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The Routinization of Creativity

Lessons from the Case of a Video-game Creative Powerhouse

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JEL O31; L23; L82

Organizational creativity; organizational routines; video games.

Summary

The aim of this contribution is to proceed to an in-depth exploration of the micro-context of the origin of routines and of their intimate link with organizational creativity. Our view is that organizational creativity orchestrates continuous interactions between different types of routines, operating at different levels of the organization. More precisely we propose distinguishing three types of routines:

- First, the routines issued from formal structures or hierarchical working groups in the firm (functional groups, project teams, task force, etc.), for which the context of work and coordination of specialized tasks is defined ex ante by the hierarchy of the firm;
- Second, the routines emerging from informal structures, the "knowing communities" which is a "generic term that defines different types of autonomous learning groups of individuals (communities of practice, epistemic communities, and other more or less informal learning groups) united by common beliefs and interests who voluntarily share their resources on a long term basis in order to create and diffuse knowledge";
- Third, the routines that are inherently related to the organizational creativity of the firm, which are essentially corporate routines as expression of patterns of thinking, feeling and acting in the corporate culture. In essence they are the genes of collective identity, and take the shape of project management staging and gating principles and practices, framing collective divergent exploration and convergent production toward a creative goal.

The contribution is based on an in-depth analysis of the organizational creativity in the world-leading videogame company, Ubisoft, with a special focus on the studio located in Montréal. To some extent, Ubisoft is one of the flagships of the "creative industries", in which the clear imperative is to sustain creativity on a permanent basis. These reasons explain the choice we made to test our approach of organizational creativity and routines in this firm.

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The Evolution of Knowledge and Knowledge of Evolution

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JEL B41; B52; D8; L2; O3

Pattern-making; quasi-decomposability; stability and change; methodology; construction systems; uncertainty.

Summary

Human knowledge is a human creation: we seek to make sense by creating patterns, which are tested in various ways and with differing degrees and kinds of rigour. For each individual cognition is a scarce resource, but different people can apply it in diverse ways and to diverse subjects: each application has its own range of convenience and its own dangers. Thus the growth of knowledge is an evolutionary process of trial and error, the rate and content of which depends on its organization, both conscious and unconscious. In seeking to develop knowledge methodological choices are unavoidable, but often unconscious. As Simon pointed out, all evolution, of life, economic and social systems, and ideas, depends on quasi-decomposability, the limits of which can never be fully anticipated. Thus uncertainty is inescapable – but it is a condition of innovation.

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Like *Doktorvater*, like Son? Tracing Role Model Learning in the Evolution of German Laser Research

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JEL D83; I23; O33

Open science; role models; observational learning; doctoral dissertations; laser research.

Summary

We trace individual-level learning and knowledge transfer in public research by matching about 5,000 doctoral dissertations and their advisors over the full history of German laser research. We study the number of laser-related dissertations per advisor, publication and patent outputs of advisors and doctoral students, as well as the likelihood that former students started laser firms or attained professorships. Our results suggest a substantial relevance of non-codified knowledge and role model learning in public research. There is little evidence of pronounced barriers to entry into laser research.

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In What Sense do Firms Evolve?

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JEL L22

Evolutionary economics; theory of the firm; industrial organization.

Summary

Does evolutionary theory help, for a theory of the firm, or, more widely, a theory of organization? In this paper I argue that it does, to some but also limited extent. Evolutionary theories of economies, and of culture, have acquired considerable following, but have also been subject to considerable criticism. Most criticism has been aimed at inappropriate biological analogies, but recently it has been claimed that a 'universal Darwinism', purged of all such mistaken analogy, is both useful and viable. Why should we try to preserve evolutionary theory, and will such theory stand up to sustained critical analysis? How useful is it for theory of the firm? Evolutionary theory appears to be the most adequate theory around for solving the problem of agency and structure, avoiding both an overly rational, managerial 'strategic choice' view of organizations and a 'contingency' view of organizations as fully determined by their environment. Whether universal Darwinism stands up to critical analysis remains to be seen. Here, the focus is on evolutionary theory of organization. Use is made of a constructivist 'embodied cognition' view of cognition and of elements of a cognitive theory of the firm.

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How Fast Can Firms Grow?

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JEL D22; D92; L25

Organizational growth; organizational size; evolution.

Summary

Building on recent research on dynamic, high-growth firms – so-called "gazelles" – this paper explores a simple question that is important in both theoretical and practical terms: What is the fastest rate at which firms can grow? Based on a sample of seven high-growth firms (Cisco, GM, IBM, Microsoft, Sears, Starbucks, and US Steel), we find that 162% is the maximum sales growth rate in any one year that an established company can grow without mergers and acquisitions, while the maximum rate of employee growth is approximately 115% even including some mergers and acquisitions. All of the companies in our sample attained a maximum sales growth rate of above 50%, with most hovering around 75%. Furthermore, the firms' growth rates exhibit similar patterns. No company experienced its maximum sales growth rate toward the latter part of its history. Every company experienced its slowest employee growth rate after attaining its maximum employee growth rate, usually within a decade of one another. Most importantly, all firms show an average sales growth that exceeds the average employee growth. This finding is an indication that successful growing firms have a superior capability to continuously improve employment efficiency and adjust organizational structures to suit an increasing workforce.

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Firm Growth and the Spatial Impact of Geolocated External Factors

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JEL C31; D92; L25; R11

Firm growth; external factors; distances; quantile regression; relatedness; universities; public research; graduates.

Summary

This paper studies the relationship between firm growth and external factors. Externalities from related economic, public research and higher educational activities are traced back to specific locations in space. The spatial characteristics of their impact are examined within a distance-based, micro-founded approach. Applying quantile regression techniques on a large sample of German firms, we empirically disentangle the complex interplay between internal factors (firm size), external factors and their spatial extent. In particular, we find that the larger firms are, the more diverse are the activities they benefit from and that the geographical meaning of "nearby" depends on the kind of activity.

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Competition and Increasing Returns

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JEL L11; O31

Competition; increasing returns; time to build; viability.

Summary

The paper demonstrates the compatibility between competition as a rivalry among firms and increasing returns resulting from innovative choice. The analysis offers the prospect of a general theory of economic evolution. It is carried out by means of a model, which makes it possible to exhibit the time structure of production processes and to sketch out the sequential interaction of decisions in a process of restructuring of productive capacities for the whole economy. It shows that several firms can coexist in the market, despite the existence of increasing returns, yet remain differentiated not so much because they supply differentiated goods, but because they are each one at a different stage of the life cycle of the production process.

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Innovation and Market Structure in Pharmaceuticals: An Econometric Analysis on Simulated Data

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JEL C63; C15; L10; L65; O30

Innovation; market structure; history-friendly; pharmaceuticals; Monte Carlo.

Summary

The contribution of this paper is twofold. First, it presents the results of a "history-friendly" simulation model of evolution of the pharmaceutical industry. Second, it aims at contributing to a more general methodological discussion about agent-based models by proposing an econometric analysis of the results of the simulations. The case of the pharmaceutical industry has been studied extensively by scholars because, despite the high level of R&D intensity, the industry has been characterized by a relatively low levels of concentration. The model is able to reproduce the main stylized facts of the industry in an evolutionary perspective. In this paper we extend the analysis conducted in two previous works (Garavaglia et al. 2012, 2013) by further qualifying the findings with an extensive econometric investigation of the model outputs. The paper focuses the attention on the determinants of market structure, the innovative performance of the industry, the diversification in multiple submarkets and the level of prices. We find that the properties of the technological and demand regimes are key determinants of the patterns of industry evolution and that the main mechanisms driving the model are the random processes of search, the discovery of new submarkets as well as the interactions between patent protection, imitation and price competition. In addition, this paper emphasizes how the emerging leaders in the industry are those innovative early entrants which entered in large submarkets, showing the importance of the first mover advantage and of the size of the "prize" accruing to innovators when they discover a new rich submarket.

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Escaping Satiation Dynamics: Some Evidence from British Household Data

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JEL D12; C14; O33.

Demand-satiation; engel curves; structural change; nonparametric smoothing.

Summary

The tendency of sectoral demand to satiate has long been argued to be a key driver of the structural change in an economy (Pasinetti 1981; Saviotti 2001). This literature raises the question as to what extent cross-sectional patterns of household expenditure can be used to make inferences about how the demand for goods and services will grow over time. Moreover, if indeed satiation does take place, then firms and entrepreneurs could react to this situation by innovating goods and services in order to overcome stagnation in demand growth (Witt 2001). We empirically investigate this 'satiation-escape' hypothesis by examining the inter-temporal dynamics of Engel curves and their derivatives, which reflect how household spending on a good changes with income. Taking into account changes in the price level, we investigate whether Engel curves that exhibit cross-section satiation tend to exhibit over time an upwards shift in the satiation level jointly with a shift in position and shape. Evidence suggests that this is actually the case.

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Evolving Preferences and Welfare Economics: The Perspective of Constitutional Political Economy

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JEL B52; D6; H00

Evolving preferences; welfare economics; constitutional economics.

Summary

The theoretical consistency and practical applicability of traditional welfare economics has long been subject to controversy. More recently the challenge has been added from evolutionary approaches that the individual preferences on which the welfare calculus is based are themselves subject to change. The purpose of the present paper is twofold. It takes, firstly, a closer look at the discussion on the need and feasibility of an evolutionary welfare economics that accommodates evolving preferences. The particular focus is on proposals advanced by three authors, Carl Christian von Weizsäcker, Ulrich Witt and Robert Sugden. And it seeks, secondly, to show that the paradigm of constitutional economics can deal with the evolving-preferences-issue in a more coherent and consistent way than approaches that remain within the mind-frame of welfare economics.

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Reconciling Normative and Behavioral Economics: An Application of the "Naturalistic Approach" to the Adaptation Problem

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JEL D60; D11

Adaptive preferences; behavioral economics; hopeless beggar; learning.

Summary

While standard economic theory takes individual preferences as stable and "given", i.e., independent of situational context, real-world preferences tend to vary with changing opportunity sets. This is exemplified by Aesop's fable of the fox and the sour grapes. This phenomenon of "adaptive preference formation" poses a vexing problem for normative economics: preferences which constitute the measuring rod for welfare are in turn shaped by the (economic) situation of the individual, leading to problems epitomized by Amartya Sen's "hopeless beggar" dilemma: The beggar, enduring objectively miserable circumstances, nonetheless claims to have all his preferences satisfied, which would lead orthodox welfare economics to establish a high level of well-being. For those who find this counterintuitive, different solutions for the "adaptation problem" have been proposed in the literature, typically centering on highly demanding rationality and information requirements. We argue that, in order to cope with this and related problems of preference endogeneity, welfare economics rather needs to account for recent psychological insights into the mechanisms that drive preference formation and change. We then use these insights to suggest and apply a procedural criterion of autonomous preference formation.

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Global Warming: Technology, Preferences and Policy

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JEL O38; Q54

Environmental technologies; substitutions; evolutionary international political economy.

Summary

Global warming is a market failure in that the market prices of goods do not reflect the externality imposed on us all by the green house gases (GHGs) emitted in their production. To date global politics has not provided an effective agreement on how to abate these emissions. Over and above market failure there is political failure. A proper understanding of this fundamental institutional failure requires us to consider the interaction between producers, consumers and politics. We aim to offer a brief introduction to some of the issues involved and point to an evolutionary analysis in which technology, preferences and policies coevolve.

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Naturalizing Institutions: Evolutionary Principles and Application on the Case of Money

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JEL B52; D02; D87; E40; Z1

Generalized Darwinism; institutions; replicator/interactor; Searle; Aoki; naturalism; memes; emotions; money.

Summary

In recent extensions of Darwinism into economics, the replicator-interactor duality looms large. I propose a naturalistic approach to this duality in the context of the theory of institutions, which means that its use is necessarily dependent on identifying a physical realization. I introduce a general framework, which synthesizes Searle's and Aoki's theories, especially with regard to the role of public representations (signs) in the coordination of actions, and the function of cognitive processes that underlie rule-following as a behavioural disposition. Institutions are causal circuits that connect the population-level dynamics of interactions with cognitive phenomena on the individual level which ultimately root in neuronal structures. I propose a new conceptualization of the replicator in the context of institutions: the replicator is a causal conjunction between (physical) signs and neuronal structures which undergirds the dispositions that generate rule-following actions. Signs, in turn, are outcomes of population-level interactions. I apply this framework on the case of money, analysing the emotions that go along with the use of money, and presenting a stylized account of the emergence of money in terms of the naturalized Searle-Aoki model. In this view, money is a neuronally anchored sign for emotions relating with social exchange and reciprocity. The money replicator is physically realized in a causal conjunction of money artefacts and money emotions.

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Evolutionary Political Economy in Crisis Mode

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JEL B15; B41; B50

Political economy; evolutionary methodology.

Summary

This paper sets out to discuss recent economic developments from a twofold perspective. Both spotlights focus on the special role played by the current deep global crisis. The first line of argument centers on the history of economic ideas and shows how evolutionary economics has emerged as a promising alternative to mainstream neoclassical thought as well as to traditional Keynesian macroeconomics. The failure of standard macroeconomics to inform economic policy in the current situation shows that arguments of evolutionary political economists – from Malthus via Schumpeter to contemporary scholars – can and should substitute these inadequate models. The second part of the paper takes the argument for evolutionary political economy to a methodological level: The deep crisis of economic theory is necessarily also a crisis of the methodological apparatus used. Though evolutionary economics does not provide a well-defined alternative set of methods yet, it nevertheless seems to be the best foundation to build such a new combination, a methodological innovation, out of some of the most recent advances in formalization. These latter elements are briefly sketched.