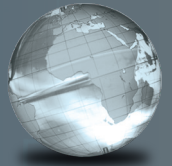


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Macroeconomics

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Andrew B. Abel • Ben S. Bernanke • Dean Croushore



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*The Wharton School of the
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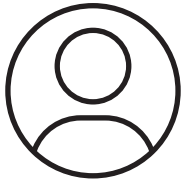
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Symbols Used in This Book

| | | | |
|-------------------|--|------------------------|---|
| A | productivity | W | nominal wage |
| B | government debt | Y | total income or output |
| $BASE$ | monetary base | \bar{Y} | full-employment output |
| C | consumption | | |
| CA | current account balance | a | individual wealth or assets |
| CU | currency held by nonbank public | c | individual consumption; consumption per worker |
| DEP | bank deposits | cu | currency–deposit ratio |
| E | worker effort | d | depreciation rate |
| FA | financial account balance | e | real exchange rate |
| G | government purchases | e_{nom} | nominal exchange rate |
| I | investment | \bar{e}_{nom} | official value of nominal exchange rate |
| INT | net interest payments | | |
| K | capital stock | i | nominal interest rate |
| M | money supply | i^m | nominal interest rate on money |
| MC | marginal cost | k | capital–labor ratio |
| MPK | marginal product of capital | n | growth rate of labor force |
| MPN | marginal product of labor | pK | price of capital goods |
| $MRPN$ | marginal revenue product of labor | r | expected real interest rate |
| N | employment, labor | r^w | world real interest rate |
| \bar{N} | full-employment level of employment | r_{a-t} | expected real after-tax interest rate |
| NFP | net factor payments | res | reserve–deposit ratio |
| NM | nonmonetary assets | s | individual saving; saving rate |
| NX | net exports | t | income tax rate |
| P | price level | u | unemployment rate |
| P^e | expected price level | \bar{u} | natural unemployment rate |
| P_{sr} | short-run price level | uc | user cost of capital |
| R | real seignorage revenue | w | real wage |
| RES | bank reserves | y | individual labor income; output per worker |
| S | national saving | | |
| S_{pvt} | private saving | π | inflation rate |
| S_{govt} | government saving | π^e | expected inflation rate |
| T | taxes | η_Y | income elasticity of money demand |
| TR | transfers | | |
| V | velocity | τ | tax rate on firm revenues |

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Preface

New to This Edition

Listed below is a summary of the changes made in this textbook for the eleventh edition. See the following section for further details on these changes.

- Added material on changes in private saving in the pandemic (Chapter 2)
- More details on developments of the gig economy (Chapter 3)
- Comparison of pandemic versus financial crisis affecting U-3 and U-6 measures of unemployment rate (Chapter 3)
- New applications on the production function and changes in productivity in the European Union, the gig economy in the ASEAN nations, unemployment during the European debt crisis, and recent trends in labor supply and a box on labor market data (Chapter 3)
- New applications on investors' responses to tax incentives and the impact of the pandemic on consumption (Chapter 4)
- New application on income distribution trends in South Africa (Chapter 6)
- Discussion of the changes made to the definition of M1 in 2021 (Chapter 7)
- New application on measuring inflation expectations (Chapter 7)
- Eliminated discussion of M1 velocity due to non-comparability of series over time (Chapter 7)
- Discussion of the unusual nature of the pandemic recession in 2020 (Chapter 8)
- Added discussion of the Fed's new policy in 2020 of flexible inflation targeting, and the increase in the inflation rate that followed (Chapter 12)
- Eliminated discussion of the money multiplier (Chapter 14)
- Deleted application on the money multiplier in severe financial crises (Chapter 14)
- Eliminated discussion of vault cash (Chapter 14)
- Added material on monetary policy in the pandemic (Chapter 14)
- Added discussion of the Fed's new operating procedures with abundant reserves (Chapter 14)
- New applications on the lender of last resort, zero lower bound, global financial crisis of 2008, and inflation targeting (Chapter 14)
- Deleted application on quantitative easing and inflation (Chapter 15)
- New applications on supply-side economics and social security in the United Kingdom and a box on the impact of government purchases (Chapter 15)

New and Updated Coverage

What is taught in intermediate macroeconomics courses—and how it is taught—has changed substantially in recent years. Previous editions of *Macroeconomics* played a major role in these developments. The eleventh edition provides lively

coverage of a broad spectrum of macroeconomic issues and ideas, including a variety of new and updated topics:

- *Long-term economic growth.* Because the rate of economic growth plays a central role in determining living standards, we devote much of Part 2 to growth and related issues. We first discuss factors contributing to growth, such as productivity (Chapter 3) and rates of saving and investment (Chapter 4); then in Chapter 6 we turn to a full-fledged analysis of the growth process, using tools such as growth accounting and the Solow model. Growth-related topics covered include the factors that determine long-run living standards and the productivity rebound of the 1990s.

New coverage: A discussion of the pandemic of 2020 and its impact on saving (Chapter 2), on labor supply and the unemployment rate (Chapter 3), and on consumption spending (Chapter 4).

- *Business cycles.* Our analysis of business cycles begins with facts rather than theories. In Chapter 8 we give a history of U.S. business cycles and then describe the observed cyclical behavior of a variety of important economic variables (the “business cycle facts”). In Chapters 9–11 we evaluate alternative classical and Keynesian theories of the cycle by how well they explain the facts.

New coverage: The text discusses the pandemic recession of 2020 and its aftermath compared with other recessions (Chapter 8).

- *Monetary and fiscal policy.* The effects of macroeconomic policies are considered in nearly every chapter, in both theory and applications. We present classical (Chapter 10), Keynesian (Chapter 11), and monetarist (Chapter 14) views on the appropriate use of policy.

New or substantially revised coverage: We discuss the Fed’s new flexible inflation-targeting strategy (Chapter 12). We change Chapter 14 substantially to describe the Fed’s new model of monetary policy with abundant reserves and discuss new tools for monetary policy used in the pandemic.

- *Labor market issues.* We pay close attention to issues relating to employment, unemployment, and real wages. We introduce the basic supply–demand model of the labor market, as well as unemployment, early, in Chapter 3. We discuss unemployment more extensively in Chapter 12, which covers the inflation–unemployment trade-off, the costs of unemployment, and government policies for reducing unemployment. Other labor market topics include efficiency wages (Chapter 11) and the effects of marginal and average tax rate changes on labor supply (Chapter 15).

New coverage: The text discusses recent trends in the labor force participation rate in the aftermath of the pandemic in 2020 (Chapter 3).

- *Data use.* Throughout the text, we emphasize macroeconomic data and how to use it and analyze it. Numerous boxes called In Touch with Data and Research provide descriptions of macroeconomic data. At the end of almost every chapter, problems in the Working with Macroeconomic Data section give students hands-on experience with manipulating data to help them understand macroeconomic theory and how it applies to the world.

New coverage: This edition includes coverage of the gig economy in the ASEAN nations and the Fed’s redefinition of the M1 measure of the money supply and how that affects analysis of the effects of money on the economy (Chapter 7).

- *Modeling.* The central theme of the textbook is to develop a complete macroeconomic model that students can use to understand the world's economies. We build the model in pieces in Part 2, Chapters 3–7, and put the pieces together in Part 3, Chapters 8–11.

New material: We add a discussion of the Fed's new model of the reserves market when reserves are abundant and the role played by the interest rate on bank reserve balances (Chapter 14).

- *Enhanced Pearson eTextbook: A New Way of Learning.* The Pearson eTextbook gives students access to their textbook anytime, anywhere. In addition to notetaking, highlighting, and bookmarking, the Pearson eTextbook offers interactive and sharing features. Students actively read and learn, through embedded and auto-graded practice, real-time data-graphs, animations, author videos, and more. Instructors can share comments or highlights, and students can add their own, for a tight community of learners in any class.

Program Introduction

From February 2006 to January 2014, Ben Bernanke was chairman of the Board of Governors of the Federal Reserve System. Federal ethics rules prohibited him from working on the sixth, seventh, and eighth editions, but he has returned to make substantive contributions to the most recent ninth, tenth, and eleventh editions.

In preparing the eleventh edition, we viewed our main objective to keep the book fresh and up-to-date, especially in light of the worldwide pandemic and the many new tools used by the Federal Reserve in response to it. In addition, the empirical problems at the end of most chapters direct students to appropriate data in the FRED database on the website of the Federal Reserve Bank of St. Louis. Because this database is frequently updated and is available free of charge, students will develop familiarity and facility with a current data source that they can continue to use after completing the course.

To improve student results, we recommend pairing the text content with **MyLab Economics**, which is the teaching and learning platform that empowers you to reach every student. By combining trusted author content with digital tools and a flexible platform, MyLab personalizes the learning experience and will help your students learn and retain key course concepts while developing skills that future employers are seeking in their candidates. From **Animated Graphs to Real-time Data Analysis Exercises**, MyLab Economics helps you teach your course, your way. Learn more at www.pearson.com/mylab/economics.

Solving Teaching and Learning Challenges

The eleventh edition builds on the strengths that underlie the book's lasting ability to help solve teaching and learning challenges for instructors and students alike, including:

- *Real-world applications.* A perennial challenge for instructors is to help students make active use of the economic ideas developed in the text. The rich variety of applications in this book shows by example how economic concepts can be put to work in explaining real-world issues such as the housing crisis of 2007–2011 and the financial crisis of 2008, the slowdown and revival

in productivity growth, the challenges facing the UK Social Security system, the impact of globalization on the U.S. economy, and new approaches to making monetary policy that were used in response to the financial crisis in 2008 and the pandemic in 2020. The eleventh edition offers new applications as well as updates of the best applications and analyses of previous editions.

- *Broad modern coverage.* From its inception, *Macroeconomics* has responded to students' desires to investigate and understand a wider range of macroeconomic issues than is permitted by the course's traditional emphasis on short-run fluctuations and stabilization policy. This book provides a modern treatment of these traditional topics but also gives in-depth coverage of other important macroeconomic issues such as the determinants of long-run economic growth, the trade balance and financial flows, labor markets, and the institutional framework of policymaking.
- *Innovative pedagogy.* The eleventh edition, like its predecessors, provides a variety of useful tools to help students study, understand, and retain the material. Features such as detailed full-color graphs that use color to demonstrate the shifts in curves, worked numerical problems at the end of selected chapters, real-world data that is regularly fed in from FRED, and end-of-chapter review and self-test material help encourage better comprehension and retention of the material.
- *Reliance on a set of core economic ideas.* Although we cover a wide range of topics, we avoid developing a new model or theory for each issue. Instead we emphasize the broad applicability of a set of core economic ideas (such as the production function, the trade-off between consuming today and saving for tomorrow, and supply–demand analysis). Using these core ideas, we build a theoretical framework that encompasses all the macroeconomic analyses presented in the book: long-run and short-run, open-economy and closed-economy, and classical and Keynesian.
- *A balanced presentation.* Macroeconomics is full of controversies, which can make it difficult to determine the best method of presentation. Sometimes the controversies overshadow the broad common ground shared by both the classicals and Keynesians (of the old, new, and neo-varieties). We emphasize that common ground. First, we pay greater attention to long-run issues (on which classicals and Keynesians have less disagreement). Second, we develop the classical and Keynesian analyses of short-run fluctuations within a single overall framework, in which we show that the two approaches differ principally in their assumptions about how quickly wages and prices adjust. Where differences in viewpoint remain—for example, in the search versus efficiency-wage interpretations of unemployment—we present and critique both perspectives. This balanced approach exposes students to all the best ideas in modern macroeconomics. At the same time, an instructor of either classical or Keynesian inclination can easily base a course on this book.

Developing Employability Skills

For students to succeed in a rapidly changing job market, they should be aware of their career options and how to go about developing a variety of skills. With *Macroeconomics*, eleventh edition and MyLab Economics, we focus on developing these skills in the following ways:

- *Working with Macroeconomic Data.* In nearly every chapter of *Macroeconomics*, eleventh edition, end-of-chapter questions ask students to download data from macroeconomic databases and to manipulate the data to illustrate theoretical ideas.

These questions give students the opportunity to get hands-on experience with data while doing a variety of empirical exercises, which provides experience that employers find valuable. In addition, MyLab Economics provides Real-Time Data Analysis Exercises, which use current macro data to help students understand the impact of changes in economic variables. Real-Time Data Analysis Exercises communicate directly with the Federal Reserve Bank of St. Louis FRED® site and update automatically as new data become available.

- *Applications.* Applications in each chapter show students how they can use theory to understand an important episode or issue. Examples of topics covered in Applications include the increase in the duration of unemployment in the European Debt Crisis (Chapter 3), the macroeconomic consequences of the boom and bust in stock prices (Chapter 4), how investors respond to tax incentives (Chapter 4), the United States as international debtor (Chapter 5), the recent surge in U.S. productivity growth (Chapter 6), the 2008 oil price shock (Chapter 9), calibrating the business cycle (Chapter 10), inflation targeting, the lender of last resort, and whether there is a zero lower bound on nominal interest rates (Chapter 14), and supply-side economics (Chapter 15).
- *In Touch with Data and Research.* These boxes give the reader further insight into new developments in economic research as well as a guide to keeping abreast of new developments in the economy. Research topics in these boxes include discussions of biases in inflation measurement (Chapter 2), alternative measures of unemployment (Chapter 3), the link between capital investment and the stock market (Chapter 4), flows of U.S. dollars abroad (Chapter 7), DSGE models and the classical–Keynesian debate (Chapter 10), the Lucas critique (Chapter 12), and the impact on the economy of fiscal stimulus packages (Chapter 15). Keeping abreast of the economy requires an understanding of what data are available, as well as their strengths and shortcomings. We provide a series of boxes to show where to find key macroeconomic data—such as labor market data (Chapter 3), balance of payments data (Chapter 5), and exchange rates (Chapter 13)—and how to interpret them.

A Flexible Organization

The eleventh edition maintains the flexible structure of earlier editions. In Part 1 (Chapters 1–2), we introduce the field of macroeconomics and discuss issues of economic measurement. In Part 2 (Chapters 3–7), we focus on long-run issues, including productivity, saving, investment, the trade balance, growth, and inflation. We devote Part 3 (Chapters 8–11) to the study of short-run economic fluctuations and stabilization policy. Finally, in Part 4 (Chapters 12–15), we take a closer look at issues and institutions of policymaking. Appendix A at the end of the book reviews useful algebraic and graphical tools.

Instructors of intermediate macroeconomics have different preferences as to course content, and their choices are often constrained by their students' backgrounds and the length of the term. The structure of *Macroeconomics* accommodates various needs. In planning how to use the book, instructors might find it useful to consider the following points:

- *Core chapters.* We recommend that every course include these six chapters:
 - Chapter 1 Introduction to Macroeconomics
 - Chapter 2 The Measurement and Structure of the National Economy

- Chapter 3 Productivity, Output, and Employment
- Chapter 4 Consumption, Saving, and Investment
- Chapter 7 The Asset Market, Money, and Prices
- Chapter 9 The *IS–LM/AD–AS* Model: A General Framework for Macroeconomic Analysis

Chapters 1 and 2 provide an introduction to macroeconomics, including national income accounting. The next four chapters in the list make up the analytical core of the book: Chapter 3 examines the labor market, Chapters 3 and 4 together develop the goods market, Chapter 7 discusses the asset market, and Chapter 9 combines the three markets into a general equilibrium model usable for short-run analysis (in either a classical or Keynesian mode).

- *Suggested additions.* To a syllabus containing these six chapters, instructors can add various combinations of the other chapters, depending on the course focus. The following are some possible choices:

Short-run focus. Instructors who prefer to emphasize short-run issues (business cycle fluctuations and stabilization policy) may omit Chapters 5 and 6 without loss of continuity. They could also go directly from Chapters 1 and 2 to Chapters 8 and 9, which introduce business cycles and the *IS–LM/AD–AS* framework. Although the presentation in Chapters 8 and 9 is self-contained, it will be helpful for instructors who skip Chapters 3–7 to provide some background and motivation for the various behavioral relationships and equilibrium conditions.

Classical emphasis. For instructors who want to teach the course with a modern classical emphasis, we recommend assigning all the chapters in Part 2. In Part 3, Chapters 8–10 provide a self-contained presentation of classical business cycle theory. Other material of interest includes the Friedman–Phelps interpretation of the Phillips curve (Chapter 12), the role of credibility in monetary policy (Chapter 14), and Ricardian equivalence with multiple generations (Chapter 15).

Keynesian emphasis. Instructors who prefer a Keynesian emphasis may choose to omit Chapter 10 (classical business cycle analysis). As noted, if a short-run focus is preferred, Chapter 5 (full-employment analysis of the open economy) and Chapter 6 (long-run economic growth) may also be omitted without loss of continuity.

International focus. Chapter 5 discusses saving, investment, and the trade balance in an open economy with full employment. Chapter 13 considers exchange rate determination and macroeconomic policy in an open-economy model in which short-run deviations from full employment are possible. (Chapter 5 is a useful but not essential prerequisite for Chapter 13.) Both chapters may be omitted for a course focusing on the domestic economy.

Instructor Teaching Resources

This program comes with the following teaching resources.

| Supplements available to instructors at www.pearson.com/en-gb.html | Features of the Supplement |
|--|---|
| Instructor's Manual authored by Dean Croushore from University of Richmond | <ul style="list-style-type: none"> • Chapter-by-chapter summaries • Teaching outlines • Suggested topics for class discussion • Solutions to end-of-chapter questions and problems in the book |
| Test Bank authored by Dean Croushore from University of Richmond | Over 1,600 multiple-choice, true/false, short-answer, and graphing questions with these annotations: <ul style="list-style-type: none"> • Difficulty level (1 for straight recall, 2 for some analysis, 3 for complex analysis) • Type (Multiple-choice and short-answer) • Topic (The section that covers the term or concept being tested) • Learning outcome |
| Computerized TestGen | TestGen allow instructors to: <ul style="list-style-type: none"> • Customize, save, and generate classroom tests • Edit, add, or delete questions from the Test Item Files • Analyze test results • Organize a database of tests and student results |
| PowerPoints authored by Dean Croushore from University of Richmond | Slides include all key text material including graphs, tables, and equations in the textbook. These PowerPoints meet accessibility standards for students with disabilities. Features include, but not limited to: <ul style="list-style-type: none"> • Keyboard and Screen Reader access • Alternative text for images • High color contrast between background and foreground colors |

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