MACROECONOMICS

Policy and Practice

Second Edition

Frederic S. Mishkin

2nd Edition

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Policy and Practice

Frederic S. Mishkin

Columbia University

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Macroeconomics Matters: The Latest Economic Events and Policy Responses

	APPLICATIONS apply the analysis in each chapter to explain important real-world situations.	**POLICY AND PRACTICE** cases explore specific examples of policies and how they were executed.	**MACROECONOMICS IN THE NEWS** boxes introduce relevant news articles and data from the daily press and explain how to read them.
Chapter 2 Measuring Macroeconomic Data		• Can GDP Buy Happiness? • Policy and Overstatements of the Cost of Living	• Unemployment and Employment • Interest Rates
Chapter 3 Aggregate Production and Productivity	• Why Are Some Countries Rich and Others Poor? • Explaining Real Wage Growth • Oil Shocks, Real Wages, and the Stock Market		
Chapter 4 Saving and Investment in Closed and Open Economies	• How the United States Became the Largest Net Debtor in the World • The Twin Deficits	• Government Policies to Stimulate Saving • Crowding Out and the Debate over the 2009 Fiscal Stimulus Package	• Balance of Payments Accounts
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Chapter 9 The *IS* Curve	• The Vietnam War Buildup, 1964–1969	• The Fiscal Stimulus Package of 2009	
Chapter 10 Monetary Policy and Aggregate Demand		• Movements Along the *MP* Curve: The Rise in the Federal Funds Rate Target, 2004–2006 • Shifts in the *MP* Curve: Autonomous Monetary Easing at the Onset of the 2007–2009 Financial Crisis	
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	APPLICATIONS apply the analysis in each chapter to explain important real-world situations.	**POLICY AND PRACTICE** cases explore specific examples of policies and how they were executed.	**MACROECONOMICS IN THE NEWS** boxes introduce relevant news articles and data from the daily press and explain how to read them.
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To My Mom

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Preface

There has never been a more exciting time to teach macroeconomics. The recent worldwide financial crisis cast a spotlight on macroeconomics and prompted instructors worldwide to rethink their teaching of the course. Students today enter the intermediate macroeconomics course knowing the relevance of the business cycle—it impacts what is happening in their world *right now*, in the aftermath of the most severe recession since World War II. The silver lining of these trying economic times lies in our ability to draw on this familiarity and the rich tapestry of recent economic events to enliven macroeconomic theory.

Macroeconomics: Policy and Practice, Second Edition, focuses on the policy issues currently debated by the media and the public at large. Building on my expertise in macroeconomic policy making at the Federal Reserve, I highlight the techniques used by policy makers in practice. I ground this applied approach to intermediate macroeconomics with a careful, step-by-step development of all models.

What's New in the Second Edition

In addition to the expected updating of data through 2013 whenever possible, major new material has been added in every part of the text.

Enhanced Pearson e-text with Mini-Lectures: A New Way of Learning MyEconLab

The Enhanced Pearson e-text in MyEconLab for the second edition is available online from MyEconLab textbook resources. Instructors and students can highlight the text, bookmark, search the glossary, and take notes. More importantly, the e-text provides a new way of learning that is particularly useful to today's students. Not only are students able to read the material in the textbook but, by a simple click on an icon, they are able to watch over 100 mini-lectures presented by the author—one for every analytic graph in the text. These mini-lectures build each graph step-by-step and explain the intuition necessary to fully understand the theory behind the graph. The mini-lectures are an invaluable study tool for students who typically learn better when they see and hear economic analysis rather than read it.

FRED ECONOMIC DATA | ST. LOUIS FED™

Real-Time Data

A high percentage of the in-text data is labeled *MyEconLab Real-Time Data.* This label indicates that students can view the latest data using the e-text to access the Federal Reserve Bank of St. Louis's FRED database. In addition, each chapter now has a whole new class of problems that make use of real-time data analysis. These problems, marked with  , ask students to download data from the Federal Reserve Bank of St. Louis's FRED website and then use that data to answer questions about current issues in macroeconomics.

In MyEconLab, these easy-to-assign and automatically-graded Real-Time Data Analysis exercises are linked directly to the FRED site, so that every time FRED posts new data, students can see it. As a result, Real-Time Data Analysis exercises offer a no-fuss solution for instructors who want to make the most recent data a central part of their macroeconomics course. These exercises will help students understand macroeconomics better and enable them to see the real-world relevance of their study of macroeconomics.

Nonconventional Monetary Policy and the Zero Lower Bound

In recent years, monetary policy makers have entered a brave new world in which they have had to resort to nonconventional monetary policy because the policy interest rate, the federal funds rate in the United States, has hit a floor of zero, the so-called "zero lower bound." The policy rate cannot be driven lower than this bound, making conventional monetary policy infeasible. Nonconventional monetary policy at the zero lower bound, such as quantitative easing, is very controversial and stimulates a lot of interest among students. The second edition contains extensive discussion of this topic, with the following new material:

- A new Application, "Quantitative Easing and the Money Supply, 2007–2013" (Chapter 5)
- A new section on monetary policy at the zero lower bound, which uses the dynamic aggregate demand and aggregate supply model to explain how the zero lower bound affects the conduct of monetary policy (Chapter 13)
- A new Policy and Practice case, "Abenomics and the Shift in Japanese Monetary Policy in 2013" (Chapter 13)
- A new Policy and Practice case, "Nonconventional Monetary Policy and Quantitative Easing During the Global Financial Crisis" (Chapter 15)
- A new section on fiscal multipliers at the zero lower bound that explains why fiscal multipliers are likely to be larger at the zero lower bound (Chapter 16)
- A new section on nominal GDP targeting (Chapter 21)

New Material on Business Cycle Analysis

This edition has substantial new material on business cycle analysis, to make it easier for students to understand the dynamic aggregate demand and aggregate supply model. This new material includes:

- A new section on the alternative view of the business cycle, which distinguishes the long-run trend from deviations in this trend and introduces the concept of the output gap (Chapter 8)
- New material that integrates the concept of financial frictions into the dynamic aggregate demand and aggregate supply model at the outset, by naming financial frictions as an additional factor that shifts the *IS* curve (Chapter 10) and the *AD* curve (Chapter 12)
- A new section that clarifies the difference between movements along the *MP* curve and shifts in the *MP* curve, with two new Policy and Practice cases to illustrate the difference: "Movement Along the *MP* Curve: The Rise in the Federal Funds Rate Target, 2004–2006" and "Shifts in the *MP* Curve:

Autonomous Monetary Easing at the Onset of the 2007–2009 Financial Crisis" (Chapter 10)
- A new box, "What Does *Autonomous* Mean?" (Chapter 12)
- A new box, "The Relationship of the Phillips Curve and the Short-Run Aggregate Supply Curve" (Chapter 11)
- A new box, "The Difference Between the Taylor Rule and the Taylor Principle" (Chapter 13)

The Euro Crisis

The Euro crisis has been a continuing drama since 2010, and so this edition includes the following new material.

- A new section on sovereign debt crises that explains the dynamics of these crises (Chapter 16)
- A new Policy and Practice case, "The European Sovereign Debt Crisis" (Chapter 16)
- A new Policy and Practice case, "The Debate Over Fiscal Austerity in Europe" (Chapter 16)
- A new Policy and Practice case, "Will the Euro Survive?" (Chapter 17)

Economic Growth

To better motivate the discussion of the Solow model, Chapter 6 now begins with an introductory section that examines economic growth around the world. Also, Chapter 6 has been reorganized so that growth accounting is discussed at the end of the chapter, in order to better motivate Chapter 7 on the drivers of economic growth. New figures have been added to Chapter 6 to show how output per worker changes over time when there is a change in the saving rate, population growth, or technology.

Links Between the Microeconomic Foundations of Macroeconomics and the Dynamic Aggregate Demand/Aggregate Supply Model

To illustrate the links between the microeconomic material in Part 7 of the text and the dynamic aggregate demand/aggregate supply model, I have added the following new material:

- A new Application, "Consumer Confidence and the Business Cycle" (Chapter 18)
- A new Application, "Stock Market Crashes and Recessions" (Chapter 19)
- A new section on the role of the natural rate of unemployment in the *AD/AS* model (Chapter 20)

Hallmarks

The five distinguishing characteristics of *Macroeconomics: Policy and Practice*, Second Edition, are: (1) its emphasis on policy and practice, (2) its dynamic approach to macroeconomics, (3) its focus on the interaction between finance and macroeconomics, (4) its focus on economic growth, and (5) its international perspective.

Policy And Practice

This book emphasizes policy and practice in macroeconomics by providing theoretical frameworks that are geared to discussing the most exciting, current, major policy debates in the macroeconomics field. The best way to teach macroeconomics is by continually exposing the student to cases and applications so that he or she *really* understands the underlying theory.

Over 30 in-chapter Applications show students how to apply economic theory to real-world examples. These Applications include discussions of the Great Inflation from 1965 to 1982, the 2007–2009 financial crisis, the impact of oil prices on real wages and the stock market, why income inequality has been growing over time, and why some countries are rich and others are poor. In addition, over 30 Policy and Practice cases explore specific examples of actual policies and how they were executed. These cases include such topics as how the Federal Reserve uses the Taylor rule, the use of nonconventional monetary policy during the 2007–2009 financial crisis, the political business cycle and Richard Nixon, the question of whether the Euro will survive, and China's one-child policy. These Applications and Policy and Practice cases provide critically important perspectives on current events, domestic and global issues, and historical episodes.

A Dynamic Approach To Macroeconomics

Analyzing today's hot-button policy issues requires approaching macroeconomic theory using the models that researchers and policy makers employ. The central modeling element in *Macroeconomics: Policy and Practice*, Second Edition, is a powerful, dynamic aggregate demand and supply (*AD/AS*) model that highlights the interaction of inflation and economic activity. In this model, inflation (as opposed to the price level) is plotted on the vertical axis.

Given the vital importance of this model, I build it step-by-step across Chapters 9–13:

- Chapter 9 develops the first building block of the aggregate demand and supply model, the *IS* curve.
- Chapter 10 describes how monetary policy makers set real interest rates with the *monetary policy (MP) curve*, which describes the relationship between inflation and real interest rates. The chapter then uses the *MP* curve and the *IS* curve to derive the aggregate demand curve.
- Chapter 11 uses the Phillips curve to derive the aggregate supply curve.
- Chapter 12 assembles the building blocks from preceding chapters to develop the aggregate demand and supply model, and then puts this model to immediate use with Applications that analyze business cycle fluctuations in the United States and abroad.
- Chapter 13 shifts perspective by showing how the aggregate demand and supply model can help us understand the issues policy makers confront when they attempt to stabilize inflation and output fluctuations.

The aggregate demand and supply model, with inflation on the vertical axis, therefore serves as the sole engine for the analysis of short-run fluctuations. Students benefit from this exclusive focus and the careful development of a single model: Reliance on the dynamic *AD/AS* model continually reinforces their understanding of the model and provides a unified framework for all analysis.

WHY THE DYNAMIC *AD/AS* FRAMEWORK? The dynamic *AD/AS* model includes many of the essential elements of the *ISLM* model. It develops the *IS* curve (Chapter 9) and illustrates the determination of interest rates in the money market through the interaction of money demand and supply (Chapter 10). However, the dynamic *AD/AS* model has several very important advantages over *ISLM* and traditional aggregate demand/aggregate supply frameworks:

- The dynamic *AD/AS* framework focuses on the interaction between *inflation* and output, which is exactly what the media and policy makers focus on. In contrast, traditional aggregate demand/aggregate supply analysis focuses on the interaction between the *price level* and output.
- The dynamic *AD/AS* framework characterizes monetary policy easing or tightening as a change in the *interest rate*, which is exactly the way central banks conduct monetary policy. In contrast, the *ISLM* and traditional aggregate demand/aggregate supply model frameworks characterize monetary policy as a change in the *money supply*. No central bank in the world today conducts monetary policy in this way.
- The dynamic *AD/AS* framework is consistent with modern macroeconomic analysis as it is treated in the academic literature.
- The dynamic *AD/AS* framework allows for a simple analysis of current monetary policy issues, such as nonconventional monetary policy and the zero-lower-bound problem. In addition, it allows for a modern treatment of such topical policy issues as the recent shift in monetary policy in Japan, referred to as Abenomics, and why fiscal multipliers have become larger in recent years.
- Finally, although the *AD/AS* framework is a change from the way macroeconomics has been taught in the past, it actually makes it easier for students to learn because they have to master only one model rather than three, as was the case with more traditional approaches that include separate developments of the *ISLM* model, traditional aggregate demand/aggregate supply, and the Phillips curve.

The Interaction of Finance and Macroeconomics

The financial crisis that hit the world economy from 2007 to 2009 made abundantly clear the interaction between finance and macroeconomics. Two full chapters on finance and macroeconomics provide a coherent approach to key topics such as financial system dynamics and asymmetric information, and demonstrate their relevance in macroeconomic analysis. Chapter 14, "The Financial System and Economic Growth," shows how a well-functioning financial system promotes economic growth. This chapter develops the tools that are then used in Chapter 15, "Financial Crises and the Economy," to examine how disruptions to the financial system affect aggregate demand and the economy, with a particular emphasis on the root causes of, effects of, and policy responses to the financial crisis of 2007–2009. An additional Web chapter, "Financial Crises in Emerging Market Economies," expands the analysis of economic fluctuations to economies that have recently opened up their markets to the outside world.

Focus On Economic Growth

The explosion of research on economic growth in recent years is an exciting development in the macroeconomics field, with direct relevance to the question of why some countries suffer slow economic growth and remain poor, while others enjoy rapid economic growth and prosper. I discuss the Solow model in detail in Chapter 6, and present endogenous growth theory and the importance of institutions to economic growth in Chapter 7. As mentioned previously, Chapter 14 includes additional material on economic growth.

An International Perspective

Topical coverage and applications integrate an international dimension throughout *Macroeconomics: Policy and Practice*, Second Edition. For example, Chapter 4's analysis of the interaction of saving and investment discusses open and closed economies together, rather than in separate chapters. International trade and the impact of net exports on aggregate demand are discussed immediately as part of the *AD/AS* model in Part 4, as opposed to in a separate chapter, and the textbook applies the aggregate demand and supply model to analyze the impact of the 2007–2009 financial crisis in the United Kingdom, Ireland, and China. The Web chapter on emerging market economies provides further international perspective.

A Flexible Structure

Macroeconomics: Policy and Practice, Second Edition, offers a highly flexible structure with many different paths that instructors can take to tailor the book to their course needs. Most instructors will begin by assigning Chapters 1–4. For a long-run emphasis, instructors can then assign Chapters 5–7. Instructors wishing to cover the short run first can instead proceed directly to Part 4.

The core chapters that most instructors will teach in their courses, Chapters 1–13, make up the first four parts of the book. Instructors can assign subsequent chapters as they choose or skip them entirely, allowing them to focus on the particular areas of macroeconomics that match their course goals. Suggested outlines for semester-long courses with varying emphases follow. (Quarter-long courses would typically use three or four fewer of the optional chapters.)

- *Course Starting with Long-Run Analysis:* Chapters 1–13, and up to six of the remaining eleven chapters.
- *Course Starting with Micro Foundations and Long-Run Analysis:* Chapters 1–3, 18–20, 4–13, and up to three of the remaining eight chapters.
- *Course Starting with Short-Run Analysis:* Chapters 1–5, 8–13, 6–7, and up to six of the remaining eleven chapters.
- *Course Starting with Micro Foundations and Short-Run Analysis:* Chapters 1–3, 18–20, 4–5, 8–13, 6–7, and up to three of the remaining eight chapters.
- *Course Focusing on the Micro Foundations of Modern Business Cycle Analysis:* Chapters 1–3, 18–20, 4–5, 8–13, 21–22, and up to two of the remaining ten chapters.
- *Course with International Focus:* Chapters 1–13, 17, Web chapter on emerging market economies, and up to four of the remaining nine chapters.
- *Course with Finance Focus*: Chapters 1–15, and up to four of the remaining seven chapters.

Interest-Generating Features

Motivating the study of macroeconomics means bringing it to life through a wide variety of pedagogical features.

Previews at the beginning of each chapter tell students where the chapter is heading, why specific topics are important, and how they relate to other topics in the book.

Applications apply the analysis in each chapter to explain important real-world situations.

Policy and Practice cases explore specific examples of actual policies and how they were executed.

Macroeconomics in the News boxes introduce students to relevant news articles and data that are reported daily in the press, and explain how to read them.

Boxes highlight interesting material, including historical episodes and recent events.

Summary tables are useful study aids that recap key points.

Key statements are important points set in boldface italic type so that the student can easily find them for later reference.

Graphs with detailed captions demonstrate the interrelationship of the variables and are central to the illustrations of policy analysis. Innovative color-blended arrows guide students' analysis of the meanings of shifting curves.

Mini-Lectures, presented by the author for all of the analytic graphs in the text, are accessible through the e-text, which is available online from MyEconLab textbook resources. The mini-lectures provide a step-by-step discussion of the analysis.

A **Summary** at the end of each chapter lists the main points covered.

Key terms, which are important words or phrases, are boldfaced when they are defined for the first time and listed by page number at the end of each chapter.

End-of-chapter Review Questions, Problems, and Real-Time Data Analysis Problems guide students' mastery of the material, with a particular emphasis on real-world applications.

Supplemental Resources Simplify Teaching and Learning

A variety of comprehensive supplemental resources for professors and students accompany this book.

MyEconLab is the premier online assessment and tutorial system, pairing rich online content with innovative learning tools. The MyEconLab course for *Macroeconomics: Policy and Practice*, Second Edition, includes all the review questions and problems from the textbook. As a special feature, all Policy and Practice cases and Applications are also offered in MyEconLab, along with three to four assessment questions to test students' understanding of the key concepts. Look for these exercises within each chapter in a separate section called "Applications."

STUDENTS AND MYECONLAB The MyEconLab online homework and tutorial system puts students in control of their own learning through a suite of study and practice tools correlated with the online, interactive version of the textbook and other media tools. Within MyEconLab's structured environment, students practice what they learn, test their understanding, and then pursue a study plan that MyEconLab generates for them based on their performance on practice tests.

INSTRUCTORS AND MYECONLAB MyEconLab provides flexible tools that allow instructors to easily and effectively customize online course materials to suit their needs. Instructors can create and assign tests, quizzes, or homework assignments. MyEconLab saves time by automatically grading questions and tracking results in an online grade book. After registering for MyEconLab, instructors also have access to downloadable supplements.

ADDITIONAL MYECONLAB FEATURES

- **Weekly News Updates**. Each week, a relevant and current article from a newspaper or journal is posted, along with discussion questions.

For more information and to register, please visit **www.myeconlab.com**.

ADDITIONAL INSTRUCTOR RESOURCES **The Instructor's Manual**, an online supplement prepared by Martin Pereyra of the University of Missouri and the author, offers chapter overviews, outlines and objectives, and answers to the end-of-chapter questions and problems including solutions to the Data Analysis problems by Aaron Jackson of Bentley University. Additionally, the Instructor's Manual includes resources for each chapter that tie into the Applications and Policy and Practice features of the chapter, including discussion questions that professors can use in class with students, references to interesting outside materials such as newspaper and journal articles and macroeconomic data, and references to websites containing related real-world examples. The Instructor's Manual is available at **www.pearsonhighered.com/irc** in Microsoft Word and PDF formats.

The PowerPoint Presentations, prepared by Jim Lee of Texas A&M University–Corpus Christi, provide all figures and tables from the text, as well as brief lecture notes that follow the structure and sequence of the text. They include coverage of the main topics of the chapter, organized by A-head, the key terms and equations from the chapter, and the Applications and Policy and Practice features in the chapter.

Animated PowerPoint Presentations, created by the author, are also available at **www.pearsonhighered.com/irc**. These PowerPoint slides provide the analytical figures and are completely manipulable by the user. Instructors can custom design their PowerPoint lectures with step-by-step animations of all key text figures.

The Test Item File, originally prepared by Paul Kubik of DePaul University, Victor Valcarcel of Texas Tech University, and Brian Trinque of the University of Texas–Austin, and updated for the second edition by Brian Trinque, provides 75 multiple-choice questions and 10 short-answer questions for each chapter. The questions provide a mix of numerical, graphical, and conceptual approaches for all chapter topics. In addition, the questions are MyEconLab-compatible and follow the Association to Advance Collegiate Schools of Business (AACSB) tagging procedures. The Test Item File is available at **www.pearsonhighered.com/irc** electronically in Microsoft Word format and as computerized TestGen-format files that can be used with TestGen test-generating software. This test-generating program permits instructors to edit, add, or delete questions from the test bank; analyze test results; and organize a database of tests and student results, allowing for flexibility and ease of use.

ADDITIONAL STUDENT RESOURCES **The Companion Website,** located at **www.pearsonhighered.com/mishkin**, features Web appendices on a wide variety of topics**,** as well as a Web chapter, "Financial Crises in Emerging Market Economies."

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This book has been thoroughly accuracy checked through several rounds. I would like to thank the accuracy reviewer, Jim Eaton, for his extraordinary efforts and attention to detail. In addition, I have received thoughtful comments from outside reviewers, editorial board members, focus group participants, community call participants, and class testers, who are listed below.

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Vance Ginn, *Texas Tech University*
Roy Gobin, *Loyola University*
Nick Gomersall, *Luther College*
Michael J. Gootzeit, *University of Memphis*
Steven Greenlaw, *University of Mary Washington*
Alan Gummerson, *Florida International University*
Marwa Hassan, *Rutgers University*
Scott Hegerty, *Canisius College*
Kolver Hernandez, *University of Delaware*
Kim Huynh, *University of Indiana*
Miren Ivankovic, *Anderson University*
Brian Jacobsen, *Wisconsin Lutheran College*
Louis Johnston, *College of Saint Benedict Saint John's University*
Jason Jones, *Furman University*
Lillian Kamal, *University of Hartford*
Bryce Kanago, *University of Northern Iowa*
Leonie Karkoviata, *University of Houston*
Ben Kim, *University of Nebraska–Lincoln*
Ruby Kishan, *Texas State University–San Marcos*
Todd Knoop, *Cornell College*
Gregory Krohn, *Bucknell University*
Krishna Kumar, *Duke University*
Kenneth Kuttner, *Williams College*
Susan Laury, *Georgia State University*
Jim Lee, *Texas A&M–Corpus Christi*
Jialu Liu, *Indiana University–Bloomington*
Gregory Lubiani, *Southwest Tennessee Community College*
Guangyi Ma, *Texas A&M University*
Karen Maguire, *University of Colorado–Boulder*
John McArthur, *Wofford College*
Shahriar Mostashari, *Campbell University*
Kanda Naknoi, *Purdue University*
Esen Onur, *California State University–Sacramento*
Biru Paksha Paul, *State University of New York at Cortland*
Nate Peach, *Colorado State University*
William Perkins, *Manhattanville College*
Reza Ramazani, *Saint Michael's College*
John Rasmus, *Diablo Valley Community College*
Luisa Blanco Raynal, *Pepperdine University*
Malcolm Robinson, *Thomas More College*
Jack Russ, *San Diego State University*
Subarna Samanta, *College of New Jersey*
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Andrei Shevchenko, *Michigan State University*
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Rachael Small, *University of Colorado–Boulder*
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Paul Stock, *University of Mary Hardin–Baylor*

Ellis Tallman, *Oberlin College*
Wendine Thompson-Dawson, *Monmouth College*
Jay Tontz, *Diablo Valley College*
Raúl Velázquez, *Manhattan College*
Bhavneet Walia, *Nicholls State University*
Anne Wenzel, *San Francisco State University*
Grace Yan, *Oklahoma State University–Tulsa*
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Michael Buckley, *Fordham University*
Michael Carew, *Baruch College of CUNY*
Jim Eaton, *Bridgewater College*
Jean Gauger, *The University of Tennessee*
Aaron L. Jackson, *Bentley University*
Jason Jones, *Furman University*
Susan Laury, *Georgia State University*
John McArthur, *Wofford College*
Shahriar Mostashari, *Campbell University*
Kanda Naknoi, *Purdue University*
Ellis Tallman, *Oberlin College*
Victor Valcarcel, *Texas Tech University*

Finally, I want to thank my extended family, who enable me to be so productive because they give me so much joy: my wife, Sally; my two children, Matthew and Laura; Matthew's wife Kim; my goddaughters, Alba, Glenda, and Norma; their husbands, Isaac, Andy, and Sergio; and their six children, Robbie, Sophie, Adrian, Sam, Sarah, and Olivia.

I dedicate this book to my mother, who was still sharp as a tack and a lot of fun when she passed away in 2012 at age ninety-one.

Frederic S. Mishkin

About the Author

Frederic S. Mishkin is the Alfred Lerner Professor of Banking and Financial Institutions at the Graduate School of Business, Columbia University. He is also a research associate at the National Bureau of Economic Research and past president of the Eastern Economics Association. Since receiving his Ph.D. from the Massachusetts Institute of Technology in 1976, he has taught at the University of Chicago, Northwestern University, Princeton University, and Columbia. He has also received an honorary professorship from the People's (Renmin) University of China. From 1994 to 1997, he was executive vice president and director of research at the Federal Reserve Bank of New York and an associate economist of the Federal Open Market Committee of the Federal Reserve System. From September 2006 to August 2008, he was a member (governor) of the Board of Governors of the Federal Reserve System.

Professor Mishkin's research focuses on monetary policy and its impact on financial markets and the aggregate economy. He is the author of more than twenty books, including *The Economics of Money, Banking, and Financial Markets*, Tenth Edition (Pearson, 2013); *Financial Markets and Institutions*, Eighth Edition (Pearson, 2015); *Monetary Policy Strategy* (MIT Press, 2007); *The Next Great Globalization: How Disadvantaged Nations Can Harness Their Financial Systems to Get Rich* (Princeton University Press, 2006); *Inflation Targeting: Lessons from the International Experience* (Princeton University Press, 1999); *Money, Interest Rates, and Inflation* (Edward Elgar, 1993); and *A Rational Expectations Approach to Macroeconometrics: Testing Policy Ineffectiveness and Efficient Markets Models* (University of Chicago Press, 1983). In addition, he has published more than 200 articles in such journals as *American Economic Review*, *Journal of Political Economy, Econometrica, Quarterly Journal of Economics*, *Journal of Finance*, *Journal of Money, Credit and Banking*, and *Journal of Monetary Economics*.

Professor Mishkin has served on the editorial board of *American Economic Review* and has been an associate editor at *Journal of Business and Economic Statistics*, *Journal of Applied Econometrics*, *Journal of Economic Perspectives*, and *Journal of Money, Credit and Banking*; he also served as the editor of the Federal Reserve Bank of New York's *Economic Policy Review*. He is currently an associate editor (member of the editorial board) at five academic journals, including *International Finance*; *Finance India*; *Review of Development Finance*; *Borsa International Review*; and *Emerging Markets, Finance and Trade*. He has been a consultant to the Board of Governors of the Federal Reserve System, the World Bank, and the International Monetary Fund, as well as to many central banks throughout the world. He was also a member of the International Advisory Board to the Financial Supervisory Service of South Korea and an advisor to the Institute for Monetary and Economic Research at the Bank of Korea. Professor Mishkin was a Senior Fellow at the Federal Deposit Insurance Corporation's Center for Banking Research and was an academic consultant to and serves on the Economic Advisory Panel of the Federal Reserve Bank of New York.

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Part 1

Introduction

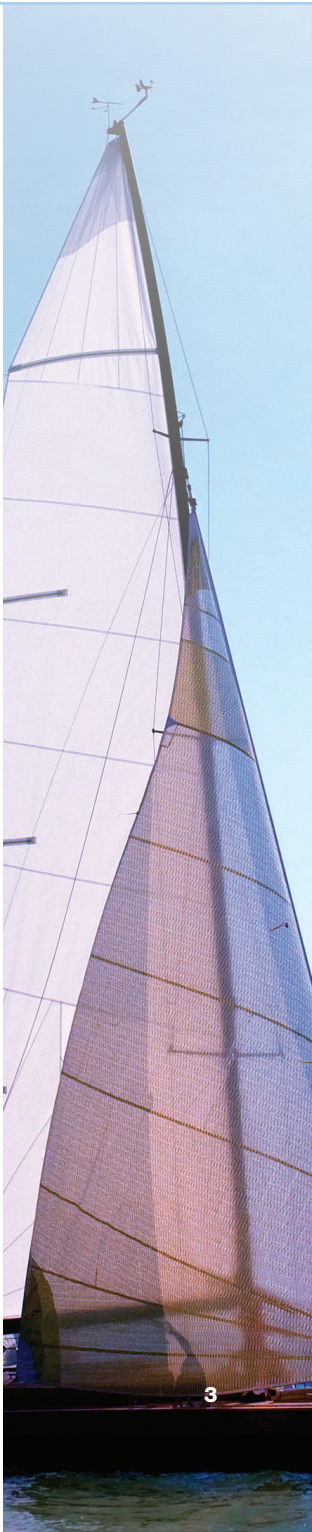
Part 1 Introduction

We begin with an introduction to the study of macroeconomics. Chapter 1 describes the questions that macroeconomists seek to answer and the data they seek to explain, raising key policy questions that will be the focus of the remaining chapters of this book: How can poor countries get rich? Is saving too low? Do government budget deficits matter? How costly is it to reduce inflation? How can we make financial crises less likely? How active should stabilization policy be? Should macroeconomic policy follow rules? Are global trade imbalances a danger? Chapter 2 examines how economists define and measure the most important macroeconomic data.

In keeping with our focus on key policy issues and the techniques policymakers use in practice, we will analyze the following specific examples in Policy and Practice cases:

- "Can GDP Buy Happiness?"
- "Policy and Overstatements of the Cost of Living"

1 The Policy and Practice of Macroeconomics



Preview

What are your career plans after graduation? Many factors beyond your grades and choice of a major affect the ultimate path you take. When you graduate from college, will jobs be plentiful or will a high unemployment rate (as occurred in the aftermath of the 2007–2009 recession) make it a challenge to find work? Will overall prices be rising rapidly, so you will need more money to pay for your expenses next year? Will the value of the U.S. dollar decline so that it will be more expensive to travel abroad? Should you worry about the current high government budget deficits? Jumping ahead, will the economy grow rapidly over the next thirty years, so your children will be better off than you? We will address the economics underlying the answers to these questions throughout this book.

In this chapter, we set the stage for your exploration of the policy and practice of macroeconomics. We start the chapter by examining what macroeconomists do and what data they seek to explain. We then preview the policy issues that we explore throughout this book.

The Practice of Macroeconomics

In formal terms, **macroeconomics** is the study of economic activity and prices in the overall economy of a nation or a region. Macroeconomic research draws heavily on **microeconomics,** which looks at the behavior of individual firms, households, or markets.[1]

The Process: Developing Macroeconomic Models

Macroeconomists try to explain how the overall economy works by using an **economic theory,** a logical framework to explain a particular economic phenomenon. Economic theory involves developing an **economic model,** a simplified representation of the

[1]We will explore the microeconomic foundations of macroeconomics in Chapters 18 to 20 of this book.

economic phenomenon that takes a mathematical or graphical form. The development of an economic theory or model typically involves five steps:

1. Identify an interesting economic question. For example, a macroeconomist might want to understand why the unemployment rate rises or falls over time, or why workers' wages in real terms (in terms of the goods and services they can actually buy) rise more rapidly during certain periods, but not others.

2. Specify the variables to be explained by the model, as well as the variables that explain them. A variable that a macroeconomist wants to explain is referred to as an **endogenous variable,** because it is explained *inside* the model he or she is building (and thus has the *endo* prefix). She would then identify a set of factors, called **exogenous variables,** that are used to explain the endogenous variable, but are taken as given and thus are viewed as determined *outside* the model. (This is why they have the *exo* prefix.)

   For example, in explaining the endogenous variable (the unemployment rate), the macroeconomist might specify consumer optimism or government spending as exogenous variables that are taken as given. Or if he or she were interested in explaining real wage growth, the endogenous variable, the macroeconomist might choose the rate of technological progress or the power of unions as the exogenous variables. The schematic diagram in Figure 1.1 illustrates the relationship between endogenous and exogenous variables in an economic model.

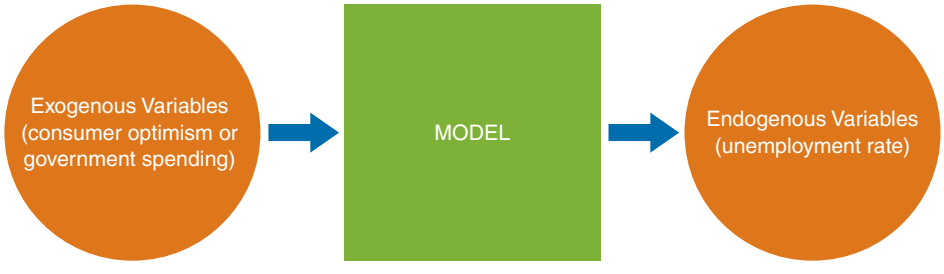
3. Posit a set of equations or graphical analysis to connect movements in the exogenous variables to the endogenous variables. For example, we might create a formula showing how, all else being equal, a 10% increase in government spending would change the unemployment rate. This formula is our model.

4. Compare the conclusions of the model with what actually happens. For example, if the model is designed to explain the unemployment rate, we

FIGURE 1.1

Variables in Macroeconomic Models

The model is a set of equations or a graphical analysis that explains movements in the endogenous variables—variables that are explained by the model—as a result of changes in the exogenous variables—given factors not determined by the model.



would compare the model's predictions to actual unemployment data in prior years. If the conclusions do not match this historical data, return to step 2 and change the model.

5. If the data are well explained, use the model to make further predictions, say on where the unemployment rate will head a year from now, and suggest policies to lower it.

The iterative process of comparing a model to actual data, making improvements along the way, raises new economic questions and advances knowledge in macroeconomics. We will look at the interaction of data and macroeconomic models as we proceed through this book, highlighting how the field of macroeconomics has evolved over time. We will also see how well macroeconomic models explain the data by looking at numerous applications featuring the U.S. and world economies throughout every chapter.

The Purpose: Interpreting Macroeconomic Data

Macroeconomists, and in turn macroeconomic models, focus in particular on three economic data series: *real GDP*, the *unemployment rate*, and the *inflation rate*. We look at each in turn.

REAL GDP. **Real Gross Domestic Product (GDP)** measures the output of actual goods and services produced in an economy over a fixed period, usually a year. As we will see in Chapter 2, real GDP also equals the total amount of real income of every person and firm in the economy.

Figure 1.2 shows real GDP per person in the U.S. economy from 1900–2013 and has two important attributes. (To account for changes in the purchasing power of a dollar, we treat all goods and services as if they were sold at prices from the year 2011.) First,

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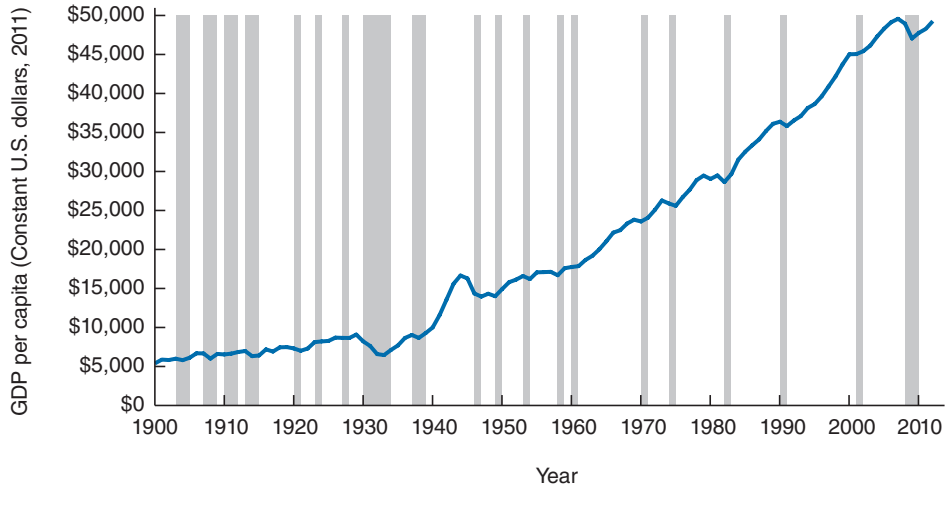
FIGURE 1.2

U.S. Real GDP Per Capita, 1900–2013

Due to business cycle fluctuations, real GDP per person has grown substantially but not smoothly, over time. We represent recessions with the shaded areas. Depressions are severe declines in real GDP, the most notable being the Great Depression (1929–1933).



Sources: Federal Reserve Bank of St. Louis, FRED Database. http://research.stlouisfed.org/fred2/; and for data before 1960, Maddison, Angus. *Historical statistics*. http://www.ggdc.net/maddison/

notice in Figure 1.2 that real GDP per person has grown substantially over time. In 1900, the average U.S. person earned nearly $5,000. Today, this number has risen by more than a factor of nine, to nearly $50,000. U.S. citizens today have far more income than their great grandparents did, and have been getting richer and richer over time. What explains this rise in income? Economic growth, the subject of Chapters 6, 7, and 14 of this book, is one of the most important topics in macroeconomics.

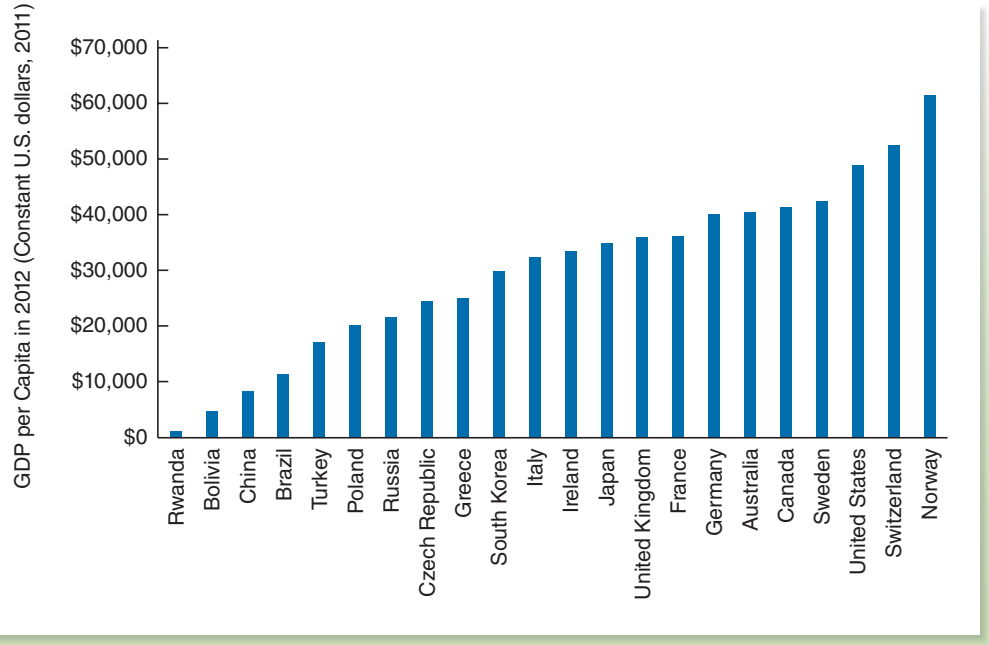
Second, notice in Figure 1.2 that real GDP grows unevenly over time and fluctuates around a trend. Fluctuations in real GDP are called a **business cycle,** which represents recurrent up and down movements in economic activity that differ in how regular they are. When economic activity declines and real GDP per person falls, there is a **recession.** In Figure 1.2, recession periods are marked by the shaded areas—and are frequent phenomena. When the decline in real GDP is severe, a recession is classified as a **depression.** The most notable of these is the Great Depression that lasted from 1929 until 1933. What causes recessions and particularly depressions is another of the most-studied questions in macroeconomics. We study short-run fluctuations in economic activity in Chapters 8–13.

So far we have only looked at real GDP per person in the United States. Figure 1.3 compares real GDP per person in a number of countries. As you can see, there are huge differences from country to country. Rwanda has a real GDP per person of just over $600, which is less than one-eightieth of U.S. real GDP. Macroeconomists study factors that affect real GDP over time. South Korea, for example, in 1960 had a real GDP per person of $1,500 that was actually lower than that of Bolivia. Today, Bolivia remains poor, while South Korea has moved into the rich countries' club, with its ranking of per person real GDP in the top quarter of all nations. South Korea turned around its prospects through very high economic growth rates. We focus on why some countries are so rich and others so poor, and how countries can improve their prospects, in Chapters 6, 7, and 14.

FIGURE 1.3

Cross-Country Comparison of Real GDP per Capita in 2012

Real GDP per person varies widely across countries. Rwanda has a real GDP per person of just over $600, which is less than one-eightieth of U.S. real GDP, which is nearly $50,000.



Source: World Bank. *World development indicators.* http://data.worldbank.org/indicator/

UNEMPLOYMENT RATE. The **unemployment rate** measures the percentage of workers looking for work, but who do not have jobs, at a particular point in time. When unemployment is high, households suffer a loss of income and may even find themselves unable to meet basic needs for food and shelter.

Figure 1.4 shows the U.S. unemployment rate from 1929–2013. Notice that the unemployment rate always remains well above zero, indicating that even during good times, there is always some unemployment. In addition, in Figure 1.4 the unemployment rate fluctuates substantially and rises sharply in the shaded areas denoting recessions. In 1933, during the Great Depression, the unemployment rate climbed to 25%. The most recent recession from 2007–2009, which has been dubbed the "Great Recession," although not nearly as severe as the Great Depression, still resulted in the largest rise in unemployment in the post–World War II period, with the unemployment rate rising by six percentage points, peaking at over 10%. What happens in labor markets to drive up unemployment during contractions in economic activity? We will seek answers to this question in Chapters 9–12 and 20.

Figure 1.5 compares the average unemployment rates over the past decade for different countries. Greece's over 12% unemployment rate is more than four times that of Switzerland, indicating the wide variation across countries. We will study the characteristics of labor markets that lead to high average unemployment rates in some countries but not others in Chapter 20.

INFLATION. **Inflation** or the **inflation rate** tells us how rapidly the overall level of prices is rising. Notice in Figure 1.6 that up until World War II, the inflation rate was on average about zero, and was often negative, a situation referred to as **deflation.** In the late 1960s, inflation rose and remained quite high for an extended period of time through the early 1980s, a period economists often refer to as the Great Inflation. We will address the causes of inflation and its historical peaks in Chapters 9–13.

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FIGURE 1.4

U.S. Unemployment Rate, 1929–2013

The unemployment rate always remains well above zero, has substantial fluctuations, and rises sharply during recessions, denoted by the shaded areas.

Sources: Federal Reserve Bank of St. Louis, FRED Database. http://research.stlouisfed.org/fred2/; and data prior to 1948, National Bureau of Economic Research. *Macro history database, income and employment.* www.nber.org/databases/ macrohistory/contents/chapter08.html

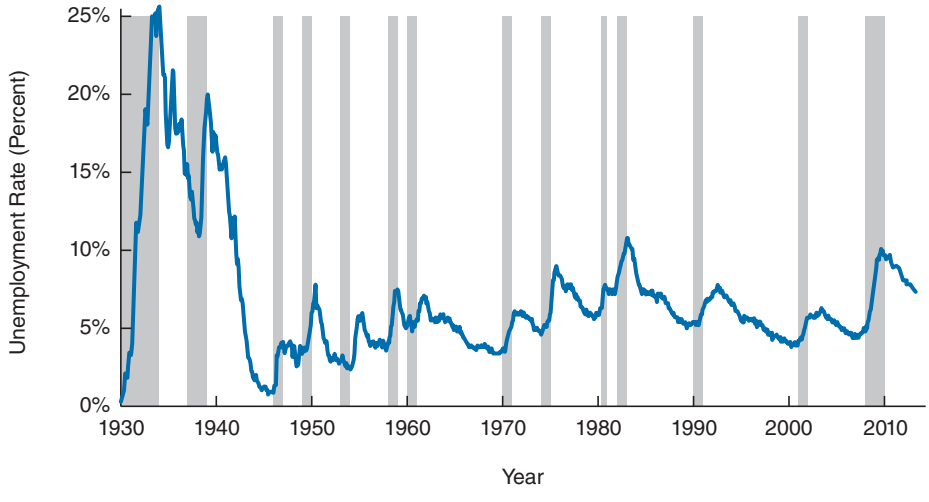
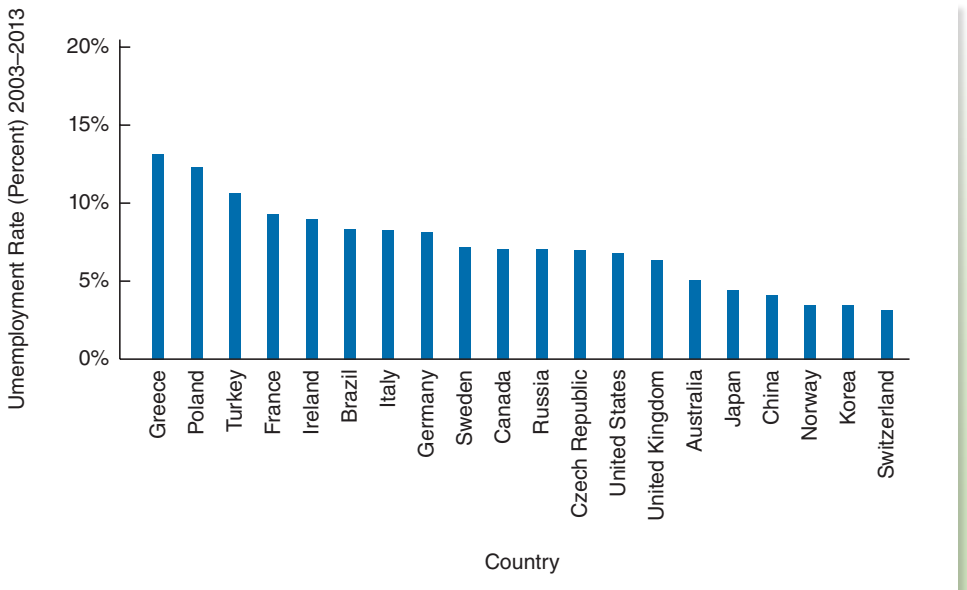


FIGURE 1.5

Cross-Country Comparison of Average Unemployment Rates, 2003–2013

The average unemployment rates over the past decade for a number of countries show much variation. For example, Greece's over 12% unemployment rate is four times higher than Switzerland's 3.1% unemployment rate.

Source: International Monetary Fund. http://www.imf.org/external/data.htm



MyEconLab Real-time data

FIGURE 1.6

U.S. Inflation Rate, 1910–2013

Up until World War II, the average inflation rate was near zero. In the late 1960s, inflation rose and remained quite high for an extended period of time through the early 1980s, the period of the Great Inflation.

Source: Federal Reserve Bank of St. Louis, FRED Database. http://research.stlouisfed.org/fred2/

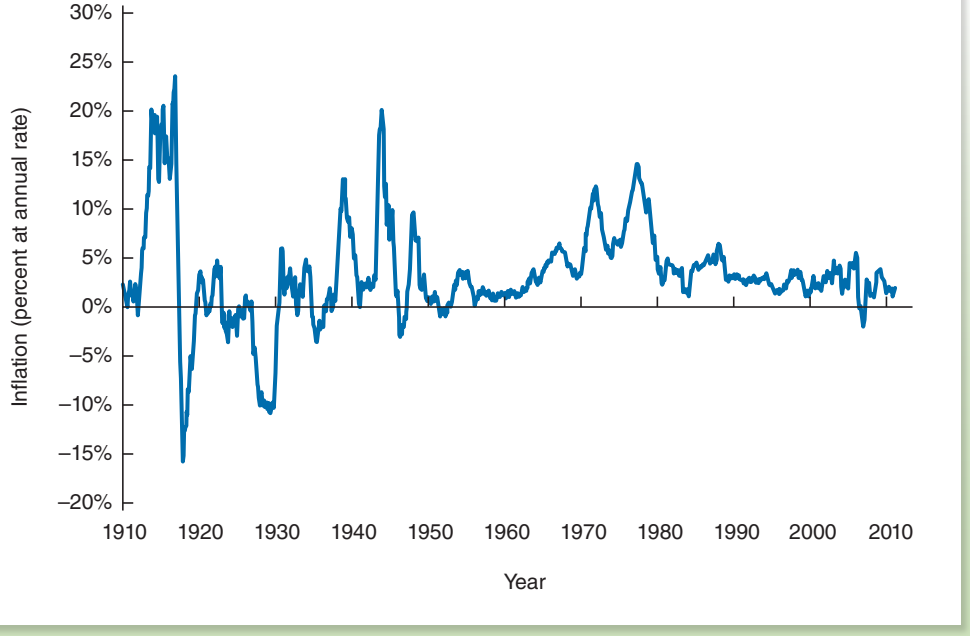
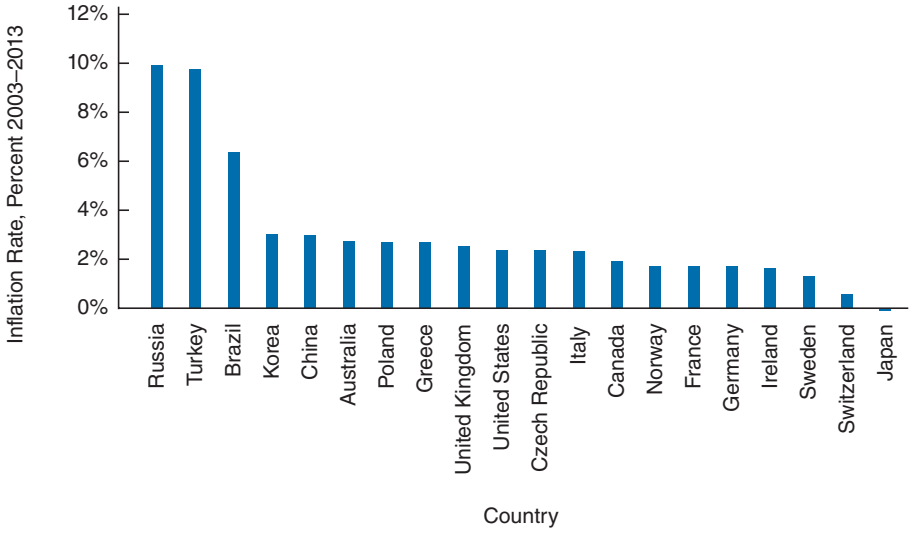


FIGURE 1.7

Cross-Country Comparison of Average Inflation Rates, 2003–2013

Countries' average inflation rates over the past decade have differed, with most countries having inflation rates averaging less than 5% at an annual rate, but some, such as Turkey and Russia, with inflation rates well above that.

Source: International Monetary Fund. http://www.imf.org/external/data.htm



A changing price level complicates decision making for consumers, businesses, and government, and this uncertainty can hamper economic growth. Consider a shop owner who finds that he or she can raise prices and make more profit. The owner might conclude that demand for his or her goods is rising and invest in expanding the store. If the overall price level is rising and demand for his or her goods hasn't changed, the decision to expand the shop could backfire.

Figure 1.7 shows that the average inflation rates over the past decade for a number of countries have differed substantially. What makes some countries more prone to inflation than others? Some countries have experienced super high inflation rates, which we refer to as **hyperinflation.** Zimbabwe (not shown in the figure) is the most recent extreme example, with its inflation rate soaring to over two million percent at an annual rate. Why do some countries experience hyperinflation? We will pursue these questions in Chapters 5 and 16.

Macroeconomic Policy

The careful work necessary to develop economic models and analyze key data is not simply an academic exercise: the underlying goal is to determine what policies can produce better macroeconomic outcomes. We will look at numerous specific examples of how macroeconomic policy is practiced in the Policy and Practice cases that appear throughout the text. We now set the stage by previewing several policy issues that are of particular concern to macroeconomists.

How Can Poor Countries Get Rich?

It's a simple insight that high economic growth enables poor countries to become rich. Nonetheless, designing policies to achieve economic growth is one of the greatest