

Complex systems: Outlook for a general theory (Spanish: *Sistemas complejos. Perspectivas de una teoría general*). By Germán A. de la Reza. Published by Anthropos, Barcelona, 2010, 175 pp., ISBN: 978-84-7658-964-9, 12,00 €

Esther IGLESIAS LESAGA

Institute of Economic Research, UNAM, Mexico



The general conjecture here is that systems theory should and can establish the guidelines for a rigorous study of complexity in social sciences. As German de la Reza states, this means placing it at the intersection of various methods and theories that share postulates and derivations in the form of a meta-science. It also implies –we might add– the recognition of the seriousness of its normative gaps. As this book cannot embrace all the disciplines –their simple enumeration would fill several pages– the author focuses on the concepts and applications in economics and sociology, and on the research methodology.

The first part of *Complex systems* eruditely explains the evolution of systems models and their versatility in adapting themselves to distinct objects of study. Their intellectual trajectories are analyzed from the origins up to the encounter with the most recent postulations of systems theory. Whoever is familiar with the systems literature will detect the inclusion of non-traditional themes, such as the *ars combinatoria* and the law of identity; the recovery of certain issues that have fallen into disuse, such as the law of variety, and others of a more incontrovertible approval, such as the Gödel’s incompleteness theorems, and Luhmann’s theory of self-reference. This part of the book, the author explains, responds to the need to broaden the field of ideas, techniques and applications of systemic character.

In the second part, De la Reza analyzes the major concepts of systems theory, above all those susceptible to developing new methodological tools. According to its plan, this section seeks to satisfy two important demands for the social sciences researcher: conformity with the latest scientific advances, and the handling of imprecision within the parameters of experimental study. It cannot be ignored that these objectives put the book into a tense relation with the canons of systems theory, although in general they fit in with the traditional subject-matter defended by Bertalanffy, Rapoport, Ashby and Boulding.

The plan of the third part is to “build a coherent response to the crisis of systemic

application to the experimental social sciences". De la Reza first analyzes the basic elements for model-building, including rules and systems controllers. In the next chapter, he examines the application of entropy to economic processes and presents a systemic based model coherent with Georgescu-Roegen expectations: like the illustrious Romanian, he seeks to overcome the cyclical focus of economic theory. In the third chapter, the author studies complex systems from a normative point of view. The project is ambitious and is constructed as a program to renovate systemic applications in the social sciences.

The last three chapters of the book are devoted to various existing methodologies: the problem solving techniques, expert systems, and active research. Their presence in the third part seeks a contextualization, although its connection with various issues studied in the first part gives a circular form to the work.

Some of its recommendations made me both worried and hopeful. Worried because they require large scientific resources at a time of anemic economic recovery; they fill me with hope because their enunciation is clear and precise, leaving me to assume that a large part of the way forward is illuminated. Some recommendations about systemic methodology are really inspiring. I cite just two of them: (a) It is necessary to transform the linkages between macro- and micro-economics in a self-referencing system; (b) in a complex system, optimal equilibria and hierarchical levels are closely interconnected.

Altogether, De la Reza provides us with a clear and concise intellectual product, whose recommendations could have radical implications not just for systems theory, but also for the philosophical approach to the social sciences. There are books that fill spaces in the organization of scientific work, and which are indispensable for the formation of the researcher; this is, undoubtedly, one of them.