

Computational Techniques for Modelling Learning in Economics

edited by

Thomas Brenner

*Max-Planck-Institute for Research
into Economic Systems*



C

Kluwer Academic Publishers
Boston/Dordrecht/London

Table of Contents

Preface	vii
List of Contributors	xi

Part One: Simulating in Economics

Evolutionary Economics and Simulation <i>Witold Kwasnicki</i>	3
Simulation as a Tool to Model Stochastic Processes in Complex Systems <i>Klaus G. Troitzsch</i>	45

Part Two: Evolutionary Approaches

Learning by Genetic Algorithms in Economics? <i>Frank Beckenbach</i>	73
Can Learning-Agent Simulations Be Used for Computer Assisted Design in Economics? <i>Tony Curzon Price</i>	101
On the Emergence of Attitudes towards Risk <i>Steffen Buck, Wieland Müller and Martin Strobel</i>	123
Interdependencies, Nearly-decomposability and Adaptation <i>Koen Frenken, Luigi Marengo and Marco Valente</i>	145

Part Three: Neural Networks and Local Interaction

Neural Networks in Economics <i>Ralf Herbrich, Max Keilbach, Thore Graepel, Peter Bollmann-Sdorra and Klaus Obermayer</i>	169
--	-----

Genetic Algorithms and Neural Networks: A Comparison Based on the Repeated Prisoners Dilemma <i>Robert E. Marks and Hermann Schnabl</i>	197
Local Interaction as a Model of Social Interaction? <i>Dorothea K. Herreiner</i>	221

Part Four: Boundedly Rational and Rational Models

Memory, Learning and the Selection of Equilibria in a Model with Non-Uniqueness <i>Emilio Barucci</i>	243
A Behavioral Approach to a Strategic Market Game <i>Martin Shubik and Nicolaas J. Vriend</i>	261
Bayesian Learning in Optimal Growth Models under Uncertainty <i>Sardar M. N. Islam</i>	283

Part Five: Cognitive Learning Models

Modelling Bounded Rationality in Agent-based Simulations Using the Evolution of Mental Models <i>Bruce Edmonds</i>	305
Cognitive Learning in Prisoner's Dilemma Situations <i>Thomas Brenner</i>	333
A Cognitively Rich Methodology for Modelling Emergent Socioeconomic Phenomena <i>Scott Moss</i>	363
Index	387