

Economic complexity and evolution dynamics in economics

Concepts, models and application exercises

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- (...) Now, here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!!

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

Foreword

This book, initially in French, is the result of my desire to share a new theoretical approach to economic questions, particularly those concerning economic dynamics, with colleagues and students in French-speaking countries because nothing exists yet on this topic in that language.

This relatively new 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, and 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 that cross these different levels and 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 hands-on dimension) and to allow her 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 I have been able to teach in various European universities and doctoral schools over the past twenty years, where I have had the opportunity to benefit from the valuable contributions of my students. My thinking and work in these areas have 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. I want to

express my gratitude to them for sharing this journey with me and bringing me the joy of working with them and exploring new paths.

It seems to me that the approach proposed in this book has reached a sufficient level of maturity to deserve a manual that facilitates the initiation of colleagues and students thanks to a systematic introduction starting from the basic concepts and addressing the main 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 have chosen to publish this book first as a website in French because my main objective was the quickest and widest possible dissemination of the approach presented here. This medium seemed well suited for accessibility, responsiveness, and flexibility necessary for a work intended to evolve on the basis of feedback received, developments in the literature, and new applications. Indeed, the book proposes to the reader to develop small models in each different chapter once the fun and flexible modeling platform, NetLogo, is introduced. The programs corresponding to these different applications are offered online to form a basis for deepening the theoretical approach and allowing readers to develop new applications.

Phnom Penh, February 13, 2023

➤ **Book's [web page for additional information](#)** (web page translated by Google)

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