Interpreting industrial dynamics twenty years after Nelson and Winter’s
*Evolutionary Theory of Economic Change:*

a preface

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This Special Issue of *Industrial and Corporate Change* presents a selection of papers whose earlier drafts were presented at the Conference held at DRUID, Alborg, Denmark (June 2001) for the (almost) twentieth anniversary of the publication of *An Evolutionary Theory of Economic Change* by Richard Nelson and Sidney Winter. The papers are centered around a key theme: the understanding of the multiple facets of industrial dynamics and evolution inspired in different ways by the seminal Nelson and Winter book. A complementary Special Issue of *Industrial and Corporate Change* that will be focused more on organizational and institutional change is scheduled for the year 2003.

After around twenty years, and after a rapid growth in the literature invoking evolutionary interpretations of quite a few economic phenomena, it is now possible to take stock of advances, dead ends and agendas ahead. The ‘evolutionary research program’ has been utterly ambitious from the very start (cf. Nelson and Winter, 1982; Dosi *et al.*, 1988). The time is ripe to undertake an assessment of the achievements over the last couple of decades. One may think of three major evaluation criteria:

* Has the research program been able to inspire novel investigative questions?
* Has it been able to yield novel answers and novel, more robust, reinterpretations of already familiar phenomena?
* Has it yielded new and fruitful paths along which to practice ‘normal science’, cumulatively ‘strengthen the paradigm’, incrementally add new results, etc.? And, relatedly, what kinds of novelties can one claim as compared to twenty years ago?

Some of these issues have been discussed extensively in Nelson (1995), Coriat and Dosi (1998), Dosi and Winter (2002), and Nelson and Winter (2002). Here, let us just suggest that the papers that follow do directly or indirectly witness vividly the fruitfulness of ‘evolutionary’ research questions—rather broadly defined—concerning the nature of corporate organizations, industrial structures, and industrial dynamics. At the same time, they also hint at rather urgent research challenges ahead.

The papers below do indeed address major issues identified in the evolutionary agenda, including:
1. The nature of technological and organizational capabilities embodied in both incumbent and entrant firms (Klepper; Helfat and Lieberman).
2. The characteristics of different types of entrants and the relationships between such corporate characteristics and subsequent revealed performances along the course of life of particular industries (Klepper on the history of the automobile industry; Baldwin and Sabourin on technological characteristics and performances in Canadian industry).
3. The relationships between organizational/strategic ‘types’ of firms, technological competence and performances (D’Este on a case of catching-up of industries and countries, namely pharmaceuticals in Spain).
4. Different aspects of the dynamics of corporate growth (Bottazzi et al., and Louça and Mendonca).
5. History-disciplined models of industrial dynamics and evolution (Malerba and Orsenigo on the pharmaceutical–biotechnology industry).
6. The (admittedly controversial) evidence on the links between proxies for corporate learning, market selection and corporate performances (Baldwin and Sabourin, Bottazzi et al., and Geroski and Mazzucato)
7. Mappings of diverse ‘technological regimes’ into diverse industrial structures (Marsili and Verspagen)
8. Geographically and sectorally nested knowledge flows and their impact on international competitiveness and trade flows (Laursen and Meliciani)

This concise list of issues already abundantly highlights the richness of the themes inspired at least partly by the Nelson and Winter book and more broadly by evolutionary thinking. Many of these questions would have been much harder to pose were it not for a research paradigm and for an associate research community crucially focusing upon issues such as mechanisms of knowledge accumulation within firms and other institutions; taxonomies of learning processes among different industries and technologies; knowledge spillovers across firms and sectors; and market mechanisms as selection devices within heterogeneous populations of firms.

At the same time, a few (academic) context conditions have changed since the 1982 Nelson and Winter book. For a start, many more practitioners of the economic discipline do explicitly call upon ‘evolutionary’ arguments, albeit in ways that sometimes would not find full empathy in the community inspired by the Nelson–Winter perspective. A good share of ‘evolutionary game’ theorising is a case in point (for some discussion, see Dosi and Winter, 2002). On the other hand, nearer to the topics of industrial dynamics addressed below, other genres of theorizing have emerged that bring together explicit dynamic accounts with rather far-fetched but apparently academically appealing assumptions concerning utterly sophisticated, forward-looking, ‘rational’ economic agents microfounding the purported explanation of some ‘stylized facts’ of industrial structures and corporate growth: Jovanovic (1982), Ericsson and Pakes (1995), Hopenhyn (1992), and Pakes and Ericsson (1998) are well-known examples of such attempts to construct equilibrium ‘evolutionary’ models
of that kind). The flip-side of the coin is that today it is not enough to show that Nelson–Winter type processes are plausibly capable of reproducing whatever empirical evidence is at hand. The further challenge involves the joint account of multiple ‘stylized facts’ and compellingly ‘superior’ microfoundations as assessed against the available firm-level evidence.

Indeed, quite a few of the papers in this Special Issue try to face such challenging tasks from diverse angles. One finds ‘history-friendly’ models of the evolution of specific industries; analyses of industrial performances conditioned in different ways upon path-dependent and inertial features of individual firms; and attempts to better identify the statistical properties of processes of corporate growth in evolutionary environments.

Some of the papers are written by scholars that would explicitly sign up to the evolutionary camp, while other contributors are likely to share only parts of an evolutionary view. However the whole collection of papers in this Special Issue is a witness to the fact that, at the very least, the ‘seeding’ of evolutionary thinking inspired by the Nelson–Winter approach continues to be fascinatingly rich, generates fundamental empirical questions, and proposes major conjectures which most often may be empirically corroborated or rejected. This is more than what one is normally used to in our weird discipline.

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References


