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Sixth Edition

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Columbia University

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PEARSON

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For Constance, Raph, and Will
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For Cindy, Matthew, Andrew, and Daniel
—*Anthony Patrick O'Brien*



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FLEXIBILITY CHART

The following chart helps you organize your syllabus based on your teaching preferences and objectives:

Core	Optional	Policy
Chapter 1: Economics: Foundations and Models	Chapter 1 Appendix: Using Graphs and Formulas	
Chapter 2: Trade-offs, Comparative Advantage, and the Market System		
Chapter 3: Where Prices Come From: The Interaction of Demand and Supply		
	Chapter 4 Appendix: Quantitative Demand and Supply Analysis	Chapter 4: Economic Efficiency, Government Price Setting, and Taxes
		Chapter 5: The Economics of Health Care
	Chapter 6: Firms, the Stock Market, and Corporate Governance	
	Chapter 6 Appendix: Tools to Analyze Firms' Financial Information	
Chapter 7: Comparative Advantage and the Gains from International Trade		
Chapter 8: GDP: Measuring Total Production and Income		
Chapter 9: Unemployment and Inflation		
Chapter 10: Economic Growth, the Financial System, and Business Cycles		
Chapter 11: Long-Run Economic Growth: Sources and Policies		

Core	Optional	Policy
	Chapter 12: Aggregate Expenditure and Output in the Short Run	
	Chapter 12 Appendix: The Algebra of Macroeconomic Equilibrium	
Chapter 13: Aggregate Demand and Aggregate Supply Analysis		
	Chapter 13 Appendix: Macroeconomic Schools of Thought	
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PREFACE

Our approach in this new edition remains what it was in the first edition, published more than 10 years ago: To provide students and instructors with an economics text that delivers complete economics coverage with many real-world business examples. Our goal has been to teach economics in a “widget-free” way by using real-world business and policy examples. We are gratified by the enthusiastic response from students and instructors who have used the first five editions of this book and who have made it one of the best-selling economics textbooks on the market.

Much has happened in the U.S. and world economies since we prepared the previous edition. We have incorporated many of these developments in the new real-world examples in this edition and also in the digital resources.

Digital Resources

While our basic approach of placing applications in the forefront of the discussion remains the same, this new edition has been thoroughly revised. We have a wide array of digital resources for students and instructors to use with either the eText version of the book or the MyEconLab supplement to the printed text. Below is an overview. Please see Preface pages 13–15 for more details.

Digital Features Located in MyEconLab

MyEconLab is a unique online course management, testing, and tutorial resource. It is included with the eText version of the book or as a supplement to the print book. Students and instructors will find the following online resources to accompany the sixth edition:

- **Videos.** There are 58 *Making the Connection* features in the book that provide real-world reinforcement of key concepts. Each feature is accompanied by a two- or three-minute video of the author explaining the key point of that *Making the Connection*. Related assessment is included with each video, so students can test their understanding. The goal of these videos is to summarize key content and bring the applications to life. In our experience, many students benefit from this type of online learning and assessment.
- **Concept Checks.** Each section of each learning objective concludes with an online Concept Check that contains one or two multiple-choice, true/false, or fill-in questions. These checks act as “speed bumps” that encourage students to stop and check their understanding of fundamental terms and concepts before moving on to the next section. The goal of this digital resource is to help students assess their progress on a section-by-section basis, so they can be better prepared for homework, quizzes, and exams.
- **Animations.** Graphs are the backbone of introductory economics, but many students struggle to understand and work with them. Each of the 166 numbered figures in the text has a supporting animated version online. The goal of this digital resource is to help students understand shifts in curves, movements along curves, and changes in equilibrium values. Having an animated version of a graph helps students who have difficulty interpreting the static version in the printed text. Graded practice exercises are included with the animations. In our experience, many students benefit from this type of online learning.
- **Interactive Solved Problems.** Many students have difficulty applying economic concepts to solving problems. The goal of this digital resource is to help students overcome this hurdle by giving them a model of how to solve an economic problem by breaking it down step by step. Each of the 35 *Solved Problems* in the printed text is accompanied

by a similar problem online, so students can have more practice and build their problem-solving skills. These interactive tutorials help students learn to think like economists and apply basic problem-solving skills to homework, quizzes, and exams. The goal is for students to build skills they can use to analyze real-world economic issues they hear and read about in the news. Each *Solved Problem* in MyEconLab and the digital eText also includes at least one additional graded practice exercise for students.

- **Graphs Updated with Real-Time Data from FRED.** Approximately 25 graphs are continuously updated online with the latest available data from FRED (Federal Reserve Economic Data), which is a comprehensive, up-to-date data set maintained by the Federal Reserve Bank of St. Louis. Students can display a pop-up graph that shows new data plotted in the graph. The goal of this digital feature is to help students work with data and to see including new data affects graphs.
- **Interactive Problems and Exercises Updated with Real-Time Data from FRED.** The end-of-chapter problems in select chapters include *Real-Time Data Exercises* that use the latest data from FRED. The book contains more than 50 of these exercises. The goals of this digital feature are to help students become familiar with this key data source, learn how to locate data, and develop skills in interpreting data.

New to the Sixth Edition Chapters

- All companies in the chapter openers have been either replaced with new companies or updated with current information.
- **Chapters 1–4** include new *An Inside Look* news articles and analyses to help students apply economic thinking to current events and policy debates. Additional news articles and analyses are updated weekly on MyEconLab.
- There are 9 new *Making the Connection* features to help students tie economic concepts to current events and policy issues.
- There are 9 new *Solved Problems*. This feature helps students break down and answer economic problems step by step.

New Chapter Openers, *Making the Connections*, *Solved Problems*, and *Inside Looks*

Here are the new or heavily revised chapter-opening business cases and accompanying *Inside Look* news articles. The business or issue introduced in the chapter opener is revisited within the chapter in either a *Making the Connection* or a *Solved Problem*. The following are new to this edition. Please see the detailed table of contents for the list of features for all chapters.

Chapter 1, “Economics: Foundations and Models,” opens with a new discussion of whether smart devices will revolutionize health care and closes with *An Inside Look* newspaper article and analysis of how Google is adding to its growing list of technological innovations by partnering with Swiss pharmaceutical company Novartis to develop smart contact lenses to help patients manage diabetes. New *Solved Problem 1.1* examines how managers at medical technology firm OraSure use marginal analysis to make an advertising decision. A new *Making the Connection* examines how opportunity costs can help us understand why many students have stopped attending college football games.

Chapter 2, “Trade-offs, Comparative Advantage, and the Market System,” opens with a new discussion of the manufacturing decisions managers at Tesla Motors face and closes with *An Inside Look* that discusses the resources Apple has assembled to meet an aggressive plan to develop and produce an electric vehicle as early as 2020. A new *Making the Connection* uses Sir Arthur Conan Doyle’s legendary character Sherlock Holmes to illustrate copyright laws for books and movies.

Chapter 3, “Where Prices Come From: The Interaction of Demand and Supply,” opens with a new discussion of the market for smartwatches and closes with *An Inside Look* that examines how the Apple smartwatch is inspiring the development of other wearable devices. There are three new *Making the Connections*: “Are Smartwatches Substitutes for Smartphones?”; “Tough Times for Big Macs and Golf”; and “Demand and Supply Trashes Plastic Recycling.”

Chapter 4, “Economic Efficiency, Government Price Setting, and Taxes,” opens with an updated discussion of how Airbnb and the sharing economy affects rent control policy in San Francisco and closes with *An Inside Look* that examines why government officials in Malibu, California, imposed a tax on short-term rentals of apartments booked through Airbnb. A new *Making the Connection* examines why investors expect Uber to be very profitable.

Chapter 5, “The Economics of Health Care,” opens with a new discussion of how the Patient Protection and Affordable Care Act of 2010 could affect the health care plan at T. Cain Grocery, which operates five Piggly Wiggly supermarkets in Alabama and Florida. New *Solved Problem 5.4* shows students how to use the demand and supply model to explain changes in health care spending. A new *Making the Connection* discusses the increasing importance of health care in the U.S. economy.

Chapter 6, “Firms, the Stock Market, and Corporate Governance,” opens with a new discussion of Twitter and the benefits and costs of becoming a publicly owned firm. New *Solved Problem 6.2* analyzes why Warren Buffett likes mutual funds, and new *Solved Problem 6.4* discusses whether Dodd-Frank will improve corporate governance. There are two new *Making the Connections*: “Why Are Fewer Young People Starting Businesses?” and “Why Are Many People Poor Stock Market Investors?”

Chapter 7, “Comparative Advantage and the Gains from International Trade,” opens with a new discussion of President Obama, Nike, and the Trans-Pacific Partnership (TPP). There are three new *Making the Connections*: “Would New Balance Be Helped or Hurt By the Trans-Pacific Partnership?”; “Smoot-Hawley, the Politics of Tariffs, and Protecting a Vanishing Industry”; and “Protecting Consumer Health or Protecting U.S. Firms from Competition?”

Chapter 8, “GDP: Measuring Total Production and Income,” opens with updated coverage of how the business cycle affects Ford Motor Company and includes a new *Making the Connection* about how calculating GDP changes the way the standard of living in Nigeria is measured.

Chapter 9, “Unemployment and Inflation,” opens with a new discussion of JPMorgan’s 2015 decision to lay off workers. There are two new *Making the Connections*: “Eight Million Workers Are Missing!” and “How Should We Categorize Unemployment at JPMorgan Chase?” New *Solved Problem 9.5* shows students how to use data to calculate real hourly wages.

Chapter 10, “Economic Growth, the Financial System, and Business Cycles,” opens with a new discussion of how Corning has experienced long-run growth while experiencing the ups and downs of the business cycle. New *Solved Problem 10.1* focuses on the connection between productivity and prosperity, and new *Solved Problem 10.2* shows students how to apply the loanable funds model to analyze the effect of budget deficits. **Chapter 10** also includes a new section that discusses why firms like Corning are particularly vulnerable to fluctuations in demand during the business cycle.

Chapter 11, “Long-Run Economic Growth: Sources and Policies,” opens with a new discussion of whether economic reforms will help to increase Mexico’s growth rate and includes a new *Making the Connection* that compares economic growth in Mexico and China.

Chapter 12, “Aggregate Expenditure and Output in the Short Run,” opens with an updated opener on the effects of fluctuations in aggregate expenditure on Intel and

includes a new *Making the Connection* about the link between student loans and the number of young people purchasing homes.

Chapter 13, “Aggregate Demand and Aggregate Supply Analysis,” opens with a new discussion of the effect of the business cycle on Delta Airlines and includes a new *Making the Connection* that discusses how unusually long it took following the 2007–2009 recession for real GDP and employment to return to the levels achieved at the business cycle peak.

Chapter 14, “Money, Banks, and the Federal Reserve System,” opens with a new discussion of the 2015 banking crisis in Greece and includes a new *Making the Connection* on peer-to-peer lending.

Chapter 15 “Monetary Policy,” opens with a new discussion of the connection between monetary policy and borrowers in Europe paying negative nominal interest rates on bank loans. Two new *Making the Connections* examine the connection between central bank policies of quantitative easing and negative interest rates, and why the Federal Reserve usually ignores fluctuations in food and energy prices. **Chapter 15** includes new **Table 15.3**, “Treasury and Fed Actions at the Beginning of the Financial Crisis.”

Chapter 16, “Fiscal Policy,” opens with a new discussion of the effects of federal government spending to rebuild a highway leading to the Golden Gate Bridge. A new *Making the Connection* discusses whether macroeconomic policy is too dependent on the Federal Reserve. New *Solved Problem 16.6* analyzes the effects of the Greek government attempting to balance its budget during a recession.

Chapter 17, “Inflation, Unemployment, and Federal Reserve Policy,” opens with a new discussion of why a company like Goodyear is concerned about monetary policy. A new *Making the Connection* examines whether it is important for the Fed to provide the public with accurate guidance on the future of monetary policy. Chapter also includes 17 includes a new final section that covers the debate over the future of the Fed.

Chapter 18, “Macroeconomics in an Open Economy,” opens with a new discussion on how fluctuations in the exchange rate affect IBM’s profits. A new *Making the Connection* examines whether a strong dollar is a good for the U.S. economy. New *Solved Problem 18.2* analyzes how Subaru is affected by fluctuations in the value of the yen.

Chapter 19, “The International Financial System,” opens with a new discussion about how Bayer deals with fluctuating exchange rates. There are two new *Making the Connections*: “Greece and Germany: Diverse Economies, Common Currency” and “The Chinese Yuan: The World’s Most Controversial Currency.”

Other Changes to Chapters

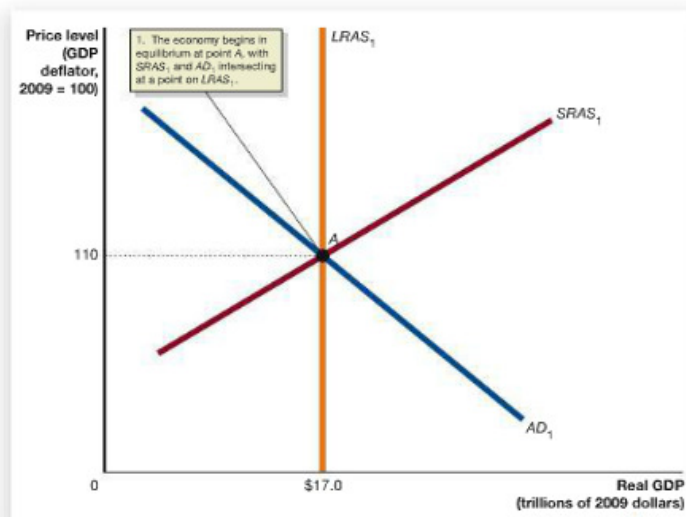
- To make room for the new content described earlier, we have cut approximately 23 *Making the Connections* and 9 *Solved Problems* from the previous edition and transferred some of them to the book’s *Instructor’s Manual*, where they are available for instructors who wish to continue using them.
- Figures and tables have been updated with the latest data available.
- Many of the end-of-chapter problems have been either replaced or updated. To most chapters, we have added one or two new problems that include graphs for students to analyze. Select chapters have a category called *Real-Time Data Exercises*. Some of these exercises have been updated for this new edition.
- Finally, we have gone over the text literally line by line, tightening the discussion, rewriting unclear points, and making many small changes. We are grateful to the many instructors and students who made suggestions for improvements in the previous edition. We have done our best to incorporate as many of those suggestions as possible.

The Foundation:

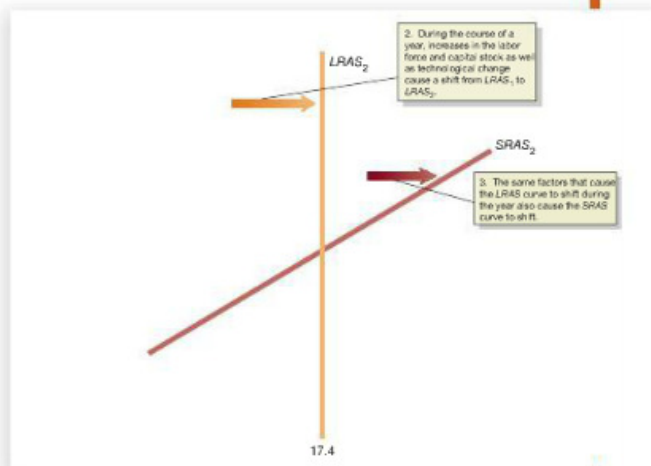
Contextual Learning and Modern Organization

Students come to study macroeconomics with a strong interest in understanding events and developments in the economy. We try to capture that interest and develop students' economic intuition and understanding. We present macroeconomics in a way that is modern and based in the real world of business and economic policy. And we believe we achieve this presentation without making the analysis more difficult. We avoid the recent trend of using simplified versions of intermediate models, which are often more detailed and complex than what students need to understand the basic macroeconomic issues. Instead, we use a more realistic version of the familiar aggregate demand and aggregate supply model to analyze short-run fluctuations and monetary and fiscal policy. We also avoid the "dueling schools of thought" approach often used to teach macroeconomics at the principles level. We emphasize the many areas of macroeconomics where most economists agree. And we present throughout real business and policy situations to develop students' intuition. Here are a few highlights of our approach to macroeconomics:

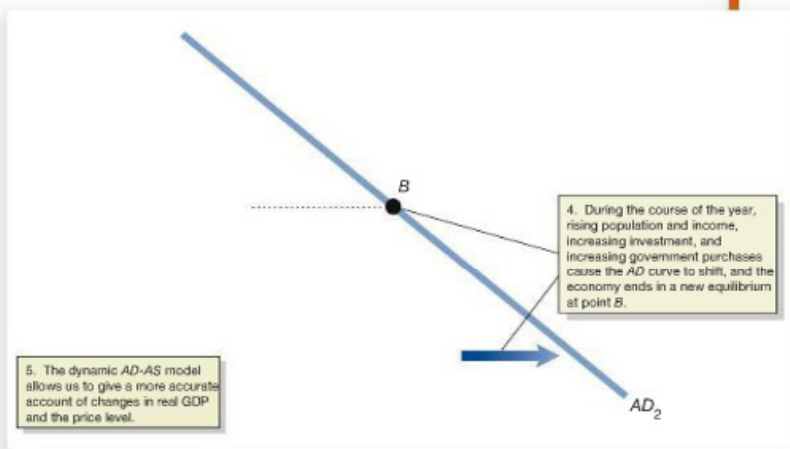
- **A broad discussion of macro statistics.** Many students pay at least some attention to the financial news and know that the release of statistics by federal agencies can cause movements in stock and bond prices. A background in macroeconomic statistics helps clarify some of the policy issues encountered in later chapters. In [Chapter 8](#), "GDP: Measuring Total Production and Income," and [Chapter 9](#), "Unemployment and Inflation," we provide students with an understanding of the uses and potential shortcomings of the key macroeconomic statistics, without getting bogged down in the minutiae of how the statistics are constructed. So, for instance, we discuss the important differences between the payroll survey and the household survey for understanding conditions in the labor market. We explain why financial markets react more strongly to news from the payroll survey. We provide a discussion of the employment–population ratio, which is not covered in some other books but which many economists regard as a key measure of labor market performance. [Chapter 15](#), "Monetary Policy," discusses why the Federal Reserve prefers to measure inflation using the core personal consumption expenditures price index rather than the consumer price index.
- **Early coverage of long-run topics.** We place key macroeconomic issues in their long-run context in [Chapter 10](#), "Economic Growth, the Financial System, and Business Cycles," and [Chapter 11](#) "Long-Run Economic Growth: Sources and Policies." [Chapter 10](#) puts the business cycle in the context of underlying long-run growth and discusses what actually happens during the phases of the business cycle. We believe this material is important if students are to have the understanding of business cycles they will need to interpret economic events; this material is often discussed only briefly or omitted entirely in other books. We know that many instructors prefer to have a short-run orientation to their macro courses, with a strong emphasis on policy. Accordingly, we have structured [Chapter 10](#) so that its discussion of long-run growth is sufficient for instructors who want to move quickly to short-run analysis. [Chapter 11](#) uses a simple neoclassical growth model to explain important growth issues. We apply the model to topics such as the decline of the Soviet economy, the long-run prospects for growth in China, the implications of the slowdown in productivity growth for the U.S. economy, and the failure of many developing countries to sustain high growth rates. And we challenge students with the discussion "Why Isn't the Whole World Rich?"
- **A dynamic model of aggregate demand and aggregate supply.** We take a fresh approach to the standard aggregate demand and aggregate supply (AD–AS) model. We realize there is no good, simple alternative to using the AD–AS model when explaining movements in the price level and in real GDP. But we know that more instructors are dissatisfied with the AD–AS model than with any other aspect of the macro principles



The first acetate overlay adds the shifts in the long- and short-run aggregate supply curves.



The second acetate overlay adds the shifts in the aggregate demand curve to complete the dynamic model.



course. The key problem, of course, is that AD-AS is a static model that attempts to account for dynamic changes in real GDP and the price level. Our approach retains the basics of the AD-AS model but makes it more accurate and useful by making it more dynamic. We emphasize two points: (1) Changes in the position of the short-run (upward-sloping) aggregate supply curve depend mainly on the state of expectations of the inflation rate and (2) the existence of growth in the economy means that the long-run (vertical) aggregate supply curve shifts to the right every year. This “dynamic” AD-AS model provides students with a more accurate understanding of the causes and consequences of fluctuations in real GDP and the price level. Chapter 13, “Aggregate Demand and Aggregate Supply Analysis,” includes a three-layer, full-color acetate for the key introductory dynamic AD-AS graph (Figure 13.8, “A Dynamic Aggregate Demand and Aggregate Supply Model,” on page 456 and reproduced on the left). We created this acetate to help students see how the graph builds step by step and to help make the graph easier for instructors to present. The acetate will help instructors who want to use dynamic AD-AS in class but believe the model needs to be developed carefully. We introduce this model in Chapter 13 and use it to discuss monetary policy in Chapter 15, “Monetary Policy,” and fiscal policy in Chapter 16, “Fiscal Policy.” The material on dynamic AD-AS is presented in self-contained sections in Chapters 13, 15, and 16, so instructors may safely omit the sections on the dynamic AD-AS model without any loss in continuity to the discussion of macroeconomic theory and policy.

- **Extensive coverage of monetary policy.** Because of the central role monetary policy plays in the economy and in students’ curiosity about business and financial news, we devote two chapters—Chapter 15, “Monetary Policy,” and Chapter 17, “Inflation, Unemployment, and Federal Reserve Policy”—to the topic. We emphasize the issues involved in the Fed’s choice of monetary policy targets, and we include coverage of the Taylor rule. We also cover the debate over the Fed’s policies, including recent proposals in Congress to reduce the Fed’s independence.
- **Coverage of both the demand-side and supply-side effects of fiscal policy.** Our discussion of fiscal policy in Chapter 16, “Fiscal Policy,” carefully distinguishes between automatic stabilizers and discretionary fiscal policy. We also provide significant coverage of the supply-side effects of fiscal policy.
- **A self-contained but thorough discussion of the Keynesian income-expenditure approach.** The Keynesian income-expenditure approach (the “45°-line diagram,” or “Keynesian cross”) is useful for introducing students to the short-run relationship between spending and production. Many instructors, however, prefer to omit this material.

Therefore, we use the 45°-line diagram only in **Chapter 12**, “Aggregate Expenditure and Output in the Short Run.” The discussions of monetary and fiscal policy in **Chapter 15**, “Monetary Policy,” and **Chapter 16**, “Fiscal Policy,” respectively, uses only the AD–AS model, making it possible to omit **Chapter 12**.

- **Extensive international coverage.** We include three chapters devoted to international topics: **Chapter 7**, “Comparative Advantage and the Gains from International Trade,” **Chapter 18**, “Macroeconomics in an Open Economy,” and **Chapter 19**, “The International Financial System.” Having a good understanding of the international trading and financial systems is essential to understanding the macroeconomy and to satisfying students’ curiosity about the economic world around them. In addition to the material in our three international chapters, we weave international comparisons into the narratives of several other chapters, including our discussion of labor market policies in **Chapter 17**, “Inflation, Unemployment, and Federal Reserve Policy,” and central banking in **Chapter 14**, “Money, Banks, and the Federal Reserve System.”
- **Flexible chapter organization.** Because we realize that there are a variety of approaches to teaching principles of macroeconomics, we have structured our chapters for maximum flexibility. For example, our discussion of long-run economic growth in **Chapter 10**, “Economic Growth, the Financial System, and Business Cycles,” makes it possible for instructors to omit the more thorough discussion of these issues in **Chapter 11**, “Long-Run Economic Growth: Sources and Policies.” Our discussion of the Keynesian 45°-line diagram is confined to **Chapter 12**, “Aggregate Expenditure and Output in the Short Run,” so that instructors who do not use this approach can proceed directly to aggregate demand and aggregate supply analysis in **Chapter 13**, “Aggregate Demand and Aggregate Supply Analysis.” While we devote two chapters to monetary policy, the first of these—**Chapter 15**, “Monetary Policy”—is a self-contained discussion, so instructors may safely omit the material in **Chapter 17**, “Inflation, Unemployment, and Federal Reserve Policy,” if they choose to. Finally, instructors may choose to omit all three of the international chapters (**Chapter 7**, “Comparative Advantage and the Gains from International Trade,” **Chapter 18**, “Macroeconomics in an Open Economy,” and **Chapter 19**, “The International Financial System”), cover just **Chapter 7** on international trade, cover just **Chapter 18**, or cover **Chapters 18 and 19** while omitting **Chapter 7**. Please refer to the flexibility chart on Preface pages xv–xvi to help select the chapters and order best suited to your classroom needs.

Special Features:

A Real-World, Hands-on Approach to Learning Economics

Business Cases and An Inside Look News Articles

Each chapter-opening case provides a real-world context for learning, sparks students’ interest in economics, and helps unify the chapter. The case describes an actual company facing a real situation. The company is integrated in the narrative, graphs, and pedagogical features of the chapter. Some of the chapter openers focus on the role of entrepreneurs in developing new products and bringing them to market. For example, **Chapter 1** discusses Walter De Brouwer, the founder of Scanadu, which develops smart devices for health care; **Chapter 2** discusses Elon Musk of Tesla Motors; and **Chapter 13** discusses the founders of what became Delta Airlines. Here are a few examples of companies we discuss in the chapter openers:

- Tesla Motors (**Chapter 2**, “Trade-offs, Comparative Advantage, and the Market System”)
- Apple (**Chapter 3**, “Where Prices Come From: The Interaction of Demand and Supply”)
- Twitter (**Chapter 6**, “Firms, the Stock Market, and Corporate Governance”)
- Delta Airlines (**Chapter 13**, “Aggregate Demand and Aggregate Supply Analysis”)

CHAPTER 3

Chapter Outline and Learning Objectives

1. The Demand Side of the Market (page 14) List and describe the variables that determine demand.
2. The Supply Side of the Market (page 15) List and describe the variables that determine supply.
3. Market Equilibrium (page 16) Explain how market equilibrium is reached.
4. The Effect of Demand and Supply Shifts on Equilibrium (page 16) Describe and explain shifts in demand and supply curves and their effects on equilibrium.

Where Prices Come From: The Interaction of Demand and Supply



How Smart Is Your Watch?

Apple's new smartwatch is the most powerful and versatile yet. With the popularity of cell phones in the 2000s, many people stopped wearing wristwatches—although not everyone for the same reason. Once a person follows a habit, he or she is unlikely to return to an old habit. Will watches ever be an option?

Until recently, attempts to have watches do more than tell the time have not been successful. For instance, during the 1980s, fitness trackers and several other firms added special calculators to watches, but sales were limited. In 2004, Microsoft introduced the SPOT watch, which added features to assist in sports, such as weather reports, and news headlines. For few consumers paid attention to the company's original production of the watch in 2008. By 2013, several firms had introduced "feature watches" that included extra features, such as, for example, calendars, music, and e-mail. However, the most common feature was the ability to receive text messages.

In 2015, Apple introduced the Apple Watch, which overhauled most of the capabilities of the smartwatches from competing firms with popular features from Apple's iPhone and iPad, such as e-mail, the Internet, and Siri. The Apple Watch was initially priced with more than 200 apps, including a calendar, a clock, and a compass. These sales were a big deal since the total sales of Apple's previous products—the iPhone, iTunes, or iPad—were more than 20 other firms combined.

Economics in Your Life

Will You Buy a Smartphone or a Smartwatch?

You own your smartphone; many to text, read e-mail, and keep track of your appointments. Your smartphone is used frequently, and you are thinking of buying a new one. What factors are most important in your decision of whether to purchase a smartwatch versus a smartphone, or the relative prices of these products? If you know that you are soon going to get a raise at your job, would your new phone be a more desirable purchase? Do you need this chapter to answer these questions. You can check your answers against those we provide on page 87 at the end of this chapter.

An *Inside Look* is a two-page feature that shows students how to apply the concepts from the chapter to the analysis of a news article. The feature appears at the end of **Chapters 1–4**. An *Inside Look* feature presents an excerpt from an article, analysis of the article, a graph(s), and critical thinking questions. Additional articles are located on MyEconLab, where they are continuously updated.

AN INSIDE LOOK

Apple Watch Inspires Development of Complementary Products

WALL STREET JOURNAL

Don't Underestimate Smartwatches: Wearables Are Poised to Become Critical to the Tech Ecosystem

It's a truism in the world of tech: The Apple Watch isn't just a new gadget; it's a new way of thinking about the way we live. The watch is a new way of thinking about the way we live. The watch is a new way of thinking about the way we live. The watch is a new way of thinking about the way we live.

Key Points in the Article

The introduction of the Apple Watch has inspired a wave of innovation in the development of complementary products. This article analyzes the impact of the Apple Watch on the development of complementary products, such as smartwatches, fitness trackers, and other wearables.

Analyzing the News

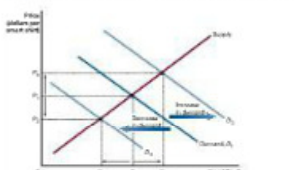
1. **Smartwatches are a new type of product.** Smartwatches are a new type of product that combine the features of a watch with the capabilities of a smartphone. They are designed to be used as a secondary device to a smartphone, providing a more convenient way to access information and control a smartphone.

2. **Smartwatches are a complementary technology.** Smartwatches are a complementary technology to smartphones. They are designed to be used in conjunction with a smartphone, providing a more convenient way to access information and control a smartphone.

Thinking Critically

1. **How do you think the introduction of the Apple Watch will affect the market for smartphones?**

2. **How do you think the introduction of the Apple Watch will affect the market for smartwatches?**



ANALYZING THE NEWS To see how the introduction of the Apple Watch affects the market for smartwatches, look at the graph below.

Economics in Your Life

After the chapter-opening real-world business case, we have added a personal dimension to the chapter opener with a feature titled *Economics in Your Life*, which asks students to consider how economics affects their lives. The feature piques the interest of students and emphasizes the connection between the material they are learning and their experiences.

Economics in Your Life

Will You Buy a Smartphone or a Smartwatch?

You use your smartphone mainly to text, read e-mail, and keep track of your appointments. Your smartphone is old, though, and you are thinking of buying a new one ... or should you buy a smartwatch? What factors are most important in your decision: the features of a smartwatch versus a smartphone, or the relative prices of these products? If you know that you are soon going to get a raise at your job, would you be more likely to buy a smartwatch? As you read this chapter, try to answer these questions. You can check your answers against those we provide on **page 97** at the end of this chapter.

At the end of the chapter, we use the chapter concepts to answer the questions asked at the beginning of the chapter.

Continued from page 73

Economics in Your Life

Will You Buy a Smartphone or a Smartwatch?

At the beginning of this chapter, we asked you to consider how you might choose between buying a smartwatch and buying a smartphone. There are certain activities, such as watching YouTube or Netflix, that you can do on a smartphone but not on a smartwatch. There are other activities, such as tracking calories burned during a workout, that are probably easier to do on a smartwatch. If you can engage in the activities you like most on either device, then you probably consider the two devices to be close substitutes, and you are likely to buy the one with the lower price. Suppose that you are currently leaning toward buying a smartphone because its price is lower than the price of a comparable smartwatch. If an increase in your income would cause you to change your decision and buy the smartwatch, then the smartphone is an inferior good for you.

The following are examples of the topics we cover in the *Economics in Your Life* feature:

- Will you buy a smartphone or a smartwatch? (Chapter 3, “Where Prices Come From: The Interaction of Demand and Supply”)
- Is your take-home pay affected by what your employer spends on your health insurance? (Chapter 5, “The Economics of Health Care”)
- Is an employer likely to cut your pay during a recession? (Chapter 13, “Aggregate Demand and Aggregate Supply Analysis”)

Solved Problems

Many students have great difficulty handling applied economics problems. We help students overcome this hurdle by including in each chapter two or three worked-out problems tied to select chapter-opening learning objectives. Our goals are to keep students focused on the main ideas of each chapter and give them a model of how to solve an economic problem by breaking it down step by step. Additional exercises in the end-of-chapter *Problems and Applications* section are tied to every *Solved Problem*. Additional *Solved Problems* appear in the *Instructor’s Manual*. In addition, the Test Item Files include problems tied to the *Solved Problems* in the main book.

94 CHAPTER 3 Where Prices Come From: The Interaction of Demand and Supply

The Effect of Demand and Supply Shifts on Equilibrium 95

Solved Problem 3.4

Can We Predict Changes in the Price and Quantity of Beef?

While there is little controversy over the source of demand for a particular good, the source of supply is often more contentious. In the case of beef, the source of demand is relatively straightforward. The source of supply, however, is more complex. At the same time, consumer tastes have been changing, leading to shifts in the demand for beef. Use demand and supply graphs to illustrate your answers to the following questions:

- Can we use this information to be certain whether the equilibrium quantity of beef will increase or decrease?
- Can we use this information to be certain whether the equilibrium price of beef will increase or decrease?

Solving the Problem

Step 1: Review the chapter material. This problem is in the section on how shifts in demand and supply curves affect the equilibrium price, so you may want to review the section “The Effect of Shifts in Demand and Supply over Time,” which begins on page 94.

Step 2: Answer part (a) using demand and supply analysis. You are given the information that consumer tastes have changed, leading to a decline in demand for beef, so the demand curve for beef has shifted to the left. You are also given the information that the cost of raising beef has increased, so the supply curve for beef has also shifted to the left. The following graph shows both these shifts.

As Table 13.1 on page 94 summarizes, if the demand curve and the supply curve both shift to the left, the equilibrium quantity must decrease. Therefore, we can answer part (a) by saying that we are certain that the equilibrium quantity of beef will decrease.

Step 3: Answer part (b) using demand and supply analysis. The graph we drew in step 2 shows the equilibrium price of beef increasing. But given the information provided, the following graph would also be correct:

Unlike the graph in step 2, which shows the equilibrium price increasing, this graph shows the equilibrium price decreasing. The uncertainty about whether the equilibrium price will increase or decrease is consistent with what Table 13.1 shows happens when the demand curve and the supply curve both shift to the left. Therefore, the answer to part (b) is that we cannot be certain whether the equilibrium price of beef will increase or decrease.

Extra Credit: During 2013 and 2014, the equilibrium quantity of beef increased while the equilibrium price of beef decreased. We can conclude that both the demand for beef and the supply of beef contributed to the decline in beef consumption. That the price of beef fell indicates that the demand for beef had a larger effect on equilibrium in the beef market than did the increase in demand.

Source: Andrew Bunker Giblin, “U.S. Beef Cattle and Hogs Slaughtered,” *AgSource*, November 12, 2014, <http://www.agsource.com>.

Your Turn: For more practice, do related problems 4.7 and 4.8 on page 105 at the end of this chapter.

Don't Let This Happen to You

We know from many years of teaching which concepts students find most difficult. Each chapter contains a box feature called *Don't Let This Happen to You* that alerts students to the most common pitfalls in that chapter's material. We follow up with a related question in the end-of-chapter *Problems and Applications* section.

Don't Let This Happen to You

Remember: A Change in a Good's Price Does *Not* Cause the Demand or Supply Curve to Shift

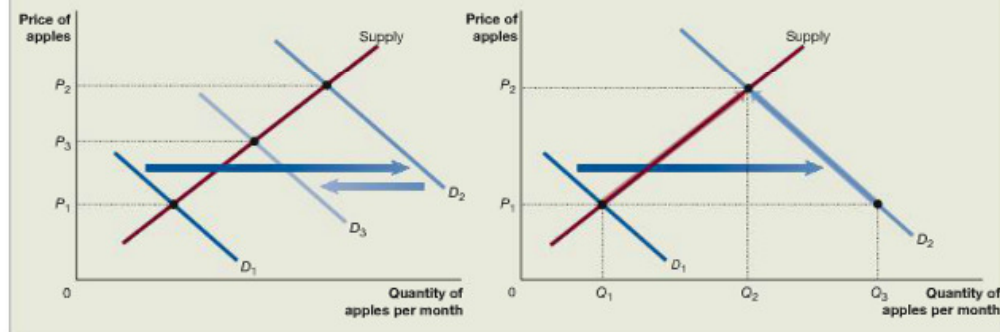
Suppose a student is asked to draw a demand and supply graph to illustrate how an increase in the price of oranges would affect the market for apples, with other variables being constant. He draws the graph on the left and explains it as follows: “Because apples and oranges are substitutes, an increase in the price of oranges will cause an initial shift to the right in the demand curve for apples, from D_1 to D_2 . However, because this initial shift in the demand curve for apples results in a higher price for apples, P_2 , consumers will find apples less desirable, and the demand curve will shift to the left, from D_2 to D_3 , resulting in a final equilibrium price of P_3 .” Do you agree or disagree with the student's analysis?

You should disagree. The student has correctly understood that an increase in the price of oranges will cause the demand curve for apples to shift to the right. But, the second demand curve shift the student describes,

from D_2 to D_3 , will not take place. Changes in the price of a product do not result in shifts in the product's demand curve. Changes in the price of a product result only in movements along a demand curve.

The graph on the right shows the correct analysis. The increase in the price of oranges causes the demand curve for apples to increase from D_1 to D_2 . At the original price, P_1 , the increase in demand initially results in a shortage of apples equal to $Q_3 - Q_1$. But, as we have seen, a shortage causes the price to increase until the shortage is eliminated. In this case, the price will rise to P_2 , where both the quantity demanded and the quantity supplied are equal to Q_2 . Notice that the increase in price causes a decrease in the quantity demanded, from Q_3 to Q_2 , but does not cause a decrease in demand.

Your Turn: Test your understanding by doing related problems 4.13 and 4.14 on page 105 at the end of this chapter.



Making the Connection

Each chapter includes two to four *Making the Connection* features that provide real-world reinforcement of key concepts and help students learn how to interpret what they read on the Web and in newspapers. Most *Making the Connection* features use relevant, stimulating, and provocative news stories focused on businesses and policy issues. One-third of them are new to this edition, and most others have been updated. Several discuss health care, which remains a pressing policy issue. Each *Making the Connection* has at least one supporting end-of-chapter problem to allow students to test their understanding of the topic discussed.

Making the Connection
MyEconLab Video

Are Smartwatches Substitutes for Smartphones?

Two products are rarely perfect substitutes because consumers may find them more or less useful for some purposes. As Apple and other firms began selling smartwatches, a key question they needed to answer was whether consumers considered smartwatches close substitutes for smartphones. You can use either a smartwatch or a smartphone to check the time, send a text, keep a list of appointments, or use a GPS map. But you need a smartphone if you want to surf the Web or watch a movie, while you are better off buying a smartwatch if you want to monitor your heartbeat or keep track of how many calories you are burning while exercising.

So smartwatches and smartphones are substitutes—but they aren't perfect substitutes. To correctly forecast sales and produce the correct quantity of smartwatches, firms that sell them need to evaluate how close substitutes consumers consider smartwatches and smartphones to be. Many people who might consider buying a smartwatch already own a smartphone. So the closer consumers consider the two products to be as substitutes, the less likely they are to buy a smartwatch in addition to a smartphone.

When Apple introduced the Apple Watch in 2015, sales were initially very strong, which would seem to indicate that many consumers believed that the unique features of the smartwatch made it worth buying, even if they owned a smartphone. Some analysts, though, wondered how large future sales would be after people who buy each new electronic device soon after it hits the market—early adopters—had made their purchases. One early reviewer of the Apple Watch noted that he was unsure “that I need this thing on my wrist every day.” Similarly, the *Economist* magazine offered the opinion, “Apple seems unlikely to turn its watch into the next big must-have gadget. . . . People are unlikely to want to shell out . . . \$350 . . . for something with so few extra functions.”

Other industry observers were more optimistic about the size of the market for smartwatches. Writing in the *Wall Street Journal*, one analyst argued that smartwatches performed several functions faster or more conveniently than smartphones. He concluded, “Billions of consumers who own a smartphone are likely to consider purchasing a smartwatch.” Given these different evaluations, it wasn't surprising that forecasts of sales of the Apple Watch during its first year varied widely from 8 million to 41 million.

In the end, as with most new products, the success of smartwatches depends on whether consumers see them as filling a need that other products don't meet. In other words, the less close a substitute consumers believe smartwatches to be for smartphones, the more likely they are to buy a smartwatch.

Sources: Joshua Topolsky, “Apple Watch Review: You'll Want One, but You Don't Need One,” *Bloomberg.com*, April 8, 2015; “The Time Machine,” *Economist*, March 9, 2015; and Daniel Matte and Kevin McCullagh, “Will Smartwatches Be a Hit?” *Wall Street Journal*, May 10, 2015.



Is the smartwatch a hot new must-have gadget, even for people who already own a smartphone?

Your Turn: Test your understanding by doing related problem 1.12 on page 101 at the end of this chapter.

MyEconLab Study Plan

Graphs and Summary Tables

Graphs are an indispensable part of a principles of economics course but are a major stumbling block for many students. Every chapter except **Chapter 1** includes end-of-chapter problems that require students to draw, read, and interpret graphs. Interactive graphing exercises appear on the book's supporting Web site. We use four devices to help students read and interpret graphs:

1. Detailed captions
2. Boxed notes
3. Color-coded curves
4. Summary tables with graphs (see pages **80**, **85**, and **440** for examples)

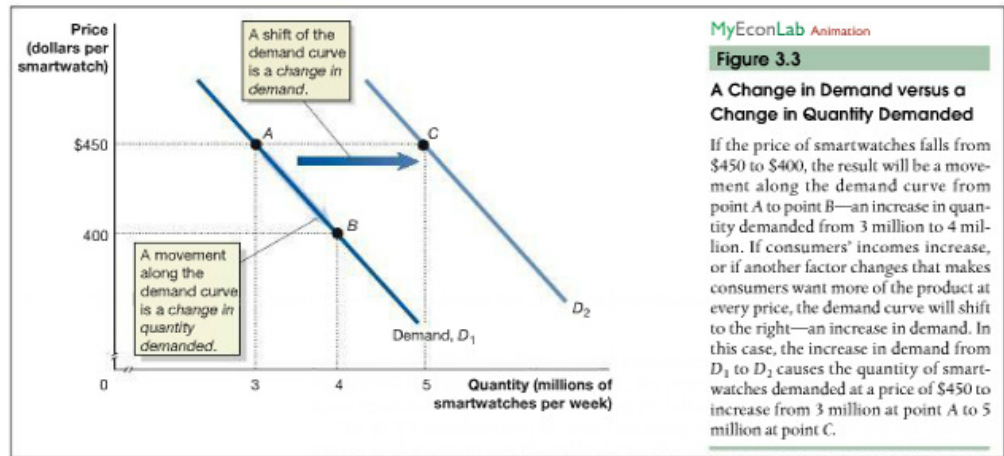
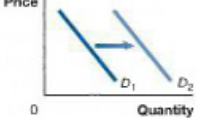
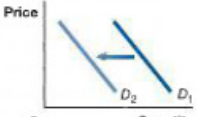
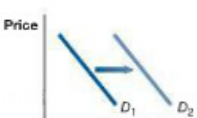


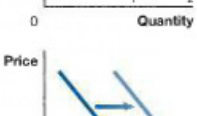
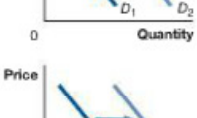


Table 3.1 Variables That Shift Market Demand Curves	An increase in ...	shifts the demand curve ...	because ...
	income (and the good is normal)		consumers spend more of their higher incomes on the good.
	income (and the good is inferior)		consumers spend less of their higher incomes on the good.
	the price of a substitute good		consumers buy less of the substitute good and more of this good.
	the price of a complementary good		consumers buy less of the complementary good and less of this good.
	taste for the good		consumers are willing to buy a larger quantity of the good at every price.
	population		additional consumers result in a greater quantity demanded at every price.
	the expected price of the good in the future		consumers buy more of the good today to avoid the higher price in the future.


Review Questions and Problems and Applications—Grouped by Learning Objective to Improve Assessment

All end-of-chapter material—*Summary, Review Questions, and Problems and Applications*—is grouped under learning objectives. The goals of this organization are to make it easier

for instructors to assign problems based on learning objectives, both in the book and in MyEconLab, and to help students efficiently review material that they find difficult. If students have difficulty with a particular learning objective, an instructor can easily identify which end-of-chapter questions and problems support that objective and assign them as homework or discuss them in class. Every exercise in a chapter's *Problems and Applications* section is available in MyEconLab. Using MyEconLab, students can complete these and many other exercises online, get tutorial help, and receive instant feedback and assistance on exercises they answer incorrectly. Also, student learning will be enhanced by having the summary material and problems grouped together by learning objective, which will allow them to focus on the parts of the chapter they find most challenging. Each major section of the chapter, paired with a learning objective, has at least two review questions and three problems.

As in the previous editions, we include one or more end-of-chapter problems that test students' understanding of the content presented in the *Solved Problem*, *Making the Connection*, and *Don't Let This Happen to You* special features in the chapter. Instructors can cover a feature in class and assign the corresponding problem for homework. The Test Item Files also include test questions that pertain to these special features.

Real-Time Data Exercises

Select chapters end with at least two *Real-Time Data Exercises* that help students become familiar with a key data source, learn how to locate data, and develop skills in interpreting data. *Real-Time Data Analysis (RTDA) Exercises*, marked with , allow students and instructors to use the very latest data from FRED.

Integrated Supplements

The authors and Pearson Education/Prentice Hall have worked together to integrate the text, print, and media resources to make teaching and learning easier.

MyEconLab

MyEconLab is a unique online course management, testing, and tutorial resource.

For the Instructor

Instructors can choose how much or how little time to spend setting up and using MyEconLab. Here is a snapshot of what instructors are saying about MyEconLab:

MyEconLab offers [students] a way to practice every week. They receive immediate feedback and a feeling of personal attention. As a result, my teaching has become more targeted and efficient.—Kelly Blanchard, Purdue University

Students tell me that offering them MyEconLab is almost like offering them individual tutors.—Jefferson Edwards, Cypress Fairbanks College

MyEconLab's eText is great—particularly in that it helps offset the skyrocketing cost of textbooks. Naturally, students love that.—Doug Gehrke, Moraine Valley Community College

Each chapter contains two preloaded exercise sets that can be used to build an individualized study plan for each student. These study plan exercises contain tutorial resources, including instant feedback, links to the appropriate learning objective in the eText, pop-up