| Preface | 33 |
| A Word of Thanks | 62 |

**PART 1: Introduction**

| Chapter 1: Economics: Foundations and Models | 64 |
| Appendix: Using Graphs and Formulas | 86 |

| Chapter 2: Trade-offs, Comparative Advantage, and the Market System | 98 |

| Chapter 3: Where Prices Come From: The Interaction of Demand and Supply | 130 |

| Chapter 4: Economic Efficiency, Government Price Setting, and Taxes | 162 |
| Appendix: Quantitative Demand and Supply Analysis | 193 |

**PART 2: Markets in Action: Policy and Applications**

| Chapter 5: Externalities, Environmental Policy, and Public Goods | 198 |

| Chapter 6: Elasticity: The Responsiveness of Demand and Supply | 232 |

| Chapter 7: The Economics of Health Care | 266 |

**PART 3: Firms in the Domestic and International Economies**

| Chapter 8: Firms, the Stock Market, and Corporate Governance | 298 |
| Appendix: Tools to Analyze Firms' Financial Information | 323 |

| Chapter 9: Comparative Advantage and the Gains from International Trade | 332 |

**PART 4: Microeconomic Foundations: Consumers and Firms**

| Chapter 10: Consumer Choice and Behavioral Economics | 366 |
| Appendix: Using Indifference Curves and Budget Lines to Understand Consumer Behavior | 397 |

| Chapter 11: Technology, Production, and Costs | 412 |
| Appendix: Using Isoquants and Isocost Lines to Understand Production and Cost | 441 |

**PART 5: Market Structure and Firm Strategy**

| Chapter 12: Firms in Perfectly Competitive Markets | 452 |

| Chapter 13: Monopolistic Competition: The Competitive Model in a More Realistic Setting | 486 |

| Chapter 14: Oligopoly: Firms in Less Competitive Markets | 512 |

| Chapter 15: Monopoly and Antitrust Policy | 538 |

| Chapter 16: Pricing Strategy | 568 |

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

| Chapter 17: The Markets for Labor and Other Factors of Production | 594 |

| Chapter 18: Public Choice, Taxes, and the Distribution of Income | 630 |

**PART 7: Macroeconomic Foundations and Long-Run Growth**

| Chapter 19: GDP: Measuring Total Production and Income | 664 |

| Chapter 20: Unemployment and Inflation | 690 |

| Chapter 21: Economic Growth, the Financial System, and Business Cycles | 726 |

| Chapter 22: Long-Run Economic Growth: Sources and Policies | 760 |

**PART 8: Short-Run Fluctuations**

| Chapter 23: Aggregate Expenditure and Output in the Short Run | 798 |
| Appendix: The Algebra of Macroeconomic Equilibrium | 838 |

<p>| Chapter 24: Aggregate Demand and Aggregate Supply Analysis | 840 |
| Appendix: Macroeconomic Schools of Thought | 875 |</p>
<table>
<thead>
<tr>
<th>PART 9: Monetary and Fiscal Policy</th>
<th>PART 10: The International Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 25: Money, Banks, and the Federal Reserve System</td>
<td>Chapter 29: Macroeconomics in an Open Economy</td>
</tr>
<tr>
<td></td>
<td>880</td>
</tr>
<tr>
<td>Chapter 26: Monetary Policy</td>
<td>Chapter 30: The International Financial System</td>
</tr>
<tr>
<td></td>
<td>914</td>
</tr>
<tr>
<td>Appendix: A Closer Look at the Multiplier</td>
<td>954</td>
</tr>
<tr>
<td>Chapter 28: Inflation, Unemployment, and Federal Reserve Policy</td>
<td>995</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glossary</td>
</tr>
<tr>
<td></td>
<td>998</td>
</tr>
<tr>
<td></td>
<td>Company Index</td>
</tr>
<tr>
<td></td>
<td>1028</td>
</tr>
<tr>
<td></td>
<td>Subject Index</td>
</tr>
<tr>
<td></td>
<td>1056</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
</tr>
<tr>
<td></td>
<td>1078</td>
</tr>
<tr>
<td></td>
<td>Chapter Features Chart</td>
</tr>
<tr>
<td></td>
<td>1084</td>
</tr>
<tr>
<td></td>
<td>1092</td>
</tr>
<tr>
<td></td>
<td>1095</td>
</tr>
<tr>
<td></td>
<td>1115</td>
</tr>
<tr>
<td></td>
<td>1117</td>
</tr>
</tbody>
</table>
## Preface

A Word of Thanks

### PART 1: Introduction

#### Chapter 1: Economics: Foundations and Models

**Is the Private Doctor's Office Going to Disappear?**

1.1 Three Key Economic Ideas
   - People Are Rational
   - People Respond to Economic Incentives
   - Making the Connection: Does Health Insurance Give People an Incentive to Become Obese?
   - Optimal Decisions Are Made at the Margin
   - Solved Problem 1.1: A Doctor Makes a Decision at the Margin

1.2 The Economic Problem That Every Society Must Solve
   - What Goods and Services Will Be Produced?
   - How Will the Goods and Services Be Produced?
   - Who Will Receive the Goods and Services Produced?
   - Centrally Planned Economies versus Market Economies
   - The Modern “Mixed” Economy
   - Efficiency and Equity

1.3 Economic Models
   - The Role of Assumptions in Economic Models
   - Forming and Testing Hypotheses in Economic Models
   - Positive and Normative Analysis
   - Economics as a Social Science
   - Don’t Let This Happen to You: Don’t Confuse Positive Analysis with Normative Analysis
   - Making the Connection: Should Medical School Be Free?

1.4 Microeconomics and Macroeconomics

1.5 A Preview of Important Economic Terms

**Conclusion**

*Chapter Summary and Problems*

- Key Terms, Summary, Review Questions, Problems and Applications
- Determining Cause and Effect
- Are Graphs of Economic Relationships Always Straight Lines?
- Slopes of Nonlinear Curves
- Formulas
  - Formula for a Percentage Change
  - Formulas for the Areas of a Rectangle and a Triangle
- Summary of Using Formulas

#### Chapter 2: Trade-offs, Comparative Advantage, and the Market System

Managers at Tesla Motors Face Trade-Offs

2.1 Production Possibilities Frontiers and Opportunity Costs
   - Graphing the Production Possibilities Frontier
   - Solved Problem 2.1: Drawing a Production Possibilities Frontier for Tesla Motors
   - Increasing Marginal Opportunity Costs
   - Economic Growth

2.2 Comparative Advantage and Trade
   - Specialization and Gains from Trade
   - Absolute Advantage versus Comparative Advantage
   - Comparative Advantage and the Gains from Trade
   - Don’t Let This Happen to You: Don’t Confuse Absolute Advantage and Comparative Advantage
   - Solved Problem 2.2: Comparative Advantage and the Gains from Trade
   - Making the Connection: Comparative Advantage, Opportunity Cost, and Housework

2.3 The Market System
   - The Circular Flow of Income
   - The Gains from Free Markets
   - The Market Mechanism
   - Making the Connection: A Story of the Market System in Action: How Do You Make an iPad?
   - The Role of the Entrepreneur
   - The Legal Basis of a Successful Market System
   - Making the Connection: Who Owns The Wizard of Oz?

**Conclusion**

*An Inside Look: What's on the Horizon at Mercedes-Benz?*

#### Chapter 3: Where Prices Come From: The Interaction of Demand and Supply

Smartphones: The Indispensable Product?

3.1 The Demand Side of the Market
   - Demand Schedules and Demand Curves
   - The Law of Demand

**Appendix: Using Graphs and Formulas**

- Graphs of One Variable
- Graphs of Two Variables
  - Slopes of Lines
  - Taking into Account More Than Two Variables on a Graph
  - Positive and Negative Relationships

*These end-of-chapter resource materials repeat in all chapters. Select chapters also include Real-Time Data Exercises.*
Making the Connection: The Clean Air Act: How a Government Policy Reduced Infant Mortality 204
The Basis for Private Solutions to Externalities 206
Don't Let This Happen to You: Remember That It's the Net Benefit That Counts 207
Making the Connection: The Fable of the Bees 207
Do Property Rights Matter? 208
The Problem of Transactions Costs 208
The Coase Theorem 209
5.3 Government Policies to Deal with Externalities
Making the Connection: Should the Government Tax Cigarettes and Soda? 210
Solved Problem 5.3: Dealing with the Externalities of Car Driving 212
Command-and-Control versus Market-Based Approaches 214
The End of the Sulfur Dioxide Cap-and-Trade System 214
Are Tradable Emission Allowances Licenses to Pollute? 215
Making the Connection: Can a Carbon Tax Reduce Global Warming? 215
5.4 Four Categories of Goods
The Demand for a Public Good 217
The Optimal Quantity of a Public Good 218
Solved Problem 5.4: Determining the Optimal Level of Public Goods 220
Common Resources 222
Conclusion 223

Chapter 6: Elasticity: The Responsiveness of Demand and Supply 232
Do People Respond to Changes in the Price of Gasoline? 233
6.1 The Price Elasticity of Demand and Its Measurement 234
Measuring the Price Elasticity of Demand 234
Elastic Demand and Inelastic Demand 235
An Example of Computing Price Elasticities 235
The Midpoint Formula 236
Solved Problem 6.1: Calculating the Price Elasticity of Demand 237
When Demand Curves Intersect, the Flatter Curve Is More Elastic 238
Polar Cases of Perfectly Elastic and Perfectly Inelastic Demand 238
Don't Let This Happen to You: Don't Confuse Inelastic with Perfectly Inelastic 240
6.2 The Determinants of the Price Elasticity of Demand 240
Availability of Close Substitutes 240
Passage of Time 241
Luxuries versus Necessities 241
Definition of the Market 241
Share of a Good in a Consumer's Budget 241
Solved Problem 6.3: Price and Revenue Don't Always Move in the Same Direction 245
Estimating Price Elasticity of Demand 246
6.4 Other Demand Elasticities 247
Cross-Price Elasticity of Demand 247
Income Elasticity of Demand 248
Making the Connection: Price Elasticity, Cross-Price Elasticity, and Income Elasticity in the Market for Alcoholic Beverages 248
6.5 Using Elasticity to Analyze the Disappearing Family Farm 249
Solved Problem 6.5: Using Price Elasticity to Analyze a Policy of Taxing Gasoline 250
6.6 The Price Elasticity of Supply and Its Measurement 251
Measuring the Price Elasticity of Supply 251
Determinants of the Price Elasticity of Supply 252
Making the Connection: Why Are Oil Prices So Unstable? 252
Polar Cases of Perfectly Elastic and Perfectly Inelastic Supply 253
Using Price Elasticity of Supply to Predict Changes in Price 255
Conclusion 256

Chapter 7: The Economics of Health Care 266
How Much Will You Pay for Health Insurance? 267
7.1 The Improving Health of People in the United States 268
Changes over Time in U.S. Health 268
Reasons for Long-Run Improvements in U.S. Health 269
7.2 Health Care around the World 270
The U.S. Health Care System 270
The Health Care Systems of Canada, Japan, and the United Kingdom 272
Comparing Health Care Outcomes around the World 273
7.3 Information Problems and Externalities in the Market for Health Care 275
Adverse Selection and the Market for “Lemons” 275
Asymmetric Information in the Market for Health Insurance 275
Don't Let This Happen to You: Don't Confuse Adverse Selection with Moral Hazard 277
Solved Problem 7.3: If You Are Young and Healthy, Should You Buy Health Insurance? 278
Externalities in the Market for Health Care 279
Gains from Unilateral Elimination of Tariffs and Quotas 352
Other Barriers to Trade 352
9.5 The Arguments over Trade Policies and Globalization 352
Why Do Some People Oppose the World Trade Organization? 353
Making the Connection: The Unintended Consequences of Banning Goods Made
with Child Labor 354
Dumping 356
Positive versus Normative Analysis (Once Again) 356
Conclusion 357

PART 4: Microeconomic Foundations: Consumers and Firms

Chapter 10: Consumer Choice and Behavioral Economics 366
J.C. Penney Learns That Simplifying Prices Isn't Simple 367
10.1 Utility and Consumer Decision Making 368
The Economic Model of Consumer Behavior in a Nutshell 368
Utility 368
The Principle of Diminishing Marginal Utility 369
The Rule of Equal Marginal Utility per Dollar Spent 369
Solved Problem 10.1: Finding the Optimal Level of Consumption 372
What If the Rule of Equal Marginal Utility per Dollar Does Not Hold? 373
Don't Let This Happen to You: Equalize Marginal Utilities per Dollar 374
The Income Effect and Substitution Effect of a Price Change 375
10.2 Where Demand Curves Come From 376
Making the Connection: Are There Any Upward-Sloping Demand Curves in the Real World? 378
10.3 Social Influences on Decision Making 379
The Effects of Celebrity Endorsements 379
Network Externalities 380
Does Fairness Matter? 381
Making the Connection: What's Up with "Fuel Surcharges"? 383
Behavioral Economics: Do People Make Their Choices Rationally? 385
Pitfalls in Decision Making 385
Making the Connection: A Blogger Who Understands the Importance of Ignoring Sunk Costs 387
The Behavioral Economics of Shopping 388
Making the Connection: J.C. Penney Meets Behavioral Economics 389
Conclusion 390

Appendix: Using Indifference Curves and Budget Lines to Understand Consumer Behavior 397
Consumer Preferences 397
Indifference Curves 397
The Slope of an Indifference Curve 398
Can Indifference Curves Ever Cross? 398
The Budget Constraint 399
Choosing the Optimal Consumption of Pizza and Coke 400
Making the Connection: Dell Determines the Optimal Mix of Products 401
Deriving the Demand Curve 402
Solved Problem 10A.1: When Does a Price Change Make a Consumer Better Off? 403
The Income Effect and the Substitution Effect of a Price Change 405
How a Change in Income Affects Optimal Consumption 406
The Slope of the Indifference Curve, the Slope of the Budget Line, and the Rule of Equal Marginal Utility per Dollar Spent 406
The Rule of Equal Marginal Utility per Dollar Spent Revisited 407

Chapter 11: Technology, Production, and Costs 412
Fracking, Marginal Costs, and Energy Prices 413
11.1 Technology: An Economic Definition 414
Making the Connection: Improving Inventory Control at Wal-Mart 414
11.2 The Short Run and the Long Run in Economics 415
The Difference between Fixed Costs and Variable Costs 415
Making the Connection: Fixed Costs in the Publishing Industry 416
Implicit Costs Versus Explicit Costs 416
The Production Function 417
A First Look at the Relationship between Production and Cost 418
11.3 The Marginal Product of Labor and the Average Product of Labor 419
The Law of Diminishing Returns 419
Graphing Production 420
Making the Connection: Adam Smith's Famous Account of the Division of Labor in a Pin Factory 421
The Relationship between Marginal Product and Average Product 421
An Example of Marginal and Average Values: College Grades 422
11.4 The Relationship between Short-Run Production and Short-Run Cost 423
Marginal Cost 423
Why Are the Marginal and Average Cost Curves U Shaped? 423
Solved Problem 11.4: Calculating Marginal Cost and Average Cost

11.5 Graphing Cost Curves

11.6 Costs in the Long Run
- Economies of Scale
- Long-Run Average Cost Curves for Automobile Factories

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

Making the Connection: The Colossal River Rouge: Diseconomies of Scale at Ford Motor Company

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

Conclusion

Appendix: Using Isoquants and Isocost Lines to Understand Production and Cost
- Isoquants
- An Isoquant Graph
- The Slope of an Isoquant
- Isocost Lines
- Graphing the Isocost Line
- The Slope and Position of the Isocost Line

Choosing the Cost-Minimizing Combination of Capital and Labor
- Different Input Price Ratios Lead to Different Input Choices

Making the Connection: The Changing Input Mix in Walt Disney Film Animation
- Another Look at Cost Minimization

Solved Problem 11A.1: Determining the Optimal Combination of Inputs

Making the Connection: Do National Football League Teams Behave Efficiently?

The Expansion Path

PART 5: Market Structure and Firm Strategy

Chapter 12: Firms in Perfectly Competitive Markets

Perfect Competition in Farmers’ Markets

12.1 Perfectly Competitive Markets
- A Perfectly Competitive Firm Cannot Affect the Market Price
- The Demand Curve for the Output of a Perfectly Competitive Firm

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

12.2 How a Firm Maximizes Profit in a Perfectly Competitive Market
- Revenue for a Firm in a Perfectly Competitive Market
- Determining the Profit-Maximizing Level of Output

12.3 Illustrating Profit or Loss on the Cost Curve Graph
- Showing a Profit on the Graph

Solved Problem 12.3: Determining Profit-Maximizing Price and Quantity

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

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

Making the Connection: Losing Money in the Solar Panel Industry

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

Solved Problem 12.4: When to Pull the Plug on a Movie

The Supply Curve of a Firm in the Short Run

The Market Supply Curve in a Perfectly Competitive Industry

12.5 “If Everyone Can Do It, You Can’t Make Money at It”: The Entry and Exit of Firms in the Long Run
- Economic Profit and the Entry or Exit Decision
- Long-Run Equilibrium in a Perfectly Competitive Market
- The Long-Run Supply Curve in a Perfectly Competitive Market

Making the Connection: In the Apple iPhone Apps Store, Easy Entry Makes the Long Run Pretty Short

Increasing-Cost and Decreasing-Cost Industries

12.6 Perfect Competition and Efficiency
- Productive Efficiency

Solved Problem 12.6: How Productive Efficiency Benefits Consumers

Allocative Efficiency

Conclusion

Chapter 13: Monopolistic Competition: The Competitive Model in a More Realistic Setting

Starbucks: The Limits to Growth through Product Differentiation

13.1 Demand and Marginal Revenue for a Firm in a Monopolistically Competitive Market
- The Demand Curve for a Monopolistically Competitive Firm
- Marginal Revenue for a Firm with a Downward-Sloping Demand Curve
13.2 How a Monopolistically Competitive Firm Maximizes Profit in the Short Run 490

Solved Problem 13.2: Does Minimizing Cost Maximize Profit at Apple? 492

13.3 What Happens to Profits in the Long Run? 493

How Does the Entry of New Firms Affect the Profits of Existing Firms? 493

Don't Let This Happen to You: Don't Confuse Zero Economic Profit with Zero Accounting Profit 494

Making the Connection: The Rise and Decline and Rise of Starbucks 496

Is Zero Economic Profit Inevitable in the Long Run? 496

Solved Problem 13.3: Can It Be Profitable to Be the High-Price Seller? 497

13.4 Comparing Monopolistic Competition and Perfect Competition 498

Excess Capacity under Monopolistic Competition 498

Is Monopolistic Competition Inefficient? 498

How Consumers Benefit from Monopolistic Competition 499

Making the Connection: Peter Thiel, e-Cigarettes, and the Monopoly in Monopolistic Competition 500

13.5 How Marketing Differentiates Products 500

Brand Management 501

Advertising 501

Defending a Brand Name 501

13.6 What Makes a Firm Successful? 502

Making the Connection: Is Being the First Firm in the Market a Key to Success? 502

Conclusion 503

Chapter 14: Oligopoly: Firms in Less Competitive Markets 512

Competition in the Video Game Console Market 513

14.1 Oligopoly and Barriers to Entry 514

Barriers to Entry 515

14.2 Using Game Theory to Analyze Oligopoly 517

A Duopoly Game: Price Competition between Two Firms 517

Firm Behavior and the Prisoner's Dilemma 518

Don't Let This Happen to You: Don't Misunderstand Why Each Firm Ends Up Charging a Price of $399 519

Solved Problem 14.2: Is Same-Day Delivery a Prisoner's Dilemma for Wal-Mart and Amazon? 519

Making the Connection: Is There a Dominant Strategy for Bidding on eBay? 520

Can Firms Escape the Prisoner's Dilemma? 521

Making the Connection: With Price Collusion, More Is Not Merrier 522

Cartels: The Case of OPEC 523

14.3 Sequential Games and Business Strategy 525

Deterring Entry 525

Solved Problem 14.3: Is Deterring Entry Always a Good Idea? 526

Bargaining 527

14.4 The Five Competitive Forces Model 529

Competition from Existing Firms 529

The Threat from Potential Entrants 529

Competition from Substitute Goods or Services 529

The Bargaining Power of Buyers 530

The Bargaining Power of Suppliers 530

Making the Connection: Can We Predict Which Firms Will Continue to Be Successful? 530

Conclusion 531

Chapter 15: Monopoly and Antitrust Policy 538

A Monopoly on Lobster Dinners in Maine? 539

15.1 Is Any Firm Ever Really a Monopoly? 540

Making the Connection: Is Google a Monopoly? 540

15.2 Where Do Monopolies Come From? 541

Government Action Blocks Entry 542

Making the Connection: Does Hasbro Have a Monopoly on Monopoly? 542

Control of a Key Resource 544

Making the Connection: Are Diamond Profits Forever? The De Beers Diamond Monopoly 544

Network Externalities 545

Natural Monopoly 545

Solved Problem 15.2: Can a Seafood Restaurant Be a Natural Monopoly? 546

15.3 How Does a Monopoly Choose Price and Output? 548

Marginal Revenue Once Again 548

Profit Maximization for a Monopolist 548

Solved Problem 15.3: Finding the Profit-Maximizing Price and Output for a Cable Monopoly 550

Don't Let This Happen to You: Don't Assume That Charging a Higher Price Is Always More Profitable for a Monopolist 551

15.4 Does Monopoly Reduce Economic Efficiency? 552

Comparing Monopoly and Perfect Competition 552

Measuring the Efficiency Losses from Monopoly 552

How Large Are the Efficiency Losses Due to Monopoly? 554

Market Power and Technological Change 554

15.5 Government Policy toward Monopoly 555

Antitrust Laws and Antitrust Enforcement 555

Making the Connection: Did Apple Violate the Law in Pricing e-Books? 556

Mergers: The Trade-off between Market Power and Efficiency 557

The Department of Justice and FTC Merger Guidelines 558

Regulating Natural Monopolies 560

Conclusion 561
Chapter 16: Pricing Strategy

Getting into Walt Disney World: One Price Does Not Fit All

16.1 Pricing Strategy, the Law of One Price, and Arbitrage

Arbitrage

Solved Problem 16.1: Is Arbitrage Just a Rip-Off?

Why Don't All Firms Charge the Same Price?

16.2 Price Discrimination: Charging Different Prices for the Same Product

Don’t Let This Happen to You: Don’t Confuse Price Discrimination with Other Types of Discrimination

The Requirements for Successful Price Discrimination

Solved Problem 16.2: How Apple Uses Price Discrimination to Increase Profits

Airlines: The Kings of Price Discrimination

Making the Connection: How Colleges Use Yield Management

Perfect Price Discrimination

Price Discrimination across Time

Can Price Discrimination Be Illegal?

Making the Connection: The Internet Leaves You Open to Price Discrimination

16.3 Other Pricing Strategies

Odd Pricing: Why Is the Price $2.99 Instead of $3.00?

Why Do McDonald’s and other Firms Use Cost-Plus Pricing?

Making the Connection: Cost-Plus Pricing in the Publishing Industry

Why Do Some Firms Use Two-Part Tariffs?

Conclusion

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

Chapter 17: The Markets for Labor and Other Factors of Production

Who Is Zack Greinke and Why Is He Being Paid $147 Million?

17.1 The Demand for Labor

The Marginal Revenue Product of Labor

Solved Problem 17.1: Hiring Decisions by a Firm That Is a Price Maker

The Market Demand Curve for Labor

Factors That Shift the Market Demand Curve for Labor

17.2 The Supply of Labor

The Market Supply Curve of Labor

Factors That Shift the Market Supply Curve of Labor

17.3 Equilibrium in the Labor Market

The Effect on Equilibrium Wages of a Shift in Labor Demand

Making the Connection: Will Your Future Income Depend on Which Courses You Take in College?

The Effect on Equilibrium Wages of a Shift in Labor Supply

Making the Connection: Veterinarians Fall Victim to Demand and Supply

17.4 Explaining Differences in Wages

Don’t Let This Happen to You: Remember That Prices and Wages Are Determined at the Margin

Making the Connection: Technology and the Earnings of “Superstars”

Compensating Differentials

Discrimination

Solved Problem 17.4: Is Passing “Comparable Worth” Legislation a Good Way to Close the Gap between Men’s and Women’s Pay?

Making the Connection: Does Greg Have an Easier Time Finding a Job Than Jamal?

Labor Unions

17.5 Personnel Economics

Should Workers’ Pay Depend on How Much They Work or on How Much They Produce?

Making the Connection: Raising Pay, Productivity, and Profits at Safelite AutoGlass

Other Considerations in Setting Compensation Systems

17.6 The Markets for Capital and Natural Resources

The Market for Capital

The Market for Natural Resources

Monopsony

The Marginal Productivity Theory of Income Distribution

Conclusion

Chapter 18: Public Choice, Taxes, and the Distribution of Income

Should the Government Use the Tax System to Reduce Inequality?

18.1 Public Choice

How Do We Know the Public Interest? Models of Voting

Government Failure?

Is Government Regulation Necessary?

18.2 The Tax System

An Overview of the U.S. Tax System

Progressive and Regressive Taxes

Making the Connection: Which Groups Pay the Most in Federal Taxes?

Marginal and Average Income Tax Rates
The Corporate Income Tax  640
International Comparison of Corporate Income Taxes  640
Evaluating Taxes  641
18.3 Tax Incidence Revisited: The Effect of Price Elasticity  643
Don’t Let This Happen to You: Don’t Confuse Who Pays a Tax with Who Bears the Burden of the Tax  643
Making the Connection: Do Corporations Really Bear the Burden of the Federal Corporate Income Tax?  644
Solved Problem 18.3: The Effect of Price Elasticity on the Excess Burden of a Tax  645
18.4 Income Distribution and Poverty  646
Measuring the Income Distribution and Poverty  646
Explaining Income Inequality  647
Making the Connection: What Explains the 1 Percent?  650
Showing the Income Distribution with a Lorenz Curve  651
Problems in Measuring Poverty and the Distribution of Income  652
Solved Problem 18.4: Are Many People in the United States Stuck in Poverty?  654
Income Distribution and Poverty around the World  655
Conclusion  656

PART 7: Macroeconomic Foundations and Long-Run Growth

Chapter 19: GDP: Measuring Total Production and Income  664
Ford Motor Company Rides the Business Cycle  665
19.1 Gross Domestic Product Measures Total Production  667
Measuring Total Production: Gross Domestic Product  667
Solved Problem 19.1: Calculating GDP  668
Production, Income, and the Circular-Flow Diagram  668
Components of GDP  670
Don’t Let This Happen to You: Remember What Economists Mean by Investment  671
An Equation for GDP and Some Actual Values  671
Making the Connection: Adding More of Lady Gaga to GDP  672
Measuring GDP Using the Value-Added Method  673
19.2 Does GDP Measure What We Want It to Measure?  674
Shortcomings in GDP as a Measure of Total Production  674
Making the Connection: Why Do Many Developing Countries Have Such Large Underground Economies?  675
Shortcomings of GDP as a Measure of Well-Being  675
Making the Connection: Did World War II Bring Prosperity?  676
19.3 Real GDP versus Nominal GDP  677
Calculating Real GDP  678
Solved Problem 19.3: Calculating Real GDP  678
Comparing Real GDP and Nominal GDP  679
The GDP Deflator  680
19.4 Other Measures of Total Production and Total Income  681
Gross National Product  681
National Income  681
Personal Income  681
Disposable Personal Income  682
The Division of Income  682
Conclusion  683

Chapter 20: Unemployment and Inflation  690
Caterpillar Announces Plans to Lay Off Workers  691
20.1 Measuring the Unemployment Rate, the Labor Force Participation Rate, and the Employment–Population Ratio  692
The Household Survey  692
Solved Problem 20.1: What Happens if the BLS Includes the Military?  694
Problems with Measuring the Unemployment Rate  695
Trends in Labor Force Participation  696
Unemployment Rates for Different Groups  697
How Long Are People Typically Unemployed?  697
Making the Connection: How Unusual Was the Unemployment Situation Following the 2007–2009 Recession?  698
The Establishment Survey: Another Measure of Employment  699
Revisions in the Establishment Survey  700
Job Creation and Job Destruction over Time  701
20.2 Types of Unemployment  701
Frictional Unemployment and Job Search  702
Structural Unemployment  702
Cyclical Unemployment  703
Full Employment  703
Making the Connection: How Should We Categorize Unemployment at Caterpillar?  703
20.3 Explaining Unemployment  704
Government Policies and the Unemployment Rate  704
Labor Unions  706
Efficiency Wages  706
20.4 Measuring Inflation  706
The Consumer Price Index  707
24 DETAI L ED CONTENTS

Chapter 21: Economic Growth, the Financial System, and Business Cycles 726

Economic Growth and the Business Cycle at Whirlpool 727

21.1 Long-Run Economic Growth 728
Making the Connection: The Connection between Economic Prosperity and Health 730
Calculating Growth Rates and the Rule of 70 731
What Determines the Rate of Long-Run Growth? 732
Solved Problem 21.1: Explaining Economic Growth in Singapore 733
Making the Connection: Can India Sustain Its Rapid Growth? 734
Potential GDP 735

21.2 Saving, Investment, and the Financial System 736
An Overview of the Financial System 736
The Macroeconomics of Saving and Investment 738
The Market for Loanable Funds 739
Making the Connection: Ebenezer Scrooge: Accidental Promoter of Economic Growth? 740
Solved Problem 21.2: How Would a Consumption Tax Affect Saving, Investment, the Interest Rate, and Economic Growth? 743

21.3 The Business Cycle 744
Some Basic Business Cycle Definitions 744
How Do We Know When the Economy Is in a Recession? 745
Making the Connection: Can a Recession Be a Good Time for a Business to Expand? 746
What Happens during the Business Cycle? 747
Don’t Let This Happen to You: Don’t Confuse the Price Level and the Inflation Rate 750
Will the U.S. Economy Return to Stability? 752
Conclusion 753

Chapter 22: Long-Run Economic Growth: Sources and Policies 760

Can China Save General Motors? 761

22.1 Economic Growth over Time and around the World 762
Economic Growth from 1,000,000 B.C. to the Present 762
Making the Connection: Why Did the Industrial Revolution Begin in England? 763
Small Differences in Growth Rates Are Important 764
Why Do Growth Rates Matter? 764
Don’t Let This Happen to You: Don’t Confuse the Average Annual Percentage Change with the Total Percentage Change 765
“The Rich Get Richer and ...” 765
Making the Connection: Is Income All That Matters? 766

22.2 What Determines How Fast Economies Grow? 767
The Per-Worker Production Function 767
Technological Change: The Key to Sustaining Economic Growth 769
Making the Connection: What Explains the Economic Failure of the Soviet Union? 770
Solved Problem 22.2: Using the Economic Growth Model to Analyze the Failure of the Soviet Economy 771
New Growth Theory 771
Joseph Schumpeter and Creative Destruction 773

22.3 Economic Growth in the United States 773
Economic Growth in the United States since 1950 774
Is the United States Headed for Another Productivity Slowdown? 775

22.4 Why Isn’t the Whole World Rich? 776
Catch-Up: Sometimes but Not Always 777
Solved Problem 22.4: The Economic Growth Model’s Prediction of Catch-Up 779
Why Haven’t Most Western European Countries, Canada, and Japan Caught Up to the United States? 780
Why Don’t More Low-Income Countries Experience Rapid Growth? 781
Making the Connection: What Do Parking Tickets in New York City Tell Us about Poverty in the Developing World? 782
The Benefits of Globalization 784

22.5 Growth Policies 785
Enhancing Property Rights and the Rule of Law 785
Making the Connection: Will China’s Standard of Living Ever Exceed That of the United States? 785
Improving Health and Education 787
DETAILED CONTENTS

Policies That Promote Technological Change 787
Policies That Promote Saving and Investment 787
Is Economic Growth Good or Bad? 788
Conclusion 789

PART 8: Short-Run Fluctuations

Chapter 23: Aggregate Expenditure and Output in the Short Run 798
Fluctuating Demand Helps—and Hurts—Intel and Other Firms 799
23.1 The Aggregate Expenditure Model 800
Aggregate Expenditure 800
The Difference between Planned Investment and Actual Investment 801
Macroeconomic Equilibrium 801
Adjustments to Macroeconomic Equilibrium 802
23.2 Determining the Level of Aggregate Expenditure in the Economy 803
Consumption 803
The Relationship between Consumption and National Income 806
Income, Consumption, and Saving 808
Solved Problem 23.2: Calculating the Marginal Propensity to Consume and the Marginal Propensity to Save 809
Planned Investment 810
Making the Connection: Intel Moves into Tablets and Perceptual Computing 811
Government Purchases 812
Net Exports 813
Making the Connection: The iPhone Is Made in China ... or Is It? 815
23.3 Graphing Macroeconomic Equilibrium 815
Showing a Recession on the 45°-Line Diagram 818
The Important Role of Inventories 819
A Numerical Example of Macroeconomic Equilibrium 820
Don't Let This Happen to You: Don't Confuse Aggregate Expenditure with Consumption Spending 821
Solved Problem 23.3: Determining Macroeconomic Equilibrium 821
23.4 The Multiplier Effect 822
Making the Connection: The Multiplier in Reverse: The Great Depression of the 1930s 825
A Formula for the Multiplier 826
Summarizing the Multiplier Effect 827
Solved Problem 23.4: Using the Multiplier Formula 828
The Paradox of Thrift 829
23.5 The Aggregate Demand Curve 829
Conclusion 831
Appendix: The Algebra of Macroeconomic Equilibrium 838

Chapter 24: Aggregate Demand and Aggregate Supply Analysis 840
The Fortunes of FedEx Follow the Business Cycle 841
24.1 Aggregate Demand 842
Why Is the Aggregate Demand Curve Downward Sloping? 843
Shifts of the Aggregate Demand Curve versus Movements along It 844
The Variables That Shift the Aggregate Demand Curve 844
Don't Let This Happen to You: Understand Why the Aggregate Demand Curve Is Downward Sloping 845
Solved Problem 24.1: Movements along the Aggregate Demand Curve versus Shifts of the Aggregate Demand Curve 845
Making the Connection: Which Components of Aggregate Demand Changed the Most during the 2007–2009 Recession? 848
24.2 Aggregate Supply 849
The Long-Run Aggregate Supply Curve 849
The Short-Run Aggregate Supply Curve 850
Making the Connection: How Sticky Are Wages? 851
Shifts of the Short-Run Aggregate Supply Curve versus Movements along It 853
Variables That Shift the Short-Run Aggregate Supply Curve 853
24.3 Macroeconomic Equilibrium in the Long Run and the Short Run 854
Recessions, Expansions, and Supply Shocks 856
Making the Connection: Does It Matter What Causes a Decline in Aggregate Demand? 857
24.4 A Dynamic Aggregate Demand and Aggregate Supply Model 862
What Is the Usual Cause of Inflation? 863
The Recession of 2007–2009 863
Solved Problem 24.4: Showing the Oil Shock of 1974–1975 on a Dynamic Aggregate Demand and Aggregate Supply Graph 866
Conclusion 867
Appendix: Macroeconomic Schools of Thought 875
The Monetarist Model 875
The New Classical Model 876
The Real Business Cycle Model 876
The Austrian Model 876
Making the Connection: Karl Marx: Capitalism's Severest Critic 877
## PART 9: Monetary and Fiscal Policy

### Chapter 25: Money, Banks, and the Federal Reserve System

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washing Dollar Bills to Save the Economy of Zimbabwe</td>
<td>880</td>
</tr>
<tr>
<td>25.1 What Is Money, and Why Do We Need It?</td>
<td>881</td>
</tr>
<tr>
<td>Barter and the Invention of Money</td>
<td>882</td>
</tr>
<tr>
<td>The Functions of Money</td>
<td>883</td>
</tr>
<tr>
<td>What Can Serve as Money?</td>
<td>884</td>
</tr>
<tr>
<td><strong>Making the Connection:</strong> Apple Didn’t Want My Cash!</td>
<td>885</td>
</tr>
<tr>
<td>25.2 How Is Money Measured in the United States Today?</td>
<td>886</td>
</tr>
<tr>
<td>M1: A Narrow Definition of the Money Supply</td>
<td>886</td>
</tr>
<tr>
<td>M2: A Broad Definition of Money</td>
<td>887</td>
</tr>
<tr>
<td><strong>Don’t Let This Happen to You:</strong> Don’t Confuse Money with Income or Wealth</td>
<td>887</td>
</tr>
<tr>
<td><strong>Solved Problem 25.2:</strong> The Definitions of M1 and M2</td>
<td>888</td>
</tr>
<tr>
<td>What about Credit Cards and Debit Cards?</td>
<td>888</td>
</tr>
<tr>
<td><strong>Making the Connection:</strong> Are Bitcoins Money?</td>
<td>888</td>
</tr>
<tr>
<td>25.3 How Do Banks Create Money?</td>
<td>889</td>
</tr>
<tr>
<td>Bank Balance Sheets</td>
<td>890</td>
</tr>
<tr>
<td>Using T-Accounts to Show How a Bank Can Create Money</td>
<td>890</td>
</tr>
<tr>
<td>The Simple Deposit Multiplier</td>
<td>893</td>
</tr>
<tr>
<td><strong>Don’t Let This Happen to You:</strong> Don’t Confuse Assets and Liabilities</td>
<td>894</td>
</tr>
<tr>
<td><strong>Solved Problem 25.3:</strong> Showing How Banks Create Money</td>
<td>894</td>
</tr>
<tr>
<td>The Simple Deposit Multiplier versus the Real-World Deposit Multiplier</td>
<td>896</td>
</tr>
<tr>
<td>25.4 The Federal Reserve System</td>
<td>897</td>
</tr>
<tr>
<td>The Establishment of the Federal Reserve System</td>
<td>897</td>
</tr>
<tr>
<td>How the Federal Reserve Manages the Money Supply</td>
<td>899</td>
</tr>
<tr>
<td>The “Shadow Banking System” and the Financial Crisis of 2007–2009</td>
<td>901</td>
</tr>
<tr>
<td>25.5 The Quantity Theory of Money</td>
<td>903</td>
</tr>
<tr>
<td>Connecting Money and Prices: The Quantity Equation</td>
<td>903</td>
</tr>
<tr>
<td>The Quantity Theory Explanation of Inflation</td>
<td>904</td>
</tr>
<tr>
<td>How Accurate Are Forecasts of Inflation Based on the Quantity Theory?</td>
<td>904</td>
</tr>
<tr>
<td>High Rates of Inflation</td>
<td>905</td>
</tr>
<tr>
<td><strong>Making the Connection:</strong> The German Hyperinflation of the Early 1920s</td>
<td>906</td>
</tr>
<tr>
<td>Conclusion</td>
<td>907</td>
</tr>
</tbody>
</table>

### Chapter 26: Monetary Policy

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why Do Businesses Care What the Federal Reserve Does?</td>
<td>914</td>
</tr>
<tr>
<td>26.1 What Is Monetary Policy?</td>
<td>915</td>
</tr>
</tbody>
</table>

### Chapter 27: Fiscal Policy

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does Government Spending Create Jobs?</td>
<td>954</td>
</tr>
<tr>
<td>27.1 What Is Fiscal Policy?</td>
<td>955</td>
</tr>
<tr>
<td>Topic</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>What Fiscal Policy Is and What It Isn't</td>
<td>956</td>
</tr>
<tr>
<td>Automatic Stabilizers versus Discretionary Fiscal Policy</td>
<td>956</td>
</tr>
<tr>
<td>An Overview of Government Spending and Taxes</td>
<td>957</td>
</tr>
<tr>
<td><strong>Making the Connection:</strong> Is Spending on Social Security and Medicare a Fiscal Time Bomb?</td>
<td>959</td>
</tr>
<tr>
<td>27.2 The Effects of Fiscal Policy on Real GDP and the Price Level</td>
<td>960</td>
</tr>
<tr>
<td>Expansionary and Contractionary Fiscal Policy</td>
<td>961</td>
</tr>
<tr>
<td><strong>Don't Let This Happen to You:</strong> Don't Confuse Fiscal Policy and Monetary Policy</td>
<td>962</td>
</tr>
<tr>
<td>A Summary of How Fiscal Policy Affects Aggregate Demand</td>
<td>962</td>
</tr>
<tr>
<td>27.3 Fiscal Policy in the Dynamic Aggregate Demand and Aggregate Supply Model</td>
<td>963</td>
</tr>
<tr>
<td>27.4 The Government Purchases and Tax Multipliers</td>
<td>964</td>
</tr>
<tr>
<td>The Effect of Changes in the Tax Rate</td>
<td>967</td>
</tr>
<tr>
<td>Taking into Account the Effects of Aggregate Supply</td>
<td>967</td>
</tr>
<tr>
<td>The Multipliers Work in Both Directions</td>
<td>968</td>
</tr>
<tr>
<td><strong>Solved Problem 27.4:</strong> Fiscal Policy Multipliers</td>
<td>968</td>
</tr>
<tr>
<td>27.5 The Limits of Using Fiscal Policy to Stabilize the Economy</td>
<td>969</td>
</tr>
<tr>
<td>Does Government Spending Reduce Private Spending?</td>
<td>970</td>
</tr>
<tr>
<td>Crowding Out in the Short Run</td>
<td>970</td>
</tr>
<tr>
<td>Crowding Out in the Long Run</td>
<td>971</td>
</tr>
<tr>
<td>Fiscal Policy in Action: Did the Stimulus Package of 2009 Succeed?</td>
<td>972</td>
</tr>
<tr>
<td><strong>Making the Connection:</strong> Why Was the Recession of 2007–2009 So Severe?</td>
<td>975</td>
</tr>
<tr>
<td>27.6 Deficits, Surpluses, and Federal Government Debt</td>
<td>976</td>
</tr>
<tr>
<td>How the Federal Budget Can Serve as an Automatic Stabilizer</td>
<td>978</td>
</tr>
<tr>
<td><strong>Making the Connection:</strong> Did Fiscal Policy Fail during the Great Depression?</td>
<td>979</td>
</tr>
<tr>
<td><strong>Solved Problem 27.6:</strong> The Effect of Economic Fluctuations on the Budget Deficit</td>
<td>980</td>
</tr>
<tr>
<td>Should the Federal Budget Always Be Balanced?</td>
<td>980</td>
</tr>
<tr>
<td>The Federal Government Debt</td>
<td>981</td>
</tr>
<tr>
<td>Is Government Debt a Problem?</td>
<td>982</td>
</tr>
<tr>
<td>27.7 The Effects of Fiscal Policy in the Long Run</td>
<td>982</td>
</tr>
<tr>
<td>The Long-Run Effects of Tax Policy</td>
<td>982</td>
</tr>
<tr>
<td>Tax Simplification</td>
<td>983</td>
</tr>
<tr>
<td>The Economic Effect of Tax Reform</td>
<td>983</td>
</tr>
<tr>
<td>How Large Are Supply-Side Effects?</td>
<td>984</td>
</tr>
<tr>
<td>Conclusion</td>
<td>985</td>
</tr>
<tr>
<td><strong>Appendix:</strong> A Closer Look at the Multiplier</td>
<td>992</td>
</tr>
<tr>
<td>An Expression for Equilibrium Real GDP</td>
<td>992</td>
</tr>
<tr>
<td>A Formula for the Government Purchases Multiplier</td>
<td>993</td>
</tr>
<tr>
<td>A Formula for the Tax Multiplier</td>
<td>994</td>
</tr>
<tr>
<td>The “Balanced Budget” Multiplier</td>
<td>994</td>
</tr>
<tr>
<td>The Effects of Changes in Tax Rates on the Multiplier</td>
<td>994</td>
</tr>
<tr>
<td>The Multiplier in an Open Economy</td>
<td>995</td>
</tr>
</tbody>
</table>

**Chapter 28: Inflation, Unemployment, and Federal Reserve Policy**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why Does Parker Hannifin Worry about Monetary Policy?</td>
<td>998</td>
</tr>
<tr>
<td>28.1 The Discovery of the Short-Run Trade-off between Unemployment and Inflation</td>
<td>1000</td>
</tr>
<tr>
<td>Explaining the Phillips Curve with Aggregate Demand and Aggregate Supply Curves</td>
<td>1001</td>
</tr>
<tr>
<td>Is the Phillips Curve a Policy Menu?</td>
<td>1002</td>
</tr>
<tr>
<td>Is the Short-Run Phillips Curve Stable?</td>
<td>1002</td>
</tr>
<tr>
<td>The Long-Run Phillips Curve</td>
<td>1002</td>
</tr>
<tr>
<td>The Role of Expectations of Future Inflation</td>
<td>1003</td>
</tr>
<tr>
<td><strong>Making the Connection:</strong> Do Workers Understand Inflation?</td>
<td>1004</td>
</tr>
<tr>
<td>28.2 The Short-Run and Long-Run Phillips Curves</td>
<td>1005</td>
</tr>
<tr>
<td>Shifts in the Short-Run Phillips Curve</td>
<td>1006</td>
</tr>
<tr>
<td>How Does a Vertical Long-Run Phillips Curve Affect Monetary Policy?</td>
<td>1006</td>
</tr>
<tr>
<td><strong>Making the Connection:</strong> Does the Natural Rate of Unemployment Ever Change?</td>
<td>1008</td>
</tr>
<tr>
<td><strong>Solved Problem 28.2:</strong> Changing Views of the Phillips Curve</td>
<td>1009</td>
</tr>
<tr>
<td>28.3 Expectations of the Inflation Rate and Monetary Policy</td>
<td>1009</td>
</tr>
<tr>
<td>The Effect of Rational Expectations on Monetary Policy</td>
<td>1010</td>
</tr>
<tr>
<td>Is the Short-Run Phillips Curve Really Vertical?</td>
<td>1011</td>
</tr>
<tr>
<td>Real Business Cycle Models</td>
<td>1012</td>
</tr>
<tr>
<td>28.4 Federal Reserve Policy from the 1970s to the Present</td>
<td>1012</td>
</tr>
<tr>
<td>The Effect of a Supply Shock on the Phillips Curve</td>
<td>1012</td>
</tr>
<tr>
<td>Paul Volcker and Disinflation</td>
<td>1013</td>
</tr>
<tr>
<td><strong>Don't Let This Happen to You:</strong> Don't Confuse Disinflation with Deflation</td>
<td>1015</td>
</tr>
<tr>
<td><strong>Solved Problem 28.4:</strong> Using Monetary Policy to Lower the Inflation Rate</td>
<td>1015</td>
</tr>
<tr>
<td>Alan Greenspan, Ben Bernanke, and the Crisis in Monetary Policy</td>
<td>1017</td>
</tr>
<tr>
<td><strong>Making the Connection:</strong> The Debate over Quantitative Easing</td>
<td>1019</td>
</tr>
<tr>
<td>Has the Fed Lost Its Independence?</td>
<td>1020</td>
</tr>
<tr>
<td>Conclusion</td>
<td>1021</td>
</tr>
</tbody>
</table>

**PART 10: The International Economy**

**Chapter 29: Macroeconomics in an Open Economy**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Strong Dollar Hurts McDonald’s Profits</td>
<td>1028</td>
</tr>
<tr>
<td>29.1 The Balance of Payments: Linking the United States to the International Economy</td>
<td>1029</td>
</tr>
<tr>
<td>The Current Account</td>
<td>1030</td>
</tr>
</tbody>
</table>