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Smart specialization and institutional context: What does it mean for path development?

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The smart specialization approach is the currently dominant concept of industrial and regional policy in the European Union. During its implementation in recent years, the approach generated a wide range of policy experimentation on how to develop smart specialization strategies (RIS3), and how to do so in a participatory public-private dialogue commonly called entrepreneurial discovery process (EDP). Building on theories known from institutional economic geography, this paper argues that the smart specialization exercise is inextricably linked with the institutional context of regional (or national) economies, and that both the RIS3 developed and the preceding EDP have the potential to affect the institutional context. By doing so, drafting and implementing a RIS3 conditions different forms of evolutionary dynamics in a regional economy. The article presents some conceptual thoughts for the relationship between institutions, evolution, and path development within the context of smart specialization, and suggests areas for further research in view of post-2020 cohesion policy.

Keywords: regional development; EU cohesion policy; smart specialization; evolutionary economic geography; institutions

JEL codes: B52; O43; R11; R12

Introduction

The smart specialization approach has become widespread throughout the European Union (EU), driven to a large degree by the political decision to make the elaboration of a smart specialization strategy or policy framework an *ex-ante* conditionality for access to European Investment and Structural Funds (ESIF) lines of funding relevant for innovation (Radosevic, 2017: 20).

Given the present debate on post-2020 EU cohesion policy, evaluating the impact of the smart specialization approach in regional development and innovation support is important, as is learning from recent trends in theory. Research has shown that implementing the smart specialization approach has so far not generated its impact uniformly across different types of regions. Some regions find it more difficult than others to apply the approach, to identify relevant and promising areas of specialization, to organize an open-ended and transparent entrepreneurial discovery process (EDP), and to implement the resulting research and innovation strategies for smart specialization (RIS3) together with private-sector stakeholders (e.g. Capello & Kroll, 2016; Kroll, 2015; Trippi et al., 2018).

Institutional approaches (e.g. Bathelt & Glückler, 2014; Benner, 2017a; 2018; Glückler & Bathelt, 2017; Glückler & Lenz, 2016) are useful to understand a large part of the problems many regions or nations encounter when implementing the smart specialization approach. Since institutional context conditions socio-economic growth and innovation processes (Glückler & Bathelt, 2017), the institution-sensitivity of regional policymaking is an important aspect to consider when developing RIS3 (Benner, 2017a; 2018). But this is not the end of the story. Under path dependence (Martin & Sunley, 2006), the socio-economic processes conditioned by institutional context shape evolution, thus implying an intricate link between innovation, institutions, and evolution (Bathelt & Glückler, 2003).

Since the transformative ambition behind the smart specialization approach is essentially an attempt towards putting evolutionary economics into policy, it is reasonable to expect that the chances of success of RIS3 implementation are dependent on institutional context, and that this link between institutional context and RIS3 effectiveness creates uneven propensities for different outcomes of path development. Discussing the relationship between the smart specialization approach and its procedural core, the EDP (Benner, 2018), on the one hand and different types of path development in regional economies (Hassink et al., 2018) on the other hand thus can contribute important insights for the elaboration of post-2020 cohesion policy.

The present paper attempts to clarify the link between smart specialization, institutional context, and path development, and thus combines institutional and evolutionary streams of economic geography. Given the present discourse on opening evolutionary approaches up to other traditions in economic geography and economics (Hassink et al., 2018), the present paper pursues the aim of contributing institutional ideas to evolutionary approaches, and to suggest some thoughts for a research agenda to foster the conceptual debate on institutional-evolutionary conditions for regional development.

The paper begins by giving an overview on the role of evolutionary dynamics and path development in regional economies before turning to the role of institutional context in path development. Then, the paper discusses what these evolutionary and institutional concepts mean for the smart specialization approach. The paper concludes by discussing some aspects of an institutional-evolutionary research agenda and by so doing offers some conclusions and policy implications.

Evolutionary dynamics and path development

Evolutionary thinking in regional development starts with the assumption that one-size-fits-all approaches, or transferring “best practices” across regions, are not appropriate to design policies

adapted to the particular context of a regional economy (Tödtling & Trippel, 2005). While neoclassical thinking may suggest that similar kinds of market failure typically exists in regional economies and prevent them from achieving a statically and dynamically efficient state of equilibrium, an evolutionary perspective looks at broader, systemic deficiencies that are based in the idiosyncratic context of a regional economy. In particular, regional economies may suffer from “organizational thinness”, relational “fragmentation” through low degrees of interaction and networking, and “lock-in” (Tödtling and Trippel, 2005: 1204). Lock-in is probably the most visible evolutionary phenomenon in regional development (Grabher, 1993) and the obvious starting point for reviving regions marked by industrial decline (Tödtling & Trippel, 2005: 1214). But the other two types of systemic failures listed by Tödtling and Trippel (2005) are based in evolutionary thinking, too. Weak organizational capabilities and a lack of relational assets exhibit a strong degree of path dependence (Martin & Sunley, 2006) that is relevant for a wide range of regions.

As Martin and Sunley (2006: 399-400) argue, path dependence as the fundamental idea in evolutionary economic geography comes in three major forms: lock-in, increasing returns, and hysteresis. Contrary to neoclassical models, under these forms of path dependence, (regional) economies do not move towards a pre-defined state of equilibrium. Rather, the outcome of processes of economic growth or decline and socio-economic processes such as innovation or entrepreneurship cannot be foreseen since various trajectories and outcomes are possible. Concepts of path development can serve to elucidate these trajectories and their conditions, but path dependence in and by itself does not explain how or why precisely new trajectories emerge (Martin & Sunley, 2006: 407).

Hassink et al. (2018) suggest a clearer understanding of different types of path development. They stress the role of human agency and highlight “that new growth paths are

created through activities by a multiplicity of actors” (Hassink et al., 2018: 5). However, agency does not happen in a vacuum but is conditioned by the institutional context of a regional economy (Glückler & Bathelt, 2017) since prevailing institutional patterns encourage some paths of action while discouraging others. To analyze the role of institutions in path development more thoroughly, it is useful to distinguish various forms of path development in more detail. Doing so yields a typology of five forms of path development. While *path branching* refers to new path development through diversification based on existing knowledge, *path diversification* leads to diversified new trajectories based on new knowledge and *path creation* is driven by the emergence of completely new paths. *Path importation* occurs when industries are transplanted from other regions, and *path upgrading* means a change of direction within an established trajectory, for instance through climbing up in global production networks, renewing the trajectory, or development promising niches (Grillitsch, Asheim and Trippel, 2017: 265-267; Hassink et al., 2018: 10; Isaksen, Tödtling and Trippel, 2018: 223-225).

Recent efforts in evolutionary economic geography attempt to conceptualize conditions for different types of path development and thus to answer the basic question of path-dependent evolution: what precisely conditions the path a regional economy is about to take? Structural characteristics can provide a partial explanation, but there are other components that still need to be conceptualized before surrendering to the role of pure chance (Arthur, 1989; David, 1985; Martin & Sunley, 2006: 407). For instance, individual human agency can serve to elucidate motivations of agents to drive a certain form of path development (Martin & Sunley, 2006), and may be explained by insights taken from behavioral economics. Relational dynamics can complement individual agency and draw on insights from relational economic geography. Given the embeddedness (Granovetter, 1985) of economic processes in their institutional context (Glückler & Bathelt, 2017), we might expect institutions to condition evolutionary processes of

path development to a considerable degree (Martin & Sunley, 2006). Precisely how they do so and how to better understand this relationship between institutions and evolution is what the next section turns to.

The role of institutional context in path development

Institutional context conditions socio-economic processes of economic growth such as innovation or entrepreneurship (Glückler & Bathelt, 2017). Therefore, the components of a regional or national economy's institutional context are inextricably linked to evolutionary dynamics such as different ways of path development. More precisely, under the basic assumption of path dependence (Martin & Sunley, 2006), socio-economic processes conditioned by institutional context enable or constrain different trajectories (Bathelt & Glückler, 2003) and therefore may tilt the balance of evolutionary dynamics. Eventually, institutional context might explain (at least in hindsight) evolutionary dynamics that at first sight seem completely random, such as those described in David's (1985) or Arthur's (1989) groundbreaking works on technology choice. Indeed, it is acknowledged that because institutions change slowly, they provide relevant parameters for evolution by anchoring path dependence through "institutional hysteresis" (Martin & Sunley, 2006: 402).

For institutional context to serve as a possible explanation of evolutionary dynamics, a more precise understanding of what makes up the institutional context of a regional economy is needed. Bathelt and Glückler (2014: 346) propose a distinction between prescriptive rules such as laws and regulations, organizations, and institutions. While prescriptive rules and organizations are formal in character, the term "institutions" is more difficult to grasp. Institutions can be defined as "stable patterns of social practice" (Bathelt & Glückler, 2014: 346) and include, for example, routines, attitudes (e.g. towards risk taking, cooperation, or entrepreneurship), reputation, or social capital (Putnam, 1995).

Institutions interact with organizations and prescriptive rules, and institutional change is driven in particular through interactions between institutions and prescriptive rules. Mechanisms of institutional change are particularly relevant for regional policy because prescriptive rules are set by policy and their effectiveness depends on the relationship with institutions prevalent in the socio-economic fabric of the regional economy in question. Bathelt and Glückler (2014) define two directions of institutional change. Prescriptive rules can, notably through rule-setting policymaking, lead to intended or unintended institutional change in a process of downward causation. The other mechanism is upward causation of institutional change, meaning that institutions are modified through micro-level individual action (Benner, 2014, 2017b) in the regional economy (Bathelt & Glückler, 2014).

Different forms of path development are not characterized by their relationship to existing knowledge and their spatial origin only, but their relationship to institutional context varies too. Building on the five forms of path development proposed in evolutionary literature (Grillitsch, Asheim and Trippel, 2017: 265-267; Hassink et al., 2018: 10; Isaksen, Tödting and Trippel, 2018: 223-225), Table 1 proposes some thoughts on the institutional prerequisites of each form.

Table 1: Forms of path development and their institutional prerequisites (Source: own work)

	Path branching	Path diversification	Path creation	Path importation	Path upgrading
Knowledge base	existing	new	new	new	new
Origin of knowledge	intra-regional	intra-regional	intra-regional	extra-regional	intra-regional
Institutional prerequisites	no particular ones	institutional conditions for cooperation (e.g. trust)	institutional conditions for radical change (e.g. competitive spirit, entrepreneurial attitudes)	similar institutional contexts between regions	institutional change (e.g. awareness-raising)

If path branching builds on knowledge existing within a region, a reasonable hypothesis would be that there are no particular institutional prerequisites for this form of path development, save the institutional patterns prevalent in the region on the outset. If a given trajectory developed within the institutional context of a region in the past, we might expect diversification into other trajectories that build on the same knowledge base not to encounter significant institutional obstacles. Path diversification, however, may demand more specific institutional prerequisites to succeed since it builds on new combinations of knowledge often held by agents not used to cooperating with each other. Facilitating path diversification, hence, may require institutional conditions for cooperation between agents from different backgrounds to help them bridge their cognitive distance. Building trust should be important, and reputation and credibility can help doing so.

Path creation is the most radical form of new path development and thus encounters the highest institutional obstacles since a region's institutional context has to favor radical change for path creation to succeed. Such an institutional context may be marked by a high competitive spirit and strong entrepreneurial attitudes, based on high degrees of risk-taking. This insight might explain why historically, radically new paths were created in American regions such as Silicon Valley while other, Continental European regions gave rise to other forms of path development through incremental innovation. The often-cited examples of Emilia-Romagna and Baden-Württemberg can serve as examples for the latter type of regions.

From an institutional perspective, path importation appears problematic. For path importation to succeed, the path-importing region would have to share relevant institutional characteristics with the path-exporting region. There may be suitable cases, but if agents are not aware of the institutional similarities and differences between the regions concerned, attempts of path importation seems risky.

While path upgrading does not lead to a completely new trajectory, the way things are done by agents pursuing a trajectory are modified. For this to succeed, institutional change will often be needed. For example, if an established path is not sustainable because of insufficient product or service quality, an increased awareness for the necessity of upgrading the path by improving quality is necessary. Such a higher awareness can result either from upward causation of institutional change, e.g. new entrepreneurs entering the path with higher-quality products and thus serving as role models and exerting competitive pressure, or from downward causation through legislation and, hence, prescriptive rules. The crisis that hit Austria's wine industry in the mid-1980s after a scandal about a chemical additive that shattered the industry's reputation provides a good example for both mechanisms of institutional change. To regain consumer trust, winemakers changed their production methods and government initiated more stringent legislation (Pumberger, 2015).

As the latter case shows, policy can affect the conditions for path development in important ways, both for a given form of path development and generally. If, as Hassink et al. (2018: 8-9) argue, path development is not only a matter of historical trajectories but also future expectations, institutional context is highly relevant in conditioning how agents drive path development by shaping their expectations. Institutional realities such as trust, reputation or credibility, or their weakness or absence, shape expectations and will thus make the pursuit of some paths more promising than others. The argument that institutional patterns condition path development through agents' expectations has an important policy implication. If policies are expected to facilitate path development in desired ways, they should seek to build trust among agents and provide a stable and credible policy arena for agents to make their entrepreneurial decisions. This conclusion leads to the role of the smart specialization approach and its inherent EDP discussed in the next chapter.

Smart specialization, institutions and path development

Due to its characteristic EDP (Foray et al., 2009; 2012), the smart specialization approach is by its very nature meant to be context-specific. By bringing together agents from the public and private sectors, the EDP is supposed to lead to the definition of thematic priorities and idiosyncratic policy interventions adapted to the structure and dynamics of the regional (or national) economy in question. This context specificity includes the economy's institutional context (Glückler & Bathelt, 2017), and calls for institution-sensitivity in designing and implementing regional policies (Benner, 2017a; Glückler & Lenz, 2016: 270).

Following Benner (2018), the smart specialization approach can achieve institution-sensitivity of the EDP and of the resulting RIS3 in several ways. First, through explicit or implicit institutional analysis during the EDP, policies defined by the resulting RIS3 can be consistent with a regional economy's institutional context (institutional consistency). Second, if and when institutional analysis during the EDP reveals deficiencies in the institutional context such as institutions constraining desired growth or innovation processes, the RIS3 can include policies designed to bring about institutional change (downward causation). Third, even without explicit institutional analysis or policies for downward causation of institutional change, the EDP in and by itself can lead to institutional change since participating agents may change their behavior, e.g. by widening their scope of cooperation or by building mutual trust (upward causation). Empirical evidence from Lower Austria, Bolzano-Alto Adige (South Tyrol), Slovenia and Croatia suggests that explicit institutional analysis during the EDP is rare, as are targeted policies for downward causation of institutional change explicitly defined in RIS3. Upward causation of institutional change through behavioral change during the EDP seems to be more common, particularly in

regions or nations marked by a lack of institutional or organizational thickness (Amin & Thrift, 1994; Isaksen, Tödting and Trippel, 2018; Trippel et al., 2018: 7). In these cases, the behavioral change brought about by the EDP can lead to institutional leapfrogging, provided that the institutional change achieved through upward causation can be sustained (Benner, 2018).

Based on the ideas on the institutional functions of RIS3 and the EDP presented so far, Table 2 summarizes the possibilities of the smart specialization approach to affect path development institutionally.

Table 2: Forms of path development and the role of smart specialization (Source: own work)

	Path branching	Path diversification	Path creation	Path importation	Path upgrading
Knowledge base	existing	new	new	new	new
Origin of knowledge	intra-regional	intra-regional	intra-regional	extra-regional	intra-regional
Institutional prerequisites	no particular ones	institutional conditions for cooperation (e.g. trust)	institutional conditions for radical change (e.g. competitive spirit, entrepreneurial attitudes)	similar institutional contexts between regions	institutional change (e.g. awareness-raising)
Possible institutional function(s) of the EDP	institutional consistency (at least implicitly)	upward causation of institutional change (e.g. trust-building)	/	institutional consistency (at least implicitly) through institutional analysis	upward causation of institutional change (e.g. vision building)
Possible institutional function(s) of RIS3	institutional consistency	downward causation of institutional change (e.g. networking policies)	downward causation of institutional change	institutional consistency (at least implicitly) through institutional analysis	downward causation of institutional change (e.g. institution-circumventing rules)

Since path branching does not require any particular institutional prerequisites, the institutional role of the EDP and the resulting RIS3 is limited primarily to ensuring institutional consistency on the basis of the existing knowledge base. Doing so, e.g. through explicit or implicit

institutional analysis during the EDP and explicit institutional analysis documented in the RIS3, may sharpen agents' understanding of which branching possibilities are more promising than others in a given institutional context.

Because path diversification needs institutional conditions for cooperation such as trust and credibility to succeed, the EDP can contribute to upward causation of institutional change through modifications of agents' behavior. By participating and cooperating in the EDP, agents build trust amongst each other. The RIS3, if implemented seriously, can lend credibility to the process and enhance government's reputation as a reliable partner among private-sector agents. As was evident in Slovenia and Croatia (Benner, 2018), the ESIF conditionality can serve as a strong motivator for agents to participate in the EDP and thus stimulate the trust-building process needed for path diversification. By building trust and lending credibility to policy, the EDP and RIS3 can shape agents' future expectations.

Path creation is probably the most difficult way of path development to achieve. Institutional prerequisites have to aim towards radical change, and setting them up in a participatory and collective process such as the EDP is unlikely to succeed. The EDP is not a suitable forum for intensifying competitive spirits or micro-level entrepreneurial attitudes (Benner, 2014). However, the eventual RIS3 can indeed formulate policies (i.e., prescriptive rules) with the aim of stimulating downward causation of institutional change. While competitive pressure across industries is hard to promote in a regional economy, entrepreneurial attitudes are amenable to policy interventions such as entrepreneurial education in schools or business planning contests.

Path importation requires carefully identifying relevant differences and similarities between the institutional contexts of path-exporting and path-importing regions and thus, institutional consistency of path-importation efforts. Here again, institutional analysis will be

necessary but in contrast to path branching will probably have to be explicit. Such an explicit institutional analysis can be part of the EDP and thus enter the RIS3.

Since path upgrading typically requires institutional change, the EDP can contribute to building agents' awareness for upgrading needs by building a commonly shared vision. In this way, the EDP can serve as a vehicle for upward causation of institutional change. The RIS3 can identify upgrading policies and thus contribute to downward causation of institutional change. These policies can include institution-circumventing rules (Glückler & Lenz, 2016) such as policies to stop trading-down processes (Benner, 2017a: 5-6).

These insights can serve to sharpen policymakers' understanding of which forms of path creation are more promising in a given institutional context than others, and to identify institutional patterns that will have to be addressed or eventually modified for a desired form of path creation to succeed. However, path creation is not a deterministic or entirely controllable process. The role of contingency (Bathelt & Glückler, 2003) will have to be considered, meaning that results of path-creating policies may eventually look different from the ones envisioned at the outset. While the thoughts above serve to reduce the role of uncertainty or serendipity in understanding and promoting various forms of path creation, uncertainty and serendipity will still be relevant to shape how path creation does actually unfold.

Towards an institutional-evolutionary research agenda

The thoughts presented in this article sought to show that linking conceptual insights on institutional context with newer trends in evolutionary economic geography is relevant for theory and policy alike. In particular, different institutional contexts condition various forms of path development and make some of them more likely to unfold than others. These insights are crucial for policymakers because understanding the link between evolution and institutions is important to design and implement effective regional innovation strategies such as RIS3. While the

argument that evolution and institutions are intricately linked is not new (e.g. Bathelt & Glückler, 2003), how precisely to consider this link in policy design is still to a large degree an untapped opportunity in wide policymaking communities. In this regard, the thoughts presented in this article can serve to sharpen policymakers' perspective on the evolution-institution nexus.

Considering the evolution-institution nexus in policymaking requires thorough institutional analysis in policy design processes. The EDP characteristic to the smart specialization approach provides a suitable forum to perform explicit or at least implicit institutional analysis. Furthermore, the EDP can serve as a vehicle to drive upward causation of institutional change through behavioral change as a by-product of RIS3 design (Benner, 2018). As such, the EDP can play an important role in shaping and promoting path development. However, the chances of doing so depend on the precise form of path development desired. While, for instance, path branching is likely to be the easiest form of path development from an institutional point of view, path creation requires stricter institutional preconditions to succeed. There are some ways of affecting different forms of path development in the way desired, but applying them needs a clear understanding of what form of path development to pursue (and why), and what patterns mark the institutional context of the region in question.

Summing up, the evolution-institution nexus needs to be explored more thoroughly both in theory and policy. Theoretically, there is an ongoing need to sharpen our understanding of how concrete institutions shape various forms of path development. Applying the conceptual thoughts developed here in empirical case studies should contribute to a more precise conceptual understanding. Looking forward, policy design should use the EDP as an opportunity to explore the evolution-institution nexus for the concrete case at hand, and formulate policies accordingly. The upcoming design of new or updated RIS3 ahead of post-2020 EU cohesion policy offers an excellent chance to do so.

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