Seventh Edition

Principles of Macroeconomics



N. Gregory Mankiw



Australia • Brazil • Japan • Korea • Mexico • Singapore • Spain • United Kingdom • United States

Brief Contents

Part I Introduction 1

- 1 Ten Principles of Economics 3
- **2** Thinking Like an Economist 19
- 3 Interdependence and the Gains from Trade 47

Part II How Markets Work 63

- 4 The Market Forces of Supply and Demand 65
- 5 Elasticity and Its Application 89
- 6 Supply, Demand, and Government Policies 111

Part III Markets and Welfare 133

- 7 Consumers, Producers, and the Efficiency of Markets 135
- 8 Application: The Costs of Taxation 155
- 9 Application: International Trade 171

Part IV The Data of Macroeconomics 193

- 10 Measuring a Nation's Income 195
- **11** Measuring the Cost of Living 217

Part V The Real Economy in the Long Run 233

- 12 Production and Growth 235
- 13 Saving, Investment, and the Financial System 259
- 14 The Basic Tools of Finance 281
- 15 Unemployment 297

Part VI Money and Prices in the Long Run 319

- 16 The Monetary System 321
- 17 Money Growth and Inflation 345

Part VII The Macroeconomics of Open Economies 369

- 18 Open-Economy Macroeconomics: Basic Concepts 371
- 19 A Macroeconomic Theory of the Open Economy 395

Part VIII Short-Run Economic Fluctuations 417

- 20 Aggregate Demand and Aggregate Supply 419
- 21 The Influence of Monetary and Fiscal Policy on Aggregate Demand 457
- 22 The Short-Run Trade-off between Inflation and Unemployment 481

Part **IX** Final Thoughts 505

23 Six Debates over Macroeconomic Policy 507

Contents

Preface: To the Student viii Acknowledgments x



Part I Introduction 1

CHAPTER 1

Ten Principles of Economics 3

1-1 How People Make Decisions 4

- 1-1a Principle 1: People Face Trade-offs 4
- 1-1b Principle 2: The Cost of Something Is What You Give Up to Get It 5
- 1-1c Principle 3: Rational People Think at the Margin 6
- 1-1d Principle 4: People Respond to Incentives 7
- **Case Study:** The Incentive Effects of Gasoline Prices 8

1-2 How People Interact 9

- 1-2a Principle 5: Trade Can Make Everyone Better Off 9
- 1-2b Principle 6: Markets Are Usually a Good Way to Organize Economic Activity 10
- 1-2c Principle 7: Governments Can Sometimes Improve Market Outcomes 11
- FYI: Adam Smith and the Invisible Hand 11

1-3 How the Economy as a Whole Works 13

 1-3a Principle 8: A Country's Standard of Living Depends on Its Ability to Produce Goods and Services 13 1-3b Principle 9: Prices Rise When the Government Prints Too Much Money 13

In The News: Why You Should Study Economics 14

1-3c Principle 10: Society Faces a Short-Run Trade-off between Inflation and Unemployment 15

1-4 Conclusion 16 Summary 16 Key Concepts 17 Questions for Review 17 Quick Check Multiple Choice 17 Problems and Applications 18

CHAPTER 2

Thinking Like an Economist 19

2-1 The Economist as Scientist 20

- 2-1a The Scientific Method: Observation, Theory, and More Observation 20
- 2-1b The Role of Assumptions 21
- 2-1c Economic Models 22
- 2-1d Our First Model: The Circular-Flow Diagram 22
- 2-1e Our Second Model: The Production Possibilities Frontier 24
- 2-1f Microeconomics and Macroeconomics 27

2-2 The Economist as Policy Adviser 27

- 2-2a Positive versus Normative Analysis 28
- 2-2b Economists in Washington 28
- 2-2c Why Economists' Advice Is Not Always Followed 29

2-3 Why Economists Disagree 30

- 2-3a Differences in Scientific Judgments 30
- 2-3b Differences in Values 31
- 2-3c Perception versus Reality 31
- In The News: Actual Economists and Virtual Realities 33

2-4 Let's Get Going 34 Summary 34 Key Concepts 34 Questions for Review 35 Quick Check Multiple Choice 35 Problems and Applications 35

APPENDIX Graphing: A Brief Review 37

Graphs of a Single Variable - 37 Graphs of Two Variables: The Coordinate System 38 Curves in the Coordinate System 39 Slope 41 Cause and Effect 43

Interdependence and the Gains from Trade 47

3-1 A Parable for the Modern Economy 48

- 3-1a Production Possibilities 48
- 3-1b Specialization and Trade 50

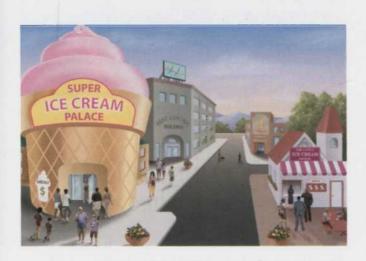
3-2 Comparative Advantage: The Driving Force of Specialization 52

3-2a Absolute Advantage 52
3-2b Opportunity Cost and Comparative Advantage 52
3-2c Comparative Advantage and Trade 53
3-2d The Price of the Trade 54
FYI: The Legacy of Adam Smith and David Ricardo 55

3-3 Applications of Comparative Advantage 55

3-3a Should Tom Brady Mow His Own Lawn? 55
In The News: Economics within a Marriage 56
3-3b Should the United States Trade with Other Countries? 57

3-4 Conclusion 58 Summary 59 Key Concepts 59 Questions for Review 59 Quick Check Multiple Choice 59 Problems and Applications 60



Part **II** How Markets Work 63

CHAPTER 4

The Market Forces of Supply and Demand 65

4-1 Markets and Competition 66 4-1a What Is a Market? **66**

4-1b What Is Competition? 66

4-2 Demand 67

- 4-2a The Demand Curve: The Relationship between Price and Quantity Demanded 67
- 4-2b Market Demand versus Individual Demand 68
- 4-2c Shifts in the Demand Curve 69
- **Case Study:** Two Ways to Reduce the Quantity of Smoking Demanded 71

4-3 Supply 73

- 4-3a The Supply Curve: The Relationship between Price and Quantity Supplied 73
- 4-3b Market Supply versus Individual Supply 74
- 4-3c Shifts in the Supply Curve 75

4-4 Supply and Demand Together 77

- 4-4a Equilibrium 77
- 4-4b Three Steps to Analyzing Changes in Equilibrium 79
- 4-5 Conclusion: How Prices Allocate Resources 83 In The News: Price Increases after Disasters 84

Summary 84 Key Concepts 86 Questions for Review 86 Quick Check Multiple Choice 86 Problems and Applications 87

CHAPTER 5

Elasticity and Its Application 89

5-1 The Elasticity of Demand 90

- 5-1a The Price Elasticity of Demand and Its Determinants 90
- 5-1b Computing the Price Elasticity of Demand 91
- 5-1c The Midpoint Method: A Better Way to Calculate Percentage Changes and Elasticities 91
- 5-1d The Variety of Demand Curves 92
- 5-1e Total Revenue and the Price Elasticity of Demand 94
- FYI: A Few Elasticities from the Real World 94
- 5-1f Elasticity and Total Revenue along a Linear Demand Curve 96
- 5-1g Other Demand Elasticities 97

5-2 The Elasticity of Supply 98

- 5-2a The Price Elasticity of Supply and Its Determinants 98 5-2b Computing the Price Elasticity of Supply 99
- 5-2c The Variety of Supply Curves 99

5-3 Three Applications of Supply, Demand, and Elasticity 101

- 5-3a Can Good News for Farming Be Bad News for Farmers? 102
- 5-3b Why Did OPEC Fail to Keep the Price of Oil High? 104
- 5-3c Does Drug Interdiction Increase or Decrease Drug-Related Crime? 105

5-4 Conclusion 107 Summary 107 Key Concepts 108 Questions for Review 108 Quick Check Multiple Choice 108 Problems and Applications 109

Supply, Demand, and Government Policies 111

6-1 Controls on Prices 112
6-1a How Price Ceilings Affect Market Outcomes 112
Case Study: Lines at the Gas Pump 114
Case Study: Rent Control in the Short Run and the Long Run 115
6-1b How Price Floors Affect Market Outcomes 116
Case Study: The Minimum Wage 117
6-1c Evaluating Price Controls 119
In The News: Venezuela versus the Market 120
6-2 Taxes 121

6-2a How Taxes on Sellers Affect Market Outcomes 122
6-2b How Taxes on Buyers Affect Market Outcomes 123
Case Study: Can Congress Distribute the Burden of a Payroll Tax? 125
6-2c Elasticity and Tax Incidence 126
Case Study: Who Pays the Luxury Tax? 128

6-3 Conclusion 128 Summary 129 Key Concepts 129 Questions for Review 129 Quick Check Multiple Choice 129 Problems and Applications 130



Part III Markets and Welfare 133

CHAPTER 7

Consumers, Producers, and the Efficiency of Markets 135

7-1 Consumer Surplus 136 7-1a Willingness to Pay 136

- 7-1b Using the Demand Curve to Measure Consumer Surplus 137
- 7-1c How a Lower Price Raises Consumer Surplus 138
- 7-1d What Does Consumer Surplus Measure? 139

7-2 Producer Surplus 141

7-2a Cost and the Willingness to Sell 141

- 7-2b Using the Supply Curve to Measure Producer Surplus 142
- 7-2c How a Higher Price Raises Producer Surplus 143
- 7-3 Market Efficiency 144

7-3a The Benevolent Social Planner 145
7-3b Evaluating the Market Equilibrium 146
In The News: The Invisible Hand Can Park Your Car 148
Case Study: Should There Be a Market in Organs? 148

7-4 Conclusion: Market Efficiency and Market Failure 150 Summary 151 Key Concepts 151 Questions for Review 151 Quick Check Multiple Choice 151 Problems and Applications 152

CHAPTER 8

Application: The Costs of Taxation 155

- 8-1 The Deadweight Loss of Taxation 156
 8-1a How a Tax Affects Market Participants 157
 8-1b Deadweight Losses and the Gains from Trade 159
- 8-2 The Determinants of the Deadweight Loss 160 Case Study: The Deadweight Loss Debate 162
- 8-3 Deadweight Loss and Tax Revenue as Taxes Vary 163
 Case Study: The Laffer Curve and Supply-Side Economics 164
 In The News: The Tax Debate 166

8-4 Conclusion 168 Summary 168 Key Concept 168 Questions for Review 168 Quick Check Multiple Choice 169 Problems and Applications 169

CHAPTER 9

Application: International Trade 171

- 9-1 The Determinants of Trade 172
 9-1a The Equilibrium without Trade 172
 9-1b The World Price and Comparative Advantage 173
- 9-2 The Winners and Losers from Trade 174
 - 9-2a The Gains and Losses of an Exporting Country 174
 - 9-2b The Gains and Losses of an Importing Country 175
 - 9-2c The Effects of a Tariff 177
 - FYI: Import Quotas: Another Way to Restrict Trade 179
 - 9-2d The Lessons for Trade Policy 179
 - 9-2e Other Benefits of International Trade 180
 - In The News: Threats to Free Trade 181

9-3 The Arguments for Restricting Trade 182 In The News: Should the Winners from Free Trade Compensate the Losers? 183 9-3a The Jobs Argument 183 9-3b The National-Security Argument 184 In The News: Second Thoughts about Free Trade 184 9-3c The Infant-Industry Argument 185 9-3d The Unfair-Competition Argument 186 9-3e The Protection-as-a-Bargaining-Chip Argument 186 Case Study: Trade Agreements and the World Trade Organization 187

9-4 Conclusion 188 Summary 189 Key Concepts 189 Questions for Review 189 Quick Check Multiple Choice 189 Problems and Applications 190



Part **IV** The Data of Macroeconomics 193

CHAPTER 10

Measuring a Nation's Income 195

10-1 The Economy's Income and Expenditure 196

10-2 The Measurement of GDP 198

10-2a"GDP Is the Market Value ..." 198 10-2b"... of All ..." 198 10-2c"... Final ..." 199 10-2d"... Goods and Services ..." 199 10-2e"... Produced ..." 199 10-2f"... Within a Country ..." 199 10-2g"... In a Given Period of Time." 199

10-3 The Components of GDP 200

FYI: Other Measures of Income 201 10-3a Consumption 201 10-3b Investment 201 10-3c Government Purchases 202 10-3d Net Exports 202 **Case Study:** The Components of U.S. GDP 203

10-4 Real versus Nominal GDP 203 In The News: The BEA Changes the Definitions of Investment and GDP 204 10-4a A Numerical Example 204 10-4b The GDP Deflator 206 Case Study: Real GDP over Recent History 207

10-5 Is GDP a Good Measure of Economic Well-Being? 208
Case Study: International Differences in GDP and the Quality of Life 209
In The News: The Underground Economy 210
In The News: Measuring Macroeconomic Well-Being 212

10-6 Conclusion 212 Summary 214 Key Concepts 214 Questions for Review 214 Quick Check Multiple Choice 214 Problems and Applications 215

CHAPTER 11

Measuring the Cost of Living 217

11-1 The Consumer Price Index 218
11-1a How the CPI Is Calculated 218
FYI: What Is in the CPI's Basket? 220
11-1b Problems in Measuring the Cost of Living 221
In The News: Monitoring Inflation in the Internet Age 222
11-1c The GDP Deflator versus the Consumer Price Index 224

11-2 Correcting Economic Variables for the Effects of Inflation 225

11-2a Dollar Figures from Different Times 226
11-2b Indexation 226
FYI: Mr. Index Goes to Hollywood 227
11-2c Real and Nominal Interest Rates 227
Case Study: Interest Rates in the U.S. Economy 229

11-3 Conclusion 230 Summary 230 Key Concepts 231 Questions for Review 231 Quick Check Multiple Choice 231 Problems and Applications 231



Part **V** The Real Economy in the Long Run 233

CHAPTER 12

Production and Growth 235

12-1 Economic Growth around the World 236

12-2 Productivity: Its Role and Determinants 238

FYI: Are You Richer Than the Richest American? 238
12-2a Why Productivity Is So Important 239
12-2b How Productivity Is Determined 239
FYI: A Picture Is Worth a Thousand Statistics 240
FYI: The Production Function 243
Case Study: Are Natural Resources a Limit to Growth? 244

12-3 Economic Growth and Public Policy 244

12-3a Saving and Investment 245 12-3b Diminishing Returns and the Catch-Up Effect 245 12-3c Investment from Abroad 247 12-3d Education 248 12-3e Health and Nutrition 248 12-3f Property Rights and Political Stability 249 **In The News:** Does Food Aid Help or Hurt? 250 12-3g Free Trade 251 12-3h Research and Development 252 12-3i Population Growth 252 **In The News:** One Economist's Answer 254 **12-4 Conclusion: The Importance of Long-Run**

Growth 256 Summary 257 Key Concepts 257 Questions for Review 257 Quick Check Multiple Choice 257 Problems and Applications 258

CHAPTER 13

Saving, Investment, and the Financial System 259

26-1 Financial Institutions in the U.S. Economy 260
13-1a Financial Markets 260
13-1b Financial Intermediaries 262
FYI: Key Numbers for Stock Watchers 263
13-1c Summing Up 264
In The News: Should Students Sell Equity in Themselves? 265

13-2 Saving and Investment in the National Income Accounts 266

13-2a Some Important Identities 26613-2b The Meaning of Saving and Investment 268

13-3 The Market for Loanable Funds 268

13-3a Supply and Demand for Loanable Funds 269
13-3b Policy 1: Saving Incentives 270
13-3c Policy 2: Investment Incentives 272
13-3d Policy 3: Government Budget Deficits and Surpluses 273
Case Study: The History of U.S. Government Debt 275

FYI: Financial Crises 277 13-4 Conclusion 277

Summary 278 Key Concepts 278 Questions for Review 278 Quick Check Multiple Choice 279 Problems and Applications 279

CHAPTER 14

The Basic Tools of Finance 281

14-1 Present Value: Measuring the Time Value of Money 282 FYI: The Magic of Compounding and the Rule of 70 284

14-2 Managing Risk 284

- 14-2a Risk Aversion 284
- 14-2b The Markets for Insurance 285
- 14-2c Diversification of Firm-Specific Risk 286
- 14-2d The Trade-off between Risk and Return 287

14-3 Asset Valuation 288

14-3a Fundamental Analysis 289
14-3b The Efficient Markets Hypothesis 289 **Case Study:** Random Walks and Index Funds 290
14-3c Market Irrationality 291 **In The News:** Is the Efficient Markets Hypothesis Kaput? 292

14-4 Conclusion 293 Summary 293 Key Concepts 293 Questions for Review 293 Quick Check Multiple Choice 294 Problems and Applications 294

Unemployment 297

15-1 Identifying Unemployment 298

15-1a How Is Unemployment Measured? 298

- **Case Study:** Labor-Force Participation of Men and Women in the U.S. Economy 301
- 15-1b Does the Unemployment Rate Measure What We Want It To? 302
- 15-1c How Long Are the Unemployed without Work? 304
- 15-1d Why Are There Always Some People Unemployed? 304
- FYI: The Jobs Number 305

15-2 Job Search 305

15-2a Why Some Frictional Unemployment Is Inevitable 306
15-2b Public Policy and Job Search 306
15-2c Unemployment Insurance 307
In The News: Why Has Employment Declined? 308

15-3 Minimum-Wage Laws 308

15-4 Unions and Collective Bargaining 310

FYI: Who Earns the Minimum Wage? 311 15-4a The Economics of Unions 311 15-4b Are Unions Good or Bad for the Economy? 312

15-5 The Theory of Efficiency Wages 313

15-5a Worker Health 313
15-5b Worker Turnover 314
15-5c Worker Quality 314
15-5d Worker Effort 315
Case Study: Henry Ford and the Very Generous \$5-a-Day Wage 315

15-6 Conclusion 316 Summary 316 Key Concepts 316 Questions for Review 317 Quick Check Multiple Choice 317 Problems and Applications 317



Part **VI** Money and Prices in the Long Run 319

CHAPTER 16

The Monetary System 321

16-1 The Meaning of Money 322 16-1a The Functions of Money 323 16-1b The Kinds of Money 323 In The News: Why Gold? 324 16-1c Money in the U.S. Economy 325 FYI: Why Credit Cards Aren't Money 326 Case Study: Where Is All the Currency? 327

16-2 The Federal Reserve System 327

16-2a The Fed's Organization 327 16-2b The Federal Open Market Committee 328

16-3 Banks and the Money Supply 329

16-3a The Simple Case of 100-Percent-Reserve Banking32916-3b Money Creation with Fractional-Reserve Banking33016-3c The Money Multiplier33116-3d Bank Capital, Leverage, and the Financial Crisis of

2008–2009 332

16-4 The Fed's Tools of Monetary Control 334

16-4a How the Fed Influences the Quantity of Reserves 334
16-4b How the Fed Influences the Reserve Ratio 335
16-4c Problems in Controlling the Money Supply 336 **Case Study:** Bank Runs and the Money Supply 337 **In The News:** Bernanke on the Fed's Toolbox 338
16-4d The Federal Funds Rate 340

16-5 Conclusion 341 Summary 341 Key Concepts 341 Questions for Review 342 Quick Check Multiple Choice 342 Problems and Applications 342

CHAPTER 17

Money Growth and Inflation 345

17-1 The Classical Theory of Inflation 346

- 17-1a The Level of Prices and the Value of Money 347
- 17-1b Money Supply, Money Demand, and Monetary Equilibrium 347
- 17-1c The Effects of a Monetary Injection 349
- 17-1d A Brief Look at the Adjustment Process 350
- 17-1e The Classical Dichotomy and Monetary Neutrality 351
- 17-1f Velocity and the Quantity Equation 352
- **Case Study:** Money and Prices during Four Hyperinflations 354
- 17-1g The Inflation Tax 354
- 17-1h The Fisher Effect 356
- FYI: Hyperinflation in Zimbabwe 356

xxii CONTENTS

17-2 The Costs of Inflation 358
17-2a A Fall in Purchasing Power? The Inflation Fallacy 359
17-2b Shoeleather Costs 359
17-2c Menu Costs 360
17-2d Relative-Price Variability and the Misallocation of Resources 360
17-2e Inflation-Induced Tax Distortions 361
17-2f Confusion and Inconvenience 362
17-2g A Special Cost of Unexpected Inflation: Arbitrary Redistributions of Wealth 363
17-2h Inflation Is Bad, But Deflation May Be Worse 364
Case Study: The Wizard of Oz and the Free-Silver Debate 364

17-3 Conclusion 366 Summary 366 Key Concepts 366 Questions for Review 367 Quick Check Multiple Choice 367 Problems and Applications 367



Part VII The Macroeconomics of Open Economies 369

CHAPTER 18

Open-Economy Macroeconomics: Basic Concepts 371

18-1 The International Flows of Goods and Capital 372

18-1a The Flow of Goods: Exports, Imports, and Net Exports 372

- **Case Study:** The Increasing Openness of the U.S. Economy 373
- In The News: The Changing Nature of U.S. Exports 374
- 18-1b The Flow of Financial Resources: Net Capital Outflow 376

18-1c The Equality of Net Exports and Net Capital Outflow 377
18-1d Saving, Investment, and Their Relationship to the International Flows 378
18-1e Summing Up 379 **Case Study:** Is the U.S. Trade Deficit a National Problem? 380

18-2 The Prices for International Transactions: Real and Nominal Exchange Rates 382

18-2a Nominal Exchange Rates382FYI: The Euro38318-2b Real Exchange Rates384

18-3 A First Theory of Exchange-Rate Determination: Purchasing-Power Parity 385

18-3a The Basic Logic of Purchasing-Power Parity 386
18-3b Implications of Purchasing-Power Parity 386
Case Study: The Nominal Exchange Rate during a Hyperinflation 388
18-3c Limitations of Purchasing-Power Parity 389

Case Study: The Hamburger Standard 389 18-4 Conclusion 390 Summary 391

Key Concepts 391 Questions for Review 391 Quick Check Multiple Choice 391 Problems and Applications 392

CHAPTER 19

A Macroeconomic Theory of the Open Economy 395

19-1 Supply and Demand for Loanable Funds and for Foreign-Currency Exchange 396

19-1a The Market for Loanable Funds 39619-1b The Market for Foreign-Currency Exchange 398FYI: Purchasing-Power Parity as a Special Case 400

19-2 Equilibrium in the Open Economy 401

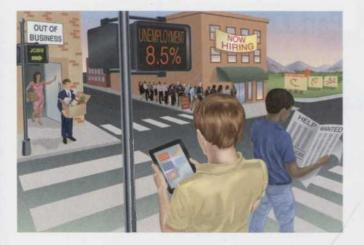
19-2a Net Capital Outflow: The Link between the Two Markets 401

19-2b Simultaneous Equilibrium in Two Markets 402 FYI: Disentangling Supply and Demand 404

19-3 How Policies and Events Affect an Open Economy 404

- 19-3a Government Budget Deficits 404 19-3b Trade Policy 406
- 19-3c Political Instability and Capital Flight 409
- Case Study: Capital Flows from China 411
- In The News: Is a Strong Currency Always in a Nation's Interest? 412

19-4 Conclusion 412 Summary 414 Key Concepts 414 Questions for Review 414 Quick Check Multiple Choice 414 Problems and Applications 415



Part VIII Short-Run Economic Fluctuations 417

CHAPTER 20

Aggregate Demand and Aggregate Supply 419

20-1 Three Key Facts about Economic Fluctuations 420

- 20-1a Fact 1: Economic Fluctuations Are Irregular and Unpredictable 420
- 20-1b Fact 2: Most Macroeconomic Quantities Fluctuate Together 422
- 20-1c Fact 3: As Output Falls, Unemployment Rises 422

20-2 Explaining Short-Run Economic Fluctuations 422

- 20-2a The Assumptions of Classical Economics 422 20-2b The Reality of Short-Run Fluctuations 423
- In The News: The Social Influences of Economic
- Downturns 424
- 20-2c The Model of Aggregate Demand and Aggregate Supply 424

20-3 The Aggregate-Demand Curve 426

- 20-3a Why the Aggregate-Demand Curve Slopes Downward 426
- 20-3b Why the Aggregate-Demand Curve Might Shift 429

20-4 The Aggregate-Supply Curve 431

- 20-4a Why the Aggregate-Supply Curve Is Vertical in the Long Run 432
- 20-4b Why the Long-Run Aggregate-Supply Curve Might Shift 433
- 20-4c Using Aggregate Demand and Aggregate Supply to Depict Long-Run Growth and Inflation 434
- 20-4d Why the Aggregate-Supply Curve Slopes Upward in the Short Run 435
- 20-4e Why the Short-Run Aggregate-Supply Curve Might Shift 439

20-5 Two Causes of Economic Fluctuations 440
20-5a The Effects of a Shift in Aggregate Demand 441
FYI: Monetary Neutrality Revisited 443
Case Study: Two Big Shifts in Aggregate Demand: The Great Depression and World War II 444
Case Study: The Recession of 2008–2009 445
In The News: What Have We Learned? 446
20-5b The Effects of a Shift in Aggregate Supply 448
Case Study: Oil and the Economy 450
FYI: The Origins of the Model of Aggregate Demand and Aggregate Supply 451

20-6 Conclusion 452 Summary 452 Key Concepts 453 Questions for Review 453 Quick Check Multiple Choice 454 Problems and Applications 454

CHAPTER 21

The Influence of Monetary and Fiscal Policy on Aggregate Demand 457

21-1 How Monetary Policy Influences Aggregate Demand 458

- 21-1a The Theory of Liquidity Preference 459
- 21-1b The Downward Slope of the Aggregate-Demand Curve 461
- **FYI:** Interest Rates in the Long Run and the Short Run 462 21-1c Changes in the Money Supply 463
- 21-1d The Role of Interest-Rate Targets in Fed Policy 465 **FYI:** The Zero Lower Bound 465
- **Case Study:** Why the Fed Watches the Stock Market (and Vice Versa) 466

21-2 How Fiscal Policy Influences Aggregate Demand 467

- 21-2a Changes in Government Purchases 467
- 21-2b The Multiplier Effect 468
- 21-2c A Formula for the Spending Multiplier 469
- 21-2d Other Applications of the Multiplier Effect 470
- 21-2e The Crowding-Out Effect 470
- 21-2f Changes in Taxes 471
- **FYI:** How Fiscal Policy Might Affect Aggregate Supply 472

21-3 Using Policy to Stabilize the Economy 472 21-3a The Case for Active Stabilization Policy 473

Case Study: Keynesians in the White House 474 **In The News:** How Large Is the Fiscal Policy

- Multiplier? 474
- 21-3b The Case against Active Stabilization Policy 476 21-3c Automatic Stabilizers 476

21-4 Conclusion 477 Summary 478 Key Concepts 478 Questions for Review 478 Quick Check Multiple Choice 479 Problems and Applications 479

The Short-Run Trade-off between Inflation and Unemployment 481

22-1 The Phillips Curve 482

- 22-1a Origins of the Phillips Curve 482
- 22-1b Aggregate Demand, Aggregate Supply, and the Phillips Curve 483

22-2 Shifts in the Phillips Curve: The Role of Expectations 485

- 22-2a The Long-Run Phillips Curve 485
- 22-2b The Meaning of "Natural" 487
- 22-2c Reconciling Theory and Evidence 488
- 22-2d The Short-Run Phillips Curve 489
- 22-2e The Natural Experiment for the Natural-Rate Hypothesis 490

22-3 Shifts in the Phillips Curve: The Role of Supply Shocks 492

22-4 The Cost of Reducing Inflation 494

- 22-4a The Sacrifice Ratio 495
 - 22-4b Rational Expectations and the Possibility of Costless Disinflation 496
 - 22-4c The Volcker Disinflation 497
 - 22-4d The Greenspan Era 499
 - 22-4e A Financial Crisis Takes Us for a Ride along the Phillips Curve 500

22-5 Conclusion 501 Summary 502 Key Concepts 502 Questions for Review 502 Quick Check Multiple Choice 502 Problems and Applications 503



Part IX Final Thoughts 505

CHAPTER 23

Six Debates over Macroeconomic Policy 507

23-1 Should Monetary and Fiscal Policymakers Try to Stabilize the Economy? 508

- 23-1a Pro: Policymakers Should Try
 - to Stabilize the Economy 508
- 23-1b Con: Policymakers Should Not Try to Stabilize the Economy 508
- In The News: How Long Will the Fed Keep Interest Rates at Zero? 510

23-2 Should the Government Fight Recessions with Spending Hikes Rather Than Tax Cuts? 510

- 23-2a Pro: The Government Should Fight Recessions with Spending Hikes 510
- 23-2b Con: The Government Should Fight Recessions with Tax Cuts 512

23-3 Should Monetary Policy Be Made by Rule Rather Than by Discretion? 514

23-3a Pro: Monetary Policy Should Be Made by Rule 51423-3b Con: Monetary Policy Should Not Be Made by Rule 515FYI: Inflation Targeting 516

23-4 Should the Central Bank Aim for Zero Inflation? 516

- 23-4a Pro: The Central Bank Should Aim for Zero Inflation 517
- 23-4b Con: The Central Bank Should Not Aim for Zero Inflation 518
- In The News: What Is the Optimal Inflation Rate? 519

23-5 Should the Government Balance Its Budget? 520

- 23-5a Pro: The Government Should Balance Its Budget 520
- 23-5b Con: The Government Should Not Balance Its Budget 521
- In The News: What Would an American Fiscal Crisis Look Like? 522

23-6 Should the Tax Laws Be Reformed to Encourage Saving? 524

- 23-6a Pro: The Tax Laws Should Be Reformed to Encourage Saving 524
- 23-6b Con: The Tax Laws Should Not Be Reformed to Encourage Saving 525

23-7 Conclusion 526 Summary 527 Questions for Review 527 Quick Check Multiple Choice 527 Problems and Applications 528

Glossary 529 Index 535