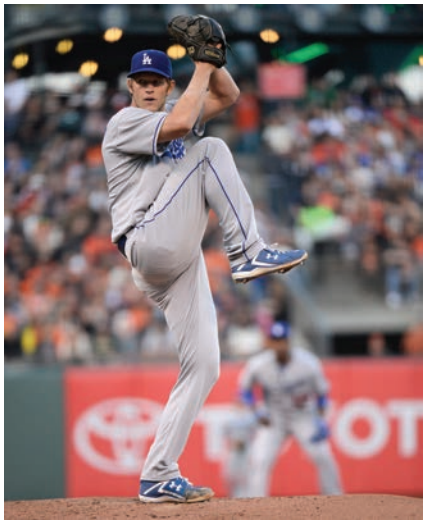
At the age of 18, Clayton Kershaw was offered a baseball scholarship at Texas A & M. The scholarship wouldn't have covered all the costs of school, but it would have lowered them a long way below those that you face.

But Clayton had an alternative to school. He was considered the top high-schooler available entering the 2006 MLB Draft and he was offered a signing bonus by the Los Angeles Dodgers said to be $2.3 million.

Clayton turned down the baseball scholarship at Texas A & M and signed with the Dodgers.

As the starting pitcher, Clayton's value to the Dodgers is high and earned him a salary of $30 million.

Clayton Kershaw's opportunity cost of a college education vastly exceeded the benefit he could expect to get from it. So, like you, he made the right decision.



CHECKPOINT 1.2

Explain the ideas that define the economic way of thinking.

Practice Problems

Every week, Kate plays tennis for two hours, and her grade on each math test is 70 percent. Last week, after playing for two hours, Kate decided to play for another hour and cut her study time by one hour. But last week, her math grade fell to 60 percent. Use this information to work Problems **1** to **4**.

1. What was Kate's opportunity cost of the third hour of tennis?
2. Given that Kate played the third hour, what can you conclude about her marginal benefit and marginal cost of the second hour of tennis?
3. Was Kate's decision to play the third hour of tennis rational?
4. Did Kate make her decision on the margin?

In the News

The cruise industry boom is primed to continue
Since the recovery from the 2008 recession, the cruise business has been booming, which tells us that Americans look for more adventure and view their vacations as valuable and necessary.

Source: *Forbes*, September 1, 2018

1. In deciding whether to take a cruise, would you face a tradeoff?
2. How would you make a rational choice about taking a cruise?
3. What would be your marginal benefit of a cruise? What would be your marginal cost of a cruise?
4. Why would you expect a lower price to increase the number of people who decide to take a cruise?

Solutions to Practice Problems

1. Kate's opportunity cost of the third hour of tennis was the drop in her grade of ten percentage points.
2. The marginal benefit of the second hour of tennis must have exceeded the marginal cost of the second hour because Kate chose to play the third hour.
3. If marginal benefit exceeded marginal cost, Kate's decision was rational.
4. Kate made her decision on the margin because she compared the benefit and cost of one more hour (marginal benefit and marginal cost).

Solutions to In the News

1. You would face a tradeoff because you would have to forgo something else that you might otherwise do with your resources (time and budget).
2. You would make a rational choice by comparing the marginal benefit of a cruise and the marginal cost of taking one.
3. Your marginal benefit of a cruise is the most you are willing to pay for one. Your marginal cost is what you would have to pay to take a cruise.
4. With a lower price, the marginal benefit will exceed the lower price for more people and they will choose to take a cruise.

1.3 ECONOMICS AS A SOCIAL SCIENCE AND POLICY TOOL

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

Economics as a Social Science

Economists try to understand and predict the effects of economic forces by using the *scientific method* first developed by physicists. The scientific method is a commonsense way of systematically checking what works and what doesn't work. It begins with a question about cause and effect arising from some observed facts. An economist might wonder why computers are getting cheaper and more computers are being used. Are computers getting cheaper because more people are buying them, or are more people buying computers because they are getting cheaper? Or is a third factor causing both the price fall and the quantity increase?

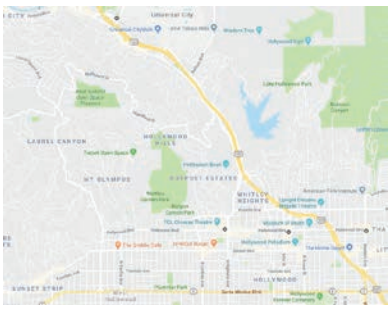
Economic Models

Economic model
A description of the economy or a part of the economy that includes only those features assumed necessary to explain the observed facts.

A scientist's second step is to build a model that provides a possible answer to the question of interest. All sciences use models. An **economic model** is a description of the economy or a part of the economy that includes only those features assumed necessary to explain and understand the observed facts.

A model is like a map. If you want to drive from *A* to *B* in an unfamiliar city, you use a street map; and you get more useful information from the map than you would get from a satellite photograph!

In economics, we use mathematical and graph-based models. The questions posed above about the price and quantity of computers bought are answered by a graph-based model called "demand and supply" that you will study in Chapter 4.



The top image shows what is visible—it depicts reality. The lower image is a model. Which is more useful if you want to drive from Universal City to Sunset Strip?

Check Predictions of Models Against Facts

A scientist's third step is to check the predictions of a proposed model against the facts. Physicists check whether their models correspond to the facts by doing experiments. Economists have a harder time than physicists, but they still approach the task in a scientific manner. To check predictions of a model against facts, economists use natural experiments, statistical investigations, and laboratory experiments.

A natural experiment is a situation that arises in the ordinary course of economic life in which the one factor of interest is different and other things are equal (or similar). For example, Canada has higher unemployment benefits than the United States, but the people in the two nations are similar. So to study the effect of unemployment benefits on the unemployment rate, economists might compare the United States with Canada.

A statistical investigation looks for a *correlation*—a tendency for the values of two variables to move together (either in the same direction or in opposite directions) in a predictable and related way. For example, cigarette smoking and lung cancer are correlated. Sometimes a correlation shows a causal influence of one variable on the other. Smoking causes lung cancer. But sometimes the direction of causation is hard to determine.

A laboratory experiment puts people (often students) in a decision-making situation and varies the influence of one factor at a time to discover how they respond to changed incentives. Some economists (neuroeconomists) are now studying what happens in the brain of a decisionmaker.

Disagreement: Normative versus Positive

Economists sometimes disagree. Some disagreements can be settled by checking facts, but others cannot.

Disagreements that can't be settled by facts are *normative*—disagreements about what *should be.* The statement "We *should* burn less coal" is normative. You may agree or disagree with it, but you can't test it. It doesn't assert a fact that can be checked. Social scientists try to steer clear of normative statements.

Disagreements that *can* be settled by facts are *positive*—disagreements about *what is*. These disagreements can be settled by careful observation of facts. "Burning coal raises the temperature of the planet" is a positive statement. It can be tested. Sometimes the facts are hard to get and sometimes they are hard to interpret, so disagreement persists. It is an ongoing feature of a healthy science.

Economics as a Policy Tool

All the policy questions on which economists provide advice involve a positive and normative blend. 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 and finding the solution that makes the best use of the available resources.

For example, if a policy goal is to reduce poverty, economists can explain whether a rise in the minimum wage will achieve that goal.

Some of the most famous economists work partly as policy advisers. Janet Yellen left her job as a professor at the University of California, Berkeley, to become Chair of the Federal Reserve board of governors.

CHECKPOINT 1.3

Explain how economists work as social scientists and policy advisers.

Practice Problem

Distinguish between positive and normative statements and provide an example of each.

In the News

The *New York Times* reports that New York City plans to charge drivers a congestion fee in 2021. How would an economist study the effect of this policy change?

Solution to Practice Problem

A positive statement is a statement of fact that can be checked, such as "grocery prices are rising." A normative statement is an opinion that cannot be checked, such as "tuition should be based on family income."

Solution to In the News

As a social scientist, an economist would construct a traffic-flow model. As a policy adviser, an economist would evaluate the benefits and costs of the change, and estimate the fee that would reduce congestion to the planned level.

1.4 ECONOMICS AS A LIFE SKILL AND JOB SKILL

What jobs are available to an economics major? Is the number of economics jobs likely to grow or shrink? How much do economics majors 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. An economics major is also a solid foundation for graduate programs in law, business, public health, and many other fields.

Some economics majors create their own businesses. A famous example is Fred Smith, who as an undergraduate at Yale wrote a term paper that envisioned the technology that led him to create FedEx.

But most economics graduates work in private firms, government, and international organizations, where they collect and analyze data, predict future trends, and study 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 forecasts 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 and predictions of future cash flows.

Figure 1.1 shows the scale and distribution of employment across the jobs for an economics major.

FIGURE 1.1

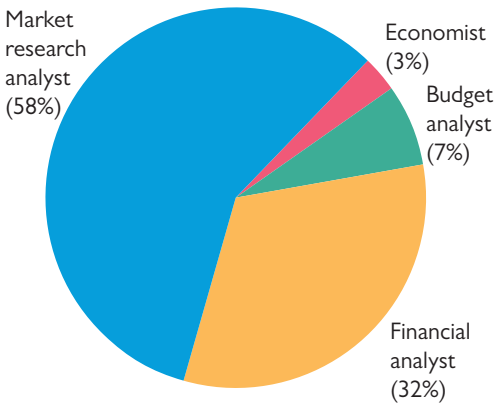
Economics Jobs

The table shows the number of jobs for economists and analysts that use economic ideas and tools in 2014 and the projected numbers in 2024.

The pie chart shows the relative number of jobs.

Most of the jobs for an economics major are in market research (58 percent) and finance (32 percent).

Employment in	2014	2024
Economist	21,500	22,700
Budget analyst	60,800	62,300
Financial analyst	277,600	310,000
Market research analyst	495,500	587,800
Total jobs	855,400	982,800



SOURCE OF DATA: Bureau of Labor Statistics.

Will the Number of Economics Jobs Grow?

The Bureau of Labor Statistics forecasts that between 2014 and 2024, jobs for

- economists with a Ph.D. will grow by 6 percent.
- budget analysts will grow by 2 percent.
- financial analysts will grow by 12 percent.
- market research analysts will grow by 19 percent.

Big data—the explosion of data and the profit opportunities that arise from analyzing it—will increase the demand for those who can make sense of and discover patterns in the data. Economics majors will be among these people.

How Much Do Economics Majors Earn?

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 from $41,226 to $124,177, with a median of $72,279.

The American Economic Association reports that economics majors earn about $100,000 a year, and only graduates who major in chemical engineering and applied math have average pay that exceeds that of economists.

Figure 1.2 shows the earnings of graduates in economics and other subjects.

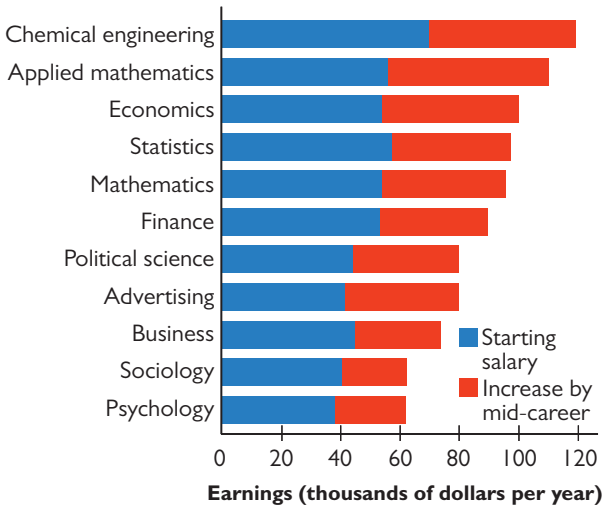
Skills Needed for Economics Jobs

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

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

FIGURE 1.2

Earnings of Economics Majors



Economics majors are not the highest earners—chemical engineers and applied mathematicians earn more—but at $100,000 a year in mid-career, economists earn more than most other majors.

SOURCE OF DATA: American Economic Association.

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 in conversations with colleagues and in business meetings

Economics for Life

Economics is also a life skill. Economics provides you with the skills and tools for making decisions in all aspects of your life:

- Personal
- Business
- Government
- Community

Personal Decisions

You must decide whether to take a student loan or look for a better-paying job; to rent an apartment or borrow and buy a condo; and how to allocate your time between studying, working, volunteering, caring for others, and having fun. And everyone must decide how to vote in an upcoming election.

Business Decisions

Sony must decide whether to compete with Apple in the smartphone market. Chevron must decide whether to get more oil from the Gulf of Mexico or from Alaska. Marvel Studios must decide what its next movie will be.

Government Decisions

The U.S. government must decide whether to penalize corporations that send jobs overseas and whether to limit cheap imports of cars and trucks.

Community Decisions

People must decide whether to volunteer for a garbage-clearing project, to run in a charity marathon, and to join an early morning walking group.

Economics provides a toolkit for making them and the many more that arise in the daily course of life.