Contents

Part I Humans in the System

Multi-Agent Stochastic Simulation for the Electricity Spot Market Price . 3
Matylda Jabłońska and Tuomo Kauranne
1 Introduction 3
2 Theoretical Framework 4
2.1 Electricity Spot Market Price 4
2.2 Animal Spirits in Financial Markets 5
2.3 Capasso-Morale-Type Population Dynamics 6
3 Multi-Agent Simulations for Electricity Spot Market 7
3.1 Data 7
3.2 Mean-Reverting Jump Diffusion Ensemble Simulation . . 8
3.3 Ensemble Simulation with Burgers'-Type Interaction 10
4 Conclusions 12
References 13

Referral Hiring and Labor Markets: a Computational Study 15
Samuel Thiriot, Zach Lewkovicz, Philippe Caillou and Jean-Daniel Kant
1 Introduction 16
2 Model and Experimental Settings 18
2.1 Labor Market Model 18
2.2 Social Network Generation 19
2.3 Experimental Settings 20
3 Results 21
3.1 Efficiency of Link Types 21
3.2 Perfect Interactions, Weak Sensitivity to Networks' Structure 22
3.3 Networks with Probabilistic Interactions 23
4 Discussion 24
References 25

Bibliografische Informationen
http://d-nb.info/1011288427

digitalisiert durch DEUTSCHE NATIONAL BIBLIOTHEK

An Agent-Based Information Management Approach to Smoothen the Pork Cycle in China 27
Sjoukje A. Osinga, Mark R. Kramer, Gert Jan Hofstede and Adrie J.M. Beulens
1 Introduction 28
1.1 Information Management Objective 28
2 Background Literature 29
2.1 Pork Cycle in China 29
2.2 Interventions from Government 30
2.3 Information Management Based Approach 30
3 Research Questions 31
4 Model 31
4.1 Information Management Approach 32
4.2 Research Models 32
4.3 Decision to Restock 33
4.4 Simulation Process 33
4.5 Fourier Transformation 34
5 Results 34
6 Conclusion and Discussion 36
References 37

Part II Financial Markets

Do Capital Requirements Affect Long-Run Output Trends? 41
Andrea Teglio, Marco Raberto and Silvano Cincotti
1 The Eurace Credit Market Model 43
1.1 Credit Demand 43
1.2 Credit Supply 44
1.3 Matching Demand and Supply of Credit 45
2 The Computational Experiment 46
3 Conclusions 50
References 51

Modeling the Textbook Fractional Reserve Banking System. 53
Jacky Mallett
1 Introduction 53
2 Textbook Description 56
3 A Simple Model of the Banking System 57
4 Results 58
4.1 Textbook Description 59
4.2 Regional Banking Model 60
4.3 Evolution of the Money Multiplier 61
5 Conclusion 62
References 63

Learning to Trade in an Unbalanced Market 65
Florian Hauser and Marco LiCalzi
1 Introduction 65
2 The Model 66
3 Convergence to the Competitive Outcome 67
4 The Evolution of Strategic Behavior 70
4.1 Simultaneous Order Clearing 70
4.2 Asynchronous Order Clearing 72
5 Allocative Efficiency 73
References 76

Part III Organization design

Effectivity of Multi Criteria Decision-Making in Organisations: Results of an Agent-Based Simulation 79
Stephan Leitner and Friederike Wall
1 Introduction, Research Question and Research Method 79
2 Simulation Model 80
2.1 Model of Organisations and Options for Organisational Design 81
2.2 The Representation of the Performance Landscapes 83
2.3 Methods of Multi Criteria Decision Making 84
3 Results 85
3.1 Equal Weighting 86
3.2 Schism Approaches 87
3.3 Evaluation Across Multi Criteria Decision Making Methods 87
4 Conclusion 88
References 89

The Problem of Emergency Department Overcrowding: Agent-Based Simulation and Test by Questionnaire 91
Roger A. McCain, Richard Hamilton and Frank Linnehan
1 The Problem of Medical Emergency Department Overcrowding .. 91
2 Small-Scale Game-Theoretic Models 93
3 Agent-Based Computer Simulation 95
4 Survey Method and Results 99
5 Concluding Summary 101
References 102

An Agent-based Model of Food Safety Practices Adoption 103
Tim Verwaart and Natalia I. Valeeva
1 Introduction 103
2 The Agent Model 106
3 Implementation and Results 109
4 Conclusion 112

References ... 113

Part IV Macroeconomics

Why Should the Economy be Competitive? ... 117
Hugues Bersini and Nicolas van Zeebroeck
1 Introduction ... 118
2 The Model ... 120
3 Results ... 122
4 Conclusions ... 127
References ... 128

Economic Growth by Waste Generation: the Dynamics of a Vicious Circle ... 129
Benoît Desmarchelier, Faridah Djellal and Faïz Gallouj
1 Background Literature and Issue ... 129
2 The Model ... 130
2.1 A Simple Model of Economic Growth Pulled by Durables 131
2.2 Beyond the Limits: the Throw Away Society ... 132
3 Heterogeneous Agents and the Waste Stream of Durables ... 135
4 Conclusion ... 137
References ... 137

Using Agentization for Exploring Firm and Labor Dynamics ... 139
Omar A. Guerrero and Robert L. Axtell
1 Agentization as a Methodological Tool ... 140
2 Agentization Example ... 141
2.1 Micro-Foundations ... 141
2.2 Crude Agentization ... 142
2.3 Equilibrium Impossibility ... 142
2.4 Labor Mobility and Time ... 145
2.5 Heterogeneity and Local Interaction ... 145
3 Limits Exploration ... 147
4 Summary and Conclusions ... 149
References ... 149

Part V Market dynamics

Firm Entry Diversity, Resource Space Heterogeneity and Market Structure ... 153
César García-Díaz and Arjen van Witteloostuijn
1 Background ... 153
2 The Model ... 154
3 Results ... 158
4 Conclusions ... 162
References ... 163

Time-Dependent Trading Strategies in a Continuous Double Auction 165
Shira Fano and Paolo Pellizzari
1 Introduction 165
2 The Model 167
2.1 Evolution Strategies 168
3 Computational Results 171
4 Quality of the Equilibrium and Robustness Test 173
5 Conclusion 176
References 176

An ACE Wholesale Electricity Market Framework with Bilateral Trading 177
Davide Provenzano
1 Introduction 177
2 Market Composition 179
3 The Match-Making of Agents in the Bilateral Market of Energy .. 180
3.1 The Bilateral Transaction Mechanism 181
4 The DA Market 182
4.1 The Supply Side 183
4.2 The Demand Side 184
5 Simulation Settings 185
6 Results 187
7 Conclusions 188
References 188

Part VI Games

Dynamics of Cooperation in Spatial Prisoner's Dilemma of Memory-Based Players 191
Chenna Reddy Cotla
1 Introduction 191
2 Model 192
3 Simulation Results 195
4 Discussion 198
5 Conclusion 199
References 199

Indian Food Supply Chains: a Game and Model to Study Economic Behavior 201
S.A. Meijer, J. Raghothama, R. King and B. Palavalli
1 Introduction 201
2 Indian Mango Supply Chain 202
3 A New Design: Mango Mandi Gaming Simulation 204
3.1 Description of the Roles / Agents in the MMGS 204
3.2 Game Design 205
4 Validation 210

5 Conclusions and Discussion 211
References 212