



Institutional change in economic geography

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Abstract

This paper develops a rigorous concept of institutions to investigate the interrelationships between institutional and economic change from the perspective of economic geography. We view institutions neither as behavioural regularities nor as organizations or rules, but conceive institutions as stabilizations of mutual expectations and correlated interaction. The paper discusses how economic interaction in space is shaped by existing institutions, how this leads to economic decisions and new rounds of action, and how their intended and unintended consequences impact or enact new/existing institutions. The paper explores three modes of institutional change – hysteresis, emergent change, and institutional entrepreneurship.

Keywords

institutional change, institutional entrepreneurship, institutional hysteresis, institutions, relational economic geography, technological change

1 Introduction

A relational perspective in economic geography focuses on the analysis of economic practices at the micro level – be it related to specific actors or the social relations between them (Bathelt and Glückler, 2003, 2011; Yeung, 2005). Such an analysis necessarily leads to a number of important questions regarding the relationship between structure and agency, and the role of macro-economic and societal conditions. It also raises questions about the types of methods that may be most usefully employed in a relational approach to the study of economic development. Economic action as social action is not unconditional. It is guided by, enabled through, and constrained by ‘institutions’ in the sense of accepted, existing patterns of interaction – be

they related to some sort of rules and regulations or to conventions of social and economic life.

However, a closer look through the literature in economic geography and related disciplines reveals that institutions are often vaguely defined, refer to different meanings, or almost become a ‘black box’ to relate to otherwise unexplained influences in economic development. This is highly problematic because it establishes substantial hurdles when trying to integrate and

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interpret findings from different strands of research to advance our knowledge in the field. Such interpretation even becomes an impossibility when institutions are almost arbitrarily used with varying meanings. A good example to illustrate this is the literature on innovation systems that, although emphasizing the interrelationships between institutions and innovations, does not provide a generally accepted understanding of institutions. While Nelson (1993), for instance, appears to understand institutions as the legislation and organizations of education, training, funding, and research frameworks that differ at a national level and thus create national innovation systems, Edquist and Johnson (1997: 43) view institutions as 'the things, that pattern behaviour, e.g. routines, norms, shared expectations, morals, etc.'. While the one account emphasizes organizations as institutions, the other focuses on the role of laws, rules, regulations, etc. (see also Gertler, 2010; North, 1990). Both perspectives, although quite different in character, tend to view institutions as structures that shape and direct action. Comparing institutions as social technologies with physical technologies, Nelson and Nelson (2002: 269) suggest that they are like 'a paved road across a swamp . . . Without a road, getting across would be impossible, or at least much harder'.

Another perspective can be found in Lundvall and Maskell's (2000) analysis of national innovation systems. Within this analysis, the authors adopt a perspective that comes close to the understanding of institutions suggested in this paper, where institutions are linked explicitly to practices of repeated interaction, instead of viewing them independently from economic action. For instance, Lundvall and Maskell (2000: 362) link institutions to the development of trust, to the way authority is expressed, and to 'how things are done' and 'how learning takes place' in different national contexts. In this understanding, institutions develop from and co-evolve with solving specific problems in production through processes of interactive learning (see also

Archibugi et al., 1999; Lundvall, 1992). Overall, the sometimes confusing use of the term 'institution' calls for clarification.

The agenda of this paper is therefore to generate an explicit conceptualization of institutions and institutional change in the context of relational economic geography that integrates approaches from different fields of the social sciences. We view institutions neither as organizations nor as rules or simple regularities, but rather conceive institutions as stabilizations of mutual expectations and correlated interaction. In economic geography, institutions are often not explicitly defined and, frequently, the role of institutions appears to be hidden behind spatial patterns or assumed 'spatial laws'. Although institutions have been discussed numerous times within the discipline in recent years (e.g. Amin, 1999; Farole et al., 2010; Rodríguez-Pose and Storper, 2006; Storper, 2004), calls for an institutional perspective have not led to more clarity in research practice.¹

In response to this, we aim to develop a consistent perspective on how institutions can be usefully conceptualized in investigations of economic action and interaction in local/regional and cross-regional/global context without conceiving them as a priori spatial constructions. While our conceptualization draws from Giddens' (1984) work to overcome the duality between structure and agency, our arguments are also related to findings from actor-network theory (Latour, 1986), the theory of social systems (Luhmann, 1984), and Foucault's (1980a, 1980b) work on the micro technologies of relations of power that concentrate on the flows of action and communication.² The relational approach focuses on the roles of agents and organizations, the economic practices and relationships in which they engage, and the resulting social institutions and their dynamics at different spatial and non-spatial scales. With respect to this understanding, it is neither our intention to engage in a debate about scales (see Ettliger, 2011), nor to disregard literature that

applies a different understanding of institutions. Rather, we wish to emphasize that we need to have a clear, explicit conceptualization of institutions in order to make sense of the diverse literature and draw appropriate conclusions from it. While insisting on the need for consistency in each approach, such conceptualization enables us to translate between different strands of literature and link the respective approaches. Through this, we may be able to learn from various empirical investigations of how institutions provide the basis for and how they shape economic interaction, even if such studies build upon a different view of institutions (e.g. Gertler, 2004; Hargadon and Douglas, 2001).

This paper presents a critical review that discusses the role of economic agents, their rationalities and strategies, and how these lead to specific practices of economic interaction. Our purpose is not only to link agents with economic practices, but also to conceptualize institutions as important mediators between the micro and macro, as well as local and global scales of analysis. In particular, we discuss how institutional change or hysteresis can occur in the context of technological change. We investigate how economic interaction in space is shaped by existing institutions, how this leads to economic decisions and new rounds of action, and how intended and unintended consequences support institutional adaptations that impact future motivations and action. As such, we conceptualize a reflexive rather than a dualistic relationship between economic action and institutional settings. Based on a relational perspective, we describe how institutions emerge in a contextual, path-dependent, yet contingent way. Once in place, however, powerful economies support institutional hysteresis, establishing structures of relationships that resist sudden and radical changes. We discuss the tensions between institutions and innovations to develop a relational perspective on how institutions can guide technological change while minimizing the risk of lock-in processes.

This paper is organized as follows. Section II discusses the role of economic agency, the type of agents included, and their rationalities. It then defines a concept of institutions in contrast to simple behavioural regularities, rules, and organizations. Since technological change is deeply interdependent with the social institutions that inform collective reasoning, action, and legitimation, the discussion that follows focuses on the stability, flexibility, and change of institutions. As 'strong' technologies may sometimes fail against 'inferior' technologies, social institutions play a crucial role in facilitating or hampering technological innovation. Similarly, 'bad' institutions may resist or impede the emergence and diffusion of 'good' institutions. This leads us to an analysis of how institutions allow for and guide technological change. We focus on three qualities of institutional dynamics, namely how institutions (1) persist, (2) emerge, and (3) are purposively co-constituted. Section III discusses mechanisms of institutional hysteresis and points to institutional constraints on economic development and the emergence of new institutions. Section IV reviews the relationships between agency and structure in the light of structuration theory and suggests institutions as mediators between micro and macro levels of analysis. Section V elaborates on the paradox of embedded action and discusses institutional entrepreneurship as a field of analysis of the purposive action dedicated to creating and implementing new institutions in emerging organizational fields or markets. Section VI concludes our analysis with implications and future questions for economic geography.

II Agency, institutions, and the problem of technological change

I Agency and rationalities³

When conceptualizing the role of institutions in economic geography, a natural starting point is to think about the incentives and constraints that impact economic action and interaction in

spatial perspective. Although existing structures, such as locational distributions of suppliers, customers, and resources, as well as material infrastructures, define the basic framework for any action, agents – in the first place – act according to certain goals, purposes, and rationalities. An important question when analysing economic action is, of course, which actors should be included in our research and how. At the core of the relational perspective are individuals that make economic decisions and interact with others in research, production, and transaction processes, i.e. workers, managers, consumers, and politicians. Their activities are assumed to be generally purposeful, although they may have unintended consequences (e.g. Hudson, 2004). It is questionable, however, whether it is possible to limit an analysis to these individual actors. In economic contexts, there are important collective actors, such as firms, governmental bodies, and other organizations, which need to be considered. These types of collective actors differ from individuals and cannot be reduced to them (Oinas, 2006; also Maskell, 2001). Firms, for instance, operate differently from individuals, as managers and workers may perform particular roles in their business life, when engaging in complex processes of negotiation and decision-making. Firms are also organized around structures and procedures that are (to some degree) independent from the individual agents who operate inside these organizations (Lawson and Lorenz, 1999; Nelson, 1995).

The conceptual foundations of action in this approach are based on an institutional perspective (Amin, 1999), in which the goals and preferences of economic action are not predetermined by the assumption that actors are rational, utility-maximizing individuals (Hodgson, 2003). In reality, individual and collective agents are embedded in structures of social relations that influence their decisions and actions (Granovetter, 1985). They are, for instance, involved in specialized producer-user networks and cannot easily change their transaction

partners and production programs from one day to another (Grabher, 1993).

Furthermore, there are various rationalities at work which yield differences in economic performance (Amin, 1999). Agents may choose between an instrumentalist rationality (which focuses on reactive problem-solving in a stable environment), a procedural rationality (which breaks problems down and solves them in a step-wise manner), or a recursive rationality (which tries to anticipate changes and actively to shape the environment). The predominance of a particular rationality depends on the agents' contexts and experiences.⁴ At the same time, 'individuals engage in multiple networks associated with different rationalities, and these different networks ... [can be] overlapping networks' (Ettlinger, 2003: 161). Therefore, economic relations also depend on those social, cultural, and political rationalities that affect economic strategies and decision-making. As opposed to traditional approaches, a relational conception is capable of integrating multiple rationalities and complex contexts of economic action. Multiplex relations link people in many different ways as neighbours, friends, and business partners (Uzzi, 1997). They provide a means of engaging resources from one type of relationship to another, and of transferring institution-based trust into interpersonal trust and vice versa. Based on such dynamic processes, economic, social, and cultural relations may define a creative 'field' that stimulates entrepreneurship, learning, and innovation, and leads to positive spatial externalities, if concentrated in physical spaces such as regional agglomerations (Scott, 2004). However, creativity and innovation may also emerge from non-localized institutional fields, such as those related to virtual communities (Grabher and Ibert, 2013), and are not bound to territorial scales per se.

In some of the literature on economic networks and the 'cultural turn', there is a tendency to overstate the social dimension of economic interaction while neglecting economic considerations in explanations of such action. At least

implicitly, networks are sometimes portrayed as if they were ultimately democratic, consisting of altruistic agents engaging in 'friendly' exchange relationships (critically, Sayer, 2001). Without denying the importance of the socio-institutional context, our conceptualization does not ignore the fact that economic agents are generally interested in enhancing their personal wealth (Taylor, 2004). Indeed, this is a key driver of economic action and interaction. Competition, rivalry, market interaction, and 'market-making' are, thus, important aspects that shape economic action in a relational perspective.

In short, the relational approach suggests that economic agents act according to economic *and* non-economic goals and strategies (Ettlinger, 2004; Massey, 2004). The results of such deliberate action include intended and unplanned spatial outcomes which, in turn, impact the next round of decisions (Bathelt and Glückler, 2011; Werlen, 1995). To understand the underlying processes and rationalities of economic action, it is important to adopt a micro perspective that emphasizes the contextual, path-dependent, and contingent nature of economic action and interaction.

2 Toward a concept of institutions

Economic action is not atomistic but relational. Individual preferences, norms, values, ethics, tastes, styles, needs, and objectives emerge from and are co-constituted through the social embedding of economic interaction. Economic actors are not isolated beings who carry out atomistic behavioural scripts; rather, they are embedded in a social environment that constitutes meaning through repeated interaction.⁵ Such a concept of relational action has three implications (Bathelt and Glückler, 2003, 2011): (1) *contextuality*, related to situated practice and reflexive, transformative action; (2) *path dependence*, which is a matter of institutionalization and imprinting; and (3) *contingency*, associated with serendipity, historical points of inflection, and purposive action

toward institutional change. Relational action is thus an expression of a perspective where real interaction is informed by historical patterns of mutual expectations (path-dependence) and where, at the same time, contextual interaction contributes to the transformation of these patterns based on the principle of contingency. The interplay between experiential action and patterns of instituted expectations drives a recursive process of correlated interactions and transformative institutionalization.⁶

To illustrate this, we provide two examples below that help us understand the potential confusion in terminology regarding institutions, organizations, and rules and other regularities. Both examples are phrased as hypothetical problems but relate to empirical cases discussed in the literature:

1. *Example 1* assumes that the Fordist crisis leads to increasing unemployment as integrated mass producing firms struggle to remain competitive and, as a result, release workers. In a region that is impacted by this crisis, regional policy-makers and banks come up with a policy that provides incentives for new ventures in the form of start-up money in order to try to reduce the negative effects of the crisis. However, rather than stimulating new start-ups in a different industry, this policy causes regional disintegration as former employees acquire machinery and establish their own businesses. They create close inter-firm linkages with their former employers and extend these linkages to other firms in the region, thus contributing to the development of wider regional networks, based on and contributing to the development of trust, while, at the same time, stimulating more competition. This process is closely related to some of the restructuring processes that were characteristic in the Third Italy as analysed by Amin and Thrift (1992).

Neither the governments/banks nor the rules/policies were in this case institutions. Instead, there were a number of stable social practices that developed simultaneously, which we refer to as institutions. For instance, this policy led to the establishment of trust-based inter-firm interaction. It also stimulated the formation of competition patterns. Furthermore, it resulted in start-up practices associated with spinning-off parts of production processes and stimulating vertical disintegration. Empirical research in the context of industrial districts in Italy and France has illustrated how such 'social practice institutions' (Glückler, 2005) emerge from everyday practice. In a case study of a Lyon-based manufacturing district, Lorenz (1999: 308) identified the informal basis of the 'moral contract' that entrepreneurs develop as an important orientation for non-contractual inter-firm collaboration. These institutions build upon mutually shared and legitimate expectations that are articulated, for instance, through the symbolic interaction of a handshake which 'is worth more than a piece of paper with writing on it' (interview quote from Farrell and Knight, 2003: 556). The specific economic advantage of such institutionalization rests on the ability of actors to adapt their interaction to situations which are subject to unanticipated contingencies that could not possibly be ruled out contractually.

2. *Example 2* assumes that the government in a country establishes new social security legislation and corresponding organizations with the intention to reduce the influence of unions and increase worker loyalty to the state. Over time, however, the state regime changes and the new social security system now operates in a different context and has a completely different impact under different economic

conditions. In the new situation, the social security regulations generate employment security, stabilize the positions of unions, and establish a basis for ongoing interaction between the agents. This, in turn, provides the preconditions for robust employment relations, which enable incremental learning processes and cumulative innovation. This example draws on the historical case of the establishment of the welfare state under Bismarck in 19th-century Germany, which was meant to strengthen worker loyalty to the monarchy and, in turn, weaken the upcoming union movements (Thelen, 2004). In the post-Second World War development under Germany's new democracy, these same social security regulations, however, had a very different effect. As described in Katzenstein's (1987) account on the so-called 'semi-sovereign state', the social security system generated the preconditions for long-term employment and collaborative union-employer relationships that greatly supported economic development. The introduction of the welfare state supported a different set of institutions with respect to labour relations. Instead of stabilizing a hierarchical capital-labour nexus based on worker loyalty without an active role of the unions, inclusive capital-labour relations were generated with long-term employment relations, comprehensive co-determination, and ongoing involvement and mediation of unions. This example again shows that it is necessary to distinguish, on the one hand, between organizations as actors in pursuit of specific goals, rules as prescriptions of legitimate or even legal behaviour, and, on the other hand, the resulting stabilized interaction practices. These stabilized practices were the institutions that resulted from the new regulations.

Both examples illustrate that institutions are related to rules and regulations (or may develop from norms), but that their characteristics can be quite different because they are subject to processes of evaluation, implementation, and application. In other words, they have to be put into economic practice. The examples also show how institutions can change over time while relying on the same formal basis of laws and regulations. Further, they can develop at different spatial levels (although they may also develop in non-spatial contexts, for instance driven by technology chains). It is important to note that, depending on the institutional understanding, different conclusions could be drawn from the same empirical reality – leading to different policy conclusions. For instance, an interpretation of institutions as rules in Thelen's (2004) example of the social security system in Germany might come to the conclusion that 'institutions' have proven to be quite persistent in economic history, while our understanding leads to the conclusions that 'institutions', in the sense of stabilized patterns of interaction, have fundamentally changed – even though the basic rules and regulations upon which they are based have remained the same.

These examples suggest that a first step toward a definition of institutions may be to explicate what institutions are not. We depart from this negative definition because part of the conflation in the debate about institutions is the ambiguous use of the term, where some of the meanings clearly refer to distinct phenomena or structures. The following three social phenomena should in this context not be viewed as social institutions:

1. *Simple behavioural regularities.* Social life is filled with repeated action where people adhere to perpetual customs, such as the sequence of exercises that an athlete repeats in warming up. As long as these simple regularities of individual behaviour neither affect expectations for

the actions of others nor enforce sanctions against any deviation, these regularities are not social institutions (Esser, 2000). Simple regularities only become institutions if they generate expectations, create patterns of interaction, and if they are supported by effective sanctions (Bathelt and Glückler, 2012).

2. *Organizations.* Institutions are also not organizations or governmental bodies that have a certain form and can be clearly separated from their environment – be it through ownership ties or territories of competence. Organizations are sets of actors and resources targeted to pursue common objectives and, as such, can be viewed as collective actors. Institutions are the stabilizations or correlations of the interactions *between* individual or collective actors.⁷ They are thus associated with specific economic and social processes, not with specific outcomes or measurable characteristics.
3. *Rules.* Rules, laws, and regulations are codified prescriptions; they are 'not yet institutions'. Institutions are not like rules that can be written up and shared with others by means of reading and interpreting. In fact, rules and laws can be meaningless if common practices disregard or deviate from them without identifiable sanctions. Yet institutions develop in relation to rules, in response to them, or even against them – they are shaped by the presence of rules, but in a rather contingent manner as illustrated in the previous two examples.

The exclusion of these phenomena turns our focus toward a positive definition of social institutions: we define institutions as forms of ongoing and relatively stable patterns of social practice based on mutual expectations that owe their existence to either purposeful constitution or unintentional emergence (Bathelt and Glückler, 2011;

Hartfiel and Hillman, 1982). Institutions are based on different kinds of overt or covert rules and may thus be formal (e.g. based on laws or regulations) or informal (e.g. based on norms or conventions) in nature.⁸ Institutions increase an actor's expectations about the likely responses of other actors and therefore create steadiness and consistency in social interaction (Bathelt, 2006; Glückler, 2005). However, since certain rules and regulations may be applied differently in different contexts, they may lead to varying stabilizations of interaction and therefore create a certain variety of spatially/temporally specific institutions. Orlikowski (2000) demonstrates this in the case of a new professional software package that resulted in rather different corporate practices in its application and in the specific problems that were addressed. A relational understanding of institutions thus leads us to acknowledge institutional variety and opens grounds for a geographical approach to institutional change. In fact, when characterizing typical institutions, such archetypes might be viewed as average representations of stabilized interaction patterns that may have a different form depending on the context.⁹

To move a step forward, we should emphasize that institutions are clearly not a priori spatial constructions because they arise, in the first place, from specific social and technological realities, problems, or challenges in economic life. As such they are socio-economic in character, not spatial.¹⁰ However, since many institutions develop in relation to rules and regulations or to norms that have a territorial basis – and, thus, in relation to boundaries (e.g. the borders of the national state that issues new social security legislation or the regional context of conventions related to vertical disintegration processes) – the resulting formal and informal institutions are related to this territorial basis. Although institutions may not have a spatial foundation per se, and although the specific institutions that develop from repeated interaction depend on the specific context, we may often be able to observe spatial differences and specializations

of institutions in comparative studies between different local, regional, or national territories.

Having clarified our understanding of institutions, we proceed by applying it to the area of innovation and technological change in which institutions play a key role. While conventional approaches to innovation tend to assume that new technologies become established because they are inherently superior to existing technologies, the reality is less consistent with such functional claims, as certain technologies become widely adopted, whereas other equally efficient technologies fail to be accepted. The lessons that history tells us suggest an institutional rather than a purely functional approach to the explanation of technological change. Obviously, institutions form an important element in the dynamics and directions of technological change – and the focus on institutions may help us to distinguish between 'technologies as artefacts' (that may or may not be used) and 'technologies-in-practice' (suggesting that innovations may be applied in different ways) (Orlikowski, 2000). In the following sections, we investigate the relationships between institutional and technological change pursuing three lines of argument: problems of institutional hysteresis (Setterfield, 1993); emergence of new institutions (e.g. Hall and Thelen, 2009); and practices of institutional entrepreneurship (DiMaggio, 1988).

III Institutional hysteresis

Institutions play a critical role in economic interaction because they establish the basic conditions for information and knowledge exchange. Institutions can become a burden, however, if they are associated with rigid conditions that limit the perceptions and opportunities of economic actors. This is particularly problematic when institutions support inefficient economic or technological developments, and lead economic networks to rely on internal problem-solving and existing power hierarchies, instead of searching for best-practice solutions, for

instance at a wider national and international level. Although lock-in situations can be a source of high economic returns over extended periods of time, they may lead to a negative 'catch 22' situation, or one in which better technological choices are ruled out (Martin and Sunley, 2006). Although institutions are subject to ongoing incremental adjustments, negative lock-in can trigger constellations that are hostile to institutional change (Hassink and Shin, 2005), which can lead to a situation that has been referred to as institutional hysteresis (Setterfield, 1993). While institutional hysteresis is different from lock-in, as it relates to the effects (or power) of institutions that persist even if the original conditions that caused their creation might have long disappeared, both can be interdependent and may stimulate one another. This raises a number of important questions regarding the potential problems that institutions create in terms of (1) processes of innovation and knowledge generation, (2) the persistence of inefficient institutions in supporting practices that are suboptimal, disruptive, or unsustainable, and (3) the creation of such institutions in the first place (Bathelt and Glückler, 2011, 2012).

I Institutions versus innovations

One important question that arises from the above discussion is related to the way in which institutions may inhibit innovation processes. In the context of strong institutions and power relationships associated with existing economic structures, it might be difficult to introduce new technologies to the market and become a successful innovator in the face of opposing or contrary social forces. Whereas (established) institutions, on the one hand, are strongly associated with stability and pre-existing structures, (new) innovations, on the other hand, propose and often require substantial changes of institutions toward new stabilizations of interaction. The potential problems that can arise in such

situations have been well illustrated in the historical context of the introduction of the electrical light by Thomas Alva Edison (Hargadon and Douglas, 2001). In the case of the electrical light, the oligopoly of the then dominating gas industry had created rigid institutions that prevented a shift toward the electrical light technology. This historical case exemplifies that innovative success is not necessarily a direct consequence of technological superiority (David, 1985). Hargadon and Douglas (2001) argue that associative points have to be found in innovation processes to present the design of a new product in established interpretative contexts in order to increase an innovation's initial acceptance. To accommodate this, the design of an innovation needs to actively relate to existing institutions, while, at the same time, offering enough flexibility to indicate adaptability to new and changing market environments. As the case of the electrical light illustrates, innovations are more likely to succeed if they are introduced in the context of existing institutions. This provides legitimacy, but also generates incentives to modify these institutions. Edison, for instance, had the supply infrastructure for electrical light laid underground and used low-voltage light bulbs to make the new light appear in a form that was familiar to long-term gas light consumers.

2 Persistence of inefficient institutions

Although this speaks to institutional persistence, the question arises as to why conventions would persist even if they are clearly suboptimal or counterproductive to technological change. Setterfield (1993) identifies a number of possible explanations for this. Following a similar logic as in the classical prisoners' dilemma in economics, institutional inefficiencies might persist if they help to avoid conflicts regarding, for instance, the redistribution of resources or outcomes. Another reason for maintaining inefficient institutions involves the avoidance of economic sanctions. An industrial supplier, for

instance, might choose to rely on outdated delivery systems in order to maintain relations with its major customers (see also Uzzi, 1996). The potentially high cost of changing institutions is another factor that may help explain why institutional inefficiencies can persist. Indeed, given that institutions are often systematically interrelated, changes in one institutional domain might require extensive investments in other domains. The interrelatedness of institutions can thus inhibit changes in one institutional dimension, irrespective of others (Frankel, 1955) – and eventually slow down or prohibit technological change.

Finally, the continued acceptance of an institution that has potentially negative economic or social consequences may even be a rational choice from an agent's individual perspective. This is a problem that has been discussed in the context of the socialization of negative external effects in the economy. Marquis (2003) provides an illustrative example of the persistence of such institutions from a geographical perspective. He compares the development of networks of interlocking directorships in the largest US cities, and demonstrates that the business networks of cities that were established prior to the advent of air travel technology were significantly more locally bound than the networks of younger cities. Despite the availability of modern travel technologies in the entire urban system, new corporate board positions in older cities were filled predominantly with local directors. The persistence of this practice in older communities illustrates the basic argument of imprinting theory (Stinchcombe, 1965). According to this perspective, organizations adopt characteristics in response to the environmental conditions that exist during their period of foundation. These imprinted patterns are sustained over time, and persist even through periods of significant environmental change. Since the social technology of long-distance travel was not available before the introduction of air transport, business communities had to assign local

directors to their corporate boards. These imprinted practices constituted a 'locally legitimate template of action' (Marquis, 2003: 656) or, in other words, a persistent and trans-contextual institution of board composition.

3 Establishment of inefficient institutions

While it is possible to explain how an institution that was once efficient becomes less efficient or even inefficient over time, it appears more difficult to understand why inefficient institutions are generated and spread to begin with. Setterfield (1993) offers three possible explanations to this problem. First, institutions that are substandard or disruptive might result from a hostile selection environment. This could be associated with random processes as suggested in Arthur's (1988) model of path dependence where increasing returns, at some point, lead all agents to choose the same solution over another, even if their original preference was in opposition to this. Second, inefficient institutions might be generated because their creation is easy, following a Pareto process which avoids conflict-laden choices that could involve redistribution. Third, the distinction between efficient and inefficient institutions might not be clear at the outset. Therefore, original choices might turn out to be suboptimal at a later point. In sum, there are many potential sources and cumulative mechanisms of hysteresis that facilitate an enduring persistence of institutions beyond the point in time at which their original formative preconditions might no longer be in place.

IV Emergent institutional change

While the discussion of institutional hysteresis focuses on the lasting impact of existing institutions on innovation and technological change, a different perspective may lead us to ask how emergent institutional change occurs under such conditions. This results in a discussion of the role of structure versus agency.

I Duality of structure and agency

A relational perspective emphasizes economic interaction and the contextuality of that interaction within structures of social relations. This, however, does not make it a reductionist micro perspective that is blind to wider societal structures and dynamics. In a way that closely corresponds with structuration theory, a relational perspective aims to theorize social and economic practice beyond the micro/macro divide. Giddens (1984) conceptualizes action as a continuous flow of purposeful conduct in the *durée* of everyday life. Under such conditions, agents are able to monitor and reflect upon their action. The rationality of social action refers to the ability of actors to provide a rationale for their actions. Here, Giddens (1984) distinguishes a discursive and a practical consciousness from which actors draw their ability to find reasons for their actions. But action also has a recursive quality. Through the course of action, agents continuously reproduce the conditions that enable their actions in the first place. This leads to a reflexive dynamic, which Giddens (1984) refers to as the stratification model of action. The model, which informs the relational approach, points to the limitations of adopting either a pure micro perspective or a pure macro perspective, if done in mutual exclusion.

1. *Limitations of a micro perspective.* A central limitation of a micro perspective is that social interaction cannot be fully grasped through an analysis of the acting individuals alone. Unacknowledged conditions and unintended consequences of action, which are unavoidable given the lack of complete information in interaction contexts, constrain any explanations of macro-social phenomena from the perspective of the consciously acting individual (Thompson, 1989).
2. *Limitations of a macro perspective.* At the other extreme, structuralist or

functionalist approaches are also incomplete in their explanations. The employment of a priori assumptions about the existence of functional mechanisms in macro-social systems leads to an implicit determinism in that social action is explained simply as a product of specific functional constraints or a priori principles. This perspective tends to reify concepts of social structure as real entities and dismisses the realm of contextuality and purposive social action (Granovetter, 1985).

In addressing the conceptual duality of structure and agency, Giddens (1984) suggests a potential solution to the macro/micro dualism:

If interpretative sociologies are founded, as it were, upon an imperialism of the subject, functionalism and structuralism propose an imperialism of the social object. One of my principal ambitions in the formulation of structuration theory is to put an end to each of these empire-building endeavours. The basic domain of study of the social sciences, according to the theory of structuration, is neither the experience of the individual actor, nor the existence of any form of societal totality, but social practices ordered across space and time. (Giddens, 1984: 2; see also Thompson, 1989)

The theorem of the duality of structure and agency resembles the relation between language and speech (Barley and Tolbert, 1997; Werlen, 1995). While speech is situated in space and time, language is virtual, timeless, and without subject. The same applies to social structure. Though individual agency constitutes social interaction, social structure has only a virtual existence. It is comprised of rules and resources, around which individual agency takes place in a recurrent fashion. In this way, interaction is structured and structure is continuously reproduced. Structure, however, only exists in social interaction (Thompson, 1989). Social structure is a virtual order of transformational relations

that continuously reproduce social practice (Giddens, 1984).

In line with this approach, a relational perspective conceptualizes institutions in order to include macro-social structures in the analysis of economic relations. Institutions represent a common social arena for processes of communication, collective learning, and innovation. On the one hand, institutions constrain the space for alternative actions (North, 1990); on the other hand, they provide the necessary conditions under which continuous interaction is made possible (Hodgson, 1988). A relational approach acknowledges that institutions can only become real through the course of social practice and that the interactions between actors are the unit of analysis best suited to understanding the foundations of institutions. Economic action is, in other words, highly contextual in nature; it is situated within material and social relations, as well as institutional contexts. Institutional contexts provide relatively stable social orientations that motivate economic relations. They are recursively reproduced through these relations and transactions.

2 *Institutions as mediators*

Related to the context of structuration theory, it can be argued that institutions are critical in resolving the structure-agency dualism and in understanding the linkages between micro and macro levels of economic development (Bathelt and Glückler, 2012). From a relational perspective, institutions do not primarily serve to constrain or limit economic action (e.g. North, 1991). They possess important opportunity-generating capabilities regarding the interaction within and between firms, as well as across groups of economic agents (Hodgson, 1998). In this perspective, institutions are defined not as rules but, following Setterfield (1993: 756), as the ‘correlated behaviour of agents . . . that reoccurs under the same or similar conditions’ (Dopfer, 1991: 536). Institutions are collective in the

sense that they include patterns of behaviour that cannot be traced back to individual agents.

The relational perspective is particularly well suited to analysing economic institutions in thematic, methodological, and ontological terms (Jessop, 2001). Economic institutions can be understood as stabilized forms of social relations that are recursively produced through relational action (Bathelt and Glückler, 2003). Efficient communication between transaction partners in a particular environment requires the development of a shared context of formal and informal institutions. This encourages specialized users and producers to discuss and solve problems. Such a framework does not, however, exist spontaneously. It develops over time and requires the joint experiences and interactions of agents in relation to one another. Institutions might involve a set of shared understandings of best-practice technologies, key concepts, signs, and expectations, or include tacit agreements about the solutions and practices that are sub-optimal or do not work. In an economic context, the development of institutions can be strongly guided along the lines of so-called knowing communities (Amin and Cohendet, 2004; Cohendet et al., 2013), such as epistemic communities (Knorr Cetina, 1999) and communities of practice (Brown and Duguid, 1991; Wenger, 1998).¹¹

From a territorial perspective, our previous arguments suggest that, although average patterns of interaction may be identifiable, specific contexts lead to some variation resulting in a situation of institutional variety over space, rather than homogeneity. As a result, we may be able to identify different patterns of employing technologies at the firm level, as demonstrated by Orlikowski (2000). Regardless of some ‘natural’ variation, we can expect more fundamental differences to exist between different countries, as the various rules, norms, conventions, habits, and technology attitudes that affect economic practices – and, thus, institutions – are often shaped by the settings negotiated at the level of the national state (Hall and Soskice, 2001;

Lundvall and Maskell, 2000). Or, as Coriat and Dosi (1998: 108) suggest, 'specific problem-solving competencies deeply affect the ability of both individual firms and whole countries to generate and adopt new technologies'. Even in the context of increasing economic globalization, the national state still has an important impact on the basic conditions under which firms operate. At the same time, globalization increasingly shapes processes of institutionalization and challenges the boundaries of the national state, creating another dualism that institutions help mediate. In a similar way, institutions are also significant in the context of regional production (Amin, 1999; Asheim and Isaksen, 2002) in that they enable inter-firm collaboration by translating and adjusting national conditions into regional specificities.

Overall, this suggests that different layers of institutions exist that can support or may work against one another.¹² The relations between 'community' (e.g. the regional or industrial context) and 'society' (i.e. the national context), for instance, are decisive in understanding why some places grow faster than others (Farole et al., 2010; Rodríguez-Pose and Storper, 2006; Storper, 2004). In addition to these levels, Clark et al. (2001) emphasize the context of 'family' inheritance for regional development (i.e. the firm context). These endowments and inheritances include institutions at different scales that support interactive learning. Family inheritance refers to the regional firms' accumulated capabilities and describes the overall ability of all firms in a region to learn individually. In contrast, community inheritance encompasses the overall capacity for interaction and learning between firms in a specific region (or, alternatively, between firms in an industry), while society endowments relate to the overall societal opportunities and restrictions for interaction. In the short run, these inheritances are more-or-less fixed and cannot be changed by individual actors. In the longer run, however, territorial policies can influence processes of

economic development by (re)defining institutional conditions at different levels. They may thus create a set of nested scales that are neither hierarchical nor deterministic (Swyngedouw, 1997). Economic action and interaction are mediated through and between these scales because activities take place simultaneously at various levels, and thus have multi-scalar influences (Bunnell and Coe, 2001).

The above arguments suggest that a relational perspective does not rule out macro-theoretical considerations because economic agency is, of course, not independent from the conditions of the capitalist system. Institutions mediate between both the micro and macro levels (Jessop, 2001). They create a connection between the wider societal structures and economic agency. On a different level, this may help to elucidate the relationship between the specific and the general, or between the local and the global (e.g. Clark, 2005).¹³ On the one hand, institutions shape economic practices and should, thus, be studied at the level of the economic actor (Hodgson, 1998). On the other hand, the institutional context motivates ongoing relations between agents and encourages patterns of reproduction. This, in turn, influences the institutional conditions under which economic action takes place. Overall, a reflexive process of economic interaction and institution-building can be conceptualized (see Hudson, 2004). This process involves influences from macro structures, such as the capitalist system, that are transferred to the individual level through institutions in a process of downward causation. At the same time, there is also a process of upward causation (Hodgson, 2003), which describes how micro practices are translated into broader institutional arrangements that affect the macro level.

The processes of upward and downward causation lead us to employ a dynamic perspective to understand how institutions change over time. While institutional change has often been viewed as a top-down process following, for instance, the introduction of new rules or

government policies as in the state-centred approach of Skocpol (1979) (see Hooghe and Marks, 2003), other work suggests that institutions are also shaped through bottom-up processes. According to Hall and Thelen (2009: 17), '[c]hanges in rules often follow the accumulation of "deviant" behaviour'. Thelen's (2004) historical perspective on institutional conversion in the German political economy demonstrates how institutions come to be used in ways that differ from those for which they were originally built (Streeck and Thelen, 2005). Hall and Thelen (2009) provide several illustrative examples of such 'shifts from below', where incremental changes in patterns of economic interaction generate new demands regarding the general institutional field. In a similar vein, Tsai (2010) shows how adaptive informal institutions can trigger changes in formal structures. Using the case of reforms in contemporary China, Tsai (2007) demonstrates that such bottom-up processes of institutional change can occur even in non-democratic authoritarian states.

Giddens (1984) has described these processes of upward and downward causation as reflexive relationships between structure and agency. This does not mean that structure determines agency and vice versa, creating a vicious cycle without any explanatory significance. Rather, interdependence between institutions and agency results in progressive development, where institutions mediate between individuals and wider societal structures.¹⁴ Yet, as Murdoch (1995) suggests, there is a danger of constructing macro explanations to interpret micro-scale processes without sufficient empirical evidence. It is generally problematic simply to transfer findings from one level of aggregation to another. Therefore, interpretations of macro-scale trends in economic and societal development should be based on, at least, some micro-scale evidence related to practices of economic action and the social relations through which these practices are channelled (e.g.

Yeung, 2005). Although this section argues that institutions connect different scales and accommodate dynamic changes by mediating between structure and agency, shifts in institutions are neither automatic nor frictionless processes. This is demonstrated in the next section on institutional entrepreneurship, which also links back to the processes of institutional hysteresis discussed before.

V Institutional entrepreneurship

I Solving the paradox of embedded action

Given their relative inertia and stability, institutions cannot easily be changed, designed, or implemented by individual purposive action. Theoretically, the idea of purposive institutional design leads to the paradox of embedded action (Powell and DiMaggio, 1991): how is institutional change possible if the actors' intentions, actions, and rationalities are conditioned by the institutions that they wish to change (Leca and Naccache, 2006)? This paradox can be resolved through social action that is fundamentally reflexive and contextual in nature. Social action cannot be understood as the execution of institutional scripts, but rather unfolds as reflexive interaction in specific spatiotemporal contexts (Emirbayer and Mische, 1998). When actors associate particular interests and individual advantages with potentially new institutions, they aim to accelerate and support their development and adoption. Institutional entrepreneurship describes the actions taken by organized actors with the intention to change existing and to establish new institutions (Garud et al., 2007; Maguire et al., 2004). Institutional entrepreneurs are interested in enforcing change in existing institutional settings. Since existing institutions provide benefits to many actors, institutional entrepreneurs need to mobilize resources (DiMaggio, 1988) and develop particular capabilities (Perkmann and Spicer, 2007) in order to promote legitimacy for change and to convince others to adopt new practices. From

this, it is possible that new patterns of mutual expectations emerge based on continuous flows of interaction (e.g. new inter-firm cooperation practices). Such so-called proto-institutions (Lawrence et al., 2002) may succeed and, over time, consolidate and develop into widely accepted and adopted institutions.

The historical shift from industrial whale hunting to whale watching is an illustrative example of how a new institutional field can emerge through the interplay between macro-societal structures and local contextual interaction at the micro level (Bathelt and Glückler, 2012). From the end of the 1980s onward, the demand for whale watching tours that originally started in the 1950s rose tremendously and, today, many coastal regions in the world offer such tours (WWF, 2004). Whale watching generated an estimated 13,000 jobs globally by the mid-2000s (Hoyt and Iñíguez, 2008). The case of whale watching is a good example of institutional entrepreneurship that required overcoming existing institutions and enforcing new ones.

In their study of Victoria, Canada, Lawrence and Phillips (2004) reconstructs the evolution of this new field. On the one hand, the societal discourse was important that had moved from a connotation of the whale as a 'hunting good' to one as a 'natural heritage' that needs to be protected – and, further, to one of an 'endearing specialty' within ecological diversity. In parallel, the perception of the whale in popular culture changed from the dangerous beast 'Moby Dick' to the endangered 'Free Willy'. On the other hand, these changing attitudes were accompanied by the construction of a new local institutional field – i.e. that of whale watching – at the micro level (Lawrence and Phillips, 2004). Pioneers responded to opportunities to launch whale watching tours; early followers imitated the pioneers; the new firms collaborated with research organizations to establish a system of whale spotting; and, finally, growth and crowding effects required the firms to build business associations, to implement sets of new

rules and conventions to respect environmental laws and to cope with competition. These rules, in turn, became the new foundations of everyday practice. As a consequence of the proactive design of new organizations (business associations) and rules, the stakeholders of this institutional field developed stable patterns of mutual interactions to service tourist demand, to coordinate competition between tour operators, and to meet governmental and public expectations with respect to environmental protection. The example of whale watching demonstrates how institutional entrepreneurs managed to structure an emerging institutional field and how they enforced the legitimacy of new institutions as novel patterns of stabilized interactions (Lawrence and Phillips, 2004). While this case may not be directly related to technological change, Kodak's case of strong institutional entrepreneurship that transformed photography from a highly specialized activity to one that became an integral part of everyday life (Munir and Phillips, 2005) clearly shaped the development of a broad array of technologies and economic development (see also Greenwood and Sudaby, 2006). Institutional entrepreneurship also plays an important role in the social construction of markets, as discussed in the following section.

2 A geography of market-making

In situations of institutional hysteresis, such as those discussed above, it is a challenging task to overcome ossification and negative lock-in, and to develop instead new institutional arrangements, best practices, and/or standards. Addressing such non-routine processes requires collective action – a process that is itself grounded in and shaped by institutional settings. This can be illustrated in the context of markets and market institutions. While it appears obvious that institutions affect transactions within firms (hierarchies) and within networks (Coase, 1937), this is not automatically clear in the case

of market transactions – at least from the perspective of neoclassical economics. Markets have traditionally been viewed as idealized settings, in which atomistic agents with perfect knowledge buy and sell products in order to maximize their individual benefits. Such markets are governed by price mechanisms and exchange processes that do not require social interactions. However, as Hodgson (1988) points out, markets are not free of institutions. Institutions shape the perceptions and preferences of economic agents and, thus, have an important impact on interaction patterns in market transactions (Bathelt and Glückler, 2011). In fact, it is a virtual impossibility to explain the existence of markets without acknowledging the role of institutions. It is difficult, for instance, to understand market transactions at an auction without emphasizing the role of the auctioneer. Deviating from classical explanations, markets are also characterized by regulations, such as price norms, which support certain types of behaviour – and not others (Hodgson, 1988). How this operates can be understood by analysing how markets are constructed in relational ways, as suggested in actor-network theory (Callon, 1998).

The rules and regularities of markets are constrained – both in time and space. Since each transaction is accompanied by different degrees of risk, uncertainty, and valuation problems – both on the supply and demand side – markets have to be viewed as contextual social constructs that are specific in time and space for each product or service (Callon, 1998). How do market regularities emerge under such circumstances? From an evolutionary and institutional perspective, markets are composites of price mechanisms and sets of specific rules, conventions, and practices that coordinate expectations and compliances between supply and demand (Granovetter, 1993; Hodgson, 1999; Ménard, 1995). These rules are made, first, by vendors and suppliers seeking to obtain new clients for their products (Loasby, 2000), and, second, by regulating authorities and

similar organizations that enforce compliance to prevent opportunistic behaviour and market failure (Boyer, 1997). The advantage of such settings is that trade can proceed continuously under a set of established rules of exchange, instead of having to be constantly renegotiated for each transaction. This leads to substantial cost savings.

Once an institutional arrangement made by a vendor is acceptable for customers, the level of mutual uncertainty decreases such that scale economies can become effective. As a particular set of rules and conventions becomes increasingly accepted over time and used by customers, the unit cost of ‘making’ the market declines. Although businesses that fail to create appropriate market arrangements might disappear, those that are successful benefit from large demand and may end up being imitated by others (Loasby, 2000). Transactions in spatially and temporally defined, organized markets are more efficient than ad hoc transactions, which require full negotiation of all terms of the exchange (Hodgson, 1988; Sayer, 1995).

The challenges of suppliers and supporting actors, such as regulating authorities, business associations, and consultants, are thus to observe, explore, and develop appropriate rules and conventions of exchange that will be accepted by the customers. Customers benefit from market-making because explicit rules of exchange reduce uncertainty regarding their suppliers, even though market institutions, in terms of stabilized interaction patterns, might still deviate from these rules. There are numerous arrangements that suppliers can employ to reduce customer uncertainty. Warranties, sample products, subsequent improvement, and performance-based fees are incentives that suppliers and legislators may offer to make markets attractive to customers. They become the basis for stable transaction patterns (Bathelt and Glückler, 2012). Those mechanisms that prove to be useful are later likely copied and transferred to other service and product markets, and may thus

spread throughout the economy. Additionally, emergent markets are embedded in broader sets of institutional arrangements that also include authoritative resources, such as sanctions, to enforce compliance (Boyer, 1997).

The abstract model of the neoclassical market is more accurately described as a theory of exchange, rather than one of the market (Beckert, 2009). It has neither a spatial nor a temporal dimension. Geographical expressions of the economy are not possible without transportation and transaction costs and without situated, contextual institutional arrangements regarding the terms of trade. It is exactly this temporal and spatial contextuality that transforms a single abstract market into diverse real markets. Because of this, economic action is transformed into relational action in spatial perspective (Bathelt and Glückler, 2011). As a consequence, increasing attention has been paid in recent years to the cultural foundations of economic interaction, especially focusing on the anthropology of markets (Callon, 1998), convention theory (Boltanski and Thévenot, 2006), and the development and negotiations of market rules and conventions (e.g. Berndt and Boeckler, 2009; Hall, 2008; Swain, 2006). Markets are constructed in a relational manner. They emerge from a complex interplay of macro-institutional legislation and politics, societal institutions, and the everyday negotiations and experimentations between suppliers, customers, and other parties at the micro level. Overall, relational influences do not only impact the specificity and contextuality of markets in the present, but equally shape continuous reproduction over time.

VI Conclusions and future research challenges

This paper presents a critical review and suggestions of how to conceptualize institutions in the context of economic geography and technological change. It understands institutions through a broad established social science perspective and,

as such, differs from literature that implicitly or explicitly treats institutions as if they were a ‘black box’ – employed to explain otherwise unexplainable economic phenomena. In contrast, we present an explicit understanding of institutions that deviates from defining them as simple regularities, rules, or organizations (governments). We view institutions as correlated and relatively stable social interactions between economic agents that develops upon rules and regulations in rather contingent ways. Although institutions may represent the intentions inherent in rules, they unfold in practices that deviate to a greater or lesser extent, or even disregard them. Therefore, rules are fundamentally different from institutions – they are ‘not yet institutions’.

Drawing on Giddens’ (1984) structuration theory, we elaborate a conception of institutions that acknowledges both upward and downward causation processes. This allows us to analyse how institutions simultaneously shape and are shaped by processes of economic interaction. This framework opens up new possibilities to integrate micro and macro phenomena in analysing economic action and technological change in spatial perspective, while, at the same time, highlighting the importance of micro-level research in the study of economic processes. The framework helps to understand how markets are made in a place- and time-specific fashion, how they operate, and how they adapt to changes over time. Nonetheless, there are some crucial research challenges, both theoretically and empirically, in unravelling the geographically diverse dynamics and structures of institutionalization of the economy and technological change.

One major methodological challenge is related to studying the emergence, production, and change of institutions empirically. The duality of structure and agency implies that institutions cannot be measured by obvious or easily identifiable indicators, but need to be analytically extracted from social practice. This is because they are not identical with rules and regulations but develop from repeated action

that is related to them – they are the consequences related to such rules, not the rules themselves. Barley and Tolbert (1997) offer an original methodological approach to study institutions and processes of institutionalization. Accordingly, institutions can only be discovered in inter-situational repeated action. This can be best accomplished in periods of institutional change and requires longitudinal and/or cross-sectional observations. Additionally, the empirical research design needs to follow a diachronic model that analyses the recursive processes of institutionalization and action sequentially. The processes of encoding and enacting institutional scripts into action, as well as the processes of replicating, revising, and objectifying these scripts through action, are thus best studied in a sequential, longitudinal way (Barley and Tolbert, 1997). This can be conducted through in-depth interviews or observation techniques, as well as other methods that are able to record process information.

Another challenge is the relation between institutions (respectively their underlying rules and regulations) and economic outcomes. We are constantly confronted with questions regarding the appropriate or best level of institutional support for regional economic development and innovation: how much institutional support is helpful or positive and under which conditions can this create problems? Such questions are not trivial – even conceptually; they are difficult to answer, as van Waarden's (2001) fascinating study about the relations between legal institutions and the innovativeness of national economies demonstrates. In line with institutional theory, van Waarden (2001) assumes that institutions are an important means to reduce uncertainty. Hence, when institutional fields, such as legislation, absorb uncertainty, it should be more likely for citizens to take the risk of innovation. The empirical assessment of two national legal systems suggests that regulation-based legislation in the Netherlands implies less uncertainty than mitigation-based legislation in the USA.

Accordingly, Dutch entrepreneurs should be expected to be more risk-taking and innovative than US entrepreneurs. However, the empirical findings reveal the opposite, raising the crucial question as to whether legislations are really a remedy for or rather a mirror of the risk aversion of national cultures.

This example illustrates that, despite the plausibility of arguments, the empirical state of knowledge about institutions, institutional change, and its interrelations with economic, social, and technological phenomena is still in its infancy. In this paper, we have aimed at sensitizing the geographical debate to both (1) the empirical contingencies between rules and 'institutions-in-practice' and (2) the theoretical confusion which results from the diverse and often implicit understandings of the term 'institution' and from how these understandings sometimes alternate. We have elaborated a novel understanding of institutions and used several examples to argue that rules and regulations are only contingent conditions for the emergence and transformation of socio-economic institutions in spatial perspective. Because of such fundamental contingency, the effects of regulations on economic relations – and economic outcomes – can be unintended, unforeseeable, and even counterproductive. Regional and innovation policies that are limited to causal models where economic outcomes are immediate effects of rules (incentives or sanctions) will necessarily raise expectations that cannot be fulfilled or be ill-fated altogether; and conceptual accounts that equate institutions with governments and regulations will fail to understand the contingency-gap between codified or uncoded rules and economic practices. While a detailed account about specific policy implications would go beyond the scope of this paper, our arguments emphasize the need for regional and innovation policy to be reflective, responsive, and adaptable to the specific local and non-local contextuality of economic action and the underlying institutions, in order to support expected outcomes.

Clearly, at this point, we cannot give final answers to many related questions, but our intention is to raise awareness for the importance of these questions and the need to deal with them conceptually and empirically – issues that have been neglected for much too long in mainstream economic geography. We attempt in this paper to broaden our perspective of relational action beyond individual or collective agents and their direct transaction partners to include wider societal and economic structures and developments. To insist on applying an explicit and consistent understanding of institutions in economic (and, in fact, human) geography will provide us with the opportunity to ‘translate’ the findings of other studies that apply different understandings into comprehensive concepts and theories of the relations between technological and market change, relational action, and institutional change.

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Notes

1. Boschma and Frenken (2009), for instance, while favouring a structural understanding, apply a territorial perspective of institutions as durable structures that are specific to territories (p. 152), including markets, property rights, and the judicial system (p. 155) without clarifying why they restrict themselves to such a narrow interpretation.
2. In contrast to rigid interpretations of the theory of social systems and actor-network theory, which do not need to conceptualize individual agents and institutions, because their explanations are completely focused on the linkages and communication between agents, our approach builds upon individual and collective actors and their actions. In this sense, our analysis is inspired by Foucault’s (1980a, 1980b) emphasis on micro processes and those agents that are bound together through them (Allen, 2003; Gordon, 2000).
3. See Bathelt (2006: 228ff).
4. The argument here is that it is important to include both the individual motivations of economic agents *and* the socio-institutional contexts of their actor-networks, instead of primarily focusing on the latter relationships as suggested, for instance, by Yeung (2005).
5. This approach draws on a similar understanding and agenda as the practice approach (Jones and Murphy, 2010).
6. This relational perspective bears many similarities with Foucault’s (1980a, 1980b) writings on relations of power. As discussed in earlier work (Bathelt and Glückler, 2011: Chapters 4 and 5, 2012: Chapter 8), power can be conceptualized as a relational resource in a similarly ‘positive, productive’ way, as suggested by Foucault (see Allen, 2003). In particular, a Foucauldian perspective suggests viewing power as an enabling and generating force through the involvement of agents in joint action, as opposed to restricting it to a ‘negative’ view of power as the mechanism of coercion of economic practice (Foucault, 1980a, 1980b: 142). The Foucauldian approach further engages in micro-level analysis, as a starting point for wider explanation that includes the roles of agents and investigates seeming regularities strictly in the specific social and historical contexts within which they occur, as well as the reflexive relationship between object and subject (Foucault, 1980a, 2000). We are very grateful to one of the reviewers who suggested to us, in a series of insightful comments, to take this into consideration.
7. When we refer to collectives of actors (i.e. firms), these are viewed as organizations, not as institutions. However, within these organizations, specific types of institutions may develop that can be referred to as routines.
8. Although our argument does not focus on routines, it is necessary at this point to distinguish between institutions and routines, as routines are often emphasized in the context of technological change and evolutionary

- economics. We view routines as a subcategory of institutions, referring to intra-organizational stabilizations of social relations, or to stabilizations of interaction in close organizational contexts (Feldman and Pentland, 2003). They have a distinct procedural character and are often discussed in the context of the firm. Firm-based routines are constantly reproduced through ongoing interaction within the organization's hierarchy, secure control over the labour and production processes, and establish a kind of organizational memory (Nelson and Winter, 1982).
9. There are many aspects that could lead us here to draw parallels with the work of Foucault. These include the distinction between laws, organizations, and relations of power (1980a: 115ff), the need to analyse 'regimes of practices' (2000: 225) in order to identify inter-situational repeated action, the focus on processes of reproduction instead of structures (1980b), or the problems of deterministic macro-scale analyses. At the same time, however, we wish to exercise care in referring to the Foucauldian framework. First, Foucault's work makes little reference to technologies/innovation in the context of economic change. Second, Foucault uses the term 'institution' explicitly but in a less clearly defined way than power (e.g. 2000: 225), and often only in passing. It would open up a lot of questions if seeking to use his arguments about relations of power at all comprehensively in conceptualizing institutions in our context, while neglecting his direct references to them.
 10. This becomes particularly clear in the literature on communities of practice and epistemic communities, which shows how institutions are formed through a non-spatial logic (e.g. Grabher and Ibert, 2013; Knorr Cetina, 1999; Wenger, 1998; Wenger and Snyder, 2000).
 11. Here, we need to distinguish between institutions and communities in that institutions relate to the practice level, while communities refer to the agent level. Communities are agents that are bound together by shared practices and, as such, build on and develop around a joint set of institutions. Regular community meetings and interaction, in turn, may give rise to the development of new institutions (Bathelt and Glückler, 2012). The analysis of these communities is important in order to gain insights into how institutions change over time and how institutional practices can differ from place to place (Wenger, 1998).
 12. See Bathelt (2006: 229ff).
 13. It should be emphasized that we do not attempt to establish the usual 'false dualisms' (Sayer, 1985) of the form micro=specific=local versus macro=general=global. Neither do we restrict agency to the local and structure to the global scale (see also Ettlinger, 2011).
 14. See also Jessop's (2001) structural-relational approach.

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