

PRINCIPLES OF
Economics



N. Gregory Mankiw

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Harvard University



The Dryden Press

Harcourt Brace College Publishers

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Interior illustrations © 1997 by Michael Steirnagle
Cover design Didona Designs
Cover images Alois Schonn (1826–1897) *Fruit Market in Vienna near Theresian Brucke*, Museum der Stadt Wien/ET Archive, London/Super Stock (painting, foreground); Howard Bjornson/Photonica (background)

About the cover The cover illustrates, as Alfred Marshall pointed out a century ago, that economics is “a study of mankind in the ordinary business of life.” Alois Schonn’s classic artwork was chosen by the author because of its beauty, elegance, simplicity, and friendly appeal. It overlays a modern financial report containing graphs and numbers. The contrast between the artwork and the financial report represents the art and science of economics.

About the interior illustrations The interior illustrations are the work of Michael Steirnagle. Each illustration brings to life the economic markets and activities associated with the chapter topics presented in the book. Steirnagle, an award-winning illustrator and artist, teaches at Palomar College in San Marcos, Calif. He has been awarded two gold medals from the Society of Illustrators and has recently illustrated a children’s book.

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Address for Orders
The Dryden Press
6277 Sea Harbor Drive
Orlando, FL 32887-6777
1-800-782-4479

Address for Editorial Correspondence
The Dryden Press
301 Commerce Street, Suite 3700
Fort Worth, TX 76102

ISBN: 0-03-098238-3

Derivative works in paperback are available for *Principles of Microeconomics* (0-03-024502-8) and *Principles of Macroeconomics* (0-03-024051-X).

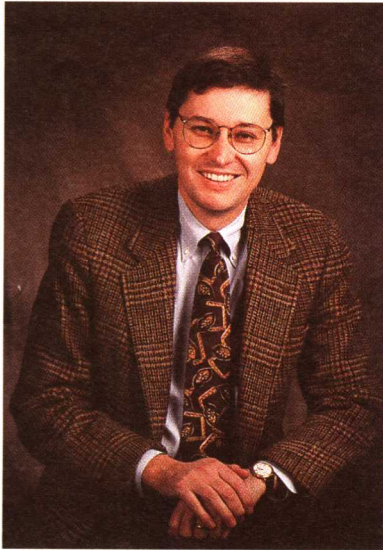
Library of Congress Catalog Card Number: 96-71397

Printed in the United States of America

7 8 9 0 1 2 3 4 5 6 048 9 8 7 6 5 4 3 2

The Dryden Press
Harcourt Brace College Publishers

ABOUT THE AUTHOR



N. Gregory Mankiw is Professor of Economics at Harvard University. As a student, he studied economics at Princeton University and MIT. As a teacher, he has taught various courses, including macroeconomics, microeconomics, statistics, and principles of economics. He even spent one summer long ago as a sailing instructor on Long Beach Island.

Professor Mankiw is a prolific writer. His work has been published in academic journals, such as the *American Economic Review*, *Journal of Political Economy*, and *Quarterly Journal of Economics*, and in more popular forums, such as *The New York Times*, *Boston Globe*, and *The Wall Street Journal*. He is also the author of the best-selling textbook *Macroeconomics* (Worth Publishers). In addition to his teaching, research, and writing, Mankiw is Director of the Monetary Economics Program at the National Bureau of Economic Research, a non-profit think tank in Cambridge, Mass., and an adviser to the Federal Reserve Bank of Boston and the Congressional Budget Office.

Professor Mankiw lives in Wellesley, Mass., with his wife, Deborah, their children, Catherine and Nicholas, and the family's border terrier, Keynes.

PREFACE: TO THE INSTRUCTOR

During my twenty-year career as a student, the course that excited me most was the two-semester sequence on the principles of economics I took during my freshman year in college. It is no exaggeration to say that it changed my life.

I had grown up in a family that often discussed politics over the dinner table. The pros and cons of various solutions to society's problems generated fervent debate. But, in school, I had been drawn to the sciences. Whereas politics seemed vague, rambling, and subjective, science was analytic, systematic, and objective. While political debate continued without end, science made progress.

My freshman course on the principles of economics opened my eyes to a new way of thinking. Economics combines the virtues of politics and science. It is, truly, a social science. Its subject matter is society—how people choose to lead their lives and how they interact with one another. But it approaches its subject with the dispassion of a science. By bringing the methods of science to the questions of politics, economics tries to make progress on the fundamental challenges that all societies face.

I was drawn to write this book in the hope that I could convey some of the excitement about economics that I felt as a student in my first economics course. Economics is a subject in which a little knowledge goes a long way. (The same cannot be said, for instance, of the study of physics or the Japanese language.) Economists have a unique way of viewing the world, much of which can be taught in one or two semesters. My goal in this book is to transmit this way of thinking to the widest possible audience and to convince readers that it illuminates much about the world around them.

I am a firm believer that everyone should study the fundamental ideas that economics has to offer. One of the purposes of general education is to make people more informed about the world in order to make them better citizens. The study of economics, as much as any discipline, serves this goal. Writing an economics textbook is, therefore, a great honor and a great responsibility. It is one way that economists can help promote better government and a more prosperous future. As the great economist Paul Samuelson put it, "I don't care who writes a nation's laws, or crafts its advanced treaties, if I can write its economics textbooks."

BREVITY

To reach a wide audience, I felt that one characteristic of this book would be especially important: its length. If you turn to the end of this book, you will find that it is hundreds of pages shorter than many of the standard texts used to teach the principles of economics. Moreover, the page count has not been reduced by cramming as much as possible on each page. As I requested, the designers of the book have given it an open, uncluttered, and friendly look. Instead, brevity has been achieved by trying to present the principles of economics in the fewest words possible.

To explain this choice, I must make a confession: I am a slow reader. As a student, I rarely finished the readings I was assigned. I relied on Cliff's Notes an embarrassing number of times. I groaned whenever a professor gave the class a 1,000-page tome to read (together, of course, with ancillary articles). I took some solace in the fact that my reaction was not unique. The Greek poet Callimachus

put it succinctly: "Big book, big bore." Callimachus made that observation in 250 B.C., so he was probably not referring to an economics textbook. But today his sentiment is echoed around the world every semester in the first lecture of many economics courses.

When I decided to write a text for the first course in economics, I wanted to write a book that as a student I would like to have read. My first and foremost goal, therefore, was brevity. I kept in mind a dictum from the great novelist Robertson Davies: "One of the most important things about writing is to boil it down and not bore the hell out of everybody."

All textbooks on economics teach that resources are scarce, but few textbook writers remember that student time is one of those scarce resources. I have tried to respect that scarcity by avoiding the bells, whistles, and extraneous details that distract students from the key lessons. I hope this book lives up to the first word of its title, *Principles of Economics*.

ORIENTATION

To boil economics down to its essentials, I had to consider what is truly important for students to learn in their first course in economics. As a result, this book differs from others not only in its length but also in its orientation.

It is tempting for a professional economist writing a textbook to take the economist's point of view and to emphasize those topics that fascinate him and other economists. I have done my best to avoid that temptation. I have tried to put myself in the position of someone seeing economics for the first time. My goal is to emphasize the material that *students* should and do find interesting about the study of the economy.

One result is that more of this book is devoted to applications and policy, and less is devoted to formal economic theory, than is the case with many other books written for the principles course. For example, after students learn about the market forces of supply and demand in Chapters 4 through 6, they immediately apply these tools in Chapters 7 through 9 to consider three important questions facing our society: Why is the free market a good way to organize economic activity? How does taxation interfere with the market mechanism? Who are the winners and losers from international trade? These kinds of questions resonate with the concerns and interests that students hear about in the news and bring from their own lives.

Throughout this book I have tried to return to applications and policy questions as often as possible. Most chapters include "Case Studies" illustrating how the principles of economics are applied. In addition, "In the News" boxes offer excerpts of newspaper articles showing how economic ideas shed light on the current issues facing society. It is my hope that after students finish their first course in economics, they will think about news stories from a new perspective and with greater insight.

ORGANIZATION

To write a brief and student-friendly book, I had to consider new ways to organize the material. This book includes all the topics that are central to a first course in economics, but the topics are not always arranged in the traditional order.

What follows is a whirlwind tour of this text. This tour will, I hope, give instructors some sense of how the pieces fit together.

Chapter 1, “Ten Principles of Economics,” introduces students to the economist’s view of the world. It previews some of the big ideas that recur throughout economics, such as opportunity cost, marginal decisionmaking, the role of incentives, the gains from trade, and the efficiency of market allocations. Throughout the book, I refer regularly to the *Ten Principles of Economics* in Chapter 1 to remind students that these principles are the foundation for most economic analysis. A building-blocks icon in the margin calls attention to these references.



Chapter 2, “Thinking Like an Economist,” examines how economists approach their field of study. It discusses the role of assumptions in developing a theory and introduces the concept of an economic model. It also discusses the role of economists in making policy. The appendix to this chapter offers a brief refresher course on how graphs are used and how they can be abused.

Chapter 3, “Interdependence and the Gains from Trade,” presents the theory of comparative advantage. This theory explains why individuals trade with their neighbors, as well as why nations trade with other nations. Much of economics is about how market forces coordinate the many individual production and consumption decisions that take place in the economy. As a starting point for this analysis, students see in this chapter why specialization, interdependence, and trade can benefit everyone.

The next three chapters introduce the basic tools of supply and demand. Chapter 4, “The Market Forces of Supply and Demand,” develops the supply curve, the demand curve, and the notion of market equilibrium. Chapter 5, “Elasticity and Its Application,” introduces the concept of elasticity and uses it to analyze events in three different markets. Chapter 6, “Supply, Demand, and Government Policies,” uses these tools to examine price controls, such as rent-control and minimum-wage laws, and tax incidence.

Chapter 7, “Consumers, Producers, and the Efficiency of Markets,” extends the analysis of supply and demand using the concepts of consumer surplus and producer surplus. It begins by developing the link between consumers’ willingness to pay and the demand curve and the link between producers’ costs of production and the supply curve. It then shows that the market equilibrium maximizes the sum of the producer and consumer surplus. In this book, therefore, students learn early about the efficiency of market allocations.

The next two chapters apply the concepts of producer and consumer surplus to questions of policy. Chapter 8, “Application: The Costs of Taxation,” shows why taxation results in deadweight losses and what determines the size of those losses. Chapter 9, “Application: International Trade,” considers who wins and who loses from international trade and presents the debate over protectionist trade policies.

Having examined why market allocations are often desirable, the book then considers how the government can sometimes improve on market allocations. Chapter 10, “Externalities,” explains how external effects such as pollution can render market outcomes inefficient. It also discusses the possible public and private solutions to those inefficiencies. Chapter 11, “Public Goods and Common Resources,” considers the inefficiencies that arise when goods, such as national defense, have no market price. Chapter 12, “The Design of the Tax System,” describes how the government raises the revenue necessary to pay for public goods. It presents some institutional background about the U.S. tax system and

then discusses how the goals of efficiency and equity come into play in the design of a tax system.

The next five chapters examine firm behavior and industrial organization. Chapter 13, "The Costs of Production," discusses what to include in a firm's costs, and it introduces cost curves. Chapter 14, "Firms in Competitive Markets," analyzes the behavior of price-taking firms and derives the market supply curve. Chapter 15, "Monopoly," discusses the behavior of a firm that is the sole seller in its market. It discusses the inefficiency of monopoly pricing, the possible policy responses, and the attempts by monopolies to price discriminate. Chapter 16, "Oligopoly," covers markets in which there are only a few sellers and uses the prisoners' dilemma as the model for examining strategic interaction. Chapter 17, "Monopolistic Competition," looks at behavior in a market in which many sellers offer similar but differentiated products. It also discusses the debate over the effects of advertising.

The following three chapters present issues related to labor markets. Chapter 18, "The Markets for the Factors of Production," emphasizes the link between factor prices and marginal productivity. Chapter 19, "Earnings and Discrimination," discusses the determinants of equilibrium wages, including compensating differentials, human capital, and discrimination. Chapter 20, "The Distribution of Income," examines the degree of inequality in U.S. society, the alternative views about the government's role in changing the distribution of income, and the various policies aimed at helping society's poorest members.

Chapter 21, "The Theory of Consumer Choice," analyzes individual decisionmaking using budget constraints and indifference curves. It covers material that is somewhat more advanced than the rest of the book. Some instructors may want to skip this chapter, depending on the emphases of their courses and the interests of their students. Instructors who do cover this material may want to do so earlier, and I have written this chapter so that it can be covered anytime after the basics of supply and demand have been introduced.

Beginning in Chapter 22, the book turns to the topics of macroeconomics. This coverage starts with issues of measurement. Chapter 22, "Measuring a Nation's Income," discusses the meaning of gross domestic product and related statistics from the national income accounts. Chapter 23, "Measuring the Cost of Living," discusses the measurement and use of the consumer price index.

The next three chapters describe the behavior of the real economy in the long run over which wages and prices are flexible. Chapter 24, "Production and Growth," examines the determinants of the large variation in living standards over time and across countries. Chapter 25, "Saving, Investment, and the Financial System," discusses the types of financial institutions in our economy and examines the role of these institutions in allocating resources. Chapter 26, "The Natural Rate of Unemployment," considers the long-run determinants of the unemployment rate, including minimum-wage laws, the market power of unions, the role of efficiency wages, and the efficacy of job search.

Having described the long-run behavior of the real economy, the book then turns to the long-run behavior of money and prices. Chapter 27, "The Monetary System," introduces the economist's concept of money and the role of the central bank in controlling the quantity of money. Chapter 28, "Inflation: Its Causes and Costs," develops the link between money growth and inflation and discusses the social costs of inflation.

The next two chapters present the macroeconomics of open economies. Chapter 29, "Open-Economy Macroeconomics: Basic Concepts," explains the

relationship among saving, investment, and the trade balance, the distinction between the nominal and real exchange rate, and the theory of purchasing-power parity. Chapter 30, "A Macroeconomic Theory of the Open Economy," presents a classical model of the international flow of goods and capital. The model sheds light on various issues, including the link between budget deficits and trade deficits and the macroeconomic effects of trade policies. Because instructors differ in how much they emphasize this material, these chapters were written so they could be used in different ways. Some instructors may choose to cover Chapter 29 but not Chapter 30; others may skip both chapters; and others may choose to defer the analysis of open-economy macroeconomics until the end of their courses.

After fully developing the long-run theory of the economy in Chapters 24 through 30, the book turns its attention to explaining short-run fluctuations around the long-run trend. This organization simplifies the teaching of the theory of short-run fluctuations because, at this point in the course, students have a good grounding in many basic macroeconomic concepts. Chapter 31, "Aggregate Demand and Aggregate Supply," begins with some facts about the business cycle and then introduces the model of aggregate demand and aggregate supply. Chapter 32, "The Influence of Monetary and Fiscal Policy on Aggregate Demand," explains how policymakers can use the tools at their disposal to shift the aggregate-demand curve. Chapter 33, "The Short-Run Tradeoff between Inflation and Unemployment," explains why policymakers who control aggregate demand face a tradeoff between inflation and unemployment. It examines why this tradeoff exists in the short run, why it shifts over time, and why it does not exist in the long run.

The book concludes with Chapter 34, "Five Debates over Macroeconomic Policy." This capstone chapter considers five controversial issues facing policymakers: the proper degree of policy activism in response to the business cycle, the choice between rules and discretion in the conduct of monetary policy, the desirability of reaching zero inflation, the importance of balancing the government's budget, and the need for tax reform to encourage saving. For each issue, the chapter presents both sides of the debate and encourages students to make their own judgments.

LEARNING TOOLS

The purpose of this book is to help students learn the fundamental lessons of economics and to show students how those lessons can be applied to the world in which they live. Toward that end, I have used various learning tools that recur throughout the book.

- ◆ **Chapter Objectives** Every chapter begins with a list of the chapter's primary objectives to give students a sense of where the chapter is heading. Each list has been kept brief in order to help students stay focused on the four or five key lessons presented in that chapter.
- ◆ **Case Studies** Economic theory is useful and interesting only if it can be applied to understand actual events and policies. This book, therefore, contains numerous case studies that apply the theory that has just been developed.

- ◆ **In the News Boxes** One benefit from studying economics is that it gives students a new perspective and greater understanding about news from around the world. To highlight this benefit, I have included excerpts from many newspaper articles. These articles, together with my brief introductions, show how basic economic theory can be applied. Some of these articles are opinion columns written by prominent economists.
- ◆ **FYI Boxes** These boxes provide additional material “for your information.” Some of them give a glimpse into the history of economic thought. Others clarify difficult technical issues. Still others discuss supplementary topics that instructors might choose either to discuss or skip in their lectures.
- ◆ **Definitions of Key Concepts** When key concepts are introduced in the chapter, they are presented in **bold** typeface. In addition, their definitions are placed in the margins. This treatment should aid students in learning and reviewing the material.
- ◆ **Quick Quizzes** After each major section, students are offered a “quick quiz” to check their comprehension of what they have just learned. If students cannot readily answer these quizzes, they should stop and reread the material before continuing.
- ◆ **Chapter Summaries** Each chapter ends with a brief summary that reminds students of the most important lessons that they have just learned. Later in their studying it offers them an efficient way to review for exams.
- ◆ **List of Key Concepts** A list of key concepts at the end of each chapter allows students to test their understanding of the new terms that have been introduced. Page references are included so students can review the terms they do not understand.
- ◆ **Questions for Review** At the end of each chapter are questions for review that test the chapter’s primary lessons. Students can use these questions to check their comprehension after finishing a chapter and to prepare for exams.
- ◆ **Problems and Applications** Each chapter also contains a variety of problems and applications that ask students to apply the material they have learned. Some professors may use these questions for homework assignments. Others may use them as a starting point for classroom discussions.

SUPPLEMENTS

The Dryden Press offers a variety of supplements for instructors and students who use this book. The goal of these ancillary resources is to provide an integrated package that makes teaching the principles of economics easy for the professor and learning them easy for the student. A. Andrew John (University of Virginia), an excellent economist and economics teacher, helped oversee the development of these materials.

The Dryden Press provides copies of these supplements free of charge to those instructors qualified under its adoption policy. Please contact your sales representative to learn how you may qualify, or call The Dryden Press at 1-800-237-2665.

For the Instructor

Teaching the principles of economics can be a demanding job. Often, classes are large and teaching assistants in short supply. The supplements designed for the instructor make that job less demanding and more fun.

- ◆ **Test Bank** Christopher Fawson and Dwight Israelsen (both of Utah State University) have prepared a test bank to accompany this text. The test bank contains 6,500 test questions consisting of multiple-choice questions and a large number of class-tested conceptual questions and problems. For the instructor's convenience, every question in the test bank is identified according to the chapter "Learning Objective" the question covers, the chapter section in which the material is covered, the level of difficulty, and the type of question (multiple-choice, true-false, short answer, critical thinking, definition, or graphical). Answers immediately follow each question.
- ◆ **Computerized Test Bank** The Dryden Press also offers a computerized version of the test bank (EXAMaster+) for IBM and Macintosh users. This software has many features that facilitate test preparation, scoring, and grade recording. It also offers great flexibility. The order of test questions can be altered to create different versions of any given test, and it is easy to modify questions and reproduce any of the graphing questions to meet the instructor's needs.
- ◆ **Instructor's Resource Manual with Adjunct & Teaching Assistant Guide** William T. Harris (University of Delaware) and Carolyn T. Bodkin (Trident Technical College) have written an instructor's manual aimed at helping both experienced and novice instructors prepare their lectures. Harris has written lecture notes for every chapter in this book. These notes briefly summarize the text material and provide additional examples and applications. Bodkin's adjunct and teaching assistant guide offers extensive outlines of every chapter, even more examples, and classroom warm-up activities to help introduce chapter topics.
- ◆ **Electronic Instructor's Resource Manual** The entire *Instructor's Resource Manual* is also available in an electronic format (for Windows). Using these electronic files, instructors can create their own lecture notes or incorporate parts of the *Instructor's Resource Manual* into their PowerPoint presentations.
- ◆ **Solutions Manual** Dean Croushore (Federal Reserve Bank of Philadelphia) has written a solutions manual that contains complete solutions for all the "Questions for Review" and "Problems and Applications" found in the text. The entire manual is three-hole punched and perforated to make it easier for the instructor to hand out solutions to students.
- ◆ **PowerPoint Presentation** Steve McGary (Ricks College) has developed a computer-based PowerPoint slide show that can save professors time as they prepare for class. This supplement covers all the essential topics presented in each chapter of this book. Graphs, tables, lists, and concepts are developed sequentially, much as one might develop them on a blackboard. Additional examples and applications, pulled from the *Instructor's Resource Manual*, are used to reinforce major lessons. The slides are crisp, clear, and colorful. Instructors may adapt or add slides to customize their lectures.

- ◆ **Web Site** Robert Rycroft (Mary Washington College) has helped The Dryden Press develop a Web site to accompany this text. To appreciate this resource, we invite you to visit the site at <http://www.dryden.com/econ>. The ever-evolving Web site is both a teaching and economic research tool, with separate areas for students and instructors. Students visiting this page can learn from tutorials featuring interactive graphs, access a page of economic indicators, follow links relevant to each chapter, find out about career opportunities, and test their knowledge with our on-line quizzes. Instructors will be able to search a bank of news summaries and comprehension questions, download the instructor's resource material, and share ideas with others who are using this textbook.
- ◆ **Classroom Activities, Demonstrations, and Games for Principles of Economics** Charles A. Stull (Kalamazoo College) has written a supplement that helps instructors interested in incorporating "cooperative learning" and "learning by experiment" exercises in their courses. This supplement contains over 50 games, classroom experiments, in-class demonstrations, and take-home and in-class assignments. Each activity is linked to a specific text chapter and lists the type of activity, topics covered, materials list, time required for completion, and classroom limitations. Thorough directions are provided for the instructor. For the instructor's convenience, the supplement is three-hole punched and perforated, and all pages are designed for easy overhead use and photocopying. The activities supplement is also available on the Web site.
- ◆ **The "Ten Principles" Video Set** The Dryden Press has commissioned and produced ten video segments that illustrate the *Ten Principles of Economics* introduced in Chapter 1. Instructors can show these videos as an interesting and visually appealing introduction to topics. Questions for use with the videos will be available.
- ◆ **Overhead Transparencies** For instructors who do not want to use PowerPoint presentations, overhead transparency acetates are available. These overhead transparencies consist of figures and tables from the text, allowing instructors to build text images into their lectures. Some of the more complex acetates are layered to show what happens graphically when curves shift.

For the Student

The Dryden Press makes supplements available for students who are studying the principles of economics. These supplements reinforce the basic lessons taught in this book and offer opportunities for additional practice and feedback.

- ◆ **Student Study Guide** David R. Hakes (University of Northern Iowa) and Robert Harris (Indiana University–Purdue University at Indianapolis) have written a study guide that provides students with a useful summary and review of the important concepts presented in the text. Each study guide chapter includes a chapter overview, a chapter review, helpful hints, and definitions. Students can test their understanding of the material with practice problems and a chapter self-test. Solutions to all study guide problems follow each chapter.
- ◆ **TAG: Tutorial-Analytical-Graphical Student Software** Andrew Foshee (McNeese State University) has customized for this book

the award-winning educational software by Tod Porter and Teresa Riley (both of Youngstown State University). This software contains an extensive chapter-by-chapter tutorial, a hands-on graphic section in which students are required to draw curves (with key strokes or a mouse), and a practice exam for each section. Students receive immediate feedback on their answers. It is available in both DOS and Windows formats.

Supplement Accuracy

The accuracy of supplements is of critical importance for instructors and students. As a result, every supplement was thoroughly reviewed for accuracy and solid linkage to this text. I am grateful to the following team of "accuracy specialists" for helping to fine-tune the supplements:

| | |
|---|---|
| Scott Benson, <i>Idaho State University</i> | Herbert Kessel, <i>St. Michael's College</i> |
| Bob Beaudry, <i>Hesser College</i> | Jim McGowen, <i>Belleville Area College</i> |
| Jay Bhattacharya, <i>Okaloosa-Walton Community College</i> | Arthur W. Meyer, <i>Lincolnland Community College</i> |
| Scott Bloom, <i>North Dakota State University</i> | John Panagakis, <i>Onodaga Community College</i> |
| Paula Bracy, <i>University of Toledo</i> | Robert Parks, <i>Washington University</i> |
| Mary Bumgarner, <i>Kennesaw State University</i> | Timothy Perri, <i>Appalachian State University</i> |
| Kevin Carey, <i>University of Miami</i> | Reza Ramazani, <i>St. Michael's College</i> |
| Veree Ethridge, <i>College of St. Francis</i> | Georges Rocourt, <i>Barry University</i> |
| Frank Falero, <i>California State University at Bakersfield</i> | Haideh Salehi-Esfahani, <i>University of Washington</i> |
| Richard Fenner, <i>Utica College</i> | Rolando Santos, <i>Lakeland Community College</i> |
| Phil Forbus, <i>University of South Alabama</i> | Donald Schilling, <i>University of Missouri at Columbia</i> |
| Robert Francis, <i>Shoreline Community College</i> | Abu Selimuddin, <i>Berkshire Community College</i> |
| W. E. Gentzel, <i>Pensacola Junior College</i> | Bill Steen, <i>Santa Fe Community College</i> |
| Mehdi Haririan, <i>Bloomsburg University</i> | Anthony Uremovic, <i>Joliet Junior College</i> |
| Mary Ann Hendryson, <i>Western Washington University</i> | Ivan Weinel, <i>Park College</i> |
| C. Denise Hixson, <i>Midlands Technical College</i> | Art Woolf, <i>University of Vermont</i> |
| James Hubert, <i>Seattle Central Community College</i> | |

Wall Street Journal Edition

One goal in teaching the principles of economics is to provide students a better understanding of the world around them. Many instructors, therefore, encourage students to read about economic issues in the newspaper as they take the course. Those instructors may want to consider the special *Wall Street Journal Edition* of this text. This edition is the same as the standard edition but includes a ten-week subscription to *The Wall Street Journal*. Students can activate their subscriptions simply by completing and mailing the business reply card found in the back of the book. Talk to your Dryden Press sales representative for more information, or call 1-800-237-2665.

ACKNOWLEDGMENTS

In writing this book, I had the benefit of the input from many talented people. Let me begin by thanking those economics professors who read and commented on portions of the manuscript. In some cases, these individuals read the manuscript several times as it was revised and (I hope) improved:

- Ashraf Afifi, *Ferris State University*
 Seemin Ahmad, *Dutchess Community College*
 Terence Alexander, *Iowa State University*
 Neil O. Alper, *Northeastern University*
 Christine Amsler, *Michigan State University*
 Lisa Anderson, *The American University*
 Mahmoud P. Arya, *Edison Community College*
 Aliakbar Ataiifar, *Delaware County Community College*
 Leonardo Auernheimer, *Texas A&M University*
 Paul Azrak, *Queensboro Community College*
 Kevin Baird, *Montgomery County Community College*
 Dru Barker, *Hollins College*
 Klaus Becker, *Texas Technical University*
 David Black, *University of Toledo*
 Peter Boettke, *New York University*
 Michael Boyd, *University of Vermont*
 Chuck Britton, *University of Arkansas*
 Doug Brown, *Georgetown University*
 Oscar Brookins, *Northeastern University*
 Mary Bumgarner, *Kennesaw State University*
 Catherine Carey, *Western Kentucky University*
 Michael Carter, *University of Massachusetts at Lowell*
 Thomas Cate, *Northern Kentucky University*
 Ken Chapman, *California State University at Northridge*
 John Chilton, *University of South Carolina*
 Joy Clark, *Auburn University at Montgomery*
 Howard Cochran, *Belmont University*
 Paul Comolli, *University of Kansas*
 Joyce Cooper, *Boston University*
 Doug Dalenberg, *University of Montana*
 Patrick Dalendina, *Keene State College*
 Mary E. Deily, *Lehigh University*
 Stacy Dickert-Conlin, *University of Kentucky at Lexington*
 Amy Diduch, *Mary Baldwin College*
 Veda Doss, *Wingate College*
 Mike Dowd, *University of Toledo*
 Richard Easterlin, *University of Southern California*
 John Edgren, *Eastern Michigan University*
 Steffany Ellis, *University of Michigan at Dearborn*
 S. Kirk Elwood, *James Madison University*
 Amy Farmer, *University of Tennessee at Knoxville*
 David Figlio, *University of Oregon*
 Richard Fowles, *University of Utah*
 Thomas Fox, *The Pennsylvania State University*
 Jim Gapinski, *Florida State University*
 Philip Gibbs, *College of William and Mary*
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 R. W. Hafer, *Southern Illinois University at Edwardsville*
 David R. Hakes, *University of Northern Iowa*
 Arne Hallam, *Iowa State University*
 Andrew Hanssen, *Montana State University*
 Richard Harper, *University of West Florida*
 Robert Harris, *Indiana University–Purdue University at Indianapolis*
 James Henderson, *Baylor University*
 Jannett Highfill, *Bradley University*
 Beth Ingram, *University of Iowa*
 Dwight Israelson, *Utah State University*
 A. Andrew John, *University of Virginia*
 Brad Kamp, *University of South Florida*
 Demetri Kantarelis, *Assumption College*
 Manfred Keil, *Northeastern University*
 George Kelley, *Worcester State University*
 Mark Killingsworth, *Rutgers University*
 Philip King, *San Francisco State University*
 Peter Klein, *University of Georgia*
 Charles Klingensmith, *Miami-Dade Community College*
 Morris Knapp, *Miami-Dade Community College*
 Todd Knoop, *Northern Illinois University*
 Marie Kratochvil, *Nassau Community College*
 Rajaram Krishnan, *Northeastern University*
 Mike Kupilik, *University of Montana*
 Bob Lawson, *Shawnee State University*
 Dan LeClair, *University of Tampa*
 Luis Locay, *University of Miami*
 Thomas Maloy, *Muskegon Community College*
 Neela Manage, *Florida Atlantic University*
 Mike Marlow, *California Polytechnic State University*
 Don Matthews, *Brunswick College*
 Bruce McClung, *Southwest Texas State University*
 Rob Roy McGregor, *University of North Carolina at Charlotte*
 Eugene McKibben, *Fullerton College*
 Michael Meeropol, *Western New England College*
 Deborah Merrigan, *Rockland Community College*
 Charles Michalopoulos, *Virginia Polytechnic Institute and State University*
 Jeffrey Miron, *Boston University*
 Farzeen Nasri, *Ventura College*
 Walter Nicholson, *Amherst College*
 Stephen Nord, *Northern Illinois University*
 Tony O'Brien, *Lehigh University*
 John O'Connell, *College of the Holy Cross*

Ransford Palmer, *Howard University*
 Tim Perri, *Appalachian State University*
 Timothy Petry, *North Dakota State University*
 Harmanna Poen, *Houston Community College*
 William Rawson, *University of South Carolina*
 Steve Robinson, *University of North Carolina at Wilmington*
 Christina Romer, *University of California at Berkeley*
 S. Scanlon Romer, *Delta College*
 Leola Ross, *East Carolina University*
 Rose Rubin, *University of Memphis*
 Daniel Rupp, *Fort Hays State University*
 Lynda Rush, *California Polytechnic State University*
 Simran Sahi, *University of Minnesota at Minneapolis*
 Jolyne Sanjak, *State University of New York at Albany*
 Rolando Santos, *Lakeland Community College*
 Sue Lynn Sasser, *University of South Dakota*
 Edward Scahill, *University of Scranton*
 Torsten Schmidt, *University of New Hampshire*
 Bruce Seaman, *Georgia State University*
 Stanley Sedo, *University of New Hampshire*

Mike Seelye, *San Joaquin Delta College*
 Linda Shaffer, *California State University at Fresno*
 Alden Shiers, *California Polytechnic State University*
 David Shorow, *Richland College*
 Mike Smitka, *Washington and Lee University*
 John Sondey, *South Dakota State University*
 Dennis Starleaf, *Iowa State University*
 William Steen, *Santa Fe Community College*
 E. Frank Stephenson, *University of North Carolina at Greensboro*
 James L. Swofford, *University of South Alabama*
 Bryan Taylor, *California State University at Los Angeles*
 James Thornton, *University of Delaware*
 Deborah Thorsen, *Palm Beach Community College*
 Anthony Uremovic, *Joliet Junior College*
 Sharmila Vishwasrao, *Florida Atlantic University*
 Jack Wegman, *Santa Rosa Junior College*
 James Wetzel, *Virginia Commonwealth University*
 Steven L. Widener, *New Hampshire College*
 William Wood, *James Madison University*
 Joachim Zietz, *Middle Tennessee State University*

The accuracy of a textbook is critically important. Although I am, of course, responsible for any remaining errors, I am grateful to the following professors for reading through the final manuscript and page proofs with me:

Seemin Ahmad, *Dutchess Community College*
 Dean Croushore, *Federal Reserve Bank of Philadelphia*

Patrick Dalendina, *Keene State College*
 Deborah Merrigan, *Rockland Community College*
 Linus Yamane, *Pitzer College*

As I developed this book, I felt that it was important not only to read instructors' comments but also to listen to their views and speak with them about their concerns. The six focus groups that Dryden organized were, therefore, invaluable to me. I want to thank those professors who took the time to meet with me or my editors and discuss the rough drafts of the manuscript:

Seemin Ahmad, *Dutchess Community College*
 Aliakbar Ataiifar, *Delaware County Community College*
 Peter Boettke, *New York University*
 Doug Brown, *Georgetown University*
 Catherine Carey, *Western Kentucky University*
 Michael Carter, *University of Massachusetts at Lowell*
 Joyce Cooper, *Boston University*
 Mary E. Deily, *Lehigh University*
 Amy Diduch, *Mary Baldwin College*
 David R. Hakes, *University of Northern Iowa*

Dwight Israelsen, *Utah State University*
 Demetri Kantarelis, *Assumption College*
 Manfred Keil, *Northeastern University*
 George Kelley, *Worcester State University*
 Peter Klein, *University of Georgia*
 Morris Knapp, *Miami-Dade Community College*
 Marie Kratochvil, *Nassau Community College*
 Rajaram Krishnan, *Northeastern University*
 Dan LeClair, *University of Tampa*
 Tom Maloy, *Muskegon Community College*
 Mike Marlow, *California Polytechnic State University*

Don Matthews, *Brunswick College*
 Michael Meeropol, *Western New England College*
 John O'Connell, *College of the Holy Cross*
 Ransford Palmer, *Howard University*

Torsten Schmidt, *University of New Hampshire*
 David Shorow, *Richland College*
 William Steen, *Santa Fe Community College*

Because writing a student-friendly text was one of my objectives, getting student feedback was of great importance. I want to thank the following students for taking time out of their weekends and school breaks to read my manuscript and then offer their input in focus groups:

Steven Burns, *Nassau Community College*
 Nancy Dawson, *Delaware County Community College*
 Edward Dougherty, *Nassau Community College*
 William Ferrante, *Nassau Community College*
 Barry Hallman, *Delaware County Community College*

Carl Hayden, *Delaware County Community College*
 Patrice R. Mickle, *Delaware County Community College*
 Brian J. Sherwood, *Delaware County Community College*
 Farah Sodhi, *Nassau Community College*
 Bill Sullivan, *Delaware County Community College*

I also want to thank the many students who served as class testers at Utah State University and Boston University and who took the time to fill out and send back our questionnaires.

I am grateful to the following professors from outside the United States, whose comments helped give this book a more international focus:

Robert Ackrill, *Leicester University, England*
 Laurel Dawson, *Deakin University, Australia*
 Lord Meghnad Desai of St. Clement Danes, *London School of Economics*
 Robert Dixon, *University of Melbourne, Australia*
 Paul Flatau, *Murdoch University, Australia*
 John Freebairn, *University of Melbourne, Australia*
 Mary Graham, *Deakin University, Australia*
 Nigel Healey, *Manchester Metropolitan University, England*
 John Hicks, *Charles Sturt University, Australia*
 Andrew Hughes-Hallett, *University of Strathclyde, Scotland*
 John Lodewijks, *University of New South Wales, Australia*
 Rod Maddock, *La Trobe University, Australia*

Dermot McAleese, *Trinity College, Dublin, Ireland*
 Jonathan Michie, *The Judge Institute, Cambridge University, England*
 Alan Morris, *Victoria University of Technology, Australia*
 David Owens, *Swinburne University of Technology, Australia*
 Martin Shanahan, *University of South Australia*
 Peter Sinclair, *University of Birmingham, England*
 Lindsay Smyrk, *Victoria University of Technology, Australia*
 Di Thomson, *Deakin University, Australia*
 Neil Warren, *University of New South Wales, Australia*
 Ed Wilson, *University of Wollongong, Australia*
 Simon Wren-Lewis, *Exeter University, England*

A special thanks go to Karen Dynan and Douglas Elmendorf (both of the Federal Reserve Board). Karen and Doug read and commented on the entire manuscript and drafted many of the problems and applications presented at the end of each chapter. I am also grateful to the five Harvard students who worked with me as I refined the text: Niko Canner, Richard Johnson, Michael Rashes, David Sherwood, and Gabriella Skirnick. Yvonne Zinfon, my secretary at Harvard, as usual went beyond the call of duty and helped me proofread the entire book.

The team of editors that worked on this book improved it tremendously. Jane Tufts, freelance developmental editor, provided truly spectacular editing of at

least three drafts of every chapter. Emily Barrosse, economics executive editor, did a splendid job of overseeing the many people involved in such a large project (including, at times, an irascible author). Anita M. Fallon, senior developmental editor, assembled an excellent team to write the supplements while beautifully managing thousands of related details. Eddie Dawson, senior production manager, and Amy Schmidt, senior project editor, had the patience and dedication necessary to turn my manuscript into this book. Melinda Welch and Jeanette Barber, senior art directors, gave this book its clean, friendly look. Michele Gitlin, copyeditor, refined my prose, and Alexandra Nickerson, indexer, prepared a careful and thorough index. Kathleen Sharp and Dave Theisen, product managers, worked long hours getting the word out to potential users of this book. The rest of The Dryden Press team was also consistently professional, enthusiastic, and dedicated: Jeanie Anirudhan, Donna Baum, Russ Boersma, Ted Buchholz, John Carey, Dave Chwalik, Ann Coburn, Annette Coolidge, Ben Eldred, Eunice Ferguson, Daryl Fox, Rick Hammonds, Roland Hernández, Lisé Johnson, Mary Jo Kovach, Jim Levy, Angus McDonald, Earl McPeek, Laura Miley, Michael Mueller, Pat Murphree, Brian Murphy, Gary Nelson, Jim Nye, George Provol, Dee Salisbury, Fritz Schanz, Paul Stewart, Scott Stewart, Stephanie Surfus, Lee Sutherlin, Annie Todd, Carl Tyson, Susan Van Buren, and Andrea Wright.

I must also thank my “in house” editor—Deborah Mankiw. As the first reader of the manuscript, she provided the right mix of criticism and encouragement. Just as important, her willingness to put up with a part-time husband for the past four years gave me the time I needed to write this book.

Finally, I am grateful to my children, Catherine and Nicholas, whose occasional and unpredictable visits to my study offered welcome relief from long spans of writing and rewriting. Although now they are only five and two years old, someday they will grow up and study the principles of economics. I hope this book provides its readers some of the education, entertainment, and enlightenment that I wish for my own children.

N. Gregory Mankiw
August 1997