DECISION MAKING AND THE THEORY OF THE FIRM

Ira Horowitz
Graduate School of Business, Indiana University

HOLT, RINEHART AND WINSTON, INC.

New York Chicago San Francisco Atlanta
Dallas Montreal Toronto London Sydney

CONTENTS

Preface vii

1 THE NATURE AND PURPOSES OF MICROECONOMIC MODELS 1
1.1 Introduction 1
1.2 Model Building in General 1
1.3 The Purposes of Models 5
1.4 The Role of Assumptions 7
1.5 Testing the Model 9
1.6 Where the Book Will Journey 12

2 THE INDIVIDUAL CONSUMER 14
2.1 Introduction 14
2.2 The Theory of Consumer Behavior: The Consumer's Problem 15
2.3 Mathematical Digression: Constrained Maximization, Single-Equality Constraint 20
2.4 Consumer Behavior 23
2.5 The Slutsky Equation 28
2.6 The Consumer's Demand Curve 37

3 THE THEORY OF PRODUCT DEMAND: The Industry 41
3.1 Introduction 41
3.2 The Industry Demand Curve 42
3.3 Time and the Demand Curve 44
3.4 Empirical Estimation of Industry Demand 47
3.5 Loss Functions and Least-Squares Estimators 61
Appendix 64

4 THE THEORY OF PRODUCT DEMAND: The Firm 70
4.1 Introduction 70
4.2 Traditional Views 71

4.3 Time, Ceteris Paribus, and Uncertainty 76
4.4 Uncertainty and the Demand Curve 78
4.5 Demand under Uncertainty and the Classical Approach 91

5 THE NEOCLASSICAL THEORY OF PRODUCT SUPPLY: The Theory of Production 94
5.1 Introduction 94
5.2 The Neoclassical Firm's Production Problem 94
5.3 Cost and Product Curves in the Long Run 102
5.4 The Laws of Factor Proportions and Scale 105
5.5 Homogeneous Production Functions 107
5.6 Short-Run Considerations 109
5.7 The Long Run and the Short: The Cost Curves 111
5.8 Econometrics and the Production Function 113
Appendix 120

6 THE NEOCLASSICAL THEORY OF PRODUCT SUPPLY: Factor Demand 125
6.1 Introduction 125
6.2 The Firm's Second Problem 125
6.3 The Firm's Supply Curve 138
6.4 Joint Production 140
6.5 Uncertainty in the Production Function 144
6.6 Empirical Estimation and Profit Maximization 149

7 THE NEOCLASSICAL THEORY OF THE FIRM: Price-Quantity Determination 154
7.1 Introduction 154
7.2 The Basic Assumptions of the Neoclassical Theory 154
7.3 Price-Quantity Determination 156
7.4 The Purely Competitive Industry 158
7.5 Monopoly 166
7.6 Monopolistic Competition 167
7.7 Some Oligopoly Models 171
7.8 Linear Programming 193
Appendix 204

8 THE NEOCLASSICAL THEORY OF THE FIRM: Effects of Shifts in the Functions 214
8.1 Introduction 214
8.2 Shifts in Demand 215
8.3 Shifts in Supply 223
8.4 The Effects of a Tax 224
8.5 Price Instability in a Competitive Market 230
8.6 The Inventory Issue 232
8.7 The Queueing Problem 235
8.8 The Dynamic Programming Approach 238
8.9 Identification Once Again 241
8.10 A Recapitulation 244

9 SOME EXTENSIONS OF THE NEOCLASSICAL THEORY: Mathematical Programming 249
9.1 Introduction 249
9.2 Separable Functions 250

9.3 The Kuhn-Tucker Conditions 257
9.4 Quadratic Programming 265
9.5 Integer Programming 268
9.6 The Transportation Problem 272
9.7 Duality 276
9.8 A Digression on Mathematical Programming and Least-Squares Curve-Fitting 280
Appendix 282

10 SOME EXTENSIONS OF THE NEOCLASSICAL THEORY: Alternatives to Profit Maximization 291
10.1 Introduction 291
10.2 Profit versus Leisure 293
10.3 Sales Maximization 296
10.4 Discretionary Profits and Managerial Emoluments 299
10.5 Diversification 302
10.6 Uncertainty and Mathematical Programming 306
10.7 Time Preference 309
10.8 Decision Making *Sans* Maximization (of Anything) 315
10.9 A Brief Comment on Nonprofit-Maximizing Goals and the Theory of the Firm 318

11 RECENT DEVELOPMENTS AND THE THEORY OF THE FIRM: A Critique of the Basic Assumptions in the Neoclassical Theory 322
11.1 Introduction 322
11.2 The Relevant Functions 323
11.3 The Profit-Maximization Assumption 328
11.4 The Treatment of Time 332
11.5 Entry, Exit, and Competitive Assumptions 333
11.6 Products and Processes 335
11.7 The Firm as a Well-Oiled Machine 336
11.8 Information-Processing Constraints 337
11.9 An Overall Evaluation 338

12 RECENT DEVELOPMENTS AND THE THEORY OF THE FIRM: Decision Making under Risk 340
12.1 Introduction 340
12.2 The Von Neumann-Morgenstern Approach 342
12.3 The General Decision Problem under Risk 351
12.4 A Numerical Illustration of Decision Making under Risk 355
12.5 Linear-Risk Preferences—A Special Case 358
12.6 A Digression on Risk Aversion 361
12.7 A Second Look at Some Previously Considered Problems 363
12.8 Rationality, Individuality, and the Representative Firm 369

13 RECENT DEVELOPMENTS AND THE THEORY OF THE FIRM: Price-Quantity Determination under Uncertainty 377
13.1 Introduction 377
13.2 Linear-Risk Preferences 378
13.3 Nonlinear-Risk Preferences 384
13.4 A Model of the Price-Quoter 393

13.5 The Reaction of the Price-Quoter to Change 405
13.6 The Price-Quoter and Classical Constructs 410
13.7 Conclusions 412

14 RECENT DEVELOPMENTS AND THE THEORY OF THE FIRM: Some Empirical Aspects 416

14.1 Introduction 416
14.2 First-Order Markov Processes 417
14.3 Classifications of Markov Chains 422
14.4 Ergodic Markov Chains 425
14.5 Absorbing Markov Chains 429
14.6 Least Squares and the Transition Probability Matrix 434
14.7 Prior Information and Regression Analysis 440
14.8 Conclusions 443
Appendix 445

15 MICROECONOMICS AND THE FIRM: A Preliminary, If Parting, Comment 452

15.1 Introduction 452
15.2 The Importance of Microeconomic Models 452
15.3 The Importance of Quantitative Methods 454

Index 455