The Role of Knowledge Resources in Regional Competitiveness

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Abstract

The significance accorded by policymakers to the notion of competitiveness reflects the increasing emphasis on competitive advantage for national and regional economies. Regional competitiveness has been adopted as a policy goal by the European Commission and by national governments across Europe, North America and other continents of the world. This has also increased interest in regional assets as the source of domestic firms’ competitiveness. Not only physical infrastructure but also other ‘soft’ or less tangible factors are explored using broad range of theoretical and methodological approaches. The article discusses knowledge resources as one of the context-specific factors of regional competitiveness that are used to create specific to the region’s socio-economical system externalities as competitive advantages to attract and maintain competitive economic value creating firms and respective labour force, thus increasing regional competitiveness and resilience.

Keywords: knowledge resources, region, regional competitiveness, knowledge externalities.

Introduction

The competitiveness of regions is an issue not just of academic interest and debate, but also of increasing policy deliberation and action (Kitson, Martin and Tyler, 2004, p. 991) note that the concept of regional competitiveness is itself complex and contentious. Though academics are still far from a consensus on what is meant by the term and how it can be measured, policy-makers, as is often the case, has already raced ahead of conceptual understanding and respective empirical analysis.

One of the most problematic aspects as emphasized by Bristow (2005, 2010, p. 293) is that policy-makers and economic development practitioners across very different regions end up pursuing ‘identikit’ regional development and competitiveness maintaining strategies based upon ‘improving regional institutional thickness, with no clear prioritisation or tailoring of the dominant prescriptions to suit local contextual circumstances’. Thus by following the notion, that there are systemic differences between national countries as socio-economical regions ‘in how innovation and competence building take place’ (Hoogenboom, Trommel and Bannink, 2008), the article tries to conceptualize on the theoretical model, that will be useful for contextualization of development strategies that are targeted at the regional competitiveness issues.

Bristow (2005, 2010), Leppala and Desrochers (2010), Lagendijk (1997, 2007) invite researches for searching of the more contextualized approaches to competitiveness. According to Bristow (2010, p. 160-161), traditional notions of competitiveness are not enough sophisticated and the processes of benchmarking and policy transfers (with efforts to replicate the successful paths to prosperity of exemplars) conducted by regional development agencies and other governmental bodies lead to the development of a set of codify-able range of stylised facts and policy prescriptions that create de-contextualised tools and strategies lacking sensitivity to critical issues of context and place. ‘As knowledge is transferred from one scale to another, the particular social, political, and economic context from which it was produced is stripped away, allowing the presentation of abstract programmatic statements that are valorised as universally applicable’ (Jones, 2008; as cited in Bristow, 2010). Competitiveness strategies have thus become a standardised, taken away from regions and their potential capacity for development without deeper assessments of their institutional and cultural specificities. They lack of understanding of the causal effects of the processes that are making and remaking the economic and institutional ensemble present in particular locations (Malecki, 2004; Harrison, 2006 as cited in Bristow, 2010).

One from the wide range of possible backgrounds for such contextualization amongst the natural-resources base, socio-demographical structure, geographical positioning, innovation system, characteristics of cultural and historical trajectories of development, economical structure, etc. is regional knowledge-resource base. Knowledge-resources accumulated at the regional level are of particular importance in the light of latter-day global transition to knowledge-based economy development, by building nation or region wide knowledge-based societies that meet very dynamic and uncertain knowledge-intensive global competitive environment. Reichert (2006), World Bank Institute (2007) presume on knowledge as being put to work to accelerate and deepen the development process. Applied to all types of innovation, including very modest ones in the use of basic technology, it becomes a major resource for generating wealth and jobs.

Asheim and Coenen (2007), Asheim (2007), Asheim et al. (2007), for example, exploring interdependency between knowledge-resources and regional development as well as regional competitive advantage issues, emphasize the differentiated knowledge base approach, revealing difference between analytical (observed in industrial
settings where scientific knowledge is highly important), synthetic (found in industrial settings, where the innovation takes place through the application of existing knowledge or the novel combination of knowledge), and symbolic (associated with the aesthetic attributes of products, the creation of designs and images and the economic use of various forms of cultural artifacts) knowledge bases. Different knowledge bases shape regional innovation systems (and may be shaped by them), that directly influence competitiveness. Differentiating between industrial knowledge bases and respective types of innovation systems enable to contextualize in order to obtain a better understanding of factors driving and impeding development, innovation processes, and competitiveness. The article tries to contribute to the discussion, focusing less on the processes of knowledge creation and application through efficient innovation systems, but making greater emphasis on pure characteristics of regional competitiveness and searching for the ways to enhance them by the means of recognition and deeper understanding of existent regional knowledge resources.

Kerber (2006), on the other hand, shows that the institutional framework for markets influences both the dynamics and the direction of knowledge-generation in international competition processes, in which innovations are generated. Below in the article this influence is specified as one that directs to the specific to the region knowledge based externalities creation, that are assumed as the means of absolute regional competitive advantage.

This article aims to highlight knowledge resources as the means for contextualization of regional competitiveness. The method employed is research literature analysis.

The article starts with the short review of regional competitiveness discourse. Hereinafter, theoretical arguments are provided to reason on knowledge resources as a reliable background for contextualization of regional competitiveness. A theoretical model of knowledge resources based regional competitiveness is proposed at the end.

A competitive and resilient region

Knowledge metrics, innovation indices and report cards are increasingly common, each developed to sort the list of places in a different order. Lists or league tables of ‘the best places’ for business, to live, retire and visit, etc. are one of the key features of economies and societies pursuing to compete and win.

OECD\(^1\) defines a competitive region as one that can attract and maintain successful firms and maintain or increase standards of living for the region’s inhabitants (it means that skilled labour and investment gravitate away from ‘uncompetitive’ regions towards more competitive ones). Storper (1997, p. 264) defines competitiveness as ‘the capability of a region to attract and keep firms with stable or increasing market shares in an activity, while maintaining stable or increasing standards of living for those who participate in it’. This definition corresponds to the mainstream academic interpretation. Same definitions are provided by the range of authors (Kitson, Martin and Tyler, 2004; Budd and Hirmis, 2004, etc.). Such interpretation has gained widespread academic acceptance and use.

Competitive advantages are gained if strategically created by the single firms, territorial synergies and cooperation capability enhanced by an imaginative and proactive public administration, externalities provided by governments and the specificities historically built by a territorial culture (Camagni, 2002, p. 2405). Human, social and relational capital, infrastructure, collective learning, un-traded interdependencies, cooperation other intangible resources are of particular importance for competitiveness.

Camagni (2002) takes the view on regional competitiveness as based on absolute advantage rather than comparative ones: ‘region may be thought of as having absolute competitive advantages when it possesses superior technological, social, or institutional assets that are external to but which benefit individual firms from’. And no set of alternative factor prices would induce a geographical redistribution of economic activity. These assets tend to give the region’s firms, overall, a higher productivity than would otherwise be the case.

Following Porter (1990), the most important and only meaningful concept of competitiveness is also productivity. The principal goal of a nation (or region) is to produce a high and rising standard of living for its citizens. The ability to do so depends on the productivity with which resources are employed. A rising standard of living depends on the capacity of a nation’s firms to achieve high levels of productivity and to increase productivity over time. Sustained productivity growth requires that an economy continually upgrades itself.

Krugman (1994, p. 34), on the other hand, suggests that despite the common use of the term ‘competitiveness’, ‘countries (and regions) do not compete with each other the way corporations do’. He interprets competition and competitiveness just through the lens of an international trade and describes many instances of the misuse of the term of competitiveness. For Krugman (1994), the principal reason countries (regions) do not compete with each other is that they ‘cannot go out of business’. The concept of comparative advantage, followed by Krugman (1994), holds that countries, through specialization, can benefit from trade even if they do not have an absolute advantage. Under comparative advantage theory, trade reflects national differences in factor endowments (land, labour, natural resources and capital). Nations gain factor-based comparative advantage in industries that make intensive use of the factors they possess in abundance (Kitson, Martin and Tyler, 2004, p. 992; Budd and Hirmis, 2004).

Bristow (2005, p. 289) clarifies by explaining that the mainstream academic conceptualisation views regional competitiveness as a combination of the competitiveness of a region’s firms (defined in terms of their external validation through growth in market share), and a region’s overall economic performance (or validation through sustained or improved levels of comparative prosperity.

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according to standards of living), Kitson, Martin and Tyler, (2004, p. 993-994) cite Cellini and Soci (2002) who note that regions are ‘neither simple aggregations of firms, nor are they scaled-down versions of nations’. They suggest that the regional level is possibly the most difficult and complex one at which to define competitiveness. They acknowledge that ‘it means much more than the potential ability to export or the surplus in trade balance, and that it reaches far beyond the production of goods to include a wide range of material and immaterial inputs and their mobility, from housing and infrastructure to communications to social networks’.

Bristow (2005) also questions region competitiveness drawing on Porter’s (1990) writings, who has extended and applied his own model of the competitive advantage of the firms to the competitive advantage of regions, nations, and places or ‘locations’ generally. Though Porter (1990) makes direct connection between firm level productivity and regional living standards by arguing that productivity has a major influence on the cost of living, the cost of doing business and the level of wages in a region, Bristow (2005, p. 288-300) discusses this approach by pointing that microeconomic productivity is necessary but not sufficient condition for financial returns, increased market share or, ultimately, improved macroeconomic performance.

A region is ‘competitive’, according to this view, when it has the conditions to enable it to raise its standard of living, or the ability to sustain ‘winning’ outcomes. ‘These conditions are perceived to include a mixture of Porterian competitive advantage for firms and the attractiveness of the regional environment for business, as well as the volume and rate at which the region’s human capital is employed’ (Bristow, 2005, p. 289). The characteristics (i.e. volume and rate) of region’s knowledge resources employment, while seeking to enhance region’s competitive stance, is also of particular importance, especially when dealing with the knowledge-based economy driven global environment.

The academic literature is strong in its assertion that the key ingredients shaping firms’ competitiveness are predominantly endogenous to the region and reside in the institutional environment (Camagni, 2002; Kitson, Martin and Tyler, 2004; Budd and Hirmis, 2004; Rybakovas, 2010; Porter, 1990; Hudson, 2008; Malecki, 2004; Lagendijk, 2007; etc.). The ‘region’ undoubtedly plays a critical role in shaping the competitiveness of firms through the role that geographical proximity and clustering play in firm-level innovation. The international competitiveness of a firm thus is perceived to be a function of both the spatial concentration of firms in the region, and the degree of integration between firms and their ‘territory’ i.e. through their relationships with specialist suppliers, business services and research and educational institutions.

Bristow (2005, p. 291-292), however, criticizes concepts of regional competitiveness that emphasize importance of institutions, the local entrepreneurial culture, the availability of specialized suppliers, the quality of the local living and social environment, the cultural resources of a region, regional identity, international image and other qualitative or ‘soft’ location related factors which may create favourable environment for the development of local firms. According to Bristow (2010), firm competitiveness might be driven by factors that are not related to the regional socio-economical conditions – that would be conditions of the parent country or company in the case of multinationals, international business relations and knowledge sharing networks in which companies increasingly participate, internal to the firm factors of innovation. There always is a question what really matters in each particular case? In practice, the region’s influence may vary depending on the particular industrial structure and context, the balance of globally- and locally-oriented firms, and the degree to which the region constitutes an internally cohesive, homogenous economic space.

On the other hand, opposite approach that draws on dependency of regional competitiveness on the firm level factors of firms’ competitiveness also should not be overestimated. Following Bristow (2005, p. 294-295), regions should be conceived as open, discontinuous ‘spaces of flows’ constituted by a variety of social relationships. Relational perspective sees patterns of regional development and prosperity as reflecting relations of power and control over space, where core regions tend to occupy dominant positions and peripheral regions play marginal roles within wider structures of accumulation and regulation. Similarly, the regional competitiveness discourse should not ignore the role of national and global forces shaping regions and their development.

By turning back to the approaches that give higher preference to the importance of endogenous to the region but external to the firms factors of regional competitiveness, Bristow (2010, p. 153) emphasizes the concept of regional resilience. Bristow (2010) defines it (also citing Ashby, Cox and McNroy, 2009) as the region’s ability to experience positive economic success that is socially inclusive, works within environmental limits and which can ride global economic punches. According to Hudson (2008), regional resilience is ‘the capacity of a socio-economical system to absorb disturbance and reorganize while undergoing change, so as to still retain essentially the same function, structure and feedbacks’. Concept of regional resilience clearly resonates with literature on sustainability, localisation and diversification, and the developing understanding of regions as intrinsically diverse entities with evolutionary and context-specific development trajectories. It is thus a holistic concept that bridges the analysis of people, institutions and economies with the context-specific natural resources on which they ultimately depend. In contrast, the traditional discourse of competitiveness is most often ‘placeless’ and increasingly associated with globalized and growth-first agendas (Bristow, 2010).

According to Bristow (2010, p. 159), ‘competitiveness is an abstract concept equivalent to ‘attractiveness’ or the qualitative capacity of the region to compete with other places for globally mobile capital and labour’. The strategic imperative here is to take the requisite steps to attract and retain innovative firms, skilled labour, mobile investment, governmental subsidies and funds, with

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2 At the (i.e. firm) level, competititiveness has a clear meaning and refers to the capacity of a firm to compete, grow and be profitable in the marketplace.
emphasize being placed on the relevant conditions in the microeconomic environment within which productive firms can prosper. Following Bristow (2010), such concept makes sense to constitute states (regions) and their populations as competitive and entrepreneurial ‘places’ in a global market place for investment since this helps promote the sorts of supply-side interventions and economic activities that fit with neo-liberal ideologies.

The concept of regional resilience as well as other institutional approaches invites to look more deeply into the social mechanisms that guarantee those qualities and characteristics that are necessary to gain and maintain high level of regional competitiveness in the latter-day knowledge-intensive global environment. Further chapter looks at knowledge-resources as certain location specific (i.e. contextual) factors of competitiveness. As already mentioned above in the introduction of this article, general strategies are not relevant, and methodological tools for contextualization are needed.

Knowledge-resources and contextualization of regional competitiveness

According to Malecki (2004, p. 1101), the most competitive places are multidimensional in their competitive attractions and, following dynamics of global environment, are making the transitions to the knowledge-based economies. The highest priority is being placed on attracting mobile workers and mobile investment. Creative workers are the core of the knowledge economy and of its geographies such as ‘intelligent places’ and ‘learning regions’. According to the concept of regional resilience, not just attracted mobile knowledge owners, but also residents of the certain region are of particular importance for competitiveness enhancement.

In order to contextualize the thinking and respective approach to competitiveness of some certain region, one should find some existing or suppose on possible ‘regional externalities’, i.e. certain resources that reside outside of individual local firms but which are drawn on – directly or indirectly – by those firms and which influence their efficiency, innovativeness, flexibility and dynamism: in short – their productivity and competitive advantage (Kitson, Martin and Tyler, 2004, p. 994).

The economic ‘externalities’ in the field of regional competitiveness is not related to the negative effects of economic activity such as ‘smoke from chimney’ or ‘noise from factory’s machinery’ nor any other commodity which exert external effects on other economic agents (Holtermann, 1972, p. 79). Regional competitiveness related knowledge-based externalities, according to da Silva (2009), are the intemtemporal spillovers according to which anyone engaged in the actions has free access to the total stock of knowledge implicated. All actors in the economy can benefit from the entire stock of knowledge at the same time. Raspe and van Oort (2010) also emphasize on knowledge spillovers (i.e. unpaid externalities related to information and knowledge) that form a mechanism in firm-external economies and are key elements of productivity and growth. Regions and cities are thus considered centers of innovation, technological progress, ideas and knowledge.

Many external outputs have the characteristics of public goods. Public good is a good such that each person’s consumption of it is equal to the total supply of the good. Or in other words: ‘after a point one person's consumption of such a good does not decreases the amount available for other people to consume’ (Holtermann, 1972, p. 81). Unlike material things, knowledge and information (as any other public good) are not rivalrous in use or consumption: the consumption of one individual does not detract from that of another. Vetschtaegen and Schiltz (2007) even discuss the idea that knowledge should be considered as a global public good first and as a private right second. The argument is underpinned by the claim that the growing movements for source-, data-, and knowledge-sharing have enhanced general ability to facilitate the global production and dissemination of ‘knowledge’, so that more people in the world can enjoy its benefits.

By following Levaggi (2010), it is assumed that spatial externalities and public goods created in the case of knowledge resource usage are hardly to distinguish. Once a unit of the public good has been produced, it increases the utility of each individual in the same way. In other words, each unit of public good produces a positive externality for the rest of the community. Further in the analyses the ‘externalities’ term is being used, by referring to the overall external effects (including public goods), created by the exploitation of knowledge resources.

Considering the notion that local externalities always are specific to the certain region (local place), hardly imitable and transferable (Kitson, Martin and Tyler, 2004), it could be concluded that such externalities building and maintaining oriented development and competitiveness enhancement strategies would be contextualized, and not ‘replicating the successful paths to prosperity of exemplars’, nor ‘lacking sensitivity to critical issues of context and place’ (Bristow, 2010). Hudson (2008) explains that strategy specification and contextualization is inescapable. Author stresses on the place specificities that become critical because the very possibilities of specific sorts of production (and services) and overall economic forms in places necessarily depend upon the sorts of material configurations that can be captured and held. Each particular regional environment ‘is itself a product of successive layers of material transformations, that both enables new forms of transformation and is itself continuously transformed by this process’ (p. 171).

The formation and evolution of ‘soft’ externalities is seen as crucial for the dynamic competitiveness of regions and cities. Do these regional competitiveness influencing contextual externalities could really be formed on the base of regional knowledge-resources? By what means such formulation takes place? What are the mechanisms?

The arguments could start from the notion that in a global economy, the key resources for regional and urban competitiveness depend on localized processes of knowledge creation, in which people and firms learn about new technology, learn to trust each other, share and exchange information (Malecki, 2004). Hoogenboom, Trommel and Bannink (2008) conceptualize on three types
of knowledge societies (in the terms of knowledge content): the ‘techno-cultural’, ‘the socio-cultural’ and the ‘socio-technical’ knowledge societies. Authors conclude that within the global knowledge society ‘in a broad sense’ different knowledge societies ‘in a narrow (i.e. contextualized) sense’ are emerging. It means that, considering this conceptualization and respective conclusions, analysis of knowledge-resources base should provide reliable context specific data about socio-economical system of particular region. Empirical research based identification of the dominant type of knowledge society would provide contextual data on socio-economical system in terms of the sort of economic production, organisational and occupational structures, and social relations (Hoogenboom, Trommel and Bannink, 2008, p. 360). The dominating type of knowledge lets to presume most possible externalities that are likely to be created.

The possible simplified mechanism of competitiveness influencing context specific regional knowledge-resource based externalities creation could be defined as follows. Knowledge-resource owners (individual and corporate) invest their resources (i.e. knowledge) while responding to the initiatives of such externalities development. Knowledge investment, as will be defined below, could encompass both paid transaction and voluntary sharing. Payments based participations leads to the establishment of club-type structures and draw away from essential idea of all benefiting externalities, but are still possible.

Created externalities are used by all investors (according to the type of initiative and respective way of investment). If successfully reasoned, substantiated and developed these externalities should influence efficiency, innovativeness, flexibility, dynamism – competitiveness – of individuals and firms, participating in externality creation and using them (Rybakovas, 2010). The process, such ‘simple’ in the level of high abstraction, is not straightforward and with lots of challenges in practice. Most probable questions that require some theoretical reasoning are following: by what means knowledge-resources owners would identify potential knowledge-resource based externalities to invest; is it possible to invest knowledge; who and how would coordinate the process throughout the region’s socio-economical system?

In general, the present approach grounds on the theory of rationality and rational choice in humans’ economic behavior as well as limitations of it (rationality seeking behavior is performed either engaging in paid transactions or voluntary sharing based investment of knowledge resources). Demsetz (2008, p. 10-13) summarizes main prepositions of economic rationality and related theories by noting, that, according to the theory ‘the marketplace is the dominant arena in which independently acting persons interact with each other in deciding how the resources they own are to be used’; ‘because of long-term association with, and dependency on each other (for example within the firm, family or close community), interactions could become personalized, emotionalized and strategized’; personalization of exchanges at the local (i.e. regional) level also could involve significant deviation from self-interested calculation of the sort that is clearly present in the highly organized market’.

Theoretically prescribed possibilities to create regional competitiveness influencing, knowledge-resources based externalities rest upon both marketplace rationality as well as interdependent emotionality related factors. The investment of knowledge-resources (as of any other) would be possible and maybe even endeavor if investors (i.e. knowledge-owners) will see and take into account cost and benefits related to such investments. ‘If an effect of using a resource (be it knowledge, finance, materials, etc.) is a cost or a benefit, there must be someone who experiences this effect’ (Demsetz, 2008, p. 108). Costs and benefits drive both marketplace rationality and interdependency based exchanges. It is anticipated that knowledge-resource owners will provide resources to create competitiveness enhancing externalities if they are aware of greater benefits of increased competitiveness comparing to the costs of knowledge-resource investment.

Interdependent emotionality (as a factor encouraging individuals to participate and invest by voluntary sharing) is related to the already mentioned ‘soft’ factors of regional competitiveness. Namely, interdependency, personalized and strategically oriented exchanges provide socio-economical system of the certain region with qualities (i.e. externalities) that are distinctive, special and contextual to the particular region. If all resource allocation interactions where based exclusively just on the marketplace rationality, it would not be any reasons to analyze regions, discuss on their contextualized competitiveness. The empirical research oriented hypothesis could state here, that the more knowledge resources investments into the regional externality creation are based on interdependency and emotionality the more region is competitive.

**External schematic knowledge as the factor of regional competitiveness**

A first and basic prerequisite for fully understanding how the actors of the region’s socio-economical system can, could, or should conduct knowledge related externality creation is an appreciation of the kinds of knowledge resources region has. As mentioned above, Hoogenboom, Trommel and Bannink (2008) differentiate knowledge societies according to the type of dominating knowledge in terms of their content. Holsapple and Joshi (2001) conceptualize on the framework of organizational knowledge resources. Following the organizational (i.e. micro) level knowledge management experience the system ‘should provide right knowledge to the right people at the right time so they can make the best decisions’ (Holsapple and Joshi, 2001, p. 40). Turning back to the regional (i.e. macro-economical) competitiveness level, it is supposed that such ‘right knowledge, at the right time’
most likely could be accessed as the regional knowledge related externalities: some public goods, which are available to all participating (i.e. acting and knowledge resources investing in the certain region) actors.

In practice, not ‘regions’ but individual actors and organizations are knowledge resource owners. The model of organizational knowledge (Holsapple and Joshi, 2001) distinguishes knowledge resources that exist independent of the organization and those that depend on the organization for their existence. The latter are referred as schematic resources and the former as content resources. ‘The schema knowledge resources (involving knowledge about purpose, strategy, culture, infrastructure) shape the working of an organization. Collectively, they establish an organization’s ongoing identity. They are the basis for attracting, organizing, and deploying content resources. The content knowledge resources (covering participants’ knowledge and artifacts) that exist at a given time qualify, condition, and color an organization’s identity. They populate, instantiate, and enrich the frame of reference furnished by schematic resources’ (Holsapple and Joshi, 2001, p. 43). The existence and use of content knowledge resources is both enabled and constrained by the schematic knowledge resources.

Considering the just above described philosophy and subsequent framework of organizational (i.e. micro-level) knowledge resources, some parallels could be drawn to the regional (i.e. macro-economical) level. Schematic knowledge resources at the region’s socio-economical system as solid social organization refer to above widely discussed knowledge based externalities, providing means for competitive advantage of individual actors. Region with clear development strategy, defined purposes, strong culture and relevant infrastructure that is available for individual actors would be more competitive comparing to regions lacking such schema type knowledge resources.

Content type knowledge resources approach is also relevant at the regional level. Participants (i.e. individuals and businesses) along with their knowledge and artifacts ‘may come and go’ (Holsapple and Joshi, 2001, p. 44). Such ‘come and go’ processes are widely discussed argued and criticized within the regional competitiveness discourse as one of the outcomes of competitiveness, assuming that competitive regions attract labor, business and investment from less competitive places. In the light of regional competitiveness, distinction between schema and content knowledge is of particular relevance, because namely schema knowledge resources have enduring aspects that give the continuity in the face of these ‘comings’ and ‘goings’ by constraining the latter and attracting the former. ‘Beyond the scope of participants and artifacts, knowledge is ingrained in an organization itself by way of its infrastructure, culture, strategy, and purpose’ (Holsapple and Joshi, 2001, p. 44).

The primary distinction between participants’ knowledge and artifacts lies in the presence or absence of knowledge processing abilities. Participants have knowledge manipulation skills that allow them to process their own repositories of knowledge; artifacts have no such skills (Holsapple and Joshi, 2001, p. 45). As it is mentioned above participants’ knowledge at the regional level could be analyzed using typology of knowledge societies in terms of dominating knowledge by their content (Hoogenboom, Trommel and Bannink, 2008). Considering the fact that each type of knowledge society in terms of knowledge content relates to respective economical structure with presumed types of knowledge based products and possible competitive advantages, one could anticipate on relevant externalities in terms of strategy, purpose, culture, infrastructure knowledge resources.

The extent to which participants make their knowledge available as an organizational resource (in the case of socio-economical region as knowledge based externalities) depends heavily on managerial influences (e.g., leadership, reward systems, evaluation systems and of overall institutional settings especially in the case of macro-level socio-economical system) as well as on alignment with schematic (i.e. external) knowledge resources such as culture and purpose (Holsapple and Joshi, 2001, p. 45).

Respective institutional settings have to be created in order to coordinate (or just to recognize) the processes of knowledge externality creation. Socio-economical system of a region should be viewed as a set of institutions for integrating knowledge, encompassing processes of knowledge creation, dissemination, storage, sharing, etc.

Institutions are shared understandings about actions that are obligatory, permitted, or forbidden (Ostrom, 2005). Institutions along with values, principles, norms, unwritten and written rules, and procedures comprise cultural schematic knowledge resources. They impact participants’ behaviours (e.g. knowledge sharing vs. knowledge hoarding), it affects what knowledge is acquired and internalized. These resources influence each participant’s use of knowledge as well as the interactions among participants’ knowledge. (Holsapple and Joshi, 2001, p. 46-47). Cultural knowledge resources here are seen as competitiveness shaping regional externalities. Ostrom (2005) notes that institutions (i.e. culture knowledge within the knowledge resources taxonomy model) can crowd out cooperative behaviour and explains that the opportunities and constraints individuals face in any particular situation, the information and benefits they obtain, or are excluded from, and how they reason about the situation are all affected by the institutionalized rules and norms (i.e. culture) or absence of them, that structure the situation.

Infrastructure knowledge (defined as the knowledge that structures participants in terms of the roles that have been defined for participants to fill, the relationships among those roles, and regulations that govern the use of roles and relationships); strategy (as the knowledge that defines what to do in order to achieve purpose in an effective manner, comprised of plans for using an organization’s infrastructure, culture, knowledge artifacts, and participants’ knowledge (as well as other resources), purpose knowledge (indicating mission, vision, objectives, and goals of socio-economical system) corresponds to the Ostrom’s (2005) institutional framework analyses approach, broadly discussed and already applied to the regional development issues by Rybakovas (2009, 2010). In that way schematic knowledge resources could be seen
as emerging from the established institutional settings. It means that namely institutional settings shape and define schematic knowledge resources, and thus regional knowledge related externalities, determining (directly and indirectly) competitiveness of a region. Weaknesses within the institutional framework are assumed to be reflected in the schematic knowledge resources and thus in the knowledge related regional externalities.

Perceived coherence between theoretical frameworks of organizational knowledge resources (depicting content and schema knowledge) and institutional framework of socio economical system analyses (depicting seven types of institutional norms and rules⁴) lets to look at the socio-economical system of competitive region from the knowledge-resources perspective. Such approach provides reliable background for regional competitiveness strategy contextualization in terms of region’s knowledge resource. The context would be depicted firstly by the content resource investigation, and secondly by the search for appropriate institutional settings and respective knowledge externalities that fit existing knowledge-resource base.

To argument this coherence, explanatory examples could be used. Role knowledge (as subset or infrastructure schematic knowledge) definition (Holsapple and Joshi, 2001, p. 47) says: ‘role knowledge is about what needs to be done by participants, about expectations for the participants assigned to the roles’ (e.g. what knowledge each is expected to handle or generate). Following Ostrom’s (2005, p. 200, 208) conceptualization on institutional setting framework, choice rules, for example, ‘are sets of allowable (desirable) actions and functions of positions, that maps actions into proposed outcomes’, scope rules ‘are potential (planned) outcomes towards which actions of every certain position should be intended to; choice and scope of actions provides patterns for systemic results oriented performance of every single position within the system’.

Alike parallels could be drawn throughout entire framework of organizational knowledge resources along with the institutional setting analyzing framework.

Culture and all types of above mentioned schema knowledge resources are represented or conveyed in the working of a regional socio-economical system. Schematic knowledge can be captured and embedded in artifacts or participants’ memories, but it exists independent of any one participant and artifact. Culture, purpose, infrastructure, or strategy can be represented in an artifact (i.e. documentation), but its existence/absence does not depend on the creation of an artifact. Knowledge about these resources when embedded in artifacts can be subject to rapid selection and formalized internalization. However, aspects of schematic knowledge embodied in an artifact can be different from an actual schema (Holsapple and Joshi, 2001, p. 46).

Figure 1 exposes some outcomes of knowledge-based economy performance as anticipated goods and services appropriate to the every certain type of mono-knowledge society (Hoogenboom, Trommel and Bannink, 2008, p. 368). The lists of goods and services most likely to be produces by every certain mono-knowledge society should be seen not as always just strictly final goods, but,
following Leppala and Desrochers (2010), rather as certain systematically developed knowledge-based competencies providing opportunities to enter global value chains of production. Leppala and Desrochers (2010) disagree the idea of regional specialization and competitive advantages derived this way. The division of labour need not imply regional specialization, because arguments related to the transportation costs; localized economies of scope (or urbanization economies) which benefit firms in diverse industries; a greater 'multiplier effect' when new activities are added to the local economy; greater resilience than specialized regions whose fate rests on the demand for a particular good or service; and the diffusion and adaptation of technical know-how between different industrial sectors which is said to be facilitated by a diversified local economy – counterweight the opposite arguments of idea of specialization based on notions about knowledge spillovers, productivity reached in the dense networks of related and cooperating firms, or some self-reinforcing setting for innovative behaviour (Leppala and Desrochers, 2010).

The outcomes of just conceptualized knowledge-resources based and this way contextualized regional competitiveness are seen in traditional twofold manner. Knowledge-resource based regional externalities (schematic knowledge resources), as most important and influential competitiveness factor, operate in both ways. First, they provide individual firms with relevant (locally available) knowledge and other resources by among the local actors established links and mutual interdependencies that enhance productivity increasing micro (product) level competitiveness of region’s firms (such competitiveness is being represented by the exports of goods and services). Second, schematic knowledge externalities expose region’s overall economic performance, present business environmental conditions, and other factors attracting mobile capital and labour force to the region, thus balancing emigration/immigration ratios.

The application of firm (micro) level framework of organizational knowledge resources is challenging and done agreeing on the notions that ‘single firm is operated by one entrepreneur, it is a goal-oriented organization with well-defined boundaries that, despite its typically multi-product nature, is built around one or a few core competencies. [...] however, geographical units do not share these fundamental characteristics’ (Leppala and Desrochers, 2010, p. 138). Implying this, ‘only individuals and not regions have skills, capabilities and tastes’ along with knowledge and all other resources. ‘In short, regions do not act like individuals or even organizations’ (p. 139), but individuals within those regions do. Do the regions can have their infrastructure, strategy, purpose, and culture knowledge? ‘Regions’ may be not, but individual actors (personal and organizational), acting in common spatial surroundings, may and even must have their external schematic knowledge, providing backgrounds for regional competitiveness.

Conclusions

Regional competitiveness seen as at least a twofold phenomenon requires a thorough investigation in theoretical as well as practical ways. Region is competitive if it is good at attracting investments, business, and residents. Region is competitive if its firms are competitive in the international trade markets. Both ways lead to the desired competitiveness outcome – higher standards of living and increased overall prosperity in the region. Such twofold interpretation, though criticised and widely discussed, still remains mostly accepted academic interpretation of regional competitiveness.

To gain and remain competitiveness ensuring competitive stance, regions build on some competitive advantages that are seen as factors external to individuals (persons and firms), but which benefit individual firms as well resident persons from. These external assets (i.e. regional externalities) tend to give the region's firms, overall, a higher productivity than would otherwise be the case. The same externalities simultaneously operate as attractive characteristics, attracting (and maintaining during time periods) material investments and other resources (human, knowledge, etc.), to the region.

In order to contextualize the thinking and analytical approach to competitiveness of some certain region, one should find some existing or suppose on possible ‘regional externalities’, i.e. certain resources that reside outside of individual local firms but which are drawn on by those firms and which influence their competitive advantage.

Local externalities always are specific to the certain region (local place), hardly imitable and transferable. Thus it is concluded that such externalities building and maintaining oriented development and competitiveness enhancement strategies would be contextualized, and filled with sensitivity to critical issues of context and place.

Already developed typology of knowledge societies in terms of dominating knowledge content could be used to characterize socio-economic system of particular region. The dominating type of knowledge lets to presume and plan in the policy-making level most possible externalities that are likely to be created. But broader empirical investigation is still needed in order to provide more concrete and certain knowledge society related agendas.

Content knowledge owners (individual actors and organizations) are expected to participate in the schematic knowledge generation. Schematic knowledge, following organizational knowledge resource framework, are being seen as regional externalities, shaping competitiveness of individual firms as well as attracting economic resources to the region. This schematic knowledge defines structure of the region’s socio-economic system, determines purpose and strategy assign participants with some obligations, provide bases for interdependencies, common understandings, etc.

Expected individuals’ participation in the formulation of external schematic knowledge is grounded on the theory of rationality and rational choice in humans’ economic behaviour. Theoretically prescribed possibilities to create external regional competitiveness influencing knowledge-resources rest upon both marketplace rationality as well as interdependent emotionality related factors. The
investment of knowledge-resources (as of any other) would be possible if investors (i.e. individual knowledge owners) will see and take into account cost and benefits related to such investments.

External knowledge resources (about infrastructure, strategy, purpose and culture) are created by individual actors but reside externally in the socio-economical system. This knowledge exists independent from its originators – i.e. individual content knowledge owners, which could migrate in and out the region according to dynamics of region’s competitive stance. If grasped, schematic external knowledge could be used to contextualize competitiveness issues (in terms of policy statements) of any certain region.

References

E. Rybakovas

Žinių išteklių vaidmuo regiono konkurencingumui

Santrauka
Pastebima, kad esami ir praktikoje taikomi regionų ekonominio konkurencingumo modeliai ir jais grindžiamos realios konkurencingumo didinimo strategijos dažnai yra rengiamos atsiėtai nuo specifinio konkretaus regiono konteksto, tačiau „jaus patirkinus“ ir kitose situacijose sėkmingi įtakos regionams. Toksius instrumentus (Reiche rt, 2006; World Bank, 1997; Storper, 1997) yra įvardijama kaip problemingi, reikalaujant aiškiau išsiaiškinti įtakos nuorodą regionų konkurencingumui ir palaikymo strategijoms. Remiantis daugeliu autorių įvairių tyrimų, apie regionų konkurencingumo pasiekimus ir palaikymo strategijas, pastebima daugelio autorių spėtų remodelėtis, galima teigti, kad dažnai laukiant regionų konkurencingumo ir palaikymo srityje reikalingos naujos strategijos. Tačiau, atsižvelgiant į tai, regionų konkurencingumo problemą galima išsiaiškinti ir atsižvelgiant į kitas regionų konkurencingumo modelius, pastebima, kad daugelis autorių pastebi, kad regionų konkurencingumo modeliai dažnai įvairių regionų konkurencingumo pasiekimus ir palaikymo strategijas. Tačiau, atsižvelgiant į tai, regionų konkurencingumo problemą galima išsiaiškinti ir atsižvelgiant į kitas regionų konkurencingumo modelius, pastebima, kad daugelis autorių pastebi, kad regionų konkurencingumo modeliai dažnai įvairių regionų konkurencingumo pasiekimus ir palaikymo strategijas.
Mokslinėje literatūroje pateikiamas alternatyvių požiūrių nėra siekiama paneigt, atmeti ar radikaliai kritikuoti vyraujančio požiūrio, alternatyviniams nuomonėms atskleidžiami aspektai tik papildo ir išplėčia esamą sąmą, o tai leidžia įvertinti daugiau galimų aspektų ir konkurcencinė sėkmė lenčių veiksnų. Taip pat suteikia naudų galimybę kontekstualizuoti konkurencingumo klausimą sprendimą.

Konkurcencinę sėkmę, pritraukiačiausiu ir išlaikant produktųvandžių veikiančias organizacijas (būtent tokio rezultato apibūdinamas konkurencingumo rezultatas), regionai gali įgyti įnaudodami lyginamuosius arba absoluciu konkurcencinį pranašumą (Camagni, 2002). Lyginamuosius konkurcencinius pranašumus, padeinančius didinti ekonominį veiklos produktyvumą, sąlygoja turimą natūralioji išteklių, ekonomės struktūrą, išteklių kainos, kai veiksniai, kuriuos galima lyginti kelius regionuose.

Absoliutieji pranašumai (Camagni, 2002) yra sukuriami kaip tam tikri regiono vidiniai, bet čia veikiančios organizacijos išoriniai ištekliai, taip pat prisidedantys prie ekonominės įtakos produktyvumo didinimu. Tokių pat išteklių lyginamiuose konkurcencinioje regionuose nėra, juos sunku perkelti į kitas situacijas. Absoliučių pranašumų veiksniai yra priskiriama pranašu konkurcencinių žinių ištekliai, socialinis ir institucinės sąrašas veiksmai, kultūrinės ir normatyvinės nuostatos, regioninis identitas, įvairūs. Būtent absoliučių pranašumų sąlygoja, jų identifikavimas, potencialo nustatymas, kūrimo ir naudojimo iniciatyvos suteikia regiono konkurencingumui kontekstualumo

Absoliučių konkurcencinių pranašumų veiksniai galima priskirti ir regiono išorinio (čia veikiančių individualių jų veikjų atžvilgiu, bet vidinio regiono) žinių ištekliai, kurie gali būti sukurti kaip viešosios įrąbės (angl. public goods), kurią naudodamos organizacijos galėtai veikti produktyviai nei analogiški kitų regionų veikjai. Straišnyje pagrindžiuoja nuostata, kad regiono išoriniai žinių ištekliai (angl. knowledge externality) yra kuriama regione vyraujančių žinių išteklių, kuriuos valdo ir jais disponuoja individualus veikjai – asmenys ir organizacijos, pagrindu.

Analizuojant pristata prie išvados, kad regiono socialinės ir ekonominės sistemos specifiniai žinių ištekliai gali būti įvertinti ir aprašomi (suprantami) remiantis žiniomis grindžiama išradimų ir technologijų specifika, kurią organizacijos veikiant regiono išoriniais žinių ištekliais, suprastina, kad veikia socialinėse sistemose, kurių veikėjai, vadovaudamiesi rinkos racionalumą arba tarpusavyje priklausomybės vietai, veikia pagal institucines sąrašos normas ir taisykles, aktyviai prisideda prie išorinių žinių išteklės sukurimo ir išvartinimo

Straišnyje pasižyti konceptualus modelis gali būti taikomas svartant konkretių regionų konkurencingumo strategijas, kurią institucines jų realizavimo priemones. Siekiant koncepcinių modeli taikyti praktiškai, reikia sukurti empirinių tyrimų metodikas, kurius leistų įvertinti konkretių socialinės ir ekonominės sistemos žinių išteklų tipų ir įtraukti jų specifiką, įvertinti ekspressus ir pasižyti naujus institucines sąrašos elementus (veiklingas institucionalizuoti normas ir taisykles), galinčius įtraukti vystandri pradėti prie išorinių žinių išteklį sukti ir išvartinimo

Raktiniai žodžiai: žinių ištekliai, regionas, regiono konkurencingumas, socialinės ir ekonominės sistemos

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