

# Essentials of Economics

Sixth Edition

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New York, NY

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#### Library of Congress Cataloging-in-Publication Data.

Names: Hubbard, R. Glenn, author. | O'Brien, Anthony Patrick, author.  
Title: Essentials of economics / R. Glenn Hubbard, Columbia University,  
Anthony Patrick O'Brien, Lehigh University.  
Description: Sixth edition. | New York : Pearson, [2019] | Includes  
bibliographical references and index.  
Identifiers: LCCN 2017060843 | ISBN 9780134797731 | ISBN 0134797736  
Subjects: LCSH: Economics.  
Classification: LCC HB171 .H83 2019 | DDC 330—dc23  
LC record available at <https://lccn.loc.gov/2017060843>



**For Constance, Raph, and Will**  
—*R. Glenn Hubbard*

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

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# BRIEF CONTENTS

Preface	P-1
A Word of Thanks	P-23

## PART 1 Introduction

<b>Chapter 1:</b> Economics: Foundations and Models	2
Appendix: Using Graphs and Formulas	28
<b>Chapter 2:</b> Trade-offs, Comparative Advantage, and the Market System	40
<b>Chapter 3:</b> Where Prices Come From: The Interaction of Demand and Supply	72

## PART 2 Markets in Action: Policy and Applications

<b>Chapter 4:</b> Market Efficiency and Market Failure	108
<b>Chapter 5:</b> The Economics of Health Care	150

## PART 3 Microeconomic Foundations: Consumers and Firms

<b>Chapter 6:</b> Firms, the Stock Market, and Corporate Governance	184
<b>Chapter 7:</b> Consumer Choice and Elasticity	210
<b>Chapter 8:</b> Technology, Production, and Costs	262

## PART 4 Market Structure and Firm Strategy

<b>Chapter 9:</b> Firms in Perfectly Competitive Markets	292
<b>Chapter 10:</b> Monopoly and Antitrust Policy	328
<b>Chapter 11:</b> Monopolistic Competition and Oligopoly	360

## PART 5 Macroeconomic Foundations

<b>Chapter 12:</b> GDP: Measuring Total Production and Income	400
<b>Chapter 13:</b> Unemployment and Inflation	426

## PART 6 Long-Run Economic Growth and Short-Run Economic Fluctuations

<b>Chapter 14:</b> Economic Growth, the Financial System, and Business Cycles	466
<b>Chapter 15:</b> Aggregate Demand and Aggregate Supply Analysis	500
Appendix: Macroeconomic Schools of Thought	538

## PART 7 Monetary and Fiscal Policy

<b>Chapter 16:</b> Money, Banks, and the Federal Reserve System	542
<b>Chapter 17:</b> Monetary Policy	580
<b>Chapter 18:</b> Fiscal Policy	624
<b>Chapter 19:</b> Comparative Advantage, International Trade, and Exchange Rates	670

<b>Glossary</b>	<b>G-1</b>
<b>Company Index</b>	<b>I-1</b>
<b>Subject Index</b>	<b>I-3</b>
<b>Credits</b>	<b>C-1</b>

# CONTENTS

Preface	P-1	<b>Graphs of Two Variables</b>	<b>30</b>
A Word of Thanks	P-23	Slopes of Lines	31
<b>PART 1 Introduction</b>		<b>Taking into Account More Than Two Variables on a Graph</b>	<b>32</b>
<b>CHAPTER 1: Economics: Foundations and Models</b>	<b>2</b>	Positive and Negative Relationships	32
<b>Why Does Ford Assemble Cars in Both the United States and Mexico?</b>	<b>2</b>	Determining Cause and Effect	34
<b>1.1 Three Key Economic Ideas</b>	<b>4</b>	Are Graphs of Economic Relationships Always Straight Lines?	35
People Are Rational	5	Slopes of Nonlinear Curves	35
People Respond to Economic Incentives	5	<b>Formulas</b>	<b>36</b>
<b>Apply the Concept:</b> Does Health Insurance Give People an Incentive to Become Obese?	5	Formula for a Percentage Change	37
Optimal Decisions Are Made at the Margin	7	Formulas for the Areas of a Rectangle and a Triangle	37
<b>Solved Problem 1.1:</b> The Marginal Benefit and Marginal Cost of Speed Limits	7	Summary of Using Formulas	38
<b>1.2 The Economic Problem That Every Society Must Solve</b>	<b>8</b>	Problems and Applications	38
What Goods and Services Will Be Produced?	9	<b>CHAPTER 2: Trade-offs, Comparative Advantage, and the Market System</b>	<b>40</b>
How Will the Goods and Services Be Produced?	9	<b>Managers at Tesla Motors Face Trade-offs</b>	<b>40</b>
Who Will Receive the Goods and Services Produced?	9	<b>2.1 Production Possibilities Frontiers and Opportunity Costs</b>	<b>42</b>
Centrally Planned Economies versus Market Economies	10	Graphing the Production Possibilities Frontier	42
The Modern “Mixed” Economy	10	<b>Solved Problem 2.1:</b> Drawing a Production Possibilities Frontier for Tesla Motors	44
Efficiency and Equity	11	Increasing Marginal Opportunity Costs	46
<b>1.3 Economic Models</b>	<b>12</b>	Economic Growth	47
The Role of Assumptions in Economic Models	12	<b>2.2 Comparative Advantage and Trade</b>	<b>48</b>
Forming and Testing Hypotheses in Economic Models	13	Specialization and Gains from Trade	48
Positive and Normative Analysis	14	Absolute Advantage versus Comparative Advantage	50
<b>Don’t Let This Happen to You:</b> Don’t Confuse Positive Analysis with Normative Analysis	14	Comparative Advantage and the Gains from Trade	51
Economics as a Social Science	15	<b>Don’t Let This Happen to You:</b> Don’t Confuse Absolute Advantage and Comparative Advantage	51
<b>Apply the Concept:</b> What Can Economics Contribute to the Debate over Tariffs?	15	<b>Solved Problem 2.2:</b> Comparative Advantage and the Gains from Trade	52
<b>1.4 Microeconomics and Macroeconomics</b>	<b>16</b>	<b>Apply the Concept:</b> Comparative Advantage, Opportunity Cost, and Housework	53
<b>1.5 Economic Skills and Economics as a Career</b>	<b>16</b>	<b>2.3 The Market System</b>	<b>54</b>
<b>1.6 A Preview of Important Economic Terms</b>	<b>17</b>	The Circular Flow of Income	55
<b>Conclusion</b>	<b>19</b>	The Gains from Free Markets	56
<b>An Inside Look:</b> Is Manufacturing Returning to the United States?	20	The Market Mechanism	56
<b>*Chapter Summary and Problems</b>	<b>22</b>	<b>Apply the Concept:</b> A Story of the Market System in Action: How Do You Make an iPad?	57
Key Terms, Summary, Review Questions, Problems and Applications, and Critical Thinking Exercises		The Role of the Entrepreneur in the Market System	59
<b>Appendix: Using Graphs and Formulas</b>	<b>28</b>	The Legal Basis of a Successful Market System	59
<b>Graphs of One Variable</b>	<b>29</b>	<b>Apply the Concept:</b> Managers at Feeding America Use the Market Mechanism to Reduce Hunger	62

\* 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.

<b>Conclusion</b>	<b>63</b>
<b>An Inside Look:</b> Tesla Bets Big on Nevada Battery Plant	64
<b>Chapter Summary and Problems</b>	<b>66</b>
<b>CHAPTER 3: Where Prices Come From: The Interaction of Demand and Supply</b>	<b>72</b>
<b>How Smart Is Your Water?</b>	<b>72</b>
<b>3.1 The Demand Side of the Market</b>	<b>74</b>
Demand Schedules and Demand Curves	74
The Law of Demand	75
What Explains the Law of Demand?	75
Holding Everything Else Constant: The <i>Ceteris Paribus</i> Condition	76
Variables That Shift Market Demand	76
<b>Apply the Concept:</b> Virtual Reality Headsets: Will a Substitute Fail for a Lack of Complements?	77
<b>Apply the Concept:</b> Millennials Shake Up the Markets for Soda, Groceries, Big Macs, and Running Shoes	78
A Change in Demand versus a Change in Quantity Demanded	81
<b>Apply the Concept:</b> Forecasting the Demand for Premium Bottled Water	81
<b>3.2 The Supply Side of the Market</b>	<b>82</b>
Supply Schedules and Supply Curves	83
The Law of Supply	83
Variables That Shift Market Supply	83
A Change in Supply versus a Change in Quantity Supplied	86
<b>3.3 Market Equilibrium: Putting Demand and Supply Together</b>	<b>86</b>
How Markets Eliminate Surpluses and Shortages	87
Demand and Supply Both Count	88
<b>Solved Problem 3.3:</b> Demand and Supply Both Count: A Tale of Two Letters	88
<b>3.4 The Effect of Demand and Supply Shifts on Equilibrium</b>	<b>90</b>
The Effect of Shifts in Demand on Equilibrium	90
The Effect of Shifts in Supply on Equilibrium	90
The Effect of Shifts in Demand and Supply over Time	90
<b>Apply the Concept:</b> Lower Demand for Orange Juice—But Higher Prices?	92
<b>Solved Problem 3.4:</b> Can We Predict Changes in the Price and Quantity of Organic Corn?	94
Shifts in a Curve versus Movements along a Curve	95
<b>Don't Let This Happen to You:</b> Remember: A Change in a Good's Price Does <i>Not</i> Cause the Demand or Supply Curve to Shift	96
<b>Conclusion</b>	<b>97</b>
<b>An Inside Look:</b> McDonald's Looks for New Ways to Attract Customers	98
<b>Chapter Summary and Problems</b>	<b>100</b>

## PART 2 Markets in Action: Policy and Applications

<b>CHAPTER 4: Market Efficiency and Market Failure</b>	<b>108</b>
<b>What Do Food Riots in Venezuela and the Rise of Uber in the United States Have in Common?</b>	<b>108</b>
<b>4.1 Consumer Surplus and Producer Surplus</b>	<b>110</b>
Consumer Surplus	110
<b>Apply the Concept:</b> The Consumer Surplus from Uber	113
Producer Surplus	114
What Consumer Surplus and Producer Surplus Measure	115
<b>4.2 The Efficiency of Competitive Markets</b>	<b>115</b>
Marginal Benefit Equals Marginal Cost in Competitive Equilibrium	115
Economic Surplus	116
Deadweight Loss	117
Economic Surplus and Economic Efficiency	117
<b>4.3 Government Intervention in the Market: Price Floors and Price Ceilings</b>	<b>118</b>
Price Floors: Government Policy in Agricultural Markets	118
<b>Apply the Concept:</b> Price Floors in Labor Markets: The Debate over Minimum Wage Policy	119
Price Ceilings: Government Rent Control Policy in Housing Markets	121
<b>Don't Let This Happen to You:</b> Don't Confuse "Scarcity" with "Shortage"	122
Black Markets and Peer-to-Peer Sites	122
<b>Solved Problem 4.3:</b> What's the Economic Effect of a Black Market in Renting Apartments?	123
The Results of Government Price Controls: Winners, Losers, and Inefficiency	124
<b>Apply the Concept:</b> Price Controls Lead to Economic Decline in Venezuela	124
Positive and Normative Analysis of Price Ceilings and Price Floors	126
<b>4.4 Externalities and Economic Efficiency</b>	<b>126</b>
The Effect of Externalities	126
Externalities and Market Failure	128
What Causes Externalities?	129
<b>4.5 Government Policies to Deal with Externalities</b>	<b>129</b>
Imposing a Tax When There Is a Negative Externality	129
Providing a Subsidy When There Is a Positive Externality	130
<b>Apply the Concept:</b> Should the Government Tax Cigarettes and Soda?	131
<b>Solved Problem 4.5:</b> Dealing with the Externalities of Car Driving	132

Command-and-Control versus Market-Based Approaches 134

The End of the Sulfur Dioxide Cap-and-Trade System 135

Are Tradable Emission Allowances Licenses to Pollute? 135

**Apply the Concept:** Should the United States Enact a Carbon Tax to Fight Global Warming? 135

**Conclusion** 137

**An Inside Look:** Will Uber Be Required to Pay British VAT? 138

**Chapter Summary and Problems** 140

**CHAPTER 5: The Economics of Health Care** 150

**Where Will You Find Health Insurance?** 150

**5.1 The Improving Health of People in the United States** 152

Changes over Time in U.S. Health 153

Reasons for Long-Run Improvements in U.S. Health 153

**5.2 Health Care around the World** 154

The U.S. Health Care System 154

**Apply the Concept:** The Increasing Importance of Health Care in the U.S. Economy 156

The Health Care Systems of Canada, Japan, and the United Kingdom 157

Comparing Health Care Outcomes around the World 158

How Useful Are Cross-Country Comparisons of Health Outcomes? 159

**5.3 Information Problems and Externalities in the Market for Health Care** 160

Adverse Selection and the Market for “Lemons” 160

Asymmetric Information in the Market for Health Insurance 161

**Don’t Let This Happen to You:** Don’t Confuse Adverse Selection with Moral Hazard 162

Externalities in the Market for Health Care 163

Should the Government Run the Health Care System? 165

**5.4 The Debate over Health Care Policy in the United States** 166

The Rising Cost of Health Care 166

**Apply the Concept:** Are U.S. Firms Handicapped by Paying for Their Employees’ Health Insurance? 168

Explaining Increases in Health Care Spending 169

The Continuing Debate over Health Care Policy 172

**Solved Problem 5.4:** Recent Trends in U.S. Health Care 173

**Apply the Concept:** How Much Is That MRI Scan? 175

**Conclusion** 177

**Chapter Summary and Problems** 178

**PART 3 Microeconomic Foundations: Consumers and Firms**

**CHAPTER 6: Firms, the Stock Market, and Corporate Governance** 184

**Is Snapchat the Next Facebook . . . or the Next Twitter?** 184

**6.1 Types of Firms** 186

Who Is Liable? Limited and Unlimited Liability 186

Corporations Earn the Majority of Revenue and Profits 187

**Apply the Concept:** Why Are Fewer Young People Starting Businesses? 188

The Structure of Corporations and the Principal-Agent Problem 189

**6.2 How Firms Raise Funds** 190

Sources of External Funds 190

**Apply the Concept:** The Rating Game: Are the Federal Government or State Governments Likely to Default on Their Bonds? 191

Stock and Bond Markets Provide Capital—and Information 193

The Fluctuating Stock Market 194

**Don’t Let This Happen to You:** When Snap Shares Are Sold, Snap Doesn’t Get the Money 194

**Apply the Concept:** Why Are Many People Poor Stock Market Investors? 196

**Solved Problem 6.2:** Why Does Warren Buffett Like Mutual Funds? 197

**6.3 Using Financial Statements to Evaluate a Corporation** 198

The Income Statement 198

The Balance Sheet 199

**6.4 Recent Issues in Corporate Governance Policy** 200

The Accounting Scandals of the Early 2000s 200

Corporate Governance and the Financial Crisis of 2007–2009 200

Government Regulation in Response to the Financial Crisis 201

Did Principal-Agent Problems Help Cause the 2007–2009 Financial Crisis? 201

**Apply the Concept:** Should Investors Worry about Corporate Governance at Snapchat? 202

**Conclusion** 204

**Chapter Summary and Problems** 205

**CHAPTER 7: Consumer Choice and Elasticity** 210

**J.C. Penney Customers Didn’t Buy into “Everyday Low Prices”** 210

**7.1 Utility and Consumer Decision Making** 212

An Overview of the Economic Model of Consumer Behavior 212

Utility	212	<b>7.7 The Relationship between Price Elasticity of Demand and Total Revenue</b>	<b>245</b>
The Principle of Diminishing Marginal Utility	213	Elasticity and Revenue with a Linear Demand Curve	246
The Rule of Equal Marginal Utility per Dollar Spent	213	<b>Solved Problem 7.7:</b> Price and Revenue Don't Always Move in the Same Direction	247
<b>Solved Problem 7.1:</b> Finding the Optimal Level of Consumption	216	<b>Apply the Concept:</b> Why Does Amazon Care about Price Elasticity?	248
What if the Rule of Equal Marginal Utility per Dollar Does Not Hold?	217	<b>Conclusion</b>	<b>250</b>
<b>Don't Let This Happen to You:</b> Equalize Marginal Utilities <i>per Dollar</i>	218	<b>Chapter Summary and Problems</b>	<b>251</b>
The Income Effect and Substitution Effect of a Price Change	219	<b>CHAPTER 8: Technology, Production, and Costs</b>	<b>262</b>
<b>7.2 Where Demand Curves Come From</b>	<b>220</b>	<b>Will the Cost of MOOCs Revolutionize Higher Education?</b>	<b>262</b>
<b>Apply the Concept:</b> Are There Any Upward-Sloping Demand Curves in the Real World?	222	<b>8.1 Technology: An Economic Definition</b>	<b>264</b>
<b>7.3 Social Influences on Decision Making</b>	<b>223</b>	<b>Apply the Concept:</b> Would You Please Be Quiet? Technological Change at Segment.com	264
The Effects of Celebrity Endorsements	223	<b>8.2 The Short Run and the Long Run in Economics</b>	<b>265</b>
Network Externalities	224	The Difference between Fixed Costs and Variable Costs	265
Does Fairness Matter?	225	<b>Apply the Concept:</b> Fixed Costs in the Publishing Industry	266
<b>Apply the Concept:</b> Who Made the Most Profit from the Broadway Musical <i>Hamilton</i> ?	227	Implicit Costs versus Explicit Costs	266
<b>Solved Problem 7.3:</b> Why Doesn't Tesla Charge Its Employees to Park Their Cars?	229	The Production Function	267
<b>7.4 Behavioral Economics: Do People Make Rational Choices?</b>	<b>231</b>	A First Look at the Relationship between Production and Cost	268
Pitfalls in Decision Making	231	<b>8.3 The Marginal Product of Labor and the Average Product of Labor</b>	<b>269</b>
<b>Apply the Concept:</b> A Blogger Who Understands the Importance of Ignoring Sunk Costs	232	The Law of Diminishing Returns	269
"Nudges": Using Behavioral Economics to Guide Behavior	233	Graphing Production	270
The Behavioral Economics of Shopping	234	<b>Apply the Concept:</b> Adam Smith's Famous Account of the Division of Labor in a Pin Factory	271
<b>Apply the Concept:</b> J.C. Penney Meets Behavioral Economics	235	The Relationship between Marginal Product and Average Product	271
<b>7.5 The Price Elasticity of Demand and Its Measurement</b>	<b>236</b>	An Example of Marginal and Average Values: College Grades	272
Measuring the Price Elasticity of Demand	237	<b>8.4 The Relationship between Short-Run Production and Short-Run Cost</b>	<b>273</b>
Elastic Demand and Inelastic Demand	237	Marginal Cost	273
An Example of Calculating Price Elasticities	238	Why Are the Marginal and Average Cost Curves U Shaped?	273
The Midpoint Formula	238	<b>Solved Problem 8.4:</b> Calculating Marginal Cost and Average Cost	275
<b>Solved Problem 7.5:</b> Calculating the Price Elasticity of Demand	239	<b>8.5 Graphing Cost Curves</b>	<b>276</b>
When Demand Curves Intersect, the Flatter Curve Is More Elastic	240	<b>8.6 Costs in the Long Run</b>	<b>278</b>
Polar Cases of Perfectly Elastic and Perfectly Inelastic Demand	241	Economies of Scale	278
<b>Don't Let This Happen to You:</b> Don't Confuse Inelastic with Perfectly Inelastic	241	Long-Run Average Cost Curves for Automobile Factories	279
<b>7.6 The Determinants of the Price Elasticity of Demand</b>	<b>243</b>	<b>Solved Problem 8.6:</b> Using Long-Run Average Cost Curves to Understand Business Strategy	279
Availability of Close Substitutes	243		
Passage of Time	243		
Luxuries versus Necessities	243		
Definition of the Market	243		
Share of a Good in a Consumer's Budget	243		
Some Estimated Price Elasticities of Demand	244		

**Apply the Concept:** The Colossal River Rouge: Diseconomies of Scale at Ford Motor Company 281

**Don't Let This Happen to You:** Don't Confuse Diminishing Returns with Diseconomies of Scale 282

**Conclusion** 283

**Chapter Summary and Problems** 284

**PART 4 Market Structure and Firm Strategy**

**CHAPTER 9: Firms in Perfectly Competitive Markets** 292

**Are Cage-Free Eggs the Road to Riches?** 292

**9.1 Perfectly Competitive Markets** 295

A Perfectly Competitive Firm Cannot Affect the Market Price 295

The Demand Curve for the Output of a Perfectly Competitive Firm 296

**Don't Let This Happen to You:** Don't Confuse the Demand Curve for Farmer Parker's Wheat with the Market Demand Curve for Wheat 296

**9.2 How a Firm Maximizes Profit in a Perfectly Competitive Market** 297

Revenue for a Firm in a Perfectly Competitive Market 298

Determining the Profit-Maximizing Level of Output 298

**9.3 Illustrating Profit or Loss on the Cost Curve Graph** 300

Showing Profit on a Graph 301

**Solved Problem 9.3:** Determining Profit-Maximizing Price and Quantity 302

**Don't Let This Happen to You:** Remember That Firms Maximize Their Total Profit, Not Their Profit per Unit 304

Illustrating When a Firm Is Breaking Even or Operating at a Loss 304

**Apply the Concept:** Losing Money in the Restaurant Business 305

**9.4 Deciding Whether to Produce or to Shut Down in the Short Run** 306

The Supply Curve of a Firm in the Short Run 307

**Solved Problem 9.4:** When to Shut Down a Farm 308

The Market Supply Curve in a Perfectly Competitive Industry 309

**9.5 "If Everyone Can Do It, You Can't Make Money at It": The Entry and Exit of Firms in the Long Run** 310

Economic Profit and the Entry or Exit Decision 310

Long-Run Equilibrium in a Perfectly Competitive Market 312

The Long-Run Supply Curve in a Perfectly Competitive Market 314

**Apply the Concept:** In the Apple App Store, Easy Entry Makes the Long Run Pretty Short 315

Increasing-Cost and Decreasing-Cost Industries 316

**9.6 Perfect Competition and Economic Efficiency** 316

Productive Efficiency 316

**Solved Problem 9.6:** How Productive Efficiency Benefits Consumers 317

Allocative Efficiency 318

**Conclusion** 319

**Chapter Summary and Problems** 320

**CHAPTER 10: Monopoly and Antitrust Policy** 328

**A Monopoly on Lobster Dinners in Maine?** 328

**10.1 Is Any Firm Ever Really a Monopoly?** 330

**Apply the Concept:** Is the NCAA a Monopoly? 330

**10.2 Where Do Monopolies Come From?** 332

Government Action Blocks Entry 332

**Apply the Concept:** Does Hasbro Have a Monopoly on Monopoly? 333

Control of a Key Resource 334

**Apply the Concept:** Are Diamond Profits Forever? The De Beers Diamond Monopoly 334

Network Externalities 335

Natural Monopoly 336

**10.3 How Does a Monopoly Choose Price and Output?** 337

Marginal Revenue Once Again 337

Profit Maximization for a Monopolist 338

**Solved Problem 10.3:** Finding the Profit-Maximizing Price and Output for a Cable Monopoly 340

**Don't Let This Happen to You:** Don't Assume That Charging a Higher Price Is Always More Profitable for a Monopolist 341

**10.4 Does Monopoly Reduce Economic Efficiency?** 341

Comparing Monopoly and Perfect Competition 341

Measuring the Efficiency Losses from Monopoly 342

How Large Are the Efficiency Losses Due to Monopoly? 343

Market Power and Technological Change 344

**10.5 Government Policy toward Monopoly** 344

Antitrust Laws and Antitrust Enforcement 344

**Apply the Concept:** Have Generic Drug Firms Been Colluding to Raise Prices? 345

Mergers: The Trade-off between Market Power and Efficiency 346

The Department of Justice and FTC Merger Guidelines 348

Regulating Natural Monopolies 350

**Solved Problem 10.5:** What Should Your College Charge for a MOOC? 351

**Conclusion** 352

**Chapter Summary and Problems** 353

**CHAPTER 11: Monopolistic Competition and Oligopoly** 360

**Will Panera’s “Pure Food” Advantage Last?** 360

**11.1 Demand and Marginal Revenue for a Firm in a Monopolistically Competitive Market** 362

The Demand Curve for a Monopolistically Competitive Firm 362

Marginal Revenue for a Firm with a Downward-Sloping Demand Curve 363

**11.2 How a Monopolistically Competitive Firm Maximizes Profit in the Short Run** 365

**Solved Problem 11.2:** Does Minimizing Cost Maximize Profit at Apple? 366

**11.3 What Happens to Profits in the Long Run?** 368

How Does the Entry of New Firms Affect the Profits of Existing Firms? 368

**Don’t Let This Happen to You:** Don’t Confuse Zero Economic Profit with Zero Accounting Profit 369

**Apply the Concept:** Is “Clean Food” a Sustainable Market Niche for Panera? 369

Is Zero Economic Profit Inevitable in the Long Run? 370

**Solved Problem 11.3:** Red Robin Abandons an Experiment in Fast-Casual Restaurants 371

**11.4 Comparing Monopolistic Competition and Perfect Competition** 372

Excess Capacity under Monopolistic Competition 373

Is Monopolistic Competition Inefficient? 373

How Consumers Benefit from Monopolistic Competition 374

**Apply the Concept:** One Way to Differentiate Your Restaurant? Become a Ghost! 374

**11.5 Oligopoly and Barriers to Entry** 375

Barriers to Entry 376

**Apply the Concept:** Got a Great Recipe for Cookies? Don’t Try Selling Them in Wisconsin or New Jersey 378

**11.6 Game Theory and Oligopoly** 379

A Duopoly Game: Price Competition between Two Firms 380

Firm Behavior and the Prisoner’s Dilemma 381

**Solved Problem 11.6:** Is Offering a College Student Discount a Prisoner’s Dilemma for Apple and Spotify? 381

Can Firms Escape the Prisoner’s Dilemma? 383

**Apply the Concept:** Are the Big Four Airlines Colluding? 384

Cartels: The Case of OPEC 386

**Conclusion** 388

**Chapter Summary and Problems** 389

**PART 5 Macroeconomic Foundations**

**CHAPTER 12: GDP: Measuring Total Production and Income** 400

**The Ford Motor Company Meets Macroeconomics** 400

**12.1 Gross Domestic Product Measures Total Production** 403

Measuring Total Production: Gross Domestic Product 403

**Solved Problem 12.1:** Calculating GDP Production, Income, and the Circular-Flow Diagram 404

Components of GDP 406

**Don’t Let This Happen to You:** Remember What Economists Mean by *Investment* 407

An Equation for GDP and Some Actual Values 407

**Apply the Concept:** Microsoft’s Steve Ballmer Uses the U.S. Constitution to Reorganize Government Data 408

Measuring GDP Using the Value-Added Method 410

**12.2 Does GDP Measure What We Want It to Measure?** 410

Shortcomings in GDP as a Measure of Total Production 410

**Apply the Concept:** Why Do Many Developing Countries Have Such Large Underground Economies? 411

Shortcomings of GDP as a Measure of Well-Being 412

**12.3 Real GDP versus Nominal GDP** 413

Calculating Real GDP 413

**Solved Problem 12.3:** Calculating Real GDP Comparing Real GDP and Nominal GDP The GDP Deflator 414

**Apply the Concept:** Did the Standard of Living in Nigeria Almost Double Overnight? 416

**12.4 Other Measures of Total Production and Total Income** 417

Gross National Product 417

National Income 417

Personal Income 418

Disposable Personal Income 418

The Division of Income 418

**Conclusion** 419

**Chapter Summary and Problems** 420

**CHAPTER 13: Unemployment and Inflation** 426

**Why Would Boeing Cut Thousands of Jobs as the Economy Expands?** 426

**13.1 Measuring the Unemployment Rate, the Labor Force Participation Rate, and the Employment–Population Ratio** 428

The Household Survey 428

**Solved Problem 13.1:** What Happens if the BLS Includes the Military? 430

Problems with Measuring the Unemployment Rate 431

Trends in Labor Force Participation 432

Unemployment Rates for Different Groups 433

How Long Are People Typically Unemployed? 434

**Apply the Concept:** Eight Million Workers Are Missing! 434

The Establishment Survey: Another Measure of Employment 436

Revisions in the Establishment Survey 437

Employment Data: How Bad Was the 2007–2009 Recession? 437

Job Creation and Job Destruction over Time 437

**13.2 Types of Unemployment 438**

Frictional Unemployment and Job Search 438

Structural Unemployment 439

Cyclical Unemployment 439

Full Employment 440

**Apply the Concept:** How Should We Categorize the Unemployment Resulting from Boeing’s Layoffs? 440

**13.3 Explaining Unemployment 441**

Government Policies and the Unemployment Rate 441

Labor Unions 442

Efficiency Wages 443

**13.4 Measuring Inflation 443**

The Consumer Price Index 443

Is the CPI Accurate? 445

**Don’t Let This Happen to You:** Don’t Miscalculate the Inflation Rate 445

The Producer Price Index 446

**13.5 Using Price Indexes to Adjust for the Effects of Inflation 446**

**Solved Problem 13.5:** What Has Been Happening to Real Wages in the United States? 447

**13.6 Nominal Interest Rates versus Real Interest Rates 449**

**13.7 Does Inflation Impose Costs on the Economy? 450**

Inflation Affects the Distribution of Income 451

The Problem with Anticipated Inflation 451

The Problem with Unanticipated Inflation 452

**Apply the Concept:** What’s So Bad about Falling Prices? 452

**Conclusion 454**

**Chapter Summary and Problems 455**

**PART 6 Long-Run Economic Growth and Short-Run Economic Fluctuations**

**CHAPTER 14: Economic Growth, the Financial System, and Business Cycles 466**

**Economic Growth and the Business Cycle at Chevron Corporation 466**

**14.1 Long-Run Economic Growth 468**

**Apply the Concept:** The Connection between Economic Prosperity and Health 469

Calculating Growth Rates and the Rule of 70 471

What Determines the Rate of Long-Run Growth? 472

**Solved Problem 14.1:** Where Does Productivity Come From? 473

**Apply the Concept:** Can India Sustain Its Rapid Growth? 474

Potential GDP 476

**14.2 Saving, Investment, and the Financial System 477**

An Overview of the Financial System 477

The Macroeconomics of Saving and Investment 478

The Market for Loanable Funds 480

**Apply the Concept:** Ebenezer Scrooge: Accidental Promoter of Economic Growth? 481

**Solved Problem 14.2:** Are Future Budget Deficits a Threat to the Economy? 483

**14.3 The Business Cycle 485**

Some Basic Business Cycle Definitions 485

How Do We Know When the Economy Is in a Recession? 486

What Happens during the Business Cycle? 487

**Don’t Let This Happen to You:** Don’t Confuse the Price Level and the Inflation Rate 489

Will the U.S. Economy Return to Stability? 492

**Conclusion 493**

**Chapter Summary and Problems 494**

**CHAPTER 15: Aggregate Demand and Aggregate Supply Analysis 500**

**The Fortunes of KB Home Follow the Business Cycle 500**

**15.1 Aggregate Demand 502**

Why Is the Aggregate Demand Curve Downward Sloping? 502

Shifts of the Aggregate Demand Curve versus Movements along It 504

The Variables That Shift the Aggregate Demand Curve 504

**Don’t Let This Happen to You:** Understand Why the Aggregate Demand Curve Is Downward Sloping 505

**Solved Problem 15.1:** Movements along the Aggregate Demand Curve or Shifts of the Curve? 506

**Apply the Concept:** Which Components of Aggregate Demand Changed the Most during the 2007–2009 Recession? 508

**15.2 Aggregate Supply 510**

The Long-Run Aggregate Supply Curve 510

The Short-Run Aggregate Supply Curve 511

**Apply the Concept:** How Sticky Are Wages? 512

Shifts of the Short-Run Aggregate Supply Curve versus Movements along It 514

Variables That Shift the Short-Run Aggregate Supply Curve 514

**15.3 Macroeconomic Equilibrium in the Long Run and the Short Run** 516  
 Recessions, Expansions, and Supply Shocks 517  
**Apply the Concept:** Does It Matter What Causes a Decline in Aggregate Demand? 518  
**Apply the Concept:** How Long Is the Long Run in Macroeconomics? 521  
**15.4 A Dynamic Aggregate Demand and Aggregate Supply Model** 523  
 What Is the Usual Cause of Inflation? 524  
 The Recession of 2007–2009 524  
**Solved Problem 15.4:** Showing the Oil Shock of 1974–1975 on a Dynamic Aggregate Demand and Aggregate Supply Graph 527  
**Conclusion** 528  
**Chapter Summary and Problems** 529  
**Appendix: Macroeconomic Schools of Thought** 538  
**The Monetarist Model** 538  
**The New Classical Model** 539  
**The Real Business Cycle Model** 539  
**The Austrian Model** 540  
**Apply the Concept:** Karl Marx: Capitalism’s Severest Critic 540

**PART 7 Monetary and Fiscal Policy**

**CHAPTER 16: Money, Banks, and the Federal Reserve System** 542  
**Does India Need Paper Currency?** 542  
**16.1 What Is Money, and Why Do We Need It?** 544  
 Barter and the Invention of Money 544  
 The Functions of Money 545  
 What Can Serve as Money? 546  
**Apply the Concept:** Your Money Is No Good Here! 547  
**16.2 How Is Money Measured in the United States Today?** 548  
 M1: A Narrow Definition of the Money Supply 548  
 M2: A Broad Definition of Money 549  
**Don’t Let This Happen to You:** Don’t Confuse Money with Income or Wealth 550  
**Solved Problem 16.2:** The Definitions of M1 and M2 550  
 What about Credit Cards and Debit Cards? 551  
**Apply the Concept:** Are Bitcoins Money? 551  
**16.3 How Do Banks Create Money?** 552  
 Bank Balance Sheets 552  
**Apply the Concept:** Will Fintech Make It Easier for You to Borrow? 553  
 Using T-accounts to Show How a Bank Can Create Money 554  
 The Simple Deposit Multiplier 556  
**Don’t Let This Happen to You:** Don’t Confuse Assets and Liabilities 557

**Solved Problem 16.3:** Showing How Banks Create Money 558  
 The Simple Deposit Multiplier versus the Real-World Deposit Multiplier 560  
**16.4 The Federal Reserve System** 561  
 The Establishment of the Federal Reserve System 561  
 How the Federal Reserve Manages the Money Supply 562  
 The “Shadow Banking System” and the Financial Crisis of 2007–2009 565  
**16.5 The Quantity Theory of Money** 567  
 Connecting Money and Prices: The Quantity Equation 568  
 The Quantity Theory Explanation of Inflation 568  
 How Accurate Are Forecasts of Inflation Based on the Quantity Theory? 569  
 High Rates of Inflation 570  
**Apply the Concept:** The German Hyperinflation of the Early 1920s 570  
**Conclusion** 571  
**Chapter Summary and Problems** 572

**CHAPTER 17: Monetary Policy** 580

**Why Would a Bank Pay a Negative Interest Rate?** 580  
**17.1 What Is Monetary Policy?** 582  
 The Goals of Monetary Policy 582  
**17.2 The Money Market and the Fed’s Choice of Monetary Policy Targets** 584  
 Monetary Policy Targets 584  
 The Demand for Money 584  
 Shifts in the Money Demand Curve 585  
 How the Fed Manages the Money Supply: A Quick Review 586  
 Equilibrium in the Money Market 586  
 A Tale of Two Interest Rates 588  
 Choosing a Monetary Policy Target 588  
 The Importance of the Federal Funds Rate 588  
 The Fed’s New Policy Tools 589  
**17.3 Monetary Policy and Economic Activity** 590  
 How Interest Rates Affect Aggregate Demand 590  
 The Effects of Monetary Policy on Real GDP and the Price Level 591  
**Apply the Concept:** Too Low for Zero: Central Banks, Quantitative Easing, and Negative Interest Rates 592  
 Can the Fed Eliminate Recessions? 594  
 Fed Forecasts 595  
**Apply the Concept:** Trying to Hit a Moving Target: Making Policy with “Real-Time Data” 596  
 A Summary of How Monetary Policy Works 597  
**Don’t Let This Happen to You:** Remember That with Monetary Policy, It’s the Interest Rates—Not the Money—That Counts 598

<b>17.4 Monetary Policy in the Dynamic Aggregate Demand and Aggregate Supply Model</b>	<b>598</b>	<b>18.5 The Limits to Using Fiscal Policy to Stabilize the Economy</b>	<b>640</b>
The Effects of Monetary Policy on Real GDP and the Price Level: A More Complete Account	599	<b>Apply the Concept:</b> Why Was the Recession of 2007–2009 So Severe?	641
Using Monetary Policy to Fight Inflation	600	Does Government Spending Reduce Private Spending?	642
<b>Solved Problem 17.4:</b> The Effects of Monetary Policy	601	Crowding Out in the Short Run	642
<b>17.5 A Closer Look at the Fed’s Setting of Monetary Policy Targets</b>	<b>603</b>	Crowding Out in the Long Run	644
Should the Fed Target the Money Supply?	603	Fiscal Policy in Action: Did the Stimulus Package of 2009 Succeed?	644
Why Doesn’t the Fed Target Both the Money Supply and the Interest Rate?	603	<b>18.6 Deficits, Surpluses, and Federal Government Debt</b>	<b>647</b>
The Taylor Rule	604	How the Federal Budget Can Serve as an Automatic Stabilizer	648
<b>Solved Problem 17.5:</b> Applying the Taylor Rule	605	<b>Apply the Concept:</b> Did Fiscal Policy Fail during the Great Depression?	649
Inflation Targeting	606	Should the Federal Budget Always Be Balanced?	650
<b>Apply the Concept:</b> Should the Fed Worry about the Prices of Food and Gasoline?	607	<b>Solved Problem 18.6:</b> The Greek Government Confronts a Budget Deficit	651
<b>17.6 Fed Policies during the 2007–2009 Recession</b>	<b>608</b>	The Federal Government Debt	652
The Inflation and Deflation of the Housing Market Bubble	608	Is Government Debt a Problem?	653
The Changing Mortgage Market	610	<b>18.7 Long-Run Fiscal Policy and Economic Growth</b>	<b>653</b>
The Role of Investment Banks	610	Explaining Long-Run Increases in Real GDP	653
<b>Apply the Concept:</b> The Wonderful World of Leverage	611	How Can Fiscal Policy Affect Long-Run Economic Growth? The Long-Run Effects of Tax Policy	654
The Fed and the Treasury Department Respond	612	Tax Simplification	655
<b>Conclusion</b>	<b>614</b>	The Economic Effects of Tax Reform	656
<b>Chapter Summary and Problems</b>	<b>615</b>	How Large Are Supply-Side Effects?	657
 		<b>Apply the Concept:</b> Will President Trump’s Policy Proposals Raise the Rate of Economic Growth?	658
<b>CHAPTER 18: Fiscal Policy</b>	<b>624</b>	<b>Conclusion</b>	<b>660</b>
<b>Can Fiscal Policy Increase Economic Growth?</b>	<b>624</b>	<b>Chapter Summary and Problems</b>	<b>661</b>
<b>18.1 What Is Fiscal Policy?</b>	<b>626</b>	 	
What Fiscal Policy Is and What It Isn’t	626	<b>CHAPTER 19: Comparative Advantage, International Trade, and Exchange Rates</b>	<b>670</b>
Automatic Stabilizers versus Discretionary Fiscal Policy	626	<b>President Trump, Oreo Cookies, and Free Trade</b>	<b>670</b>
An Overview of Government Spending and Taxes	626	<b>19.1 The United States in the International Economy</b>	<b>672</b>
<b>Apply the Concept:</b> Is Spending on Social Security and Medicare a Fiscal Time Bomb?	629	The Importance of Trade to the U.S. Economy	673
<b>18.2 The Effects of Fiscal Policy on Real GDP and the Price Level</b>	<b>631</b>	U.S. International Trade in a World Context	674
Short-Run Expansionary and Contractionary Fiscal Policy	631	<b>19.2 Comparative Advantage in International Trade</b>	<b>674</b>
<b>Don’t Let This Happen to You:</b> Don’t Confuse Fiscal Policy and Monetary Policy	633	A Brief Review of Comparative Advantage	675
A Summary of How Fiscal Policy Affects Aggregate Demand	633	Comparative Advantage and Absolute Advantage	675
<b>18.3 Fiscal Policy in the Dynamic Aggregate Demand and Aggregate Supply Model</b>	<b>634</b>	<b>19.3 How Countries Gain from International Trade</b>	<b>676</b>
<b>18.4 The Government Purchases and Tax Multipliers</b>	<b>635</b>	Increasing Consumption through Trade	676
The Effect of Changes in the Tax Rate	638	Why Don’t We See Complete Specialization?	678
Taking into Account the Effects of Aggregate Supply	638	Does Anyone Lose as a Result of International Trade?	678
The Multipliers Work in Both Directions	639	<b>Don’t Let This Happen to You:</b> Remember That Trade Creates Both Winners and Losers	678
<b>Solved Problem 18.4:</b> Fiscal Policy Multipliers	639		

<b>Apply the Concept:</b> Who Gains and Who Loses from U.S. Trade with China?	679		
Where Does Comparative Advantage Come From?	681		
<b>19.4 Government Policies That Restrict International Trade</b>	<b>682</b>	<b>19.6 The Foreign Exchange Market and Exchange Rates</b>	<b>694</b>
Tariffs	684	Equilibrium in the Market for Foreign Exchange	694
Quotas and Voluntary Export Restraints	684	How Do Shifts in Demand and Supply Affect the Exchange Rate?	695
Measuring the Economic Effect of the Sugar Quota	685	Some Exchange Rates Are Not Determined by the Market	697
<b>Solved Problem 19.4:</b> Measuring the Economic Effect of a Quota	686	How Movements in the Exchange Rate Affect Exports and Imports	697
The High Cost of Preserving Jobs with Tariffs and Quotas	687	<b>Don't Let This Happen to You:</b> Don't Confuse What Happens When a Currency Appreciates with What Happens When It Depreciates	698
<b>Apply the Concept:</b> Smoot-Hawley, the Politics of Tariffs, and the Cost of Protecting a Vanishing Industry	687	<b>Solved Problem 19.6:</b> Toyota Rides the Exchange Rate Rollercoaster	698
<b>19.5 The Debate over Trade Policies and Globalization</b>	<b>689</b>	<b>Conclusion</b>	<b>699</b>
Why Do Some People Oppose the World Trade Organization?	689	<b>Chapter Summary and Problems</b>	<b>700</b>
<b>Apply the Concept:</b> Protecting Consumer Health or Protecting U.S. Firms from Competition?	692	<b>Glossary</b>	<b>G-1</b>
Dumping	693	<b>Company Index</b>	<b>I-1</b>
Positive versus Normative Analysis (Once Again)	693	<b>Subject Index</b>	<b>I-3</b>
		<b>Credits</b>	<b>C-1</b>

# 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 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 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

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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 15 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 65 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 11 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 added 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 Concepts*: “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, “Market Efficiency and Market Failure,” 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 Concepts*: “The Consumer Surplus from Uber” and “Price Controls Lead to Economic Decline in Venezuela.” Two other *Apply the Concepts* now incorporate the latest information about government policies toward air pollution and global warming.

Chapter 5, “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 6, “Firms, the Stock Market, and Corporate Governance,” opens with a new comparison of the initial public offerings of Snapchat, 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 7, “Consumer Choice and Elasticity,” opens with an updated discussion of the problems plaguing the J.C. Penney 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 7.3* 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 8, “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 9, “Firms in Perfectly Competitive Markets,” opens with an updated discussion of the difficulty farmers have making an economic profit selling cage-free eggs. New *Solved Problem 9.6* 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 10, “Monopoly and Antitrust Policy,” includes a new *Apply the Concept* discussing the reasons for the high prices of some generic drugs.

Chapter 11, “Monopolistic Competition and Oligopoly,” opens with a new discussion of Panera Bread’s strategy of differentiating its restaurants by serving only “clean food.” There are three new *Apply the Concepts*: “Is ‘Clean Food’ a Sustainable Market Niche for Panera?”; “One Way to Differentiate Your Restaurant? Become a Ghost!”; and “Got a Great Recipe for Cookies? Don’t Try Selling Them in Wisconsin or New Jersey.” New *Solved Problem 11.3* analyzes why Red Robin abandoned its experiment in fast-casual restaurants. New *Solved Problem 11.6* uses game theory to analyze why Spotify and Apple Music offer student discounts.

Chapter 12, “GDP: Measuring Total Production and Income,” opens with an updated discussion of how Ford and other car companies deal with the business cycle. A new *Apply the Concept* discusses an innovative Web site created by Steve Ballmer, former CEO of Microsoft, that uses the preamble to the U.S. Constitution as a framework for reorganizing macroeconomic data.

Chapter 13, “Unemployment and Inflation,” opens with a new discussion of Boeing’s decision in 2017 to lay off workers, despite a growing U.S. economy. The chapter includes an updated analysis of the reasons for the decline in labor force participation among prime-aged males. A new *Apply the Concept* discusses how to characterize the unemployment resulting from Boeing’s layoffs.

Chapter 14, “Economic Growth, the Financial System, and Business Cycles,” opens with a new discussion of whether peak oil demand threatens the long-run growth of Chevron Corporation.

Chapter 15, “Aggregate Demand and Aggregate Supply Analysis,” opens with a new discussion of the effect of the business cycle on KB Home and other home builders.

Chapter 16, “Money, Banks, and the Federal Reserve System,” opens with a new discussion of why many people in India are using Paytm, an app that allows users to

make payments at retail stores or online. A new *Apply the Concept* continues the analysis of this topic by discussing why some businesses in the United States and Europe no longer accept cash.

Chapter 17, “Monetary Policy,” opens with an updated account of why interest rates on some mortgages in Europe are negative. An important new section describes the policy tools the Federal Reserve uses to manage its target for the federal funds rate, now that banks hold \$2 trillion in excess reserves.

Chapter 18, “Fiscal Policy,” opens with a new discussion of the effects of federal government infrastructure spending on Vulcan Materials and other construction firms, as well as on the wider economy. A centerpiece of President Trump’s economic plan is using changes to the federal tax code, as well as other policies, to increase the annual growth rate of real GDP to 3 percent. We discuss what would be required to achieve this goal in a new section, “Explaining Long-Run Increases in Real GDP,” and in a new *Apply the Concept*. New Table 18.4 summarizes how the Congressional Budget Office forecast real GDP growth for 2017–2027.

Chapter 19, “Comparative Advantage, International Trade, and Exchange Rates,” opens with the decision by Mondelez International, Inc., 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.

To make room for the new content described earlier, we have cut approximately 17 *Apply the Concepts* and 5 *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.

## Microeconomics

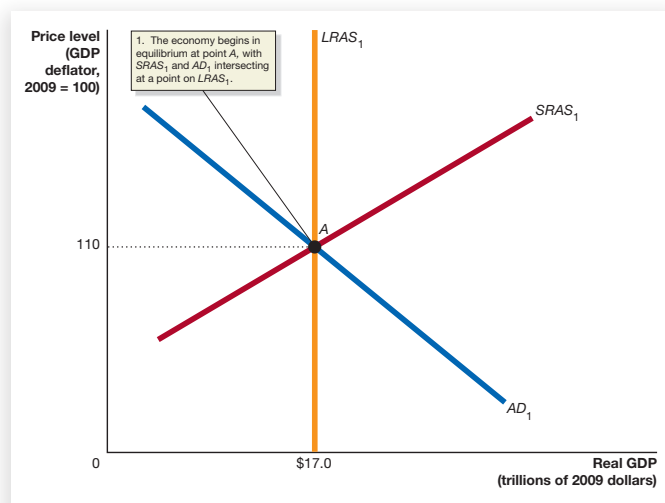
We are convinced that students learn to apply economic principles best if they are taught in a familiar context. Whether they become artists, social workers, engineers, bankers, or government employees, students benefit from understanding economics. We therefore use many diverse real-world business and policy examples to illustrate economic concepts. Here are a few highlights of our approach to microeconomics:

- **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, “Market Efficiency and Market Failure,” 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 15, “Monopoly and Antitrust Policy,” where we examine the effect of market power on economic efficiency and in Chapter 19, “Comparative Advantage, International Trade, and Exchange Rates,” where we analyze government policies that affect trade.) In Chapter 6, “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, the minimum wage; global warming; and government policy toward soda and other sweetened beverages in Chapter 4, “Market Efficiency and Market Failure,”; and health care policy in Chapter 5, “The Economics of Health Care.”
- **Complete coverage of trade.** We devote a full chapter to international trade and the debate over trade policy in Chapter 19, “Comparative Advantage, International Trade, and Exchange Rates.”

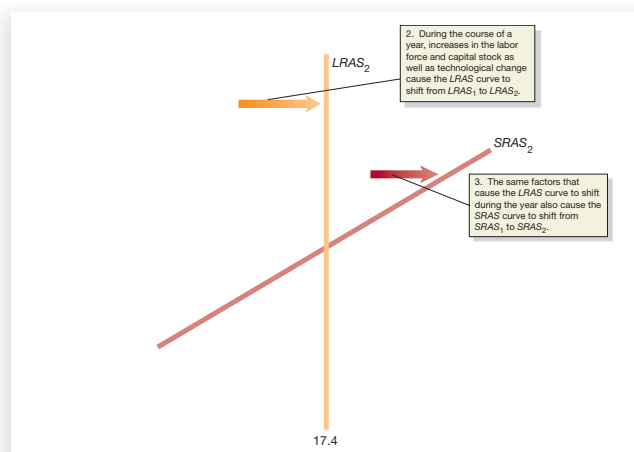
## Macroeconomics

Students come to study macroeconomics with a strong interest in understanding events and developments in the economy. We capture that interest and develop students’ economic intuition and understanding by presenting 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:

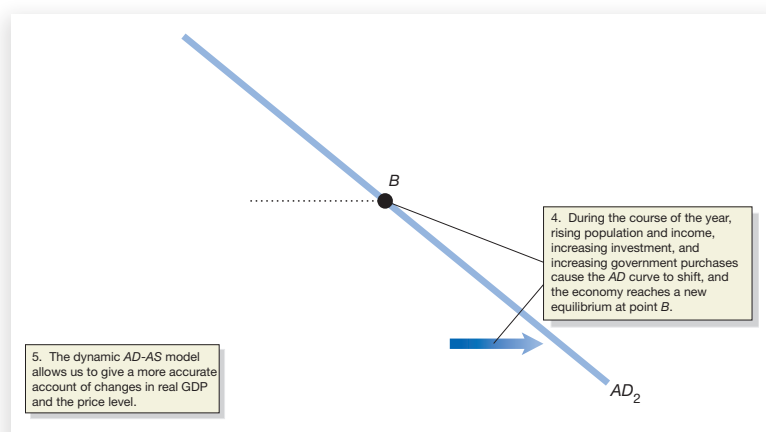
- **A careful discussion of macro statistics.** Many students pay some attention to the financial news and know that the release of statistics by federal agencies can cause movements in stock and bond prices. A background in macroeconomic statistics helps clarify some of the policy issues encountered in later chapters. In Chapter 12, “GDP: Measuring Total Production and Income,” and Chapter 13, “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



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.



survey. We provide a discussion of the employment–population ratio, which is not covered in some other texts but which many economists regard as a key measure of labor market performance.

- **Early coverage of long-run topics.** We place key macroeconomic issues in their long-run context in Chapter 14, “Economic Growth, the Financial System, and Business Cycles.” This chapter 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.
- **A dynamic model of aggregate demand and aggregate supply.** In Chapter 15, “Aggregate Demand and Aggregate Supply Analysis,” 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 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 15 includes a three-layer, full-color acetate for the key introductory dynamic  $AD-AS$  graph (Figure 15.8, “A Dynamic Aggregate Demand and Aggregate Supply Model,” on page 524 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 15 and use it to discuss monetary policy in Chapter 17, “Monetary Policy,” and fiscal policy in Chapter 18, “Fiscal Policy.” The material

on dynamic  $AD-AS$  is presented in self-contained sections in Chapters 15, 17, and 18, so instructors may safely omit the sections on that model without any loss in continuity to the discussion of macroeconomic theory and policy.

- **Coverage of both the demand-side and supply-side effects of fiscal policy.** Our discussion of fiscal policy in Chapter 18, “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 new section discusses the requirements for the Trump administration to hit its goal of restoring the long-run annual growth rate of real GDP to 3 percent.

## 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](http://www.pearson.com/mylab/economics).

#### Deliver trusted content

You deserve teaching materials that meet your own high standards for your course. That’s why we partner with highly respected authors to develop interactive content and course-specific resources that you can trust—and that keep your students engaged.

#### Empower each learner

Each student learns at a different pace. Personalized learning pinpoints the precise areas where each student needs practice, giving all students the support they need—when and where they need it—to be successful.

#### Teach your course your way

Your course is unique. So whether you’d like to build your own assignments, teach multiple sections, or set prerequisites, MyLab gives you the flexibility to easily create *your* course to fit *your* needs.

#### Improve student results

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 sixth 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. Some of the chapter openers focus on the role of entrepreneurs in developing new products and bringing them to market. For example, Chapter 2 features Elon Musk of Tesla Motors; Chapter 15 features KB Home founders Donald Kaufman and Eli Broad; and Chapter 17 features Paytm founder Vijay Shekhar Sharma.

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

## 3 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



### Chapter Outline & Learning Objectives

- 1. The Demand Side of the Market, page 74  
List and describe the variables that influence demand.
- 2. The Supply Side of the Market, page 82  
List and describe the variables that influence supply.
- 3. Market Equilibrium: Putting Demand and Supply Together, page 86  
Use a graph to illustrate market equilibrium.
- 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.

72
73

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.

## AN INSIDE LOOK McDonald's Looks for New Ways to Attract Customers

### 4 ways McDonald's is about to change

McDonald's has one major goal for 2017: win back customers. The burger chain's multi-year turnaround effort, which found success with its All-Day Breakfast promotion, hasn't quite come to fruition...yet.

During its investor day in Chicago on Wednesday, the company's executives touted several big changes that the chain will be making to win back the more than 500 million visits it lost since 2012.

To deliver sustained growth, we have to attract more customers, more often," CEO Steve Easterbrook said.

McDonald's focus will be on four pillars: menu innovation, store renovations, digital ordering and delivery.

"McDonald's appears to [have] found their focus on profitability through disciplined efforts to reduce costs and focus on the customer experience, including consumer-facing technology, improved convenience in payment and delivery and value to drive more customer visits throughout the day," Darren Houston, President of Technomic, said CNBC.

"For the world's largest restaurant company, this means playing catch up with younger consumer expectations while continuing to engage older generations of consumers that grew up with McDonald's,"

### Key Points in the Article

McDonald's is in the highly competitive fast-food market. The firm has seen a decline in sales for the straight years. Searching for additional ways to increase its sales, McDonald's plans to focus on customer experience. The company recently introduced an all-day breakfast promotion, and in March 2017 announced it will begin to focus on new menu items, restaurant renovations, digital ordering, and delivery. With these changes, McDonald's hopes to win back younger consumers who have come to expect these services while at the same time continuing to appeal to its long-time customers.

As consumers have reduced their demand for hamburgers at each and drive, McDonald's has had success offering breakfast items, such as its popular Egg McMuffin, throughout the day. Competing firms, such as Burger King and Wendy's, have followed this strategy as well. Suppose Figure 1 below illustrates the market for fast-food breakfast sandwiches. The demand for breakfast sandwiches has increased, shifting the demand curve to the right from  $D_1$  to  $D_2$ , resulting in an increase in both the equilibrium price ( $P_1$  to  $P_2$ ) and equilibrium quantity ( $Q_1$  to  $Q_2$ ). Figure 2 illustrates the market for hamburgers. The decline in demand is shown by the demand curve shifting to the left from  $D_1$  to  $D_2$ , resulting in a decrease in both the equilibrium price ( $P_1$  to  $P_2$ ) and equilibrium quantity ( $Q_1$  to  $Q_2$ ). This result is a typical one when demand shifts between two goods that are substitutes.

McDonald's has recently added new items to its menu, including more customizable and upscale burger and sandwich options. Adding self-service ordering kiosks and table service to its restaurants will make it faster and easier for customers to place orders as well as providing them with a more comfortable, traditional restaurant setting while waiting for their orders. If successful, these changes will increase consumers' willingness to buy McDonald's menu items at every price, shifting the demand curve for them to the right.

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McDonald's plans to continue the expansion of its mobile order-and-pay system, with the intention of launching the service in 20,000 restaurants by the end of 2017. The company is also exploring delivery options for the U.S. market, a strategy that has been successful for McDonald's in Asia. Expanding its mobile order and pay system would appeal to the younger generation of tech-savvy consumers who like to order and pay for products via smartphone apps. A delivery option would appeal to a wide variety of consumers who either do not have time or do not want to take the time to go to a McDonald's location to buy food. Both of these options will likely increase demand for McDonald's menu items.

### Thinking Critically

- Why is it particularly important for a firm like McDonald's to stay ahead of trends such as consumers' desire to eat breakfast food throughout the day or younger consumers wanting to order online?
- Suppose that McDonald's and its competitors successfully implement self-service kiosks in their U.S. restaurants, and this investment in technology allows the firms to reduce the number of employees at each location. How would this change affect the market for breakfast sandwiches? Draw a demand and supply graph to illustrate this situation, and explain what happens to equilibrium price and equilibrium quantity.

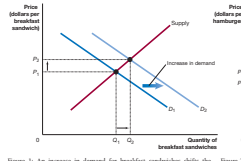


Figure 1: An increase in demand for breakfast sandwiches shifts the demand curve to the right, increasing both equilibrium price and equilibrium quantity.

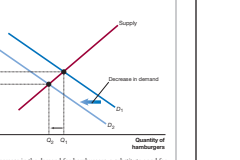


Figure 2: A decrease in the demand for hamburgers, a substitute good for breakfast sandwiches, shifts the demand curve to the left, decreasing both equilibrium price and equilibrium quantity.

98
99

### 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 39 *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.

**Solved Problem 3.4**  
**Can We Predict Changes in the Price and Quantity of Organic Corn?**

A news article discussed how U.S. consumers have been increasing their demand for organically grown corn and other produce, which is grown using only certain government-approved pesticides and fertilizers. At the same time, imports of corn and other varieties of organic produce from foreign countries have increased the available supply. Use demand and supply graphs to illustrate your answers to the following questions.

**Solving the Problem**

**Step 1: Review the chapter material.** This problem is about how shifts in demand and supply curves affect the equilibrium price, so you may want to review the section "The Effects of Shifts in Demand and Supply over Time," which begins on page 90.

**Step 2: Answer part (a) using demand and supply analysis.** The problem gives you the information that consumer tastes have changed, leading to an increase in the demand for organically grown corn. So, the demand curve has shifted to the right. The problem also gives you the information that imports of organically grown corn have increased. So, the supply curve has also shifted to the right. The following graph shows both of these shifts.

As Table 3.3 on page 92 summarizes, if the demand curve and the supply curve both shift to the right, the equilibrium quantity must increase. Therefore, we can answer part (a) by stating that we are certain that the equilibrium quantity of organically grown corn will increase.

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

**MyLab Economics Interactive Animation**

a. Can we use this information to be certain whether the equilibrium quantity of organically grown corn will increase or decrease? Illustrate your answer with a graph showing the market for organically grown corn.

b. Can we use this information to be certain whether the equilibrium price of organically grown corn will increase or decrease? Illustrate your answer with a graph showing the market for organically grown corn.

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 3.3 indicates happens when the demand curve and the supply curve both shift to the right. Therefore, the answer to part (b) is that we cannot be certain whether the equilibrium price of organically grown corn will increase or decrease.

**Extra Credit:** During 2016, the equilibrium quantity of organically grown corn increased, while the equilibrium price decreased by 30 percent. We can conclude that both the increase in demand for organically grown corn and the increase in the supply contributed to the increase in consumption of organically grown corn. That the price of organically grown corn fell indicates that the increase in supply had a larger effect on equilibrium in the organically grown corn market than did the increase in demand.

**Source:** Josh Ranga, "Organic Food Takes Axi Knowledge: Why Are American Farmers Crying Shame?" *Wall Street Journal*, February 25, 2017, and U.S. Department of Agriculture data.

**Your Turn:** For more practice, do related problems 4.7 and 4.8 on pages 104–105 of the end of this chapter.

**MyLab Economics Study Plan**

**Shifts in a Curve versus Movements along a Curve**

When analyzing markets using demand and supply curves, remember that when a shift in demand or supply curve causes a change in equilibrium price, the change in price does not cause a further shift in demand or supply. Suppose that an increase in supply causes the price of a good to fall, while everything else that affects the willingness of consumers to buy the good is constant. The result will be an increase in the quantity demanded but not an increase in demand. For demand to increase, the whole curve must shift. The point is the same for supply: If the price of the good falls but everything else that affects the willingness of sellers to supply the good is constant, the quantity supplied decreases, but the supply does not. For supply to decrease, the whole curve must shift.

**MyLab Economics Concept Check** **MyLab Economics Study Plan**

### 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 65 *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

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.



Sara Stathas/Alamy Stock Photo

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

### 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.

### 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.

### 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?

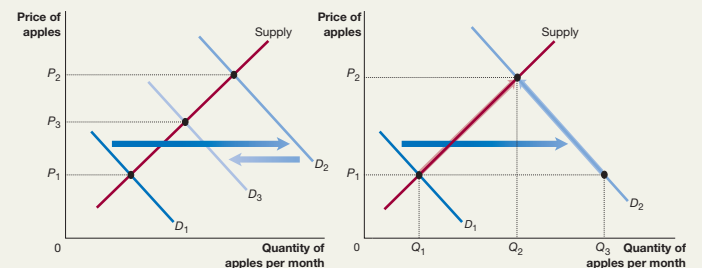
You should disagree. The student has correctly understood that an increase in the price of oranges will cause the demand curve for apples to shift to the right. But, the second demand curve shift the student describes, from  $D_2$  to

$D_3$ , 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.



### 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 MyLab Economics. 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 508 for examples)

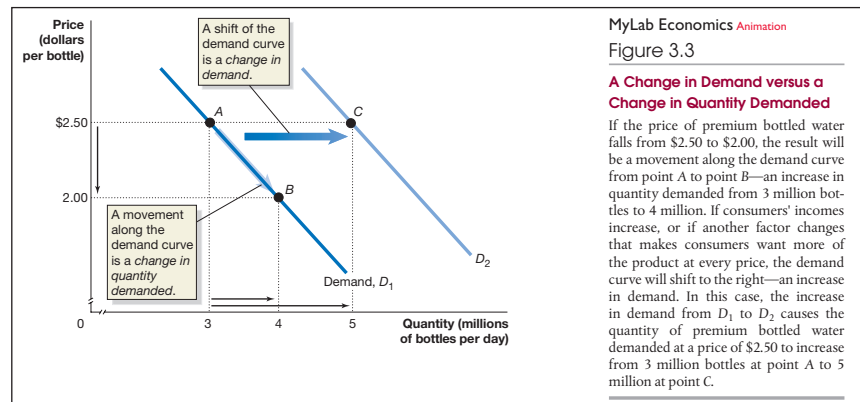
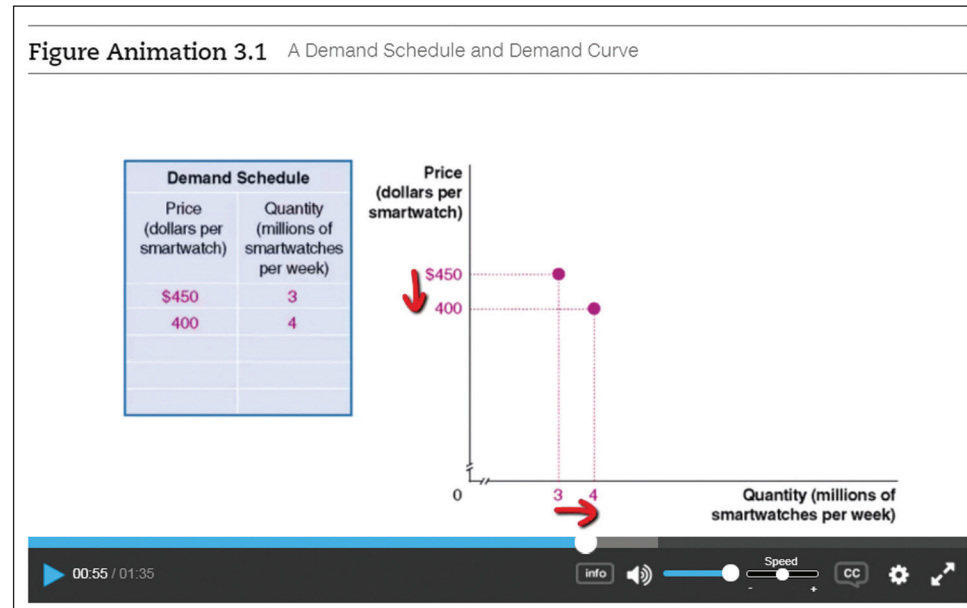


Table 3.1

**Variables That Shift Market Demand Curves**

An increase in ...	shifts the demand curve ...	because ...
income (and the good is normal)	 Price vs Quantity. A blue arrow points from D1 to D2.	consumers spend more of their higher incomes on the good.
income (and the good is inferior)	 Price vs Quantity. A blue arrow points from D1 to D2.	consumers spend less of their higher incomes on the good.
the price of a substitute good	 Price vs Quantity. A blue arrow points from D1 to D2.	consumers buy less of the substitute good and more of this good.
the price of a complementary good	 Price vs Quantity. A blue arrow points from D1 to D2.	consumers buy less of the complementary good and less of this good.
taste for the good	 Price vs Quantity. A blue arrow points from D1 to D2.	consumers are willing to buy a larger quantity of the good at every price.
population	 Price vs Quantity. A blue arrow points from D1 to D2.	additional consumers result in a greater quantity demanded at every price.
the expected price of the good in the future	 Price vs Quantity. A blue arrow points from D1 to D2."/> Price vs Quantity. A blue arrow points from D1 to D2.	consumers buy more of the good today to avoid the higher price in the future.

Each of the 168 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.




Thirty-one graphs and one table 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 also includes test questions that pertain to these special features.

### Real-Time Data Exercises

We end select chapters 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, the Federal Reserve Bank of St. Louis.

## 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 <a href="http://www.pearsonhighered.com">www.pearsonhighered.com</a>	Features of the Supplement
<b>Instructor's Manual</b> Authored by Edward Scahill of the University of Scranton	<ul style="list-style-type: none"> <li>• Chapter-by-chapter summaries organized by learning objectives</li> <li>• Extended examples and class exercises</li> <li>• Teaching outlines incorporating key terms and definitions, teaching tips, topics for class discussion</li> <li>• New <i>Solved Problems</i></li> <li>• New <i>Apply the Concept</i> features</li> <li>• Solutions to all review questions, problems, and real-time data exercises in the book</li> </ul>
<b>Test Bank</b> Authored by Randy Methenitis of Richland College	<ul style="list-style-type: none"> <li>• Over 6,000 multiple-choice, true/false, short-answer, and graphing questions.</li> <li>• Test questions are annotated with the following categories:  <b>Difficulty</b>—1 for straight recall; 2 for some analysis; and 3 for complex analysis  <b>Type</b>—multiple-choice, true/false, short-answer, essay  <b>Topic</b>—the term or concept the question supports  <b>Learning outcome</b>  <b>Page number</b> in the main book  <b>Special feature</b> in the main book  <b>The Association to Advance Collegiate Schools of Business (AACSB) Guidelines</b></li> </ul>
<b>Computerized TestGen</b>	<ul style="list-style-type: none"> <li>• Allows instructors to customize, save, and generate classroom tests.</li> <li>• Instructors can edit, add, or delete questions from the Test Banks; analyze test results; and organize a database of tests and student results.</li> <li>• Many options are available for organizing and displaying tests, along with search and sort features.</li> <li>• The software and the Test Banks can be downloaded from <a href="http://www.pearsonhighered.com">www.pearsonhighered.com</a>.</li> </ul>
<b>Three Sets of PowerPoint Lecture Presentations</b> Authored by Paul Holmes of Ashland University	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul>

### 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. 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.

# Acknowledgements

The guidance and recommendations of the following instructors helped us develop the revision plans for the sixth 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

Our accuracy checkers did a particularly painstaking and thorough job of helping us proof the graphs, equations, and features of the text and supplements. We are grateful for their time and commitment:

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The guidance and thoughtful recommendations of many instructors helped us develop and implement a revision plan that improved the book's content, enhanced the figures, and strengthened the assessment features. We extend special thanks to Edward Scahill of the University of Scranton for helping us revise the chapter openers and the solutions to the end-of-chapter questions and problems, to Randy Methenitis of Richland College for helping us revise the *An Inside Look* feature in Chapters 1–4, and to Fernando Quijano for creating all the figures in the book and supplements. We are grateful for the comments and many helpful suggestions received from the following reviewers:

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The guidance and recommendations of the following instructors helped us shape the previous editions.

### Class Testers

We are grateful to both the instructors who class-tested manuscript of the first edition and their students for providing useful recommendations on how to make chapters more interesting, relevant, and accurate:

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We received guidance from a dedicated consultant board during the development of the previous editions at several critical junctures. We relied on the board for input on content, figure treatment, and design:

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## A Word of Thanks

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Once again, we benefited greatly from the dedication and professionalism of the Pearson Economics team. Portfolio Manager David Alexander's energy and support were indispensable. David helped mold the presentation and provided words of encouragement whenever our energy flagged. Content Editor Lena Buonanno worked tirelessly to ensure that this text was as good as it could be and to coordinate the many moving parts involved in a project of this magnitude. We have worked with Lena for over 15 years and remain astonished at the amount of time, energy, and unfailing good humor she brings to our projects. As we worked on the first edition, former Director of Key Markets David Theisen provided invaluable insight into how best to structure a principles text. His advice helped shape nearly every chapter. We extend our thanks to Tricia Murphy, our Product Marketing Manager, and Carlie Marvel, our Field Marketer, for their energy and creativity in presenting our book and digital products to both professors and students.

Christine Donovan managed the entire production process and the extensive supplement package that accompanies the book. Editorial Assistant Nicole Nedwidek assisted the team in completing several tasks, including review surveys and summaries, to help produce both the book and media resources.

We received excellent research assistance on previous editions from Dante DeAntonio, Ed Timmons, Matthew Saboe, David Van Der Goes, and Jason Hockenberry. We thank Elena Zeller, Jennifer Brailsford, Ellen Vandevort Wolf, Emily Webster, Mollie Sweet, Jayme Wagner, and Rebecca Barney for their careful proofreading of first- and second-round page proofs. Over all editions of our books, we received helpful feedback and recommendations from Lehigh University faculty colleagues Frank R. Gunter, Thomas J. Hyclak, and Robert J. Thornton.

As instructors, we recognize how important it is for students to view graphs that are clear and accessible. We are fortunate to have Fernando Quijano render all the figures in our books and also our supplements. Market feedback on the figures continues to be positive. We extend our thanks to Fernando not only for collaborating with us and creating the best figures possible but also for his patience with our demanding schedule.

This sixth edition has several media components, which required skilled and patient creators and developers. We extend special thanks to Andy Taylor of Hodja Media for preparing the video clips and to Paul Graf of the University of Indiana–Bloomington for preparing the graph animations. These videos and animations are an important part of our revision.

A good part of the burden of an undertaking on this scale is borne by our families. We appreciate the patience, support, and encouragement of our wives and children.