

Microeconomics

Seventh Edition

R. Glenn Hubbard
Columbia University

Anthony Patrick O'Brien
Lehigh University



New York, NY

BRIEF CONTENTS

Preface	P-1
A Word of Thanks	P-24

PART 1 Introduction

Chapter 1: Economics: Foundations and Models	2
Appendix: Using Graphs and Formulas	28
Chapter 2: Trade-offs, Comparative Advantage, and the Market System	40
Chapter 3: Where Prices Come From: The Interaction of Demand and Supply	72
Chapter 4: Economic Efficiency, Government Price Setting, and Taxes	108
Appendix: Quantitative Demand and Supply Analysis	141

PART 2 Markets in Action: Policy and Applications

Chapter 5: Externalities, Environmental Policy, and Public Goods	146
Chapter 6: Elasticity: The Responsiveness of Demand and Supply	182
Chapter 7: The Economics of Health Care	218

PART 3 Firms in the Domestic and International Economies

Chapter 8: Firms, the Stock Market, and Corporate Governance	252
Appendix: Tools to Analyze Firms' Financial Information	278
Chapter 9: Comparative Advantage and the Gains from International Trade	288

PART 4 Microeconomic Foundations: Consumers and Firms

Chapter 10: Consumer Choice and Behavioral Economics	324
Appendix: Using Indifference Curves and Budget Lines to Understand Consumer Behavior	358
Chapter 11: Technology, Production, and Costs	372
Appendix: Using Isoquants and Isocost Lines to Understand Production and Cost	402

PART 5 Market Structure and Firm Strategy

Chapter 12: Firms in Perfectly Competitive Markets	414
Chapter 13: Monopolistic Competition: The Competitive Model in a More Realistic Setting	450
Chapter 14: Oligopoly: Firms in Less Competitive Markets	478
Chapter 15: Monopoly and Antitrust Policy	506
Chapter 16: Pricing Strategy	538

PART 6 Labor Markets, Public Choice, and the Distribution of Income

Chapter 17: The Markets for Labor and Other Factors of Production	562
Chapter 18: Public Choice, Taxes, and the Distribution of Income	600
Glossary	G-1
Company Index	I-1
Subject Index	I-3
Credits	C-1

CONTENTS

Preface	P-1		
A Word of Thanks	P-24		
PART 1 Introduction			
CHAPTER 1: Economics: Foundations and Models	2		
Why Does Ford Assemble Cars in Both the United States and Mexico?	2		
1.1 Three Key Economic Ideas	4		
People Are Rational	5		
People Respond to Economic Incentives	5		
Apply the Concept: Does Health Insurance Give People an Incentive to Become Obese?	5		
Optimal Decisions Are Made at the Margin	7		
Solved Problem 1.1: The Marginal Benefit and Marginal Cost of Speed Limits	7		
1.2 The Economic Problem That Every Society Must Solve	8		
What Goods and Services Will Be Produced?	9		
How Will the Goods and Services Be Produced?	9		
Who Will Receive the Goods and Services Produced?	9		
Centrally Planned Economies versus Market Economies	10		
The Modern “Mixed” Economy	10		
Efficiency and Equity	11		
1.3 Economic Models	12		
The Role of Assumptions in Economic Models	12		
Forming and Testing Hypotheses in Economic Models	13		
Positive and Normative Analysis	14		
Don’t Let This Happen to You: Don’t Confuse Positive Analysis with Normative Analysis	14		
Economics as a Social Science	15		
Apply the Concept: What Can Economics Contribute to the Debate over Tariffs?	15		
1.4 Microeconomics and Macroeconomics	16		
1.5 Economic Skills and Economics as a Career	16		
1.6 A Preview of Important Economic Terms	17		
Conclusion	19		
An Inside Look: Is Manufacturing Returning to the United States?	20		
*Chapter Summary and Problems	22		
Key Terms, Summary, Review Questions, Problems and Applications, and Critical Thinking Exercises			
Appendix: Using Graphs and Formulas	28		
Graphs of One Variable	29		
		Graphs of Two Variables	30
		Slopes of Lines	31
		Taking into Account More Than Two Variables on a Graph	32
		Positive and Negative Relationships	32
		Determining Cause and Effect	34
		Are Graphs of Economic Relationships Always Straight Lines?	35
		Slopes of Nonlinear Curves	35
		Formulas	36
		Formula for a Percentage Change	37
		Formulas for the Areas of a Rectangle and a Triangle	37
		Summary of Using Formulas	38
		Problems and Applications	38
		CHAPTER 2: Trade-offs, Comparative Advantage, and the Market System	40
		Managers at Tesla Motors Face Trade-offs	40
		2.1 Production Possibilities Frontiers and Opportunity Costs	42
		Graphing the Production Possibilities Frontier	42
		Solved Problem 2.1: Drawing a Production Possibilities Frontier for Tesla Motors	44
		Increasing Marginal Opportunity Costs	46
		Economic Growth	47
		2.2 Comparative Advantage and Trade	48
		Specialization and Gains from Trade	48
		Absolute Advantage versus Comparative Advantage	50
		Comparative Advantage and the Gains from Trade	51
		Don’t Let This Happen to You: Don’t Confuse Absolute Advantage and Comparative Advantage	51
		Solved Problem 2.2: Comparative Advantage and the Gains from Trade	52
		Apply the Concept: Comparative Advantage, Opportunity Cost, and Housework	53
		2.3 The Market System	54
		The Circular Flow of Income	55
		The Gains from Free Markets	56
		The Market Mechanism	56
		Apply the Concept: A Story of the Market System in Action: How Do You Make an iPad?	57
		The Role of the Entrepreneur in the Market System	59
		The Legal Basis of a Successful Market System	59
		Apply the Concept: 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.

Conclusion	63	CHAPTER 4: Economic Efficiency,	108
An Inside Look: Tesla Bets Big on Nevada Battery Plant	64	Government Price Setting, and Taxes	
Chapter Summary and Problems	66		
 		What Do Food Riots in Venezuela and the Rise of Uber in the United States Have in Common?	108
CHAPTER 3: Where Prices Come From: The Interaction of Demand and Supply	72	4.1 Consumer Surplus and Producer Surplus	110
How Smart Is Your Water?	72	Consumer Surplus	110
3.1 The Demand Side of the Market	74	Apply the Concept: The Consumer Surplus from Uber	112
Demand Schedules and Demand Curves	74	Producer Surplus	114
The Law of Demand	75	What Consumer Surplus and Producer Surplus Measure	115
What Explains the Law of Demand?	75	4.2 The Efficiency of Competitive Markets	115
Holding Everything Else Constant: The <i>Ceteris Paribus</i> Condition	76	Marginal Benefit Equals Marginal Cost in Competitive Equilibrium	115
Variables That Shift Market Demand	76	Economic Surplus	116
Apply the Concept: Virtual Reality Headsets: Will a Substitute Fail for a Lack of Complements?	77	Deadweight Loss	117
Apply the Concept: Millennials Shake Up the Markets for Soda, Groceries, Big Macs, and Running Shoes	78	Economic Surplus and Economic Efficiency	117
A Change in Demand versus a Change in Quantity Demanded	81	4.3 Government Intervention in the Market: Price Floors and Price Ceilings	118
Apply the Concept: Forecasting the Demand for Premium Bottled Water	81	Price Floors: Government Policy in Agricultural Markets	118
3.2 The Supply Side of the Market	82	Apply the Concept: Price Floors in Labor Markets: The Debate over Minimum Wage Policy	119
Supply Schedules and Supply Curves	83	Price Ceilings: Government Rent Control Policy in Housing Markets	121
The Law of Supply	83	Don't Let This Happen to You: Don't Confuse "Scarcity" with "Shortage"	122
Variables That Shift Market Supply	83	Black Markets and Peer-to-Peer Sites	122
A Change in Supply versus a Change in Quantity Supplied	86	Solved Problem 4.3: What's the Economic Effect of a Black Market in Renting Apartments?	123
3.3 Market Equilibrium: Putting Demand and Supply Together	86	The Results of Government Price Controls: Winners, Losers, and Inefficiency	124
How Markets Eliminate Surpluses and Shortages	87	Apply the Concept: Price Controls Lead to Economic Decline in Venezuela	124
Demand and Supply Both Count	88	Positive and Normative Analysis of Price Ceilings and Price Floors	126
Solved Problem 3.3: Demand and Supply Both Count: A Tale of Two Letters	88	4.4 The Economic Effect of Taxes	126
3.4 The Effect of Demand and Supply Shifts on Equilibrium	90	The Effect of Taxes on Economic Efficiency	126
The Effect of Shifts in Demand on Equilibrium	90	Tax Incidence: Who Actually Pays a Tax?	127
The Effect of Shifts in Supply on Equilibrium	90	Solved Problem 4.4: When Do Consumers Pay All of a Sales Tax Increase?	128
The Effect of Shifts in Demand and Supply over Time	90	Apply the Concept: Is the Burden of the Social Security Tax Really Shared Equally between Workers and Firms?	130
Apply the Concept: Lower Demand for Orange Juice—But Higher Prices?	92	Conclusion	131
Solved Problem 3.4: Can We Predict Changes in the Price and Quantity of Organic Corn?	94	An Inside Look: Will Uber Be Required to Pay British VAT?	132
Shifts in a Curve versus Movements along a Curve	95	Chapter Summary and Problems	134
Don't Let This Happen to You: Remember: A Change in a Good's Price Does <i>Not</i> Cause the Demand or Supply Curve to Shift	96	Appendix: Quantitative Demand and Supply Analysis	141
Conclusion	97	Demand and Supply Equations	141
An Inside Look: McDonald's Looks for New Ways to Attract Customers	98	Calculating Consumer Surplus and Producer Surplus	142
Chapter Summary and Problems	100	Review Questions	144
		Problems and Applications	144

PART 2 Markets in Action: Policy and Applications

CHAPTER 5: Externalities, Environmental Policy, and Public Goods	146	CHAPTER 6: Elasticity: The Responsiveness of Demand and Supply	182
Why Does ExxonMobil Want to Pay a Carbon Tax?	146	Do Soda Taxes Work?	182
5.1 Externalities and Economic Efficiency	148	6.1 The Price Elasticity of Demand and Its Measurement	184
The Effect of Externalities	148	Measuring the Price Elasticity of Demand	184
Externalities and Market Failure	150	Elastic Demand and Inelastic Demand	185
What Causes Externalities?	151	An Example of Calculating Price Elasticities	185
5.2 Private Solutions to Externalities: The Coase Theorem	151	The Midpoint Formula	186
The Economically Efficient Level of Pollution Reduction	152	Solved Problem 6.1: Calculating the Price Elasticity of Demand	187
Apply the Concept: The Clean Air Act: How a Government Policy Reduced Infant Mortality	152	When Demand Curves Intersect, the Flatter Curve Is More Elastic	188
The Basis for Private Solutions to Externalities	154	Polar Cases of Perfectly Elastic and Perfectly Inelastic Demand	188
Don't Let This Happen to You: Remember That It's the Net Benefit That Counts	154	Don't Let This Happen to You: Don't Confuse Inelastic with Perfectly Inelastic	190
Do Property Rights Matter?	155	6.2 The Determinants of the Price Elasticity of Demand	190
The Problem of Transactions Costs	156	Availability of Close Substitutes	190
The Coase Theorem	156	Passage of Time	191
Apply the Concept: How Can You Defend Your Knees on a Plane Flight?	156	Luxuries versus Necessities	191
5.3 Government Policies to Deal with Externalities	157	Definition of the Market	191
Imposing a Tax When There Is a Negative Externality	157	Share of a Good in a Consumer's Budget	191
Providing a Subsidy When There Is a Positive Externality	158	Some Estimated Price Elasticities of Demand	191
Apply the Concept: Should the Government Tax Cigarettes and Soda?	159	6.3 The Relationship between Price Elasticity of Demand and Total Revenue	192
Solved Problem 5.3: Dealing with the Externalities of Car Driving	160	Elasticity and Revenue with a Linear Demand Curve	193
Command-and-Control versus Market-Based Approaches	162	Solved Problem 6.3: Price and Revenue Don't Always Move in the Same Direction	195
The End of the Sulfur Dioxide Cap-and-Trade System	163	Apply the Concept: Why Does Amazon Care about Price Elasticity?	196
Are Tradable Emission Allowances Licenses to Pollute?	163	6.4 Other Demand Elasticities	197
Apply the Concept: Should the United States Enact a Carbon Tax to Fight Global Warming?	163	Cross-Price Elasticity of Demand	197
5.4 Four Categories of Goods	165	Income Elasticity of Demand	198
The Demand for a Public Good	166	Apply the Concept: Price Elasticity, Cross-Price Elasticity, and Income Elasticity in the Market for Alcoholic Beverages	199
The Optimal Quantity of a Public Good	167	6.5 Using Elasticity to Analyze the Disappearing Family Farm	199
Solved Problem 5.4: Determining the Optimal Level of Public Goods	169	Solved Problem 6.5: Using Price Elasticity to Analyze the Effects of a Soda Tax	200
Common Resources	170	6.6 The Price Elasticity of Supply and Its Measurement	202
Conclusion	173	Measuring the Price Elasticity of Supply	202
Chapter Summary and Problems	174	Determinants of the Price Elasticity of Supply	202
		Apply the Concept: Why Are Oil Prices So Unstable?	203
		Polar Cases of Perfectly Elastic and Perfectly Inelastic Supply	204
		Using Price Elasticity of Supply to Predict Changes in Price	206
		Conclusion	207
		Chapter Summary and Problems	209

CHAPTER 7: The Economics of Health Care 218

Where Will You Find Health Insurance? 218

7.1 The Improving Health of People in the United States 220

 Changes over Time in U.S. Health 221

 Reasons for Long-Run Improvements in U.S. Health 221

7.2 Health Care around the World 222

 The U.S. Health Care System 222

Apply the Concept: The Increasing Importance of Health Care in the U.S. Economy 224

 The Health Care Systems of Canada, Japan, and the United Kingdom 225

 Comparing Health Care Outcomes around the World 226

 How Useful Are Cross-Country Comparisons of Health Outcomes? 227

7.2 Information Problems and Externalities in the Market for Health Care 228

 Adverse Selection and the Market for “Lemons” 228

 Asymmetric Information in the Market for Health Insurance 229

Don’t Let This Happen to You: Don’t Confuse Adverse Selection with Moral Hazard 230

 Externalities in the Market for Health Care 231

 Should the Government Run the Health Care System? 233

7.3 The Debate over Health Care Policy in the United States 234

 The Rising Cost of Health Care 234

Apply the Concept: Are U.S. Firms Handicapped by Paying for Their Employees’ Health Insurance? 236

 Explaining Increases in Health Care Spending 237

 The Continuing Debate over Health Care Policy 240

Solved Problem 7.4: Recent Trends in U.S. Health Care 241

Apply the Concept: How Much Is That MRI Scan? 243

Conclusion 245

Chapter Summary and Problems 246

PART 3 Firms in the Domestic and International Economies

CHAPTER 8: Firms, the Stock Market, and Corporate Governance 252

Is Snapchat the Next Facebook . . . or the Next Twitter? 252

8.1 Types of Firms 254

 Who Is Liable? Limited and Unlimited Liability 254

 Corporations Earn the Majority of Revenue and Profits 255

Apply the Concept: Why Are Fewer Young People Starting Businesses? 256

 The Structure of Corporations and the Principal–Agent Problem 257

8.2 How Firms Raise Funds 258

 Sources of External Funds 258

Apply the Concept: The Rating Game: Are the Federal Government or State Governments Likely to Default on Their Bonds? 259

 Stock and Bond Markets Provide Capital—and Information 261

 The Fluctuating Stock Market 262

Don’t Let This Happen to You: When Snap Shares Are Sold, Snap Doesn’t Get the Money 262

Apply the Concept: Why Are Many People Poor Stock Market Investors? 264

Solved Problem 8.2: Why Does Warren Buffett Like Mutual Funds? 265

8.3 Using Financial Statements to Evaluate a Corporation 266

 The Income Statement 266

 The Balance Sheet 267

8.4 Recent Issues in Corporate Governance Policy 268

 The Accounting Scandals of the Early 2000s 268

 Corporate Governance and the Financial Crisis of 2007–2009 268

 Government Regulation in Response to the Financial Crisis 269

 Did Principal–Agent Problems Help Cause the 2007–2009 Financial Crisis? 269

Apply the Concept: Should Investors Worry about Corporate Governance at Snapchat? 270

Conclusion 272

Chapter Summary and Problems 273

Appendix: Tools to Analyze Firms’ Financial Information 278

Using Present Value to Make Investment Decisions 278

Solved Problem 8A.1: How to Receive Your Contest Winnings 280

 Using Present Value to Calculate Bond Prices 281

 Using Present Value to Calculate Stock Prices 282

 A Simple Formula for Calculating Stock Prices 282

Going Deeper into Financial Statements 283

 Analyzing Income Statements 284

 Analyzing Balance Sheets 284

 Review Questions 286

 Problems and Applications 286

CHAPTER 9: Comparative Advantage and the Gains from International Trade 288

President Trump, Oreo Cookies, and Free Trade 288

9.1 The United States in the International Economy 290

 The Importance of Trade to the U.S. Economy 291

 U.S. International Trade in a World Context 292

9.2 Comparative Advantage in International Trade	292	Solved Problem 10.1: Finding the Optimal Level	
A Brief Review of Comparative Advantage	293	of Consumption	330
Comparative Advantage and Absolute Advantage	293	What if the Rule of Equal Marginal Utility per	
9.3 How Countries Gain from International Trade	294	Dollar Does Not Hold?	331
Increasing Consumption through Trade	294	Don't Let This Happen to You: Equalize	
Solved Problem 9.3: The Gains from Trade	296	Marginal Utilities <i>per Dollar</i>	332
Why Don't We See Complete Specialization?	297	The Income Effect and Substitution Effect of a	
Does Anyone Lose as a Result of International Trade?	298	Price Change	333
Don't Let This Happen to You: Remember		10.2 Where Demand Curves Come From	334
That Trade Creates Both Winners and Losers	298	Apply the Concept: Are There Any Upward-	
Apply the Concept: Who Gains and Who Loses		Sloping Demand Curves in the Real World?	336
from U.S. Trade with China?	298	10.3 Social Influences on Decision Making	337
Where Does Comparative Advantage Come From?	301	The Effects of Celebrity Endorsements	337
9.4 Government Policies That Restrict International Trade	302	Network Externalities	338
Tariffs	303	Does Fairness Matter?	339
Quotas and Voluntary Export Restraints	304	Apply the Concept: Who Made the Most Profit	
Measuring the Economic Effect of the		from the Broadway Musical <i>Hamilton</i> ?	341
Sugar Quota	304	Solved Problem 10.3: Why Doesn't Tesla Charge	
Solved Problem 9.4: Measuring the Economic		Its Employees to Park Their Cars?	343
Effect of a Quota	306	10.4 Behavioral Economics: Do People Make	
The High Cost of Preserving Jobs with Tariffs		Rational Choices?	345
and Quotas	307	Pitfalls in Decision Making	345
Apply the Concept: Smoot-Hawley, the Politics		Apply the Concept: A Blogger Who	
of Tariffs, and the Cost of Protecting a		Understands the Importance of Ignoring	
Vanishing Industry	307	Sunk Costs	346
Gains from Unilateral Elimination of Tariffs		“Nudges”: Using Behavioral Economics to	
and Quotas	309	Guide Behavior	347
Other Barriers to Trade	309	The Behavioral Economics of Shopping	348
9.5 The Debate over Trade Policies and Globalization	309	Apply the Concept: J.C. Penney Meets	
Why Do Some People Oppose the World Trade		Behavioral Economics	349
Organization?	309	Conclusion	351
Apply the Concept: Protecting Consumer Health		Chapter Summary and Problems	352
or Protecting U.S. Firms from Competition?	312	Appendix: Using Indifference Curves and Budget	
Dumping	313	Lines to Understand Consumer Behavior	358
Positive versus Normative Analysis (Once Again)	313	Consumer Preferences	358
Conclusion	314	Indifference Curves	358
Chapter Summary and Problems	315	The Slope of an Indifference Curve	359
		Can Indifference Curves Ever Cross?	359
		The Budget Constraint	360
		Choosing the Optimal Consumption of Pizza	
		and Coke	361
		Apply the Concept: Apple Determines the	
		Optimal Mix of iPhone Features	362
		Deriving the Demand Curve	363
		Solved Problem 10A.1: When Does a Price	
		Change Make a Consumer Better Off?	364
		The Income Effect and the Substitution Effect of a	
		Price Change	365
		How a Change in Income Affects Optimal	
		Consumption	367
		The Slope of the Indifference Curve, the Slope	
		of the Budget Line, and the Rule of Equal	
		Marginal Utility per Dollar Spent	367
		The Rule of Equal Marginal Utility per Dollar	
		Spent Revisited	368
		Review Questions	370
		Problems and Applications	370

PART 4 Microeconomic Foundations: Consumers and Firms

CHAPTER 10: Consumer Choice and Behavioral Economics 324

J.C. Penney Customers Didn't Buy into "Everyday Low Prices" 324

10.1 Utility and Consumer Decision Making 326

An Overview of the Economic Model of Consumer Behavior	326
Utility	326
The Principle of Diminishing Marginal Utility	327
The Rule of Equal Marginal Utility per Dollar Spent	327

CHAPTER 11: Technology, Production, and Costs 372

Will the Cost of MOOCs Revolutionize Higher Education? 372

11.1 Technology: An Economic Definition 374

Apply the Concept: Would You Please Be Quiet? Technological Change at Segment.com 374

11.2 The Short Run and the Long Run in Economics 375

 The Difference between Fixed Costs and Variable Costs 375

Apply the Concept: Fixed Costs in the Publishing Industry 376

 Implicit Costs versus Explicit Costs 376

 The Production Function 377

 A First Look at the Relationship between Production and Cost 378

11.3 The Marginal Product of Labor and the Average Product of Labor 379

 The Law of Diminishing Returns 379

 Graphing Production 380

Apply the Concept: Adam Smith’s Famous Account of the Division of Labor in a Pin Factory 381

 The Relationship between Marginal Product and Average Product 381

 An Example of Marginal and Average Values: College Grades 382

11.4 The Relationship between Short-Run Production and Short-Run Cost 383

 Marginal Cost 383

 Why Are the Marginal and Average Cost Curves U Shaped? 383

Solved Problem 11.4: Calculating Marginal Cost and Average Cost 385

11.5 Graphing Cost Curves 386

11.6 Costs in the Long Run 388

 Economies of Scale 388

 Long-Run Average Cost Curves for Automobile Factories 389

Solved Problem 11.6: Using Long-Run Average Cost Curves to Understand Business Strategy 389

Apply the Concept: The Colossal River Rouge: Diseconomies of Scale at Ford Motor Company 391

Don’t Let This Happen to You: Don’t Confuse Diminishing Returns with Diseconomies of Scale 392

Conclusion 393

Chapter Summary and Problems 394

Appendix: Using Isoquants and Isocost Lines to Understand Production and Cost 402

Isoquants 402

 An Isoquant Graph 402

 The Slope of an Isoquant 403

Isocost Lines 403

 Graphing the Isocost Line 403

 The Slope and Position of the Isocost Line 403

Choosing the Cost-Minimizing Combination of Capital and Labor 405

 Different Input Price Ratios Lead to Different Input Choices 405

Solved Problem 11A.1: Firms Responding to Differences in Input Price Ratios 406

 Another Look at Cost Minimization 407

Solved Problem 11A.2: Determining the Optimal Combination of Inputs 408

Apply the Concept: Do National Football League Teams Behave Efficiently? 409

The Expansion Path 410

 Review Questions 411

 Problems and Applications 411

PART 5 Market Structure and Firm Strategy

CHAPTER 12: Firms in Perfectly Competitive Markets 414

Are Cage-Free Eggs the Road to Riches? 414

12.1 Perfectly Competitive Markets 417

 A Perfectly Competitive Firm Cannot Affect the Market Price 417

 The Demand Curve for the Output of a Perfectly Competitive Firm 418

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 418

12.2 How a Firm Maximizes Profit in a Perfectly Competitive Market 419

 Revenue for a Firm in a Perfectly Competitive Market 420

 Determining the Profit-Maximizing Level of Output 420

12.3 Illustrating Profit or Loss on the Cost Curve Graph 422

 Showing Profit on a Graph 423

Solved Problem 12.3: Determining Profit-Maximizing Price and Quantity 424

Don’t Let This Happen to You: Remember That Firms Maximize Their Total Profit, Not Their Profit per Unit 426

 Illustrating When a Firm Is Breaking Even or Operating at a Loss 426

Apply the Concept: Losing Money in the Restaurant Business 427

12.4 Deciding Whether to Produce or to Shut Down in the Short Run 428

 The Supply Curve of a Firm in the Short Run 429

Solved Problem 12.4: When to Shut Down a Farm 430

 The Market Supply Curve in a Perfectly Competitive Industry 431

12.5 “If Everyone Can Do It, You Can’t Make Money at It”: The Entry and Exit of Firms in the Long Run	432	13.5 How Marketing Differentiates Products	465
Economic Profit and the Entry or Exit Decision	432	Brand Management	466
Long-Run Equilibrium in a Perfectly Competitive Market	434	Advertising	466
The Long-Run Supply Curve in a Perfectly Competitive Market	436	Defending a Brand Name	466
Apply the Concept: In the Apple App Store, Easy Entry Makes the Long Run Pretty Short	437	13.6 What Makes a Firm Successful?	466
Increasing-Cost and Decreasing-Cost Industries	438	Apply the Concept: Is Being the First Firm in the Market a Key to Success?	467
12.6 Perfect Competition and Economic Efficiency	438	Conclusion	469
Productive Efficiency	438	Chapter Summary and Problems	470
Solved Problem 12.6: How Productive Efficiency Benefits Consumers	439	CHAPTER 14: Oligopoly: Firms in Less Competitive Markets	478
Allocative Efficiency	440	Apple, Spotify, and the Music Streaming Revolution	478
Conclusion	441	14.1 Oligopoly and Barriers to Entry	480
Chapter Summary and Problems	442	Barriers to Entry	481
CHAPTER 13: Monopolistic Competition: The Competitive Model in a More Realistic Setting	450	Apply the Concept: Got a Great Recipe for Cookies? Don’t Try Selling Them in Wisconsin or New Jersey	483
Will Panera’s “Pure Food” Advantage Last?	450	14.2 Game Theory and Oligopoly	484
13.1 Demand and Marginal Revenue for a Firm in a Monopolistically Competitive Market	452	A Duopoly Game: Price Competition between Two Firms	485
The Demand Curve for a Monopolistically Competitive Firm	452	Firm Behavior and the Prisoner’s Dilemma	486
Marginal Revenue for a Firm with a Downward-Sloping Demand Curve	452	Don’t Let This Happen to You: Don’t Misunderstand Why Each Firm Ends Up Charging a Price of \$9.99	486
13.2 How a Monopolistically Competitive Firm Maximizes Profit in the Short Run	454	Solved Problem 14.2: Is Offering a College Student Discount a Prisoner’s Dilemma for Apple and Spotify?	487
Solved Problem 13.2: Does Minimizing Cost Maximize Profit at Apple?	456	Can Firms Escape the Prisoner’s Dilemma?	488
13.3 What Happens to Profits in the Long Run?	457	Apply the Concept: Are the Big Four Airlines Colluding?	489
How Does the Entry of New Firms Affect the Profits of Existing Firms?	457	Cartels: The Case of OPEC	491
Don’t Let This Happen to You: Don’t Confuse Zero Economic Profit with Zero Accounting Profit	458	14.3 Sequential Games and Business Strategy	492
Apply the Concept: Is “Clean Food” a Sustainable Market Niche for Panera?	460	Deterring Entry	492
Is Zero Economic Profit Inevitable in the Long Run?	461	Solved Problem 14.3: Is Deterring Entry Always a Good Idea?	494
Solved Problem 13.3: Red Robin Abandons an Experiment in Fast-Casual Restaurants	461	Bargaining	495
13.4 Comparing Monopolistic Competition and Perfect Competition	462	14.4 The Five Competitive Forces Model	496
Excess Capacity under Monopolistic Competition	463	Competition from Existing Firms	496
Is Monopolistic Competition Inefficient?	463	The Threat from Potential Entrants	497
How Consumers Benefit from Monopolistic Competition	464	Competition from Substitute Goods or Services	497
Apply the Concept: One Way to Differentiate Your Restaurant? Become a Ghost!	464	The Bargaining Power of Buyers	497
		The Bargaining Power of Suppliers	497
		Apply the Concept: Can We Predict Which Firms Will Continue to Be Successful?	498
		Conclusion	499
		Chapter Summary and Problems	500
		CHAPTER 15: Monopoly and Antitrust Policy	506
		A Monopoly on Lobster Dinners in Maine?	506
		15.1 Is Any Firm Ever Really a Monopoly?	508
		Apply the Concept: Is the NCAA a Monopoly?	508

15.2 Where Do Monopolies Come From? 510
 Government Action Blocks Entry 510
Apply the Concept: Does Hasbro Have a Monopoly on Monopoly? 511
 Control of a Key Resource 512
Apply the Concept: Are Diamond Profits Forever? The De Beers Diamond Monopoly 512
 Network Externalities 513
 Natural Monopoly 514

15.3 How Does a Monopoly Choose Price and Output? 515
 Marginal Revenue Once Again 515
 Profit Maximization for a Monopolist 516
Solved Problem 15.3: Finding the Profit-Maximizing Price and Output for a Cable Monopoly 518
Don't Let This Happen to You: Don't Assume That Charging a Higher Price Is Always More Profitable for a Monopolist 519

15.4 Does Monopoly Reduce Economic Efficiency? 519
 Comparing Monopoly and Perfect Competition 519
 Measuring the Efficiency Losses from Monopoly 520
 How Large Are the Efficiency Losses Due to Monopoly? 521
 Market Power and Technological Change 522

15.5 Government Policy toward Monopoly 522
 Antitrust Laws and Antitrust Enforcement 522
Apply the Concept: Have Generic Drug Firms Been Colluding to Raise Prices? 523
 Mergers: The Trade-off between Market Power and Efficiency 524
 The Department of Justice and FTC Merger Guidelines 526
 Regulating Natural Monopolies 528
Solved Problem 15.5: What Should Your College Charge for a MOOC? 529

Conclusion 530
Chapter Summary and Problems 531

CHAPTER 16: Pricing Strategy 538

Walt Disney Discovers the Magic of Big Data 538

16.1 Pricing Strategy, the Law of One Price, and Arbitrage 540
 Arbitrage 540
Solved Problem 16.1: Is Arbitrage Just a Rip-off? 541
 Why Don't All Firms Charge the Same Price? 541

16.2 Price Discrimination: Charging Different Prices for the Same Product 542
 The Requirements for Successful Price Discrimination 542
Don't Let This Happen to You: Don't Confuse Price Discrimination with Other Types of Discrimination 543

An Example of Price Discrimination 543
Solved Problem 16.2: How Apple Uses Price Discrimination to Increase Profits 544
 Airlines: The Kings of Price Discrimination 545
Apply the Concept: Big Data and the Rise of Dynamic Pricing 546
 Perfect Price Discrimination 548
 Price Discrimination across Time 549
 Can Price Discrimination Be Illegal? 551

16.3 Other Pricing Strategies 551
 Odd Pricing: Why Is the Price \$2.99 Instead of \$3.00? 551
 Why Do McDonald's and Other Firms Use Cost-Plus Pricing? 552
Apply the Concept: Cost-Plus Pricing in the Publishing Industry 552
 How Can Using Two-Part Tariffs Increase a Firm's Profit? 553

Conclusion 556
Chapter Summary and Problems 557

PART 6 Labor Markets, Public Choice, and the Distribution of Income

CHAPTER 17: The Markets for Labor and Other Factors of Production 562

Rio Tinto Mines with Robots 562

17.1 The Demand for Labor 564
 The Marginal Revenue Product of Labor 564
Solved Problem 17.1: Hiring Decisions by a Firm That Is a Price Maker 566
 The Market Demand Curve for Labor 567
 Factors That Shift the Market Demand Curve for Labor 567

17.2 The Supply of Labor 568
 The Market Supply Curve of Labor 569
 Factors That Shift the Market Supply Curve of Labor 569

17.3 Equilibrium in the Labor Market 570
 The Effect on Equilibrium Wages of a Shift in Labor Demand 571
Apply the Concept: Is Investing in a College Education a Good Idea? 571
 The Effect of Immigration on the U.S. Labor Market 572
Apply the Concept: Will You Compete with a Robot for a Job—Or Work with One? 574

17.4 Explaining Differences in Wages 577
Don't Let This Happen to You: Remember That Prices and Wages Are Determined at the Margin 578
Apply the Concept: Technology and the Earnings of "Superstars" 578
 Compensating Differentials 579
 Discrimination 580

Solved Problem 17.4: Is Passing “Comparable Worth” Legislation a Good Way to Close the Gap between Men’s and Women’s Pay?	581	Marginal and Average Income Tax Rates	610
Apply the Concept: Does Greg Have an Easier Time Finding a Job Than Jamal?	583	The Corporate Income Tax	610
Labor Unions	585	International Comparison of Corporate Income Taxes	610
17.5 Personnel Economics	585	Evaluating Taxes	611
Should Workers’ Pay Depend on How Much They Work or on How Much They Produce?	586	18.3 Tax Incidence Revisited: The Effect of Price Elasticity	614
Apply the Concept: A Better Way to Sell Contact Lenses	587	Don’t Let This Happen to You: Don’t Confuse Who Pays a Tax with Who Bears the Burden of the Tax	615
Other Considerations in Setting Compensation Systems	588	Apply the Concept: Do Corporations Really Bear the Burden of the Federal Corporate Income Tax?	615
17.6 The Markets for Capital and Natural Resources	588	Solved Problem 18.3: The Effect of Price Elasticity on the Excess Burden of a Tax	616
The Market for Capital	588	18.4 Income Distribution and Poverty	617
The Market for Natural Resources	589	Measuring the Income Distribution and Measuring Poverty	617
Monopsony	590	Showing the Income Distribution with a Lorenz Curve	619
The Marginal Productivity Theory of Income Distribution	591	Problems in Measuring Poverty and the Distribution of Income	620
Conclusion	591	Solved Problem 18.4: What’s the Difference between Income Mobility and Income Inequality?	621
Chapter Summary and Problems	592	Explaining Income Inequality	623
 		Policies to Reduce Income Inequality	624
CHAPTER 18: Public Choice, Taxes, and the Distribution of Income	600	Apply the Concept: Who Are the 1 Percent, and How Do They Earn Their Incomes?	626
Should Your Small Business Be Taxed Like Apple?	600	Income Distribution and Poverty around the World	627
18.1 Public Choice	602	Conclusion	629
How Do We Know the Public Interest? Models of Voting	602	Chapter Summary and Problems	630
Government Failure?	604	Glossary	G-1
Is Government Regulation Necessary?	606	Company Index	I-1
18.2 The Tax System	606	Subject Index	I-3
An Overview of the U.S. Tax System	607	Credits	C-1
Progressive and Regressive Taxes	608		
Apply the Concept: Which Groups Pay the Most in Federal Taxes?	609		