

Economic complexity and evolution dynamics in economics

Concepts, models and application exercises

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- (...) *Here, you see, we have to run as long as we can to stay in the same place. If you want to go elsewhere, you have to run at least twice as fast as that !*

(The Red Queen, **Lewis Carroll** , *Through the Looking Glass* by)

Foreword

This book in French is the result of my desire to share a new theoretical approach to economic questions, in particular those concerning economic dynamics, with colleagues and students in French speaking countries.

This approach allows us to have a fresh look at the dynamics of beliefs and behaviors of agents, the organizations they make up, the markets and industries in which they interact, as well as the economies that these sectors end up composing together. Looking at *the economy as a complex adaptive system* in permanent evolution makes it easy to take into account the interactions which cross these different levels and which structure the behavior of economic agents and the resulting dynamics of the economy.

The objective of the work is to offer a conceptual and practical introduction to this theoretical approach, via complete applications to be carried out by the reader (therefore with a dimension of "*hands in the sludge* ") and to allow him to have a relatively exhaustive overview of the main developments in our understanding of economic dynamics at different levels of the economy: micro – meso – macro.

This book is the result of the various courses that I have been able to give in the various European universities and doctoral schools over the past fifteen years where I have had the opportunity to benefit from the valuable contributions of students. My thinking and work in these areas has also benefited from the contributions of far too many colleagues and co-authors with whom I have had the great pleasure of working during these years. There are too many of them for me to be able to thank them all here but I'm sure they will recognize each other and I want to express my gratitude to them for sharing this journey with me and for bringing me the joy of working. with them and that of exploring new paths together. I must nevertheless make an exception with regard to my friend and colleague Marc-Alexandre

Sénégas who has encouraged this project from its inception and to this day. I would like to express my gratitude to him here.

It seems to me that this approach has reached a sufficient level of maturity to deserve a manual that allows colleagues and students to be able to initiate themselves into it thanks to a systematic introduction that starts from the basic concepts, then introduces a fun modeling tool. and flexible, the NetLogo modeling software, and allows to address the results obtained in the literature with this approach during the last thirty–five years (focusing on the most intense period of development). I hope this book can fulfill this role.

I chose the path of publication in the form of a website because my main objective is the widest possible dissemination of the approach presented here. This medium seemed to me to be well suited for its availability, responsiveness, and flexibility for a work that is intended to evolve based on reader feedback, developments in the literature, and new applications. Indeed, the work suggests to the reader to develop small models in the different chapters, once the modeling platform is introduced. The programs corresponding to these different applications will [gradually be put online](#) so that they can form a basis for deepening the theoretical approach and to allow readers to develop new applications from this basis. In short, like the economy, this work will necessarily be in permanent evolution and even if it still lacks a certain number of elements (hence the version number which has not yet reached completeness), it already contains something to occupy the reader for some time I believe. Another advantage of this flexibility is of course the possibility of benefiting from your corrections and suggestions to improve it. I would be grateful if you could share them with me through the various communication channels indicated on my website, on the [Contact page](#).

Phnom Penh, May 21, 2021

> **Book's [web page for additional information](#)**

Full contents

Chapter 1: Introduction: The economy as a Complex Adaptive System (CAS)

- 1.1: Standard approach in economics
- 1.2: New vision of economic systems: The economy as a CAS
- 1.3: Synopsis of the book

Part I: Standard approach in economics

Chapter 2: Characteristics of the Standardized Approach

- 2.1: Rationality of agents: Optimization under constraints
- 2.2: Aggregation of behaviors at market equilibrium
- 2.3: Rational expectations

Chapter 3: Overcoming the limits of the standard approach

- 3.1: Need for a certain cognitive realism
- 3.2: Need to take into account the heterogeneity of agents and of their behaviors
- 3.3: Need to analyze the behavior of the economy out of equilibrium
- 3.4: The question of expectations
- 3.5: Not overlooking local interactions

Part II: Introduction to Multi-Agent Modeling with NetLogo

Chapter 4: Modeling CAS: Multi-Agent Models (MAM)

- 4.1: Analyzing complex adaptive systems
 - 4.1.1: The potential contribution of the Data Revolution
- 4.2: Modeling CAS
- 4.3: Designing an MAM
- 4.4: Analysis of an MAM through computer experiments (simulations)
- 4.5: Experimentation strategies
- 4.6: Practical implementation

Chapter 5: Developing a MAM with NetLogo

- 5.1: What is NetLogo?
 - 5.1.1: Inhabitants of a NetLogo world
 - 5.1.2: Other elements
 - 5.1.3: Help!
- 5.2: NetLogo Language Elements
 - 5.2.1: A fundamental element of the NetLogo language: lists
 - 5.2.2: Declaration of types of turtles and their specific variables
 - 5.2.3: Declaration and use of variables
 - 5.2.4: Creation of agents
 - 5.2.5: A variable that can count: ticks
 - 5.2.6: Declaration and use of procedures
 - 5.2.6.1: Orders (commands)
 - 5.2.6.2: The reporters (reporters)
 - 5.2.7: Repeating instructions
 - 5.2.8: Taking into account conditions
 - 5.2.9: A strong point of NetLogo: doing calculations with agent lists
 - 5.2.10: Modeling of links between agents and networks
- 5.3: Typical structure of a NetLogo model
- 5.4: A first example: a simplistic predator – prey model

- 5.4.1: Declarations
- 5.4.2: Initialization
- 5.4.3: Execution of periods
- 5.4.4: The graphical interface
- 5.4.5: Overview of the model
- 5.4.6: Initializing and updating graphics
- 5.5: Application: Dynamics of Strategies in the Cournot Oligopoly
 - 5.5.1: Description of the elements of the model
 - 5.5.2: The NetLogo program
 - 5.5.3: Experiments
 - 5.5.4: A possible extension: Taking social learning into account
- 5.6: Tools for experimenting in and around NetLogo

Part III: Dynamics of evolution

Chapter 6: Evolution and its mechanisms

- 6.1: Darwin and the evolution of species
- 6.2: Mechanisms of evolution
- 6.3: Application: Mice and ... owls
- 6.4: Beyond Biology: A powerful Algorithm
- 6.5: Evolution = improvement?

Chapter 7: Evolution in silico

- 7.1: Conway's Game of Life: A game with very simple rules
- 7.2: Application: Conway's Game of Life
- 7.3: A Complete Artificial Universe: The TIERRA Project
- 7.4: Evolutionary Algorithms for difficult problems
 - 7.4.1: GA operators
 - 7.4.1.1: Selection Operator
 - 7.4.1.2: Crossing Operator
 - 7.4.1.3: Mutation operator
- 7.5: Application: Generalizing the optimization of univariable functions by an AG

Chapter 8: Evolution and economic dynamics: beyond analogy

- 8.1: A bit of reductionism?
- 8.2: A first example of implementation: the evolution of technologies
- 8.3: Role of history in economic dynamics
 - 8.3.1: Evolution and absence of teleology
 - 8.3.2: Path dependency and role of small historical events

8.4: The evolutionary context or the temptation of extreme holism

Part IV: Evolution and coordination of economic behavior

Chapter 9: Evolution of strategies and coordination

9.1: Strategies, mutations, selection

9.2: The Concept of Evolutionary Stability

9.3: Application: Evolutionary Dynamics in Prisoner's Dilemma

9.4: Rules of behavior and population dynamics of strategies

Chapter 10: Individual motivations and collective coordination

10.1: Coordination of individual behaviors?

10.2: Local interactions and aggregation

10.3: Robust dynamics

10.4: Application: Tournament dynamics

10.5: Complex dynamics

10.6: Analysis of complex interaction dynamics

10.7: Dynamics and emergence of order

10.8: Application: Emergence of urban segregation

10.8.1: Description of the elements of the model:

10.8.2: NetLogo Program

10.8.3: Experiments

10.9: Application: Individual Learning in the Cournot Oligopoly

10.9.1: Description of the new elements to be integrated

10.9.2: The NetLogo program

10.9.3: Experiments

Chapter 11: Evolution of expectations and coordination

11.1: Substantial rationality, anticipations, optimality

11.2: Inductive anticipations and learning

11.3: Historical adaptive anticipations

11.4: Application: Cournot Oligopoly with best-replies and simple adaptive expectations

11.5: Expanded adaptive expectations: Mental models and co-evolution of expectations

11.6: Application: Co-evolution of expectations in the Cournot oligopoly

11.7: Ecosystem vision of expectations: Will you go to Bar El Farol this Saturday evening?

11.7.1: To be or not to be ... in El Farol tonight?

11.7.2: Arthur's Experiences: Various Anticipations

11.8: Application: A simplified version of El Farol Problem

Part V: Complex economic dynamics

Chapter 12: Learning and evolution of organizations

- 12.1: Intentionality and rationality in organizations
 - 12.1.1: Routines as a representation of procedural rationality
 - 12.1.2: Hierarchy of routines, satisficing, and learning
- 12.2: Competencies and dynamics of organizations
- 12.3: Agents' Learning and performance of organizational structures
- 12.4: Networks are everywhere!
- 12.5: Role and dynamics of institutions

Chapter 13: Dynamics of industries and markets

- 13.1: Diversity, innovation and evolution
 - 13.1.1: Generation of industrial diversity
 - 13.1.2: Mechanisms of industrial selection
- 13.2: Technology development
 - 13.2.1: Technological paradigms and dominant-designs
 - 13.2.2: Industry life cycle
 - 13.2.3: A synthetic typology
- 13.3: The Nelson & Winter model
 - 13.3.1: Market behavior
 - 13.3.2: Technical progress
 - 13.3.3: Investment and capital dynamics
 - 13.3.4: Computer simulations
- 13.4: Application: Nelson & Winter simplified
 - 13.4.1: Details of the elements of the model
 - 13.4.1.1: Technical progress
 - 13.4.1.2: Capital investment
 - 13.4.2: The NetLogo program
 - 13.4.3: Experiments
 - 13.4.4: Version with Cournot's conjectures
- 13.5: Application: Winter (1984)
 - 13.5.1: Description of new elements
 - 13.5.2: The NetLogo program
 - 13.5.3: Experiments

13.6: Financial market dynamics

13.7.1: The Santa Fe Institute Artificial Financial Market (SFAFM)

13.8: Application: A simple financial market

Extension 1: taking into account the wealth and income constraint of agents

Extension 2: Simple social learning in the complete model

Chapter 14: Macroeconomic Dynamics

14.1: The discreet charm of macroeconomic MAMs

14.2: General structure of macroeconomic MAMs

14.3: Application: A Minimalist Macro MAM (from two CATS)

The production of good

The labor market

The credit market

The good market

The NetLogo program

Experiences

14.4: Back to Keynes and macroeconomic foundations

14.5: From DSGE models to MMAs: new foundations for monetary policy?

14.6: The joys of endogenous growth or when Keynes meets Schumpeter

14.7: A renewal for budgetary and fiscal policies?

14.8: When Keynes meets Minsky: The potential role of financial regulation

14.9: Last but not least : Environmental impacts of economic dynamics

Chapter 15: Conclusions and perspectives

Bibliography