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Some Notes on Institutions in Evolutionary Economic Geography

Ron A. Boschma & Koen Frenken



Utrecht University
Urban & Regional research centre Utrecht

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Ron Boschma and Koen Frenken
r.boschma@geo.uu.nl, k.frenken@geo.uu.nl

Section of Economic Geography
Urban and Regional research centre Utrecht (URU)
Faculty of Geosciences
Utrecht University
PO Box 80 115
3508 TC Utrecht

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Abstract: Within the evolutionary economic geography framework the role of institutions deserves more explicit attention. We argue that territorial institutions are to be viewed as orthogonal to organisational routines in that each territory is characterised by a variety of routines, and in that a single firm can apply its routines in different territorial contexts. It is therefore meaningful to distinguish between institutional economic geography and evolutionary economic geography as their explanans is different. Yet, the two approaches can be combined in a dynamic framework in which institutions co-evolve with organisational routines, particularly in emerging industries. Furthermore, integrating the evolutionary and institutional approach allows one to analyse the spatial diffusion of organisational routines that mediate conflicts between social groups, in particular, those between capitalists and labourers. An evolutionary economic geography advocates an empirical research program, both qualitative and quantitative, in which the relative importance of organisational routines and territorial institutions for regional development can be addressed.

1. Introduction

Over the past decade, evolutionary economics has found its way into the field of economic geography (see for example *Journal of Economic Geography* 7(5), special issue, 2007). Evolutionary economic geography attempts to explain the spatial distribution of economic activities from the underlying industrial dynamics of firms. Competition between firms takes place on the basis of their specific organisational routines, which they have built up in the past. As we argued earlier (Boschma and Frenken 2006), such an approach can be distinguished from an institutional-economic approach to economic geography in which the spatial differences in economic activities are attributed to institutional differences among territories. Although being sympathetic to an evolutionary approach in economic geography, the contribution of MacKinnon et al. (2008) in this issue questions the usefulness of our distinction

between institutional and evolutionary approaches in economic geography. The authors plea for a synthesis between evolutionary and institutional approaches, in particular, as to be able to address the role of power conflicts and institutions in regional development.

Below, we will clarify how we fit institutions in our evolutionary economic geography framework. Our basic argument holds that territorial institutions are to be viewed as orthogonal to organisational routines in that each territory is characterised by a variety of routines, and in that a single firm can apply its routines in different territorial contexts. We further explain how power conflicts between employees and employers are part and parcel of organisational routines, and thus are an integral part of evolutionary economic geography. We conclude that it is useful to distinguish between institutional and evolutionary approaches, as their *explanans* is different. Yet, we believe the role of institutions is to be included in evolutionary studies in economic geography, and we explain how that might be achieved.

2. Routines and institutions

One of the constitutive concepts in evolutionary economics is that of organisational routines. Firms compete for market shares on the basis of their specific routines that they built up, and improved upon, in the past. Routines have two basic features (Nelson and Winter 1982, p. 99 and p. 107): (1) cognitively, routines act as a mechanism to coordinate the collective skills of employees (“routines as organizational memory”); (2) politically, routines act as a mechanism of internal control (“routines as truce”). The evolutionary approach to economic geography reasoning from organizational routines differs from those institutional approaches to economic geography that reason from territorial institutions (Martin 2000; MacKinnon et al. 2008). The latter approaches often tend to view institutions as durable structures that are specific to territories (at whatever spatial level). Rather than viewing firm behaviour as determined by their routines inherited from the past, such institutional approaches emphasise that territorial institutions have a strong impact on firm behaviour, particularly, regarding inter-firm networking and industrial relations. From an evolutionary perspective, the primacy of institutions in economic geography is problematic for two reasons.

First, even though evolutionists recognise the existence and importance of territorial institutions, such structures are deemed too loose to determine firm behaviour and industrial dynamics. For example, the degree of local networking has been shown to be very uneven among local firms in clusters despite the fact that they are subject to the same territorial institutions (Giuliani 2007; Boschma and Ter Wal 2007; Morrison 2008). Some cluster firms are highly connected to the local knowledge network, while other are weakly or not connected at all. This variety can be understood from the fact that by far most institutions are non-binding, so general such that specific effects at the firm level can still vary greatly. Also note that a single firm may apply the same set of routines across different regions, without denying adaptations to local circumstances (Kogut and Zander 1993; Winter and Szulanski 2001; Wrigley et al. 2005). The ability of firms to replicate their routines across different territorial

contexts constitutes one of the main constituents of competitive advantage. In short, organisational routines and territorial institutions are orthogonal to one another.

Second, evolutionary scholars have emphasised the importance of sectoral institutions coordinating economic and innovation activities within complex supply chains and crossing territorial boundaries. In many sectors, specific institutions have been developed over time concerning product quality, price-setting, wage-setting, entry requirements, technology standards and subsidies. In the community of evolutionary economists, the primacy of sectoral institutional analysis is exemplified in the turn from national systems of innovation research (Lundvall 1992; Nelson 1993) to sectoral systems of innovation research (Edquist 1997; Malerba 2004) in the mid-nineties. What is more, there is some systematic statistical evidence showing that most of the variance in innovative patterns of firms is explained by sectoral rather than regional specificities (Breschi 2000).

Taking an evolutionary perspective on the spatial dynamics of firm-specific routines, we expect the effect of (territory-specific) institutions on routines to be rather small, as firms develop routines in a path-dependent and idiosyncratic manner. These routines determine to a large extent the locational behaviour of firms as well as their interactions with local and non-local firms (Stam 2007). Institutions may still explain some part of the inter-regional variety of routines, though. For example, it has been found that production techniques of plants (which can be assumed to correlate strongly with organisational routines) in some US manufacturing industries were less dissimilar within than across regions and that these differences are persistent along technological trajectories (Rigby and Essletzbichler 1997; Essletzbichler and Rigby 2005). This may be attributable to region-specific institutions, but may as well be the outcome of processes of routine replication among firms through spinoffs and labour mobility. It is up to empirical research to demonstrate whether institutions impact firms or not, and if so, at what levels of spatial aggregation. Therefore, we have to be cautious to take their effect for granted, and measure their relative importance (among other factors) case by case.

3. Power

The two sides of organisational routines (as memory and as truce) acknowledge that routines act both as cognitive coordination devices and as control mechanisms. In their critique on evolutionary economic geography, MacKinnon et al. (2008) are right that most evolutionary scholars have emphasised the cognitive dimension of routines. Yet, the second political dimension has always been part and parcel of the evolutionary programme both in its formative stage (e.g., Rosenberg 1969; Nelson and Winter 1977) and its subsequent elaboration in specific models (e.g., Marengo and Dosi 2005; Reinstaller 2007). Therefore, we believe it is quite straightforward to incorporate the political dimension of routines in an evolutionary approach to economic geography.

A specific tradition in evolutionary economics that tends to be overlooked by institutional economic geographers interested in industrial relations among employers

and employees concerns the studies on innovation trajectories. Nelson and Winter (1977: 56–7) speak of *natural trajectories*, which they describe as:

“heuristics that apply when a technology is advanced in a certain direction, and payoffs from advancing in that direction that exist under a wide range of demand conditions. We call these directions ‘natural trajectories’, where heuristics refer to ‘beliefs about what is feasible or at least worth attempting’ ”.

Nelson and Winter (1977) argued that many trajectories are driven by the logic of *mechanisation* of the production process to reduce wages by codifying the tacit knowledge of employers, which lowers their bargaining power within the labour market. Along such trajectories of process innovations, scale economies are increased by an increasing division-of-labour in production on the basis of standardised production routines. The standardisation of product designs facilitates the introduction of standardised production routines.

The notion of natural trajectories introduced by Nelson and Winter (1977) is clearly in line with the product lifecycle theory as a core model in evolutionary economics. In this model, industrial dynamics are driven by cost competition through process innovation among heterogeneous firms (Klepper 1996). As larger firms have more incentives to invest in process R&D than smaller firms do, since larger firms can spread process R&D investments over more production units than the latter firms, the industrial dynamics has a built-in tendency towards oligopolistic market structures with increasing entry barriers and decreasing real wages. Out-sourcing of production, then, can be viewed as the geographical extension of the concept of ‘natural trajectories’ involving the replication of routines across territorial institutional boundaries.

An evolutionary economic geography approach, then, can start from the study of the conflict of interests between capital and labour within firms as they resolve such conflicts differently using different routines. One question is to explain the diffusion of such routines among firms within and across territories. A second question is under what conditions such a diffusion process leads to an institutionalization of routines at particular territorial or sectoral levels. Note that such an approach can be easily broadened to include any stakeholder in the firm. By doing so, the political dimension of routines (as *truce*) can be incorporated in the evolutionary economic geography framework as described in Boschma and Frenken (2006).

4. Institutional change

Another way to demarcate the role of institutions in an evolutionary economic geography framework is to explain the dynamic interplay between industrial dynamics and institutional change (Freeman and Perez 1988; Boschma and Lambooy 1999; Boschma and Frenken 2006). There is increasing awareness that institutional change is required to enable the emergence of new industries and the revival of mature industries. We agree with MacKinnon et al. (2008) that the capacity of actors to change institutions through collective action is crucial for regional development, in

particular regarding emergent and declining sectors. In this context, Nelson (1995) proposed to think of institutions as co-evolving with technology and markets. Murmann (2003), for instance, showed that some crucial institutional transformations were required before the new dyestuff industry could take off and made Germany a world leader in carbo-chemicals in the nineteenth century. In other words, institutions co-evolve with the development of industries. When new institutions are formed alongside new industries, they fulfill a specific need, but once they are firmly established, they may obstruct new developments, due to inertia and institutional hysteresis (Setterfield 1997). For instance, powerful special-interest organizations may take over an economy and slow down the capacity to reallocate resources to new activities (Grabher 1993). This requires institutional change in order to avoid this situation of negative lock-in (Hassink, 2005).

The analysis of institutional change may be incorporated in the Window of Locational Opportunity concept (Storper and Walker 1989; Boschma and Lambooy 1999) which provides an evolutionary framework to explain the spatial formation of industries. As a first step in the analysis of the spatial formation of new industries, the WLO-concept aims to define and determine the probability of regions to develop a new industry. With respect to institutions, one expects that basic institutions like markets, property rights and a judicial system (among others) are a prerequisite for the development of any economic activity. In other words, countries and regions that lack these basic institutions have a probability close to zero to develop new industries. But apart from these basic institutions, it is hard to think of territories that are well endowed with very favourable institutions before a new industry starts to develop, because existing institutions generally do not fit with the specific features of a new industry. In other words, we do not expect that the spatial distribution of institutions can explain where a new industry will grow and develop. What is crucial though is that such institutions have to be created deliberately, in order to support and sustain the further growth of the new industry (Freeman and Perez 1988). These supportive institutions often come into existence where the specific demands for these institutions have emerged, that is, in those places where the new industry started to develop. These institutions are often implemented at the national scale by public intervention, but they might also develop at the sub-national level, or even at the supra-national level.

This leaves us with some fundamental questions that need to be addressed in evolutionary economic geography. We have to assess carefully the relative importance of institutions for the geography of emerging industries. As stated above, we do not expect the institutional variance across regions to explain the emergence of industries across regions. Rather, if institutions play a role, it will be more often in an endogenous manner as entrepreneurial firms, consumers and government officials engage in collective action to establish new institutions. Yet, it is up to empirical research to determine whether supportive institutions, which come into being as an outgrowth of the development of a new industry in a region, really made the difference. Other evolutionary mechanisms like localized knowledge spillovers or spinoff dynamics provide alternative explanations for why the new industry developed in a region, and not in other regions. So, institutions may not play a decisive role, or only a very indirect role by stimulating localized knowledge spillovers and spinoff dynamics (Boschma and Frenken 2003).

Equally important, an evolutionary economic geography is in need of specific institutional theories that supplement the core of industrial dynamics. In particular, theories of collective action need to be considered to explain more systematically under what conditions regions or countries are more likely to adapt their institutions to seize opportunities provided by new sectors, and under what conditions institutional adaptation fails to take place (Maskell and Malmberg 2007).¹ It is here that agendas of evolutionary and institutional approaches clearly meet (MacKinnon et al. 2008). Of particular interest in the theoretical context of evolutionary economics is the question to what extent institutions can be imitated within the same sector across different territorial contexts (Saxenian 2006; Wójcik 2006) or within the same territory across different sectoral contexts (Hall and Soskice 2001).

The empirical research programme we propose necessitates methodologies that can handle the analysis of interplay between various mechanisms at various spatial levels. Methodologically, it means that case studies are well suited to apply (e.g., Grabher 1993; Gertler 1997; Murmann 2003; Strambach 2009). At the same time, new statistical approaches have been developed to detect complex patterns in spatial data as these have been applied to organisational ecological analysis (Bigelow et al. 1997; Stuart and Sorenson 2003; Wezel 2005), survival analysis (Boschma and Wenting 2007; Klepper 2007; Wenting 2008) and social network analysis (Giuliani 2007; Gluckler 2009; Hoekman et al. 2008). We believe the further development and deployment of such approaches is important to render empirical studies in economic geography more comparable, transparent and cumulative. This wish has been expressed repeatedly in our field without denying that qualitative research remains pivotal to any social science discipline (Markusen 1999; Martin 2000; McCann 2007).

5. Conclusion

We argued that territorial institutions are to be viewed as orthogonal to organisational routines in that each territory is characterised by a variety of routines, and in that a single firm can apply its routines in different territorial contexts. It is therefore meaningful to distinguish between institutional and evolutionary approaches as their *explanans* is different. An evolutionary economic geography advocates an empirical research program in which the relative importance of organisational routines and territorial institutions can be addressed, using both qualitative and quantitative approaches. It is here where we foresee a promising synthesis of institutional and evolutionary approaches in economic geography.

References

¹ In this context, the study by Strambach (2009) is worth noting. She argues that institutional systems are not necessarily coherent in themselves but subject to institutional *plasticity*, meaning that a range of options for new paths are open within the overarching institutional system. Creative agents can deviate from the established path in a deliberate and purposeful manner, creating new institutions but not necessarily breaking with the institutional system. As she showed in her study, plasticity explains how the customized business software sector in Germany could develop in a quite unfavourable and incompatible institutional setting at the national level.

- Bigelow, L.S., Carroll, G.R., and Seidel, M.D.L. 1997. Legitimation, geographical scale, and organizational density: regional patterns of foundings of American automobile producers, 1885-1981. *Social Science Research* 26:377–398.
- Boschma R.A., and Frenken, K. 2003. Evolutionary economics and industry location. *Review for Regional Research* 23:183–200.
- Boschma, R.A., and Frenken, K. 2006. Why is economic geography not an evolutionary science? Towards an evolutionary economic geography. *Journal of Economic Geography* 6(3): 273–302.
- Boschma, R.A., and Lambooy, J.G. 1999. Evolutionary economics and economic geography. *Journal of Evolutionary Economics* 9:411–429.
- Boschma, R.A., and Ter Wal, A.L.J. 2007. Knowledge networks and innovative performance in an industrial district. The case of a footwear district in the South of Italy. *Industry and Innovation* 14:177–199.
- Boschma, R.A., and Wenting, R. 2007. The spatial evolution of the British automobile industry. Does location matter? *Industrial and Corporate Change* 16:213–238.
- Breschi, S. 2000. The geography of innovation: A cross-sector analysis. *Regional Studies* 34:213–230.
- Edquist, C. 1997 ed. *Systems of innovation. Technologies, institutions and organizations*. London/Washington: Pinter.
- Essletzbichler, J., and Rigby, D.L. 2005. Competition, variety and the geography of technology evolution. *Tijdschrift voor Economische en Sociale Geografie* 96:48–62.
- Freeman, C., and Perez, C. 1988. Structural crisis of adjustment, business cycles and investment behaviour. In: G. Dosi, C. Freeman, R. Nelson, G. Silverberg, L. Soete, eds. *Technical Change and Economic Theory*, London: Pinter, 38–66.
- Gertler, M.S. 1997. The invention of regional culture. In: Lee, R., and Wills J. eds. *Geographies of economies*, London: Arnold, 47-58.
- Giuliani, E. 2007. The selective nature of knowledge networks in clusters: evidence from the wine industry. *Journal of Economic Geography* 7:139–168.
- Gluckler, J. 2009. The evolution of a strategic alliance network. Exploring the case of German stock photography, in: Boschma, R. and Martin, R. (eds.) *Handbook of Evolutionary Economic Geography*, Cheltenham: Edward Elgar, in press.
- Grabher, G. 1993. The weakness of strong ties: the lock-in of regional development in the Ruhr area. Grabher, G. ed. *The embedded firm*, London: Routledge, 255–277.
- Hall, P.A. and D. Soskice (eds.) (2001) *Varieties of capitalism. The institutional foundations of comparative advantage*, Oxford: Oxford University Press.
- Hassink, R. 2005 How to unlock regional economies from path dependency? From learning region to learning cluster. *European Planning Studies* 13(4):521-535.
- Hoekman, J., Frenken, K., and Van Oort, F. 2008. Collaboration networks as carriers of knowledge spillovers: Evidence from EU27 regions. *CESPRI working paper* 222, Bocconi University, Milan.

- Klepper S. 1996. Entry, exit, growth and innovation over the product life cycle. *American Economic Review* 86:562–583.
- Kogut, B., and Zander, U. 1993. Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies* 24:625–646.
- Lundvall, B-Å. 1992 ed. *National innovation systems: Towards a theory of innovation and interactive learning*. London: Pinter.
- MacKinnon, D., Cumbers, A. Pike, A., Birch, K., and McCaster, R. 2008. Evolution in economic geography: Institutions, political economy, and adaptation. *Economic Geography*, this issue.
- Malerba, F. 2004 ed. *Sectoral systems of innovation: Concepts, issues and analyses of six major sectors in Europe*. Cambridge: Cambridge University Press.
- Marengo, L. and Dosi, G. 2005. Division of labor, organizational coordination and market-mechanisms in collective problem-solving. *Journal of Economic Behavior and Organization* 58:303–326.
- Markusen, A. 1999. Fuzzy concepts, scanty evidence, policy distance: The case for rigour and policy relevance in critical regional studies. *Regional Studies* 33:869–884.
- Martin, R. 2000. Institutional approaches in economic geography. In: Sheppard, E., and Barnes, T.J. eds. *A companion to economic geography*. Oxford and Malden MA: Blackwell Publishing, 77–94.
- Maskell, P. and Malmberg, A. 2007. Myopia, knowledge development and cluster evolution. *Journal of Economic Geography* 7(5):603-618.
- McCann, P. 2007. Observational equivalence? Regional studies and regional science, *Regional Studies* 41:1209–1221.
- Morrison, A. 2008. Gatekeepers of knowledge within industrial districts: Who they are, how they interact. *Regional Studies* 42:817–835.
- Murmann, J.P. 2003. *Knowledge and competitive advantage. The co-evolution of firms, technology, and national institutions*. Cambridge: Cambridge University Press.
- Nelson, R.R. 1993 ed. *National innovation systems. A comparative analysis*. Oxford & New York: Oxford University Press.
- Nelson, R.R. 1995. Co-evolution of industry structure, technology and supporting institutions, and the making of comparative advantage. *International Journal of the Economics of Business* 2:171–184.
- Nelson, R.R., and Winter, S.G. 1977. In search of a useful theory of innovation. *Research Policy* 6:36–76.
- Nelson, R.R., Winter, S.G. 1982. *An evolutionary theory of economic change*. Cambridge, MA and London: The Belknap Press.
- Reinstaller, A. 2007. The division of labor in the firm: Agency, near-decomposability and the Babbage principle. *Journal of Institutional Economics* 3:293–322.

- Rigby, D.L., and Essletzbichler, J. 1997. Evolution, process variety, and regional trajectories of technological change in US manufacturing. *Economic Geography* 73:269–284.
- Rivkin, J.W. 2000. Imitation of complex strategies. *Management Science* 46:824–844.
- Rosenberg, N. 1969. The direction of technical change: inducement mechanisms and focusing devices. *Economic Development and Cultural Change* 18:1–24.
- Saxenian, A. 2006. *The new argonauts: Regional advantage in a global economy*. Cambridge, Mass.: Harvard University Press.
- Setterfield, M. 1997. *Rapid growth and relative decline. Modelling macroeconomic dynamics with hysteresis*, London: MacMillan.
- Stam, E. 2007. Why butterflies don't leave: Locational behavior of entrepreneurial firms. *Economic Geography* 83:27–50.
- Strambach, S. 2009. Path dependency and path plasticity. The co-evolution of institutions and innovation - the German customized business software industry, in: Boschma, R. and Martin, R. (eds.) *Handbook of Evolutionary Economic Geography*, Cheltenham: Edward Elgar, in press.
- Stuart, T., and Sorenson, O. 2003. The geography of opportunity: spatial heterogeneity in founding rates and the performance of biotechnology firms. *Research Policy* 32:229–253.
- Storper, M., and Walker, R. 1989. *The Capitalist Imperative. Territory, Technology and Industrial Growth*. New York: Basil Blackwell.
- Wenting, R. 2008. Spinoff dynamics and the spatial formation of the fashion design industry, 1858-2005. *Journal of Economic Geography* 8:593–614.
- Wezel, F.C. 2005. Location dependence and industry evolution: Founding rates in the United Kingdom motorcycle industry, 1895-1993. *Organization Studies* 26:729–754.
- Winter, S.G., and Szulanski, G. 2001. Replication as strategy. *Organization Science* 12:730–743.
- Wójcik, D. (2006) Convergence in corporate governance: evidence from Europe and the challenge for economic geography. *Journal of Economic Geography* 6:639-660.
- Wrigley, N., Coe, N.M., and Currah, A.D. 2005. Globalizing retail: conceptualizing the distribution-based TNC. *Progress in Human Geography* 29:437–457.