HANDBOOK OF EXPERIMENTAL ECONOMICS RESULTS

Edited by

CHARLES R. PLOTT
California Institute of Technology

and

VERNON L. SMITH
Chapman University

NORTH-HOLLAND
AMSTERDAM NEW YORK OXFORD TOKYO
## CONTENTS OF VOLUME 1

Introduction to the Series vii  
Preface ix  
Introduction ix  
The Book Organization xii  
References xii  

**PART 1: MARKETS**

Markets 3  
1.1. Institutional Environments 3  
1.2. Imperfect Competition 8  
1.3. Dynamics of Market Adjustments 11  
References 13  

**PART 1.1: INSTITUTIONAL ENVIRONMENTS**

**PART 1.1.1: PROPERTIES OF THE DOUBLE AUCTION**

*Chapter 1*  
Properties of Disequilibrium Adjustment in Double Auction Markets CHARLES R. PLOTT 16  
References 20  

*Chapter 2*  
References 24  

*Chapter 3*  
Exogenous Uncertainty Increases the Bid–Ask Spread in the Continuous Double Auction VERNON L. SMITH AND MARK VAN BOENING 25  
1. Experimental Design 25
Chapter 4
Zero-Intelligence Robots and the Double Auction Market: A Graphical Tour
PAUL J. BREWER
1. Environment
   1.1. Values and Costs
   1.2. Profits
   1.3. Limitations on Trading
   1.4. Market Rules
   1.5. Budget Constraints
   1.6. Trades Involve Arbitrage; No Speculative Trades
2. Robot Agents
   2.1. Zero Intelligence Robots – Trading Algorithm
   2.2. UNIT Robots – Trading Algorithm
   2.3. Kaplan’s Parasitic Robots¹ – Trading Algorithm
3. Literature – Robots and the Double Auction
   3.1. Types of Questions
   3.2. Major Results from the Literature – A Chronology
References

Chapter 5
Effect of Non-binding Price Controls in Double Auction Trading
VERNON L. SMITH AND ARLINGTON W. WILLIAMS
1. Introduction
2. Experimental Design
3. Experimental Results
4. Why Do Non-binding Price Controls Interfere with the DA Market Process?
5. Conclusions
References

PART 1.1.2: PROPERTIES OF POSTED OFFER PROCESSES

Chapter 6
Fairness and Short Run Price Adjustment in Posted Offer Markets
PRAVEEN KUJAL AND VERNON L. SMITH
1. Introduction
2. Market Experiments
   2.1. Extension: Posted Bid vs Posted Offer
   2.2. Our Experiments
3. Hypothesis and Experimental Results
Chapter 7
Mixed Strategy Nash Equilibrium Predictions as a Means of Organizing Behavior in Posted-Offer Market Experiments
DOUGLAS D. DAVIS AND BART J. WILSON 62
1. Introduction 62
2. Equilibrium Mixed Strategy Pricing Distributions 63
3. Pricing Performance with Market Power 64
4. Pricing Densities Relative to Static Nash Equilibrium Predictions 67
5. Performance of Alternative Theories 68
6. Summary 69
References 69

Chapter 8
Simulated and Real Buyers in Posted Offer Markets
JAMIE BROWN KRUSE 71
1. Introduction 71
2. Summary of the Experimental Design 71
3. Results 72
Acknowledgements 76
References 76

Chapter 9
The Performance of Double-Auction and Posted-Off er Markets with Advance Production
STUART MESTELMAN 77
References 82

PART 1.1.3: CALL MARKETS AND SEALED BIDS

Chapter 10
Strategy-Proof Equilibrium Behavior in Two-Sided Auctions
VERNON L. SMITH 84
1. Strategy-Proof Equilibria in the Sealed Bid-Off er Auction 85
2. Strategy-Proof Equilibria in the Uniform Price Double Auction (UPDA) 88
3. Summary 89
References 91

Chapter 11
First Price Independent Private Values Auctions
JAMES C. COX 92
1. Tests of the RNM with Market Prices 92
2. Tests of the RNM with Subject Payoff Data 94
3. Tests of the CRRAM and the RNM with Individual Bid Data 95
4. Tests of the LCM with Individual Bid Data 96
5. Summary of the Test Results 98
Acknowledgement 98
References 98

PART 1.1.4: ALTERNATIVE MARKET INSTITUTIONS

Chapter 12
The Walrasian Auction
CORINNE BRONFMAN, KEVIN MCCABE, DAVID PORTER, STEPHEN RASSENTI AND VERNON SMITH 100
1. Introduction 100
2. Experimental Environments 100
2.1. Baseline 100
2.2. Multi-unit Non-stationary Supply and Demand Environment 101
3. Walrasian Auction Design and Computerized Implementation 102
4. Experimental Results 104
4.1. The El Environment Replication 104
4.2. Baseline and Treatment Effects 104
4.3. Individual Behavior 105
References 108

Chapter 13
The Matching Market Institution
DANIEL FRIEDMAN AND CHANGHUA RICH 109
1. Experimental Procedures 109
2. Results 111
3. Discussion 114
References 114

Chapter 14
Tatonnement
CHARLES R. PLOTT 115
Reference 117

PART 1.2: IMPERFECT COMPETITION

PART 1.2.1: MARKET POWER

Chapter 15
Wage Differentials in Experimental Efficiency Wage Markets
ERNST FEHR AND SIMON GÄCHTER 120
1. Wage Differentials: Experiments Help to Test Explanations 120
2. The Fair Wage-Effort Version of Efficiency Wage Theory 121
   2.1. Experimental Design 121
   2.2. Results 121
3. The Shirking Version of Efficiency Wage Theory 123
   3.1. Design 123
   3.2. Results 124
4. Summary 125
References 126

Chapter 16
The Paradox of Power
YVONNE DURHAM, JACK HIRSHLEIFER AND VERNON L. SMITH 127
1. The Model 128
2. Implementing the Model 132
3. Experimental Procedures and Design 132
4. Results 133
   4.1. Nash vs Cooperative Comparisons 133
   4.2. Predictions of the Model 135
   4.3. Charting the Observations 136
References 136

Chapter 17
The Exercise of Market Power in Laboratory Experiments
DOUGLAS D. DAVIS AND CHARLES A. HOLT 138
1. Introduction 138
2. Market Power 139
3. Applications of Market Power 143
References 145

Chapter 18
The Classical Experiments on Cournot Oligopoly
ANTONI BOSCH-DOMÈNECH AND NICOLAAS J. VRIEND 146
1. Sauermann and Selten's Results 146
2. Hoggatt's Results 148
3. Fouraker and Siegel's Results 149
References 152

Chapter 19
Experiments in Decentralized Monopoly Restraint
JAMES C. COX AND R. MARK ISAAC 153
1. Market Institutions for Monopoly Restraint 153
# Contents of Volume 1

2. Contestable Markets 155
3. The Loeb–Magat Mechanism 156
4. The Finsinger–Vogelsang Mechanism 157
5. The Cox–Isaac Mechanism 159
Acknowledgement 161
References 161

## PART 1.2.2: COLLUSION

### Chapter 20
Price Signaling and “Cheap Talk” in Laboratory Posted Offer Markets
TIMOTHY N. CASON 164
2. The Importance of the Signaling Language 167
3. Summary 168
References 168

### Chapter 21
The Effects of Collusion in Laboratory Experiments
DOUGLAS D. DAVIS AND CHARLES A. HOLT 170
1. Introduction 170
2. Collusion with and without Secret Discounts 171
3. Recent Work 175
References 176

### Chapter 22
Predatory Pricing: Rare Like a Unicorn?
ROSARIO GOMEZ, JACOB K. GOEREE AND CHARLES A. HOLT 178
1. Introduction 178
2. Single Market Designs 178
3. Multiple Market Designs 180
4. Summary 183
References 184

### Chapter 23
Some Results on Anti-Competitive Behavior in Multi-Unit Ascending Price Auctions
KATERINA SHERSTYUK 185
1. Experiments on Demand Reduction 186
2. Experiments on Bidder Collusion 192
Acknowledgement 197
References 197
PART 1.2.3: NON-CONVEXITIES

Chapter 24
Non-Convexities, Economies of Scale, Natural Monopoly and Monopolistic Competition
CHARLES R. PLOTT 200
References 205

Chapter 25
Avoidable Cost Structures and Competitive Market Institutions
MARK V. BOENING AND NATHANIEL T. WILCOX 206
1. A Simple Avoidable Cost Structure 206
2. Three Market Institutions 208
3. The Results 209
4. A Next Step: Cooperative Arrangements? 211
References 211

PART 1.3: DYNAMICS OF MARKET ADJUSTMENTS

Chapter 26
Principles of Market Adjustment and Stability
CHARLES R. PLOTT 214
1. Theory 214
   1.1. Cobweb Dynamics 215
   1.2. The Walrasian (Hicks, Samuelson) Dynamics 216
   1.3. Marshallian Dynamics 216
2. Experiments 217
   2.1. Instability does not Occur under Conditions Predicted by the Cobweb Model 217
   2.2. Walrasian Dynamics and not Marshallian Dynamics Capture the Backward-Bending Case 219
   2.3. The Marshallian Model and not the Walrasian Model Best Describes Market Behavior in the Case of a Marshallian Externality or a "Fad" 223
3. Summary 226
References 227

Chapter 27
Off-floor Trading, Market Disintegration and Price Volatility in Bid/Ask Markets
VERNON L. SMITH AND MARK VAN BOENING 228
1. The Problem 228
2. The Environment 228
3. Results 229
4. Discussion: Implications for, and Barriers to, Institutional Redesign 232
References 232
Chapter 28
Quantitative Restrictions in Experimental Posted-offer Markets
PRAVEEN KUJAL
1. Introduction
   1.1. Quotas
2. Quota Experiments
3. Experimental Design
   3.1. Market equilibrium
4. Experimental Results
5. Conclusion
References

Chapter 29
Price Bubbles in Large Financial Asset Markets
ARLINGTON W. WILLIAMS
References

Chapter 30
Price Bubbles
DAVID PORTER AND VERNON L. SMITH
1. Introduction
2. Empirical Results from Laboratory Asset Markets
References

Chapter 31
Experiments with Arbitrage Across Assets
ERIC O’N. FISHER
References

Chapter 32
Bubbles and Crashes in Experimental Asset Markets: Common Knowledge Failure?
CHARLES NOUSSAIR AND CHARLES PLOTT
References

Chapter 33
A Comparison of Market Institutions
TIMOTHY N. CASON AND DANIEL FRIEDMAN
1. Market Institutions
2. Market Environment
3. Related Work
4. Results
   4.1. Market Efficiency
### 4.2. Transaction Prices 269
### 4.3. Transaction Volume 271
### 5. Discussion 271
### References 271

**Chapter 34**

Coordination Success in Non-cooperative Large Group Market Entry Games

AMNON RAPOPORT AND DARRYL A. SEALE 273

1. The Market Entry Game 273
2. Results 274
   2.2. Rapoport et al. (1998) 281
   2.3. Rapoport, Seale, and Winter (1997) 282
3. Adaptive Learning 293

Acknowledgement 294
References 294

**PART 2: MARKET ECONOMICS OF UNCERTAINTY AND INFORMATION**

Market Economics of Uncertainty and Information 299

**Chapter 35**

Learning to Forecast Rationally

HUGH KELLEY AND DANIEL FRIEDMAN 303

1. Introduction 303
2. The Tasks 303
   2.1. Orange Juice Forecasting (OJ) 303
   2.2. The Medical Diagnosis Task (MD) 305
3. Results 305
   3.1. Rolling Regressions 305
   3.2. OJ Learning Curves 306
   3.3. MD Learning Curves 308
4. Discussion 308

References 310

**Chapter 36**

Laboratory Tests of Job Search Models

JAMES C. COX AND RONALD L. OAXACA 311

1. Basic Search Experiments 311
2. Precommitment/No Precommitment Experiments 313
3. Recall Experiments 316
4. Extensions of the Standard Search Model 318

Acknowledgements 318
Chapter 37
Reciprocity and Contract Enforcement
SIMON GÄCHTER AND ERNST FEHR 319
1. The Contract Enforcement Problem 319
2. Experimental Design and Results of Fehr and Gächter (1998a) 320
   2.1. Design 320
   2.2. Results 320
3. Contract Enforcement with an Imperfect Verification Technology 323
4. Summary 324
References 324

Chapter 38
Reciprocity in Experimental Markets
ERNST FEHR AND ARMIN FALK 325
1. Introduction 325
2. Experimental Design 326
   2.1. Common Features of All Treatments 326
   2.2. The One-sided Auction-treatment 327
   2.3. The Double Auction-treatment 327
   2.4. The Bilateral Bargaining-treatment 328
   2.5. Standard Predictions 328
3. Results 328
4. Reciprocity Under Conditions of High Stakes 329
5. Related Experiments 330
Acknowledgement 333
References 334

Chapter 39
Information Cascade Experiments
LISA R. ANDERSON AND CHARLES A. HOLT 335
1. Cascades 335
2. Market Applications and Alternative Institutions 340
References 342
Further reading 343

Chapter 40
Markets and Information Aggregation Mechanisms
KAY-YUT CHEN AND CHARLES R. PLOTT 344
1. Are The Lessons From The Simple Cases Useful? 348
References 352
PART 3: GENERAL EQUILIBRIUM AND THE ECONOMICS OF MULTIPLE MARKET SYSTEMS

General Equilibrium and Multiple Market Systems 355

Chapter 41
Comparative Advantage and International Trade
CHARLES R. PLOTT 358
Reference 363

Chapter 42
Asset Pricing
PETER BOSSAERTS 364
1. What the Theory Predicts 364
2. The Empirical Question 365
3. What the Field Data Teach Us 365
4. What the Experiments Teach Us 366
References 369

Chapter 43
Price Discovery and Allocation in Chains and Networks of Markets
CHARLES R. PLOTT AND JACKIE YEUNG 370
Reference 375

Chapter 44
Multiple Market Systems and the Classical Principles of Price Dynamics in General Equilibrium
CHARLES R. PLOTT 376
References 382
Further reading 383

PART 4: GAMES

Games 387
  4.1. Accuracy of the Nash Model 387
  4.2. Learning in Games 389

PART 4.1: ACCURACY OF THE NASH MODEL

Chapter 45
Experimental Beauty Contest Games: Levels of Reasoning and Convergence to Equilibrium
ROSEMARIE NAGEL 391
1. Introduction 391
2. Variations on the Beauty Contest Game 392
3. Bounded Rational Behavior 401
   3.1. Iterated Best Reply Model 401
   3.2. Learning 404
Appendix A: Instructions (from Duffy and Nagel, 1997) 407
   A.1. General 407
   A.2. The Rules 407
   A.3. What is the Median 408
   A.4. Payoffs 408
   A.5. Explanation Sheet 408
Appendix B: 408
References 409

Chapter 46
Reciprocity in Ultimatum and Dictator Games: An Introduction
ELIZABETH HOFFMAN, KEVIN MCCABE AND VERNON SMITH 411
1. Motivation 411
2. Ultimatum and Dictator Games Described 412
3. Experimental Designs and Summary Results 412
4. Interpretations and Discussion 414
References 415

Chapter 47
Preferences and Property Rights in Ultimatum and Dictator Games
ELIZABETH HOFFMAN, KEVIN MCCABE AND VERNON SMITH 417
1. Property Rights Defined 417
2. Experimental Design 417
3. Ultimatum Results 419
4. Dictator Games and Results 420
5. Discussion 421
References 422

Chapter 48
Prompting Strategic Reasoning Increases Other-regarding Behavior
ELIZABETH HOFFMAN, KEVIN MCCABE AND VERNON SMITH 423
1. Introduction 423
   1.1. Previous Results 423
   1.2. The Current Experiment 425
2. Experimental Design and Subject Recruitment 425
3. Experimental Results 426
4. Discussion 426
References 428
### Chapter 49
Social Distance and Reciprocity in Dictator Games

**ELIZABETH HOFFMAN, KEVIN MCCABE AND VERNON SMITH** 429

1. Defining Variations on Perceived Social Distance in Dictator Games 429
2. Experimental Design
   2.1. Replicating Forsythe et al. (1994) 430
   2.2. FHSS-V 431
   2.3. Double Blind 2 (DB2) 433
   2.4. Single Blind 1 (SB1) 433
   2.5. Single Blind 2 (SB2) 433
3. Experimental Design and Research Hypothesis 434
4. Results 435

References 435

### Chapter 50
Fairness in Ultimatum Bargaining

**J. KEITH MURNIGHAN** 436

1. Defining and Investigating the Impact of Fairness Concerns 437
2. “My Offer is Fair” 440
3. Fairness, Anger, and Spite 445
4. Ultimatum Bargaining by Children 449
5. Ultimatums Dividing Money and M&Ms 449
6. Conclusions 451
Acknowledgements 452
References 452
Further reading 453

### Chapter 51
Coordination Failure in Market Statistic Games

**JOHN VAN HUYCK AND RAYMOND BATTALIO** 454

1. Introduction 454
2. Strategic Uncertainty and Coordination Failure 455
3. The Influence of Out-of-Equilibrium Payoffs 457
4. The Influence of Group Size, Grid Size, and Order Statistic 458
5. The Separatrix 459
Acknowledgements 461
References 461

### Chapter 52
The Problem of Common Choice in Symmetric $N$-person Coordination Games

**CARL M. RHODES AND RICK K. WILSON** 463

1. The Problem 463
2. Experimental Design 464
Chapter 53
Equilibrium Convergence in Normal Form Games
NICOLE BOUCHEZ AND DANIEL FRIEDMAN
1. Laboratory Procedures and Treatments
2. Results
3. Discussion
References

Chapter 54
Analyzing Choice with Revealed Preference: Is Altruism Rational?
JAMES ANDREONI AND JOHN H. MILLER
1. Introduction
2. The Choice Task
3. Checking GARP
4. Conclusion
References

Chapter 55
Testing Theories of Other-regarding Behavior: A Sequence of Four Laboratory Studies
GARY E. BOLTON, JORDI BRANDTS, ELENA KATOK, AXEL OCKENFELS AND RAMI ZWICK
1. Introduction
6. Summary: Regularities for Theory Building
References
Further reading

Chapter 56
Focal Points and Bargaining
PART 4.2: ALTERNATIVES TO NASH

Chapter 57
Differences in the Economic Decisions of Men and Women: Experimental Evidence
CATHERINE C. ECKEL AND PHILIP J. GROSSMAN

Abstract
1. Public Goods Experiments
2. Ultimatum Experiments
3. Dictator Experiments
4. Conclusions
References

Chapter 58
Emergent Conventions in Evolutionary Games
JOHN VAN HUYCK

1. Introduction
2. Inefficient Conventions
3. Coordination Conventions: Labels and Populations
4. Unequal Division Bargaining Conventions
Acknowledgements
References
Further reading

Chapter 59
Self-centered Fairness in Games with More Than Two Players
GARY E. BOLTON AND AXEL OCKENFELS

1. Introduction
2. Sketch of ERC Preferences
3. Evidence in Games with More Than Two Players
   3.1. The Güth-van Damme Bargaining Game
   3.2. Market Game
   3.3. The Fixed Total Sacrifice Effect
4. Summary
References

Chapter 60
Quantal Response Equilibria: A Brief Synopsis
RICHARD D. MCKELVEY AND THOMAS R. PALFREY

1. Introduction
2. The Model
3. Properties of the QRE

4. Fit to Experimental Data
   4.1. Learning to Play Nash Over Time
   4.2. Systematic Bias Away from the Nash Equilibrium
   4.3. Nash Equilibrium Selection

Acknowledgement

References

Chapter 61
Logit Equilibrium Models of Anomalous Behavior: What to do when the Nash Equilibrium Says One Thing and the Data Say Something Else
SIMON P. ANDERSON, JACOB K. GOEREE AND CHARLES A. HOLT

1. Background: The Logit Approach
2. How to Find a Logit Equilibrium
3. Comparative Static Properties

Acknowledgement

References

PART 4.3: LEARNING IN GAMES

Chapter 62
Asymmetric Two-person Bargaining Under Incomplete Information: Strategic Play and Adaptive Learning
AMNON RAPOPORT, TERRY E. DANIEL AND Darryl A. SEALE

1. Most Participants Behave Strategically in General Accordance with the Linear Equilibrium Strategy
2. There is an Information Advantage Exceeding the Predictions of the LES
3. Repeated Play with a Fixed Partner Enhances Strategic Advantages
4. Explanation of the Findings in Terms of Adaptive Learning

References

Chapter 63
The Effect of Message Space Size on Learning and Outcomes in Sender–Receiver Games
ANDREAS BLUME, DOUGLAS V. DEJONG AND GEOFFREY B. SPRINKLE

1. Introduction
2. The Games
3. Results
   3.1. Game 1
   3.2. Game 2
4. Summary

References
Chapter 64
Learning in Entry Limit Pricing Games
DAVID J. COOPER 585
1. Introduction 585
2. The Limit-pricing Game 585
3. Experimental Procedures 588
4. Adaptive Learning 588
5. Experimental Results 592
6. Conclusions 592
References 597

Chapter 65
Payoff Uncertainty and Cooperation in Finitely-repeated Prisoner’s Dilemma Games
LAWRENCE M. KAHN AND J. KEITH MURNIGHAN 598
1. Methods 599
2. The Experimental Design 599
3. Results 602
4. Discussion and Conclusions 604
Acknowledgements 605
References 605

Chapter 66
Learning and Equilibrium in Games
COLIN F. CAMERER, TECK H. HO AND JUIN-KUAN CHONG 607
1. Introduction 607
2. Adaptive EWA and Other Learning Models 607
3. Sophisticated EWA and Equilibrium Models 611
References 615

PART 5: MECHANISM DESIGN AND POLICY APPLICATIONS
Mechanism Design and Policy Applications 619
5.1. Abstract, Theory Driven 619
5.2. Applied, Problem Driven 620
5.3. From the Lab to the Field 622
References 623

PART 5.1: ABSTRACT, THEORY DRIVEN

Chapter 67
Incentive-compatible Mechanisms for Pure Public Goods: A Survey of Experimental Research
YAN CHEN 625
1. Introduction 625
   1.1. Theoretical Results and Unresolved Issues 625
   1.2. Economic Environments in Experiments 627
2. Dominant Strategy Mechanisms 628
3. Nash-efficient Mechanisms 630
4. Mechanisms Using Refinements of Nash as Implementation Concepts 635
   4.1. Perfect Nash Mechanisms 635
   4.2. Subgame Perfect Mechanisms 637
5. Other Mechanisms 638
6. Concluding Remarks 639
Acknowledgements 640
References 640

Chapter 68
The Combinatorial Auction
STEPHEN J. RASSENTI AND VERNON L. SMITH 644
1. The Environment 645
   1.1. Two Market Mechanisms: The Independent Auction and the Combinatorial Auction 646
2. The After Market 649
3. Results 649
References 653

PART 5.2: APPLIED, PROBLEM DRIVEN

Chapter 69
Share Trading and Coupon Banking Interact to Improve Performance in Emission Trading Markets
STUART MESTELMAN AND R. ANDREW MULLER 655
References 659

Chapter 70
Trading Institutions and Emission Allowances
TIMOTHY N. CASON 661
1. The Federal Sulfur Dioxide Allowance Program and the EPA Emissions Trading Auction 661
2. Other Emission Allowance Trading Assessments: China, Ontario and Los Angeles 665
3. Summary 667
References 667

Chapter 71
Procurement Contracting
Contents of Volume 1

JAMES C. COX AND R. MARK ISAAC 669
1. A Model of Cost Information Asymmetry 669
2. Linear Contracts 670
3. Testable Hypotheses 670
4. Experimental Results 671
Acknowledgements 674
References 675

Chapter 72
Electric Power Market Design Issues and Laboratory Experiments
STEPHEN RASSENTI AND VERNON SMITH 676
1. Nodal Price Theory for Lossy Lines 677
Acknowledgements 679
References 679

Chapter 73
Energy, Reserve and Adjustment Market Behavior With Industry Network, Demand and Generator Parameters
MARK A. OLSON, STEPHEN RASSENTI AND VERNON L. SMITH 681
1. Modeling Generators 681
2. Modeling Demand 685
3. Market Design 687
4. Sealed Bid Day-Ahead Energy Market 687
5. Reserve Market 688
6. Load Adjustment Market 689
7. Continuous Double Auction Energy Market 690
8. The Network 690
9. Optimization 691
10. Subjects 691
11. Data Analysis: Questions and Answers 692
   11.1. What is the Competitive Efficiency of the Two Markets Based on Marginal Energy Costs? 692
   11.2. Do SBO Prices and CDA Weighted Average Prices Converge to Comparable Levels? 694
   11.3. What are the Profitability Levels for the Various Agents in the System? 694
   11.4. Do Nodal Prices Reflect Distance Sensitivity and Line Constraints? 694
Reference 699

Chapter 74
Transmission Constraints, Incentive Auction Rules and Trader Experience in an Electric Power Market
STEVEN BACKERMAN, STEPHEN RASSENTI AND VERNON L. SMITH 700
1. Experimental Network Environment 700
2. Experimental Design 703
3. The Mechanism: A Continuously Updated Nodal Uniform Price Auction 703
4. Hypotheses and Tests 705
5. Regression Results 707
6. Further Results 707
7. Conclusions 708
References 709

Chapter 75
A Smart Market for the Spot Pricing and Pricing of Transmission Through a Power Grid
HUNG-PO CHAO AND CHARLES R. PLOTT 710
1. Kirchoff's Law and Resource Constraints 710
2. The Mechanism 711
   2.1. Notation 712
   2.2. Notation 713
   2.3. Dual Linear Program for Continuous-time Double Auction 713
3. Parameter and the Testbed 714
4. Performance 715
Reference 718
Further reading 718

PART 5.3: FROM THE LAB TO THE FIELD

Chapter 76
Asset Market Manipulation: A Field Experiment with Racetrack Betting
COLIN F. CAMERER 720
1. Experimental Design 720
2. Experimental Results 722
3. Conclusion 723
References 724

Chapter 77
Pre-testing International Climate Change Policies: Methods and Results
PETER BOHM 725
1. Testing Gains from Emissions Quota Trade among a Few Countries (Bohm, 1997) 726
   1.1. Test Design 726
   1.2. Test Results 727
2. Testing International Acceptability of a 'Global' Tradable-quota Treaty with Diplomats as Subjects (Bohm, 1997b) 730
References 732

Chapter 78
Quasi-experimental Evaluation of Regional Employment Subsidies
Chapter 79
Field-test Elicitations of Demand for Public Goods
PETER BÖHM
References

Chapter 80
Results from a Dozen Years of Election Futures Markets Research
JOYCE BERG, ROBERT FORSYTHE, FORREST NELSON AND THOMAS RIEKTZ

Chapter 81
Experimental Evidence on the Existence of Hypothetical Bias in Value Elicitation Methods
GLENN W. HARRISON AND E. ELISABET RUTSTRÖM

PART 6: NON-MARKET AND ORGANIZATIONAL RESEARCH
Non-market and Organizational Research
6.1. Public Goods and Externalities
6.2. Committees and Voting Groups

Reference

PART 6.1: PUBLIC GOODS, EXTERNALITIES AND COMMON POOLS

Chapter 82
Partners versus Strangers: Random Rematching in Public Goods Experiments
JAMES ANDREONI AND RACHEL CROSON
1. Introduction
2. Partners versus Strangers
3. A Closer Look
4. Partners, Strangers, Warm-glow and Confusion
5. What is Next?
References

Chapter 83
Differentiating Altruism and Reciprocity
RACHEL T.A. CROSON
1. Introduction
2. Hypotheses
3. The Experiments and Results
4. Types of Reciprocity
5. Discussion and Conclusion
References

Chapter 84
Voluntary Provision of Public Goods: Experimental Results with Interior Nash Equilibria
SUSAN K. LAURY AND CHARLES A. HOLT
1. Introduction
2. Dominant Strategy Designs
3. Non-dominant Strategy Designs
4. Treatment Effects
5. Final Observations
Acknowledgements
References

Chapter 85
Spiteful Behavior in Voluntary Contribution Mechanism Experiments
TATSUYOŠI SAJO
1. Saijo–Nakamura Experiments
2. Non-excludable Public Good Experiments
Contents of Volume 1

Acknowledgement 816
References 816

Chapter 86
Explaining the Comparative Statics in Step-Level Public Good Games
ARTHUR SCHRAM, THEO OFFERMAN AND JOEP SONNEMANS 817
1. Introduction 817
2. Basic Experimental Tools 818
3. Treatments 818
4. Interpreting the Results 821
References 824

Chapter 87
Cooperation in VCM Experiments: Results Using the Contribution Function Approach
JORDI BRANDTS AND ARTHUR SCHRAM 825
1. Introduction 825
2. Description of the Design 825
3. Results 826
4. Some Insights 829
References 829

Chapter 88
Voluntary Provision of Public Goods
KENNETH S. CHAN, STUART MESTELMAN AND R. ANDREW MULLER 831
References 835

Chapter 89
Intrinsic Motivation in a Public Good Environment
FRANS VAN WINDEN, FRANS VAN DIJK AND JOEP SONNEMANS 836
1. Introduction 836
2. Experimental Design 837
3. Main Observations 841
   3.1. Different Intrinsic Motivation for Contributing 841
   3.2. Intrinsic Motivation Changes with Social Interaction 841
   3.3. Effect of Success of Social Interaction (Social Ties) 841
   3.4. Group Formation 844
4. Conclusions 844
References 844

Chapter 90
Theoretical Explanations of Treatment Effects in Voluntary Contributions Experiments
CHARLES A. HOLT AND SUSAN K. LAURY 846
1. Introduction 846
2. Generalized Preferences 848
3. Noisy Decision Making 850
4. Evolution and Adaptation 851
   4.1. Cooperation and Signaling 852
5. Final Observations 854
Acknowledgement 854
References 854

PART 6.2: COMMITTEES AND VOTING GROUPS

Chapter 91
Institutional Modifications of Majority Rule
WILLIAM P. BOTTOM, RONALD A. KING, LARRY HANDLIN AND GARY J. MILLER 857
1. General Introduction 857
2. Agenda Control 858
   2.1. One-dimensional Agenda Control 858
   2.2. Decentralized Agenda Control 861
3. Extraordinary Majorities and the Veto 864
4. Bicameralism 867
Acknowledgements 870
References 870

Chapter 92
Endogenous Properties of Equilibrium and Disequilibrium in Spatial Committee Games
RICK K. WILSON 872
1. Theoretical Background 872
2. Experimental Design 873
3. Endogenous Preferences 874
   3.1. The Core 874
   3.2. Star Preferences 875
   3.3. Skew Star Preferences 877
4. Discussion 878
Acknowledgements 878
References 879

Chapter 93
Structure Induced Equilibrium in Spatial Committee Games
RICK K. WILSON 880
1. Theoretical Basics 880
2. Experimental Design 881
3. Monopoly Agenda Setting 882
4. Backward Voting Agenda 884
5. Conclusion 887
Acknowledgements 888
References 888

Chapter 94
Three-way Experimental Election Results: Strategic Voting, Coordinated Outcomes and Duverger’s Law
THOMAS RIETZ 889
1. Introduction 889
2. The Experiments 891
   2.1. Common Procedures 891
   2.2. Equilibria 891
   2.3. Specific Treatments 892
3. Results 893
   3.1. Candidate Winning Frequencies 893
   3.2. Other Results 895
4. Conclusions and Other Issues Studied with Similar Experiments 895
Acknowledgements 896
References 896

Chapter 95
Participation Game Experiments: Explaining Voter Turnout
JOEP SONNEMANS AND ARTHUR SCHRAM 898
References 901

PART 6.3: BEHAVIOR AND ORGANIZATIONS

Chapter 96
Growing Organizational Culture in the Laboratory
COLIN F. CAMERER AND ROBERTO WEBER 903
References 907

PART 7: INDIVIDUAL CHOICE, BELIEFS AND BEHAVIOR

Individual Choice, Beliefs and Behavior 911
Risk: Effect of Stakes and Sex 911
Endowment effects 912
References 913
Chapter 97
Motivation Theory and Experimental Behavior under the Decision Cost Hypothesis
VERNON L. SMITH AND JAMES M. WALKER
1. Payoffs and Behavior
   1.1. Decision Making and Decision Cost Under Uncertainty
   1.2. Two-person Interactive Model of Decision Cost
References

Chapter 98
Intertemporal Choice under Habit Formation
ERNST FEHR AND PETER K. ZYCH
1. Introduction
2. Experimental Design
3. Results
4. Conclusions
References

Chapter 99
Preference Reversal: Now You See it, Now You Do Not!
PETER BOHM
Concluding remarks
References

Chapter 100
The Endowment Effect: Evidence of Losses Valued More than Gains
DANIEL KAHNEMAN, JACK L. KNETSCH AND RICHARD H. THALER
1. Experimental Verification
2. Exchanges
3. Repeated Trials
4. Buy, Sell, and Choose
5. Market Transactions
6. Summary
References

Chapter 101
The Endowment Effect
PRAVEEN KUJAL AND VERNON L. SMITH
1. The Background
2. The Experiments
   2.1. Kahneman–Knetsch–Thaler Choice Experiments
   2.2. Franciosi et al. Choice Experiments
2.4. Mug Exchange Experiments using Uniform Price Double Auction

References

Chapter 102
The Becker–DeGroot–Marschak Mechanism is not Generally Incentive-Compatible in Practice
PETER BOHM
1. Experimental design
2. Conclusions
References

Chapter 103
Utility Maximization
JAMES C. COX
1. The Utility Hypothesis
2. A Complete, Disaggregated Data Set
3. Test Results and Power
4. Are the Inconsistencies with Utility Maximization Significant?
Acknowledgement
References

Chapter 104
Preference Reversals
JAMES C. COX
1. Seminal Experiments
2. Independence Axiom Treatments
3. Incentive Treatment
4. Transitivity Treatments
5. Risk Neutrality Treatment
6. Market Treatment
Acknowledgement
References

Chapter 105
Rationality the Fast and Frugal Way: Introduction
GERD GIGERENZER AND PETER M. TODD
1. Heuristics
2. A Fast and Frugal Heuristic
3. The Adaptive Toolbox
   3.1. Heuristic Principles for Guiding Search
   3.2. Heuristic Principles for Stopping Search
   3.3. Heuristic Principles for Decision Making
4. Emergency Room Decisions
5. Ecological Rationality 983
6. What is to Come 984
References 985

*Chapter 106*
The Recognition Heuristic and the Less-Is-More Effect
DANIEL G. GOLDSTEIN AND GERD GIGERENZER 987
1. Accuracy of the Recognition Heuristic 988
2. The Less-is-More Effect 988
3. Do People Use the Recognition Heuristic? 990
5. The Underpinnings of the Recognition Heuristic 992
References 992

*Chapter 107*
The Recognition Heuristic: A Fast and Frugal Way to Investment Choice?
ANDREAS ORTMANN, GERD GIGERENZER, BERNHARD BORGES AND DANIEL G. GOLDSTEIN 993
1. Investment Theory and Practice 993
2. Recognition-based Investment Decisions 994
   2.1. When Choosing a Subset from a Larger Set, Choose Those Objects in the Larger Set That are Highly Recognized 994
3. Study 1 994
   3.1. Study Design 994
   3.2. How Did High Recognition Portfolios Perform Relative to Low Recognition Portfolios? 997
   3.3. How Did High Recognition Portfolios Perform Relative to Market Indices? 997
   3.4. How Did High Recognition Perform Relative to Managed Funds? 998
   3.5. How Did High Recognition Portfolios Perform Relative to Random Stock Picks? 999
   3.6. How Did High Recognition Portfolios Perform Relative to Individuals' Investment Choices? 1000
4. From Recognition to Riches? 1000
5. Study 2 1000
   5.1. Study Design 1001
   5.2. How Did High Recognition Portfolios Perform Relative to Low Recognition Portfolios? 1001
   5.3. How Did High Recognition Portfolios Perform Relative to Various Benchmarks? 1002
   5.4. What About Gender Effects? 1002
   5.5. From Recognition to Riches? 1002
6. Conclusion 1003
References 1003

*Chapter 108*
One-Reason Decision Making
GERD GIGERENZER, LAURA MARTIGNON, ULRICH HOFFRAGE, JÖRG RIESKAMP, JEAN CZERLINSKI AND DANIEL G. GOLDSTEIN 1004
Chapter 111
Payoff Scale Effects and Risk Preference Under Real and Hypothetical Conditions
SUSAN K. LAURY AND CHARLES A. HOLT 1047
1. Introduction 1047
2. Incentive Effects for Choices Involving Gains 1048
3. Choices in the Loss Domain, and the Reflection Effect 1050
4. Conclusion 1052
References 1053

Chapter 112
Rewards and Behavior in First Price Auctions
VERNON L. SMITH AND JAMES M. WALKER 1054
1. The First Price Auction 1054
2. The Experimental Environment 1055
3. Behavior 1056
References 1060

Chapter 113
Men, Women and Risk Aversion: Experimental Evidence
CATHERINE C. ECKEL AND PHILIP J. GROSSMAN 1061
1. Abstract Gamble Experiments 1062
2. Contextual Environment Experiments 1066
3. Evidence From Field Studies 1069
4. Discussion 1071
References 1072

PART 8: METHODS
8. Methods 1077

Chapter 114
Experimetrics: The Use of Market Experiments to Evaluate the Performance of Econometric Estimators
JAMES C. COX AND RONALD L. OAXACA 1078
1. Designing Experiments to Study the Properties of Estimators 1079
2. Performance of the Estimators 1080
3. Explanation of the Posted Offer Results 1083
Acknowledgement 1085
References 1086

Chapter 115
On the Performance of the Lottery Procedure for Controlling Risk Preferences
JOYCE E. BERG, THOMAS A. RIETZ AND JOHN W. DICKHAUT 1087