

# macroeconomics

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Robin Wells is Researcher in Economics at Princeton University, where she regularly teaches undergraduate courses. She received her BA from the University of Chicago and her PhD from the University of California at Berkeley; she then did postdoctoral work at MIT. She has taught at the University of Michigan, the University of Southampton (United Kingdom), Stanford, and MIT. Her teaching and research focus on the theory of organizations and incentives. She writes regularly for academic journals.

"What is above all needed is to let the meaning choose the word, and not the other way about."

> George Orwell, "Politics and the English Language," 1946

#### FROM PAUL

obin and I like to think that we wrote this book with Orwell's injunction in mind. We wanted to write a different sort of book, one that gives as much attention to the task of making sure the student understands how economic models apply to the real world as it gives to the models themselves. We wanted to adapt Orwell's principle to the writing of an economics textbook: to let the purpose of economics-to achieve a deeper understanding of the world-rather than the mechanics of economics dictate the writing.

We believe that writing in this style reflects a commitment to the reader-a commitment to approach the material from a beginner's point of view, to make the material entertaining and accessible, to make discovery a joy. That's the fun part. But we also believe that there is another, equally compelling obligation on the part of an author of a principles of economics text. Economics is an extremely powerful tool. Many of us who are economists originally started in other disciplines (I started in history, Robin in chemistry). And we fell in love with economics because we believed it offers a coherent worldview that offers real guidelines to making the world a better place. (Yes, most economists are idealists at heart.) But like any powerful tool, economics should be treated with great care. For us, this obligation became a commitment that students would learn the appropriate use of the modelsunderstand their assumptions and know their limitations as well as their positive uses. Why do we care about this? Because we don't live in a "one model of the economy fits all" world. To achieve deeper levels of understanding of the real world through economics, students must learn to appreciate the kinds of trade-offs and ambiguities that economists and policy makers face when applying their models to real-world problems. We hope this approach will make students more insightful and more effective participants in our common economic, social, and political lives.

To those familiar with my academic work, this perspective will probably look familiar. There I tried to make the problem to be solved the focus and to avoid unnecessary technique. I tried to simplify. And I tried to choose topics that had important real-world implications. Writing for a large, nontechnical audience has only reinforced and expanded these tendencies. I had to begin with

the working assumption that readers initially have no reason to care about what I am writing about-that it is my responsibility to show them why they should care. So the beginning of each chapter of this book is written according to the dictum: "If you haven't hooked them by the third sentence, then you've lost them." I've also learned that about all you can take for granted in writing for a lay audience is basic numeracy-addition and subtraction, but no more than that. Concepts must be fully explained; likely confusions must be anticipated and headed off. And most of all, you must be judicious in choosing the content and pacing of the writing-don't overwhelm your reader.

#### FROM ROBIN

ike Paul, I wanted to write a book that appeals to students without unduly sacrificing an instructor's obligation to teach economics well. I arrived at a similar perspective on how this book should be written, but by a different path. It came from my experiences teaching economics in a business school for a few years. Facing students who were typically impatient with abstraction and often altogether unhappy to be taking economics (and who would often exact bloody revenge in teaching evaluations), I learned how important it is to hook the students into the subject matter. Teaching with case studies, I found that concepts had been truly learned only when students could successfully apply them. And one of the most important lessons I learned was not to patronize. We-economists, that is-often assume that people who aren't familiar with conceptual thinking aren't smart and capable. Teaching in a business school showed me otherwise. The majority of my students were smart and capable, and many had shouldered a lot of responsibility in their working lives. Although adept at solving practical problems, they weren't trained to think conceptually. I had to learn to acknowledge the practical skills that they did have, but also show them the importance of the conceptual skills they didn't have. Although I eventually returned to an economics department, the lessons I learned about teaching economics in a business school stayed with me and, I believe, have been crucial ingredients in writing this textbook.

## **Advantages of This Book**

Despite our fine words, why should any instructor use our text? We believe our book distinguishes itself in several ways that will make your introductory macroeconomics course an easier and more successful undertaking for the following reasons:

- chapters build intuition through real examples. In every chapter, we use real-world examples, stories, applications, and case studies to teach concepts and motivate student learning. We believe that the best way to introduce concepts and reinforce them is through real-world examples; students simply relate more easily to them. In addition, we stress throughout the book that economic models aren't just intellectual games; they are ways to understand the real world and the dilemmas faced by policy makers. The real-world examples, stories, applications, and case studies are drawn from a wide variety of sources—individual stories, economic history, and recent experience, with a strong emphasis on international cases.
- Real-world data illustrate concepts. Examples are often accompanied by real-world data so that students can see what real macroeconomic numbers look like and how they relate to the models.
- Pedagogical features reinforce learning. We've worked hard to craft a set of features that will be genuinely helpful to students. We describe these features in the next section, "Tools for Learning."
- Chapters have been written to be accessible and entertaining. We have used a fluid and friendly writing style that makes the concepts accessible. And we have tried whenever possible to use examples that matter directly to students; for example, considering why decisions made by economic policy makers have important implications for what the job market will look like when they graduate.
- Although easy to understand, the book also prepares students for further coursework. Too often, instructors find that selecting a textbook means choosing between two unappealing alternatives: a textbook that is "easy to teach" but leaves major gaps in students' understanding, or a textbook that is "hard to teach" but adequately prepares students for future coursework. We have worked very hard to create an easy-to-understand textbook that offers the best of both worlds.
- ➤ The book permits flexible yet conceptually structured use of chapters. We recognize that instructors will have different preferences about which topics to emphasize and how much detail to give tools of analysis. Chapters

were written with this in mind, allowing instructors to craft a course that fits their needs. For a detailed look at the organization of chapters and ways to use them, see pages ix through xv of this preface.

## **Tools for Learning**

We have structured each of the chapters around a common set of features. The following features are intended to help students learn better while also keeping them engaged.

## "What You Will Learn in This Chapter"

To help readers get oriented, the first page of each chapter contains a preview of the chapter's contents, in an easy-to-review bulleted list format, that alerts students to the critical concepts and details the objectives of the chapter.

## **Opening Story**

In contrast to other books in which each chapter begins with a recitation of some aspect of economics, we've adopted a unique approach: we open each chapter with a compelling story that often extends through the entire chapter. Stories were chosen to accomplish two things: to illustrate important concepts in the chapter and then to encourage students to want to read on to learn more.

As we've mentioned, one of our main goals is to build intuition with realistic examples. Because each chapter is introduced with a real-world story, students will relate more easily to the material. For example, we introduce Chapter 7, on macroeconomic data—usually one of the driest subjects in macroeconomics—with the story of how an accurate estimate of real GDP growth steadied nervous Portuguese officials and helped the country make the transition from dictatorship to democracy (see "After the Revolution" on page 159). We introduce Chapter 15, on unemployment, with a story of two lives changed by job loss (see "Two Paths to Unemployment" on page 368). For a list of our opening stories, see the inside front cover.

### "Economics in Action" Case Studies

In addition to introducing chapters with vivid stories, we conclude virtually every major text section with still more examples: a real-world case study called "Economics in Action." This feature provides a short but compelling application of the major concept just covered in that section. Students will experience an immediate payoff from being able to apply the concepts they've just read about. For example, our discussion of long-run fiscal issues (in Chapter 12, "Fiscal Policy"), which includes the question of solvency, is followed by an account of Argentina's debt default (see "Argentina's Creditors Take a Haircut," on

page 313). In Chapter 19, "Open-Economy Macro-economics," we follow the discussion of exchange rate policy with an account of China's massive intervention to keep the yuan from rising (see "China Pegs the Yuan" on page 482). For a complete list of all the "Economics in Action" cases in the text, see the inside front cover and our table of contents.

## Unique End-of-Section Review: "Quick Review" and "Check Your Understanding" Ouestions

In contrast to most other textbooks, which offer a review of concepts only at the end of each chapter, we include review material at the end of each major section within a chapter.

Economics contains a lot of jargon and abstract concepts that can quickly overwhelm the principles student. So we provide "Quick Reviews," short bulleted summaries of concepts at the end of each major section. This review helps ensure that students understand what they have just read.

The "Check Your Understanding" feature, which appears along with every "Quick Review," consists of a short set of review questions; solutions to these questions appear at the back of the book in the section set off with a burgundy tab at the edge of each page. These questions and solutions allow students to immediately test their understanding of the section just read. If they're not getting the questions right, it's a clear signal for them to go back and reread before moving on.

The "Economics in Action" cases, followed by the "Quick Reviews" and "Check Your Understanding" questions comprise our unique end-of-section pedagogical set that encourages students to apply what they've learned (via the "Economics in Action") and then review it (with the "Quick Reviews" and "Check Your Understanding" questions). Our hope is that students will be more successful in the course if they use this carefully constructed set of study aids.

## "For Inquiring Minds" Boxes

To further our goal of helping students build intuition with real-world examples, almost every chapter contains one or more "For Inquiring Minds" boxes, in which concepts are applied to real-world events in unexpected and sometimes surprising ways, generating a sense of the power and breadth of economics. These boxes help impress on students that economics can be fun despite being labeled "the dismal science."

In a Chapter 8 box, for example, students learn how a substantial portion of recent productivity gains in the United States can be attributed to a rather unglamorous industry, one that most of us take for granted—retailing

(see "The Wal-Mart Effect" on page 193). In Chapter 13, "Money, Banking, and the Federal Reserve System," we point out the puzzling fact that there's \$2,500 worth of currency in circulation for every man, woman, and child in the United States (how many people do you know who keep \$2,500 in their wallets?). We then explain how currency in domestic cash registers and in the hands of foreigners resolves the puzzle (see "What's with All The Currency?" on page 325.) For a list of "For Inquiring Minds" boxes, see the inside front cover and our table of contents.

### "Pitfalls" Boxes

Certain concepts are prone to be misunderstood when students begin their study of economics. We try to alert students to these mistakes in "Pitfalls" boxes, where common misunderstandings are spelled out and corrected. For example, in Chapter 19 on open-economy macroeconomics, we address the tricky business of how to read an exchange rate (see "Which Way Is Up?" on page 470). For a list of all "Pitfalls" boxes see the table of contents.

## Student-Friendly Graphs

Comprehending graphs is often one of the biggest hurdles for principles students. To help alleviate that problem, this book has been designed so that figures are large, clear, and easy for students to follow. Many contain helpful annotations—in an easy-to-see balloon label format—that link to concepts within the text. Figure captions have been written to complement the text discussion of figures and to help students more readily grasp what they're seeing.

We've worked hard to make these graphs student-friendly. For example, to help students navigate one of the stickier thickets—the distinction between a shifting curve and movement along a curve—we encourage students to see this difference by using two types of arrows: a shift arrow ( ) and what we call a "movement-along" arrow ( ). You can see these arrows in Figures 3-12 and 3-13 on pages 73 and 74.

In addition, several graphs in each chapter are accompanied by the icon **>web...**, which indicates that these graphs are available online as simulations (the graphs are animated in a Flash format and can be manipulated). Every interactive graph is accompanied by a quiz on key concepts to further help students in their work with graphs.

Instructing students in the use of graphs is also enhanced by our use of real-world data, often presented in charts that can be compared directly to the analytical figures. For example, the aggregate supply curve can seem like a highly abstract concept, but in Chapter 10, "Aggregate Supply and Aggregate Demand," we make it

less abstract by illustrating the concept with the actual behavior of aggregate output and the aggregate price level during the 1930s (see Figure 10-6 on p. 245).

Helpful Graphing Appendix For students who would benefit from an explanation of how graphs are constructed, interpreted, and used in economics, we've included a detailed graphing appendix after Chapter 2 on page 41. This appendix is more comprehensive than most because we know that some students need this helpful background, and we didn't want to breeze through the material. Our hope is that this comprehensive graphing appendix will better prepare students to use and interpret the graphs in this textbook and then out in the real world (in newspapers, magazines, and elsewhere).

### **Definitions of Key Terms**

Every key term, in addition to being defined in the text, is also placed and defined in the margin to make it easier for students to study and review.

#### "A Look Ahead"

The text of each chapter ends with "A Look Ahead," a short overview of what lies ahead in upcoming chapters. This concluding section provides students with a sense of continuity among chapters.

## End-of-Chapter Review

In addition to the "Quick Review" at the end of each major section, each chapter ends with a complete but brief **Summary** of the key terms and concepts. In addition, a list of the **Key Terms** is placed at the end of each chapter along with page references.

For each chapter we have a comprehensive set of **End-of-Chapter Problems** that test intuition and the ability to calculate important variables. Much care has been devoted to the creation of these problems. Instructors can be assured that they provide a true test of students' learning.

#### Macroeconomic Data

To supplement our in-chapter use of real-world data to illustrate macroeconomic concepts, we've included a broad selection of macroeconomic data at the back of the book in a section set off with blue tabs at the edge of each page. These data series include most of the important macroeconomic variables for the United States. Selected early years illustrate the behavior of the economy during the Great Depression and the post–World War II boom. The series also include data for each year from 1970 to 2004 for full coverage of recent years.

## The Organization of This Book and How to Use It

This book is organized as a series of building blocks in which conceptual material learned at one stage is clearly built upon and then integrated into the conceptual material covered in the next stage. These building blocks correspond to the eight parts into which the chapters are divided. We'll walk through those building blocks shortly. First, however, let's talk about the general question of the order in which macroeconomic topics are best covered.

**Teaching Macroeconomics: Short Run or Long Run First?** The history of macroeconomic theory is one in which short-run and long-run issues vie for priority. The long-run focus of classical economists gave way to the short-run focus of Keynesian economics; then the pendulum swung back to the long run, and lately it seems to be swinging back to the short run. This struggle over priority is reproduced every time an instructor must decide how to teach the subject. Two issues are particularly tricky. First, should long-run economic growth be covered early or later, after the business cycle has been discussed? Second, should classical, full-employment analysis of the price level come before or after business-cycle analysis?

We have chosen to cover long-run growth early (Part 4, Chapters 8 and 9) because we feel that an early discussion of the long-run growth of real GDP helps students understand why the business cycle involves fluctuations around an upward trend. We have, however, structured the subsequent short-run analysis (Part 5, Chapters 10–14) in a way that allows instructors to reverse this order, deferring our chapter on long-run growth (Chapter 8) until later in the course. However, we've taken a firmer stand when it comes to the second question. We believe that the fundamental approach of this book—to tie macroeconomics to real-world concerns—requires that a discussion of the short-run effects of demand and supply shocks come before a discussion of the classical model.

Although some macroeconomics textbooks treat the classical model first, and some even devote more space to long-run analysis than to the short run, we believe—based on our own teaching experience—that this is a formula for losing the interest of beginning students. We are, after all, living in a time of activist monetary and fiscal policy. Students are likely to read newspaper accounts of the Federal Reserve's attempts to stabilize the economy or of debates over the impact of tax cuts on job creation. If students begin their study of macroeconomics with models in which monetary policy has no effect on aggregate output, they will get the impression that what they are learning in the classroom is irrelevant to the real world. In this book we explain early why demand shocks have no effect on output in the long run, but we don't emphasize the longrun neutrality of money before describing how monetary and fiscal policy work in the short run.

We also believe that students could lose their sense that macroeconomics is relevant if the book starts with a model best used to explain inflation. We're living in a time when sustained high inflation is a distant memory in wealthy nations—and even in many developing countries. The great majority of students likely to use this book hadn't been born the last time the U.S. core inflation rate was above 6%. In contrast, the effects of short-run demand and supply shocks—such as the 2001 recession and the subsequent jobless recovery, or the surge in energy prices from 2003 to 2005—are fresh in our memories. We believe that a book aimed at showing students how economics applies to the real world must emphasize early on, rather than later, how macroeconomic models help us understand such events.

We believe that the diffidence with which some textbooks approach the short run is partly driven by reluctance to enter an area that was marked by fierce debates in the 1970s and 1980s. But the ferocity of those debates, like double-digit inflation, has receded into the past. Yes, there are still serious disputes about macroeconomic theory and policy. But as we explain in Chapter 17, "The Making of Modern Macroeconomics," there is also far more consensus than in the past. Students are best served by a book that emphasizes the macroeconomic issues that matter most to public debate rather than downplays these issues out of fear of stepping into contentious areas. That's why we have chosen to provide an extended early discussion of the short-run effects of demand and supply shocks and the role of fiscal and monetary policy in responding to these shocks.

Finally, one last issue involves the order in which the short run should be taught. Some instructors prefer to begin their coverage with a traditional Keynesian discussion of the determinants of aggregate expenditure. Some prefer to place that discussion after a basic introduction to aggregate supply and aggregate demand. And a third group prefers to skip that analysis altogether. We've used a structural innovation to make all three approaches work, by including an intuitive discussion of the multiplier in Chapter 10, "Aggregate supply and Aggregate Demand," followed by a more detailed, algebraic discussion in Chapter 11, "Income and Expenditure." Instructors who follow the table of contents, teaching Chapter 11 after Chapter 10, can treat the famous 45-degree diagram and its associated algebra as a more in-depth discussion of the multiplier principle students have already learned. Instructors who choose to teach Chapter 11 first can treat Chapter 10's discussion as a reinforcement of the graphical and algebraic analysis. And instructors who skip Chapter 11 will find that the intuitive discussion of the multiplier in Chapter 10 is sufficient for the analysis of fiscal and monetary policy.

With that, let's walk through the book's organization.

#### Part 1: What Is Economics?

In the **Introduction**, "The Ordinary Business of **Life**," students are initiated into the study of economics in the context of a shopping trip on any given Sunday in everyday America. It provides students with basic definitions of terms such as *economics*, the *invisible hand*, and *market structure*. In addition, it serves as a "tour d'horizon" of economics, explaining the difference between microeconomics and macroeconomics.

In **Chapter 1, "First Principles,"** nine principles are presented and explained: four principles of individual choice, covering concepts such as opportunity cost, marginal analysis, and incentives; and five principles of interaction between individuals, covering concepts such as gains from trade, market efficiency, and market failure. In later chapters, we build intuition by frequently referring to these principles in the explanation of specific models. Students learn that these nine principles form a cohesive conceptual foundation for all of economics.

Chapter 2, "Economic Models: Trade-offs and Trade," shows students how to think like economists by using three models—the production possibility frontier, comparative advantage and trade, and the circular-flow diagram—to analyze the world around them. It gives students an early introduction to gains from trade and to international comparisons. The Chapter 2 appendix contains a comprehensive math and graphing review.

## Part 2: Supply and Demand

In this part we provide students with the basic analytical tools they need to understand how markets work, tools that are common to microeconomics and macroeconomics.

Chapter 3, "Supply and Demand," covers the standard material in a fresh and compelling way: supply and demand, market equilibrium, and surplus and shortage are all illustrated using an example of the market for scalped tickets to a sports event. Students learn how the demand and supply curves of scalped tickets shift in response to the announcement of a star player's impending retirement.

Chapter 4, "The Market Strikes Back," covers various types of market interventions and their consequences: price and quantity controls, inefficiency and deadweight loss, and excise taxes. Through tangible examples such as New York City rent control regulations and New York City taxi licenses, the costs generated by attempts to control markets are made real to students.

Chapter 5, "Consumer and Producer Surplus," is designed to be optional. In the chapter, students learn how markets increase welfare through examples such as a market for used textbooks and eBay. Although the concepts of market efficiency and deadweight loss are strongly emphasized, we also describe the ways in which a market can fail. This chapter will be particularly helpful for instructors who teach Chapter 18 on international trade.

#### Part 3: Introduction to Macroeconomics

Chapter 6, "Macroeconomics: The Big Picture," introduces the big ideas in macroeconomics. Starting with an example close to students' hearts—how the business cycle affects the job prospects of graduates—this chapter provides a quick overview of recessions and expansions, employment and unemployment, long-run growth, inflation versus deflation, and the open economy.

Chapter 7, "Tracking the Macroeconomy," explains how the numbers macroeconomists use are calculated, and why. We start with a real-world example of how an estimate of real GDP helped save a country from policy mistakes, then turn to the basics of national income accounting, unemployment statistics, and price indexes.

**Long-Run Growth** We begin our discussion of macroeconomic models with long-run economic growth. We believe that students are best prepared to understand the significance of fluctuations around long-run trends if they first acquire an understanding of where long-run trends come from. Instructors can, however, defer Chapter 8 until later in the course if they choose.

## Part 4: The Economy in the Long Run

Chapter 8, "Long-Run Economic Growth," starts with a reality TV show—a BBC series about a family that spent three months living life as it was in 1900—to illustrate the human significance of economic growth. When we turn to economic data, we emphasize an international perspective—economic growth is a story about the world as a whole, not just the United States. The chapter uses a streamlined approach to the aggregate production function to present an analysis of the sources of economic growth and the reasons some countries have been more successful than others.

Chapter 9, "Savings, Investment Spending, and the Financial System," introduces students to financial markets and institutions. We group it with Chapter 8 in this part because it highlights the role of these markets and institutions in economic growth. Chapter 9 is also, however, integral to short-run analysis, for two reasons. First, its analysis of the market for loanable funds and the determination of interest rates provides an analytical tool that will be helpful for understanding monetary policy, international capital flows, and other topics covered later in the book. Second, its discussion of financial institutions provides background when we turn to the role of banks in creating money.

**The Short Run** Macroeconomics as we know it emerged during the Great Depression, and the effort to understand short-run fluctuations and the effects of monetary and fiscal policy remains as important as ever. So we devote a large block of chapters (Chapters 10–14) to

short-run fluctuations. These chapters are, however, structured to allow instructors to choose their preferred level of detail. In particular, we know that some instructors want to place more emphasis than others on the consumption function and the multiplier. So we provide a basic, intuitive explanation of the multiplier in Chapter 10 but reserve a detailed discussion of consumer behavior and how it relates to the 45-degree diagram for Chapter 11, which is designed to be optional (but can be taught before Chapter 10, if instructors choose to do so).

There is also an ongoing debate among economics instructors about whether the traditional presentation of aggregate supply and aggregate demand, which treats the aggregate quantities of goods and services demanded and supplied as functions of the price level, should be replaced with a framework that treats them as functions of the inflation rate. In this alternative framework, the "aggregate supply curve" is really the short-run Phillips curve, and the "aggregate demand curve" is really a representation of the effects of monetary policy that leans against inflation. We understand the appeal of such a presentation, which makes for an easier transition to the discussion of inflation. But we believe that this approach blurs the important distinction between the private sector's behavior and the effects of policy responses on that behavior. Furthermore, a crucial insight from the traditional aggregate supply-aggregate demand approach is the economy's ability to correct itself in the long run. This insight is lost in the alternative approach. So we introduce short-run macroeconomics with a traditional focus on the aggregate price level, and we treat ongoing inflation as a "medium-run" issue, reserved for Part 6.

#### Part 5: Short-Run Economic Fluctuations

Part 5 begins with **Chapter 10**, "Aggregate Supply and Aggregate Demand." This chapter's opening story covers the economic slump of 1979–1982, which startled Americans with its combination of recession and inflation. This leads into an analysis of how both demand shocks and supply shocks affect the economy. In analyzing demand shocks, we offer a simple, intuitive explanation of the concept of the multiplier, using the idea of successive increases in spending after an initial shock to explain how the aggregate demand curve shifts. In analyzing supply shocks, we emphasize positive shocks, such as the productivity surge of the late 1990s, as well as negative shocks. The chapter concludes with the key insight that demand shocks affect only output in the short run.

**Chapter 11, "Income and Expenditure,"** is an optional chapter for instructors who want to go into some detail about the sources of changes in aggregate demand. We use real-world data to delve more deeply into the determinants of consumer and investment spending, introduce

the famous 45-degree diagram, and present a fully fleshedout explanation of the logic of the multiplier. For instructors who would like more algebraic detail, the **Chapter 11 appendix** shows how to derive the multiplier algebraically.

Chapter 12, "Fiscal Policy," starts in Japan, where discretionary fiscal policy has taken the form of huge public works projects, often of doubtful value. This leads into an analysis of the role of discretionary fiscal policy in shifting the aggregate demand curve, which makes use of the intuitive explanation of the multiplier from Chapter 10. We also cover automatic stabilizers—using the woes of Europe's "stability pact" to illustrate their importance—and long-run issues of debt and solvency. The Chapter 12 appendix shows how to introduce taxes into the analysis. It shows more specifically than the main text how the size of the multiplier depends on the tax rate, and it provides an intuitive explanation, in terms of successive rounds of spending, of how taxes reduce the multiplier.

Part 5 concludes with two monetary chapters. Chapter 13, "Money, Banking, and the Federal Reserve System," covers the roles of money, the ways in which banks create money, and the structure and role of the Federal Reserve and other central banks. We use episodes from U.S. history together with the story of the creation of the euro to illustrate how money and monetary institutions have evolved.

Chapter 14, "Monetary Policy," covers the role of Federal Reserve policy in driving interest rates and aggregate demand. In the real-world examples, we took full advantage of the dramatic developments in monetary policy since 2000, which make it easier than ever before to illustrate what the Federal Reserve does. We also made a special effort to build a bridge between the short run and the long run. For example, we carefully explain how the Federal Reserve can set the interest rate in the short run, even though that rate reflects the supply and demand for savings in the long run.

The Medium Run An important set of questions in macroeconomics revolves around unemployment and inflation: can monetary and fiscal policy be used to reduce unemployment, does the attempt to reduce unemployment cause inflation, is there a trade-off between inflation and unemployment? These questions fall into the category of "medium-run" issues, which apply to periods long enough that wages and prices can't be taken as given, but short enough that productivity and population growth don't dominate the story.

## Part 6: The Supply Side and the Medium Run

Chapter 15, "Labor Markets, Unemployment, and Inflation," begins with stories of how real people move into and out of unemployment. It explains why there is always some frictional and structural unemployment, illustrated by the problem of "Eurosclerosis." It then

turns to the relationship between unemployment and the output gap. It concludes with the Phillips curve, the role of inflation expectations, and how this relates to the natural rate hypothesis.

Chapter 16, "Inflation, Disinflation, and Deflation," covers the causes and consequences of inflation, as well as the reasons disinflation imposes large costs in lost output and employment. A unique final section analyzes the effects of deflation and the problems that a "zero bound" poses for monetary policy. As we explain, these issues, dormant for more than half a century after the Great Depression, surfaced in Japan in the 1990s and have had a major impact on policy thinking.

If There's Time We recognize that many instructors will find that there's only enough time to cover the core chapters up through Chapter 16 on inflation. For those with enough time, however, Parts 7 and 8 (and Chapter 8, on long-run growth, for instructors who choose to cover it later) broaden the analysis. Part 7 offers a brief history of macroeconomic thought. Part 8 takes the analysis into international economics.

#### Part 7: Events and Ideas

Macroeconomics has always been a field in flux, with new policy issues constantly arising and traditional views often challenged. **Chapter 17, "The Making of Modern Macroeconomics,"** provides a unique overview of the history of macroeconomic thought, set in the context of changing policy concerns, then turns to a description of the current state of macroeconomic debates (there's more agreement than people think.)

## Part 8: The Open Economy

Chapter 18, "International Trade," contains a recap of comparative advantage, traces the sources of comparative advantage, considers tariffs and quotas, and explores the politics of trade protection. In response to current events, we give in-depth coverage to the controversy over imports from low-wage countries.

Chapter 19, "Open-Economy Macroeconomics," analyzes the special issues raised for macroeconomics by the open economy. We frame the discussion with real-world concerns: Britain's debate over whether to adopt the euro, America's current account deficit, China's accumulation of dollar reserves.

For instructors and students who want to delve more deeply into international macroeconomics, we provide a supplemental chapter—available on the Web, at www.worthpublishers.com/krugmanwells, and in booklet form. **This chapter, "Currencies and Crises,"** takes students into the world of currency speculation and international financial crises, with an emphasis on the dramatic events that have unfolded in developing countries over the past decade.

## Core and Optional Chapters Plus Possible Outlines

For an overview of what chapters are considered core and optional, see page xiv of this preface. For ideas on using this book to meet specific course goals, see the outlines on page xv.

## Supplements and Media

Worth Publishers is pleased to offer an exciting and useful supplements and media package to accompany this textbook. The package has been crafted to help instructors teach their principles course and to help students grasp concepts more readily.

The entire package has been coordinated by Martha Olney, University of California-Berkeley, to provide consistency in level and quality. Rosemary Cunningham, Agnes Scott College, has coordinated all of the quizzing materials in the Study Guide, Test Bank, and all the online materials to guarantee uniformity.

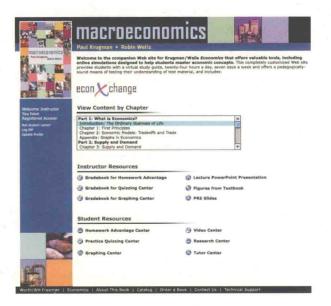
Since accuracy is so critically important, all the supplements have been scrutinized and double-checked by members of the supplements team, reviewers, and a team of additional accuracy checkers. The time and care that have been put into the supplements and media ensure a seamless package.

## Companion Website for Students and Instructors

econ X change

(www.worthpublishers.com/krugmanwells)

The companion website for the Krugman/Wells text offers valuable tools for both the instructor and students.



For instructors, this completely customized website offers many opportunities for quizzing and, most important, powerful grading tools. The site gives you the ability to track students' interaction with the Practice Quizzing Center and the Graphing Center by accessing an online gradebook. Instructors have the option to have student results e-mailed directly to them.

For students, the site offers many opportunities to practice, practice, practice. On the site, students can find animated graphs, practice quizzes, videos, graphing tutorials, and links to many other resources designed to help them master economic concepts. In essence, this site provides students with a virtual study guide, twenty-four hours a day, seven days a week by offering a pedagogically sound means of testing their understanding of text material.

This helpful, powerful site contains the following:

Homework Advantage Center Worth's secure, interactive, online homework system is accessible through the Krugman/Wells website. Using the Homework Advantage Center, instructors can easily create automatically graded homework assignments, quizzes, and tests. This online quizzing engine, which includes algorithmically generated questions, allows for repeatable, varied assignments for students. Students get immediate, individualized results after submitting their work. All student responses are stored in an electronic gradebook so that instructors can easily grade exams and generate reports. The gradebook has the following features that allow for flexibility in assessing students' abilities.

- Grades can be organized into as many as 25 related categories (tests, papers, homework, etc.).
- Assignments can be independently weighted.
- Letter grade cutoffs can be adjusted, and custom grading created ("Fair," "Good," "Excellent," and so on).
- Assignment scores and category averages can be entered or displayed as percentages, points, letter grades, or according to your own customized grading scheme.
- Gradebooks can be set up to report final averages as points earned across all categories.
- Student properties can include ID number, password (for online testing), e-mail address, and status (active, withdraw, incomplete).
- Grades can be dropped manually or automatically.
- Assignment, category, and final scores can be curved.
- Numerous reports can be customized and printed with an interactive print preview.
- Results can be merged from TheTestingCenter.Com.
- > Student rosters can be imported and exported.

## WHAT'S CORE, WHAT'S OPTIONAL: AN OVERVIEW

As noted earlier, we realize that some of our chapters will be considered optional. Below is a list of what we view as core chapters and those that could be considered optional. We've annotated the list of optional chapters to indicate what they cover should you wish to consider incorporating them into your course.

#### Core

- 1. First Principles
- 2. Economic Models: Trade-offs and Trade
- 3. Supply and Demand
- 4. The Market Strikes Back
- 6. Macroeconomics: The Big Picture
- 7. Tracking the Macroeconomy
- 8. Long-Run Economic Growth
- Savings, Investment Spending, and the Financial System
- 10. Aggregate Supply and Aggregate Demand

- 12. Fiscal Policy
- 13. Money, Banking, and the Federal Reserve System
- 14. Monetary Policy
- 15. Labor Markets, Unemployment, and Inflation
- 16. Inflation, Disinflation, and Deflation

#### **Optional**

#### Introduction: The Ordinary Business of Life

#### Appendix: Graphs in Economics

A comprehensive review of graphing and math for students who would find such a refresher helpful.

#### 5. Consumer and Producer Surplus

A brief introduction to welfare economics, which helps drive home the reasons markets are usually efficient. This chapter will be particularly helpful for instructors who teach international trade (Chapter 18).

## 11. Income and Expenditure plus Appendix: Deriving the Multiplier Algebraically

A chapter for instructors who want to provide full details on the determinants of aggregate demand: the consumption function, the determinants of investment spending, and the determination of equilibrium by the requirement that planned spending equal GDP. The appendix offers an algebraic treatment of the multiplier for instructors who want to supplement the graphical analysis

#### Appendix: Taxes and the Multiplier

A more rigorous derivation of the role of taxes in reducing the multiplier and acting as an automatic stabilizer

#### 17. The Making of Modern Macroeconomics

A chapter for instructors who like to cover the history of economic ideas and the current state of policy debate. It offers a unique survey of changing macroeconomic thought, leading up to current debates about monetary policy.

#### 18. International Trade

This chapter recaps comparative advantage, considers tariffs and quotas, and explores the politics of trade protection. Coverage here links back to the international coverage in Chapter 2 and makes use of the welfare economics introduced in Chapter 5.

### 19. Open-Economy Macroeconomics

A chapter for instructors who take a more international approach. It covers the ways in which capital flows affect financial markets, the importance of exchange rates and exchange rate regimes, and the effects of monetary policy changes under fixed and floating rates.

#### Supplemental chapter: Currencies and Crises

Available on the Web, at www.worthpublishers.com/krugmanwells, and in booklet form for instructors and students who want to cover currency speculation and international financial problems.

#### THREE POSSIBLE OUTLINES

To illustrate how instructors can use this book to meet their specific goals, we offer a selection of possible outlines that are alternatives to simply covering the chapters in order. By no means exclusive, these outlines reflect a likely range of different ways in which this book could be used.

#### Basic macroeconomics

#### Part 1

- 1. First Principles
- 2. Economic Models: Trade-offs and Trade

Appendix: Graphs in Economics

#### Part 2

- 3. Supply and Demand
- 4. The Market Strikes Back

#### Part 3

- 6. Macroeconomics: The Big Picture
- 7. Tracking the Macroeconomy

#### Part 4

- 8. Long-Run Economic Growth
- 9. Savings, Investment Spending, and the Financial System

#### Part 5

- 10. Aggregate Supply and Aggregate Demand
- 12. Fiscal Policy
- 13. Money, Banking, and the Federal Reserve System
- 14. Monetary Policy

#### Part 6

- 15. Labor Markets, Unemployment, and Inflation
- 16. Inflation, Disinflation, and Deflation
- And, if there is time: Part 8
- 18. International Trade
- 19. Open-Economy Macroeconomics

### **Expenditure first**

#### Part 1

- 1. First Principles
- 2. Economic Models: Trade-offs and Trade

Appendix: Graphs in Economics

#### Part 2

- 3. Supply and Demand
- 4. The Market Strikes Back

#### Part 3

- 6. Macroeconomics: The Big Picture
- 7. Tracking the Macroeconomy

#### Part 4

- 8. Long-Run Economic Growth
- 9. Savings, Investment Spending, and the Financial System

#### Part 5

- 11. Income and Expenditure
- 10. Aggregate Supply and Aggregate Demand
- 12. Fiscal Policy
- 13. Money, Banking, and the Federal Reserve System
- 14. Monetary Policy

#### Part 6

- 15. Labor Markets, Unemployment, and Inflation
- 16. Inflation, Disinflation, and Deflation

And, if there is time: Part 8

- 18. International Trade
- 19. Open-Economy Macroeconomics

#### Long run later

#### Part 1

- 1. First Principles
- 2. Economic Models: Trade-offs and Trade

Appendix: Graphs in Economics

#### Part 2

- 3. Supply and Demand
- 4. The Market Strikes Back

#### Part 3

- 6. Macroeconomics: The Big Picture
- 7. Tracking the Macroeconomy

#### Part 4

9. Savings, Investment Spending, and the Financial System

#### Part 5

- 10. Aggregate Supply and Aggregate Demand
- 12. Fiscal Policy
- 13. Money, Banking, and the Federal Reserve System
- 14. Monetary Policy

#### Part 6

- 15. Labor Markets, Unemployment, and Inflation
- 16. Inflation, Disinflation, and Deflation
- 8. Long-Run Economic Growth

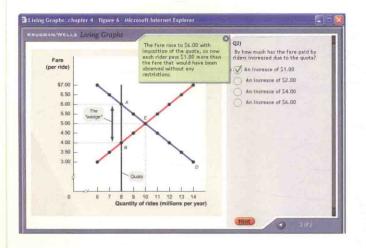
And, if there is time: Part 8

- 18. International Trade
- 19. Open-Economy Macroeconomics

**Practice Quizzing Center** Developed by Debbie Mullin, University of Colorado-Colorado Springs, this quizzing engine provides 20 multiple-choice questions per chapter with appropriate feedback and page references to the textbook. The questions as well as the answer choices are randomized to give students a different quiz with every refresh of the screen. All student answers are saved in an online database that can be accessed by instructors.



**Graphing Center** Developed by Cadre LLC in conjunction with Debbie Mullin, University of Colorado-Colorado Springs, the Graphing Center includes selected graphs from the textbook that have been animated in a Flash format. Approximately five graphs from each chapter have been animated and are identified in the textbook by a web icon within the appropriate figure. Working with these animated figures enhances student understanding of the effects of the shifts and movements



of the curves. Every interactive graph is accompanied by questions that quiz students on key concepts from the textbook and provide instructors with feedback on student progress. Student responses and interactions are tracked and stored in an online database that can be accessed by the instructor.

Research Center Created and continually updated by Jules Kaplan, University of Colorado-Boulder, the Research Center allows students to easily and effectively locate outside resources and readings that relate to topics covered in the textbook. It lists web addresses that hotlink to relevant websites; each URL is accompanied by a detailed description of the site and its relevance to each chapter, allowing students to conduct research and explore related readings on specific topics with ease. Also hotlinked are relevant articles by Paul Krugman and other leading economists.

**Video Center** In video interviews, the text's authors, Paul Krugman and Robin Wells, comment on specific aspects of each chapter and their relevance to students' lives. Each video is embedded in a Flash format with other pedagogical features and a running transcript of the authors' remarks. Videos can be presented in class to generate discussion or assigned as homework to give students a deeper understanding of key topics in the textbook.

**Student Powerpoint** Created by Can Erbil, Brandeis University, this PowerPoint presentation is ideal for students who need extra help in understanding the concepts in each chapter. The PowerPoint presentations for each chapter come complete with animations, notes, summaries, and graphics. This tool enables students to review and practice and helps them to more readily grasp economic concepts.

### > Aplia



Aplia, founded by Paul Romer, Stanford University, is the first web-based company to integrate pedagogical features from a textbook with interactive media. Specifically designed for use with the Krugman/Wells text, the figures, end-

of-chapter problems, boxes, text, and other pedagogical resources have been combined with Aplia's interactive media to save time for professors and encourage students to exert more effort in their learning.

The integrated online version of the Aplia media and the Krugman/Wells text includes:

- Extra problem sets suitable for homework and keyed to specific topics from each chapter
- Regularly updated news analyses

- Real-time online simulations of market interactions
- Interactive tutorials to assist with math
- Graphs and statistics
- Instant online reports that allow instructors to target student trouble areas more efficiently

With Aplia, you retain complete control and flexibility for your course. You choose the topics you want students to cover, and you decide how to organize it. You decide whether online activities are practice (ungraded or graded). You can even edit the Aplia content-making cuts or addtions as you see fit for your course.

For a preview of Aplia materials and to learn more, visit http://www.aplia.com.

## Additional Student Supplements

Student CD-ROM This CD-ROM contains all of the multimedia content found on the Krugman/Wells Companion website, including the practice quizzes, interactive graphs, Krugman/Wells videos, and the student PowerPoint slides. This CD-ROM is ideal for students with limited web access or for use in a lab setting. Available upon request, this CD can be packaged with the textbook at no additional cost to the student.

**Study Guide** Prepared by Rosemary Cunningham, Agnes Scott College, and Elizabeth Sawyer-Kelly, University of Wisconsin-Madison, the Study Guide reinforces the topics and key concepts covered in the text. For each chapter, the Study Guide provides:

- An introduction
- A fill-in-the-blank chapter review
- Learning tips with graphical analysis
- Four or five comprehensive problems and exercises
- Twenty multiple-choice questions
- Solutions to all fill-in-the-blank reviews, problems, exercises, and quizzes found in the Study Guide.

## Additional Instructor Supplements

Instructor's Resource Manual The Instructor's Resource Manual written by David Findlay, Colby College, and Diane Keenan, Cerritos Community College, is an ideal resource for instructors teaching principles of economics. The manual includes:

- Chapter-by-chapter learning objectives
- Chapter outlines
- Teaching tips and ideas
- Hints on how to create student interest

- Common misunderstandings that are typical among students
- Activities that can be conducted in or out of the classroom
- Detailed solutions to every end-of-chapter problem from the textbook

Printed Test Bank The Test Bank, coordinated by Rosemary Cunningham, Agnes Scott College, with contributing authors Doris Bennett, Jacksonville State University; Diego Mendez-Carbajo, Illinois Wesleyan University; Richard Gosselin, Houston Community College; Gus W. Herring, Brookhaven College; James Swofford, University of South Alabama; and James Wetzel, Virginia Commonwealth University, provides a wide range of creative and versatile questions ranging in levels of difficulty. Selected questions are paired with original graphs and graphs from the textbook to reinforce comprehension. Totaling over 2,800 questions, the Test Bank offers 150 multiple-choice questions and 20 true/false questions per chapter assessing comprehension, interpretation, analysis, and synthesis. Each question is conveniently cross-referenced to the page number in the text where the appropriate topic is discussed. Ouestions have been checked for continuity with the text content, reviewed extensively, and checked again for accuracy.

Diploma 6 Computerized Test Bank The Krugman/ Wells printed Test Bank is also available in CD-ROM for-



mat, powered by Brownstone, for both Windows and Macintosh users. BROWNSTONE With Diploma, you can easily create tests, write and edit questions, and

create study sessions for students. You can add an unlimited number of questions; scramble questions; and include pictures, equations, and multimedia links. Tests can be printed in a wide range of formats or administered to students with Brownstone's network or Internet testing software. The software's unique synthesis of flexible word-processing and database features creates a program that is extremely intuitive and capable. With Diploma, you can:

- Work with complete word-processing functions (including creating tables).
- Work with myriad question formats, including multiple choice, true/false, short answer, matching, fill in the blank, and essay.
- Attach feedback (rationales) to questions (or answers).
- Create, install, and use an unlimited number of question banks.
- Incorporate references (including tables, figures, and case studies).
- Attach customized instructions.

- Use multiple graphic formats (BMP, DIB, RLE, DXF, EPS, FPX, GIF, IMG, JPG, PCD, PCX, DCX, PNG, TGA, TIF, WMF, and WPG).
- Take advantage of a powerful algorithm engine for complex, dynamic question types and dynamic equations.
- Export self-grading tests (in HTML formats) for use with web browsers.
- Export test files in Rich Text File format for use with any word-processing program.
- Export test files to EDU, WebCT, and Blackboard course management systems.
- Preview and re-format tests before printing them.
- Include custom splash screens that feature graphics or images.
- Post tests to Diploma's online testing site, TheTestingCenter.com.

This computerized Test Bank is accompanied by a gradebook that enables you to record students' grades throughout a course; it also includes the capacity to track student records and view detailed analyses of test items, curve tests, generate reports, add weights to grades, and allows you to:

- Organize grades into as many as 25 related categories.
- Adjust letter grade cutoffs and create customized grading.
- Enter/display assignment scores and category averages as percentages, points, letter grades, or according to your own customized grading scheme.
- Report final averages as points earned across all categories.
- Customize student properties (including ID number, password, e-mail address, and status).
- Drop grades either manually or automatically.
- Import and export student rosters.

Diploma Online Testing at www.brownstone.net is another useful tool within the Brownstone software that allows instructors to provide online exams for students using Test Bank questions. With Diploma, you can easily create and administer secure exams over a network and over the Internet, with questions that incorporate multimedia and interactive exercises. The program allows you to restrict tests to specific computers or time blocks, and it includes an impressive suite of gradebook and result-analysis features.

Lecture PowerPoint Presentation Created by Can Erbil, Brandeis University, the enhanced PowerPoint presentation slides are designed to assist you with lecture preparation and presentation by providing original animations, graphs from the textbook, data tables, and bulleted lists of key concepts suitable for large lecture presentation. Although the slides are organized by topic from the text's table of contents, you can customize these slides to suit your individual needs by adding your own data, questions, and lecture notes. You can access these files on the instructor's side of the website or on the Instructor's Resource CD-ROM.

**Instructor's Resource CD-ROM** Using the Instructor's Resource CD-ROM, you can easily build classroom presentations or enhance your online courses. This CD-ROM contains all text figures (in JPEG and GIF formats), video clips of interviews with Paul Krugman and Robin Wells, animated graphs, and enhanced PowerPoint slides. You can choose from the various resources, edit, and save for use in your classroom.

Overhead Transparencies Worth is also happy to provide you with more than 100 vivid color acetates of text figures designed for superior projection quality.

Web-CT E-pack The Krugman/Wells WebCT E-Packs enable you to create a thorough, interactive, and pedagog-



ically sound online course or course WebCT website. The Krugman/Wells E-Pack provides you with cutting-edge online

materials that facilitate critical thinking and learning, including course outlines, preprogrammed quizzes, links, activities, threaded discussion topics, animated graphs, and a whole array of other materials. Best of all, this material is pre-programmed and fully functional in the WebCT environment. Prebuilt materials eliminate hours of coursepreparation work and offer significant support as you develop your online course. You can also obtain a WebCTformatted version of the text's test bank.

Blackboard The Krugman/Wells Blackboard Course Cartridge allows you to combine Blackboard's popular



tools and easy-to-use interface with the Krugman/Wells' text-specific, rich web content, including course outlines, preprogrammed quizzes, links, activities, interac-

tive graphs, and a whole array of other materials. The result: an interactive, comprehensive online course that allow for effortless implementation, management, and use. The Worth electronic files are organized and prebuilt to work within the Blackboard software and can be easily downloaded from the Blackboard content showcases directly onto your department server. You can also obtain a Blackboard-formatted version of the book's test bank.

Dallas TeleLearning videos The Krugman/Wells text was chosen to accompany the economics telecourse developed by the Dallas Community College District (DCCCD). For use in class, instructors have access to videos produced by the DCCCD, the nation's leading developer of distancelearning materials. These videos dramatize key economic concepts and can be used in a classroom setting.