Microeconomics

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Microeconomics

Seventh Edition

R. Glenn Hubbard
Columbia University

Anthony Patrick O'Brien
Lehigh University

Pearson

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For Constance, Raph, and Will

—R. Glenn Hubbard

For Cindy, Matthew, Andrew, and Daniel

—Anthony Patrick O'Brien

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Glenn Hubbard, policymaker, professor, and researcher. R. Glenn Hubbard is the dean and Russell L. Carson Professor of Finance and Economics in the Graduate School of Business at Columbia University and professor of economics in Columbia's Faculty of Arts and Sciences. He is also a research associate of the National Bureau of Economic Research and a director of Automatic Data Processing, Black Rock Closed-End Funds, and MetLife. He received a PhD in economics from Harvard University in 1983. From 2001 to 2003, he served as chair of the White House Council of Economic Advisers and chair of the OECD Economic Policy Committee, and from 1991 to 1993, he was deputy assistant secretary of the U.S. Treasury Department. He currently serves as co-chair of the nonpartisan Committee on Capital Markets Regulation. Hubbard's fields of specialization are public economics, financial markets and institutions, corporate finance, macroeconomics, industrial organization, and public policy. He is the author of more than 100 articles in leading journals, including *American Economic Review*, *Brookings Papers on Economic Activity*, *Journal of Finance*, *Journal of Financial Economics*, *Journal of Money, Credit, and Banking*, *Journal of Political Economy*, *Journal of Public Economics*, *Quarterly Journal of Economics*, *RAND Journal of Economics*, and *Review of Economics and Statistics*. His research has been supported by grants from the National Science Foundation, the National Bureau of Economic Research, and numerous private foundations.

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BRIEF CONTENTS

CONTENTS

* These end-of-chapter resource materials repeat in all chapters. Select chapters also include Real-Time Data Exercises. Students can complete all questions, problems, and exercises in MyLab Economics.

PART 2 Markets in Action: Policy and Applications

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: Externalities, Environmental Policy, and Public Goods
Chapter 6: Elasticity: The Responsiveness of Demand and Supply		
		Chapter 7: The Economics of Health Care
	Chapter 8: Firms, the Stock Market, and Corporate Governance	
	Chapter 8 Appendix: Tools to Analyze Firms' Financial Information	
Chapter 9: Comparative Advantage and the Gains from International Trade		

Core	Optional	Policy
	Chapter 10: Consumer Choice and Behavioral Economics	
	Chapter 10 Appendix: Using Indifference Curves and Budget Lines to Understand Consumer Behavior	
Chapter 11: Technology, Production, and Costs	**Chapter 11 Appendix:** Using Isoquants and Isocost Lines to Understand Production and Cost	
Chapter 12: Firms in Perfectly Competitive Markets		
Chapter 13: Monopolistic Competition: The Competitive Model in a More Realistic Setting		
Chapter 14: Oligopoly: Firms in Less Competitive Markets		
Chapter 15: Monopoly and Antitrust Policy		
	Chapter 16: Pricing Strategy	
Chapter 17: The Markets for Labor and Other Factors of Production		
		Chapter 18: Public Choice, Taxes, and the Distribution of Income

PREFACE

Our approach in this new edition remains what it was in the first edition, published nearly 15 years ago: to provide students and instructors 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 six editions of this book and who have made it a best-selling economics textbook.

Much has happened in the U.S. and world economies since we prepared the previous edition, including the election of a U.S. president with a distinctive approach to economic policy. We have incorporated many of these developments in the new real-world examples and policy discussions in this edition and also in the digital resources.

New to This Edition

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. Here is an overview of the revisions, followed by a more detailed description.

Overview of Changes

- All the chapter openers feature either new companies or have updated information. Students can visit MyLab Economics to watch a brief video that summarizes the key points of each chapter opener.
- Chapters 1–4, include new *An Inside Look* features to help students apply economic thinking to current events and policy debates as they are presented in news articles. Additional news articles and analyses appear weekly on MyLab Economics.
- There are 19 new *Apply the Concept* features (formerly titled *Making the Connection*) to help students tie economic concepts to current events and policy issues. The *Apply the Concept* features that were retained from the previous edition are updated. Students can visit MyLab Economics to watch more than 60 videos in which we summarize the key points in each feature. Related assessment accompanies each video, so students can test their understanding before moving on to a new section of the chapter.
- There are 5 new *Solved Problems* and 8 heavily revised *Solved Problems*. This feature helps students break down and answer economic problems step by step. There are additional Interactive *Solved Problems* on MyLab Economics, where students can receive feedback and tutorial help.
- There is a new category of end-of-chapter material titled *Critical Thinking Exercises*. We were motivated to add this new category of exercises because many instructors have told us that students need help building skills in the following areas: (1) analyzing and interpreting information; (2) applying reasoning and logic to new or unfamiliar ideas and situations; (3) examining ideas and concepts from multiple perspectives; and (4) clearly communicating their findings in a brief paper or class presentation. Students can complete these exercises on MyLab Economics and receive feedback and tutorial help.
- All the figures and tables are updated with the latest data available. Video animations of all the numbered figures and select tables are located on MyLab Economics. Graded practice exercises are included with these animations.

- We have replaced or updated many of the end-of-chapter *Problems and Applications*. In most chapters, one or two problems include graphs or tables for students to analyze. Select chapters have a category titled *Real-Time Data Exercises*, and we updated some of these exercises. Students can complete these exercises on MyLab Economics and receive feedback and tutorial help.

New Content and Features by Chapter

Here is a description of key changes by chapter.

Chapter 1, "Economics: Foundations and Models," opens with a new discussion of why Ford Motor Company manufactures cars in both the United States and Mexico. *An Inside Look* at the end of the chapter presents a news article and analysis of how likely it is that significant numbers of manufacturing jobs will return to the United States from overseas. New *Solved Problem 1.1* analyzes the marginal benefit and marginal cost of speed limits on highways. A new *Apply the Concept* examines why countries trade with each other and how economic concepts can help us evaluate policy debates about tariffs on imports. Taking a principles of economics class requires students to learn different terms, models, and a new way of analyzing real-world events. It can be challenging for students, especially non-majors, to appreciate how this course can help them in a career in business or government or in a nonprofit organization. We therefore decided to add to Chapter 1 a new section that describes economics as a career and highlights the key skills students of any major can gain from studying economics.

Chapter 2, "Trade-offs, Comparative Advantage, and the Market System," opens with an updated discussion of the resource allocation decisions managers at Tesla Motors face. *An Inside Look* at the end of the chapter discusses Tesla's decision to build a factory in Nevada to mass produce lithium-ion batteries for its electric cars. A new *Apply the Concept* illustrates how managers at the nonprofit organization Feeding America use the market mechanism to more efficiently allocate food based on the needs of food programs around the country.

Chapter 3, "Where Prices Come From: The Interaction of Demand and Supply," opens with a new discussion of how Coca-Cola and Pepsi-Cola responded to a fall in demand for sodas by introducing premium bottled water, sometimes called smart water. We use the market for premium bottled water to develop the demand and supply model. *An Inside Look* at the end of the chapter examines how McDonald's responded to shifts in consumer demand by serving breakfast all day and offering online ordering and home delivery. There are three new *Apply the Concept*s: "Virtual Reality Headsets: Will a Substitute Fail for a Lack of Complements?"; "Millennials Shake Up the Markets for Soda, Groceries, Big Macs, and Running Shoes"; and "Forecasting the Demand for Premium Bottled Water."

Chapter 4, "Economic Efficiency, Government Price Setting, and Taxes," opens with a new discussion about the economic link between food riots in Venezuela and the rise in popularity of Uber in the United States. At the end of the chapter, *An Inside Look* examines problems Uber has encountered in attempting to expand its services in the United Kingdom. There are two new *Apply the Concept*s: "The Consumer Surplus from Uber" and "Price Controls Lead to Economic Decline in Venezuela."

Chapter 5, "Externalities, Environmental Policy, and Public Goods," opens with a new discussion of ExxonMobil's support of a carbon tax. Two *Apply the Concept*s in the chapter now incorporate the latest information about government policies toward air pollution and global warming.

Chapter 6, "Elasticity: The Responsiveness of Demand and Supply," opens with a new discussion of how to evaluate the success of the soda tax enacted by several cities, including San Francisco and Philadelphia, in improving people's health and increasing tax revenue.

Chapter 7, "The Economics of Health Care," opens with a new discussion of how insurance companies are dealing with the effects of the Patient Protection and Affordable Care Act of 2010. There is also a discussion of the 2017 debate in Congress over whether that act should be extensively revised.

Chapter 8, "Firms, the Stock Market, and Corporate Governance," opens with a new comparison of the initial public offerings of Snap, Twitter, and Facebook. A new *Apply the Concept* explores why investors are concerned about potential corporate governance issues at Snap and other social media firms.

Chapter 9, "Comparative Advantage and the Gains from International Trade," opens with the decision by Mondelez to move production of Oreo cookies to Mexico to provide context for a new discussion of recent debates about the North American Free Trade Agreement (NAFTA) and the Trans-Pacific Partnership (TPP). A new *Apply the Concept* analyzes who gains and who loses from U.S. trade with China.

Chapter 10, "Consumer Choice and Behavioral Economics," opens with an updated discussion of the problems plaguing the JCPenney department store chain. A new *Apply the Concept* discusses why ticket scalpers have made a larger profit from the hit Broadway musical *Hamilton* than have the show's producers or stars. New *Solved Problem 10.3* analyzes why Tesla doesn't charge workers to park in the lot at its California factory even though the lot has a severe shortage of spaces.

Chapter 11, "Technology, Production, and Costs," opens with an updated discussion of the effects of massive open online courses (MOOCs) on the costs of higher education. A new *Apply the Concept* examines how software company Segment.com rearranged work areas to increase employee output.

Chapter 12, "Firms in Perfectly Competitive Markets," opens with an updated discussion of the difficulty farmers have making an economic profit selling cage-free eggs. A new *Solved Problem* analyzes why a wheat farmer decided to take 170 acres out of production and plant grass, and a new *Apply the Concept* discusses competition in the Asian restaurant market in New York City.

Chapter 13, "Monopolistic Competition: The Competitive Model in a More Realistic Setting," opens with a new discussion of Panera Bread's strategy of differentiating its restaurants by serving only "clean food." A new *Apply the Concept* continues the discussion of that company's strategy. Another new *Apply the Concept* discusses a new phenomenon in the restaurant industry: ghost restaurants that exist only online. New *Solved Problem 13.3* analyzes why Red Robin abandoned its experiment in fast-casual restaurants.

Chapter 14, "Oligopoly: Firms in Less Competitive Markets," opens with an updated discussion of competition in the music streaming business. A new *Apply the Concept* discusses how some bakeries have tried to use government regulations to eliminate competition from home bakers. A new *Solved Problem 14.2* uses game theory to analyze why Spotify and Apple Music offer student discounts.

Chapter 15, "Monopoly and Antitrust Policy," includes a new *Apply the Concept* discussing the reasons for the high prices of some generic drugs.

Chapter 16, "Pricing Strategy," opens with an updated discussion of how Disney uses big data to improve its theme park pricing. A new *Apply the Concept* discusses how firms ranging from airlines to zoos use big data and dynamic pricing to maximize profit.

Chapter 17, "The Markets for Labor and Other Factors of Production," opens with an updated discussion of whether Rio Tinto's extensive use of robots to mine ore in Australia is an indicator of future automation in other industries. Immigration has become a particularly contentious political issue, which led us to add the new section "The Effect of Immigration on the U.S. Labor Market," including new Figure 17.6, which shows annual legal immigration into the United States as a percentage of the U.S. population.

Chapter 18, "Public Choice, Taxes, and the Distribution of Income," opens with a new discussion of proposals to dramatically change how the federal government taxes businesses. We have updated the chapter's discussion to highlight the key points in this debate.

To make room for the new content described earlier, we have cut approximately 17 *Apply the Concepts* and 4 *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.

Solving Teaching and Learning Challenges

Many students who take a principles of economics course have difficulty seeing the relevance of the key concepts of opportunity cost, trade-offs, scarcity, and demand and supply to their lives and their careers. This reduces the willingness of some students to prepare for class and to be engaged during class. We address this challenge with contextual learning, a modern organization of content, and an extensive selection of digital assets available on MyLab Economics.

The Foundation:

Contextual Learning and Modern Organization

We believe a course is successful if students can apply what they have learned to both their personal lives and their careers, and if they have developed the analytical skills to understand what they read in the media. That's why we explain economic concepts by using many real-world business examples and applications in the chapter openers, graphs, *Apply the Concept* features, *An Inside Look* features, and end-of-chapter problems. This approach helps majors from all disciplines become educated consumers, voters, and citizens. In addition to our widget-free approach, we have a modern organization and place interesting policy topics early in the book to pique student interest. Here are a few highlights of our approach:

- **A strong set of introductory chapters.** The introductory chapters provide students with a solid foundation in the basics. We emphasize the key ideas of marginal analysis and economic efficiency. In Chapter 4, "Economic Efficiency, Government Price Setting, and Taxes," we use the concepts of consumer and producer surplus to measure the economic effects of price ceilings and price floors as they relate to the familiar examples of rental properties and the minimum wage. (We revisit consumer and producer surplus in Chapter 9, "Comparative Advantage and the Gains from International Trade," where we discuss outsourcing and analyze government policies that affect trade; in Chapter 15, "Monopoly and Antitrust Policy," where we examine the effect of market power on economic efficiency; and in Chapter 16, "Pricing Strategy," where we examine the effect of firm pricing policy on economic efficiency.) In Chapter 8, "Firms, the Stock Market, and Corporate Governance," we provide students with a basic understanding of how firms are organized, raise funds, and provide information to investors. We also illustrate how in a market system entrepreneurs meet consumer wants and efficiently organize production.
- **Early coverage of policy issues.** To expose students to policy issues early in the course, we discuss trade policy in Chapter 1, "Economics: Foundations and Models"; rent control and the minimum wage in Chapter 4, "Economic Efficiency, Government Price Setting, and Taxes"; air pollution, global warming, and public goods in Chapter 5, "Externalities, Environmental Policy, and Public Goods"; government policy toward

soda and other sweetened beverages in Chapter 6, "Elasticity: The Responsiveness of Demand and Supply"; and health care policy in Chapter 7, "The Economics of Health Care."

- **Complete coverage of monopolistic competition.** We devote a full chapter, Chapter 13, "Monopolistic Competition: The Competitive Model in a More Realistic Setting," to monopolistic competition prior to covering oligopoly and monopoly in Chapter 14, "Oligopoly: Firms in Less Competitive Markets," and Chapter 15, "Monopoly and Antitrust Policy." Although many instructors cover monopolistic competition very briefly or dispense with it entirely, we think it is an overlooked tool for reinforcing the basic message of how markets work in a context that is much more familiar to students than are the agricultural examples that dominate discussions of perfect competition. We use the monopolistic competition model to introduce the downward-sloping demand curve material usually introduced in a monopoly chapter. This approach helps students grasp the important point that nearly all firms—not just monopolies—face downward-sloping demand curves. Covering monopolistic competition directly after perfect competition also allows for early discussion of topics such as brand management and sources of competitive success. Nevertheless, we wrote the chapter so that instructors who prefer to cover monopoly (Chapter 15, "Monopoly and Antitrust Policy") directly after perfect competition (Chapter 12, "Firms in Perfectly Competitive Markets") can do so without loss of continuity.
- **Extensive, realistic game theory coverage.** In Chapter 14, "Oligopoly: Firms in Less Competitive Markets," we use game theory to analyze competition among oligopolists. Game theory helps students understand how companies with market power make strategic decisions in many competitive situations. We use familiar companies such as Apple, Amazon, Dell, Spotify, and Walmart in our game theory applications.
- **Unique coverage of pricing strategy.** In Chapter 16, "Pricing Strategy," we explore how firms use pricing strategies to increase profits. Students encounter pricing strategies everywhere—when they buy a movie ticket, book a flight for spring break, or research book prices online. We use these relevant, familiar examples to illustrate how companies use strategies such as price discrimination, cost-plus pricing, and two-part tariffs.

MyLab Economics

OVERVIEW

Reach every student by pairing this text with MyLab Economics

MyLab 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 improves results for each student. Learn more about MyLab Economics at www.pearson.com/mylab/economics.

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When you teach with MyLab, student performance improves. That's why instructors have chosen MyLab for over 15 years, touching the lives of over 50 million students.

FEATURES IN THE BOOK AND SUPPORTING RESOURCES ON MYLAB ECONOMICS

Students and instructors will find the following features in the seventh edition and supporting online resources on MyLab 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.

Students can visit MyLab Economics to watch a brief video we developed and filmed to summarize the key points of each chapter opener.

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Where Prices Come From: The Interaction of Demand and Supply

How Smart Is Your Water?

What does a firm do when its primary product starts to fall out of fashion? The Coca-Cola Company and PepsiCo, Inc., have faced that question in recent years. Between 2004 and 2016, measured by volume, sales in the United States of carbonated beverages like Coke and Pepsi declined by more than 25 percent, while sales of bottled water increased by more than 50 percent. In 2016, sales of bottled water were greater than sales of carbonated beverages for the first time. This change resulted from a shift in consumer tastes as many people, particularly millennials, increased their demand for healthier beverages that don't contain sugar or artificial sweeteners.

In 1994, Pepsi responded to increased consumer demand for bottled water by introducing Aquafina water, and in 1999, Coke responded by introducing Dasani water. Neither company, though, had found selling bottled water to be as profitable as selling soda. As a result of decades of advertising, Coke and Pepsi are two of the most recognizable brand names in the world. The companies also have networks of bottling plants and commitments from supermarkets to provide them with extensive shelf space. Other companies have had trouble competing with Coke and Pepsi, which together account for nearly 75 percent of the market for carbonated beverages. The Aquafina and Dasani brands are not nearly as well known, however, so other companies have been better able to compete in the bottled water market, limiting Coke and Pepsi to less than 20 percent of that market.

By 2017, Coke and Pepsi were attempting to increase their profits in the bottled water market by introducing premium water or smart water brands. With regular bottled water, firms filter tap water or spring water to remove impurities. With premium water, like Pepsi's LIFEWTR and Coke's smartwater, firms also add ingredients, typically electrolytes. Although many nutritionists are skeptical that premium water is any better for you than regular bottled water, demand for premium bottled water has been increasing rapidly. Both Coke and Pepsi have been able to charge higher prices for their premium water brands than they do for their carbonated beverages. But the firms were facing determined competition from Nestlé's Perrier brand and Danone's Evian brand, among many others.

Although premium water was a hot product in 2017, there are no guarantees in a market system. Will Coke and Pepsi and their competitors be able to continue charging higher prices for premium water than for regular bottled water, or will competition force down prices and make selling premium bottled water no more profitable than selling regular bottled water? Although competition is not always good news for firms trying to sell products, it is great news for consumers because it increases the choice of available products and lowers the prices consumers pay for those products.

AN INSIDE LOOK on **page 98** discusses how McDonald's has responded to shifts in consumer demand by serving breakfast all day, allowing customers to order food online, and offering home delivery.

Sources: Jennifer Maloney, "Coca-Cola Needs to Be More Than Just Coke, Its Next Chief Says," *Wall Street Journal*, February 23, 2017; Jennifer Maloney, "PepsiCo Gives Its 'Premium' Water a Super Bowl Push," *Wall Street Journal*, January 24, 2017; and Feliz Solomon, "Coca-Cola and Pepsi Now Have Something Else in Common," fortune.com, December 7, 2016.

Andrew Toth/ Stringer/Getty Images

Chapter Outline & Learning Objectives

3.1 The Demand Side of the Market, page 74
List and describe the variables that influence demand.

3.2 The Supply Side of the Market, page 82
List and describe the variables that influence supply.

3.3 Market Equilibrium: Putting Demand and Supply Together, page 86
Use a graph to illustrate market equilibrium.

3.4 The Effect of Demand and Supply Shifts on Equilibrium, page 90
Use demand and supply graphs to predict changes in prices and quantities.

Economics in Your Life & Career

Can You Forecast the Future Demand for Premium Bottled Water?

Firms face many challenges in responding to changes in consumer demand. Firms selling premium bottled water need to forecast future demand in order to determine how much production capacity they will need. If you were a manager for Coca-Cola, PepsiCo, Nestlé, Bai, or another firm selling premium bottled water, what factors would you take into account in forecasting future demand? As you read this chapter, try to answer this question. You can check your answers against those we provide on **page 97** at the end of this chapter.

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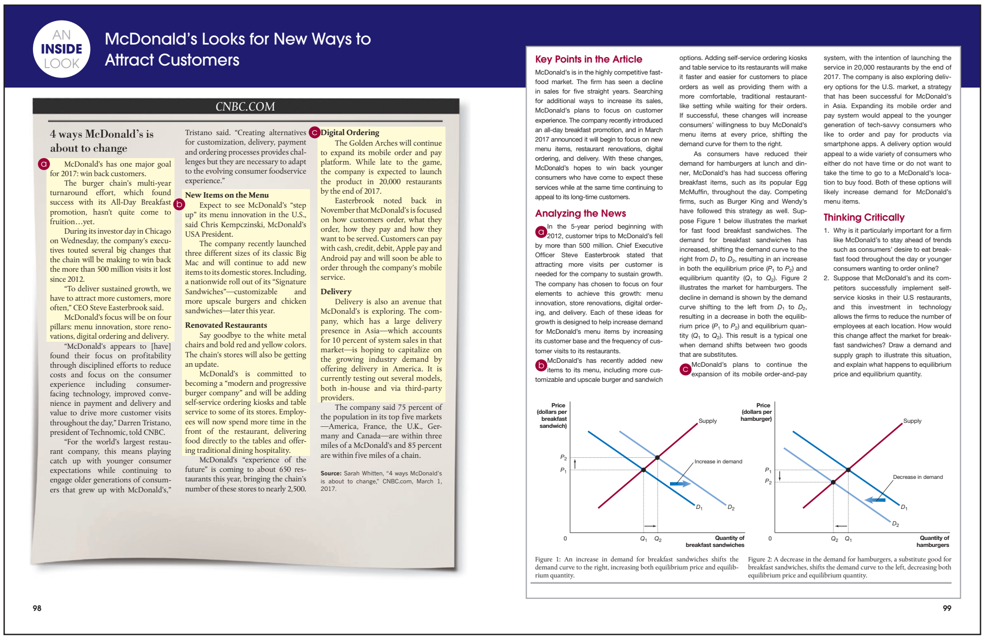
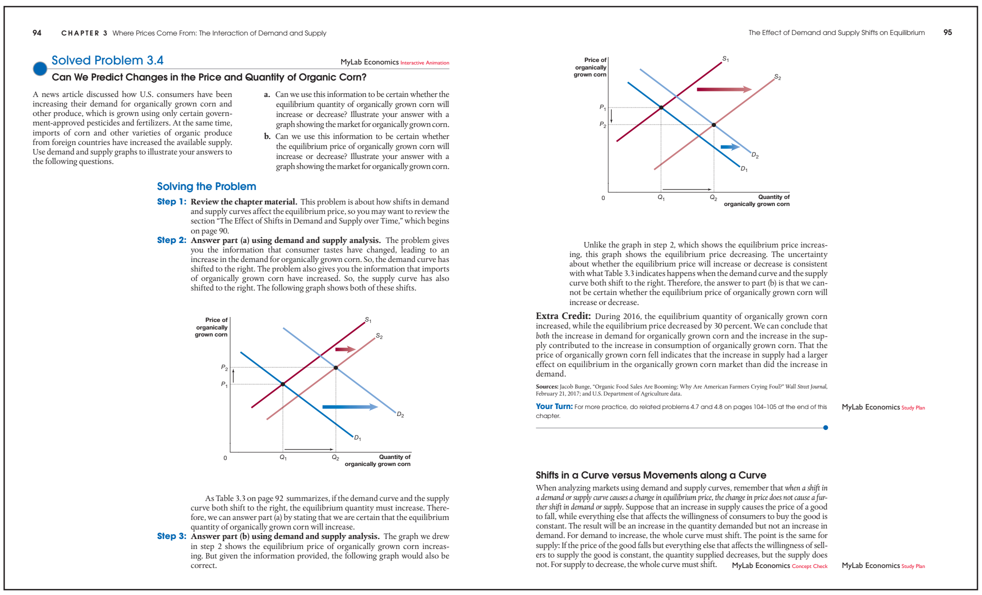
An Inside Look is a two-page feature that shows students how to apply the concepts from the chapter to the analysis of a news article. The feature appears at the end of Chapters 1–4. *An Inside Look* presents an excerpt from an article, analysis of the article, a graph(s), and critical thinking questions.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



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 that analyze real-world economic issues they hear and read about in the news. 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. We tie additional exercises in the end-of-chapter *Problems and Applications* section to every *Solved Problem*. Additional *Solved Problems* appear in the *Instructor's Manuals*. In addition, the Test Banks include problems tied to the *Solved Problems* in the main book. Each of the 36 *Solved Problems* in the printed text is accompanied by a similar Interactive *Solved Problem* on MyLab Economics, 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. Each *Solved Problem* on MyLab Economics and in the digital eText also includes at least one additional graded practice exercise for students.



Apply the Concept

Each chapter includes two to four *Apply the Concept* 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 of the over 60 *Apply the Concept* 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 and trade, which have been at the forefront of recent policy discussions. Each *Apply the Concept* has at least one supporting end-of-chapter problem to allow students to test their understanding of the topic discussed. We prepared and filmed a two- or three-minute video to explain the key point of each *Apply the Concept*. These videos are located on MyLab Economics. We include related assessment 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.

Apply the Concept

MyLab Economics Video

Forecasting the Demand for Premium Bottled Water

Sara Stathas/Alamy Stock Photo

How will changes in demographics, income, and tastes shape the market for premium bottled water?

It's important for managers to forecast the demand for their products accurately because doing so helps them determine how much of a good to produce. Firms typically set manufacturing schedules at least a month ahead of time. Premium bottled water is a rapidly growing market, and firms need to carefully plan increases in productive capacity. Firms that fail to produce a large enough quantity to keep pace with increasing demand can lose out to competitors. But will the demand for premium bottled water continue to grow at such a rapid pace?

Richard Tedlow of the Harvard Business School has developed a theory of the "three phases of marketing" that can provide some insight into how the markets for many consumer products develop over time. The first phase often has a very large number of firms, each producing a relatively small volume of goods and charging high prices. This phase corresponds to the carbonated soft drink industry in the late nineteenth century, the automobile industry in the early twentieth century, and the personal computer industry in the late 1970s. In the second phase, the market consolidates, with one or a few brands attaining high market shares by selling a large number of units at lower prices. This phase corresponds to the soft drink industry during the middle of the twentieth century, the automobile industry during the 1920s, and the personal computer industry during the 1980s.

Managers at beverage firms will have to take into account a number of factors when estimating the future demand for premium bottled water. Factors that will tend to lead to higher demand for premium bottled water include the popularity of the product with millennials, the trend toward healthier eating habits that has led to declining consumption of carbonated beverages, the taxes on soda that cities have been imposing to both fight obesity and raise tax revenue, and the possibility of attracting consumers who now prefer energy drinks such as Red Bull and sports drinks such as Gatorade. But an obstacle to the rapid growth of demand for premium bottled water comes from doubts raised by some analysts about the benefits from the electrolytes and other ingredients it contains that are not in regular bottled water. If consumers come to believe that these ingredients serve no useful purpose, they may prefer to buy regular bottled water, which typically has a lower price.

As we saw in Chapter 1, economists can use formal models to forecast future values of economic variables. In this case, an economist forecasting the demand for premium bottled water would want to include the factors mentioned in the previous paragraphs as well as other data, including changes over time in demographics and projected income growth.

Sources: Jennifer Maloney, "PepsiCo Gives Its 'Premium' Water a Super Bowl Push," *Wall Street Journal*, January 24, 2017; Quentin Fottrell, "Bottled Water Overtakes Soda as America's No. 1 Drink—Why You Should Avoid Both," marketwatch.com, March 12, 2017; and Richard Tedlow, *New and Improved: The Story of Mass Marketing in America*, Cambridge, MA: Harvard Business School Press, 1996.

Your Turn: Test your understanding by doing related problem 1.17 on page 102 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. We include in each chapter 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. The questions are also available on MyLab Economics, where students can receive instant feedback and tutorial help.

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

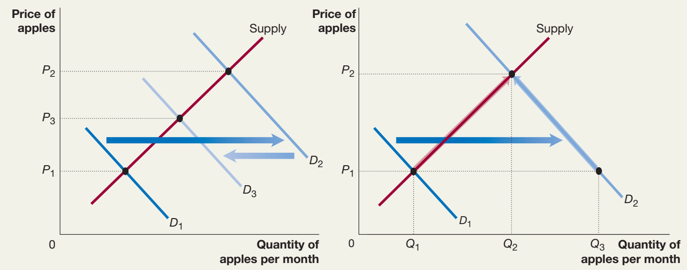
Suppose a student is asked to draw a demand and supply graph to illustrate how an increase in the price of oranges would affect the market for apples, with other variables being constant. He draws the graph on the left and explains it as follows: "Because apples and oranges are substitutes, an increase 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.

MyLab Economics Study Plan

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



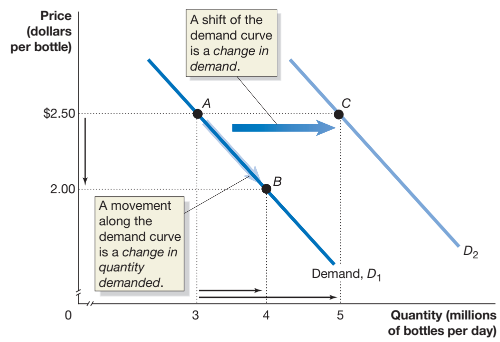
Concept Checks

Each section of each learning objective concludes with a Concept Check on MyLab Economics 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.

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 and 85 for examples)



MyLab Economics Animation

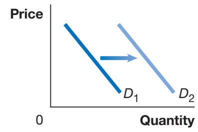
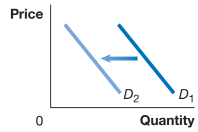
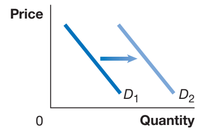
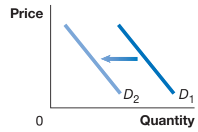
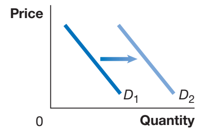
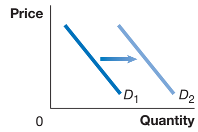
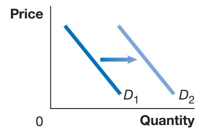
Figure 3.3

A Change in Demand versus a Change in Quantity Demanded

If the price of premium bottled water falls from \$2.50 to \$2.00, the result will be a movement along the demand curve from point *A* to point *B*—an increase in quantity demanded from 3 million bottles to 4 million. If consumers' incomes increase, or if another factor changes that makes consumers want more of the product at every price, the demand curve will shift to the right—an increase in demand. In this case, the increase in demand from D_1 to D_2 causes the quantity of premium bottled water demanded at a price of \$2.50 to increase from 3 million bottles at point *A* to 5 million at point *C*.

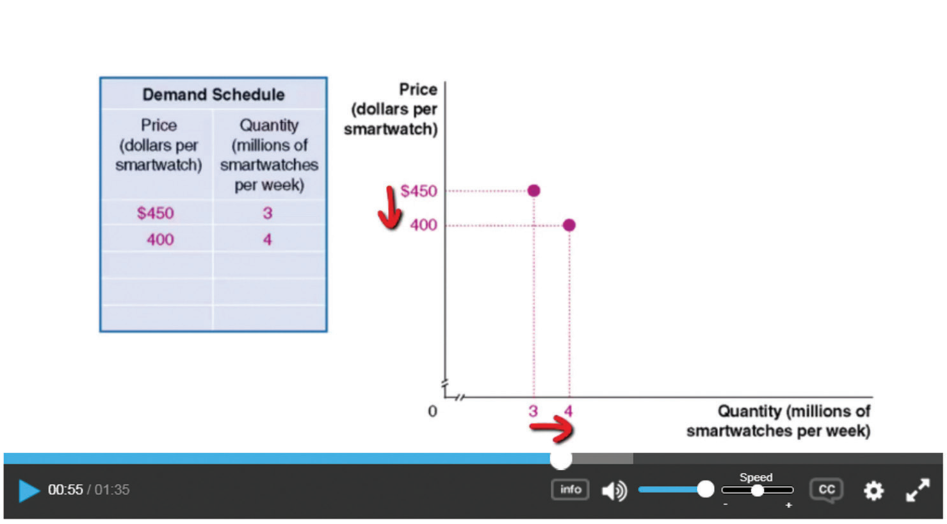
Table 3.1

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.

Each of the 157 numbered figures in the text has a supporting animated version on MyLab Economics. 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. We include graded practice exercises with the animations. In our experience, many students benefit from this type of online learning.

Figure Animation 3.1 A Demand Schedule and Demand Curve



Approximately 35 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. The goal of this digital feature is to help students understand how to work with data and understand how including new data affects graphs.

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

We group the main end-of-chapter material—*Summary, Review Questions,* and *Problems and Applications*—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 on MyLab Economics, 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 on MyLab Economics. Using MyLab Economics, 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 allows 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, Apply the Concept,* 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(s) for homework. The Test Bank Files also include test questions that pertain to these special features.

Developing Career Skills

Learning key economic terms, concepts, and models are all important. For a course to be successful, students need to develop the skills and confidence to apply what they've learned outside the classroom. Chapter 1, "Economics: Foundations and Models," now includes a new section that describes economics as a career and the key skills students of any major can gain from studying economics. As described earlier, features such as chapter-opening business cases, *Apply the Concepts*, *Solved Problems*, and end-of-chapter problems provide a real-world context for learning that exposes students to economics as applied in a variety of large and small businesses, government agencies, and nonprofit organizations. *Critical Thinking Exercises,* a new end-of-chapter category in this edition, help build student skills to analyze and interpret information and apply reasoning and logic to new or unfamiliar ideas and situations.

Economics in Your Life & Career

After the chapter-opening real-world business case, we have a feature titled *Economics in Your Life & Career* that adds a personal dimension to the chapter opener by asking students to consider how economics affects their lives and careers. The feature piques the interest of students and emphasizes the connection between the material they are learning and their personal and career decisions

Economics in Your Life & Career

Can You Forecast the Future Demand for Premium Bottled Water?

Firms face many challenges in responding to changes in consumer demand. Firms selling premium bottled water need to forecast future demand in order to determine how much production capacity they will need. If you were a manager for Coca-Cola, PepsiCo, Nestlé, Bai, or another firm selling premium bottled water, what factors would you take into account in forecasting future demand? As you read this chapter, try to answer this question. 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.

Economics in Your Life & Career

Can You Forecast the Future Demand for Premium Bottled Water?

At the beginning of this chapter, we asked what variables you would take into account in forecasting future demand if you were a manager for a firm selling premium bottled water. In Section 3.1, we discussed the factors that affect the demand for a product and provided a list of the most important variables. In the *Apply the Concept* on page 81, we discussed how economists often use formal models to forecast future demand for a product.

In forecasting demand for premium bottled water, you should take into account factors such as changing demographics, as millennials become a larger fraction of prime-age consumers, and the likelihood that the demand for competing goods, such as carbonated sodas, will decline as consumers turn toward buying healthier products and as more cities impose soda taxes. You may also need to consider whether increased advertising of premium bottled water by large firms such as Coca-Cola and PepsiCo will raise consumer awareness of the product and increase demand for the premium bottled water being sold by other firms as well.

The factors discussed in this chapter provide you with the basic information needed to forecast demand for premium bottled water, although arriving at numerical forecasts requires using statistical analysis that you can learn in more advanced courses.

Instructor Teaching Resources

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

Supplements Available to Instructors for Download at www.pearsonhighered.com	Features of the Supplement
Instructor's Manual Authored by Edward Scahill of the University of Scranton	• Chapter-by-chapter summaries organized by learning objectives • Extended examples and class exercises • Teaching outlines incorporating key terms and definitions, teaching tips, topics for class discussion • New *Solved Problems* • New *Apply the Concept* features • Solutions to all review questions, problems, and real-time data exercises in the book
Test Bank Authored by Randy Methenitis of Richland College	• 4,000 multiple-choice, true/false, short-answer, and graphing questions. • Test questions are annotated with the following categories: **Difficulty**—1 for straight recall; 2 for some analysis; and 3 for complex analysis **Type**—multiple-choice, true/false, short-answer, essay **Topic**—the term or concept the question supports **Learning outcome** **Page number** in the main book **Special feature** in the main book **The Association to Advance Collegiate Schools of Business** (AACSB) **Guidelines** (see description on the next page)
Computerized TestGen	• Allows instructors to customize, save, and generate classroom tests. • Instructors can edit, add, or delete questions from the Test Banks; analyze test results; and organize a database of tests and student results. • Many options are available for organizing and displaying tests, along with search and sort features. • The software and the Test Banks can be downloaded from www.pearsonhighered.com.
Three Sets of PowerPoint Lecture Presentations Authored by Paul Holmes of Ashland University	• A comprehensive set of PowerPoint slides can be used by instructors for class presentations or by students for lecture preview or review. These slides include all the graphs, tables, and equations in the textbook. Two versions are available—step-by-step mode, in which you can build graphs as you would on a blackboard, and automated mode, in which you use a single click per slide. • A comprehensive set of PowerPoint slides have Classroom Response Systems (CRS) questions built in so that instructors can incorporate CRS "clickers" into their classroom lectures. • Student versions of the PowerPoint slides are available as .pdf files. This version allows students to print the slides and bring them to class for note taking.

What Is the AACSB?

The Association to Advance Collegiate Schools of Business (AACSB) is a not-for-profit corporation of educational institutions, corporations, and other organizations devoted to the promotion and improvement of higher education in business administration and accounting. A collegiate institution offering degrees in business administration or accounting may volunteer for AACSB accreditation review. The AACSB expects a curriculum to include learning experiences in the following categories of Assurance of Learning Standards: Written and Oral Communication; Ethical Understanding and Reasoning; Analytical Thinking; Information Technology; Interpersonal Relations and Teamwork, Diverse and Multicultural Work; Reflective Thinking; and Application of Knowledge. Test Bank questions that test skills relevant to these standards are tagged with the appropriate standard. For example, a question testing the moral questions associated with externalities would receive the Ethical Understanding and Reasoning tag.

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The guidance and recommendations of the following instructors helped us develop the revision plans for the seventh edition and the supplements package. While we could not incorporate every suggestion from every consultant board member, reviewer, or accuracy checker, we do thank each and every one of you and acknowledge that your feedback was indispensable in developing this text. We greatly appreciate your assistance in making this the best text it could be; you have helped a whole new generation of students learn about the exciting world of economics.

Accuracy Review Board

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Reviewers

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