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ELEVENTH EDITION

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Economics

David C. Colander

Middlebury College



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Mc Graw Hill Education

ECONOMICS, ELEVENTH EDITION

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About the Author



Courtesy of David Colander

David Colander is Distinguished College Professor at Middlebury College. He has authored, coauthored, or edited over 40 books and over 200 articles on a wide range of economic topics.

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He earned his BA at Columbia College and his MPhil and PhD at Columbia University. He also studied at the University of Birmingham in England and at Wilhelmsburg Gymnasium in Germany. Professor Colander has taught at Columbia University, Vassar College, the University of Miami, and Princeton University as the Kelley Professor of Distinguished Teaching. He has also been a consultant to Time-Life Films, a consultant to Congress, a Brookings Policy Fellow, and Visiting Scholar at Nuffield College, Oxford.

Professor Colander has been president of both the History of Economic Thought Society and the Eastern Economics Association. He has also served on the editorial boards of *The Journal of Economic Perspectives, The Journal of Economic Education, The Journal of Economic Methodology, The Journal of the History of Economic Thought, The Journal of Socio-Economics,* and *The Eastern Economic Journal.* He has been chair of the American Economic Association Committee on Electronic Publishing, a member of the AEA Committee on Economic Education, and is currently the associate editor for content of *The Journal of Economic Education.*

He is married to a pediatrician, Patrice. In their spare time, the Colanders designed and built an oak post-and-beam house on a ridge overlooking the Green Mountains to the east and the Adirondacks to the west. The house is located on the site of a former drive-in movie theater. (They replaced the speaker poles with fruit trees and used the I-beams from the screen as support for the second story of the carriage house and the garage.) They now live in both Florida and Vermont.



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Preface

Economics is about ideas, not models. The goal of this text is to convey to students the ideas that make up modern economics. The ideas are both about the way the economy works, and about how to design policy to make the economy work better.

How This Book Differs from Others

Ideas are nuanced; models are not. From its beginning, this book has provided a nuanced narrative that emphasizes both ideas and models. Its distinctive features have been its conversational style and its inclusion of different views within mainstream economics. It doesn't offer a cookie cutter presentation of material, but instead offers a blend of logical model building and nuanced discussion of applying the models. The writing style is conversational, designed to allow the student to feel a connection with me—the writer—to make it clear that I am a human being, not a machine. This approach is particularly welcomed as students spend more and more time learning material online.

Even while spending a lot of time online, students seek personal connections. It still makes my day when students whom I've never met in person write me thanking me for making the course fun and for relating to them. I'm delighted with the reception this book has received, and the loyal following who have used, and continue to use, the book.

While the book is consciously mainstream, it differs from most other top books in its tone. It presents economic theory more as a changing heuristic than as an unchanging scientific theory. So, while the discussion of the models is the same as in other books, the discussion of the application of the models is different. I emphasize the difficulties of applying the models while most principles books gloss over them.

Nuanced Economics: Teaching More Than Models

Recent economic pedagogy has shifted away from seeing textbooks as a narrative, to seeing them as a compilation of models that can be presented in separable building blocks or modules. This modularization of the teaching of economic principles involves dividing economic knowledge into learning objectives, sub learning objectives, and sub-sub learning objectives.

This building block approach makes lots of sense as long as one remembers that you also need mortar and vi architectural blueprints to hold the building blocks together. That mortar and those blueprints are embedded in the text's narrative. Unfortunately, mortar and blueprints don't fit nicely into building block modules captured by learning objectives. Mortar and blueprints require conceptualization that goes beyond the standard models conceptualization that brings the big picture into focus. And, because there are a variety of architectural blueprints, there is not a single, but a variety of, big pictures; models highlight only one of those blueprints.

The study of such issues is the grist for "big think" economics that characterizes this book where nuance is integrated into understanding, and students see the importance of mortar. Consideration of such issues often goes under the heading of critical thought. To learn to think critically students have to be presented with some questions without definitive answers, but ones upon which, when addressed creatively, economic models can shed light. My book contains lots of such questions.

My approach to models follows the approach Alfred Marshall used back when he first introduced the supply/ demand model into the principles course. Marshall emphasized that economics was an approach to problems, not a body of confirmed truths. In my view, the modeling method, not the models, is the most important element of an economic understanding. In my presentation of models, I carefully try to guide students in the modeling method, rather than having them memorize truths from models. I carefully emphasize the limitations of the models and the assumptions that underlie them, and am constantly urging students to think beyond the models. This approach pushes the students a bit harder than the alternative, but it is, in my view, the best pedagogical approach; it is the critical thinking approach.

When taking a critical thinking approach two principles stand out: (1) Institutions and history are important in policy discussions and (2) good economics is open to dealing with various viewpoints. Let me discuss each of these principles briefly.

Institutions and History Are Important to Understand Policy

If you open up Adam Smith's *Wealth of Nations*, John Stuart Mill's *Principles of Political Economy*, or Alfred Marshall's *Principles of Economics*, you will see economic analysis placed in historical and institutional

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context. The modern textbook template moved away from that, and in previous editions, I have tried to return the principles of economics toward that broader template, presenting models in a historical and institutional context. This edition continues that emphasis on institutions and history. Modern work in game theory and strategic decision making is making it clear that the implications of economic reasoning depend on the institutional setting. To understand economics requires an understanding of existing institutions and the historical development of those institutions. In a principles course we don't have time to present much about history and institutions, but that does not preclude us from letting students know that these issues are important. And that's what I try to do.

When I say that institutions and history are important, I am talking especially about economic policy. This text and the accompanying supplements are not designed for future economics majors. Most principles students aren't going to go on in economics. I write for students who will probably take only one or two economics courses in their lifetime. These students are interested in policy, and what I try to present to them is modern economic reasoning relevant to policy questions.

Because I think policy is so important in explaining how to apply economic reasoning, I utilize a distinction made by J. N. Keynes (John Maynard Keynes' father) and Classical economists generally. That distinction is between theorems—the deductive conclusions of models and precepts—the considered judgments of economists about the policy implications of the models. I make it clear to students that models do not tell us what to do about policy—they give us theorems. Only when we combine the models' results with our understanding of institutions, our understanding of the social context, and our understanding of the normative goals we want to achieve, can we arrive at policy conclusions embodied in precepts.

Openness to Various Views

While I present modern economics, I present it in such a way that is open to many different points of view. I don't present the material as "the truth" but simply as the conventional wisdom. Learning conventional wisdom is a useful hurdle for all students to jump over. To encourage students to question conventional wisdom, at the end of each chapter I include a set of questions—Questions from Alternative Perspectives—written by economists from a variety of different perspectives. These include Post-Keynesian, Feminist, Austrian, Radical, Institutionalist, and Religious perspectives. Each is described further in the "Distinguishing Features" section that follows the preface. The Radical questions come from the Dollars

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and Sense Collective, a group with whom I've worked to coordinate their readers (www.dollarsandsense.org/ bookstore.html) with this text. I also often integrate Austrian ideas into my class; I find that *The Free Market* (www.mises.org) is a provocative resource.

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I often pair an article in *The Free Market* with one in *Dollars and Sense* in my assignments to students for supplementary reading. Having students read both Radical and Austrian views, and then integrate those views into more middle-of-the-road views is, for me, a perfect way to teach the principles course. (If I have a lot of radicals and libertarians in the class, I assign them articles that advocate more middle-of-the-road views.)

Integrating Nuance into the Learning Platform

Changes in technology are changing the medium through which ideas are conveyed and the way students learn. Students today don't know a time without the Internet and social media, which provide them with access to a broad range of digital resources and instant feedback. Technology has changed the way they learn, and if we are to reach them, we have to present material in ways that fit their learning style. They want to be able to access their courses anywhere, anytime-at a coffee shop in the afternoon, in their dorm room late at night, or at lunch hour at work. They still want material that speaks to them, but it has to speak to them in their language at the time they want to listen. Modern learning is blended learning in which online presentations, review, testing of material, and feedback are seamlessly blended with the narrative of the text. This revision is designed to improve what the publisher calls the learning platform in both the content presented and in the delivery of that content.

I think of this book as consisting of both the text and the delivery system for the text. For the book to succeed, the online delivery system has to deliver the material to students in a manner that they can access both online and in the physical book. The new reality of accessing books online has driven important changes in the last edition, and in this edition. Specifically, while the content and pedagogical approach described above remain largely the same, the delivery is different.

In the last two editions the learning platform was refined, and all of the content, including end-of-chapter questions, was made to line up directly with learning objectives. These learning objectives serve as the organizational structure for the material. The learning objectives themselves were broken down into further learning objectives associated with concepts that are presented in bitesized portions of the text as part of the SmartBook offer.

Preface

This now allows students the opportunity to master concepts that support the larger picture no matter how they access it in the Colander learning platform. Within McGraw-Hill's Connect and SmartBook platforms, students can learn the core building blocks online with instant feedback; instructors can assess student learning data and know what their students understand, and what they don't. With that information, they can devote class time to those issues with which students are having problems.

In the previous two editions, the end-of-chapter material was also restructured for online delivery: All of the standard questions and problems were made autogradable and integrated with the online experience. Such integration allows students to move seamlessly between homework problems and portions of the narrative to get the information they need, when they need it. This is a significant advance in pedagogy. Now, even professors in large lecture classes can assign questions and exercises at the end of chapters and provide feedback to students at the point of need.

While the new learning platforms made the teaching of the building blocks easier, they presented a challenge for my approach that emphasized the nuance of interpretation as a key element of what students were to learn. That discussion of nuance was scattered throughout the text; it wasn't a building block to be learned in one place. Rather it was mortar to be learned over the course of the entire semester. This learning goal did not come through in the learning platform as strongly as it did in the text itself. While the modular learning platform worked well in teaching a building block approach to models, it didn't work so well helping students understand the context of the models. It provided the building blocks but not the mortar. So the previous versions of my online learning platforms emphasized models a bit more than I would have liked and context a bit less.

The nuance material was still there, but it was not integrated into the learning platform as much as I thought it should be. In previous editions, I did what I could to account for that. Specifically I added aspects of the book that allowed professors who wanted to emphasize nuance to do so. These included two sets of end-of-chapter questions, Issues to Ponder and Questions from Alternative Perspectives, which have no "correct" answer, but instead are designed to get the students to think. In a learning environment that blends both online and in-person experiences, these are the questions that can form the basis for rich classroom discussions that engage the students with broad issues as much as the online material engages them with the building blocks.

In this edition I go a step further in integrating nuance into the course. Specifically, I have essentially made nuance its own general learning objective—a learning objective that relates to the entire book. So in addition to the learning objectives specific to individual chapters, there is a general learning objective that is relevant to all chapters. The general learning objective—the mortar that holds the building blocks together—is: *Know that to relate models to the real world, you need to use a nuanced approach.*

For professors who want to include this learning objective in their course, I have written a prologue to the student found on pages P-1 to P-5, just before Chapter 1. In it I discuss the need for context and nuance in applying the models, and introduce students to two methodological tools that philosophers use to move from models to policy positions. This prologue, what you might think of as Chapter 0, serves as the mortar and blueprint to guide students in thinking critically about the models and their application. This short prologue, which can be assigned along with Chapter 1, presents a general discussion of the problem of context and nuance and introduces the general learning objective.

Students are reminded of this general learning objective throughout the book in chapter discussions of nuanced issues, which are highlighted in SmartBook and probes that focus on nuance. I also provide professors with some guidance and suggestions on how to integrate a discussion of values and ethics into the course, along with a list of Connect questions and material in SmartBook that deal with integrating values into the analysis. These are to be found in the Instructor's website for the book. For those who want to emphasize critical thought and nuance in the course, it is much easier to do so than before.

Specific Content Changes to This Edition

Any new edition provides the possibility to update discussions and I have done so throughout the book, both in updating references to events, and in examples. On a mundane level I changed examples and products being discussed. For example, there was an earlier discussion of the supply and demand for CDs, which at one point in the past seemed reasonable. CDs have gone the way of buggy whips, and so the discussion was changed to chocolate, which has a longer shelf life—there will always be demand for 80 percent dark chocolate, at least from me.

I also reviewed all the boxes, eliminating or updating those that were outdated, replacing them with new boxes that capture some of the new ideas being discussed. For example, in Chapter 3 I added a box on polycentric government and the ideas of economist

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Elinor Ostrom, and in Chapter 8W I updated the discussion of the farm program.

I did the same with discussions in the text, adding updates where needed. That led to substantial changes in some chapters. For example, President Trump's changing the narrative on trade meant some significant changes in Chapter 10 on trade were needed. I replaced the opening discussion of trade to include Trump's criticism of free trade agreements and updated the discussion of WTO trade negotiations and U.S. trade policy to account for the Trump presidency. The growing importance of platform monopolies and network externalities led to substantial changes in Chapter 14 and the discussion of antitrust policy in Chapter 15. Chapter 17 on labor also was modified to account for developments in the information revolution. I also added discussions of artificial intelligence and deep learning in both the micro and macro chapters. These developments will likely have significant implications for the economy in the coming decade, as AI and deep learning do to mental labor what the Industrial Revolution did to physical labor.

Because of the changing nature of the macro problem facing the economy, macro examples were updated more frequently than micro examples. In this edition the discussion of the macro economy is from the perspective of 2018. The economy is strong, but there is continuing concern that the growth is not sustainable. The monetary policy discussion involved substantial changes since the Fed is no longer using unconventional monetary policy, but is instead trying to unwind its balance sheet as it returns to a conventional monetary policy.

The use of fiscal policy also changed, with the tax cut and spending increase, even as the economy was doing well, showing how politics generally trumps economics in driving fiscal policy. Another change in the macro chapters involved discussions of cryptocurrencies and how they are not currencies, since they don't meet the definition of money, but are instead crypto assets, almost designed to be blown into bubbles. I discuss how blockchain technology might be revolutionary, but the hype around cryptocurrency is more like Tulipmania and how the real revolution in currency is more likely to come through new digital currencies such as M-Pesa.

Finally, there were a number of changes to allow the introduction of nuanced understanding as a separate learning objective. I added a discussion of Adam Smith's impartial spectator tool, and how in assessing policy, one must go beyond how it will benefit oneself, and concentrate on how it can be judged from society's point of view. I encourage students to discuss contentious policy issues with others who approach the issues differently as a way of advancing the discussion.

Enjoy!

Preface

In summary, this book differs from others in its distinctive blend of nuance and no-nonsense modeling. Working with models doesn't involve nuance; it involves knowing the models and their assumptions-questions about models are right or wrong-and nuanced discussion of applying the models where there are inevitably gray areas where critical thought is needed. Seeing students navigate this gray area and arrive at a nuanced understanding of economic principles gives me enormous joy. I hope it does for you as well.

People to Thank

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Let me conclude this preface by thanking the hundreds of people who have offered suggestions, comments, kudos, and criticism on this project since its inception. This book would not be what it is without their input. So many people have contributed to this text in so many ways that I cannot thank everyone. So, to all the people who helpedmany, many thanks. I specifically want to thank the eleventh edition reviewers, whose insightful comments kept me on track. Reviewers include:

Catherine M. Chambers	Benjamin Leyden
University of Central	University of Virginia
Missouri	Victoria Miller
Frankie P. Albritton Jr.	Akin Technical College
Seminole State College	ABM E. Nasir
Paul Chambers	North Carolina Central
University of Central	University
Missouri	Christina Ann Robinson
B. Andrew Chupp	Central Connecticut
Georgia Institute of	State University
Technology	William Shambora
Diane Cunningham	Ohio University
Los Angeles Valley College	Mark Griffin Smith
Gregory E. DeFreitas	Colorado College
Hofstra University	Don Uy-Barreta
John P. Finnigan	De Anza College
Marist College	Kenneth Woodward
Bernhard Georg Gunter	Saddleback College
American University	

In addition to the comments of the formal reviewers listed above, I have received helpful suggestions, encouragement, and assistance from innumerable individuals via e-mails, letters, symposia, and focus groups. Their help made this edition even stronger than its predecessor. They include James Wetzel, Virginia Commonwealth University; Dmitry Shishkin, Georgia State University;

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FINAL PAGES

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Preface

Amy Cramer, Pima Community College-West; Andrea Terzi, Franklin College; Shelby Frost, Georgia State University; Doris Geide-Stevenson, Weber State University; James Chasey, Advanced Placement Economics Teaching Consultant and Homewood-Flossmoor High School (ret.); David Tufte, Southern Utah University; Eric Sarpong, Georgia State University; Jim Ciecka, DePaul University; Fran Bradley, George School; Ron Olive, University of Massachusetts-Lowell; Rachel Kreier, Hofstra University; Kenneth Elzinga, University of Virginia; Ben Leyden, University of Virginia; Poul Thøis Madse, Danmarks Medie—OG Journalistehojskole; Rich Tarmey, Colorado Mountain College; Michael Mandelberg, Stuart Webber, Trinity Lutheran College; Bob Rogers, Ashland University; Zackery Hansen, Southern Utah University; and Matt Gaffney, Missouri State University.

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I want to give a special thank-you to the supplement authors and subject matter experts including Jennifer Rester Savoie, Pearl River Community College; Susan Bell, Seminole State University; Per Norander, University of North Carolina at Charlotte; Frankie P. Albritton Jr., Seminole State University; and Kenneth Woodward, Saddleback College. They all did an outstanding job.

I'd also like to thank the economists who wrote the alternative perspective questions. These include Ann Mari May of the University of Nebraska–Lincoln, John Miller of Wheaton College, Dan Underwood of Peninsula College, Ric Holt of Southern Oregon University, and Bridget Butkevich of George Mason University. I enjoyed working with each of them, and while their views often differed substantially, they were all united in wanting questions that showed economics as a pluralist field that encourages students to question the text from all perspectives.

I have hired numerous students to check aspects of the book, to read over my questions and answers to questions, and to help proofread. For this edition, these include Reid Smith, Amelia Pollard and Zhewei Yang. I thank them all.

A special thank-you for this edition goes to two people. The first is Jenifer Gamber, whose role in the book cannot be overestimated. She helped me clarify its vision by providing research, critiquing expositions and often improving them, and being a good friend. She has an amazing set of skills, and I thank her for using them to improve the book. The second is Christina Kouvelis, senior product developer, who came into this project and with her hard work, dedication, and superb ability made it possible to get the book done on time. She and Jenifer are two amazing women.

Next, I want to thank the entire McGraw-Hill team, including Terri Schiesl, managing director; Anke Weekes, director; Christine Vaughan, lead content project manager; Bruce Gin, senior assessment project manager; Egzon Shaqiri, designer; Bobby Pearson, marketing manager; Julia Blankenship, marketing specialist; and Doug Ruby, director of digital content. All of them have done a superb job, for which I thank them sincerely.

Finally, I want to thank Pat, my wife, and my sons, Kasey and Zach, for helping me keep my work in perspective, and for providing a loving environment in which to work.

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Distinguishing Features

Margin Comments

Located throughout the text in the margin, these key takeaways underscore and summarize the importance of the material, at the same time helping students focus on the most relevant topics critical to their understanding.

Margin Questions

These self-test questions are presented in the margin of the chapter to enable students to determine whether the preceding material has been understood and to reinforce understanding before students read further. Answers to Margin Questions are found at the end of each chapter.

Web Notes

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This feature extends the text discussion onto the web. Web Notes are denoted within the margins, and are housed within Connect and featured in SmartBook.

Nuance Prologue and Questions

Nuanced aspects of economics are presented throughout the book, and in a Prologue for the Student. In SmartBook, nuance questions have been added that directly relate to applying the models and the problems of integrating values into the analysis. A guide to these questions can be found on the Instructor Resource website.

Issues to Ponder

Each chapter ends with a set of Issues to Ponder questions that are designed to encourage additional economic thinking and application.

Questions from Alternative Perspectives

The end-of-chapter material includes a number of questions that ask students to assess economics from alternative perspectives. Specifically, six different approaches are highlighted: Austrian, Post-Keynesian, Institutionalist, Radical, Feminist, and Religious. Below are brief descriptions of each group.

Austrian Economists

Austrian economists believe in methodological individualism, by which they mean that social goals are best met through voluntary, mutually beneficial interactions. Lack of information and unsolvable incentive problems undermine the ability of government to plan, making the market the best method for coordinating economic activity. Austrian economists oppose state intrusion into private property and private activities. They are not economists from Austria; rather, they are economists from anywhere who follow the ideas of Ludwig von Mises and Friedrich Hayek, two economists who were from Austria.

Austrian economists are sometimes classified as conservative, but they are more appropriately classified as libertarians, who believe in liberty of individuals first and in other social goals second. Consistent with their views, they are often willing to support what are sometimes considered radical ideas, such as legalizing addictive drugs or eliminating our current monetary system—ideas that most mainstream economists would oppose. Austrian economists emphasize the uncertainty in the economy and the inability of a government controlled by self-interested politicians to undertake socially beneficial policy.

Institutionalist Economists

Institutionalist economists argue that any economic analysis must involve specific considerations of institutions. The lineage of Institutionalist economics begins with the pioneering work of Thorstein Veblen, John R. Commons, and Wesley C. Mitchell. Veblen employed evolutionary analysis to explore the role of institutions in directing and retarding the economic process. He saw human behavior driven by cultural norms and conveyed the way in which they were with sardonic wit and penetrating insight, leaving us with enduring metaphors such as the leisure class and conspicuous consumption. Commons argued that institutions are social constructs that improve general welfare. Accordingly, he established cooperative investigative programs to support pragmatic changes in the legal structure of government. Mitchell was a leader in developing economics as an empirical study; he was a keen observer of the business cycle and argued that theory must be informed by systematic attention to empirical data, or it was useless.

Contemporary Institutionalists employ the founders' "trilogy"—empirically informed, evolutionary analysis,

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directed toward pragmatic alteration of institutions shaping economic outcomes—in their policy approach.

Radical Economists

Radical economists believe substantial equality-preferring institutional changes should be implemented in our economic system. Radical economists evolved out of Marxian economics. In their analysis, they focus on the lack of equity in our current economic system and on institutional changes that might bring about a more equitable system. Specifically, they see the current economic system as one in which a few people-capitalists and high-level managers-benefit enormously at the expense of many people who struggle to make ends meet in jobs that are unfulfilling or who even go without work at times. They see the fundamental instability and irrationality of the capitalist system at the root of a wide array of social ills that range from pervasive inequality to alienation, racism, sexism, and imperialism. Radical economists often use a class-oriented analysis to address these issues and are much more willing to talk about social conflict and tensions in our society than are mainstream economists.

A policy favored by many Radicals is the establishment of worker cooperatives to replace the corporation. Radicals argue that such worker cooperatives would see that the income of the firm is more equitably allocated. Likewise, Radical economists endorse policies, such as universal health care insurance, that conform to the ethic of "putting people before profits."

Feminist Economists

Feminist economics offers a substantive challenge to the content, scope, and methodology of mainstream economics. Feminist economists question the boundaries of what we consider economics to be and examine social arrangements surrounding provisioning. Feminist economists have many different views, but all believe that in some way traditional economic analysis misses many important issues pertaining to women.

Feminist economists study issues such as how the institutional structure tends to direct women into certain types of jobs (generally low-paying jobs) and away from other types of jobs (generally high-paying jobs). They draw our attention to the unpaid labor performed by women throughout the world and ask, "What would GDP look like if women's work were given a value and included?" They argue for an expansion in the content of economics to include women as practitioners and as worthy of study and for the elimination of the masculine bias in mainstream economics. Is there such a bias? To see it, simply compare the relative number of women in your economics class to the relative number of women at your school. It is highly likely that your class has relatively more men. Feminist economists want you to ask why that is, and whether anything should be done about it.

Religious Economists

Religion is the oldest and, arguably, the most influential institution in the world—be it Christianity, Islam, Judaism, Buddhism, Hinduism, or any of the many other religions in the world. Modern science, of which economics is a part, emphasizes the rational elements of thought. It attempts to separate faith and normative issues from rational analysis in ways that some religiously oriented economists find questionable. The line between a religious and nonreligious economist is not hard and fast; all economists bring elements of their ethical considerations into their analysis. But those we call "religious economists" integrate the ethical and normative issues into economic analysis in more complex ways than the ways presented in the text.

Religiously oriented economists have a diversity of views; some believe that their views can be integrated reasonably well into standard economics, while others see the need for the development of a distinctive faithbased methodology that focuses on a particular group of normative concerns centered on issues such as human dignity and caring for the poor.

Post-Keynesian Economists

Post-Keynesian economists believe that uncertainty is a central issue in economics. They follow J. M. Keynes' approach more so than do mainstream economists in emphasizing institutional imperfections in the economy and the importance of fundamental uncertainty that rationality cannot deal with. They agree with Institutionalists that the study of economics must emphasize and incorporate the importance of social and political structure in determining market outcomes.

While their view about the importance of uncertainty is similar to the Austrian view, their policy response to that uncertainty is quite different. They do not see uncertainty as eliminating much of government's role in the economy; instead, they see it leading to policies in which government takes a larger role in guiding the economy.



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McGraw-Hill has established a strong history of top-rate supplements to accompany this text, and this eleventh edition strives to carry on the tradition of excellence. 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 Jenifer Gamber and me, this manual provides answers to all end-of-chapter questions—the Questions and Exercises, Questions from Alternative Perspectives, and Issues to Ponder.

Test Banks

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The test bank contains more than 5,600 quality multiple choice and true-false questions for instructors to draw from in their classrooms. Jenifer Gamber and I have worked diligently to make sure that the questions are clear and useful. Each question is categorized by learning objective, level of difficulty, economic concept, AACSB learning categories, and Bloom's Taxonomy objectives. Questions were reviewed by professors and students alike to ensure that each one was effective for classroom use. All of the test bank content is available for assigning within Connect.

A computerized test bank is available via TestGen, a complete, state-of-the-art test generator and editing application software that allows instructors to quickly and easily select test items. Instructors can then organize, edit, and customize questions and answers to rapidly generate tests for paper or online administration. With both quick-and-simple test creation and flexible and robust editing tools, TestGen is a complete test generator system for today's educators.

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PowerPoint Presentations

Jennifer Rester Savoie of Pearl River Community College worked tirelessly to revise the PowerPoint slide program, animating graphs and emphasizing important concepts. Each chapter has been scrutinized to ensure an accurate, direct connection to the text.

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PART

Introduction: Thinking Like an Economist

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CHAPTER 1	Economics and Economic Reasoning
CHAPTER 2	The Production Possibility Model, Trade, and Globalization
CHAPTER 3	Economic Institutions
CHAPTER 4	Supply and Demand
CHAPTER 5	Using Supply and Demand

Part I is an introduction, and an introduction to an introduction seems a little funny. But other sections have introductions, so it seemed a little funny not to have an introduction to Part I; and besides, as you will see, I'm a little funny myself (which, in turn, has two interpretations; I'm sure you will decide which of the two is appropriate). It will, however, be a very brief introduction, consisting of questions you may have had and some answers to those questions.

Some Questions and Answers

Why study economics?

Because it's neat and interesting and helps provide insight into events that are constantly going on around you.

Why is this book so big?

Because there's a lot of important information in it and because the book is designed so your teacher can pick and choose. You'll likely not be required to read all of it, especially if you're on the quarter system. But once you start it, you'll probably read it all anyhow. (Would you believe?)

Why does this book cost so much?

To answer this question, you'll have to read the book. *Will this book make me rich?*

No.

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Will this book make me happy?

It depends.

This book doesn't seem to be written in a normal textbook style. Is this book really written by a professor?

Yes, but he is different. He misspent his youth working on cars; he married his high school sweetheart after they met again at their 20th high school reunion, and they remain happily married today, still totally in love. Twentyfive years after graduating from high school, his wife went back to medical school and got her MD because she was tired of being treated poorly by doctors. Their five kids make sure he doesn't get carried away in the professorial cloud.

Will the entire book be like this?

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No, the introduction is just trying to rope you in. Much of the book will be hard going. Learning happens to be a difficult process: no pain, no gain. But the author isn't a sadist; he tries to make learning as pleasantly painful as possible.

What do the author's students think of him?

Weird, definitely weird—and hard. But fair, interesting, and sincerely interested in getting us to learn. (Answer written by his students.)

So there you have it. Answers to the questions that you might never have thought of if they hadn't been put in front of you. I hope they give you a sense of me and the approach I'll use in the book. There are some neat ideas in it. Let's now briefly consider what's in the first five chapters.

A Survey of the First Five Chapters

This first section is really an introduction to the rest of the book. It gives you the background necessary so that the later chapters make sense. Chapter 1 gives you an overview of the entire field of economics as well as an introduction to my style. Chapter 2 focuses on the production possibility curve, comparative advantage, and trade. It explains how trade increases production possibilities but also why, in the real world, free trade and no government regulation may not be the best policy. Chapter 3 gives you some history of economic systems and introduces you to the institutions of the U.S. economy. Chapters 4 and 5 introduce you to supply and demand, and show you not only the power of those two concepts but also the limitations.

Now let's get on with the show.



Economics and Economic Reasoning

In my vacations, I visited the poorest quarters of several cities and walked through one street after another, looking at the faces of the poorest people. Next I resolved to make as thorough a study as I could of Political Economy.

—Alfred Marshall

After reading this chapter, you should be able to:

- LO1-1 Define *economics* and identify its components.
- LO1-2 Discuss various ways in which economists use economic reasoning.

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- LO1-3 Explain real-world events in terms of economic forces, social forces, and political forces.
- LO1-4 Explain how economic insights are developed and used.
- LO1-5 Distinguish among positive economics, normative economics, and the art of economics.



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When an artist looks at the world, he sees color. When a musician looks at the world, she hears music. When an economist looks at the world, she sees a symphony of costs and benefits. The economist's world might not be as colorful or as melodic as the others' worlds, but it's more practical. If you want to understand what's going on in the world that's really out there, you need to know economics.

I hardly have to convince you of this fact if you keep up with the news. You will be bombarded with stories of unemployment, interest rates, how commodity prices are changing, and how businesses are doing. The list is endless. So let's say you grant me that economics is important. That still doesn't mean that it's worth studying. The real question then is: How much will you learn? Most of what you learn depends on you, but part depends on the teacher and another part depends on the textbook. On both these counts,

CHAPTER 1

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you're in luck; since your teacher chose this book for your course, you must have a super teacher.¹

What Economics Is

Economics is the study of how human beings coordinate their wants and desires, given the decision-making mechanisms, social customs, and political realities of the society. One of the key words in the definition of the term *economics* is *coordination*. Coordination can mean many things. In the study of economics, coordination refers to how the three central problems facing any economy are solved. These central problems are:

- 1. What, and how much, to produce.
- 2. How to produce it.
- 3. For whom to produce it.

How hard is it to make the three decisions? Imagine for a moment the problem of living in a family: the fights, arguments, and questions that come up. "Do I have to do the dishes?" "Why can't I have piano lessons?" "Bobby got a new sweater. How come I didn't?" "Mom likes you best." Now multiply the size of the family by millions. The same fights, the same arguments, the same questions—only for society the questions are millions of times more complicated. In answering these questions, economies find that inevitably individuals want more than is available, given how much they're willing to work. That means that in our economy there is a problem of **scarcity**—*the goods available are too few to satisfy individuals' desires*.

Scarcity

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Scarcity has two elements: our wants and our means of fulfilling those wants. These can be interrelated since wants are changeable and partially determined by society. The way we fulfill wants can affect those wants. For example, if you work on Wall Street, you will probably want upscale and trendy clothes. In Vermont I am quite happy wearing Levi's and flannel; in Florida I am quite happy in shorts.

The degree of scarcity is constantly changing. The quantity of goods, services, and usable resources depends on technology and human action, which underlie production. Individuals' imagination, innovativeness, and willingness to do what needs to be done can greatly increase available goods and resources. Who knows what technologies are in our future—nanites or micromachines that change atoms into whatever we want could conceivably eliminate scarcity of goods we currently consume. But they would not eliminate scarcity entirely since new wants are constantly developing.

So, how does an economy deal with scarcity? The answer is coercion. In all known economies, coordination has involved some type of coercion—limiting people's wants and increasing the amount of work individuals are willing to do to fulfill those wants. The reality is that many people would rather play than help solve society's problems. So the basic economic problem involves inspiring people to do things that other people want them to do, and not to do things that other people don't want them to do. Thus, an alternative definition of economics is: the study of how to get people to do things they're not wild about doing (such as studying) and not to do things they are wild

Three central coordination problems any economy must solve are what to produce, how to produce it, and for whom to produce it.

The coordination questions faced by society are complicated.

The quantity of goods, services, and usable resources depends on technology and human action.

¹This book is written by a person, not a machine. That means that I have my quirks, my odd sense of humor, and my biases. All textbook writers do. Most textbooks have the quirks and eccentricities edited out so that all the books read and sound alike—professional but dull. I choose to sound like me—sometimes professional, sometimes playful, and sometimes stubborn. In my view, that makes the book more human and less dull. So forgive me my quirks—don't always take me too seriously— and I'll try to keep you awake when you're reading this book at 3 a.m. the day of the exam. If you think it's a killer to read a book this long, you ought to try writing one.
Introduction Thinking Like an Economist

about doing (such as eating all the ice cream they like), so that the things some people want to do are consistent with the things other people want to do.

Microeconomics and Macroeconomics

Economic theory is divided into two parts: microeconomic theory and macroeconomic theory. Microeconomic theory considers economic reasoning from the viewpoint of individuals and firms and builds up to an analysis of the whole economy. **Microeconomics** is *the study of individual choice, and how that choice is influenced by economic forces*. Microeconomics studies such things as the pricing policies of firms, households' decisions on what to buy, and how markets allocate resources among alternative ends.

As we build up from microeconomic analysis to an analysis of the entire economy, everything gets rather complicated. Many economists try to uncomplicate matters by taking a different approach—a macroeconomic approach—first looking at the aggregate, or whole, and then breaking it down into components. **Macroeconomics** is *the study of the economy as a whole*. It considers the problems of inflation, unemployment, business cycles, and growth. Macroeconomics focuses on aggregate relationships such as how household consumption is related to income and how government policies can affect growth.

Consider an analogy to the human body. A micro approach analyzes a person by looking first at each individual cell and then builds up. A macro approach starts with the person and then goes on to his or her components—arms, legs, fingernails, feelings, and so on. Put simply, microeconomics analyzes from the parts to the whole; macroeconomics analyzes from the whole to the parts.

Microeconomics and macroeconomics are very much interrelated. What happens in the economy as a whole is based on individual decisions, but individual decisions are made within an economy and can be understood only within its macro context. For example, whether a firm decides to expand production capacity will depend on what the owners expect will happen to the demand for their products. Those expectations are determined by macroeconomic conditions. Because microeconomics focuses on individuals and macroeconomics focuses on the whole economy, traditionally microeconomics and macroeconomics are taught separately, even though they are interrelated.

A Guide to Economic Reasoning

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People trained in economics think in a certain way. They analyze everything critically; they compare the costs and the benefits of every issue and make decisions based on those costs and benefits. For example, say you're trying to decide whether a policy to eliminate terrorist attacks on airlines is a good idea. Economists are trained to put their emotions aside and ask: What are the costs of the policy, and what are the benefits? Thus, they are open to the argument that security measures, such as conducting body searches of every passenger or scanning all baggage with bomb-detecting machinery, might not be the appropriate policy because the costs might exceed the benefits. To think like an economist involves addressing almost all issues using a cost/benefit approach. Economic reasoning also involves abstracting from the "unimportant" elements of a question and focusing on the "important" ones by creating a simple model that captures the essence of the issue or problem. How do you know whether the model has captured the important elements? By collecting empirical evidence and "testing" the model-matching the predictions of the model with the empirical evidence—to see if it fits. Economic reasoning-how to think like a modern economist, making decisions on the basis of costs and benefits—is the most important lesson you'll learn from this book.

The book *Freakonomics* gives examples of the economist's approach. It describes a number of studies by University of Chicago economist Steve Levitt that unlock

Microeconomics is the study of how individual choice is influenced by economic forces.

Macroeconomics is the study of the economy as a whole. It considers the problems of inflation, unemployment, business cycles, and growth.

Q-1 Classify the following topics as primarily macroeconomic or microeconomic:

1. The impact of a tax increase on aggregate output.

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- 2. The relationship between two competing firms' pricing behavior.
- 3. A farmer's decision to plant soy or wheat.
- 4. The effect of trade on economic growth.

Economic reasoning is making decisions on the basis of costs and benefits.

ADDED DIMENSION

Economic Knowledge in One Sentence: TANSTAAFL

Once upon a time, Tanstaafl was made king of all the lands. His first act was to call his economic advisers and tell them to write up all the economic knowledge the society possessed. After years of work, they presented their monumental effort: 25 volumes, each about 400 pages long. But in the interim, King Tanstaafl had become a very busy man, what with running a kingdom of all the lands and all. Looking at the lengthy volumes, he told his advisers to summarize their findings in one volume.

Despondently, the economists returned to their desks, wondering how they could summarize what they'd been so careful to spell out. After many more years of rewriting, they were finally satisfied with their one-volume effort and tried to make an appointment to see the king. Unfortunately, affairs of state had become even more pressing than before, and the king couldn't take the time to see them. Instead he sent word to them that he couldn't be bothered with a whole volume, and ordered them, under threat of death (for he had become a tyrant), to reduce the work to one sentence. The economists returned to their desks, shivering in their sandals and pondering their impossible task. Thinking about their fate if they were not successful, they decided to send out for one last meal. Unfortunately, when they were collecting money to pay for the meal, they discovered they were broke. The disgusted delivery person took the last meal back to the restaurant, and the economists started down the path to the beheading station. On the way, the delivery person's parting words echoed in their ears. They looked at each other and suddenly they realized the truth. "We're saved!" they screamed. "That's it! That's economic knowledge in one sentence!" They wrote down the sentence and presented it to the king, who thereafter fully understood all economic problems. (He also gave them a good meal.) The sentence?

There Ain't No Such Thing As A Free Lunch-TANSTAAFL

seemingly mysterious observations with basic economic reasoning. For example, Levitt asked the question: Why do drug dealers on the street tend to live with their mothers? The answer he arrived at was that they couldn't afford to live on their own; most earned less than \$5 an hour. Why, then, were they dealing drugs and not working a legal job that, even for a minimum wage job, paid over \$7 an hour? The answer to that is determined through cost/benefit analysis. While their current income was low, their potential income as a drug dealer was much higher since, given their background and existing U.S. institutions, they were more likely to move up to a high position in the local drug business (and *Freakonomics* describes how it is a business) and earn a six-figure income than they were to move up from working as a Taco Bell technician to an executive earning a six-figure income in corporate America. Levitt's model is a very simple one—people do what is in their best interest financially—and it assumes that people rely on a cost/benefit analysis to make decisions. Finally, he supports his argument through careful empirical work, collecting and organizing the data to see if they fit the model. His work is a good example of "thinking like a modern economist" in action.

Economic reasoning, once learned, is infectious. If you're susceptible, being exposed to it will change your life. It will influence your analysis of everything, including issues normally considered outside the scope of economics. For example, you will likely use economic reasoning to decide the possibility of getting a date for Saturday night, and who will pay for dinner. You will likely use it to decide whether to read this book, whether to attend class, whom to marry, and what kind of work to go into after you graduate. This is not to say that economic reasoning will provide all the answers. As you will see throughout this book, real-world questions are inevitably complicated, and economic reasoning simply provides a framework within which to approach a question. In the economic way of thinking, every choice has costs and benefits, and decisions are made by comparing them.

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Marginal Costs and Marginal Benefits

The relevant costs and relevant benefits to economic reasoning are the expected *incremental*, or additional, costs incurred and the expected *incremental* benefits that result from a decision. Economists use the term *marginal* when referring to additional or incremental. Marginal costs and marginal benefits are key concepts.

A **marginal cost** is *the additional cost to you over and above the costs you have already incurred*. That means not counting **sunk costs**—*costs that have already been incurred and cannot be recovered*—in the relevant costs when making a decision. Consider, for example, attending class. You've already paid your tuition; it is a sunk cost. So the marginal (or additional) cost of going to class does not include tuition.

Similarly with marginal benefit. A **marginal benefit** is *the additional benefit above what you've already derived*. The marginal benefit of reading this chapter is the *additional* knowledge you get from reading it. If you already knew everything in this chapter before you picked up the book, the marginal benefit of reading it now is zero.

The Economic Decision Rule

Comparing marginal (additional) costs with marginal (additional) benefits will often tell you how you should adjust your activities to be as well off as possible. Just follow the **economic decision rule:**

If the marginal benefits of doing something exceed the marginal costs, do it.

If the marginal costs of doing something exceed the marginal benefits, don't do it.

As an example, let's consider a discussion I might have with a student who tells me that she is too busy to attend my classes. I respond, "Think about the tuition you've spent for this class—it works out to about \$60 a lecture." She answers that the book she reads for class is a book that I wrote, and that I wrote it so clearly she fully understands everything. She goes on:

I've already paid the tuition and whether I go to class or not, I can't get any of the tuition back, so the tuition is a sunk cost and doesn't enter into my decision. The marginal cost to me is what I could be doing with the hour instead of spending it in class. I value my time at \$75 an hour [people who understand everything value their time highly], and even though I've heard that your lectures are super, I estimate that the marginal benefit of attending your class is only \$50. The marginal cost, \$75, exceeds the marginal benefit, \$50, so I don't attend class.

I congratulate her on her diplomacy and her economic reasoning, but tell her that I give a quiz every week, that students who miss a quiz fail the quiz, that those who fail all the quizzes fail the course, and that those who fail the course do not graduate. In short, she is underestimating the marginal benefits of attending my classes. Correctly estimated, the marginal benefits of attending my class exceed the marginal costs. So she should attend my class.

Economics and Passion

Recognizing that everything has a cost is reasonable, but it's a reasonableness that many people don't like. It takes some of the passion out of life. It leads you to consider possibilities like these:

- Saving some people's lives with liver transplants might not be worth the additional cost. The money might be better spent on nutritional programs that would save 20 lives for every 2 lives you might save with transplants.
- Maybe we shouldn't try to eliminate all pollution because the additional cost of doing so may be too high. To eliminate all pollution might be to forgo too much of some other worthwhile activity.

Web Note 1.1 Costs and Benefits

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If the marginal benefits of doing something exceed the marginal costs, do it. If the marginal costs of doing something exceed the marginal benefits, don't do it.

Q-2 Say you bought a share of Oracle for \$100 and a share of Cisco for \$10. The price of each is currently \$15. Assuming taxes are not an issue, which would you sell if you needed \$15?



Economic reasoning is based on the premise that everything has a cost.

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• Providing a guaranteed job for every person who wants one might not be a worthwhile policy goal if it means that doing so will reduce the ability of an economy to adapt to new technologies.

You get the idea. This kind of reasonableness is often criticized for being coldhearted. But, not surprisingly, economists disagree; they argue that their reasoning leads to a better society for the majority of people.

Economists' reasonableness isn't universally appreciated. Businesses love the result; others aren't so sure, as I discovered some years back when my then-girlfriend told me she was leaving me. "Why?," I asked. "Because," she responded, "you're so, so . . . reasonable." It took me many years after she left to learn what she already knew: There are many types of reasonableness, and not everyone thinks an economist's reasonableness is a virtue. I'll discuss such issues later; for now, let me simply warn you that, for better or worse, studying economics will lead you to view questions in a cost/benefit framework.



Opportunity costs have always made choice difficult, as we see in the early-19th-century engraving *One or the Other.* ©Heritage Images/Houlton Archive/Getty Images

Opportunity Cost

Putting economists' cost/benefit rules into practice isn't easy. To do so, you have to be able to choose and measure the costs and benefits correctly. Economists have devised the concept of opportunity cost to help you do that. **Opportunity cost** is *the benefit that you might have gained from choosing the next-best alternative*. To obtain the benefit of something, you must give up (forgo) something else—namely, the next-best alternative. The opportunity cost is the market value of that next-best alternative; it is a cost because in choosing one thing, you are precluding an alternative choice. The TANSTAAFL story in the earlier Added Dimension box embodies the opportunity cost concept because it tells us that there is a cost to everything; that cost is the next-best forgone alternative.

Let's consider some examples. The opportunity cost of going out once with Natalie (or Nathaniel), the most beautiful woman (attractive man) in the world, is the benefit you'd get from going out with your solid steady, Margo (Mike). The opportunity cost of cleaning up the environment might be a reduction in the money available to assist low-income individuals. The opportunity cost of having a child might be two boats, three cars, and a two-week vacation each year for five years, which are what you could have had if you hadn't had the child. (Kids really are this expensive.)

Examples are endless, but let's consider two that are particularly relevant to you: what courses to take and how much to study. Let's say you're a full-time student and at the beginning of the term you had to choose five courses. Taking one precludes taking some other, and the opportunity cost of taking an economics course may well be not taking a course on theater. Similarly with studying: You have a limited amount of time to spend studying economics, studying some other subject, sleeping, or partying. The more time you spend on one activity, the less time you have for another. That's opportunity cost.

Notice how neatly the opportunity cost concept takes into account costs and benefits of all other options and converts these alternative benefits into costs of the decision you're now making. One of the most useful aspects of the opportunity cost concept is that it focuses on two aspects of costs of a choice that often might be forgotten implicit costs and illusionary sunk costs. **Implicit costs** are *costs associated with a decision that often aren't included in normal accounting costs*.

For example, in thinking about whether it makes sense to read this book, the *next-best value* of the time you spend reading it should be one of the costs that you consider.

Q-3 Can you think of a reason why a cost/benefit approach to a problem might be inappropriate? Can you give an example?

Opportunity cost is the basis of cost/ benefit economic reasoning; it is the benefit that you might have gained from choosing the next-best alternative.



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ADDED DIMENSION

Economics in Perspective

All too often, students study economics out of context. They're presented with sterile analysis and boring facts to memorize, and are never shown how economics fits into the larger scheme of things. That's bad; it makes economics seem boring—but economics is not boring. Every so often throughout this book, sometimes in the appendixes and sometimes in these boxes, I'll step back and put the analysis in perspective, giving you an idea from whence the analysis sprang and its historical context. In educational jargon, this is called *enrichment*.

I begin here with economics itself.

First, its history: In the 1500s there were few universities. Those that existed taught religion, Latin, Greek, philosophy, history, and mathematics. No economics. Then came the *Enlightenment* (about 1700), in which reasoning replaced God as the explanation of why things were the way they were. Pre-Enlightenment thinkers would answer the question "Why am I poor?" with "Because God wills it." Enlightenment scholars looked for a different explanation. "Because of the nature of land ownership" is one answer they found.

Such reasoned explanations required more knowledge of the way things were, and the amount of information expanded so rapidly that it had to be divided or categorized for an individual to have hope of knowing a subject. Soon philosophy was subdivided into science and philosophy. In the 1700s, the sciences were split into natural sciences and social sciences. The amount of knowledge kept increasing, and in the late 1800s and early 1900s social science itself split into subdivisions: economics, political science, history, geography, sociology, anthropology, and psychology. Many of the insights about how the economic system worked were codified in Adam Smith's *The Wealth of Nations*, written in 1776. Notice that this is before economics as a subdiscipline developed, and Adam Smith could also be classified as an anthropologist, a sociologist, a political scientist, and a social philosopher.

Throughout the 18th and 19th centuries, economists such as Adam Smith, Thomas Malthus, John Stuart Mill, David Ricardo, and Karl Marx were more than economists; they were social philosophers who covered all aspects of social science. These writers were subsequently called *Classical economists*. Alfred Marshall continued in that classical tradition, and his book, *Principles of Economics*, published in the late 1800s, was written with the other social sciences much in evidence. But Marshall also changed the questions economists ask; he focused on those questions that could be asked in a graphical supply/demand framework.

This book falls solidly in the Marshallian tradition. It presents economics as a way of thinking—as an engine of analysis used to understand real-world phenomena. But it goes beyond Marshall, and introduces you to a wider variety of models and thinking than the supply and demand models that Marshall used.

Marshallian economics is primarily about policy, not theory. It sees institutions as well as political and social dimensions of reality as important, and it shows you how economics ties in to those dimensions.

Often, it isn't because it is an implicit, not normally measured cost. Similarly with firms—owners often think that they are making a profit from a business, but if they add the value of their time to their cost, which economists argue they should, then their profit often becomes a loss. They might have earned more simply by taking a job somewhere else. Implicit costs should be included in opportunity costs. Sunk costs, however, are often included in making decisions, but should not be. These costs are called illusionary sunk costs—costs that show up in financial accounts but that economists argue should not be considered in a choice because they are already spent. They will not change regardless of what the person making the decision chooses. For example, once you have bought a book (that can't be resold), what you paid for that book is sunk. Following economic reasoning, that sunk cost shouldn't enter into your decision on whether to read it. An important role of the opportunity cost concept is to remind you that *the costs relevant to decisions are often different from the measured costs*.

The relevance of opportunity cost isn't limited to your individual decisions. Opportunity costs are also relevant to government's decisions, which affect everyone in society. A common example is what is called the guns-versus-butter debate. The

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The costs relevant to decisions are often different from the measured costs.

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Chapter 1 Economics and Economic Reasoning

resources that a society has are limited; therefore, its decision to use those resources to have more guns (more weapons) means that it will have less butter (fewer consumer goods). Thus, when society decides to spend \$50 billion more on an improved health care system, the opportunity cost of that decision is \$50 billion not spent on helping the homeless, paying off some of the national debt, or providing for national defense.

The opportunity cost concept has endless implications. It can even be turned upon itself. For instance, thinking about alternatives takes time; that means that there's a cost to being reasonable, so it's only reasonable to be somewhat unreasonable. If you followed that argument, you've caught the economic bug. If you didn't, don't worry. Just remember the opportunity cost concept for now; I'll infect you with economic thinking in the rest of the book.

Economic Forces, Social Forces, and Political Forces

The opportunity cost concept applies to all aspects of life and is fundamental to understanding how society reacts to scarcity. When goods are scarce, those goods must be rationed. That is, a mechanism must be chosen to determine who gets what.

Economic and Market Forces

Let's consider some specific real-world rationing mechanisms. Dormitory rooms are often rationed by lottery, and permission to register in popular classes is often rationed by a first-come, first-registered rule. Food in the United States, however, is generally rationed by price. If price did not ration food, there wouldn't be enough food to go around. All scarce goods must be rationed in some fashion. These rationing mechanisms are examples of **economic forces**, *the necessary reactions to scarcity*.

One of the important choices that a society must make is whether to allow these economic forces to operate freely and openly or to try to rein them in. A **market force** is an economic force that is given relatively free rein by society to work through the market. Market forces ration by changing prices. When there's a shortage, the price goes up. When there's a surplus, the price goes down. Much of this book will be devoted to analyzing how the market works like an invisible hand, guiding economic forces to coordinate individual actions and allocate scarce resources. The **invisible hand** is the price mechanism, the rise and fall of prices that guides our actions in a market.

Social and Political Forces

Societies can't choose whether or not to allow economic forces to operate—economic forces are always operating. However, societies can choose whether to allow market forces to predominate. **Social forces**—forces that guide individual actions even though those actions may not be in an individual's selfish interest, and **political forces**—legal directives that direct individuals' actions—play a major role in deciding whether to let market forces operate. Economic reality is determined by a contest among these various forces.

Let's consider a historical example in which social forces prevented an economic force from becoming a market force: the problem of getting a date for Saturday night back when people actually dated (or called the pairing off of two individuals a "date"). If a school (or a society) had significantly more heterosexual people of one gender than the other (let's say more men than women), some men would find themselves without a date—that is, men would be in excess supply—and would have to find something else to do, say study or go to a movie by themselves. An "excess supply" person could solve the problem by paying someone to go out with him or her, but that would have changed the nature of the date in unacceptable ways. It would be revolting to the person who offered payment and to the person who was offered payment. That unacceptability is an

Q-4 John, your study partner, has just said that the opportunity cost of studying this chapter is about 1/38 the price you paid for this book, since the chapter is about 1/38 of the book. Is he right? Why or why not?

Q-5 Ali, your study partner, states that rationing health care is immoral that health care should be freely available to all individuals in society. How would you respond?

When an economic force operates through the market, it becomes a market force.

Economic reality is controlled by three forces:

- 1. Economic forces (the invisible hand).
- 2. Social forces.
- 3. Political forces.

Social, cultural, and political forces can play a significant role in the economy.

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REAL-WORLD APPLICATION



Winston Churchill and Lady Astor

There are many stories about Nancy Astor, the first woman elected to Britain's Parliament. A vivacious, fearless American woman. she married into the English aristocracy and, during the 1930s and 1940s, became a bright light on the English social and political scenes, which were already guite bright.

One story told about Lady Astor is that she and Winston Churchill, the unorthodox genius who had a long and distinguished political career and who was Britain's prime minister during World War II, were sitting in a pub having a theoretical discussion about morality. Churchill suggested that as a thought experiment Lady Astor ponder the

following question: If a man were to promise her a huge amount of money-say a million pounds-for the privilege, would she sleep with him? Lady Astor did ponder the question for a while and finally answered, yes, she



Lady Astor ©Bettmann/Getty Images

would, if the money were guaranteed. Churchill then asked her if she would sleep with him for five pounds. Her response was sharp: "Of course not. What do you think I am-a prostitute?" Churchill responded, "We have already established that fact; we are now simply negotiating about price."

One moral that economists might draw from this story is that economic incentives, if high enough, can have a powerful influence on behavior. But an equally important moral of the story is that noneconomic incentives also can be very strong. Why do most people feel it's wrong to sell sex for money, even if

they might be willing to do so if the price were high enough? Keeping this second moral in mind will significantly increase your economic understanding of realworld events.

Q-6 Your study partner, Joan, states that market forces are always operative. Is she right? Why or why not?



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example of the complex social and cultural norms that guide and limit our activities. People don't try to buy dates because social forces prevent them from doing so.²

Often political and social forces work together against the invisible hand. For example, in the United States there aren't enough babies to satisfy all the couples who desire them. Babies born to particular sets of parents are rationed—by luck. Consider a group of parents, all of whom want babies. Those who can, have a baby; those who can't have one, but want one, try to adopt. Adoption agencies ration the available babies. Who gets a baby depends on whom people know at the adoption agency and on the desires of the birth mother, who can often specify the socioeconomic background (and many other characteristics) of the family in which she wants her baby to grow up. That's the economic force in action; it gives more power to the supplier of something that's in short supply.

If our society allowed individuals to buy and sell babies, that economic force would be translated into a market force. The invisible hand would see to it that the quantity of babies supplied would equal the quantity of babies demanded at some price. The market, not the adoption agencies, would do the rationing.³

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²Pairing habits of young adults have changed in ways that have made "dating" somewhat of a historical social convention. The new social conventions that guide such pairing functions do not eliminate the problem of excess individuals, but they do obscure it and create multiple dimensions of "excess." Thinking about how they do so is a useful exercise.

³Even though it's against the law, some babies are nonetheless "sold" on a semilegal market, also called a gray market. Recently, the "market price" for a healthy baby was about \$30,000. If selling babies were legal (and if people didn't find it morally repugnant to have babies in order to sell them), the price would be much lower because there would be a larger supply of babies. (It was not against the law to sell human eggs in the early 2000s, and one human egg was sold for \$50,000. The average price was much lower; it varied with donor characteristics such as SAT scores and athletic accomplishments.)

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Most people, including me, find the idea of selling babies repugnant. But why? It's the strength of social forces reinforced by political forces. One can think of hundreds of examples of such social and political forces overriding economic forces.

What is and isn't allowable differs from one society to another. For example, in North Korea, many private businesses are against the law, so not many people start their own businesses. In the United States, until the 1970s, it was against the law to hold gold except in jewelry and for certain limited uses such as dental supplies, so most people refrained from holding gold. Ultimately a country's laws and social norms determine whether the invisible hand will be allowed to work.

Social and political forces are active in all parts of your life. You don't practice medicine without a license; you don't sell

body parts or certain addictive drugs. These actions are against the law. But many people do sell alcohol; that's not against the law if you have a permit. You don't charge your friends interest to borrow money (you'd lose friends); you don't charge your children for their food (parents are supposed to feed their children); many sports and media stars don't sell their autographs (some do, but many consider the practice tacky); you don't lower the wage you'll accept in order to take a job from someone else (you're no scab). The list is long. You cannot understand economics without understanding the limitations that political and social forces place on economic actions.

In summary, what happens in a society can be seen as the reaction to, and interaction of, three sets of forces: (1) economic forces, (2) political and legal forces, and (3) social and cultural forces. Economics has a role to play in sociology and politics, just as sociology and politics have roles to play in economics.

Using Economic Insights

Economic insights are based on generalizations, called theories, about the workings of an abstract economy as well as on contextual knowledge about the institutional structure of the economy. In this book I will introduce you to economic theories and models. Theories and models tie together economists' terminology and knowledge about economic institutions. Theories are inevitably too abstract to apply in specific cases, and thus a theory is often embodied in an economic model—a framework that places the generalized insights of the theory in a more specific contextual setting—or in an **economic principle**—*a commonly held economic insight stated as a law or principle.* To see the importance of principles, think back to when you learned to add. You didn't memorize the sum of 147 and 138; instead, you learned a principle of addition. The principle says that when adding 147 and 138, you first add 7 + 8, which you memorized was 15. You write down the 5 and carry the 1, which you add to 4 + 3 to get 8. Then add 1 + 1 = 2. So the answer is 285. When you know just one principle, you know how to add millions of combinations of numbers.

Theories, models, and principles are continually "brought to the data" to see if the predictions of the model match the data. Increases in computing power and new statistical techniques have given modern economists a far more rigorous set of procedures to determine how well the predictions fit the data than was the case for earlier economists. This has led to a stronger reliance on quantitative empirical methods in modern economics than in earlier economics.

Modern empirical work takes a variety of forms. In certain instances, economists study questions by running controlled laboratory experiments. That branch of economics is called **experimental economics**—*a branch of economics that studies the economy*

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What happens in society can be seen as a reaction to, and interaction of, economic forces with other forces

Web Note 1.4 **Hip Hop Economics**

People don't charge friends interest to borrow money.

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Introduction Thinking Like an Economist

through controlled experiments. These include laboratory experiments—experiments in which individuals are brought into a computer laboratory and their reactions to various treatments are measured and analyzed; field experiments—experiments in which treatments in the real world are measured and analyzed; computer experiments experiments in which simulated economies are created within the computer and results of various policies are explored; and natural experiments—naturally occurring events that approximate a controlled experiment where something has changed in one place but has not changed somewhere else.

An example of a natural experiment occurred when New Jersey raised its minimum wage and neighboring state Pennsylvania did not. Economists Alan Kruger and David Card compared the effects on unemployment in both states and found that increases in the minimum wage in New Jersey did not significantly affect employment. This led to a debate about what the empirical evidence was telling us. The reason is that in such natural experiments, it is impossible to hold "other things constant," as is done in laboratory and field experiments, and thus the empirical results in economics are more subject to dispute.

While economic models are less general than theories, they are still usually too general to apply in specific cases. Models lead to **theorems** (*propositions that are logically true based on the assumptions in a model*). To arrive at policy **precepts** (*policy rules that conclude that a particular course of action is preferable*), theorems must be combined with knowledge of real-world economic institutions and value judgments determining the goals for which one is striving. In discussing policy implications of theories and models, it is important to distinguish precepts from theorems.

Economic analysis changes as technology changes. In recent years, data availability and computational power have increased exponentially, and this has changed the way economists study problems. Economists fresh out of graduate school are much more likely than older economists to "let the data speak," which means to use computing power to look for stable statistical relationships in the data and then use those relationships to guide their policy. Modern economists are highly involved with the development of systems that can perform tasks that people previously believed required human intelligence such as the ability to learn from the past, find meaning, and reason, known as artificial intelligence and deep learning systems. In many ways, the algorithmic approach to problems underlying these systems reflects economists' such as Herbert Simon and Friedrich von Hayek—theories of how an economy works and how systems process information.

The Invisible Hand Theorem

Knowing a theory gives you insight into a wide variety of economic phenomena even though you don't know the particulars of each phenomenon. For example, much of economic theory deals with the *pricing mechanism* and how the market operates to coordinate *individuals' decisions*. Economists have come to the following theorems:

When the quantity supplied is greater than the quantity demanded, price has a tendency to fall.

When the quantity demanded is greater than the quantity supplied, price has a tendency to rise.

Using these generalized theorems, economists have developed a theory of markets that leads to the further theorem that, under certain conditions, markets are efficient. That is, the market will coordinate individuals' decisions, allocating scarce resources efficiently. **Efficiency** means *achieving a goal as cheaply as possible*. Economists call

Theories, models, and principles must be combined with a knowledge of realworld economic institutions to arrive at specific policy recommendations.

Q-7 There has been a superb growing season and the quantity of tomatoes supplied exceeds the quantity demanded. What is likely to happen to the price of tomatoes?

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this theorem the **invisible hand theorem**—*a market economy, through the price mechanism, will tend to allocate resources efficiently.*

Theories, and the models used to represent them, are enormously efficient methods of conveying information, but they're also necessarily abstract. They rely on simplifying assumptions, and *if you don't know the assumptions*, *you don't know the theory*. The result of forgetting assumptions could be similar to what happens if you forget that you're supposed to add numbers in columns. Forgetting that, yet remembering all the steps, can lead to a wildly incorrect answer. For example,

147

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1,608 is wrong.

Knowing the assumptions of theories and models allows you to progress beyond gut reaction and better understand the strengths and weaknesses of various economic theories and models. Let's consider a central economic assumption: the assumption that individuals behave rationally—that what they choose reflects what makes them happiest, given the constraints. If that assumption doesn't hold, the invisible hand theorem doesn't hold.

Presenting the invisible hand theorem in its full beauty is an important part of any economics course. Presenting the assumptions on which it is based and the limitations of the invisible hand is likewise an important part of the course. I'll do both throughout the book.

Economic Theory and Stories

Economic theory, and the models in which that theory is presented, often developed as a shorthand way of telling a story. These stories are important; they make the theory come alive and convey the insights that give economic theory its power. In this book I present plenty of theories and models, but they're accompanied by stories that provide the context that makes them relevant.

At times, because there are many new terms, discussing theories takes up much of the presentation time and becomes a bit oppressive. That's the nature of the beast. As Albert Einstein said, "Theories should be as simple as possible, but not more so." When a theory becomes oppressive, pause and think about the underlying story that the theory is meant to convey. That story should make sense and be concrete. If you can't translate the theory into a story, you don't understand the theory.

Economic Institutions

To know whether you can apply economic theory to reality, you must know about economic institutions—laws, common practices, and organizations in a society that affect the economy. Corporations, governments, and cultural norms are all examples of economic institutions. Many economic institutions have social, political, and religious dimensions. For example, your job often influences your social standing. In addition, many social institutions, such as the family, have economic functions. I include any institution that significantly affects economic decisions as an economic institution because you must understand that institution if you are to understand how the economy functions.

Economic institutions sometimes seem to operate in ways quite different than economic theory predicts. For example, economic theory says that prices are determined by supply and demand. However, businesses say that they set prices by rules of thumb—often by what are called cost-plus-markup rules. That is, a firm determines what its costs are, multiplies by 1.4 or 1.5, and the result is the price it sets. Economic If you don't know the assumptions, you don't know the theory.

Theory is a shorthand way of telling a story.

To apply economic theory to reality, you've got to have a sense of economic institutions.

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REAL-WORLD APPLICATION



Economists and Market Solutions

Economic reasoning is playing an increasing role in government policy. Consider the regulation of pollution. Pollution became a policy concern in the 1960s as books such as Rachel Carson's Silent Spring were published. In 1970, in response to concerns about the environment, the Clean Air Act was passed. It capped the amount of pollutants (such as sulfur dioxide, carbon monoxide, nitrogen



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dioxides, lead, and hydrocarbons) that firms could emit. This was a "command-and-control" approach to regulation, which brought about a reduction in pollution, but also brought about lots of complaints by firms that either found the limits costly to meet or couldn't afford to meet them and were forced to close.

Enter economists. They proposed an alternative approach, called cap-and-trade, that achieved the same overall reduction in pollution but at a lower overall cost. In the plan they proposed, government still set a pollution cap that firms had to meet, but it gave individual firms some flexibility. Firms that reduced emissions by less than the required limit could buy pollution permits from other firms that reduced their emissions by more than their limit. The price of the permits would be determined in an "emissions permit market." Thus, firms that had a low cost of reducing pollution would have a strong incentive to reduce pollution by more than their limit in order to sell these permits, or rights to pollute, to firms that had a high cost of reducing pollution and therefore could reduce

their pollution by less than what was required. The net reduction was the same, but the reduction was achieved at a lower cost.

In 1990 Congress adopted economists' proposal and the Clean Air Act was amended to include tradable emissions permits. An active market in emissions permits developed, and it is estimated that the tradable permit program has lowered the cost of reducing sulfur dioxide emissions by \$1 billion a year while, at the same time, reducing emissions by more than half, to levels significantly below the cap. Other cap-and-trade programs have developed as well. You can read more about the current state of tradable emissions at www.epa.gov/airmarkets.

theory says that supply and demand determine who's hired; experience suggests that hiring is often done on the basis of whom you know, not by market forces.

These apparent contradictions have two complementary explanations. First, economic theory abstracts from many issues. These issues may account for the differences. Second, there's no contradiction; economic principles often affect decisions from behind the scenes. For instance, supply and demand pressures determine what the price markup over cost will be. In all cases, however, to apply economic theory to reality—to gain the full value of economic insights—you've got to have a sense of economic institutions.

Economic Policy Options

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Economic policies are actions (or inaction) taken by government to influence eco*nomic actions*. The final goal of the course is to present the economic policy options facing our society today. For example, should the government restrict mergers between firms? Should it run a budget deficit? Should it do something about the international trade deficit? Should it decrease taxes?

I saved this discussion for last because there's no sense talking about policy options unless you know some economic terminology, some economic theory, and something about economic institutions. Once you know something about them, you're in a position to consider the policy options available for dealing with the economic problems our society faces.

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Chapter 1 Economics and Economic Reasoning

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EQA

Policies operate within institutions, but policies also can influence the institutions within which they operate. Let's consider an example: welfare policy and the institution of the two-parent family. In the 1960s, the United States developed a variety of policy initiatives designed to eliminate poverty. These initiatives provided income to single parents with children, and assumed that family structure would be unchanged by these policies. But family structure changed substantially, and, very likely, these policies played a role in increasing the number of single-parent families. The result was the programs failed to eliminate poverty. Now this is not to say that we should not have programs to eliminate poverty, nor that two-parent families are always preferable to one-parent families; it is only to say that we must build into our policies their effect on institutions.

Objective Policy Analysis

Good economic policy analysis is objective; that is, it keeps the analyst's value judgments separate from the analysis. Objective analysis does not say, "This is the way things should be," reflecting a goal established by the analyst. That would be subjective analysis because it would reflect the analyst's view of how things should be. Instead, objective analysis says, "This is the way the economy works, and if society (or the individual or firm for whom you're doing the analysis) wants to achieve a particular goal, this is how it might go about doing so." Objective analysis keeps, or at least tries to keep, an individual's subjective views value judgments—separate. That doesn't mean that policy analysis involves no value judgments; policy analysis necessarily involves value judgments. But an objective researcher attempts to make the value judgments being used both transparent and not his own, but instead value judgments an "impartial spectator" (using Adam Smith's terminology) would use.

To make clear the distinction between objective and subjective analysis, economists have divided economics into three categories: *positive economics, normative economics,* and the *art of economics.* **Positive economics** is *the study of what is, and how the economy works.* It explores the pure theory of economics, and it discovers agreed-upon empirical regularities, often called empirical facts. Economic theorists then relate their theories to those facts. Positive economics asks such questions as: How does the market for hog bellies work? How do price restrictions affect market forces? These questions fall under the heading of economic theory.

As I stated above, economic theory does not provide definitive policy recommendations. It is too abstract and makes too many assumptions that don't match observed behavior. In positive economic theory, one looks for empirical facts and develops *theorems*—propositions that logically follow from the assumptions of one's model. Theorems and agreed-upon empirical facts are almost by definition beyond dispute and serve as the foundation for economic science. But these theorems don't tell us what policies should be followed.

To decide on policy, economists integrate normative judgments with insights from positive economics. **Normative economics** is *the study of what the goals of the economy should be*. Normative economics asks such questions as: What should the distribution of income be? What should tax policy be designed to achieve? In discussing such questions, economists must carefully delineate whose goals they are discussing. One cannot simply assume that one's own goals for society are society's goals. For example, let's consider an ongoing debate in economics. Some economists are worried about climate change; they believe that high consumption in rich societies is causing climate change and that the high consumption is a result of

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To carry out economic policy effectively, one must understand how institutions might change as a result of the economic policy.

Q-8 True or false? Economists should focus their policy analysis on institutional changes because such policies offer the largest gains.

Positive economics is the study of what is, and how the economy works.

Q-9 John, your study partner, is a free market advocate. He argues that the invisible hand theorem tells us that the government should not interfere with the economy. Do you agree? Why or why not?

Normative economics is the study of what the goals of the economy should be.

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interdependent wants—people want something only because other people have it but having it isn't necessarily making people happier. These economists argue that society's normative goal should include a much greater focus on the implications of economic activities for climate change, and the distribution of income, than is currently the case. Discussion of these goals falls under the category of normative economics.

In debating normative issues, economists defer to philosophers for guidance on what the goals of society should be. But that hasn't always been the case. The founder of economics, Adam Smith, was himself a moral philosopher, and economic policy analysis developed within a utilitarian moral philosophy that saw the normative goal of policy as being "the greatest good for the greatest number." This goal required economists to consider policy in terms of the consequences of that policy, not on the basis of its inherent morality. It also required them to consider policy not from a perspective that was good for any particular group, but from the perspective of a fair composite of society. When conducting policy analysis they had to bend over backwards to maintain impartiality.

Focus on such impartiality led early economists to argue against both slavery and the oppression of women at a time when those positions were highly unpopular and seen as radical. It also led them to argue in favor of the significant coordination of society by the market, which they felt would bring about greater happiness for a greater number than would the alternative of significant government coordination. Their support of markets was based on their moral philosophy, not just their science.

Adam Smith was part of this moral tradition, and before he wrote his economic treatise, *The Wealth of Nations*, he wrote a philosophical treatise, *The Theory of Moral Sentiments*, which provided a normative foundation for his economics. In it, Smith created a tool that he argued was useful in shedding light on what was meant by the vague and somewhat contradictory "greatest good for the greatest number." That tool was the **impartial spectator tool** in which *each person places himself in the position of a third-person examiner and judges a situation from everyone's perspective, not just his own*. Then, having done that, he does his best to come to a policy that he could argue would achieve the greatest good for the greatest number.

Economists did not expect people to arrive at definitive policy conclusions based on this tool. But they did see the tool as providing a framework within which people could discuss policy in terms of what was best for society as a whole, not what was best for themselves, or their friends. This tool would focus arguments about policy on their impact on people in the community, rather than on abstract debates about the morality of policy, which generally led nowhere. That approach to morality was an important part of policy economics, and was how economists moved from the theorems developed in science to policy precepts.

Some economists hoped that they would be able to determine the goals of policy scientifically, but they quickly decided that that was impossible. They came to believe that *utility*—a general measure of people's welfare used in policy analysis— is neither scientifically measurable nor comparable between individuals. It is for that reason that economic science does not lead to any particular policy conclusions. To move to policy conclusions, one must supplement science with moral philosophical insights developed in self-reflective considerations and heartfelt discussions with others about what is meant by the greatest good for the greatest number. Policy economists have to picture themselves as walking in the shoes of every person everwhere, not just their own.

The **art of economics**, also called political economy, is *the application of the knowledge learned in positive economics to achieve the goals one has determined in normative economics*. It looks at such questions as: To achieve the goals that society

To use the impartial spectator tool, each person places himself in the position of a third-person examiner and judges a situation from everyone's perspective, not just his own

The art of economics is the application of the knowledge learned in positive economics to achieve the goals determined in normative economics.

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REAL-WORLD APPLICATION

Economics and Climate Change

A good example of the central role that economics plays in policy debates is the debate about climate change. Almost all scientists are now convinced that climate change is occurring and that human activity such as the burning of fossil fuel is one of the causes. The policy question is what to do about it. To answer that question, most governments have turned to economists. The first part of the question that economists have



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considered is whether it is worth doing anything, and in a well-publicized report commissioned by the British government, economist Nicholas Stern argued that, based upon his cost/benefit analysis, yes it is worth doing something. The reason: Because the costs of not doing anything would likely reduce output by 20 percent in the future, and those costs (appropriately weighted for when they occur) are less than the benefits of policies that can be implemented.

The second part of the question is: What policies to implement? The policies he recommended were policies that changed incentives—specifically, policies that raised the costs of emitting greenhouse gases and decreased the costs of other forms of production. Those recommended policies reflected the economist's opportunity cost framework in action: If you want to change the result, change the incentives that individuals face.

There is considerable debate about Stern's analysis—both with the way he conducted the cost/benefit analysis and with his policy recommendations. Such debates are inevitable when the data are

incomplete and numerous judgments need to be made. I suspect that these debates will continue over the coming years with economists on various sides of the debates. Economists are generally not united in their views about complicated policy issues since they differ in their normative views and in their assessment of the problem and of what politically can be achieved; that's because policy is part of the art of economics, not part of positive economics. But the framework of the policy debate about climate change is the economic framework. Thus, even though political forces will ultimately choose what policy is followed, you must understand the economic framework to take part in the debate.

wants to achieve, how would you go about it, given the way the economy works?⁴ Most policy discussions fall under the art of economics. The art of economics branch is specifically about policy; it is designed to arrive at *precepts*, or guides for policy. Precepts are based on theorems and empirical facts developed in positive economics and goals developed in normative economics. The art of economics requires economists to assess the appropriateness of theorems to achieving the normative goals in the real world. Whereas once the assumptions are agreed upon, theorems derived from models are not debatable, precepts are debatable, and economists that use the same theorems can hold different precepts. For example, a model may tell us that rent controls (a legal maximum on rent) will cause a shortage of housing. That does not mean that rent controls are necessarily bad policies, since rent controls may also have some desirable effects. The precept that rent controls are bad policy is based upon a judgment about the importance of those other effects, and one's normative judgments



The Art of Economics

Q-10 Tell whether the following five statements belong in positive economics, normative economics, or the art of economics.

- We should support the market because it is efficient.
- 2. Given certain conditions, the market achieves efficient results.
- Based on past experience and our understanding of markets, if one wants a reasonably efficient result, markets should probably be relied on.
- 4. The distribution of income should be left to markets.
- Markets allocate income according to contributions of factors of production.

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⁴This three-part distinction was made back in 1891 by a famous economist, John Neville Keynes, father of John Maynard Keynes, the economist who developed macroeconomics. This distinction was instilled into modern economics by Milton Friedman and Richard Lipsey in the 1950s. They, however, downplayed the art of economics, which J. N. Keynes had seen as central to understanding the economist's role in policy. In his discussion of the scope and method of economics, Lionel Robbins used the term *political economy* rather than Keynes' term *the art of economics*.

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about the benefits and costs of the policy. In this book, when I say that economists tend to favor a policy, I am talking about precepts, which means that alternative perspectives are possible even among economists.

In each of these three branches of economics, economists separate their own value judgments from their objective analysis as much as possible. The qualifier "as much as possible" is important, since some value judgments inevitably sneak in. We are products of our environment, and the questions we ask, the framework we use, and the way we interpret the evidence all involve value judgments and reflect our backgrounds.

Maintaining objectivity is easiest in positive economics, where you are working with abstract models to understand how the economy works. Maintaining objectivity is harder in normative economics. You must always be objective about whose normative values you are using. It's easy to assume that all of society shares your values, but that assumption is often wrong.

Maintaining objectivity is hardest in the art of economics because it can suffer from the problems of both positive and normative economics. Because noneconomic forces affect policy, to practice the art of economics we must make judgments about how these noneconomic forces work. These judgments are likely to reflect our own value judgments. So we must be exceedingly careful to be as objective as possible in practicing the art of economics.

Policy and Social and Political Forces

When you think about the policy options facing society, you'll quickly discover that the choice of policy options depends on much more than economic theory. Politicians, not economists, determine economic policy. To understand what policies are chosen, you must take into account historical precedent plus social, cultural, and political forces. In an economics course, I don't have time to analyze these forces in as much depth as I'd like. That's one reason there are separate history, political science, sociology, and anthropology courses.

While it is true that these other forces play significant roles in policy decisions, specialization is necessary. In economics, we focus the analysis on the invisible hand, and much of economic theory is devoted to considering how the economy would operate if the invisible hand were the only force operating. But as soon as we apply theory to reality and policy, we must take into account political and social forces as well.

An example will make my point more concrete. Most economists agree that holding down or eliminating tariffs (taxes on imports) and quotas (numerical limitations on imports) makes good economic sense. They strongly advise governments to follow a policy of free trade. Do governments follow free trade policies? Almost invariably they do not. Politics leads society in a different direction. If you're advising a policy maker, you need to point out that these other forces must be taken into account, and how other forces should (if they should) and can (if they can) be integrated with your recommendations.

Conclusion

Tons more could be said to introduce you to economics, but an introduction must remain an introduction. As it is, this chapter should have:

- 1. Introduced you to economic reasoning.
- 2. Surveyed what we're going to cover in this book.

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3. Given you an idea of my writing style and approach.

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We'll be spending long hours together over the coming term, and before entering into such a commitment it's best to know your partner. While I won't know you, by the end of this book you'll know me. Maybe you won't love me as my mother does, but you'll know me.

This introduction was my opening line. I hope it also conveyed the importance and relevance of economics. If it did, it has served its intended purpose. Economics is tough, but tough can be fun.

Summary

- The three coordination problems any economy must solve are what to produce, how to produce it, and for whom to produce it. In solving these problems, societies have found that there is a problem of scarcity. (*LO1-1*)
- Economics can be divided into microeconomics and macroeconomics. Microeconomics is the study of individual choice and how that choice is influenced by economic forces. Macroeconomics is the study of the economy as a whole. It considers problems such as inflation, unemployment, business cycles, and growth. (LO1-1)
- Economic reasoning structures all questions in a cost/benefit framework: If the marginal benefits of doing something exceed the marginal costs, do it. If the marginal costs exceed the marginal benefits, don't do it. (*LO1-2*)
- Sunk costs are not relevant in the economic decision rule. (*LO1-2*)
- The opportunity cost of undertaking an activity is the benefit you might have gained from choosing the next-best alternative. (*LO1-2*)

- "There ain't no such thing as a free lunch" (TANSTAAFL) embodies the opportunity cost concept. (*LO1-2*)
- Economic forces, the forces of scarcity, are always working. Market forces, which ration by changing prices, are not always allowed to work. (*LO1-3*)
- Economic reality is controlled and directed by three types of forces: economic forces, political forces, and social forces. (*LO1-3*)
- Under certain conditions, the market, through its price mechanism, will allocate scarce resources efficiently. (*LO1-4*)
- Theorems are propositions that follow from the assumptions of a model; precepts are the guides for policies based on theorems, normative judgments, and empirical observations about how the real world differs from the model. (*LO1-4*)
- Economics can be subdivided into positive economics, normative economics, and the art of economics. Positive economics is the study of what is, normative economics is the study of what should be, and the art of economics relates positive to normative economics. (*LO1-5*)

Key Terms

art of economics economic decision rule economic force economic model economic policy economic principle economics efficiency experimental economics impartial spectator tool implicit costs invisible hand invisible hand theorem macroeconomics marginal benefit marginal cost market force microeconomics normative economics opportunity cost political forces positive economics precepts scarcity social forces sunk cost theorems

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Introduction Thinking Like an Economist

Questions and Exercises Econnect

- 1. Why does the textbook author focus on coordination rather than on scarcity when defining economics? (*LO1-1*)
- 2. State whether the following are primarily microeconomic or macroeconomic policy issues: (*LO1-1*)
 - a. Should U.S. interest rates be lowered to decrease the amount of unemployment?
 - b. Will the fact that more and more doctors are selling their practices to managed care networks increase the efficiency of medical providers?
 - c. Should the current federal income tax be lowered to reduce unemployment?
 - d. Should the federal minimum wage be raised?
 - e. Should Sprint and Verizon both be allowed to build local phone networks?
 - f. Should commercial banks be required to provide loans in all areas of the territory from which they accept deposits?
- 3. List two microeconomic and two macroeconomic problems. (*LO1-1*)
- 4. Calculate, using the best estimates you can: (LO1-2)
 - a. Your opportunity cost of attending college.
 - b. Your opportunity cost of taking this course.
 - c. Your opportunity cost of attending yesterday's lecture in this course.
- 5. List one recent choice you made and explain why you made the choice in terms of marginal benefits and marginal costs. (*LO1-2*)
- 6. You rent a car for \$29.95. The first 100 miles are free, but each mile thereafter costs 10 cents. You plan to drive it 200 miles. What is the marginal cost of driving the car? (*LO1-2*)
- Economists Henry Saffer of Kean University, Frank J. Chaloupka of the University of Illinois at Chicago, and Dhaval Dave of Bentley College estimated that the government must spend \$4,170 on drug control to deter one person from using drugs and that the cost one drug user imposes on society is \$897. Based on this information alone, should the government spend the money on drug control? (LO1-2)
- 8. What is the opportunity cost of buying a \$20,000 car? (*LO1-2*)
- 9. Suppose you currently earn \$60,000 a year. You are considering a job that will increase your lifetime earnings by \$600,000 but that requires an MBA. The job will mean also attending business school for two years at an annual cost of \$50,000. You already have a bachelor's degree, for which you spent \$160,000 in tuition and books. Which of the above information is relevant to your decision on whether to take the job? (LO1-2)

- Suppose your college has been given \$5 million. You have been asked to decide how to spend it to improve your college. Explain how you would use the economic decision rule and the concept of opportunity costs to decide how to spend it. (LO1-2)
- 11. Give two examples of social forces and explain how they keep economic forces from becoming market forces. (*LO1-3*)
- 12. Give two examples of political or legal forces and explain how they might interact with economic forces. (*LO1-3*)
- 13. Individuals have two kidneys, but most of us need only one. People who have lost both kidneys through accident or disease must be hooked up to a dialysis machine, which cleanses waste from their bodies. Say a person who has two good kidneys offers to sell one of them to someone whose kidney function has been totally destroyed. The seller asks \$30,000 for the kidney, and the person who has lost both kidneys accepts the offer. (LO1-3)
 - a. Who benefits from the deal?
 - b. Who is hurt?

- c. Should a society allow such market transactions? Why?
- 14. What is an economic model? What besides a model do economists need to make policy recommendations? (*LO1-4*)
- 15. Does economic theory prove that the free market system is best? Why? (Difficult) (*LO1-4*)
- 16. Distinguish between theorems and precepts. Is it possible for two economists to agree about theorems but disagree about precepts? Why or why not? (LO1-4)
- 17. What is the difference between normative and positive statements? (*LO1-5*)
- 18. State whether the following statements belong in positive economics, normative economics, or the art of economics. (*LO1-5*)
 - a. In a market, when quantity supplied exceeds quantity demanded, price tends to fall.
 - b. When determining tax rates, the government should take into account the income needs of individuals.
 - c. Given society's options and goals, a broad-based tax is generally preferred to a narrowly based tax.
 - California currently rations water to farmers at subsidized prices. Once California allows the trading of water rights, it will allow economic forces to be a market force.

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Chapter 1 Economics and Economic Reasoning

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Questions from Alternative Perspectives

- 1. Is it possible to use objective economic analysis as a basis for government planning? (*Austrian*)
- 2. In "Rational Choice with Passion: Virtue in a Model of Rational Addiction," Andrew M. Yuengert of Pepperdine University argues that there is a conflict between reason and passion.
 - a. What might that conflict be?
 - b. What implications does it have for applying the economic model? (*Religious*)
- 3. Economic institutions are "habits of thought" that organize society.
 - a. In what way might patriarchy be an *institution* and how might it influence the labor market?
 - b. Does the free market or patriarchy better explain why 98 percent of secretaries are women and 98 percent of automobile mechanics are men? (*Feminist*)
- 4. In October of 2004, the supply of flu vaccine fell by over 50 percent when a major producer of the vaccine was shut down. The result was that the vaccine had to be rationed, with a priority schedule established: young children, people with weakened immunity, those over 65, etc. taking priority.
 - a. Compare and contrast this allocation outcome with a free market outcome.
 - b. Which alternative is more just? (Institutionalist)

- 5. The textbook model assumes that individuals have enough knowledge to follow the economic decision rule.
 - a. How did you decide which college you would attend?b. Did you have enough knowledge to follow the
 - economic decision rule?c. For what type of decisions do you not use the economic decision rule?
 - d. What are the implications for economic analysis if most people don't follow the economic decision rule in many aspects of their decisions? (*Post-Keynesian*)
- 6. Radical economists believe that all of economics, like all theorizing or storytelling, is value-laden. Theories and stories reflect the values of those who compose them and tell them. For instance, radicals offer a different analysis than most economists of how capitalism works and what ought to be done about its most plaguing problems: inequality, periodic economic crises with largescale unemployment, and the alienation of the workers.
 - a. What does the radical position imply about the distinction between positive economics and normative economics that the text makes?
 - b. Is economics value-laden or objective and is the distinction between positive and normative economics tenable or untenable? (*Radical*)

Issues to Ponder

- 1. At times we all regret decisions. Does this necessarily mean we did not use the economic decision rule when making the decision?
- 2. Economist Steven Landsburg argues that if one believes in the death penalty for murderers because of its deterrent effect, using cost/benefit analysis we should execute computer hackers—the creators of worms and viruses—because the deterrent effect in cost saving would be greater than the deterrent effect in saving lives. Estimates are that each execution deters eight murders, which, if one valued each life at about \$7 million, saves about \$56 million; he estimates that executing hackers would save more than that per execution, and thus would be the economic thing to do.
 - a. Do you agree or disagree with Landsburg's argument? Why?
 - b. Can you extend cost/benefit analysis to other areas?
- 3. Adam Smith, who wrote *The Wealth of Nations*, and who is seen as the father of modern economics, also wrote *The Theory of Moral Sentiments*. In it he argued that society would be better off if people weren't so selfish and were more considerate of others. How does this view fit with the discussion of economic reasoning presented in the chapter?

- 4. A *Wall Street Journal* article asked readers the following questions. What's your answer?
 - a. An accident has caused deadly fumes to enter the school ventilation system where it will kill five children. You can stop it by throwing a switch, but doing so will kill one child in another room. Do you throw the switch?
 - b. Say that a doctor can save five patients with an organ transplant that would end the life of a patient who is sick, but not yet dead. Does she do it?
 - c. What is the difference between the two situations described in *a* and *b*?
 - d. How important are opportunity costs in your decisions?
- 5. Economics is about strategic thinking, and the strategies can get very complicated. Suppose Marge kisses Mike and asks whether he liked it. She'd like Mike to answer "yes" and she'd like that answer to be truthful. But Mike knows that, and if he likes Marge, he may well say that he liked the kiss even if he didn't. But Marge knows that, and thus might not really believe that Mike liked the kiss— he's just saying "yes" because that's what Marge wants to hear. But Mike knows that Marge knows that, so sometimes he has to convey a sense that he didn't like it, so that

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Introduction Thinking Like an Economist

Marge will believe him when he says that he did like it. But Marge knows that . . . You get the picture.

- a. Should you always be honest, even when it hurts someone?
- b. What strategies can you figure out to avoid the problem of not believing the other person?
- 6. Go to two stores: a supermarket and a convenience store.
 - a. Write down the cost of a gallon of milk in each.
 - b. The prices are most likely different. Using the terminology used in this chapter, explain why that is the case and why anyone would buy milk in the store with the higher price.
 - c. Do the same exercise with shirts or dresses in Walmart (or its equivalent) and Saks (or its equivalent).
- 7. About 100,000 individuals in the United States are waiting for organ transplants, and at an appropriate price many individuals would be willing to supply organs. Given those facts, should human organs be allowed to be bought and sold?
- 8. Name an economic institution and explain how it affects economic decision making or how its actions reflect economic principles.
- Tyler Cowen, an economist at George Mason University, presents an interesting case that pits the market against legal and social forces. The case involves payola—the payment of money to disc jockeys for playing a songwriter's songs. He

Answers to Margin Questions

- 1. (1) Macroeconomics; (2) Microeconomics; (3) Microeconomics; (4) Macroeconomics. (LO1-1)
- 2. Since the price of both stocks is now \$15, it doesn't matter which one you sell (assuming no differential capital gains taxation). The price you bought them for doesn't matter; it's a sunk cost. Marginal analysis refers to the future gain, so what you expect to happen to future prices of the stocks—not past prices—should determine which stock you decide to sell. (LO1-2)
- 3. A cost/benefit analysis requires that you put a value on a good, and placing a value on a good can be seen as demeaning it. Consider love. Try telling an acquaintance that you'd like to buy his or her spiritual love, and see what response you get. (*LO1-2*)
- 4. John is wrong. The opportunity cost of reading the chapter is primarily the time you spend reading it. Reading the book prevents you from doing other things. Assuming that you already paid for the book, the original price is no longer part of the opportunity cost; it is a sunk cost. Bygones are bygones. (LO1-2)
- 5. Whenever there is scarcity, the scarce good must be rationed by some means. Free health care has an

reports that Chuck Berry was having a hard time getting his music played because of racism. To counter this, he offered a well-known disc jockey, Alan Freed, partial songwriting credits, along with partial royalties, on any Chuck Berry song of his choice. Freed chose *Maybellene*, which he played and promoted. It went on to be a hit, Chuck Berry went on to be a star, and Freed's estate continues to receive royalties.

- a. Should such payments be allowed? Why?
- b. How did Freed's incentives from the royalty payment differ from Freed's incentives if Chuck Berry had just offered him a flat payment?
- c. Name two other examples of similar activities—one that is legal and one that is not.
- 10. Name three ways a limited number of dormitory rooms could be rationed. How would economic forces determine individual behavior in each? How would social or legal forces determine whether those economic forces become market forces?
- 11. Prospect theory suggests that people are hurt more by losses than they are uplifted by gains of a corresponding size. If that is true, what implications would it have for economic policy?
- 12. Is a good economist always objective? Explain your answer.
- 13. Why are modern economists more likely to "let the data speak" than are earlier economists?

opportunity cost in other resources. So if health care is not rationed, to get the resources to supply that care, other goods would have to be more tightly rationed than they currently are. It is likely that the opportunity cost of supplying free health care would be larger than most societies would be willing to pay. (LO1-3)

- 6. Joan is wrong. Economic forces are always operative; market forces are not. (*LO1-3*)
- 7. According to the invisible hand theorem, the price of tomatoes will likely fall. (*LO1-4*)
- 8. False. While such changes have the largest gain, they also may have the largest cost. The policies economists should focus on are those that offer the largest net gain—benefits minus costs—to society. (LO1-5)
- 9. He is wrong. The invisible hand theorem is a positive theorem and does not tell us anything about what policy to adopt. To do so would be to violate Hume's dictum that a "should" cannot be derived from an "is." This is not to say that government should or should not interfere; whether government should interfere is a very difficult question. (*LO1-5*)
- 10. (1) Normative; (2) Positive; (3) Art; (4) Normative;(5) Positive. (LO1-5)

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Financial Crises, Panics, and Unconventional Monetary Policy

It is well enough that people of the nation do not understand our banking and monetary system, for if they did, I believe there would be a revolution before tomorrow morning.

-Henry Ford



©Chris Hondros/Getty Images

In 2008, the world financial system nearly stopped working. Banks were on the verge of collapse, the stock market dropped precipitously, and the U.S. economy fell into a serious recession and possible structural stagnation. In response, central banks and governments across the world took extraordinary steps buying banks, buying financial assets, guaranteeing deposits, and guaranteeing loans to try to calm the crisis. Initially central banks thought that the problems would be temporary, but after the initial short-term problems were handled, longer-term problems emerged; economies throughout the world were faced with sluggish growth and higher unemployment than they found acceptable, and central banks feared that if they returned to conventional monetary policy, the economies would crash. In response, what started as a highly unconventional monetary policy became the new normal, with very low and even negative interest rates, quantitative easing, and worry about inflation being too low, the

CHAPTER 30

After reading this chapter, you should be able to:

LO30-1	Explain why financial crises
	are dangerous and why
	most economists see a
	role for the central bank as
	a lender of last resort.
LO30-2	Explain the role of leverage
	and herding in financial
	bubbles and how central
	bank policy can contribute
	to a financial bubble.
LO30-3	Explain why regulating
	the financial sector and
	preventing financial crises
	is so difficult.
LO30-4	Discuss monetary policy in
	the post—financial crisis
	period.

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Macroeconomics Finance, Money, and the Economy

new standard features of monetary policy. Only a decade later are central banks around the world moving back to a more traditional monetary policy. In this chapter, we consider unconventional monetary policy and the problems involved with unwinding it, and moving back to a more conventional monetary policy. Specifically, we consider: (1) financial panics and the Fed's role as a lender of last resort, (2) the difficulty of preventing financial crises and the structural problems they create, (3) the problems of regulating the financial sector, and (4) the debate about unconventional monetary policies and how best to unwind them.

The Central Bank's Role in a Crisis

Why is there so much concern about the financial sector and fear about a credit crisis? Firms in the financial sector got themselves into this mess; they should get out of it on their own. After all, the financial sector is only a small part of the entire economy. The answer why is simple: We worry about the financial sector not because it is big or small, but because all the other sectors need the financial sector to do business. While oil is a relatively minor part of a working engine, it is absolutely essential. While the failure of other big sectors such as the auto industry would be painful, it would not bring all other sectors crashing down as a financial-sector collapse would. That's why one of the roles of a central bank is to be a **lender of last resort**—*lending to banks and other financial institutions when no one else will.*

When credit is not available, the real economy can quickly come to a halt. It's not like the slow effect of a contractionary demand shock. It is fast, like a heart attack. The fear in October 2008 was that the financial crisis on Wall Street could cause the entire economy to seize, spreading the problem from Wall Street (the financial sector) to Main Street (the real sector), creating not a recession but a depression like the Great Depression of the 1930s.

Think about what would happen if *your* credit dried up. Say that even though you're every bit as trustworthy as before, you suddenly find you can no longer borrow money. No more spending with a credit card. Paying for some of your expenses might still work just fine—you could buy groceries with cash at the local grocery store. Others would be more difficult. Without credit, you'd have to pay all your bills before you get the product. No more loans to buy a car; you'll have to save \$20,000 first. No more checks since businesses couldn't be assured the check would clear. Some things would be downright impossible; forget about buying anything on the Internet. Paying for college? No problem . . . if you've already saved up enough to pay up front and in full.

The situation is even worse for companies. While they might not use credit cards, just like you, they borrow for their short-term needs, such as buying the raw materials for production and paying their workers. If their credit line disappears, companies would essentially be forced to close because they couldn't pay their workers. When workers lose their jobs, they will cut their spending, causing other workers to lose their jobs as well. A downward spiral of output will result. That's why a severe financial crisis can bring the entire real economy to a halt.

Luckily that didn't happen. As soon as the crisis hit, the Fed put aside its standard cautious approach to monetary policy and undertook a wide variety of unprecedented actions. It acted as the lender of last resort—providing loans to financial institutions that it determined were **solvent**—having sufficient assets to cover their long-run liabilities—but were not sufficiently **liquid**—having assets that could readily be converted into cash and money at non-fire-sale prices. Without liquid assets banks couldn't pay their short-run liabilities, such as interest on money they had borrowed.

Q-1 Why do we worry about the financial sector more than the automobile sector?

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Credit is a necessary part of the U.S. economy.

In the financial crisis, the Fed acted as a lender of last resort loaning to solvent, but illiquid banks.

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To prevent a financial collapse, the Fed took the banks' long-run illiquid assets such as mortgages, business loans, and Treasury bonds as collateral, and loaned the banks money to pay their short-run liabilities. By doing so the Fed provided liquidity to the financial market.

Similarly, the Treasury dropped all its standard practices and bailed out financial firms, and Congress instituted strong expansionary fiscal policy. The hope was that such actions would be enough to prevent the financial meltdown that would turn a serious recession into a second Great Depression. The policy succeeded; the United States and world economies avoided a financial meltdown.

Anatomy of a Financial Crisis

Even though every financial crisis is different, all generally have similar elements and 2008 was no exception. A financial crisis begins with the creation of an **asset price bubble**—*unsustainable rapidly rising prices of some type of asset* (such as stocks or houses). Price increases in a bubble are unsustainable because they do not reflect an increase in the real productive value of the asset. In the early 2000s, the bubble was in the housing market.

The key to a bubble is **extrapolative expectations**—*expectations that a trend will accelerate.* It works like this: Initially, the market experiences a shock, which causes prices to rise. In a standard aggregate supply/aggregate demand model, the initial rise in price is the end of the story. The rise in prices brings the market back into equilibrium. But in a financial bubble, the initial rise in price leads people to expect further price increases. In anticipation of these price increases, people buy goods and assets, causing aggregate demand to shift out to the right, which leads prices to rise further, fulfilling expectations, and people to expect even more price increases. In a bubble, expectations feed back on themselves, and prices rapidly spiral upward. This is how it works:

Rise in price \rightarrow Expectations of a further rise in price \rightarrow Rise in demand at the current price \rightarrow Rise in price \rightarrow Expectations of a further rise in price ... and so on

The Financial Crisis: The Bubble Bursts

In 2005, after rising precipitously for a number of years, housing prices started to level off. Most standard economists talked about prices settling into a permanently high plateau. But by 2006 housing prices began to fall precipitously—and it became clear that the boom in housing prices in the early 2000s had been a financial bubble. As soon as that was recognized, the bubble burst and everyone wanted to get out of housing and housing-related assets before the price of their houses fell further.

The bursting of the bubble involves the same process that leads to the bubble—extrapolative expectations; it just works in reverse. The price stops rising, which reverses the expectations of rising prices into falling prices. People begin selling their assets, which leads prices to fall even more. People expect prices to fall even further, which leads more people to sell . . . and so

on. Those whose loans exceeded the value of their assets (commonly called being underwater) are forced to sell or to default on their loans. Those defaults lead to expectations of further price declines, which bring about further defaults.



Foreclosures rose considerably after the housing bubble burst in 2006. ©Andy Dean Photography/Alamy

> The bursting of a bubble involves the same process that leads to the bubbleextrapolative expectations; it just works in reverse.

A bubble is an unsustainable rapidly rising price of some type of asset.



In a bubble, expectations feed back on themselves, and prices rapidly spiral upward.

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Thinking Like a Modern Economist

Tulipmania, the South Sea Bubble, and Behavioral Economics

Financial bubbles have been a fixture in economies for centuries. Two of the most famous financial bubbles are Tulipmania and the South Sea bubble.

The height of Tulipmania occurred in Holland between November 1636 and February 1637. It centered on, you guessed it, tulips—a relatively newly introduced popular flower. Over three months, tulip bulb prices are estimated to have risen by several

thousand percent, all without any tulips actually changing hands-tulips don't even grow between November and February. Instead, speculators tried to make money by buying and reselling promises to deliver tulip bulbs the following May, after they had flowered. Contracts for some particularly rare bulbs were reportedly trading for prices equivalent to 20 years of a typical workman's wages, and for a full 12 acres of land. Trading was purely speculative; people bought tulip contracts with the full intention of "flipping" them for a profit well before May. The bubble burst in February when people realized that at the current prices, no one would be willing to pay the outrageous prices for an actual tulip.

Another financial bubble was the South Sea bubble of the early 1700s. The South Sea bubble started when rumors spread that the South Sea

Company—a company granted a monopoly on trade with South American colonies by the British government—would be enormously profitable. When the stock price of the South Sea Company doubled, others noticed and wanted to get in on the profit, pushing the price up further. The price of its stock rose almost tenfold between January and August of 1720. (The rise was helped along by various shady dealings between the company and members of the British Parliament.) How could people afford to buy this stock at such high prices? They borrowed and were allowed to leverage their purchases. (Pay me 10 percent now and the remaining 90 percent next week.) As long as the stock price was rising, that wasn't a problem. When it was time to pay the remaining 90 percent, the stockholder could sell the stock at a higher price, repay the loan, and pocket the difference.



Source: Reprint of 1841/1852 editions of *Extraordinary Popular Delusions and the Madness of Crowds* by Charles Mackay, LL.D.

But then, suddenly, the rumors reversed. The stock prices started falling and everyone called in their loans. To pay their loans, people tried to sell stock that no one wanted to buy; stock prices plummeted and the bubble burst even more quickly than it had formed.

Behavioral economics and standard economics explain these bubbles differently. Standard economics works hard to provide a rational explanation for financial bubbles. It has a theory of what might be called rational bubbles. For example, some economists have argued that the high prices of tulips and of South Sea Company stock were plausible in light of the scarcity and novelty of certain bulbs and imperfect information about the profitability of trade with the Americas. If bubbles are rational, they should be considered an unavoidable aspect of modern society. Modern behavioral economists

disagree. They argue that bubbles form precisely because people *aren't* fully rational in the way that economists define rationality—they are subject to herd mentality. That is, they are predictably irrational. Moreover, economists argue that in an unpredictable world, there is no one rational course of action, and the future is always in some sense unknown. This difference is important because if behavioral economists are right, then there *is* a potential role for policy to reduce the severity and occurrence of bubbles.

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Compared with the stock market crash of 1929, in 2007 housing prices declined slowly. While financial assets can be sold quickly—at the click of a mouse—houses cannot. Houses generally are listed with a real estate agent; buyers look at a number of houses before deciding; then the price is negotiated. Even when people are not paying their mortgage, banks can't just kick people out of their houses; they must foreclose, and that process can take years.

Despite all the difficulties with the housing market, the financial crisis was not directly precipitated by the housing market crisis. It was a crisis in the market for mortgage-backed securities. **Mortgage-backed securities** are *securities that are derivatives of mortgages in which thousands of mortgages are packaged with other mortgages into a bundle of mortgages and sold on the securities market.* These securities are related to housing because their value depends on the value of mortgages, which in turn depends on the ability of homeowners to pay their mortgages, which in turn depends on housing prices.

When the housing market crashed and people stopped paying their mortgages, these mortgage-backed securities lost much of their value. Panic ensued because, like homeowners who had borrowed significant sums to buy their houses, many financial institutions had purchased these securities with mostly borrowed money. Some used **leverage**—the practice of buying an asset with borrowed money—to buy those securities and were leveraged at a 30-to-1 ratio, which meant that for every dollar they invested, they had borrowed \$30. As the market for mortgage-backed securities dried up, the banks found themselves in a pickle. Those financial institutions that had loaned money to banks wanted their cash, and the banks didn't have it. They had assets to pay their lenders; they just weren't liquid. They didn't have sufficient time to sell those assets and didn't want to have to sell them at fire-sale prices. In economic jargon, the banks were *illiquid*, not insolvent. That means that at non-fire-sale prices the banks had sufficient assets to meet their long-term obligations but they didn't have funds to meet their short-term obligations. Without some source of liquidity, they would all go bankrupt. Without liquidity banks stopped lending, and the economy started falling into a recession. To prevent that recession from turning into a depression, the Fed stepped in as lender of last resort.

The Fed as the Lender of Last Resort

The Fed engaged in a type of financial triage—taking care of the most damaged banks with emergency measures, doing whatever it could to keep people and firms buying and selling securities. The Fed and the U.S. government took unprecedented actions to try to prevent a modern version of the "bank run" that had thrown the U.S. economy into the Great Depression of the 1930s. Ben Bernanke, the chair of the Fed, knew what could happen—he'd studied the 1930s and saw the parallels. Fearing the worst, he put aside all conventional monetary theory and policy, and started financial triage to prevent a complete meltdown of the U.S. financial system.

The specifics were hotly debated; some economists and policy makers felt it was too much, others felt it was too little, but just about all agreed that a policy in which the Fed acts as the lender of last resort is good in principle. The important point is that all these policies were emergency policies and have to be seen as such. Their goal was clear—to prevent a financial meltdown. The political consensus was based on general agreement that a financial meltdown would throw the economy into a depression. (We will discuss problems with these emergency policies below.)

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Leverage is the practice of buying an asset with borrowed money.

Just about all economists agreed that a policy in which the Fed acts as the lender of last resort is good in principle.

While the Fed's quick action in dealing with the financial crisis is laudable, it may very well have played a significant part in creating the bubble in the first place.

Leverage works with all assets and is a central part of any bubble.

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Leverage contributes to a bubble by increasing the ability of people to finance the purchase of goods, services, and financial instruments, despite what might otherwise seem like high prices.

Q-2 What are two central ingredients to the development of a financial bubble?

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The Role of Leverage and Herding in a Crisis

Financial bubbles are important in a discussion of Fed policy because bubbles are most likely to occur when credit—financial instruments for borrowing—is easily available. With easily available credit people can borrow to invest, increasing leverage. The larger the percentage bought with borrowed funds, the larger the leverage. The reason Fed policy is important to bubbles is that the Fed significantly influences credit availability in an economy. So while the Fed's quick action in dealing with the financial crisis is laudable, it may very well have played a significant part in creating the bubble in the first place.

Leverage

To understand the power of leverage, consider the decision of a person buying a stock. Say you can buy a share of stock at \$2 and you believe that its price will rise to \$3 within a year. If you sell the stock after its price rises, you will earn a 50 percent return. While a 50 percent return is pretty good, if you use leverage, you can do even better. What if instead of buying a single \$2 stock, you borrow \$198 at 10 percent interest and buy 100 shares for \$200? When the stock price goes up to \$3, you could sell your stock for \$300, pay back the \$198 you borrowed plus \$19.80 in interest, leaving you with a profit of \$80.20—about a 4,000 percent return! That's the power of leverage. When you can expect returns like that, why hold back? You'd want to get as much money into the stock market as possible. With everyone buying more stocks, their prices rise, and rise, very quickly.

Leverage works with all assets and is a central part of any bubble. Bubbles can happen in houses, mortgages, bonds, paintings, baseball cards, antiques—you name it. As long as the price is rising more than the rate of interest at which you can borrow, leverage is a way to get rich quickly. Because expansionary monetary policy increases the degree of leverage in the economy both by lowering interest rates and by making credit more easily available, monetary policy can encourage the development of a financial bubble.

Leverage contributes to a bubble by increasing the ability of people to finance the purchase of goods, services, and financial instruments, despite what might otherwise seem like high prices. It is here where the debate about potential output described in a previous chapter comes in. In the standard macro model, which uses goods price rises as a signal to estimate potential output, until an economy experiences rising inflation, the economy is seen as not exceeding potential output. Because inflation remained low throughout the early 2000s, the Fed increased the money supply substantially—far more than suggested by the standard Taylor rule, as described in the previous chapter, and far far more than would be needed if the economy were in a structural stagnation. Both the Taylor rule and economists who believed the economy was experiencing structural stagnation suggested that much tighter monetary policy in the early 2000s was needed. What led the Fed to increase the money supply was the fact that increases in the money supply did not push up goods prices, since they were held down by world prices. Instead it made the U.S. economy awash in credit, which allowed enormous increases in leverage in financial markets.

Herding

The other part of the formation of a financial bubble involves what psychologists and behavioral economists call herding. **Herding** is *the human tendency to follow the crowd*. When people around you see how much others are profiting by buying and selling assets, they want to profit too. They become convinced that the price of the asset is

Chapter 30 Financial Crises, Panics, and Unconventional Monetary Policy

going to rise. When that happens, everyone buys more of the asset on credit, which increases economywide risk enormously. That's what happened in the housing market in the 2000s.

Through the middle of the first decade of the 2000s, times were good in the housing and construction markets, with housing prices rising nationally at historically high rates. *Flip That House* and similar TV programs showcased people making tens of thousands of dollars by buying a house with very little or no down payment, and selling that house with enormous profit just months later. It seemed as if you could get rich quick just by owning a house. Low interest rates and innovative mortgages (mortgages with zero down payment and no proof of income or creditworthiness) meant people who previously couldn't qualify for a mortgage could buy houses. Some people bought five or six houses, which they couldn't afford, but which they planned to sell before they had to repay the mortgage.

Homeownership rates rose to historic highs of nearly 70 percent. The feeling was that you simply couldn't lose on buying a house as an investment. As long as house prices kept rising, flipping houses and stretching into a mortgage made sense. With rising housing prices, people felt more wealthy—spending more and saving less because their "houses were their savings." When the value of your house is rising by \$30,000 a year, you can take out a home equity loan. Whether you save an extra \$1,000 or not doesn't seem all that important. All these actions increased the risk of significant problems occurring in the economy if housing prices didn't continue to rise, and left the economy vulnerable to the housing bubble bursting.

But that's not all. Leverage by homeowners was nothing compared with the leverage in the financial sector built on top of the housing market. As mentioned previously, investment banks and hedge funds had figured out how to create securities whose values were *linked* to the performance of these mortgages. These securities were leveraging the already highly leveraged mortgages, creating a financial asset built on double—and in many cases even triple or quadruple—leverage.

When the financial bubble burst, the U.S. economy was on the verge of a financial meltdown. Luckily, that didn't happen. By 2009 and 2010, it was clear that the U.S. economy had avoided a financial meltdown, but the economy wasn't in good shape. While it wasn't in a depression, it was stagnating. Unemployment was about 10 percent and growth was anemic.

With the threat of a financial meltdown out of the way, economists turned to other issues: Why had the financial system come so close to failing? Why didn't existing regulations prevent the asset price bubble? What new regulations could keep another bubble from occurring? What should the Fed do now to get the economy back on its long-run growth path? Let's start by considering the regulation problem.

The Problem of Regulating the Financial Sector

An engineer who designs a bridge that almost collapses would be questioned thoroughly. How did the collapse happen and what can be done to see that it doesn't happen again? So it is appropriate to question economists: How did economists not only let the economic collapse happen, but once the signs of a bubble were clear why didn't they warn society that a financial crisis was about to happen?

Economists answer these questions in various ways. Some emphasize that policy makers were swayed by political interests and wrangling, not by empirical evidence and economic theory. Politicians, not economists, are to blame for the financial crisis. These economists point out that a number of economists recognized the problems and suggested reforms, but policy makers failed to pass new regulations. Moreover, those regulations that were instituted weren't executed correctly. The then Fed chair Ben



Excess leverage played a major role in the financial crisis.

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The efficient market hypothesis assumes that all financial decisions are made by rational people and are based on all relevant information that accurately reflects the value of assets today and in the future.

For unconventional economists, economic science is to blame for the financial crisis.

When society can be collectively irrational, as unconventional economists believe to be the case, monetary policy is much more difficult; it requires institutional knowledge, judgment, and educated common sense. Macroeconomics Finance, Money, and the Economy

Bernanke expressed this view when he wrote, "The recent financial crisis was more a failure of economic engineering and economic management than of what I have called economic science."

Other economists are not as sure that economic theory can be absolved of blame. The problem is that in standard economic theory, financial bubbles aren't supposed to happen. People are supposed to be rational and rational people don't make such major mistakes. In standard economic thinking the prices of assets are considered the best estimate of those future prices, which is called the **efficient market hypothesis**—all financial decisions are made by rational people and are based on all relevant information that accurately reflects the value of assets today and in the future. Rational people will recognize that asset prices are rising too quickly.

The efficient market hypothesis has an important implication for monetary policy: Since bubbles can't happen, monetary policy makers didn't have to pay attention to the rising housing prices that occurred in the early 2000s. It wasn't housing price inflation; the real value of housing was rising. The efficient market hypothesis said that asset markets, such as housing, could be left on autopilot. With asset prices set on automatic, monetary policy could focus on goods market inflation as an indicator of whether monetary policy was too expansionary. As mentioned above, in the standard *AS/AD* model, when there was little inflation and no threat of accelerating inflation, monetary policy could be expansionary. That was the view that guided conventional macroeconomic theory. Policy makers didn't worry about the financial crisis because conventional economics, conventional economists are to blame. Ben Bernanke is wrong; it was a failure of economic science.

The events of 2008 changed the view that markets are rational for many economists, including some of the leading advocates of the former conventional model. For example, another previous Fed chair, Alan Greenspan, stated, "I made a mistake in presuming that the self-interests of organizations, specifically banks and others, were such that they were best capable of protecting their own shareholders and their equity in the firms." He continued by saying that his conventional worldview was "not working." He stated, "That's precisely the reason I was shocked, because I have been going for 40 years or more with very considerable evidence that it was working exceptionally well."

It was at that point that alternative views about the problems in the economy started to gain in acceptance. These alternative views held that while people were individually rational, they could be collectively irrational, following herding behavior. This meant that asset prices were subject to bubbles, and monetary policy and regulation would have to be designed to prevent asset price bubbles as well as prevent goods market inflation. This made conducting monetary policy and designing financial regulation much more difficult. It is a process that requires institutional knowledge, judgment, and educated common sense that is on the lookout for bubbles. Policy cannot be based on fully predetermined rules.

One of the commonsense implications of this alternative view was that when monetary policy is too expansionary, and world prices are holding goods market inflation down because of globalization, excess liquidity from monetary policy could be channeled into asset price bubbles. This was the structural stagnationist's viewpoint. Many economists, including behavioral economists, heterodox economists, Post-Keynesian economists, Austrian economists, and more, had been arguing that bubbles could and did exist for years. One in particular, Hyman Minsky, a Post-Keynesian economist, developed a psychological theory that predicted asset price bubbles as almost inevitable in a capitalist economy.

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So a wide variety of economists of quite different political persuasions accepted that bubbles were possible. Where they differed was in how bubbles should be dealt with; these debates are continuing.

Regulation, Bubbles, and the Financial Sector

The assumption that the market on its own can be collectively irrational creates the need for regulation, or an institutional structure that will prevent that collective irrationality from developing. The question is how that should be done. After the financial crisis led to a financial meltdown in 1929 and the Great Depression, the United States instituted strong controls over the financial sector. These regulatory controls were designed to prevent the financial markets from freezing up again in the future. Government set up rules for banks—what they could and could not do; it also set up a system of **deposit insurance**—*a system under which the federal government promises to reimburse an individual for any losses due to bank failure*—which would help prevent future bank runs. These rules were strong and were meant to see that a financial crisis would not happen again.

To implement the deposit insurance program, the government created the **Federal Deposit Insurance Corporation (FDIC)**—*a government institution that guarantees* bank deposits of up to \$250,000. That guarantee discouraged bank runs, but it also created a moral hazard problem—a problem that arises when people's actions do not reflect the full cost of their actions. Specifically, with deposit insurance, people could put their money into a bank that offered high interest rates even though the bank made excessively risky loans. If the bank ran out of money because its loans went bad, the federal government would cover the loss. Depositors could earn high interest assured they would not lose their money.

To offset the moral hazard problem that deposit insurance would create, government: (1) established strict regulations of banks, (2) separated banks from other financial institutions, and (3) designed systems so that necessary financial transactions that were central to the operation of the economy stayed within banks. These were included in a number of financial laws passed in the 1930s, the most important of which was known as the **Glass-Steagall Act**—an act of Congress passed in 1933 that established deposit insurance and implemented a number of banking regulations including prohibiting commercial banks from investing in the securities market. The intent was to keep commercial banks from speculating in the stock market or in other risky financial asset markets.

With the institution of these new regulations, the United States had a highly regulated commercial banking system. The point of the regulations was to make commercial banking boring—and therefore safe. People called commercial banking the "3-6-3 business"—borrow at 3 percent, lend at 6 percent, and be on the golf course by 3 p.m. Banks couldn't invest in equities and were prohibited from paying interest on deposits. Both these restrictions reduced the ability of banks to engage in risky behavior. These regulations were implemented as a result of the Depression, in the belief that the government could never again let banks go under—they were too important to fail. And if they were too important to fail, they had to be regulated to address the moral hazard problems.

It isn't only deposit insurance that can create a moral hazard. Any type of guarantee, or expectation of bailout, can do the same thing. An example can be seen by considering the effects of subsidizing loans for homeowners facing foreclosure, or even of reducing the principal of loans that homeowners owe. Suppose that, in 2005, you had prudently decided not to buy a house because you believed that houses were already significantly overpriced. Your foolish friend, on the other hand, bought into the "house Q-3 What is a lender of last resort and how does it relate to moral hazard?

Any type of guarantee, or expectation of a bailout, can create a moral hazard.

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The belief that the government will bail out people and firms when they make stupid decisions helped create the crisis in the first place.

Q-4 What causes diminishing control of regulations?

Trying to regulate banks is a bit like trying to regulate drinking by minors. The regulation doesn't stop it; it just pushes the problem somewhere else. Macroeconomics Finance, Money, and the Economy

prices always rise" myth and decided to buy a big McMansion that he could not really afford. You were prudent and your friend was foolish, and he's underwater on his house and facing foreclosure. Now suppose the government comes along and bails him out, or lowers the balance on his loan since it doesn't want him to face foreclosure. What's the outcome? He ends up with a nice house and you end up with nothing. Who's foolish now?

The belief that the government will bail out people and firms when they make stupid decisions helped create the crisis in the first place, and any bailout now will likely lead people to expect a bailout in the future. They will then choose to follow riskier strategies than they otherwise would have, potentially creating even larger problems in the future. So the bailout rewards precisely the wrong type of behavior, and hence creates a moral hazard problem for future decisions. To offset those moral hazard problems, either strict regulation is needed, or the possibilities of bailouts have to be taken off the table. For individuals, this regulation would mean strict requirements about down payments and the income level needed to buy a home. For firms it would mean financial regulations and limitations on what firms too important to fail can and cannot do. That's what the Glass-Steagall Act did.

The Law of Diminishing Control

If we had regulations in the 1930s, why didn't those regulations protect us in 2008? An important reason is that over time the regulations designed in the 1930s became less and less effective. The reason can be called the **law of diminishing control**, which holds that *any regulation will become less effective over time as individuals or firms being regulated will figure out ways to circumvent those regulations through innovation, technological change, and political pressure*. This means that even if the initial regulations do what they are supposed to do, over time they will become less effective. In banking, the financial sector simply moved its risky operations, which the regulations were meant to prevent, outside the banking sector. So while the regulated commercial banking sector, they did not contain risk in the broader financial sector. It is a bit like the drinking laws for minors in the United States. On most campuses, the laws don't stop underage drinking; they just push it into the dorms or private homes.

New FINANCIAL INSTITUTIONS AND INSTRUMENTS An example of financial innovation that circumvented bank regulation was the creation of NOW (negotiable order of withdrawal) accounts in the 1970s. Under the Glass-Steagall Act only commercial banks could offer checking accounts, but they couldn't pay interest on those deposits. Savings banks had the benefit of being able to pay interest on deposits, but couldn't offer checking accounts. In the 1970s, savings banks got around the regulation by issuing what were called NOW accounts. With a NOW account a customer could direct the savings bank to send funds to a third party. These withdrawal notices looked almost identical to checks from a commercial bank. But since the funds were legally considered to be savings accounts, savings banks avoided regulations prohibiting interest on checking accounts. Money flowed out of commercial banks and into savings banks. Other financial institutions developed products such as money market accounts and mutual fund accounts, which also let depositors write checks on their accounts. These accounts included not just cash but bonds and even stocks. Regulations no longer solved the problem of preventing the financial sector from paying interest on the new accounts that were the equivalent of checking accounts.

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REGULATIONS COVERED FEWER FINANCIAL INSTRUMENTS The development of new financial instruments described above is just one example. Such changes occurred in just about every aspect of the law. By the 1980s, it was clear that the Glass-Steagall Act was no longer preventing activities it was meant to prevent. It simply moved the practice outside the banking system and into other financial institutions.

As new financial instruments developed, regulated commercial banks lost business to unregulated financial institutions. Thus, what had been a protective umbrella over the financial system that is necessary for a smoothly functioning economy provided cover for a smaller and smaller segment of the financial industry. The commercial banking system was still regulated, but the "financial oil" increasingly flowed through the less regulated parts of the financial infrastructure. This shift was compounded by the fact that financial institutions. Many U.S financial institutions could legitimately threaten to move to those countries that offered the least regulation. (Think of it as a child of divorced parents who plays one parent off the other to get the most lenient rules.) This reduced the ability of the United States to strictly regulate many financial institutions.

POLITICAL PRESSURE TO REDUCE REGULATIONS Politics is another reason regulation becomes less effective; when regulation successfully eliminates or reduces the problems, people begin to forget that the regulation was necessary in the first place. Instead, the groups being regulated view regulations as unnecessary restrictions and will lobby to dismantle them. With the Great Depression fresh in everyone's memory, people in the 1930s favored regulation to avert repeating the Depression. But as decades passed and societal memories of the Great Depression faded, so did that view. Regulation and regulators were increasingly viewed by many as undesirable hindrances to the free market and all its magic. That was the view that Alan Greenspan referred to in the earlier quote. The belief that the market could self-regulate meant that relatively low-paid regulators were faced with the nearly impossible task of balancing the pressures of innovation that made the regulations obsolete against the need to get *some* regulation within an atmosphere that saw regulation as preventing the U.S. economy from growing.

Politics also had to deal with an inherent problem of regulation—the **too-big-to-fail problem**—the problem that large financial institutions are essential to the workings of an economy, requiring government to step in to prevent their failure. The too-big-to-fail problem is another example of the moral hazard problem. If individuals in the financial sector recognize the financial sector's importance to the economy and know that the government will be forced to bail them out, they change their behavior, just like kids change their behavior when they know that their parents will bail them out. They do stupid things. The problem with kids, and with large banks, is that when you threaten them that you aren't going to bail them out, the threat isn't credible. It takes resolve that I, and most governments, don't have. (Note to my children: Mom has that resolve.) Unless one has that resolve, no threat will be credible, which means that kids and businesses (with soft parents and soft governments) will continue to do stupid things; they won't take the full consequences of their actions into account.

In response to the crisis, in 2010 the United States passed the **Dodd-Frank Wall Street Reform and Consumer Protection Act**—*a new financial regulatory structure to limit risk taking and require banks to report their holdings so that regulators could assess risk-taking behavior*. The Dodd-Frank law attempts to minimize the too-big-tofail problem. If a company is at risk of default, a process is put in place to liquidate the corporation, limiting the impact on the economy. The hope is that these regulations will protect the U.S. economy from future financial meltdowns. The law once again

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By the 1980s it was clear that the Glass-Steagall Act was no longer preventing activities it was meant to prevent.

When regulation successfully eliminates or reduces the problems, people begin to forget that the regulation was necessary in the first place.

Q-5 What did government do to address the too-big-to-fail problem?

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REAL-WORLD APPLICATION

Cryptomania

The law of diminishing control tells us that new ways of getting around regulations will always be developing, reducing the value of regulations over time. One new development in finance involves what are called cryptocurrencies-which as I discussed in Chapter 28 are best thought of as crypto assets, since they don't meet the requirement of being a currency. They are more like a stock-a



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bundle of rights that are specified when you buy the asset. With stocks you get a percentage of the profits. With cryptocurrency you get a token, often with no specific rights, or only a highly ambiguous set of rights to some activity that is loosely related to the blockchain technology that underlies cryptocurrencies. By calling these assets a currency or a token, not a stock, the originators of cryptocurrencies are attempting to avoid the regulation that stock offerings must meet. That is now changing. Governments have increased regulation of initial coin offerings and are beginning to interpret them more as stock offerings (which are highly regulated).

Just about all financial advisers advise their clients who don't have money to throw away to stay out of the crypto asset market. But many clients don't follow that advice, and billions of dollars are generated by initial coin offerings, with more offerings springing up every day. After all, from the issuer's perspective, if you can get someone to give you \$10,000 for a virtual token that costs, perhaps, 10 cents to make, offers little in the way of rights to the

buyer, and is largely unregulated, it's a good business deal for the issuer. Want to buy a Colandercryptotext coin? Only \$200, and \$200 will be devoted to thinking about how textbooks can incorporate blockchain technology. (Hint: Not a good idea.)

Why do people buy crypto assets? The answer is psychological. When a person hears stories about how the

price of Bitcoin went from \$14 to \$20,000, and how cutting-edge blockchain technology will change the world he is tempted to get a "piece of the action." Add to that the mystical, seductive allure of the name cryptocurrency—along with a sense of Bitcoin's association with the dark web (un-indexed portions of the web, much of which is dedicated to illegal activities), and highpressure salespeople telling you that if you don't buy soon you will be left behind, and you can understand why some investors are hooked, just as they have been hooked in the past by the South Sea bubble and Tulipmania.

Some people, mainly the issuers, but also some investors, will make money in crypto assets. Blockchain technology is revolutionary and in the coming decades likely will be useful in recording contracts. And even if the company eventually flops, you can still make money by buying crypto assets if the hype increases and you find someone who will pay more for them than you paid. But when the bubble bursts, people will push for government regulation.

limits banks' ability to invest in securities, consolidates regulatory agencies to improve their effectiveness, expands oversight to some nonbank financial institutions, and creates new tools for dealing with financial crises. Unfortunately, few economists believe that the new law, even before the law of diminishing marginal control has set in, has resolved the financial regulation problem. Legal and financial scholars on all sides of the political spectrum have criticized the law as both insufficient to prevent another financial crisis in some aspects and overly restrictive of financial institutions in others. With the election of President Trump in 2016, the policy focus turned to deregulation. The number of banks that were subject to Dodd-Frank requirements was decreased significantly, and regulations on others were reduced.

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General Principles of Regulation

Economics does not identify ideal regulations, but it does provide some general guidelines. The basic guideline is that along with the freedom to undertake activities in the market comes the responsibility for one's actions. If firms (or kids) are not, and cannot be, made responsible for the negative consequences of their actions, there is a role for regulations to restrict the set of actions firms are permitted to take. Regulation is necessary if a bailout is in the cards. (As I tell my kids—the golden rule of economics is: Him who pays the bills makes the rules.)

The question policy makers face in trying to design the rules and regulations for our economy in the future is: Can a government influenced by special interests institute the right type of regulation? Economists come to different answers on this question, which is why they have different views of regulation.

Let's close our discussion of regulation with three general precepts about dealing with financial crises that most economists would sign on to. They are:

- *Set as few bad precedents as possible.* Policies that keep the economy alive might create long-run problems. Recognize these problems, and try to offset them as best you can.
- *Deal with moral hazard.* If a firm or individual is to be unregulated, it should be subject to the consequences of its actions. This leads to a corollary: If a firm or individual is considered too big to fail, it has to be regulated. Notice that this rule does not say that government should or should not regulate. It just says that it has to be consistent.
- *Deal with the law of diminishing control.* Regulation has to be considered a process, not a one-time decision. The economy is a dynamic changing entity, subject to the law of diminishing control, which means that when new business practices and financial instruments change, rules must change. Expect innovation and establish a method of changing those regulations to adapt to the changing situation without weakening the regulations.

Monetary Policy in the Post–Financial Crisis Era

Now let us turn to the question: What monetary policy should the Fed follow after it has fulfilled its lender of last resort role and avoided a financial crisis? In other words, what is the Fed's appropriate monetary policy role in a post–financial crisis era?

Coming out of a financial crisis, the Fed was carrying a large number of loans to banks and other financial institutions that it made to provide the banks with liquidity. As the threat of a financial meltdown subsided, that role had ended. The standard practice would be for the Fed to wind down policies as the lender of last resort, and revert back to conventional monetary policies. A number of economists called on the Fed to do precisely that. But with the economy in a deep recession, those policies would have been highly politically unpopular because they would slow down the recovery.

The argument for unwinding those positions despite the high unemployment was that this was not your typical recession—it was structural stagnation that reflected structural problems caused by globalization, and the 5 to 6 percent growth rate needed until the economy returned to trend was not in the cards. The structural problems that structural stagnationists see as the cause of the slow growth could not be solved by monetary policy. To maintain expansionary monetary policy essentially meant continuing the policies that caused the financial bubble in the first place by expanding credit in the economy enormously. If the economy is in a structural stagnation,

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The basic guideline of regulation is that along with the freedom to undertake activities in the market comes responsibility for one's actions.

Regulation is necessary if a bailout is in the cards.

Q-6 What are the three principles of regulation?

After the financial crisis subsided, the standard practice would have been for the Fed to wind down its lender-of-last-resort loans. It did not do that because the economy was in a deep recession.

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expanding credit beyond the initial triage policy necessary to save the economy from imploding will only increase the likelihood of a further, possibly even more damaging, bubble. This is the case even if that policy of monetary restraint will leave the economy with higher unemployment than otherwise. If the problem facing the U.S. economy was a structural stagnation, a primary policy focus would have to be on resolving the structural problems before expansionary monetary policy is called for.

In this view, expansionary monetary policy not only would not resolve these structural problems; it would eliminate the impetus for the private sector to solve them as well. Expansionary monetary policy in the face of these structural problems would be analogous to giving painkillers to an addict, when what he needs is detox. According to structural stagnationists, the appropriate policy would have been for the Fed to return to conventional monetary policy as soon as possible, even though doing so would slow the recovery, and possibly even put the economy back into a recession. The Fed didn't follow that policy. Instead, it introduced a new unconventional monetary policy thereby keeping the economy out of a recession, but creating the conditions for a potential crisis in the future.

Economic theory does not provide definitive answers to what is the correct monetary policy. The data are inevitably ambiguous and subject to various interpretations, which means that policy has to be based on sensibilities and guesstimates.

The Fed continued running expansionary monetary policy after the United States emerged from the financial crisis and the recession associated with it. The reasons were: (1) inflation remained lower than desired; (2) economic growth remained sluggish (during the upturn, growth was only 2 to 3 percent rather than the 5 to 6 percent they were hoping for); and (3) there was a fear that ending the expansionary policy would throw the economy into a recession and possibly even another financial crisis. Only in 2017, when unemployment had fallen to close to 4 percent, did the Federal Reserve begin switching toward a more conventional monetary policy, and increasing interest rates, but because of continued slow growth and fears of recession, they were moving very slowly, and stood ready to reverse policy quickly. What had been seen as unconventional monetary policy seemed to be becoming the *new normal*.

Unconventional Monetary Policy

The desire to continue running expansionary policy in the post–financial crisis period presented a technical problem to the Fed. In its role as a lender of last resort, it had already done all it could to expand the economy using the tools of conventional monetary policy. The Fed funds rate was essentially zero and the banking system was awash in reserves. The conventional expansionary monetary policy was not leading to increases in money and credit; instead it just ended up as excess reserves in the banks as we saw in the last chapter. To get around this problem, the Fed created a new set of policies meant to stimulate the economy through unconventional means. These policies included:

- 1. Quantitative easing,
- 2. Operation twist, and
- 3. A precommitment policy.

These are the tools of unconventional monetary policy. Let's consider each of these.

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QUANTITATIVE EASING As you learned in the last chapter, conventional monetary policy involves open market operations (the Fed buying and selling short-term

If the problem facing the U.S. economy is a structural stagnation problem, a primary policy focus has to be on resolving the structural problems before expansionary monetary policy is called for.

Web Note 30.3 Rear-View Mirror

Three unconventional monetary policy tools are:

- 1. Quantitative easing,
- 2. Operation twist, and
- 3. Precommitment policy.

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bonds) to affect the bank reserves and therefore the money supply and the Fed funds rate). But as we have discussed, in the aftermath of the financial crisis, standard open market operations did not increase the money supply. The short-term interest rate approached zero, and even after the Fed flooded the system with reserves, banks did not make new loans; they simply held more excess reserves. Excess reserves shot up and the money supply did not increase. If the goal is to stimulate the economy, that presents a problem.

A way around that problem is **quantitative easing**—*a policy of buying a wide range of financial assets from banks and other financial institutions in order to stimulate the economy.* With quantitative easing, the Fed buys a much more diverse set of assets, such as long-term government bonds and mortgage-backed securities, than it does with conventional monetary policy. Because quantitative easing doesn't work through increasing reserves, or short-term interest rates, it can be expansionary even if excess reserves are high or if the short-term interest rate is at or near zero. The increase in the money supply goes directly into the economy, bypassing the conventional banking sector.

You can see the desired effect of quantitative easing by considering the yield curve shown in Figure 30-1. As I discussed in the last chapter, conventional monetary policy pushes down on the short end of the yield curve, with the expectation that in doing so, it will push down the long-run interest rate as well, thereby shifting the entire curve down. Quantitative easing pushes the upper end of the yield curve down directly, thereby holding down the interest rate for investors and stimulating asset markets and the economy.

Quantitative easing might also be called an *asset price support system* because it holds the prices of financial assets higher, and long-term interest rates lower, than they would have been. Thus, the almost trillion dollars of mortgage-backed securities, which the Fed bought in its quantitative easing program, held up the prices of those securities, significantly helping financial institutions and others that held these securities while it lowered long-term interest rates. It hurt savers, who received low interest rates.

When quantitative easing involves buying long-term nongovernmental securities such as mortgage-backed securities, or other private assets, it is often called *credit easing* or *qualitative easing*. Qualitative easing and credit easing

differ from quantitative easing because the primary goal of credit and qualitative easing is to change the quality—or mix—of assets it buys, and not to change the total amount of assets. You can see the impact of quantitative easing and its variants on the balance sheet of the Fed in Figure 30-2.

OPERATION TWIST The Fed also added another unconventional tool—**operation twist**—*selling short-term Treasury bills and buying long-term Treasury bonds without creating more new money*. Like credit easing, operation twist changes the composition of the Fed's portfolio; unlike credit easing it does not entail buying private securities. Its purpose is not to reduce private bank risk, but to lower long-term interest rates. That is, its purpose is to "twist" the yield curve. The tool was created to address concerns that because quantitative easing increased the monetary base, it would lead to inflation. With operation twist, the Fed offset its purchases of long-term bonds by selling an equal amount of short-term bonds. In principle, selling short-term bonds would raise short-term interest rates and twist the yield curve, making it flatter. You







Q-8 What effect did the Fed expect operation twist to have on the yield curve?

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can see operation twist by again considering the intended effect on the yield curve in Figure 30-3.

Operation twist places downward pressure on the long-term rate and upward pressure on the short-term rate. In actuality, since banks were holding so many excess reserves, the effect on the short-term rate was negligible, so only the long part of the yield curve shifted down, relative to where it otherwise would have been. But it did so without changing the money supply.

PRECOMMITMENT POLICY Even with these policies some economists were concerned that the Fed was not doing enough to expand the economy. After all, inflation was low and showed no signs of acceleration. Another unconventional monetary policy that the Fed followed was the **precommitment policy**—*committing to continue a policy for a prolonged period of time*. In 2011 the Fed promised to hold the Fed funds rate close to zero until the end of 2014. It continued that policy through 2015, but in 2016, it announced that it would consider slowly raising rates if it felt economic conditions warranted doing so. Since then and into 2018, the Fed has gradually raised its target for the Federal funds rate as the economy grew. Precommitment had major significance for bond and stock investors. It meant that expansionary monetary policy would

continue for two years regardless of the health of the economy or the inflation rate. It was designed to assure investors that the short-term rate would not rise, which would have caused losses by investors who held low-interest-rate bonds.

WINDING DOWN UNCONVENTIONAL MONETARY POLICY Unconventional monetary policy was seen as a temporary set of policies that continued for longer than expected because of the slow growth and low inflation following the recession. In 2017, as the U.S. economy picked up, economists' thinking turned to how to unwind

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the approximately \$4.5 trillion of nontraditional assets that the Fed had accumulated in its unconventional monetary policy without knocking the economy back into recession or even further slowing the growth of the economy that many felt was too slow.

As long as inflation remained below target, there was little pressure on the Fed to unwind its policies. By 2017, however, most economists felt that with unemployment low and inflation close to its target rate, it was time for the unwinding to begin. In October 2017 the Fed did so when it started selling off about \$10 billion of its nontraditional assets a month, a rate that, if followed, would take almost 30 years to unwind. That pace reflected the Fed's concern that it should unwind its position in the market very carefully. The concern was that selling off those assets more quickly would lead to a sudden fall in asset prices and would be politically unpopular and place the Fed in the political limelight. So rather than operating in the background of providing a stable structure for the economy, it would be exposed to greater political criticism.

Conclusion

As I stated earlier in the chapter, economic theory does not provide definitive guidance on the appropriate monetary policy. The data are too ambiguous, and the interrelationships so complex, that theory cannot provide much help. That's why there is so much debate about the appropriate monetary policy. All agree that in the long run, structural adjustments to our economy are needed, and that unconventional monetary policy does not offer long-run solutions. Those who oppose unconventional monetary policy argue that we need to focus on the long run, not the short run.

The problem with this view is that, as Keynes said back in the 1930s, in the long run we are all dead. By that he meant not that we can stop worrying about the long run, but that if the short-run problems are so severe that they will undermine the economy, then there will be no long run unless we deal with those short-run problems. Deciding about monetary policy involves making judgments about the severity of short-run problems relative to long-run problems. Making such judgments involves sensibilities that go far beyond economics, and thus economists can be expected to disagree, even when they agree about the theory. What economic understanding can do is to sort out some of the issues relevant to making those judgments.

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Q-10 Why is unwinding unconventional monetary politically difficult?

It isn't as if any group has a magic answer to the macro problems that the United States faces.

Summary

- The financial sector provides the credit that all other sectors need for both day-to-day and long-term needs. If the financial sector were to collapse, all other sectors would collapse along with it. (*LO30-1*)
- The Fed has the resources and ability to lend to financial institutions and banks when no one else will, thereby averting an economic crash. (*LO30-1*)
- The elements of a financial crisis are: (1) asset prices rise to unsustainable levels (a bubble develops), (2) asset prices fall precipitously (the bubble bursts),

pushing the economy into a financial crisis, and (3) the economy falls into a severe recession. (*LO30-1*)

- Two ingredients of a bubble are herding and leveraging. Herding creates the run-up in prices. Leveraging increases people's ability to herd, which increases prices further. The Fed can create a bubble with significant expansionary monetary policy. (*LO30-2*)
- Government regulations that guarantee bailouts for banks and financial institutions create the moral hazard

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problem, which leads banks and financial institutions to take risks for which they don't have to pay. (LO30-3)

- Regulations have limited impact on bank behavior because of the law of diminishing control. (*LO30-3*)
- Because the failure of large banks would have disastrous effects on the real economy, they are considered too big to fail, which leads to the moral hazard problem. (*LO30-3*)
- Three general principles of regulation are: (1) set as few bad precedents as possible to limit the moral hazard

problem, (2) deal with moral hazard by requiring banks to face the consequences of their actions, and (3) change regulations as innovations emerge and business practices change. (LO30-3)

• Beginning in 2008, the Fed implemented unconventional policies such as quantitative easing, operation twist, and precommitment policy. The purpose was to reduce the amount of risky assets held by banks, encourage bank lending, and encourage private borrowing. (*LO30-4*)

Key Terms

asset price bubble deposit insurance Dodd-Frank Wall Street Reform and Consumer Protection Act efficient market hypothesis

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extrapolative expectations Federal Deposit Insurance Corporation (FDIC) Glass-Steagall Act herding law of diminishing control lender of last resort leverage liquid mortgage-backed securities operation twist precommitment policy quantitative easing solvent too-big-to-fail problem

Questions and Exercises Econnect

- 1. Why is the Fed's role as lender of last resort an important function of the Fed? (*LO30-1*)
- 2. What role did liquidity play in the financial crisis in 2008? What caused this lack of liquidity? (*LO30-1*)
- 3. What is the role of extrapolative expectations in increasing the price level and creating an asset price bubble? (*LO30-1*)
- 4. If you invest \$200 in a stock, borrowing 90 percent of the \$200 at 10 percent interest, and the stock price rises by 20 percent, what is the return on your investment? (*LO30-2*)
- 5. Why did the Fed follow far more expansionary policy than the Taylor rule suggested? (*LO30-2*)
- 6. In the standard *AS/AD* model, what role does a financial bubble play in determining whether an economy exceeds potential output? Explain your answer. (*LO30-2*)
- 7. What is the efficient market hypothesis and how does it relate to government regulation? (*LO30-3*)
- 8. What is the moral hazard problem and how does deposit insurance lead to it? (*LO30-3*)

- 9. What are three reasons why the Glass-Steagall Act became less and less effective? (*LO30-3*)
- 10. Why are large financial institutions considered to be too big to fail? What problem does it create? (*LO30-3*)
- 11. Why do some economists believe the Fed needs to unwind monetary policies instituted during the recession? What is the risk in doing so? (*LO30-4*)
- 12. What distinguishes credit easing from quantitative easing? What problem was each designed to address? (*LO30-4*)
- 13. What distinguishes operation twist from credit easing? (*LO30-4*)
- 14. Demonstrate the different effects that quantitative easing and operation twist were expected to have on the yield curve. Explain your answer. (*LO30-4*)
- 15. How was operation twist expected to avoid the criticisms of quantitative easing? (*LO30-4*)
- 16. How would a precommitment policy address problems in the economy? What is the risk of such a policy? (*LO30-4*)

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Chapter 30 Financial Crises, Panics, and Unconventional Monetary Policy

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Questions from Alternative Perspectives

- 1. Ron Paul, a 2012 and 2016 presidential candidate, believes that the Federal Reserve should be abolished and our monetary system should be replaced by a gold standard. How does the experience of the past decade reflect on that idea? (*Austrian*)
- 2. Hyman Minsky's theory of fluctuations in output in a capitalist economy was ignored by mainstream economics but has proven to be much closer to reality than are theories suggested by mainstream macroeconomists. What are some reasons why his theory was ignored? (*Post-Keynesian*)
- 3. Post-Keynesian macroeconomist Paul Davidson has argued that the central characteristic of the Keynesian view of

markets is nonergodicity, which in simple terms implies the lack of an ability to know or forecast the future. How does nonergodicity undermine the efficient market hypothesis? (*Post-Keynesian*)

- 4. If Greece makes its bonds legal payment for taxes, it will be able to sell all the bonds it wants to without worrying about discounts. What prevents the Greek government from following this solution? (*Post-Keynesian*)
- 5. Many of the regulators and overseers of the government bailout came from the same firms that brought about the crisis in the first place. Can we expect reasonable regulation when that is the case? (*Radical*)

Issues to Ponder

- 1. If a country goes bankrupt and cannot pay its debts, which of its responsibilities should take precedence: paying bondholders or paying the pensions of its employees?
- 2. If the U.S. economy were to go into another financial crisis and additional monetary stimulus were needed to prevent a financial collapse, what measures would you suggest the government take?
- 3. If asset markets aren't efficient, then it should be possible for investors to consistently make money by betting that the price of an asset will return to its "correct" value. That

doesn't seem to be the case. Does that suggest that the efficient market hypothesis is correct?

- 4. How can economists support a bailout package when they recognize that the bailout will create a moral hazard problem?
- 5. If you had a son whom you had forbidden to drink and drive, threatening to throw him out of the house if he does drink and drive, do you throw him out of the house if he does so?
- 6. In what sense is the most recent financial crisis a result of deregulation?

Answers to Margin Questions

- 1. The financial sector facilitates the running of the real economy. The economy cannot function without the financial sector. While the automobile industry will affect the economy, it is not essential to it. (*LO30-1*)
- 2. Two central ingredients to a bubble are leveraging and herding. (*LO30-2*)
- 3. The lender of last resort is an institution that promises to lend to banks and financial institutions when no one else will. It leads to the moral hazard problem because banks will take greater risks knowing the government will cover their losses. (*LO30-3*)
- 4. The effectiveness of regulations falls over time as banks and financial institutions find ways to circumvent the

regulations and the perceived risk facing these institutions diminishes. (*LO30-3*)

- The government implemented new regulations that limited risk taking by banks and financial institutions. These new regulations require that they report their assets, and they established a process of gradually dismantling financial institutions that face insolvency. (LO30-3)
- 6. The three principles are: set as few bad precedents as possible, deal with moral hazard, and deal with the law of diminishing control. (*LO30-3*)

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- 7. Conventional monetary policy targets the Fed funds rate. Quantitative easing targets the amount of money in the economy by buying long-term bonds and nongovernmental bonds, which adds money directly into the economy. (*LO30-4*)
- 8. Operation twist was implemented to pull long-term interest rates down and short-term interest rates up, that is, invert the normal yield curve. (*LO30-4*)
- 9. The three unconventional tools are: quantitative easing, operation twist, and precommitment policy. (*LO30-4*)
- 10. Unwinding unconventional monetary policy is politically difficult because it will push down asset prices and will likely slow down the economy. (*LO30-4*)

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