

Robert H. Frank

Microeconomics

AND BEHAVIOR

Fourth Edition



\$25/lb



\$900/Deck



100 units

\$2.50/unit

INTERNATIONAL EDITION

CONTENTS

PREFACE

xxi

PART ONE: INTRODUCTION

1

CHAPTER 1: THINKING LIKE AN ECONOMIST

3

The Cost-Benefit Approach to Decisions

5

EXAMPLE 1-1: *Should I Turn Down My Stereo?*

5

A Note on the Role of Economic Theory

6

Common Pitfalls in Decision Making

7

EXAMPLE 1-2: *Should I Go Skiing Today or Work As a Research Assistant?*

8

EXAMPLE 1-3: *Should I Go Skiing Today or Scrape Plates?*

9

EXAMPLE 1-4: *Should I Work First or Go to College First?*

10

EXAMPLE 1-5: *Is It Fair to Charge Interest When Lending a Friend or Relative Some Money?*

11

EXAMPLE 1-6: *Why Do Banks Pay Interest in the First Place?*

12

EXAMPLE 1-7: *Should I Drive to Boston or Take the Bus?*

13

EXAMPLE 1-8: *The Pizza Experiment*

14

EXAMPLE 1-9: *Which Is More Important in a Rental Car for an Energy-Conversation-Minded Consumer: Better Gas Mileage or a Cheaper Rental Rate?*

16

The Invisible Hand

18

EXAMPLE 1-10: <i>Should I Burn My Leaves or Haul Them into the Woods?</i>	19
Rationality and Self-Interest	19
EXAMPLE 1-11: <i>Should I Vote in the Next Presidential Election?</i>	20
Would Parents Want Their Daughter or Son To Marry <i>Homo Economicus</i> ?	22
The Concept of Marginal Analysis	23
EXAMPLE 1-12: <i>How Much Memory Should Your Computer Have?</i>	24
The Economic Naturalist	25
EXAMPLE 1-13: <i>Why Is Airline Food So Bad?</i>	25
EXAMPLE 1-14: <i>Why Do Manual Transmissions Have Five Forward Speeds, Automatics Only Four?</i>	26
EXAMPLE 1-15: <i>Why Have Paper Towels Replaced Hot-Air Hand Dryers in Public Restrooms?</i>	27
Positive Questions and Normative Questions	28
Microeconomics and Macroeconomics	29
Summary	29
Questions for Review	30
Problems	30
Answers to In-Chapter Exercises	33
 CHAPTER 2: SUPPLY AND DEMAND	 34
Chapter Preview	35
Supply and Demand Analysis	36
Equilibrium Quantity and Price	39
Adjustment to Equilibrium	40
Some Welfare Properties of Equilibrium	41
Free Markets and the Poor	42
EXAMPLE 2-1: <i>Denied Boarding Compensation</i>	43
EXAMPLE 2-2: <i>Rent Controls</i>	46
Price Supports	47
The Rationing and Allocative Functions of Prices	48
Determinants of Supply and Demand	48
Predicting and Explaining Changes in Price and Quantity	52
EXAMPLE 2-3: <i>Why Do the Prices of Apples Go Down During the Months of Heaviest Consumption While the Prices of Beachfront Cottages Go Up?</i>	52
EXAMPLE 2-4: <i>How Does a Price Support Program in the Soybean Market Affect the Equilibrium Price and Quantity of Beef?</i>	53

The Algebra of Supply and Demand	53
Taxes	55
Summary	59
Questions for Review	60
Problems	61
Answers to In-Chapter Exercises	64

PART TWO: THE THEORY OF CONSUMER BEHAVIOR 67

CHAPTER 3: RATIONAL CONSUMER CHOICE 69

Chapter Preview	70
The Opportunity Set or Budget Constraint	70
EXAMPLE 3-1: <i>Quantity Discount Gives Rise to a Kinked Budget Constraint: Graphing the Budget Constraint for a Consumer's Electric Power</i>	76
EXAMPLE 3-2: <i>Budget Constraints Following Theft of Gasoline or Loss of Cash: Should Gowdy Buy More Gas?</i>	78
Consumer Preferences	79
The Best Feasible Bundle	86
EXAMPLE 3-3: <i>Equilibrium with Perfect Substitutes: Jolt Cola vs. Coca-Cola</i>	90
An Application of the Rational Choice Model	92
EXAMPLE 3-4: <i>Is It Better to Give Poor People Cash or Food Stamps?</i>	92
Summary	95
Questions for Review	96
Problems	97
Answers to In-Chapter Exercises	100

CHAPTER 4: INDIVIDUAL AND MARKET DEMAND 103

Chapter Preview	103
The Effects of Changes in Price	104
The Effects of Changes in Income	106
EXAMPLE 4-1: <i>Income and Substitution Effects for Perfect Complements: Skis and Bindings</i>	112
EXAMPLE 4-2: <i>Income and Substitution Effects for Perfect Substitutes: Tea and Coffee</i>	114

Consumer Responsiveness to Changes in Price	114
EXAMPLE 4-3: <i>Deriving Individual Demand Curves for Perfect Complements: Car Washes and Gasoline</i>	116
Market Demand: Aggregating Individual Demand Curves	118
EXAMPLE 4-4: <i>The Market Demand Curve: Beech Saplings in a Vermont Town</i>	119
EXAMPLE 4-5: <i>The Market Demand Curve: Ten Consumers</i>	121
Price Elasticity of Demand	122
EXAMPLE 4-6: <i>Price Elasticity of Demand: Should the Transit System Raise or Lower Bus Fares?</i>	129
Determinants of Price Elasticity of Demand	130
The Dependence of Market Demand on Income	132
EXAMPLE 4-7: <i>How Does Income Affect the Market Demand Curve for Food?</i>	132
APPLICATION: FORECASTING ECONOMIC TRENDS	136
Cross-Price Elasticities of Demand	136
Summary	138
Questions for Review	140
Problems	141
Answers to In-Chapter Exercises	144
 CHAPTER 5: APPLICATIONS OF RATIONAL CHOICE AND DEMAND THEORIES	 147
Chapter Preview	148
Using the Rational Choice Model to Answer Policy Questions	148
APPLICATION: A GASOLINE TAX AND REBATE POLICY	148
APPLICATION: SCHOOL VOUCHERS	150
Consumer Surplus	153
EXAMPLE 5-1: <i>What Is the Loss in Consumer Surplus from an Oil Price Increase?</i>	154
APPLICATION: TWO-PART PRICING	155
EXAMPLE 5-2: <i>Why Do Some Tennis Clubs Have an Annual Membership Charge in Addition to Their Hourly Court Fees?</i>	155
Overall Welfare Comparisons	156
EXAMPLE 5-3: <i>Price Changes: Was Jones Better Off This Year or Last Year?</i>	157
APPLICATION: THE WELFARE EFFECTS OF CHANGES IN HOUSING PRICES	158
APPLICATION: A BIAS IN THE CONSUMER PRICE INDEX	160
Using Price Elasticity of Demand	163

APPLICATION: THE MARTA FARE INCREASE	163
APPLICATION: THE PRICE ELASTICITY OF DEMAND FOR ALCOHOL	164
APPLICATION: WHY DO NATIONAL FOOTBALL LEAGUE GAMES COST SO MUCH MORE THAN MAJOR LEAGUE BASEBALL GAMES?	166
The Intertemporal Choice Model	166
EXAMPLE 5-4: <i>Will an Increase in the Interest Rate Cause You to Save More?</i>	172
APPLICATION: THE PERMANENT INCOME AND LIFE-CYCLE HYPOTHESES	172
Summary	180
Questions for Review	181
Problems	181
Answers to In-Chapter Exercises	184
 CHAPTER 6: THE ECONOMICS OF INFORMATION AND CHOICE UNDER UNCERTAINTY (SUPPLEMENTARY)	 186
Chapter Preview	187
The Economics of Information	187
Choice Under Uncertainty	199
EXAMPLE 6-1: <i>Maximizing Expected Utility: Smith and Gambling</i>	201
EXAMPLE 6-2: <i>Will You Always Accept a Favorable Bet?</i>	204
EXAMPLE 6-3: <i>The Lemons Principle: In a Certain Country, What Fraction of Personal Computers Is Defective?</i>	206
EXAMPLE 6-4: <i>Should Sarah Become a Teacher or an Actress? What Is the Most She Would Pay Smith for Smith's Evaluation?</i>	207
EXAMPLE 6-5: <i>Which of Two Colleges Should You Attend?</i>	209
APPLICATION: ALWAYS SELF-INSURE AGAINST SMALL LOSSES	213
Summary	215
Questions for Review	216
Problems	217
Answers to In-Chapter Exercises	220
 CHAPTER 7: EXPLAINING TASTES: THE IMPORTANCE OF ALTRUISM AND OTHER NONEGOISTIC BEHAVIOR (SUPPLEMENTARY)	 222
Chapter Preview	223
An Application of the Present-Aim Standard: Altruistic Preferences	224
EXAMPLE 7-1: <i>A Utility-Maximizing Altruist: Should Smith Give Some of His Wealth to Jones?</i>	226

The Strategic Role of Preferences	226
The Commitment Problem	231
Illustration: The Cheating Problem	233
A Simple Thought Experiment	240
Tastes Not Only Can Differ, They Must Differ	243
APPLICATION: VOTING IN PRESIDENTIAL ELECTIONS	243
APPLICATION: CONCERNS ABOUT FAIRNESS	244
EXAMPLE 7-2: <i>Will Hatfield and McCoy Work Together?</i>	247
The Importance of Tastes	247
Summary	248
Questions for Review	249
Problems	249
Answers to In-Chapter Exercises	250

CHAPTER 8: COGNITIVE LIMITATIONS AND CONSUMER BEHAVIOR (SUPPLEMENTARY) 252

Chapter Preview	253
Bounded Rationality	254
The Asymmetric Value Function	255
Sunk Costs	257
Out-of-Pocket Costs Versus Opportunity Costs	258
Hedonic Framing	259
Choice Under Uncertainty	262
Judgmental Heuristics and Biases	265
The Psychophysics of Perception	270
The Difficulty of Actually Deciding	271
Summary	273
Questions for Review	275
Problems	275
Answer to In-Chapter Exercise	277

PART THREE: THE THEORY OF THE FIRM AND MARKET STRUCTURE 279

CHAPTER 9: PRODUCTION	281
Chapter Preview	282
The Input-Output Relationship, or Production Function	282

Production in the Short Run	285
The Relationships Among Total, Marginal, and Average Product Curves	290
The Practical Significance of the Average-Marginal Distinction	292
EXAMPLE 9-1: <i>Maximizing Total Output (I): Should the Allocation of Boats of a Fishing Fleet Be Altered?</i>	293
EXAMPLE 9-2: <i>Maximizing Total Output (II): How Should the Allocation of Boats of a Fishing Fleet Be Altered?</i>	295
EXAMPLE 9-3: <i>What Is the Optimal Amount of Time to Spend on Each Exam Question?</i>	295
Production in the Long Run	296
Returns to Scale	300
APPLICATION: PREFABRICATION VERSUS ON-SITE CONSTRUCTION	301
Summary	304
Questions for Review	305
Problems	306
Answers to In-Chapter Exercises	308
 CHAPTER 10: COSTS	 309
Chapter Preview	310
Costs in the Short Run	310
EXAMPLE 10-1: <i>Graphing the Total, Variable, and Fixed Cost Curves</i>	314
EXAMPLE 10-2: <i>Graphing the Average Fixed, Average Variable, Average Total, and Marginal Costs</i>	319
EXAMPLE 10-3: <i>Graphing the Average Total Cost, Average Variable Cost, Average Fixed Cost, and Marginal Cost Curves</i>	321
* Allocating Production Between Two Processes	322
EXAMPLE 10-4: <i>What Is the Least Costly Way to Produce a Total of 32 Units of Output?</i>	323
The Relationship Among MP, AP, MC, and AVC	325
Costs in the Long Run	326
EXAMPLE 10-5: <i>Why Is Gravel Made by Hand in Nepal but by Machine in the United States?</i>	330
APPLICATION: UNIONS AND MINIMUM WAGES	331
APPLICATION: RESTROOM MAINTENANCE	332
Long-Run Costs and the Structure of Industry	337
The Relationship Between Long-Run and Short-Run Cost Curves	338

Summary	339
Questions for Review	341
Problems	342
Answers to In-Chapter Exercises	344
 CHAPTER 11: PERFECT COMPETITION	 346
Chapter Preview	347
The Goal of Profit Maximization	347
EXAMPLE 11-1: <i>Should the Owner of Valdosta, Georgia's Miniature Golf Course, Move the Operation to Manhattan?</i>	348
The Four Conditions for Perfect Competition	351
The Short-Run Condition for Profit Maximization	353
Short-Run Competitive Industry Supply	358
EXAMPLE 11-2: <i>What Is the Industry Supply Curve for an Industry with 200 Firms?</i>	359
Short-Run Competitive Equilibrium	360
The Efficiency of Short-Run Competitive Equilibrium	363
Producer Surplus	364
EXAMPLE 11-3: <i>Should the Legislature Ban Fireworks?</i>	366
Adjustments in the Long Run	368
The Invisible Hand	371
Application: The Cost of Extraordinary Inputs	372
The Long-Run Competitive Industry Supply Curve	375
EXAMPLE 11-4: <i>Why Do Color Photographs Cost Less Than Black-and-White Photographs?</i>	378
The Elasticity of Supply	379
EXAMPLE 11-5: <i>Finding the Price Elasticity of Supply</i>	380
Applying the Competitive Model	381
Summary	387
Questions for Review	388
Problems	389
Answers to In-Chapter Exercises	392
 CHAPTER 12: MONOPOLY	 394
Chapter Preview	395
Defining Monopoly	395
Four Sources of Monopoly	397

The Profit-Maximizing Monopolist	400
EXAMPLE 12-1: Finding a Marginal Revenue Curve for a Given Demand Curve	408
EXAMPLE 12-2: What Is a Monopolist's Profit-Maximizing Price, and How Much Economic Profit Is Earned?	409
A Monopolist Has No Supply Curve	414
Adjustments in the Long Run	414
Price Discrimination	416
EXAMPLE 12-3: Finding and Graphing the Monopolist's Quantity and Price in the Home Market	417
The Efficiency Loss from Monopoly	424
Public Policy Toward Natural Monopoly	425
EXAMPLE 12-4: Will the Monopolist Introduce a New Lightbulb That Lasts 10,000 Hours?	436
Summary	437
Questions for Review	438
Problems	439
Answers to In-Chapter Exercises	441
 CHAPTER 13: OLIGOPOLY AND MONOPOLISTIC COMPETITION	 443
Chapter Preview	444
Oligopoly	445
EXAMPLE 13-1: Deriving the Reaction Functions for Cournot Duopolists	448
EXAMPLE 13-2: Finding the Equilibrium Price and Quantity for Bertrand Duopolists	449
EXAMPLE 13-3: Finding the Equilibrium Price and Quantity for a Stackelberg Leader and Follower	451
APPLICATION: THE ADVERTISING ARMS RACE IN THE CIGARETTE INDUSTRY	456
APPLICATION: STRATEGIC ENTRY DETERRENCE	463
Monopolistic Competition—A Spatial Interpretation	467
EXAMPLE 13-4: Why Are There So Many Fewer Grocery Stores in Most Cities Now Than There Were in 1930? And Why Do Residential Neighborhoods in New York City Have More Grocery Stores Than Residential Neighborhoods in Los Angeles?	473
APPLICATION: A SPATIAL PERSPECTIVE ON POLITICAL COMPETITION	477
Consumer Preferences and Advertising	478
Summary	480
Questions for Review	481
Problems	481
Answers to In-Chapter Exercises	484

PART FOUR: FACTOR MARKETS	485
CHAPTER 14: LABOR	487
Chapter Preview	488
The Perfectly Competitive Firm's Short-Run Demand for Labor	489
The Perfectly Competitive Firm's Long-Run Demand for Labor	490
The Market Demand Curve for Labor	491
An Imperfect Competitor's Demand for Labor	492
The Supply of Labor	493
EXAMPLE 14-1: <i>The Labor Supply Curve for Someone with a Target Level of Income</i>	496
EXAMPLE 14-2: <i>The Optimal Leisure Demand for Someone Who Views Income and Leisure as Perfect Complements</i>	497
Is Leisure a Giffen Good?	500
The Noneconomist's Reaction to the Labor Supply Model	500
The Market Supply Curve	501
EXAMPLE 14-3: <i>How Do Rising MBA Enrollments Affect the Salaries and Employment of Economists in Liberal Arts Colleges?</i>	501
Monopsony	503
Minimum Wage Laws	508
Labor Unions	511
Discrimination in the Labor Market	513
Statistical Discrimination	516
Winner-Take-All Markets	520
Summary	521
Questions for Review	522
Problems	523
Answers to In-Chapter Exercises	526
CHAPTER 15: CAPITAL (SUPPLEMENTARY)	531
Chapter Preview	532
Financial Capital and Real Capital	532
The Demand for Real Capital	532
The Relationship Between the Rental Rate and the Interest Rate	533
The Criterion for Buying a Capital Good	534
Interest Rate Determination	535
Real Versus Nominal Interest Rates	536

The Market for Stocks and Bonds	538
Tax Policy and the Capital Market	544
Economic Rent	546
Peak-Load Pricing	547
Summary	549
Questions for Review	550
Problems	550
Answers to In-Chapter Exercises	551
 PART FIVE: GENERAL EQUILIBRIUM AND WELFARE	 553
 CHAPTER 16: GENERAL EQUILIBRIUM AND MARKET EFFICIENCY	 555
Chapter Preview	556
A Simple Exchange Economy	556
Efficiency in Production	566
Efficiency in Product Mix	568
Gains from International Trade	572
<i>EXAMPLE 16-1: General Equilibrium and Market Efficiency</i>	573
Taxes in General Equilibrium	574
Other Sources of Inefficiency	576
Summary	579
Questions for Review	579
Problems	580
Answers to In-Chapter Exercises	581
 CHAPTER 17: EXTERNALITIES, PROPERTY RIGHTS, AND THE COASE THEOREM	 584
Chapter Preview	585
The Reciprocal Nature of Externalities	585
<i>EXAMPLE 17-1: The Confectioner and the Doctor (I): Making the Confectioner Liable for Noise Damage</i>	586
<i>EXAMPLE 17-2: The Confectioner and the Doctor (II): Changing Costs and Benefits</i>	587
<i>EXAMPLE 17-3: The Confectioner and the Doctor (III): Installing a Soundproofing Device</i>	588
<i>EXAMPLE 17-4: The Confectioner and the Doctor (IV): Should the Doctor Rearrange His Office?</i>	589

EXAMPLE 17-5: <i>The Confectioner and the Doctor (V): Costly Negotiation When the Confectioner Can Make the Least-Cost Adjustment</i>	591
EXAMPLE 17-6: <i>The Confectioner and the Doctor (VI): Costly Negotiation When the Doctor Can Make the Least-Cost Adjustment</i>	592
APPLICATION: EXTERNAL EFFECTS FROM NUCLEAR POWER PLANTS	592
Property Rights	594
EXAMPLE 17-7: <i>If Village Residents Make Their Investment Decisions Independently, How Many of Their Steers Will Graze on the Commons?</i>	598
Externalities, Efficiency, and Free Speech	601
Smoking Rules, Public and Private	602
EXAMPLE 17-8: <i>Should Smoker Smith Live with Nonsmoker Jones, or Find a Separate Apartment?</i>	602
Positive Externalities	604
Positional Externalities	604
Taxing Externalities	608
EXAMPLE 17-9: <i>The Confectioner and the Doctor (VII): Taxing the Confectioner for Noise</i>	608
EXAMPLE 17-10: <i>What Is the Best Way for the City Council to Reduce Air Pollution?</i>	610
Summary	613
Questions for Review	614
Problems	615
Answers to In-Chapter Exercises	622
 CHAPTER 18: GOVERNMENT (SUPPLEMENTARY)	 624
Chapter Preview	625
Public Goods	626
EXAMPLE 18-1: <i>Should the Network Broadcast Jerry Springer or Masterpiece Theater?</i>	632
Public Choice	635
EXAMPLE 18-2: <i>If Two People, One Rich and One Poor, Have Opposite Views on a Proposed Public Project, on What Basis Would Each Like to See the Decision Made, Cost-Benefit Analysis or Majority Rule?</i>	640
EXAMPLE 18-3: <i>Which Company Will Win the Cedar Rapids Cable TV Franchise?</i>	642
Income Distribution	644

Summary	654
Questions for Review	656
Problems	656
Answers to In-Chapter Exercises	659

INDEX	661
-------	-----

Appendixes (on Web site: see www.mhhe.com/economics/frank4)

3. The Utility Function Approach to the Consumer Budgeting Problem
4. Additional Topics in Demand Theory
5. Additional Topics in Supply Theory
6. Search Theory and the Winner's Curse
9. Mathematical Extensions of Production Theory
10. Mathematical Extensions of the Theory of Costs
13. Additional Models of Monopolistic Competition
14. Labor
15. A More Detailed Look at Exhaustible Resource Allocation