William J. Baumol
Alan S. Blinder

MACROECONOMICS

PRINCIPLES and POLICY

Thirteenth Edition

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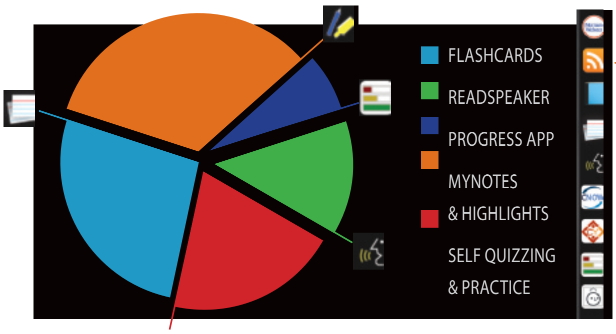

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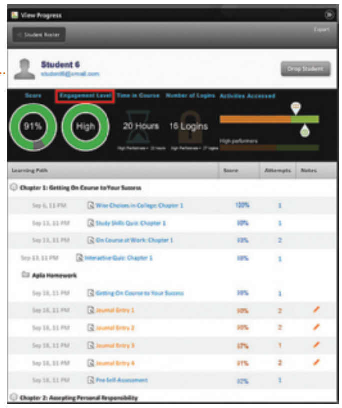

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William J. Baumol

New York University and Princeton University

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Princeton University

CENGAGE Learning

Australia • Brazil • Mexico • Singapore • United Kingdom • United States

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Macroeconomics: Principles and Policy, 13e
William J. Baumol and Alan S. Blinder

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WCN: 02-200-203

Student Edition ISBN: 978-1-305-28060-1

Cengage Learning
20 Channel Center Street
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Printed in the United States of America
Print Number: 01 Print Year: 2015

To our wonderful wives, Hilda Baumol and Madeline Blinder.

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Preface

It can be argued that, from the point of view of the general welfare, there are two topics of primary importance in economics. One is the analysis of recessions and depressions, with the unemployment and general impoverishment they bring. The second is economic growth and rising productivity, which, in the long run, is the way to reduce poverty in our country and throughout the world.

In earlier editions of this book, before the problems stemming from the recent, terrible worldwide economic crisis claimed the spotlight, the new materials that we added focused more on the growth issue. We discussed, for example, the microeconomic roles of innovation and entrepreneurship, offering far more material on these issues than any other textbook in the field.

Then, for two editions, the biggest changes came in the macroeconomic portions of the book, especially the parts relevant to understanding the financial crisis and the Great Recession of 2007–2009. Those changes remain in this thirteenth edition—including the abandonment, almost unique among principles books, of pretending that there is only one interest rate ("the interest rate"). Instead, we explain and discuss the implications of having many different interest rates, based on differential risk.

As usual, this revision includes literally hundreds of small changes to improve clarity of exposition and especially to update the text material—both for relevant advances in economics and for recent events, particularly the aftermath of the Great Recession—which continues to play out day by day.

NOTE TO THE STUDENT

May we offer a suggestion for success in your economics course? Unlike some of the other subjects you may be studying, economics is cumulative: Each week's lesson builds on what you have learned prior to that. You will save yourself a lot of frustration—and a lot of work—by keeping up on a week-to-week basis.

To assist you in doing so, we provide a chapter summary, a list of important terms and concepts, a selection of questions to help you review the contents of each chapter, as well as the answers to odd-numbered Test Yourself questions. Making use of these learning aids will help you to master the material in your economics course. For additional assistance, we have prepared student supplements to help in the reinforcement of the concepts in this book and provide opportunities for practice and feedback.

The following list indicates the ancillary materials and learning tools that have been designed specifically to be helpful to you. If you believe any of these resources could benefit you in your course of study, you may want to discuss them with your instructor. Further information on these resources is available at www.cengagebrain.com.

To access additional course materials and companion resources, please visit www.cengagebrain.com. At the CengageBrain.com home page, search for the ISBN of your title (from the back cover of your book) using the search box at the top of the page. This will take you to the product page where free companion resources can be found.

We hope our book is helpful to you in your study of economics and welcome your comments or suggestions for improving student experience with economics. Please write to us in care of Baumol and Blinder, Editor for Economics, Cengage Learning, 5191 Natorp Boulevard, Mason, Ohio, 45040, or through the book's website at www.cengagebrain.com.

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Aplia

Aplia saves instructors valuable time they would otherwise spend on routine grading while giving students an easy way to stay on top of coursework with regularly scheduled assignments. Currently, Aplia supports college-level courses and has been used by more than 1,000,000 students at over 1,300 institutions. Aplia's economics students use interactive chapter assignments, tutorials, news analyses, and experiments to make economics relevant and engaging. Math and graphing tutorials help students overcome deficiencies in these crucial areas. Economics articles from top news sources challenge students to connect current events to course concepts.

End of Chapter and traditional homework problem sets allow students to work through the economic concepts they have learned in each chapter. Students can choose to "Grade It Now" on a homework problem and will receive instant feedback whether an answer is correct or incorrect. Students can then choose to complete another problem to test themselves on the same concept with randomization. Aplia End of Chapter will also be mobile enabled.

IN GRATITUDE

Finally, we are pleased to acknowledge our mounting indebtedness to the many people who have generously helped us in our efforts through the history of this book. We often have needed assistance in dealing with some of the many subjects that an introductory textbook must cover. Our friends and colleagues Dean Alderucci, *New York University*; Rebecca Blank, *University of Michigan*; Gregory Chow, *Princeton University*; Avinash Dixit, *Princeton University*; Susan Feiner, *University of Southern Maine*; Claudia Goldin, *Harvard University*; Ronald Grieson, *University of California, Santa Cruz*; Daniel Hamermesh, *University of Texas*; Yuzo Honda, *Osaka University*; Peter Kenen, *Princeton University*; Melvin Krauss, *Stanford University*; Herbert Levine, *University of Pennsylvania*; Burton Malkiel, *Princeton University*; Edwin Mills, *Northwestern University*; Janusz Ordover, *New York University*; David H. Reiley Jr., *University of Arizona*; Uwe Reinhardt, *Princeton University*; Harvey Rosen, *Princeton University*; Joseph Seneca, *Rutgers University*; William Silber, *New York University*; Laura Tyson, *University of California, Berkeley*; Martin Weitzman, *Harvard University*; and Lawrence White, *New York University* have all given generously of their knowledge in particular areas over the course of 13 editions. We have learned much from them and have shamelessly relied on their help.

Economists and students at colleges and universities other than ours offered numerous useful suggestions for improvements, many of which we have been incorporated into this thirteenth edition. We wish to thank the following for their insightful reviews:

Marco Airaudo, *Drexel University*
Rahsan Akbulut, *California State University–Fullerton*
Onur Akmehmet, *Tufts University*
Steven Antler, *Roosevelt University*
Muhammad Anwar, *Framingham State & University of Massachusetts–Lowell*
Mohsen Bahmani-Oskooee, *University of Wisconsin–Milwaukee*
Jeffrey Baird, *The Ohio State University*
Damyana Bakardzhieva, *George Washington University*
James Bang, *Virginia Military Institute*
Nimfa Bemis, *University of Southern California*
Charles Braymen, *Kansas State University*
Morgan Bridge, *Mesa State College*
Raymonda Burgman, *DePauw University*
Scott Carson, *University of Texas–Permian Basin*
Aspi Contractor, *De Anza College*
Jim Couch, *University of North Alabama*
Elizabeth Crowell, *University of Michigan–Dearborn*
Christopher Dabbs, *Wallace Community College Selma*
Norm Dalsted, *Colorado State University*
David Danning, *University of Massachusetts*
Maria Davis, *Indian River State College*
Pierangelo De Pace, *Pomona College*
Juan J. DelaCruz, *Lehman College–CUNY & FIT–SUNY*
Mine Aysen Doyran, *Lehman College–CUNY*
Kevin Egan, *University of Toledo*
Mona El Shazly, *Columbia College*
Mahmoud Elamin, *University of Minnesota*
Layton Franko, *Queens College*
Denise Froning, *Community College of Aurora*
Shailendra Gajanan, *University of Pittsburgh*
Claudia Garcia, *Santa Monica College*
Alex Gialanella, *Iona College*
Dan Giedeman, *Grand Valley State University*
Chris Gingrich, *Eastern Mennonite University*
Tuncer Gocmen, *Shepherd University*
Ann Goldman, *San Francisco State University*
Barbara Good, *Ursuline College*
Lyndon Goodridge, *University of New Hampshire*
Kimberly Goudy, *Central Ohio Technical College*
John Gregor, *Washington & Jefferson College*
Richard Grossman, *Wesleyan University*
Patrycja Grzelonska, *Yeshiva University*
Homan Hajiran, *Wheeling Jesuit University*
William Hart, *Miami University*
Martha Hensley, *University of Kansas*
Peng Huang, *Ripon College*
Amy Ickowitz, *Clark University*
Christos Ioannou, *University of Southampton*
Brian Kench, *The University of Tampa*
Kil-Joong Kim, *Austin Peay State University*
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Frederic Lerner, *New York University*
Zhen Li, *Albion College*
Tony Lima, *California State University–East Bay*
Christine Loucks, *Boise State University*
Angelo Luciano, *Columbia College–Chicago*
David Lui, *East Los Angeles College*
Kristina Lybecker, *Colorado College*
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Cynthia Mayo, *J. Sargeant Reynolds Community College*
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Alice Melkumian, *Western Illinois University*
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Samir Ouanes, *Metro State University*
Orgul Ozturk, *University of South Carolina*
Mercy Palamuleni, *Kansas State University*
Claudia Parliament, *University of Minnesota*
Peter Pasqualino, *Fulton–Montgomery Community College*
Andrew Pearlman, *Bard College*
Ragan Petrie, *George Mason University*
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Ian Shepherd, *Abilene Christian University*
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Paul Sommers, *Seattle University*
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Michael Steinberger, *Pomona College*
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Eric Taylor, *Central Piedmont Community College*
Erdal Tekin, *Georgia State University*
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Kristin Van Gaasbeck, *California State University–Sacramento*
Abu Wahid, *Tennessee State University*
Janice Weaver, *Drake University*
Cathy Whiting, *Willamette University*
Chiou-nan Yeh Yeh, *Alabama State University*
Ali Zadeh, *Susquehanna University*
Madeline Zavodny, *Agnes Scott College*
Xinfu Zhu, *Inver Hills Community College*

Obviously, the book you hold in your hands was not produced by us alone. In revising the thirteenth edition, a special role was played by Baumol's in-office editor, Anne Noyes Saini, who skillfully edited, researched, and refreshed data and information throughout the book. It is probably true that Baumol could not have done it without her.

We also appreciate the contribution of the staff at Cengage Learning, including Michael Worls, Product Manager; Michael Parthenakis, Senior Product Manager; John Carey, Senior Marketing Manager; Jennifer E. Thomas, Product Development Manager; Leah G. Wuchnick, Associate Content Developer; Colleen A. Farmer, Senior Content Project Manager; Sarah Blasco, Media Developer; Michelle Kunkler, Senior Art Director; Jennifer Nonenmacher, Intellectual Property Analyst; and Kevin Kluck, Manufacturing Planner. It was a pleasure to work with them, and we appreciate their understanding of our approaches, our goals, and our idiosyncrasies. We also thank our intelligent and delightful assistants at Princeton University and New York University, Kathleen Hurley and Janeece Roderick Lewis, who struggled successfully with the myriad of tasks involved in completing the manuscript.

And, finally, we must acknowledge—with joy—our continuing debt to our wives, Hilda Baumol and Madeline Blinder. They have now suffered through 13 editions and the inescapable neglect and distraction the preparation of each new edition imposes. Their tolerance and understanding have been no minor contribution to the project.

William J. Baumol
Alan S. Blinder

About the Authors

William J. Baumol

William J. Baumol was born in New York City and received his BSS at the College of the City of New York and his Ph.D. at the University of London.

He is the Harold Price Professor of Entrepreneurship Emeritus at New York University, where he taught a course in introductory microeconomics, and the Joseph Douglas Green, 1895, Professor of Economics Emeritus and Senior Economist at Princeton University. He has been a frequent consultant to the management of major firms in a wide variety of industries in the United States and other countries as well as to a number of governmental agencies. In several fields, including the telecommunications and electric utility industries, current regulatory policy is influenced by his explicit recommendations. Among his many contributions to economics are research on the theory of the firm, the contestability of markets, the economics of the arts and other services—the "cost disease of the services" is often referred to as "Baumol's disease"—and economic growth, entrepreneurship, and innovation. In addition to economics, he taught a course in wood sculpture at Princeton for about 20 years and is an accomplished painter (you may view some of his paintings at http://pages.stern.nyu.edu/~wbaumol).

Professor Baumol has been president of the American Economic Association and three other professional societies. He is an elected member of the National Academy of Sciences, created by the U.S. Congress, and of the American Philosophical Society, founded by Benjamin Franklin. He is also on the board of trustees of the National Council on Economic Education and is the recipient of 11 honorary degrees.

Baumol is the author of hundreds of journal and newspaper articles and more than 45 books, including *Global Trade and Conflicting National Interests* (2000); *The Free-Market Innovation Machine* (2002); *Good Capitalism, Bad Capitalism* (2007); *The Microtheory of Innovative Entrepreneurship* (2010); and *The Cost Disease* (2012). His writings have been translated into more than a dozen languages.

Alan S. Blinder

Alan S. Blinder was born in New York City and attended Princeton University, where one of his teachers was William Baumol. After earning a master's degree at the London School of Economics and a Ph.D. at MIT, Blinder returned to Princeton, where he has taught since 1971, including teaching introductory macroeconomics since 1977. He is currently the Gordon S. Rentschler Memorial Professor of Economics and Public Affairs.

In January 1993, Blinder went to Washington as part of President Bill Clinton's first Council of Economic Advisers. Then, from June 1994 through January 1996, he served as vice chairman of the Federal Reserve Board. He thus played some role in formulating both fiscal and monetary policies, two topics discussed extensively in this book. He has also advised several presidential campaigns and numerous politicians.

Blinder has consulted for a number of the world's largest financial institutions, testified dozens of times before congressional committees, and been involved in several entrepreneurial start-ups. For many years, he has written newspaper and magazine articles on economic policy, including regular columns for the *Boston Globe, BusinessWeek*, and *The New York Times*. Currently, he has a regular monthly column in *The Wall Street Journal*. Blinder also appears frequently on PBS, CNBC, Bloomberg TV, Fox Business, and elsewhere. His recent book on the financial crisis (*After the Music Stopped*, Penguin, 2013) garnered many accolades and was a *New York Times* best-seller.

Blinder has served as president of the Eastern Economic Association and vice president of the American Economic Association, which elected him a Distinguished Fellow in 2011. He has won numerous awards, including the Council for Economic Education's Visionary Award. He is a member of the American Philosophical Society, the American Academy of Arts and Sciences, the American Academy of Political and Social Science, and the Council on Foreign Relations.

Blinder and his wife have two grown sons, two grandsons, and live in Princeton, where he doesn't play tennis as often as he should.

Part 1

Getting Acquainted with Economics

Welcome to economics! Some of your fellow students may have warned you that "econ is boring." Don't believe them—or at least, don't believe them too much. It is true that studying economics is hardly pure fun. But a first course in economics can be an eye-opening experience. There is a vast and important world out there—the economic world—and this book is designed to help you understand it.

Have you ever wondered whether jobs will be plentiful or scarce when you graduate, or why a college education becomes more and more expensive? Should the United States trade freely with other nations or protect jobs at home? Why are interest rates so low? How did the U.S. economy manage to stumble so badly after 2007? If any of these questions have piqued your curiosity, read on. You may find economics is more interesting than you had thought!

It is only in later chapters that we will begin to give you the tools you need to begin carrying out your own economic analyses. However, the four chapters of Part 1 listed next will introduce you to both the subject matter of economics and some of the methods that economists use to study their subject.

CHAPTERS

What Is Economics?

1

Why does public discussion of economic policy so often show the abysmal ignorance of the participants? Why do I so often want to cry at what public figures, the press, and television commentators say about economic affairs?

ROBERT M. SOLOW, WINNER OF THE 1987 NOBEL PRIZE IN ECONOMICS

Economics is a broad-ranging discipline, both in the questions it asks and the methods it uses to seek answers. Many of the world's most pressing problems are economic in nature. The first part of this chapter is intended to give you some idea of the sorts of issues that economic analysis helps to clarify and the kinds of solutions that economic principles suggest. The second part briefly introduces the tools that economists use—tools you are likely to find useful in your career, personal life, and role as an informed citizen, long after this course is over.

CONTENTS

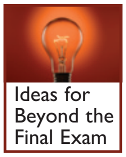
1-1 IDEAS FOR BEYOND THE FINAL EXAM

Elephants may never forget, but people do. We realize that most students inevitably forget much of what they learn in a course—perhaps with a sense of relief—soon after the final exam. Nevertheless, we hope that you will remember some of the most significant economic ideas and, even more important, the ways of thinking about economic issues that will help you evaluate the economic issues that arise in our economy.

To help you identify some of the most crucial concepts, we have selected seven from the many in this book. Some offer key insights into the workings of the economy, and several bear on important policy issues that appear in newspapers; others point out common misunderstandings that occur among even the most thoughtful lay observers. Most of them indicate that it takes more than just good common sense to analyze economic issues effectively. As the opening quote of this chapter suggests, many learned judges, politicians, and university administrators who failed to understand basic economic principles could have made wiser decisions.

Try this one on for size. If Chinese companies can produce *every* manufactured good more cheaply than American companies can (which, by the way, is not true), must the

United States lose by opening up trade with China? Would all American manufacturing jobs vanish? The perhaps surprising answers are: no. (See Idea 3.)



Each of the seven *Ideas for Beyond the Final Exam*, many of which are counterintuitive, will be sketched briefly here. More important, each will be discussed in depth when it occurs in the course of the book, where it will be called to your attention by a special icon in the margin. Don't expect to master these ideas fully now, but do notice how some of the ideas arise again and again as we deal with different topics. By the end of the course, you will have a better grasp of when common sense works and when it fails, and you will be able to recognize common fallacies that are all too often offered by public figures, the press, and television commentators.

1-1a Idea 1: How Much Does It Really Cost?

Because no one has infinite riches, people are constantly forced to make choices. If you purchase a new computer, you may have to give up that trip you had planned. If a business decides to retool its factories, it may have to postpone its plans for new executive offices. If a government expands its defense program, it may be forced to reduce its outlays on school buildings.

Economists say that the true costs of such decisions are not the number of dollars spent on the computer, the new equipment, or the military, but rather *the value of what must be given up in order to acquire the item*—the vacation trip, the new executive offices, and the new schools. These are called **opportunity costs** because they represent the opportunities the individual, firm, or government must forgo to make the desired expenditure. Economists maintain that rational decision making must be based on opportunity costs, not just dollar costs (see Chapter 3 and elsewhere).

The **opportunity cost** of a decision is the value of the next best alternative that must be given up because of that decision (e.g., working instead of going to school).

The cost of a college education provides a vivid example. How much do you think it *costs* to go to college? Most people are likely to answer by adding together their expenditures on tuition, room and board, books, and the like, and then deducting any scholarship funds they may receive. Suppose that amount comes to $15,000.

Economists keep score differently. They first want to know how much you would be earning if you were not attending college. Suppose that salary is $20,000 per year. This may seem irrelevant, but because you *give up* these earnings by attending college, they must be added to your tuition bill. You have that much less income because of your education. On the other side of the ledger, economists would not count *all* of the university's bill for room and board as part of the costs of your education. They would want to know how much *more* it costs you to live at school rather than at home. Economists would count only these *extra costs* as an educational expense because you would have incurred these costs whether or not you attend college. On balance, college is probably costing you much more than you think. And, as we will see later, taking opportunity cost into account in any personal planning will help you to make more rational decisions.

1-1b Idea 2: Attempts to Repeal the Laws of Supply and Demand—The Market Strikes Back

When a commodity is in short supply, its price naturally tends to rise. Sometimes disgruntled consumers badger politicians into "solving" this problem by making the high prices illegal—by imposing a ceiling on the price. Similarly, when supplies are plentiful—say, when fine weather produces extraordinarily abundant crops—prices tend to fall. Falling prices naturally dismay producers, who often succeed in getting legislators to impose price floors.

Such attempts to repeal the laws of supply and demand usually backfire and sometimes produce results virtually the opposite of those intended. Where rent controls are adopted to protect tenants, housing grows scarce because the law makes it unprofitable to build and maintain apartments. When price floors are placed under agricultural products, surpluses pile up because people buy less.

As we will see in Chapter 4 and elsewhere in this book, such consequences of interference with the price mechanism are not accidental. They follow inevitably from the way in which free markets work.

1-1c Idea 3: The Surprising Principle of Comparative Advantage

China today produces many products that Americans buy in huge quantities, including toys, textiles, and electronic equipment. American manufacturers often complain about Chinese competition and demand protection from the flood of imports that, in their view, threatens American standards of living. Is this view justified?

Economists think that it is often false. They maintain that both sides normally gain from international trade. But what if the Chinese were able to produce *everything* more cheaply than we can? Wouldn't Americans be thrown out of work and our nation be impoverished?

A remarkable result, called the law of *comparative advantage*, shows that, even in this extreme case, the two nations could still benefit by trading and that each could gain as a result! We will explain this principle first in Chapter 3 and then more fully in Chapter 18. For now, a simple parable will make the reason clear.

Suppose Sally grows up on a farm and is a whiz at plowing, but she is also a successful country singer who earns $4,000 per performance. Should Sally turn down singing engagements to leave time to work in the fields? Of course not. Instead, she should hire Alfie, a much less efficient farmer, to do the plowing for her. Sally may be better at plowing, but she earns so much more by singing that it makes sense for her to specialize in that and leave the farming to Alfie. Although Alfie is a less skilled farmer than Sally, he is an even worse singer.

So Alfie earns his living in the job at which he at least has a *comparative* advantage (his farming is not as inferior as his singing), and both Alfie and Sally gain. The same is true of two countries. Even if one of them is more efficient at everything, both countries can gain by producing the things they do best *comparatively*.

1-1d Idea 4: Trade Is a Win–Win Situation

One of the most fundamental ideas of economics is that both parties must expect to gain something in a voluntary exchange. Otherwise, why would they both agree to trade? This principle seems self-evident, yet it is amazing how often it is ignored in practice.

For example, it was widely believed for centuries that in international trade one country's gain from an exchange must be the other country's loss (Chapter 18). Analogously, some people feel instinctively that if Ms. A profits handsomely from a deal with Mr. B, then Mr. B must have been exploited. Laws sometimes prohibit mutually beneficial exchanges between buyers and sellers—as when a loan transaction is banned because the interest rate is "too high," or when a willing worker is condemned to remain unemployed because the wage she is offered is "too low," or when the resale of tickets to sporting events ("ticket scalping") is outlawed even though the buyer is happy to get the ticket that he could not obtain at a lower price (Chapter 4).

In every one of these cases, well-intentioned but misguided reasoning blocks the possible mutual gains that arise from voluntary exchange and thereby interferes with one of the most basic functions of an economic system (see Chapters 3 and 4).

1-1e Idea 5: Government Policies Can Limit Economic Fluctuations—But Don't Always Succeed

One of the most persistent and troubling problems of market economies has been their tendency to go through cycles of boom and bust. The booms, as we shall see, often bring inflation, and the busts always raise unemployment. Years ago, economists, businesspeople, and politicians viewed these fluctuations as inevitable: There was nothing the government could or should do about them.