

contents

preface xv

chapter one: An overview 3

- 1.1. The basic categories: Actors, behavior, institutions, and equilibrium 3
- 1.2. The purpose of microeconomic theory 7
- 1.3. Scope, detail, emphasis, and complexity 10
- 1.4. A précis of the plot 12

part I: Individual and social choice

chapter two: The theory of consumer choice and demand 17

- Prologue to part I 17
- 2.1. Preferences and choices 18
- 2.2. Marshallian demand without derivatives 37
- 2.3. Marshallian demand with derivatives 51
- 2.4. Aggregate demand 62
- 2.5. Bibliographic notes 63
- 2.6. Problems 65

chapter three: Choice under uncertainty 71

- 3.1. Von Neumann-Morgenstern expected utility 72
- 3.2. On utility for money 81
- 3.3. Applications to market demand 87
- 3.4. States of nature and subjective probability 98
- 3.5. Problems with these models 112
- 3.6. Normative applications of the theory 120
- 3.7. Bibliographic notes 122
- 3.8. Problems 124

chapter four: Dynamic choice	133
4.1. Optimal dynamic strategies	133
4.2. Menus and meals	139
4.3. Bibliographic notes and discussion	143
4.4. Problems	146
chapter five: Social choice and efficiency	149
5.1. The problem	149
5.2. Pareto efficiency and optimality: Definitions	153
5.3. Benevolent social dictators and social welfare functionals	156
5.4. Characterizing efficient social outcomes	164
5.5. Social choice rules and Arrow's possibility theorem	174
5.6. Bibliographic notes	181
5.7. Problems	182
 <i>part II: The price mechanism</i>	
chapter six: Pure exchange and general equilibrium	187
Prologue to part II	187
6.1. Pure exchange and price equilibrium	187
6.2. Why (not) believe in Walrasian equilibrium?	193
6.3. The efficiency of a general equilibrium	199
6.4. Existence and the number of equilibria	205
6.5. Time, uncertainty, and general equilibrium	216
6.6. Bibliographic notes	223
6.7. Problems	225
chapter seven: The neoclassical firm	233
7.1. Models of the firm's technological capabilities	234
7.2. The profit function	239
7.3. Conditional factor demands and cost functions	250
7.4. From profit or cost functions to technology sets	253
7.5. Cost functions and -runs	255

7.6. Bibliographic notes 259

7.7. Problems 259

chapter eight: The competitive firm and perfect competition 263

8.1. A perfectly competitive market 264

8.2. Perfect competition and -runs 267

8.3. What's wrong with partial equilibrium analysis? 279

8.4. General equilibrium with firms 283

8.5. Bibliographic notes 292

8.6. Problems 292

chapter nine: Monopoly 299

9.1. The standard theory 299

9.2. Maintaining monopoly 302

9.3. Multigood monopoly 304

9.4. Nonlinear pricing 306

9.5. Monopoly power? 314

9.6. Bibliographic notes 317

9.7. Problems 318

chapter ten: Imperfect competition 325

10.1. The classic models of duopoly 325

10.2. Bibliographic notes and discussion 340

10.3. Problems 347

part III: Noncooperative game theory

chapter eleven: Modeling competitive situations 355

Prologue to part III 355

11.1. Games in extensive form: An example 356

11.2. Games in extensive form: Formalities 363

11.3. Games in normal or static form 376

- 11.4. Mixed strategies and Kuhn's theorem 380
- 11.5. Bibliographic notes 384
- 11.6. Problems 385

chapter twelve: Solution concepts for noncooperative games 387

- 12.1. Opening remarks 387
- 12.2. Dominance and iterated dominance for normal form games 393
- 12.3. Backwards induction in games of complete
and perfect information 399
- 12.4. Nash equilibrium 402
- 12.5. Equilibria in mixed strategies 407
- 12.6. Why might there be an obvious way to play a given game? 410
- 12.7. Refinements of Nash equilibrium 417
 - 12.7.1. Weak dominance 418 • 12.7.2. Subgame perfection (and iterated
weak dominance) 421 • 12.7.3. Sequential equilibrium 425 • 12.7.4.
Restrictions on out-of-equilibrium beliefs 432 • 12.7.5. Trembling-hand
perfection 437 • 12.7.6. Proper equilibria and stable sets of equilibria 442
- 12.8. Reprise: Classic duopoly 443
- 12.9. Bibliographic notes 449
- 12.10. Problems 451

chapter thirteen: Incomplete information and irrationality 463

- 13.1. Games of incomplete information 463
- 13.2. An application: Entry deterrence 468
- 13.3. Modeling irrationality 480
- 13.4. More on refinements: Complete theories 489
- 13.5. Bibliographic notes 496
- 13.6. Problems 498

chapter fourteen: Repeated play: Cooperation and reputation 503

- 14.1. The prisoners' dilemma 503
- 14.2. Repeating games can yield cooperation: The folk theorem 505
- 14.3. Noisy observables 515

- 14.4. Implicit collusion in oligopoly 524
- 14.5. Reputation 531
- 14.6. Reputation redux: Incomplete information 536
- 14.7. Bibliographic notes 543
- 14.8. Problems 546

chapter fifteen: Bilateral bargaining 551

- 15.1. Simultaneous offers and indeterminacy 552
- 15.2. Focal equilibria 554
- 15.3. Rubinstein's model 556
- 15.4. The experimental evidence about alternating offers 565
- 15.5. Models with incomplete information 568
- 15.6. Bibliographic notes 570
- 15.7. Problems 571

part IV: Topics in information economics

chapter sixteen: Moral hazard and incentives 577

- Prologue to part IV 577
- 16.1. Introduction 578
- 16.2. Effort incentives: A simple example 579
- 16.3. Finitely many actions and outcomes 586
- 16.4. Continuous actions: The first-order approach 604
- 16.5. Bibliographic notes and variations 608
- 16.6. Problems 616

chapter seventeen: Adverse selection and market signaling 625

- 17.1. Akerlof's model of lemons 625
- 17.2. Signaling quality 629
- 17.3. Signaling and game theory 645
- 17.4. Bibliographic notes and discussion 650
- 17.5. Problems 654

chapter eighteen: The revelation principle and mechanism design	661
18.1. Optimal contracts designed for a single party	661
18.2. Optimal contracts for interacting parties	680
18.3. The pivot mechanism	704
18.4. The Gibbard-Satterthwaite theorem	712
18.5. Bibliographic notes	713
18.6. Problems	715
<i>part V: Firms and transactions</i>	
chapter nineteen: Theories of the firm	723
19.1. The firm as a profit-maximizing entity	724
19.2. The firm as a maximizing entity	729
19.3. The firm as a behavioral entity	731
19.4. Firms in the category of markets	739
19.5. Bibliographic notes	740
19.6. Problems	740
chapter twenty: Transaction cost economics and the firm	743
20.1. Transaction cost economics and firms	743
20.2. Mathematical models of transaction cost economics	756
20.3. Bibliographic notes	769
postscript	771
appendix one: Constrained optimization	775
A1.1. A recipe for solving problems	775
A1.2. The recipe at work: An example	778
A1.3. Intuition	782
A1.4. Bibliographic notes	788
A1.5. Problems	789

appendix two: Dynamic programming	791
A2.1. An example with a finite horizon	791
A2.2. Finite horizon dynamic programming	796
A2.3. An example with an infinite horizon	801
A2.4. Stationary Markov decision problems	806
A2.5. Bibliographic notes and discussion	813
A2.6. Problems	814
addendum to the second and subsequent printings	817
index	819