

BRIEF CONTENTS

part I Introduction

- 1 PRELIMINARIES 2
- 2 SUPPLY AND DEMAND 24
- 3 BALANCING BENEFITS AND COSTS 57

part II Economic Decision Making

II-A: Consumption Decisions 84

- 4 CONSUMER PREFERENCES 85
- 5 CONSTRAINTS, CHOICES, AND DEMAND 118
- 6 DEMAND AND WELFARE 162

II-B: Production Decisions 202

- 7 TECHNOLOGY AND PRODUCTION 203
- 8 COST 239
- 9 PROFIT MAXIMIZATION 279

II-C: Additional Topics Concerning Decisions 308

- 10 CHOICES INVOLVING TIME 309
- 11 CHOICES INVOLVING RISK 349
- 12 CHOICES INVOLVING STRATEGY 387
- 13 BEHAVIORAL ECONOMICS 430

part III Markets

IIIA: Competitive Markets 474

- 14 EQUILIBRIUM AND EFFICIENCY 475
- 15 MARKET INTERVENTIONS 513
- 16 GENERAL EQUILIBRIUM, EFFICIENCY, AND EQUITY 543

IIIB: Market Failures 587

- 17 MONOPOLY 588
- 18 PRICING POLICIES 626
- 19 OLIGOPOLY 660
- 20 EXTERNALITIES AND PUBLIC GOODS 707
- 21 ASYMMETRIC INFORMATION 751

CONTENTS

part I Introduction

1 Preliminaries 2

1.1 What Is Microeconomics? 3 / Institutions for Allocating Resources 3 / Economic Motives 7 / Positive versus Normative Analysis 7 / The Scope of Microeconomics 9

1.2 Tools of Microeconomics 10 / The Scientific Method 11 / Models and Mathematics 12 / Simplifying Assumptions 13 / Data Analysis 13 / Why Economists Sometimes Disagree 15

1.3 Themes of Microeconomics 16 / Decisions: Some Central Themes 16 / Markets: Some Central Themes 18

1.4 Uses of Microeconomics 20

Chapter Summary 22 / Discussion Questions 22

2 Supply and Demand 24

2.1 Demand 25 / Demand Curves 25 / Demand Functions 27

2.2 Supply 28 / Supply Curves 28 / Supply Functions 30

2.3 Market Equilibrium 30 / Changes in Market Equilibrium 33 / The Size of Changes in Market Equilibrium 39

2.4 Elasticities of Demand and Supply 42 / The (Price) Elasticity of Demand 43 / The (Price) Elasticity of Supply 51 / The Size of Changes in Market Demand, Revisited 52 / Other Elasticities 52

Chapter Summary 54 / Discussion Questions 55 / Problems 55 / Calculus Problems 56

3 Balancing Benefits and Costs 57

3.1 Maximizing Benefits Less Costs 58 / Maximizing Net Benefits with Finely Divisible Actions 61

3.2 Thinking on the Margin 62 / Marginal Cost 63 / Marginal Benefit 63 / Best Choices and Marginal Analysis 64 / Marginal Benefit and Marginal Cost with Finely Divisible Actions 65 / Best Choices and Marginal Analysis with Finely Divisible Actions 68

3.3 Sunk Costs and Decision Making 71

*3.4 Constrained Optimization 73

Chapter Summary 75 / Discussion Questions 75 / Problems 75 / Calculus Problems 76 /

Appendix: Finding a Best Choice Using Marginal Analysis 78

part II Economic Decision Making 83

II-A: Consumption Decisions 84

4 Consumer Preferences 85

4.1 Principles of Consumer Choice 86

4.2 Features of Consumer Preferences 88 / How Do People Rank Consumption Bundles? 89 / Consumer Indifference Curves 90 / Goods versus Bads 96

4.3 Substitution Between Goods 97 / Rates of Substitution 97 / Special Cases: Perfect Substitutes and Complements 102
4.4 Utility 104 / From Indifference Curves to Utility Functions and Back 105 / Ordinal versus Cardinal Utility 107 / Utility Functions and the Marginal Rate of Substitution 108 / Some Special Utility Functions 110
Chapter Summary 113 / *Discussion Questions* 114 / *Problems* 114 / *Calculus Problems* 116

5 Constraints, Choices, and Demand 118

5.1 Affordable Consumption Bundles 119 / Income, Prices, and the Budget Line 119 / Changes in Income and Prices 121
5.2 Consumer Choice 124 / Interior Solutions 126 / Boundary Solutions 128 / Utility Maximization 131
5.3 Prices and Demand 134 / The Price-Consumption Curve 134 / Individual Demand Curves 135 / Price Changes and Shifts in Demand 139
5.4 Income and Demand 140 / The Income-Consumption Curve 141 / Normal versus Inferior Goods 142 / Engel Curves 144 / Changes in Income and Shifts in the Demand Curve 147
5.5 Volume-Sensitive Pricing 149
***5.6 How Economists Determine a Consumer's Preferences** 153 / The Principle of Revealed Preference 154 / The Use of Statistical Tools 156
Chapter Summary 157 / *Discussion Questions* 158 / *Problems* 158 / *Calculus Problems* 160

6 Demand and Welfare 162

6.1 Measuring Changes in Consumer Welfare Using Demand Curves 163 / Compensating Variation 163 / Consumer Surplus 165 / Using Consumer Surplus to Measure Changes in Welfare 167
6.2 Dissecting The Effects of a Price Change 169 / Compensated Price Changes 169 / Substitution and Income Effects 171 / The Direction of Substitution and Income Effects 174 / Why Do Demand Curves Usually Slope Downward? 176
6.3 Labor Supply and the Demand for Leisure 177 / The Effect of Wages on Hours of Work 179 / The Effect of Wages on Labor Force Participation 181
***6.4 Another Type of Demand Curve** 183 / The Relationship between the Two Types of Demand Curves 184 / Exact Consumer Surplus 188
***6.5 Measuring Changes in Consumer Welfare Using Cost-of-Living Indexes** 192 / What Is a Cost-of-Living Index? 192 / A Perfect Cost-of-Living Index 193 / Fixed-Weight Price Indexes 193
Chapter Summary 196 / *Discussion Questions* 198 / *Problems* 198 / *Calculus Problems* 200

II-B: Production Decisions 202

7 Technology and Production 203

7.1 Production Technologies 204 / The Production Possibilities Set and the Efficient Production Frontier 207 / Production Functions 208 / Production in the Short Run and the Long Run 208
7.2 Production with One Variable Input 210 / Average Product 210 / Marginal Product 211 / The Relationship between Average and Marginal Product 213 / Using the Marginal Product of Labor to Make Production Decisions 214
7.3 Production with Two Variable Inputs 217 / Isoquants 218 / Average and Marginal Products with More than One Input 222 / Substitution between Inputs 223 /

The MRTS and Marginal Products 225 / Input Substitution for Three Special Production Technologies 226

7.4 Returns to Scale 228 / Reasons for Increasing and Decreasing Returns to Scale 230 / Implications of Returns to Scale 231

7.5 Productivity Differences and Technological Change 232 / Productivity Differences and Technological Change with Two Inputs 232 / Reasons for Productivity Differences 233

Chapter Summary 235 / Discussion Questions 235 / Problems 236 / Calculus Problems 237

8 Cost 239

8.1 Types of Cost 240 / What Do Economic Costs Include? 242

8.2 Cost with One Variable Input 244

8.3 Cost Minimization with Two Variable Inputs 247 / Isocost Lines 248 / Least-Cost Production 249 / Interior Solutions and the Tangency Condition 251 / Boundary Solutions 252 / Finding the Least-Cost Input Combination 254 / The Firm's Cost Function 255

8.4 Average and Marginal Costs 258 / Average and Marginal Cost Curves 259 / The Relationship between Average and Marginal Costs 262 / Three Kinds of Average Cost 263 / Marginal Costs and Variable Cost 265

8.5 Effects of Input Price Changes 265

8.6 Short-Run versus Long-Run Costs 268

8.7 Economies and Diseconomies of Scale and Scope 271 / Economies of Scope 273

Chapter Summary 275 / Discussion Questions 276 / Problems 276 / Calculus Problems 278

9 Profit Maximization 279

9.1 Profit-Maximizing Quantities and Prices 280 / Choosing Price versus Choosing Quantity 281 / Maximizing Profit 282

9.2 Marginal Revenue, Marginal Cost, and Profit Maximization 285 / Marginal Revenue 285 / The Profit-Maximizing Sales Quantity 288

9.3 Supply Decisions by Price-Taking Firms 288 / The Profit-Maximizing Sales Quantity of a Price-Taking Firm 289 / The Supply Function of a Price-Taking Firm 291 / The Law of Supply 293 / Changes in Input Prices and Shifts in the Supply Function 294

9.4 Short-Run versus Long-Run Supply by Price-Taking Firms 297

9.5 Producer Surplus 301

***9.6 Supply by Multiproduct Price-Taking Firms 302**

Chapter Summary 304 / Discussion Questions 305 / Problems 305 / Calculus Problems 306

II-C: Additional Topics Concerning Decisions 308

10 Choices Involving Time 309

10.1 Transactions Involving Time 310 / Interest Rates and Compound Interest 310 / Present Value and the Price of a Future Dollar 312 / Valuing Streams of Future Payments or Receipts 315 / Why Do Interest Rates Differ? 319 / Real versus Nominal Interest 320

10.2 Saving and Borrowing by Consumers 322 / The Timing of Consumption 322 / Saving, Borrowing, and the Interest Rate 327 / Saving and Consumption over the Life Cycle 329

10.3 Investment 333 / Measuring the Profitability of Investments: Net Present Value 334 / The Internal Rate of Return 336 / Investment and the Interest Rate 338 / Choosing between Mutually Exclusive Projects 339 / Investing in Human Capital 342

Chapter Summary 345 / Discussion Questions 346 / Problems 347 / Calculus Problems 348

11 Choices Involving Risk 349

11.1 What Is Risk? 350 / Possibilities 350 / Probability 351 / Uncertain Payoffs 351 / Expected Payoff 353 / Variability 355

11.2 Risk Preferences 356 / Consumption Bundles 356 / Preferences and Indifference Curves 358 / The Concept of Risk Aversion 359 / Alternatives to Risk Aversion 363 / Expected Utility 364

11.3 Insurance 368 / The Nature of Insurance 368 / The Demand for Insurance 369 / The Value of Insurance 372

11.4 Other Methods of Managing Risk 375 / Risk Sharing 375 / Hedging and Diversification 378 / Information Acquisition 382

Chapter Summary 383 / Discussion Questions 384 / Problems 384 / Calculus Problems 386

12 Choices Involving Strategy 387

12.1 What Is a Game? 388 / Two Types of Games 389 / How to Describe a Game 389

12.2 Thinking Strategically in One-Stage Games 391 / Dominant Strategies 392 / Dominated Strategies 395 / Weakly Dominated Strategies 398

12.3 Nash Equilibrium in One-Stage Games 400 / The Concept of Nash Equilibrium 400 / Nash Equilibria in Games with Finely Divisible Choices 404 / Mixed Strategies 406

12.4 Games with Multiple Stages 411 / Credible Threats in Games with Perfect Information 411 / Cooperation in Repeated Games 418

***12.5 Games in Which Different People Have Different Information 422** / The Winner's Curse 422 / Reputation 424

Chapter Summary 425 / Discussion Questions 426 / Problems 427 / Calculus Problems 429

13 Behavioral Economics 430

13.1 Objectives and Methods of Behavioral Economics 431 / Motivations and Objectives 431 / Methods 432 / How to Evaluate Behavioral Evidence 434

13.2 Departures from Perfect Rationality 435 / Incoherent Choices 435 / Bias toward the Status Quo 438 / Narrow Framing 442 / Salience 445 / Rules of Thumb 445

13.3 Choices Involving Time 447 / Maintaining Self-Control 447 / Ignoring Sunk Costs 453 / Forecasting Future Tastes and Needs 455

13.4 Choices Involving Risk 455 / Trouble Assessing Probabilities 456 / Preferences toward Risk 458

13.5 Choices Involving Strategy 463 / Possible Shortcomings of Game Theory 463 / The Importance of Social Motives 466

Chapter Summary 468 / Discussion Questions 470 / Problems 470 / Calculus Problems 472

part**Markets 473****IIIA: Competitive Markets 474****14 Equilibrium and Efficiency 475**

14.1 What Makes a Market Competitive? 476

14.2 Market Demand and Market Supply 478 / Market Demand 478 / Market Supply 479

14.3 Short-Run and Long-Run Competitive Equilibrium 484 / Long-Run Competitive Equilibrium with Free Entry 485 / Short-Run and Long-Run Responses to Changes in Demand 486 / Demand-Induced Changes in Input Costs 491

14.4 Efficiency of Perfectly Competitive Markets 492 / Aggregate Surplus and Economic Efficiency 492 / How Perfectly Competitive Markets Maximize Aggregate Surplus 494

14.5 Measuring Surplus Using Market Demand and Supply Curves 500 / Deadweight Loss 503 / Consumer and Producer Surpluses 504

Chapter Summary 505 / Discussion Questions 506 / Problems 506 / Calculus Problems 507 / Appendix: Competitive Equilibrium in Factor Markets 509

15 Market Interventions 513

15.1 Taxes (and Subsidies) 514 / The Burden of a Tax 514 / The Welfare Effects of a Tax 520 / Which Goods Should the Government Tax? 523 / Government Subsidies and Their Effects 525

15.2 Policies Designed to Raise Prices 527 / Price Floors 527 / Price Supports 529 / Production Quotas 531 / Voluntary Production Reduction Programs 531 / Policies that Lower Prices 533

15.3 Import Tariffs and Quotas 534 / Tariffs 535 / Quotas 536 / Beneficial Trade Barriers 537

Chapter Summary 539 / Discussion Questions 540 / Problems 540 / Calculus Problems 541

16 General Equilibrium, Efficiency, and Equity 543

16.1 The Nature of General Equilibrium 544

16.2 Positive Analysis of General Equilibrium 546 / Market-Clearing Curves 546 / A General Equilibrium in Two Markets 548 / The Effects of a Sales Tax 549

16.3 Normative Criteria for Evaluating Economic Performance 554 / Efficiency 554 / Equity 555 / Social Welfare Functions 557

16.4 General Equilibrium and Efficient Exchange 558 / General Equilibrium in Exchange Economies 558 / The First Welfare Theorem 561 / Efficiency in Exchange 562

16.5 General Equilibrium and Efficient Production 567 / Efficiency in Production 567 / The First Welfare Theorem, Again 573 / Efficiency as a Justification for Free Markets 576

16.6 Equity and Redistribution 578 / The Second Welfare Theorem 578 / The Conflict between Equity and Efficiency 579

Chapter Summary 583 / Discussion Questions 584 / Problems 585 / Calculus Problems 586

IIIB: Market Failures 587

17 Monopoly 588

17.1 Market Power 589 / How Do Firms Become Monopolists? 591

17.2 Monopoly Pricing 593 / Marginal Revenue for a Monopolist 593 / Monopoly Profit Maximization 597 / Markup: A Measure of Market Power 599

17.3 Welfare Effects of Monopoly Pricing 601

17.4 Nonprice Effects of Monopoly 604 / Product Quality 604 / Advertising 607 / Investments Made to Become a Monopolist 609

17.5 Monopsony 610 / Marginal Expenditure 611 / Monopsony Profit Maximization 612 / The Welfare Effects of Monopsony Pricing 613

17.6 Regulation of Monopolies 614 / Why Are Some Monopolies Regulated? 614 / First-Best versus Second-Best Price Regulation 616 / Nonprice Effects of Price Regulation 616 / Regulatory Failure 617 / The Trend toward Deregulation 617 / Government Ownership of Monopolies 619

***17.7 Multiproduct Monopoly 619**

Chapter Summary 621 / Discussion Questions 623 / Problems 623 / Calculus Problems 624

18 Pricing Policies 626**18.1 Price Discrimination: Pricing to Extract Surplus 627****18.2 Perfect Price Discrimination 629 / Two-Part Tariffs 631****18.3 Price Discrimination Based on Observable Customer Characteristics 634 / Welfare Effects of Imperfect Price Discrimination 639****18.4 Price Discrimination Based on Self-Selection 641 / Quantity-Dependent Pricing and Self-Selection 642 / The Profit-Maximizing Two-Part Tariff 644 / Using Menus to Increase Profit 648*****18.5 Bundling 653 / Mixed Bundling 655***Chapter Summary 657 / Discussion Questions 657 / Problems 658 / Calculus Problems 659***19 Oligopoly 660****19.1 Oligopoly and Game Theory 661****19.2 The Bertrand Model: Price Competition with Homogeneous Goods 663****19.3 Cournot Quantity Competition 666 / Nash Equilibrium in a Cournot Market 667 / Oligopoly versus Monopoly Deadweight Loss 672 / Oligopoly Prices and the Number of Competitors 672 / Markups in a Cournot Market 674****19.4 Price Competition with Differentiated Products 677****19.5 Collusion 683 / Factors that Inhibit Collusion 685 / Tacit versus Explicit Collusion 686****19.6 Market Entry and Monopolistic Competition 688 / Market Entry, Product Differentiation, and Monopolistic Competition 691*****19.7 Strategic Behavior that Shapes Future Competition 692 / Raising Rivals' Costs 693 / Strategic Precommitment 694****19.8 Antitrust Policy 698 / U.S. Antitrust Law 699 / Antitrust Violations 699***Chapter Summary 702 / Discussion Questions 704 / Problems 704 / Calculus Problems 706***20 Externalities and Public Goods 707****20.1 Externalities and Inefficiency 708 / What Is an externality? 708 / Negative Externalities and Inefficiency in Competitive Markets 710 / Positive Externalities and Inefficiency in Competitive Markets 714 / Externalities in Imperfectly Competitive Markets 715****20.2 Remedies for Externalities: The Private Sector 717 / Property Rights and Negotiation 718 / Limitations of Bargaining 721****20.3 Remedies for Externalities: The Public Sector 722 / Policies that Support Markets 722 / Quantity Controls 722 / Policies that Correct Private Incentives 724 / Controlling Quantities versus Correcting Incentives 730 / Hybrid Market Approaches 734****20.4 Common Property Resources 735****20.5 Public Goods 737 / The Efficient Provision of Public Goods 739 / Public Goods and Market Failure 740 / Public Policy toward Public Goods 741***Chapter Summary 747 / Discussion Questions 748 / Problems 749 / Calculus Problems 750***21 Asymmetric Information 751****21.1 Adverse Selection 752 / Adverse Selection and Lemons 753 / Adverse Selection in a Labor Market 753 / Responses to Adverse Selection 758****21.2 Signaling 762 / A Simple Model of Educational Attainment 762 / Market Equilibrium 764 / A Possible Role for the Government 766**

21.3 Screening	769	/ A Simple Model of Workplace Responsibilities	770	/ Market Equilibrium	772	/ A Possible Role for the Government	776
21.4 Incentives and Moral Hazard	777	/ Efficiency and Incentive Pay	778	/ The Costs of Incentives	783	/ Other Sources of Incentives	784
<i>Chapter Summary</i>		<i>786</i>	<i>Discussion Questions</i>		<i>787</i>	<i>Problems</i>	
		<i>788</i>	<i>Calculus Problems</i>		<i>790</i>		

Glossary 791

Credits 802

Index 804