



PRINCIPLES OF MICRO ECONOMICS

SEVENTH EDITION

Frank | Bernanke | Antonovics | Heffetz

**Mc
Graw
Hill**
Education



PRINCIPLES OF
MICROECONOMICS

Seventh Edition

THE MCGRAW-HILL SERIES IN ECONOMICS

ESSENTIALS OF ECONOMICS

Brue, McConnell, and Flynn
Essentials of Economics
Fourth Edition

Mandel
M: Economics, The Basics
Third Edition

Schiller and Gebhardt
Essentials of Economics
Tenth Edition

PRINCIPLES OF ECONOMICS

Asarta and Butters
Connect Master: Economics

Colander
Economics, Microeconomics, and
Macroeconomics
Tenth Edition

**Frank, Bernanke, Antonovics,
and Heffetz**
Principles of Economics, Principles
of Microeconomics, Principles of
Macroeconomics
Seventh Edition

**Frank, Bernanke, Antonovics,
and Heffetz**
A Streamlined Approach for:
Principles of Economics, Principles
of Microeconomics, and Principles of
Macroeconomics
Third Edition

Karlan and Morduch
Economics, Microeconomics, and
Macroeconomics
Second Edition

McConnell, Brue, and Flynn
Economics, Microeconomics, and
Macroeconomics
Twenty-First Edition

McConnell, Brue, and Flynn
Brief Editions: Microeconomics and
Macroeconomics
Second Edition

Samuelson and Nordhaus
Economics, Microeconomics, and
Macroeconomics
Nineteenth Edition

Schiller and Gebhardt
The Economy Today, The Micro
Economy Today, and The Macro
Economy Today
Fifteenth Edition

Slavin
Economics, Microeconomics, and
Macroeconomics
Eleventh Edition

ECONOMICS OF SOCIAL ISSUES

Guell
Issues in Economics Today
Eighth Edition

Register and Grimes
Economics of Social Issues
Twenty-First Edition

ECONOMETRICS AND DATA ANALYTICS

Hilmer and Hilmer
Practical Econometrics
First Edition

Prince
Predictive Analytics for Business
Strategy
First Edition

MANAGERIAL ECONOMICS

Baye and Prince
Managerial Economics and Business
Strategy
Ninth Edition

Brickley, Smith, and Zimmerman
Managerial Economics and
Organizational Architecture
Sixth Edition

Thomas and Maurice
Managerial Economics
Twelfth Edition

INTERMEDIATE ECONOMICS

Bernheim and Whinston
Microeconomics
Second Edition

Dornbusch, Fischer, and Startz
Macroeconomics
Thirteenth Edition

Frank
Microeconomics and Behavior
Ninth Edition

ADVANCED ECONOMICS

Romer
Advanced Macroeconomics
Fifth Edition

MONEY AND BANKING

Cecchetti and Schoenholtz
Money, Banking, and Financial
Markets
Fifth Edition

URBAN ECONOMICS

O'Sullivan
Urban Economics
Ninth Edition

LABOR ECONOMICS

Borjas
Labor Economics
Seventh Edition

McConnell, Brue, and Macpherson
Contemporary Labor Economics
Eleventh Edition

PUBLIC FINANCE

Rosen and Gayer
Public Finance
Tenth Edition

ENVIRONMENTAL ECONOMICS

Field and Field
Environmental Economics: An
Introduction
Seventh Edition

INTERNATIONAL ECONOMICS

Appleyard and Field
International Economics
Ninth Edition

Pugel
International Economics
Sixteenth Edition

PRINCIPLES OF MICROECONOMICS

Seventh Edition

ROBERT H. FRANK

Cornell University

BEN S. BERNANKE

Brookings Institution [affiliated]

Former Chairman, Board of Governors of the Federal Reserve System

KATE ANTONOVICS

University of California, San Diego

ORI HEFFETZ

Cornell University and the Hebrew University of Jerusalem





PRINCIPLES OF MICROECONOMICS, SEVENTH EDITION

Published by McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121. Copyright © 2019 by McGraw-Hill Education. All rights reserved. Printed in the United States of America. Previous editions © 2016, 2013, and 2009. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of McGraw-Hill Education, including, but not limited to, in any network or other electronic storage or transmission, or broadcast for distance learning.

Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 LWI 21 20 19 18

ISBN 978-1-260-11108-8 (student edition)

MHID 1-260-11108-3 (student edition)

ISBN 978-1-260-11112-5 (loose leaf edition)

MHID 1-260-11112-1 (loose leaf edition)

Executive Portfolio Manager: *Katie Hoenicke*

Senior Product Developer: *Christina Kouvelis*

Marketing Manager: *Bobby Pearson*

Director, Digital Content Development: *Douglas Ruby*

Content Project Managers: *Harvey Yep (Core) / Bruce Gin (Assessment)*

Buyer: *Laura Fuller*

Design: *Matt Diamond*

Content Licensing Specialists: *Beth Thole (Image and Text)*

Cover Image: ©*pixalot/Getty Images*

Compositor: *Aptara[®], Inc.*

All credits appearing on page or at the end of the book are considered to be an extension of the copyright page.

Library of Congress Control Number: 2018937788

The Internet addresses listed in the text were accurate at the time of publication. The inclusion of a website does not indicate an endorsement by the authors or McGraw-Hill Education, and McGraw-Hill Education does not guarantee the accuracy of the information presented at these sites.



DEDICATION

For Ellen

R. H. F.

For Anna

B. S. B.

For Fiona and Henry

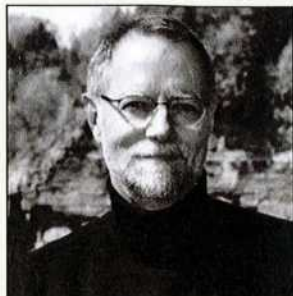
K. A.

For Katrina, Eleanor, Daniel, and Amalia

O. H.

ABOUT THE AUTHORS

ROBERT H. FRANK



Robert H. Frank is the H. J. Louis Professor of Management and Professor of Economics at Cornell's Johnson School of Management, where he has taught since 1972. His "Economic View" column appears regularly in *The New York Times*. After receiving his B.S. from Georgia Tech in 1966, he taught math and science for

two years as a Peace Corps Volunteer in rural Nepal. He received his M.A. in statistics in 1971 and his Ph.D. in economics in 1972 from The University of California at Berkeley. He also holds honorary doctorate degrees from the University of St. Gallen and Dalhousie University. During leaves of absence from Cornell, he has served as chief economist for the Civil Aeronautics Board (1978–1980), a Fellow at the Center for Advanced Study in the Behavioral Sciences (1992–1993), Professor of American Civilization at l'École des Hautes Études en Sciences Sociales in Paris (2000–2001), and the Peter and Charlotte Schoenfeld Visiting Faculty Fellow at the NYU Stern School of Business in 2008–2009. His papers have appeared in the *American Economic Review*, *Econometrica*, the *Journal of Political Economy*, and other leading professional journals.

Professor Frank is the author of a best-selling intermediate economics textbook—*Microeconomics and Behavior*, Ninth Edition (Irwin/McGraw-Hill, 2015). His research has focused on rivalry and cooperation in economic and social behavior. His books on these themes include *Choosing the Right Pond* (Oxford, 1995), *Passions Within Reason* (W. W. Norton, 1988), *What Price the Moral High Ground?* (Princeton, 2004), *Falling Behind* (University of California Press, 2007), *The Economic Naturalist* (Basic Books, 2007), *The Economic Naturalist's Field Guide* (Basic Books, 2009), *The Darwin Economy* (Princeton, 2011), and *Success and Luck* (Princeton, 2016), which have been translated into 24 languages. *The Winner-Take-All Society* (The Free Press, 1995), co-authored with Philip Cook, received a Critic's Choice Award, was named a Notable Book of the Year by *The New York Times*, and was included in *BusinessWeek's* list of the 10 best books of 1995. *Luxury Fever* (The Free Press, 1999) was named to the *Knight-Ridder* Best Books list for 1999.

Professor Frank has been awarded an Andrew W. Mellon Professorship (1987–1990), a Kenan Enterprise Award (1993), and a Merrill Scholars Program Outstanding Educator Citation (1991). He is a co-recipient of the 2004 Leontief Prize for Advancing the Frontiers of Economic Thought. He was awarded the Johnson School's Stephen Russell Distinguished Teaching Award in 2004, 2010, and 2012, and the School's Apple Distinguished Teaching Award in 2005. His introductory microeconomics course has graduated more than 7,000 enthusiastic economic naturalists over the years.

BEN S. BERNANKE



Professor Bernanke received his B.A. in economics from Harvard University in 1975 and his Ph.D. in economics from MIT in 1979. He taught at the Stanford Graduate School of Business from 1979 to 1985 and moved to Princeton University in 1985, where he was named the Howard Harrison and Gabrielle Snyder Beck Pro-

fessor of Economics and Public Affairs and where he served as Chairman of the Economics Department. Professor Bernanke is currently a Distinguished Fellow in Residence with the Economic Studies Program at the Brookings Institution.

Professor Bernanke was sworn in on February 1, 2006, as Chairman and a member of the Board of Governors of the Federal Reserve System—his second term expired January 31, 2014. Professor Bernanke also served as Chairman of the Federal Open Market Committee, the Fed's principal monetary policymaking body. Professor Bernanke was also Chairman of the President's Council of Economic Advisers from June 2005 to January 2006.

Professor Bernanke's intermediate textbook, with Andrew Abel and Dean Croushore, *Macroeconomics*, Ninth Edition (Addison-Wesley, 2017), is a best seller in its field. He has authored numerous scholarly publications in macroeconomics, macroeconomic history, and finance. He has done significant research on the causes of the Great Depression, the role of financial markets and institutions in the business cycle, and measurement of the effects of monetary policy on the economy.

Professor Bernanke has held a Guggenheim Fellowship and a Sloan Fellowship, and he is a Fellow of the Econometric Society and of the American Academy of Arts and Sciences. He served as the Director of the Monetary Economics Program of the National Bureau of Economic Research (NBER) and as a member of the NBER's Business Cycle Dating Committee. From 2001–2004, he served as editor of the *American Economic Review*. Professor Bernanke's work with civic and professional groups includes having served two terms as a member of the Montgomery Township (N.J.) Board of Education. Visit Professor Bernanke's blog at www.brookings.edu/blogs/ben-bernanke.

KATE ANTONOVICS



Professor Antonovics received her B.A. from Brown University in 1993 and her Ph.D. in economics from the University of Wisconsin in 2000. Shortly thereafter, she joined the faculty in the Economics Department at the University of California, San Diego (UCSD), where she has been ever since.

Professor Antonovics is known for her excellence in teaching and her innovative use of technology in the classroom. Her popular introductory-level microeconomics course regularly enrolls more than 900 students each fall. She also teaches labor economics at both the undergraduate and graduate level. She has received numerous teaching awards, including the UCSD Department of Economics award for Best Undergraduate Teaching, the UCSD Academic Senate Distinguished Teaching Award, and the UCSD Chancellor's Associates Faculty Excellence Award in Undergraduate Teaching.

Professor Antonovics's research has focused on racial discrimination, gender discrimination, affirmative action, intergenerational income mobility, learning, and wage dynamics. Her papers have appeared in the *American Economic Review*, the *Review of Economics and Statistics*, the *Journal of Labor Economics*, and the *Journal of Human Resources*. She is a member of both the American Economic Association and the Society of Labor Economists.

ORI HEFFETZ



Professor Heffetz received his B.A. in physics and philosophy from Tel Aviv University in 1999 and his Ph.D. in economics from Princeton University in 2005. He is an Associate Professor of Economics at the Samuel Curtis Johnson Graduate School of Management at Cornell University, and at the Economics Department at the Hebrew University of Jerusalem.

Bringing the real world into the classroom, Professor Heffetz has created a unique macroeconomics course that introduces basic concepts and tools from economic theory and applies them to current news and global events. His popular classes are taken by hundreds of students every year on Cornell's Ithaca and New York city campuses and via live videoconferencing in dozens of cities across the United States, Canada, and Latin America.

Professor Heffetz's research studies the social and cultural aspects of economic behavior, focusing on the mechanisms that drive consumers' choices and on the links among economic choices, individual well-being, and policymaking. He has published scholarly work on household consumption patterns, individual economic decision making, and survey methodology and measurement. He was a visiting researcher at the Bank of Israel during 2011, is currently a Research Associate at the National Bureau of Economic Research (NBER), and serves on the editorial board of *Social Choice and Welfare*.

Although many millions of dollars are spent each year on introductory economics instruction in American colleges and universities, the return on this investment has been disturbingly low. Studies have shown, for example, that several months after having taken a principles of economics course, former students are no better able to answer simple economics questions than others who never even took the course. Most students, it seems, leave our introductory courses without having learned even the most important basic economic principles.

The problem, in our view, is that these courses almost always try to teach students far too much. In the process, really important ideas get little more coverage than minor ones, and everything ends up going by in a blur. The human brain tends to ignore new information unless it comes up repeatedly. That's hardly surprising since only a tiny fraction of the terabytes of information that bombard us each day is likely to be relevant for anything we care about. Only when something comes up a third or fourth time does the brain start laying down new circuits for dealing with it.

Yet when planning their lectures, many instructors ask themselves, "How much can I cover today?" And because modern electronic media enable them to click through upwards of 100 PowerPoint slides in an hour, they feel they better serve their students when they put more information before them. But that's not the way learning works. Professors should instead be asking, "How much can my students absorb?"

Our approach to this text was inspired by our conviction that students will learn far more if we attempt to cover much less. Our basic premise is that a small number of basic principles do most of the heavy lifting in economics, and that if we focus narrowly and repeatedly on those principles, students can actually master them in just a single semester.

The enthusiastic reactions of users of previous editions of our textbook affirm the validity of this premise. Avoiding excessive reliance on formal mathematical derivations, we present concepts intuitively through examples drawn from familiar contexts. We rely throughout on a well-articulated list of seven Core Principles, which we reinforce repeatedly by illustrating and applying each principle in numerous contexts. We ask students periodically to apply these principles themselves to answer related questions, exercises, and problems.

Throughout this process, we encourage students to become "economic naturalists," people who employ basic economic principles to understand and explain what they observe in the world around them. An economic naturalist understands, for example, that infant safety seats are

required in cars but not in airplanes because the marginal cost of space to accommodate these seats is typically zero in cars but often hundreds of dollars in airplanes. Scores of such examples are sprinkled throughout the book. Each one, we believe, poses a question that should make any curious person eager to learn the answer. These examples stimulate interest while teaching students to see each feature of their economic landscape as the reflection of one or more of the Core Principles. Students talk about these examples with their friends and families. Learning economics is like learning a language. In each case, there is no substitution for actually speaking. By inducing students to speak economics, the Economic Naturalist examples serve this purpose.

For those who would like to learn more about the role of examples in learning economics, Bob Frank's lecture on this topic is posted on YouTube's "Authors@Google" series (<https://www.youtube.com/watch?v=QaINVxelKEE>, or search "Authors@Google Robert Frank").

KEY THEMES AND FEATURES

Emphasis on Seven Core Principles

As noted, a few Core Principles do most of the work in economics. By focusing almost exclusively on these principles, the text ensures that students leave the course with a deep mastery of them. In contrast, traditional encyclopedic texts so overwhelm students with detail that they often leave the course with little useful working knowledge at all.

- **The Scarcity Principle:** Although we have boundless needs and wants, the resources available to us are limited. So having more of one good thing usually means having less of another.
- **The Cost-Benefit Principle:** An individual (or a firm or a society) should take an action if, and only if, the extra benefits from taking the action are at least as great as the extra costs.
- **The Incentive Principle:** A person (or a firm or a society) is more likely to take an action if its benefit rises, and less likely to take it if its cost rises. In short, incentives matter.
- **The Principle of Comparative Advantage:** Everyone does best when each concentrates on the activity for which his or her opportunity cost is lowest.
- **The Principle of Increasing Opportunity Cost:** In expanding the production of any good, first employ those resources with the lowest opportunity cost, and

only afterward turn to resources with higher opportunity costs.

- **The Efficiency Principle:** Efficiency is an important social goal because when the economic pie grows larger, everyone can have a larger slice.
- **The Equilibrium Principle:** A market in equilibrium leaves no unexploited opportunities for individuals but may not exploit all gains achievable through collective action.

Economic Naturalism

Our ultimate goal is to produce economic naturalists—people who see each human action as the result of an implicit or explicit cost-benefit calculation. The economic naturalist sees mundane details of ordinary existence in a new light and becomes actively engaged in the attempt to understand them. Some representative examples:

- Why do movie theaters offer discount tickets to students?
- Why do we often see convenience stores located on adjacent street corners?
- Why do supermarket checkout lines all tend to be roughly the same length?

Economic Naturalist Video Series: We are very excited to offer for the first time an entire video series based on Economic Naturalist examples. A series of videos covering some of our favorite micro- and macro-focused examples can be used as part of classroom presentations or assigned for homework within McGraw-Hill Connect[®]. These fascinating, fun, and thought-provoking applications of economics in everyday life encourage students to think like an economist.

Active Learning Stressed

The only way to learn to hit an overhead smash in tennis is through repeated practice. The same is true for learning economics. Accordingly, we consistently introduce new ideas in the context of simple examples and then follow them with applications showing how they work in familiar settings. At frequent intervals, we pose concept checks that both test and reinforce the understanding of these ideas. The end-of-chapter questions and problems are carefully crafted to help students internalize and extend basic concepts and are available within Connect as assignable content so that instructors can require students to engage with this material. Experience with earlier editions confirms that this approach really does prepare students to apply basic

economic principles to solve economic puzzles drawn from the real world.

Learning Glass Lecture Videos: A series of three- to five-minute lecture videos featuring the authors and utilizing learning glass technology provide students with an overview of important concepts. These videos, with accompanying questions, can be assigned within Connect or used as part of classroom discussion.

Modern Microeconomics

- *Economic surplus* is more fully developed here than in any other text. This concept underlies the argument for economic efficiency as an important social goal. Rather than speak of trade-offs between efficiency and other goals, we stress that maximizing economic surplus facilitates the achievement of *all* goals.
- One of the biggest hurdles to the fruitful application of cost-benefit thinking is to recognize and measure the relevant costs and benefits. *Common decision pitfalls* identified by 2002 Nobel Laureate Daniel Kahneman and others—such as the tendency to ignore implicit costs, the tendency not to ignore sunk costs, and the tendency to confuse average and marginal costs and benefits—are introduced in Chapter 1, *Thinking Like an Economist*, and discussed repeatedly in subsequent chapters.
- There is perhaps no more exciting toolkit for the economic naturalist than a few *principles of elementary game theory*. In Chapter 9, *Games and Strategic Behavior*, we show how these principles enable students to answer a variety of strategic questions that arise in the marketplace and everyday life. We believe that the insights of the Nobel Laureate Ronald Coase are indispensable for understanding a host of familiar laws, customs, and social norms. In new Chapter 10, *Introduction to Behavioral Economics*, we discuss the psychology of decision making. In Chapter 11, *Externalities, Property Rights, and the Environment*, we show how such devices function to minimize misallocations that result from externalities.

ORGANIZATION OF THE SEVENTH EDITION

- **More and clearer emphasis on and repetition of the Core Principles:** If we asked a thousand economists to provide their own versions of the most important economic

principles, we'd get a thousand different lists. Yet to dwell on their differences would be to miss their essential similarities. It is less important to have exactly the best short list of principles than it is to use some well-thought-out list of this sort.

- **Outsourcing discussion supports comparative advantage material:** In Chapter 2, students will see a full-spectrum view of production possibilities and the realities economies face considering outsourcing decisions.
- **Strong connection drawn between core concepts:** Chapter 7 makes strong connections between market equilibrium and efficiency, the cost of preventing price adjustments, economic profit, and the invisible hand theory.
- **Introduction to behavioral economics:** New to this edition, Chapter 10 provides an introduction to the study of behavioral economics. Theoretical and empirical developments in economics and psychology have challenged traditional core assumptions of decision making. These challenges are explained and dissected in this chapter.
- **Using economics to help make policy decisions:** Chapters 11–13 use economic reasoning to help inform real-world policy decisions. Insurance, environmental regulation, and income redistribution are all discussed.
- **Early chapter on international trade:** Chapter 15 builds upon the comparative advantage material introduced in Chapter 2 as a basis for trade. Because international trade involves important micro principles and policy issues, this chapter is presented earlier in the book and is included in both the macro and micro splits.

CHANGES IN THE SEVENTH EDITION

Changes Common to All Chapters

In all chapters, the narrative has been tightened. Many of the examples have been updated, with a focus on examples that connect to current events such as the financial crisis of 2008 and the Great Recession of 2007–2009. The examples, concept checks, and end-of-chapter material from the previous edition have been redesigned to provide more clarity and ease of use. Data have been updated throughout.

Chapter-by-Chapter Changes

- **Chapter 1:** Examples 1.5 and 1.6 have been updated to SpaceX scenarios.

- **Chapter 2:** An additional end-of-chapter problem has been added.
- **Chapter 3:** Minor adjustments made some of the end-of-chapter problems.
- **Chapter 4:** Added some additional end-of-chapter problems.
- **Chapter 5:** Added an indifference curves appendix back into the book to follow this chapter.
- **Chapter 6:** Refinements made to some end-of-chapter problems, and a small adjustment was made to the wording of LO3.
- **Chapter 7:** Refinements made to some end-of-chapter problems.
- **Chapter 8:** Previous LO2 has been split into two learning objectives, with the “Economies of Scale and the Importance of Start-Up Costs” heading now promoted to a first-level head.
- **Chapter 9:** Slight rewording of LO1 and LO4. A new review question has been added along with some minor adjustments to the end-of-chapter problems.
- **Chapter 10:** New to this edition, this chapter serves as an introduction to behavioral economics for those who wish to incorporate this thought-provoking material.
- **Chapter 11:** This was previously Chapter 10. The “Using Price Incentives in Environmental Regulations” section was added here from what was previously, and now deleted, Chapter 13 (*The Environment, Health, and Safety*). Significant updates were added to the discussion of climate change. Additional end-of-chapter problems were added, and one was removed.
- **Chapter 12:** This was previously Chapter 11. The health care material from what was previously, and now deleted, Chapter 13 (*The Environment, Health, and Safety*) has been moved here and has been rewritten in a new section named “Insurance.”
- **Chapter 13:** This was previously Chapter 12.
- **Chapter 14:** Content and data updates have been added as needed.
- **Chapter 15:** Builds upon the comparative advantage as a basis for trade material introduced in Chapter 2. This chapter discusses production and consumption possibilities and the benefits of trade, a supply and

demand perspective on trade, and protectionism. It also emphasizes that unless policymakers act to compensate those who lose from trade, the potential losers from trade may quite rationally be opposed to it.

ORGANIZED LEARNING IN THE SEVENTH EDITION

Chapter Learning Objectives

Students and professors can be confident that the organization of each chapter surrounds common themes outlined by four to seven learning objectives listed on the first page of each chapter. These objectives, along with AACSB and Bloom’s Taxonomy Learning Categories, are connected to all test bank questions and end-of-chapter material to offer a comprehensive, thorough teaching and learning experience. Reports available within Connect allow instructors to easily output data related to student performance across chapter learning objectives, AACSB criteria, and Bloom’s categories.

Assurance of Learning Ready

Many educational institutions today are focused on the notion of assurance of learning, an important element of some accreditation standards. *Principles of Microeconomics, 7/e*, is designed specifically to support your assurance of learning initiatives with a simple, yet powerful, solution.

Instructors can use Connect to easily query for learning objectives that directly relate to the objectives of the course and then use the reporting features of Connect to aggregate student results in a similar fashion, making the collection and presentation of assurance of learning data simple and easy.

AACSB Statement

McGraw-Hill Education is a proud corporate member of AACSB International. Recognizing the importance and value of AACSB accreditation, the authors of *Principles of Microeconomics, 7/e*, have sought to recognize the curricula guidelines detailed in AACSB standards for business accreditation by connecting questions in the test bank and end-of-chapter material to the general knowledge and skill guidelines found in AACSB standards. It is important to note that the statements contained in *Principles of Microeconomics, 7/e*, are provided only as a guide for the users of this text.

A NOTE ON THE WRITING OF THIS EDITION

Ben Bernanke was sworn in on February 1, 2006, as Chairman and a member of the Board of Governors of the Federal Reserve System, a position to which he was reappointed in January 2010. From June 2005 until January 2006, he served as chairman of the President's Council of Economic

Advisers. These positions have allowed him to play an active role in making U.S. economic policy, but the rules of government service have restricted his ability to participate in the preparation of previous editions. Now that his second term as Chairman of the Federal Reserve is complete, we are happy to announce that Ben has been actively involved in the revision of the macro portion of the seventh edition.

ACKNOWLEDGMENTS

Our thanks first and foremost go to our brand manager, Katie Hoenicke, and our product developer, Christina Kouvelis. Katie encouraged us to think deeply about how to improve the book and helped us transform our ideas into concrete changes. Christina shepherded us through the revision process with intelligence, sound advice, and good humor. We are grateful as well to the production team, whose professionalism (and patience) was outstanding: Harvey Yep, content project manager; Bruce Gin, assessment project manager; Matt Diamond, lead designer; and all of those who worked on the production team to turn our manuscript into the text you see now. Finally, we also thank Bobby Pearson, marketing manager, for getting our message into the wider world.

Special thanks to Per Norander, University of North Carolina at Charlotte, for his energy, creativity, and help in refining the assessment material in Connect; Sukanya Kemp, University of Akron, for her detailed accuracy check of the learning glass and economic naturalist videos; Alvin Angeles and team at the University of California, San Diego, for their efforts in the production and editing of the learning glass videos; and Kevin Bertotti and the team at ITVK for their creativity in transforming Economic Naturalist examples into dynamic and engaging video vignettes.

Finally, our sincere thanks to the following teachers and colleagues, whose thorough reviews and thoughtful suggestions led to innumerable substantive improvements to *Principles of Microeconomics, 7/e*.

Mark Abajian, *San Diego Mesa College*

Richard Agesa, *Marshall University*

Seemi Ahmad, *Dutchess Community College*

Jason Aimone, *Baylor University*

Chris Azevedo, *University of Central Missouri*

Narine Badasyan, *Murray State University*

Sigridur Benediktssdottir, *Yale University*

Brian C. Brush, *Marquette University*

Christopher Burkart, *University of West Florida*

Giuliana Campanelli Andreopoulos, *William Paterson University*

J. Lon Carlson, *Illinois State University*

Monica Cherry, *Saint John Fisher College*

Joni Charles, *Texas State University*

Anoshua Chaudhuri, *San Francisco State University*

Nan-Ting Chou, *University of Louisville*

Manabendra Dasgupta, *University of Alabama at Birmingham*

Craig Dorsey, *College of DuPage*

Dennis Edwards, *Coastal Carolina University*

Roger Frantz, *San Diego State University*

Mark Frascatore, *Clarkson University*

Greg George, *Macon State College*

Seth Gershenson, *Michigan State University*

Amy D. Gibson, *Christopher Newport University*

Rajeev Goel, *Illinois State University*

Susan He, *Washington State University*

John Hejkal, *University of Iowa*

Kuang-Chung Hsu, *Kishwaukee College*

Greg Hunter, *California State University-Pomona*

Nick Huntington-Klein, *California State University-Fullerton*

Andres Jauregui, *Columbus State University*

Derek Johnson, *University of Connecticut*

Sukanya Kemp, *University of Akron*

Brian Kench, *University of Tampa*

Fredric R. Kolb, *University of Wisconsin-Eau Claire*

Donald J. Liu, *University of Minnesota-Twin Cities*

Brian Lynch, *Lake Land College*

Christine Malakar, *Lorain Community College*

Ida Mirzaie, *The Ohio State University*

Thuy Lan Nguyen, *Santa Clara University*

Diego Nocetti, *Clarkson University*

Stephanie Owings, *Fort Lewis College*

Martin Pereyra, *University of Missouri*

Ratha Ramoo, *Diablo Valley College*

Bill Robinson, *University of Nevada-Las Vegas*

Brian Rosario, *University of California-Davis*

Elyce Rotella, *Indiana University*

Jeffrey Rubin, *Rutgers University*

Naveen Sarna, *Northern Virginia Community College*

Henry Schneider, *Queen's University*

Sumati Srinivas, *Radford University*

Thomas Stevens, *University of Massachusetts*

Carolyn Fabian Stumph, *Indiana University and
Purdue University-Fort Wayne*

Albert Sumell, *Youngstown State University*

Markland Tuttle, *Sam Houston State University*

David Vera, *California State University-Fresno*

Nancy Virts, *California State University-Northridge*

Elizabeth Wheaton, *Southern Methodist University*

Amanda Wilsker, *Georgia Gwinnett College*

William C. Wood, *James Madison University*

DISTINGUISHING FEATURES

ECONOMIC NATURALIST EXAMPLES

Each Economic Naturalist example starts with a question to spark interest in learning an answer. These examples fuel interest while teaching students to see economics in the world around them. Videos of select and new Economic Naturalist examples can be found within Connect. A full list of economic naturalist examples can be found following the table of contents.

The Economic Naturalist 1.1



Why do many hardware manufacturers include more than \$1,000 worth of "free" software with a computer selling for only slightly more than that?

The software industry is different from many others in the sense that its customers care a great deal about product compatibility. When you and your classmates are working on a project together, for example, your task will be much simpler if you all use the same word-processing program. Likewise, an executive's life will be easier at tax time if her financial software is the same as her accountant's.

The implication is that the benefit of owning and using any given software program increases with the number of other people who use that same product. This unusual relationship gives the producers of the most popular programs an enormous advantage and often makes it hard for new programs to break into the market.

Recognizing this pattern, Intuit Corp. offered computer makers free copies of *Quicken*, its personal financial-management software. Computer makers, for their part, were only too happy to include the program because it made their new computers more attractive to buyers. *Quicken* soon became the standard for personal financial-management programs. By giving away free copies of the program, Intuit "primed the pump," creating an enormous demand for upgrades of *Quicken* and for more advanced versions of related software. Thus, *TurboTax*, Intuit's personal income-tax software, has become the standard for tax-preparation programs.

EXAMPLE 1.1

Comparing Costs and Benefits

Should you walk downtown to save \$10 on a \$25 video game?

Imagine you are about to buy a \$25 video game at the nearby campus store when a friend tells you that the same game is on sale at a downtown store for only \$15. If the downtown store is a 30-minute walk away, where should you buy the game?

Cost-Benefit



The Cost-Benefit Principle tells us that you should buy it downtown if the benefit of doing so exceeds the cost. The benefit of taking any action is the dollar value of everything you gain by taking it. Here, the benefit of buying downtown is exactly \$10, because that's the amount you'll save on the price of the game. The cost of taking any action is the dollar value of everything you give up by taking it. Here, the cost of buying downtown is the dollar value you assign to the time and trouble it takes to make the trip. But how do we estimate that value?

One way is to perform the following hypothetical auction. Imagine that a stranger has offered to pay you to do an errand that involves the same walk downtown (perhaps to drop off a letter for her at the post office). If she offered you a payment of, say, \$1,000, would you accept? If so, we know that your cost of walking downtown and back must be less than \$1,000. Now imagine her offer being reduced in small increments until you finally refuse the last offer. For example, if you'd agree to walk downtown and back for \$9 but not for \$8.99, then your cost of making the trip is \$9. In this case, you should buy the game downtown because the \$10 you'll save (your benefit) is greater than your \$9 cost of making the trip.

But suppose your cost of making the trip had been greater than \$10. In that case, your best bet would have been to buy the game from the nearby campus store. Confronted with this choice, different people may choose differently, depending on how costly they think it is to make the trip downtown. But although there is no uniquely correct choice, most people who are asked what they would do in this situation say they would buy the game downtown.

NUMBERED EXAMPLES

Throughout the text, numbered and titled examples are referenced and called out to further illustrate concepts. Our engaging questions and examples from everyday life highlight how each human action is the result of an implicit or explicit cost-benefit calculation.

CORE PRINCIPLES

There are seven Core Principles that we focus on to ensure student mastery. Throughout the text, these principles are called out and are denoted by an icon in the margin. Again, the seven Core Principles are: scarcity, cost-benefit, incentive, comparative advantage, increasing opportunity cost, efficiency, and equilibrium.

EXCHANGE AND OPPORTUNITY COST

Scarcity



The Scarcity Principle (see Chapter 1, *Thinking Like an Economist*) reminds us that the opportunity cost of spending more time on any one activity is having less time available to spend on others. As the following example makes clear, this principle helps explain why everyone can do better by concentrating on those activities at which he or she performs best relative to others.

CONCEPT CHECKS

These self-test questions in the body of the chapter enable students to determine whether the preceding material has been understood and reinforce understanding before reading further. Detailed answers to Concept Checks are found at the end of each chapter.



CONCEPT CHECK 3.1

In Figure 3.1, what is the marginal buyer's reservation price when the quantity of pizza sold is 10,000 slices per day? For the same demand curve, what will be the quantity of pizza demanded at a price of \$2.50 per slice?

RECAP ↑

MARKET EQUILIBRIUM

Market equilibrium, the situation in which all buyers and sellers are satisfied with their respective quantities at the market price, occurs at the intersection of the supply and demand curves. The corresponding price and quantity are called the *equilibrium price* and the *equilibrium quantity*.

Unless prevented by regulation, prices and quantities are driven toward their equilibrium values by the actions of buyers and sellers. If the price is initially too high, so that there is excess supply, frustrated sellers will cut their price in order to sell more. If the price is initially too low, so that there is excess demand, competition among buyers drives the price upward. This process continues until equilibrium is reached.

RECAP

Sprinkled throughout each chapter are Recap boxes that underscore and summarize the importance of the preceding material and key concept takeaways.

SUPPLEMENTS

The following ancillaries are available for quick download and convenient access via the Instructor Resource material available through McGraw-Hill Connect®.

Solutions Manual

Prepared by the authors with assistance from Per Norander, University of North Carolina at Charlotte, this manual provides detailed answers to the end-of-chapter review questions and problems.

Test Bank

The test bank has been carefully revised and reviewed for accuracy. Thousands of questions have been categorized by chapter learning objectives, AACSB learning categories, Bloom's Taxonomy objectives, and level of difficulty.

Computerized Test Bank

TestGen is a complete, state-of-the-art test generator and editing application software that allows instructors to quickly and easily select test items from McGraw Hill's test bank content. The instructors can then organize, edit and customize questions and answers to rapidly generate tests for paper or online administration. Questions can include stylized text, symbols, graphics, and equations that are inserted directly into questions using built-in mathematical templates. TestGen's random generator provides the option to display

different text or calculated number values each time questions are used. With both quick and simple test creation and flexible and robust editing tools, TestGen is a complete test generator system for today's educators.

PowerPoints

Presentation slides contain a detailed, chapter-by-chapter review of the important ideas presented in the textbook, accompanied by animated graphs and slide notes. You can edit, print, or rearrange the slides to fit the needs of your course.

Customizable Micro Lecture Notes

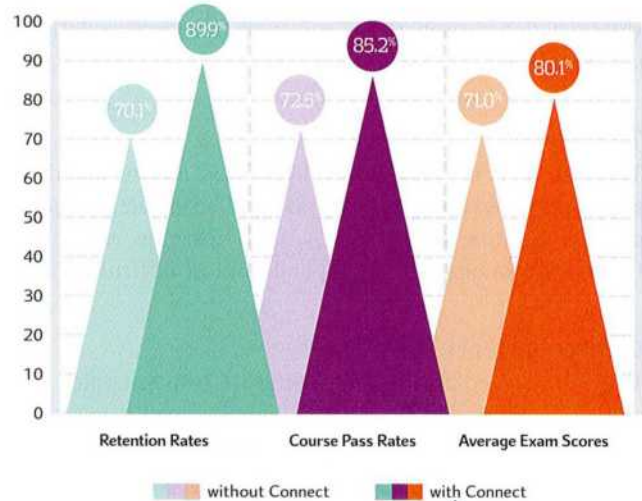
One of the biggest hurdles to an instructor considering changing textbooks is the prospect of having to prepare new lecture notes and slides. For the microeconomics chapters, this hurdle no longer exists. A full set of lecture notes for Principles of Microeconomics, prepared by Bob Frank for his award-winning introductory microeconomics course at Cornell University, is available as Microsoft Word files that instructors are welcome to customize as they see fit. The challenge for any instructor is to reinforce the lessons of the text in lectures without generating student unrest by merely repeating what's in the book. These lecture notes address that challenge by constructing examples that run parallel to those presented in the book, yet are different from them in interesting contextual ways.

McGraw-Hill Connect® is a highly reliable, easy-to-use homework and learning management solution that utilizes learning science and award-winning adaptive tools to improve student results.

Homework and Adaptive Learning

- Connect's assignments help students contextualize what they've learned through application, so they can better understand the material and think critically.
- Connect will create a personalized study path customized to individual student needs through SmartBook®.
- SmartBook helps students study more efficiently by delivering an interactive reading experience through adaptive highlighting and review.

Connect's Impact on Retention Rates, Pass Rates, and Average Exam Scores



Using **Connect** improves retention rates by **19.8 percentage points**, passing rates by **12.7 percentage points**, and exam scores by **9.1 percentage points**.

73% of instructors who use **Connect** require it; instructor satisfaction **increases** by 28% when **Connect** is required.

Over **7 billion questions** have been answered, making McGraw-Hill Education products more intelligent, reliable, and precise.

Quality Content and Learning Resources

- Connect content is authored by the world's best subject matter experts, and is available to your class through a simple and intuitive interface.
- The Connect eBook makes it easy for students to access their reading material on smartphones and tablets. They can study on the go and don't need internet access to use the eBook as a reference, with full functionality.
- Multimedia content such as videos, simulations, and games drive student engagement and critical thinking skills.



Robust Analytics and Reporting

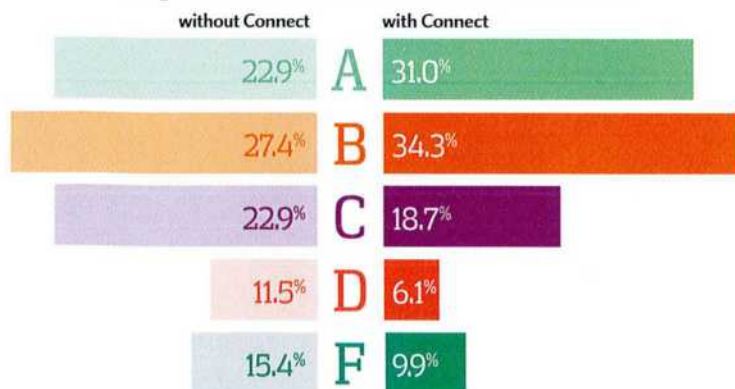
- Connect Insight® generates easy-to-read reports on individual students, the class as a whole, and on specific assignments.
- The Connect Insight dashboard delivers data on performance, study behavior, and effort. Instructors can quickly identify students who struggle and focus on material that the class has yet to master.
- Connect automatically grades assignments and quizzes, providing easy-to-read reports on individual and class performance.



©Hero Images/Getty Images



Impact on Final Course Grade Distribution



More students earn
As and **Bs** when they
use **Connect**.

Trusted Service and Support

- Connect integrates with your LMS to provide single sign-on and automatic syncing of grades. Integration with Blackboard®, D2L®, and Canvas also provides automatic syncing of the course calendar and assignment-level linking.
- Connect offers comprehensive service, support, and training throughout every phase of your implementation.
- If you're looking for some guidance on how to use Connect, or want to learn tips and tricks from super users, you can find tutorials as you work. Our Digital Faculty Consultants and Student Ambassadors offer insight into how to achieve the results you want with Connect.

BRIEF CONTENTS

PART 1 Introduction

- 1** Thinking Like an Economist 1
- 2** Comparative Advantage 31
- 3** Supply and Demand 55

PART 2 Competition and the Invisible Hand

- 4** Elasticity 87
- 5** Demand 113
- 6** Perfectly Competitive Supply 149
- 7** Efficiency, Exchange, and the Invisible Hand in Action 173

PART 3 Market Imperfections

- 8** Monopoly, Oligopoly, and Monopolistic Competition 203
- 9** Games and Strategic Behavior 237
- 10** An Introduction to Behavioral Economics 263
- 11** Externalities, Property Rights, and the Environment 293

PART 4 Economics of Public Policy

- 12** The Economics of Information 325
- 13** Labor Markets, Poverty, and Income Distribution 349
- 14** Public Goods and Tax Policy 373

PART 5 International Trade

- 15** International Trade and Trade Policy 397

CONTENTS

PART I Introduction

Chapter 1 Thinking Like an Economist 1

Economics: Studying Choice in a World of Scarcity 2

Applying the Cost-Benefit Principle 3

Economic Surplus 4

Opportunity Cost 4

The Role of Economic Models 5

Three Important Decision Pitfalls 6

Pitfall 1: Measuring Costs and Benefits as Proportions rather than Absolute Dollar Amounts 6

Pitfall 2: Ignoring Implicit Costs 7

Pitfall 3: Failure to Think at the Margin 8

Normative Economics versus Positive Economics 13

Economics: Micro and Macro 13

The Approach of This Text 14

Economic Naturalism 14

THE ECONOMIC NATURALIST 1.1 15

THE ECONOMIC NATURALIST 1.2 15

THE ECONOMIC NATURALIST 1.3 16

Summary 17 • Core Principles 17

• Key Terms 17 • Review Questions 18

• Problems 18 • Answers to Concept Checks 19

• Appendix: Working with Equations, Graphs, and Tables 20

Chapter 2 Comparative Advantage 31

Exchange and Opportunity Cost 32

The Principle of Comparative Advantage 33

THE ECONOMIC NATURALIST 2.1 35

Sources of Comparative Advantage 36

THE ECONOMIC NATURALIST 2.2 36

Comparative Advantage and Production Possibilities 37

The Production Possibilities Curve 37

How Individual Productivity Affects the Slope and Position of the PPC 40

The Gains from Specialization and Exchange 41

A Production Possibilities Curve for a Many-Person Economy 43

A Note on the Logic of the Fruit

Picker's Rule 44

Factors That Shift the Economy's Production Possibilities Curve 45

Why Have Some Countries Been Slow to Specialize? 46

Can We Have Too Much Specialization? 47

Comparative Advantage and International Trade 48

THE ECONOMIC NATURALIST 2.3 48

Outsourcing 48

THE ECONOMIC NATURALIST 2.4 49

Summary 51 • Core Principles 51

• Key Terms 51 • Review Questions 52

• Problems 52 • Answers to Concept

Checks 53

Chapter 3 Supply and Demand 55

What, How, and for Whom? Central Planning versus the Market 57

Buyers and Sellers in Markets 58

The Demand Curve 59

The Supply Curve 60

Market Equilibrium 62

Rent Controls Reconsidered 65

Pizza Price Controls? 67

Predicting and Explaining Changes in Prices and Quantities 68

Shifts in Demand 69

THE ECONOMIC NATURALIST 3.1 71

Shifts in the Supply Curve 72

THE ECONOMIC NATURALIST 3.2 75

Four Simple Rules 75

THE ECONOMIC NATURALIST 3.3 78**Efficiency and Equilibrium** 78

Cash on the Table 79

Smart for One, Dumb for All 80

Summary 81 • *Core Principles* 82• *Key Terms* 82 • *Review Questions* 83• *Problems* 83 • *Answers to Concept Checks* 84• *Appendix: The Algebra of Supply and Demand* 85**PART 2 Competition and the Invisible Hand****Chapter 4 Elasticity** 87**Price Elasticity of Demand** 88

Price Elasticity Defined 88

Determinants of Price Elasticity of Demand 90

Substitution Possibilities 90*Budget Share* 90*Time* 90

Some Representative Elasticity Estimates 91

Using Price Elasticity of Demand 92

THE ECONOMIC NATURALIST 4.1 92**THE ECONOMIC NATURALIST 4.2** 92**A Graphical Interpretation of Price Elasticity** 93

Price Elasticity Changes along a Straight-Line Demand Curve 95

Two Special Cases 96

Elasticity and Total Expenditure 97**Income Elasticity and Cross-Price Elasticity of Demand** 101**The Price Elasticity of Supply** 102

Determinants of Supply Elasticity 104

Flexibility of Inputs 105*Mobility of Inputs* 105*Ability to Produce Substitute Inputs* 105*Time* 105**THE ECONOMIC NATURALIST 4.3** 106

Unique and Essential Inputs: The Ultimate Supply Bottleneck 108

Summary 108 • *Key Terms* 109 • *Review**Questions* 109 • *Problems* 110 • *Answers**to Concept Checks* 111 • *Appendix: The**Midpoint Formula* 112**Chapter 5 Demand** 113**The Law of Demand** 114

The Origins of Demand 114

Needs versus Wants 115

THE ECONOMIC NATURALIST 5.1 115**Translating Wants into Demand** 116

Measuring Wants: The Concept of Utility 116

Allocating a Fixed Income between Two Goods 119

The Rational Spending Rule 123

Income and Substitution Effects Revisited 123

Applying the Rational Spending Rule 125

Substitution at Work 125**THE ECONOMIC NATURALIST 5.2** 126**THE ECONOMIC NATURALIST 5.3** 126**THE ECONOMIC NATURALIST 5.4** 127*The Importance of Income Differences* 127**THE ECONOMIC NATURALIST 5.5** 128**Individual and Market Demand****Curves** 128

Horizontal Addition 128

Demand and Consumer Surplus 130

Calculating Consumer Surplus 130

Summary 133 • *Key Terms* 133 • *Review**Questions* 133 • *Problems* 133 • *Answers to**Concept Checks* 135 • *Appendix: Indifference**Curves* 136

Chapter 6 Perfectly Competitive**Supply** 149**Thinking about Supply: The Importance of Opportunity Cost** 150**Individual and Market Supply**

Curves 152

Profit-Maximizing Firms in Perfectly**Competitive Markets** 153

Profit Maximization 153

The Demand Curve Facing a Perfectly Competitive Firm 154

Production in the Short Run 155

Some Important Cost Concepts 156

Choosing Output to Maximize Profit 157

A Note on the Firm's Shutdown Condition 158

Average Variable Cost and Average Total Cost 159

A Graphical Approach to Profit Maximization 159

Price = Marginal Cost: The Maximum-Profit Condition 161

The "Law" of Supply 162

Determinants of Supply Revisited 164

Technology 164

Input Prices 164

The Number of Suppliers 164

Expectations 164

Changes in Prices of Other Products 164

Applying the Theory of Supply 165

THE ECONOMIC NATURALIST 6.1 165**Supply and Producer Surplus** 168

Calculating Producer Surplus 168

Summary 169 • *Key Terms* 170 • *Review Questions* 170 • *Problems* 170 • *Answers to Concept Checks* 172

Chapter 7 Efficiency, Exchange, and the Invisible Hand in Action 173**The Central Role of Economic Profit** 174

Three Types of Profit 174

The Invisible Hand Theory 177

Two Functions of Price 177

Responses to Profits and Losses 177

The Importance of Free Entry and Exit 183

Economic Rent versus Economic Profit 184

The Invisible Hand in Action 186

THE ECONOMIC NATURALIST 7.1 186**The Distinction between an Equilibrium and a Social Optimum** 187

Smart for One, Dumb for All 188

THE ECONOMIC NATURALIST 7.2 188

Market Equilibrium and Efficiency 189

Efficiency Is Not the Only Goal 191*Why Efficiency Should Be the First Goal* 192**The Cost of Preventing Price Adjustments** 193

Price Ceilings 193

Price Subsidies 196

Summary 198 • *Key Terms* 199 • *Review Questions* 199 • *Problems* 199 • *Answers to Concept Checks* 201

PART 3 Market Imperfections**Chapter 8 Monopoly, Oligopoly, and Monopolistic Competition** 203**Perfect and Imperfect Competition** 204

Different Forms of Imperfect Competition 204

Monopolistic Competition 204*Oligopoly* 205**The Essential Difference between Perfectly and Imperfectly Competitive Firms** 206**Five Sources of Market Power** 207

Exclusive Control over Important Inputs 207

Patents and Copyrights 207

Government Licenses or Franchises 207

Economies of Scale and Natural Monopolies 208

Network Economies 208

Economies of Scale and the Importance of Start-Up Costs 209

THE ECONOMIC NATURALIST 8.1 211

Profit Maximization for the Monopolist 212

Marginal Revenue for the Monopolist 212

The Monopolist's Profit-Maximizing Decision Rule 214

Being a Monopolist Doesn't Guarantee an Economic Profit 216

Why the Invisible Hand Breaks Down under Monopoly 216

Using Discounts to Expand the Market 218

Price Discrimination Defined 218

THE ECONOMIC NATURALIST 8.2 219

How Price Discrimination Affects Output 219

The Hurdle Method of Price Discrimination 222

Is Price Discrimination a Bad Thing? 224

Examples of Price Discrimination 225

THE ECONOMIC NATURALIST 8.3 226

Public Policy toward Natural Monopoly 227

State Ownership and Management 227

State Regulation of Private Monopolies 227

Exclusive Contracting for Natural Monopoly 228

Vigorous Enforcement of Antitrust Laws 229

Summary 230 • *Key Terms* 231 • *Review Questions* 231 • *Problems* 231 • *Answers to Concept Checks* 233 • *Appendix: The Algebra of Monopoly Profit Maximization* 235

Chapter 9 Games and Strategic Behavior 237

Using Game Theory to Analyze Strategic Decisions 238

The Three Elements of a Game 238

Nash Equilibrium 240

The Prisoner's Dilemma 242

The Original Prisoner's Dilemma 242

The Economics of Cartels 243

THE ECONOMIC NATURALIST 9.1 243

Tit-for-Tat and the Repeated Prisoner's Dilemma 246

THE ECONOMIC NATURALIST 9.2 246

THE ECONOMIC NATURALIST 9.3 248

Games in Which Timing Matters 248

Credible Threats and Promises 250

Monopolistic Competition When Location Matters 252

THE ECONOMIC NATURALIST 9.4 252

Commitment Problems 254

Solving Commitment Problems with Psychological Incentives 256

Are People Fundamentally Selfish? 257

Preferences as Solutions to Commitment Problems 257

Summary 258 • *Key Terms* 258 • *Review Questions* 259 • *Problems* 259 • *Answers to Concept Checks* 262

Chapter 10 An Introduction to Behavioral Economics 263

Judgmental Heuristics or Rules of Thumb 265

Availability 265

Representativeness 266

Regression to the Mean 267

THE ECONOMIC NATURALIST 10.1 267

Anchoring and Adjustment 268

Misinterpretation of Contextual Clues 269

The Psychophysics of Perception 269

The Difficulty of Actually Deciding 269

Impulse-Control Problems 271

Loss Aversion and Status Quo Bias 273

THE ECONOMIC NATURALIST 10.2 275

Beyond Narrow Self-Interest	277	THE ECONOMIC NATURALIST 11.4	310
The Present-Aim Standard of Rationality	277	THE ECONOMIC NATURALIST 11.5	310
The Adaptive Rationality Standard	278	<i>Harvesting Timber on Remote Public Land</i>	311
Concerns about Fairness	280	<i>Harvesting Whales in International Waters</i>	311
Concerns about Relative Position	282	<i>Controlling Multinational Environmental Pollution</i>	311
THE ECONOMIC NATURALIST 10.3	284	Positional Externalities	311
Some Policy Applications	285	Payoffs That Depend on Relative Performance	312
Policies That Address Impulse-Control Problems	285	THE ECONOMIC NATURALIST 11.6	312
<i>Crimes of Passion, Gambling, and Entrapment</i>	285	Positional Arms Races and Positional Arms Control Agreements	313
<i>Regulating Marriage and Sexual Behavior</i>	285	<i>Campaign Spending Limits</i>	313
<i>Regulating Savings</i>	286	<i>Roster Limits</i>	314
Laws and Regulations Motivated by Concerns about Relative Position	287	<i>Arbitration Agreements</i>	314
<i>Summary</i>	288	<i>Mandatory Starting Dates for Kindergarten</i>	314
• <i>Key Terms</i>	289	Social Norms as Positional Arms Control Agreements	314
• <i>Review Questions</i>	290	<i>Nerd Norms</i>	314
• <i>Problems</i>	290	<i>Fashion Norms</i>	314
• <i>Answers to Concept Checks</i>	291	<i>Norms of Taste</i>	315
		<i>Norms against Vanity</i>	315
Chapter 11 Externalities, Property Rights, and the Environment	293	Using Price Incentives in Environmental Legislation	316
External Costs and Benefits	294	Taxing Pollution	316
How Externalities Affect Resource Allocation	294	Auctioning Pollution Permits	318
How Do Externalities Affect Supply and Demand?	295	Climate Change and Carbon Taxes	319
The Coase Theorem	297	<i>Summary</i>	321
Remedies for Externalities	302	• <i>Key Terms</i>	322
Laws and Regulations	302	• <i>Review Questions</i>	322
THE ECONOMIC NATURALIST 11.1	303	• <i>Problems</i>	322
THE ECONOMIC NATURALIST 11.2	303	• <i>Answers to Concept Checks</i>	324
The Optimal Amount of Negative Externalities Is Not Zero	304		
Compensatory Taxes and Subsidies	304	PART 4 Economics of Public Policy	
THE ECONOMIC NATURALIST 11.3	306	Chapter 12 The Economics of Information	325
Property Rights and the Tragedy of the Commons	306	How the Middleman Adds Value	326
The Problem of Unpriced Resources	306	The Optimal Amount of Information	328
The Effect of Private Ownership	309	The Cost-Benefit Test	328
When Private Ownership Is Impractical	310	The Free-Rider Problem	328
		THE ECONOMIC NATURALIST 12.1	328

