<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supply, Demand, and Equilibrium</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Prices, Costs, and the Gains from Trade</td>
<td>31</td>
</tr>
<tr>
<td>3</td>
<td>The Behavior of Consumers</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Appendix: Cardinal Utility</td>
<td>77</td>
</tr>
<tr>
<td>4</td>
<td>Consumers in the Marketplace</td>
<td>81</td>
</tr>
<tr>
<td>5</td>
<td>The Behavior of Firms</td>
<td>115</td>
</tr>
<tr>
<td>6</td>
<td>Production and Costs</td>
<td>137</td>
</tr>
<tr>
<td>7</td>
<td>Competition</td>
<td>171</td>
</tr>
<tr>
<td>8</td>
<td>Welfare Economics and the Gains from Trade</td>
<td>223</td>
</tr>
<tr>
<td></td>
<td>Appendix: Normative Criteria</td>
<td>275</td>
</tr>
<tr>
<td>9</td>
<td>Knowledge and Information</td>
<td>283</td>
</tr>
<tr>
<td>10</td>
<td>Monopoly</td>
<td>317</td>
</tr>
<tr>
<td>11</td>
<td>Market Power, Collusion, and Oligopoly</td>
<td>357</td>
</tr>
<tr>
<td>12</td>
<td>The Theory of Games</td>
<td>399</td>
</tr>
<tr>
<td>13</td>
<td>External Costs and Benefits</td>
<td>417</td>
</tr>
<tr>
<td>14</td>
<td>Common Property and Public Goods</td>
<td>459</td>
</tr>
<tr>
<td>15</td>
<td>The Demands for Factors of Production</td>
<td>477</td>
</tr>
<tr>
<td>16</td>
<td>The Market for Labor</td>
<td>501</td>
</tr>
<tr>
<td>17</td>
<td>Allocating Goods Over Time</td>
<td>525</td>
</tr>
<tr>
<td>18</td>
<td>Risk and Uncertainty</td>
<td>563</td>
</tr>
<tr>
<td>19</td>
<td>What Is Economics?</td>
<td>599</td>
</tr>
<tr>
<td></td>
<td>Appendix A Calculus Supplement</td>
<td>619</td>
</tr>
<tr>
<td></td>
<td>Appendix B Answers to All the Exercises</td>
<td>645</td>
</tr>
<tr>
<td></td>
<td>Appendix C Answers to Problem Sets</td>
<td>657</td>
</tr>
<tr>
<td></td>
<td>Glossary</td>
<td>673</td>
</tr>
<tr>
<td></td>
<td>Index</td>
<td>681</td>
</tr>
</tbody>
</table>
Contents

Preface xiii

CHAPTER 1
Supply, Demand, and Equilibrium 1

1.1 Demand 1
Demand versus Quantity Demanded 1
Demand Curves 2
Changes in Demand 3
Market Demand 7
The Shape of the Demand Curve 7
The Wide Scope of Economics 10

1.2 Supply 10
Supply versus Quantity Supplied 10

1.3 Equilibrium 13
The Equilibrium Point 13
Changes in the Equilibrium Point 15
Summary 23
Author Commentary 24
Review Questions 25
Numerical Exercises 25
Problem Set 26

CHAPTER 2
Prices, Costs, and the Gains from Trade 31

2.1 Prices 31
Absolute versus Relative Prices 32
Some Applications 34

2.2 Costs, Efficiency, and Gains from Trade 35
Costs and Efficiency 35
Specialization and the Gains from Trade 37
Why People Trade 39
Summary 41
Author Commentary 41
Review Question 41
Numerical Exercises 42
Problem Set 42

CHAPTER 3
The Behavior of Consumers 45

3.1 Tastes 45
Indifference Curves 45
Marginal Values 48
More on Indifference Curves 53

3.2 The Budget Line and the Consumer’s Choice 53
The Budget Line 54
The Consumer’s Choice 56

3.3 Applications of Indifference Curves 59
Standards of Living 59
The Least Bad Tax 64
Summary 69
Author Commentary 69
Review Questions 70
Numerical Exercises 70
Problem Set 71
Appendix to Chapter 3 77
Cardinal Utility 77
The Consumer’s Optimum 79

CHAPTER 4
Consumers in the Marketplace 81

4.1 Changes in Income 81
Changes in Income and Changes in the Budget Line 81
Changes in Income and Changes in the Optimum Point 82
The Engel Curve 84

4.2 Changes in Price 85
Changes in Price and Changes in the Budget Line 85
Changes in Price and Changes in the Optimum Point 86
The Demand Curve 88

4.3 Income and Substitution Effects 90
Two Effects of a Price Increase 90
Why Demand Curves Slope Downward 94
The Compensated Demand Curve 99
CHAPTER 8
Welfare Economics and the Gains from Trade 223

8.1 Measuring the Gains from Trade 224
Consumers’ and Producers’ Surplus 224

8.2 The Efficiency Criterion 233
Consumers’ Surplus and the Efficiency Criterion 234
Understanding Deadweight Loss 238
Other Normative Criteria 241

8.3 Examples and Applications 242
Subsidies 242
Price Ceilings 244
Tariffs 247
Theories of Value 252

8.4 General Equilibrium and the Invisible Hand 254
The Fundamental Theorem of Welfare Economics 255
An Edgeworth Box Economy 257
General Equilibrium with Production 260
Summary 265
Author Commentary 266
Review Questions 266
Problem Set 267

Appendix to Chapter 8 275
Normative Criteria 275
Some Normative Criteria 276
Optimal Population 280
Author Commentary 281

CHAPTER 9
Knowledge and Information 283

9.1 The Informational Content of Prices 283
Prices and Information 283
The Costs of Misallocation 288

9.2 Asymmetric Information 297
Signaling: Should Colleges Be Outlawed? 297
Adverse Selection and the Market for Lemons 300
Moral Hazard 302
Principal-Agent Problems 303
A Theory of Unemployment 306

9.3 Financial Markets 308
Efficient Markets for Financial Securities 308
Stock Market Crashes 310
Summary 311
Author Commentary 311
Review Questions 311
Problem Set 312

CHAPTER 10
Monopoly 317

10.1 Price and Output under Monopoly 318
Monopoly Pricing 318
Elasticity and Marginal Revenue 319
Measuring Monopoly Power 320
Welfare 323
Monopoly and Public Policy 324

10.2 Sources of Monopoly Power 328
Natural Monopoly 328
Patents 330
The History of Photography: Patents in the Public Domain 331
Resource Monopolies 332
Economies of Scope 332
Legal Barriers to Entry 332

10.3 Price Discrimination 333
First-Degree Price Discrimination 334
Third-Degree Price Discrimination 336
Two-Part Tariffs 345
Summary 348
Author Commentary 349
Review Questions 349
Numerical Exercises 350
Problem Set 351
CHAPTER 11
Market Power, Collusion, and Oligopoly 357

11.1 Acquiring Market Power 358
   Mergers 358
   Horizontal Integration 358
   Vertical Integration 361
   Predatory Pricing 363
   Resale Price Maintenance 365

11.2 Collusion and the Prisoner’s Dilemma: An Introduction to Game Theory 369
   Game Theory and the Prisoner’s Dilemma 370
   The Prisoner’s Dilemma and the Breakdown of Cartels 373

11.3 Regulation 377
   Examples of Regulation 377
   What Can Regulators Regulate? 382
   Creative Response and Unexpected Consequences 382
   Positive Theories of Regulation 384

11.4 Oligopoly 385
   Contestable Markets 385
   Oligopoly with a Fixed Number of Firms 387

11.5 Monopolistic Competition and Product Differentiation 390
   Monopolistic Competition 390
   The Economics of Location 392
   Summary 392
   Author Commentary 393
   Review Questions 393
   Numerical Exercises 394
   Problem Set 396

CHAPTER 12
The Theory of Games 399

12.1 Game Matrices 399
   Pigs in a Box 399
   The Prisoner’s Dilemma Revisited 401
   Pigs in a Box Revisited 402
   The Copycat Game 405
   Nash Equilibrium as a Solution Concept 405
   Mixed Strategies 407
   Pareto Optima 408

12.2 Sequential Games 411
   An Oligopoly Problem 411
   Summary 413
   Author Commentary 414
   Problem Set 414

CHAPTER 13
External Costs and Benefits 417

13.1 The Problem of Pollution 417
   Private Costs, Social Costs, and Externalities 417
   Government Policies 420

13.2 The Coase Theorem 424
   The Doctor and the Confectioner 425
   The Coase Theorem 427
   The Coase Theorem in the Marketplace 429
   External Benefits 432
   Income Effects and the Coase Theorem 433

13.3 Transactions Costs 436
   Trains, Sparks, and Crops 436
   The Reciprocal Nature of the Problem 438
   Sources of Transactions Costs 439

13.4 The Law and Economics 443
   The Law of Torts 443
   A Positive Theory of the Common Law 446
   Normative Theories of the Common Law 448
   Optimal Systems of Law 449
   Summary 449
   Author Commentary 450
   Review Questions 450
   Problem Set 451

CHAPTER 14
Common Property and Public Goods 459

14.1 The Tragedy of the Commons 459
   The Springfield Aquarium 459
   It Can Pay to Be Different 463
   Common Property 465
Contents

Summary 556
Author Commentary 556
Review Questions 556
Problem Set 557

Chapter 18
Risk and Uncertainty 563
18.1 Attitudes Toward Risk 563
Characterizing Baskets 565
Opportunities 566
Preferences and the Consumer’s Optimum 568
Gambling at Favorable Odds 573
Risk and Society 575
18.2 The Market for Insurance 576
Imperfect Information 576
Uninsurable Risks 578
18.3 Futures Markets 578
Speculation 579
18.4 Markets for Risky Assets 581
Portfolios 582
The Geometry of Portfolios 583
The Investor’s Choice 585
Constructing a Market Portfolio 588
18.5 Rational Expectations 589
A Market with Uncertain Demand 589
Why Economists Make Wrong Predictions 592
Summary 595
Author Commentary 596
Review Questions 596
Problem Set 597

Chapter 19
What Is Economics? 599
19.1 The Nature of Economic Analysis 599
Stages of Economic Analysis 599
The Value of Economic Analysis 602
19.2 The Rationality Assumption 603
The Role of Assumptions in Science 603
All We Really Need: No Unexploited Profit Opportunities 604
19.3 What Is an Economic Explanation? 606
Celebrity Endorsements 606
The Size of Shopping Carts 607
Why Is There Mandatory Retirement? 608
Why Rock Concerts Sell Out 609
99c Pricing 610
Rationality Revisited 611
19.4 The Scope of Economic Analysis 611
Laboratory Animals as Rational Agents 611
Author Commentary 615
Problem Set 615

Appendix A
Calculus Supplement 619

Appendix B
Answers to All the Exercises 645

Appendix C
Answers to Problem Sets 657

Glossary 673
Index 681