Book review

Elsner, Wolfram (2012): *Microeconomics of Interactive Economies*, Cheltenham, UK and Northampton, MA, USA (240 pages, paperback, Edward Elgar, ISBN 978-1-78100-903-1)

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Microeconomics of Interactive Economies by Wolfram Elsner can be used as a stand-alone textbook for undergraduate and graduate courses that provide an introduction to microeconomics from a complexity viewpoint. Additionally, it serves as a unique supplementary source, giving students in conventional micro courses intriguing insights primarily into the ideas of evolutionary and institutional economics. These approaches, according to the author, account for substantial parts of complexity economics. Unfortunately, a detailed discussion of the term *complexity*, and how exactly complexity economics can be defined, is not given. In contrast to most standardized textbooks, *Microeconomics of Interactive Economies* aims not only at transmitting knowledge; it also addresses the typical doubts of students regarding the extent to which the theory they learn is up to the job of describing and explaining *real-world economics* or if neoclassical theory is oversimplified. Furthermore, perspectives are outlined and students are encouraged to challenge conventional wisdom, to follow their curiosity and to read (for example, original journal articles). For this purpose, extensive further reading lists are given on the textbook website www.microeconomics.us.

The discussion of the complexity approach is constantly contrasted with neoclassical economics of perfect markets. Hence students not only get to know alternative concepts but also learn about neoclassical theory and the shortcomings of its idealizations. At the core of interactive – thus complex – economies are direct interdependent and heterogeneous agents making decisions in a time-dependent environment of strong uncertainty. After briefly explaining these principles and motivating the reader by demonstrating the consequences for our understanding of economics and economy, the author starts with a well-founded introduction to game theory as the basic tool for analysing interactive economies. Strategies in dynamic systems are examined using evolutionary game theory. In addition, the development of emergent structures that are stable and beneficial for all agents is explained. It is shown why they would not evolve on the basis of conventional individual rationality. Based on this introduction, in the ensuing chapters social dilemma situations and market structures are addressed. The examination reconstructs the formation of market hierarchies, the possibilities of cooperation and inherent instability.

The chapter on the 'Ideal neoclassical market and general equilibrium' puts the GET in context and outlines basic neoclassical models. The overview of research done on necessary requirements for the existence of a unique and stable equilibrium (Sonnenschein–Mantel–Debreu conditions) is particularly interesting and combines very well with the evaluation at the end of the chapter and the heterodox criticism and approaches presented in the following chapter on the neoclassical 'perfect market' economy and alternative price theories. The latter chapter starts with Mirowski's critique, a brief analysis of the development of

classical and neoclassical theory and its internal inconsistencies is carried out. A central issue of the chapter is the introduction to Staffa's ideas and his critique of the neoclassical theory of value – a quite unusual topic for a standard textbook but highly relevant. As stated above, the book provides the student with insights into the diversity of theories found in the discipline of economics rather than just criticizing neoclassical thinking. In consequence, instead of simply closing the chapter with a harsh critique, alternatives – post-Keynesian and institutional approaches – are presented, pointing towards new perspectives concerning a theory of pricing. What the reader might miss is an additional chapter that provides a detailed introduction to the history of economic thought, as this would facilitate the relation of complexity economics to other branches of economics.

The final chapters present the reader with further advanced techniques for exploring complex systems and introduce core models of the interactive microeconomics approach. Scholars may be intimidated by the higher degree of difficulty in these chapters relative to standard textbooks, but if not, they will be captivated by the demonstration of the advantages of complexity economic reasoning when it comes to describing or solving real-world economics problems.

In spite of the disadvantages of simulations – for instance, that they may be highly sensitive to initial bias and are not recognized as an exact method – the chapter shows that simulations are a necessary instrument for the profound examination of complex dynamics. Consequently, the author gives a comprehensible introduction to the procedure of computer simulations. Since these allow the recurring investigation of a system, each time manipulating elements, they make it possible to examine relations between the different properties of the system and resulting patterns. Moreover, as simulations enable scholars to model economic relations closer to the real-world conditions, they deepen the understanding of economic relations and dynamics.

The same is true for the core models of complexity microeconomics, which are usually absent in standard textbooks. The insights of researchers like Axelrod, Schelling, Arthur, Kaufmann, Strogatz and Bush into socio-economic phenomena (for instance, segregation, the development of institutions, networks and technological change) are presented. They provide inspiring examples for students looking for coherent explanations of real-world economic cases. Finally, the principles of the complexity approach and those of standard neoclassical analysis are compared point by point. Hereafter, the reader's understanding of the complexity perspective on economics and economics will be deepened in a comprehensive way that is genuinely critical of the oversimplification of neoclassical perfect markets.

Microeconomics of Interactive Economies is a rewarding though also very demanding textbook. Explanations are comprehensible but follow new, unfamiliar avenues, which may make comprehension difficult at first. Nevertheless the critical and curious student will be happy to invest some extra time to get to know real alternatives to the standard course material and such a reader will be rewarded by useful and exciting insights.