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## Modern Evolutionary Economics

*Nelson, R. R.; Dosi, G.; Helfat, C.; Pyka, A.; Saviotti, P. P.; Lee, K.; Dopfer, K.; Malerba, F.; Winter, S.*

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This book, published in 2018 by Cambridge University Press, counts on nine collaborators, all part of the hard core of the so-called evolutionary economics. Richard Nelson leads the book, by writing or co-writing five of the seven chapters. Along with Sidney G. Winter, he (re)started this modern discussion in the 1980s and highlighted an important characteristic of capitalism: an endogenous and permanent change in the environment. An evolutionary view.

Nelson justifies this perspective because “change, largely driven by innovation, is a central characteristic of modern capitalist economies” (p. 3). He recalls that this is not a novelty, but an idea present in the works of Thorstein Veblen, Alfred Marshall, and, of course, Schumpeter. The goal of the book is to summarize the achievements and approaches of the field spanning the last forty years. It is comprised of seven chapters with three additional appendixes, arranged roughly from a more general to a more specific view.

In the second chapter, Giovanni Dosi and Richard Nelson go deeper in the understanding of evolutionary economics. Much of this is due to the work developed at Science Policy Research Unit (SPRU), at the University of Sussex, led by Christopher Freeman. The chapter concentrates most of its arguments on understanding how

1 The author thanks the institutions FABESP and CAPES-PRINT for funding his research, which encompasses the review at hand.

technological trajectories are a cumulative process of searching for “new ways to do things”, providing the reader with a framework to explain emerging behaviors such as lock-ins, “anti-commons” problems, and the exaggerated role given to patents as a facilitator of university-industry transfer. Since the 1960s, innovations began to be viewed as multi-interactive phenomenon, which entails a cumulative process between different agents and institutions, a fact ignored by standard economics. In the first appendix, Dosi offers some initiatives to open this “black box”.

Once the cumulative process is understood, it is impossible to deny that there are differences in the ability of distinct firms to accumulate knowledge. In fact, this is one of the topics discussed by Constance R. Helfat, in the third chapter. The profit seeker firm develops across an evolutionary competition path. Even codified standard behaviors and rules need some tacit knowledge, and that is coordinated with other resources and inputs, establishing the firm’s organizational capacity. In the end, as firms start from different stages – regard to resources, individuals, and barriers, such as industry secrets and intellectual property rights – they have different performances. Firms are heterogeneous, and this is a very stylized fact that is not present in the traditional view.

The traditional view is based on social optima in industrial behaviors, under specific market structures, such as monopoly and oligopoly. Andreas Pyka and Sidney Winter point out, in the fourth chapter, that there is much more Schumpeter than Marshall in this discussion. They review the improvement of the industry life cycles theory, given a broader understanding about industrial dynamics and innovation process. Markets became complex structures, building associations to interact with the government and society, forming a specialized labor market, pushing new schools’ programs, meetings, journals, awards, and lobbying to change laws. Without this complexity, “the analysis is seriously incomplete” (p.126). One way to deal with this is with history-friendly modeling, a more flexible approach explained by Winter in the chapter’s appendix. Moreover, he emphasizes the need for more inductive works à la Cyert and March (1963).

Shedding light on long-run growth, Andreas Pyka, Richard Nelson and Pier Paolo Saviotti explain how economic development became economic growth, after the II World War, and how this contrasts with the evolutionary view. Where this process is intensive in interactions and the long run is a “co-evolution of technologies, economic structure, and institutions” (p.167). This is too complex to be simplified in a unique and abstract equation with just one perspective.<sup>2</sup>

2 The appendix of the chapter introduces the TEVECON, a multisector model to exemplify an effort to reproduce this complexity.

The case of latecomers is a good example of this phenomenon. Ironically, they are discussed in the last part of the book, which deals with the catch-up literature. Keun Lee and Franco Malerba define catch-up as the process of creating and building capabilities, institutions and innovation systems. This understanding goes beyond market failures, in the direction of capabilities, and system failures.<sup>3</sup> Developing economies face a lack of opportunities. The authors comment that latecomers are also late entrants in mature and established markets, and this affects countries, firms and sectors in different ways. Therefore, an innovation system – comprised of universities, research and funding institutions, and vertical links between suppliers – matters.

The book ends with the chapter by Kurt Dopfer and Richard Nelson affirming that evolutionary economics is an understanding guided by evolutionary assumptions. They argue that, because of the tradition of industrial studies, the literature is poor on works related to demand, service industry, inequality, and income. Also, there is a lack of studies dealing with the implications of the innovation dynamic on aggregate macroeconomic variables, such as inflation and employment. New opportunities arise in climate change studies, in which, implicitly or explicitly, an evolutionary perspective must be adopted.

The authors close the book evoking a reforming movement in economic theory. Neoclassical domination has created a bias in the way we understand and interpret economy. This book is not enough to break this monopoly and it is not detailed enough to be a manual. However, it accomplishes its goal of providing a basic framework. The challenge resides on discovering how to sow this framework during the co-existing of neoclassical view. They are not perfect substitutes and, once assimilated an evolutionary view, there is no come back without any philosophical conflict. I wonder what will be the trajectory path of this approach in the future?

## References

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<sup>3</sup> There is an interesting critique of these failures approach made by Schmidt (2018).



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