

Guest editorial

Local knowledge and innovation policy

Innovation policy has become a key issue in many countries. There is also growing awareness that one of the foundation stones of an effective innovation strategy is formed by a professional and advanced local knowledge infrastructure (see, eg, Jaffe et al, 1993; Saviotti and Nooteboom, 2000). This theme issue is devoted to the interface between local knowledge and innovation policy.

Modern times characterized by global goals and new communication forms at reduced costs have revealed several paradoxes. First, the global market equilibrium is decided at the intersection of the firm's intention to achieve revenues based on large-scale economies and the simultaneous need to satisfy each of the clients' specific local needs. Secondly, social and economic targets in developed countries show how intellectual capital is becoming more important than ever in society, while private investments inject progressively more financial capital—even on the basis of expected future profits. Finally, the environmental challenge advises against uncontrolled growth and consumption, yet much of the economic survival of countries and their respective populations seems to depend on the development of new mechanisms to produce and sell more.

This general context for world development stresses novel approaches and reflections on the search for sustainable solutions which combine social, economic, and environmental issues. The sequence of papers now presented provides an inspiring discussion on the essential role of knowledge as an indirect instrument to model and balance growth, as long as one takes into account the recent phenomena of globalization, ICTs (information and communication technologies) and the mobility of productive factors, as well as those paradoxes and dichotomies described earlier. Innovation is the common thread among the cases described; whenever possible there is an expressed intention to enhance the perception of the local dimension in the creation of knowledge bases, thus underlining the tutorial responsibility of innovation policy.

After much effort to achieve a clear understanding of innovation in the last fifty years, it has been largely accepted among scientists that its role as a contribution to growth is crucial (Schumpeter, 1934; 1954; Freeman, 1987; Fagerberg, 2003; 2004). During this recent period, several tendencies and ideas have proliferated in the related research fields, leading to what Ann Markusen (1999), called “fuzzy concepts”—a symptom of lack of focus, frequently observed in the emerging scientific areas.

Innovation, an important basis in the attempt to achieve continuous growth, has served as evidence for many social and political goals, requiring a great deal of attention from policy makers and other decision makers. Nonetheless, frequently, continuous growth encounters obstacles which hinder the success of all those efforts put into the complex process of creativeness, entrepreneurship, and productive change. Considered as an analytical tool, innovation has hitherto been intensively used to justify the different levels of performance between firms and regions, to explain the clustering tendencies of industrial and service activities (with impacts of an institutional or geographical nature), or to motivate and challenge political interventions.

Tied to the past or linked with the future, path dependency, on the one hand, and sustainability, on the other, are the two extreme situations that, theoretically, may restrain the natural course of capital investments (intellectual or financial) towards growth. Between these extremes lies innovation as an organizational phenomenon embodied of a cognitive nature whose complexity is still not completely understood.

As researchers continue to immerse themselves in empirical observation, the more they tend to agree on, at least, two major drivers of innovation: (1) the networking capability of organizations, which is closely related to (2) their learning capacities, and, consequently, their respective attitudes towards knowledge. Following Lundvall and Johnson (1994), knowledge has turned out to be the most important resource for firms and organizations, while learning is their most important process. Consequently, exploring the nature of the relationship between the knowledge base and the economic growth of cities and regions is a new challenge. We need to know how knowledge correlates with measures of competitiveness and economic success. In the literature we observe two classes of theoretical approaches to the relationship between the knowledge base and economic growth: one treats the knowledge base as being embodied in various groups of people—entrepreneurs, innovators, immigrants, and students; the other looks at proper measures of the transmission of information and its outcomes, such as patents, inventions, and new enterprises.

Penrose (1959) and Wernerfelt (1984) have argued that those drivers may be better perceived from the resource-based view of the firm, considering it as a unit of analysis and studying its resource endowments to better identify its strategic behavior, as suggested by Knudsen (1995) and Kaleka (2002). Still, nowadays, this view has been balanced by stressing the major role of external sources of knowledge in firms' capability to explore or adapt to new processes and products. The rising importance of such inputs in firms' (and consequently regions') innovative performance is promoting specific strategies to capture and, if possible, internalize them. The paper entitled "Cities and regions in the global economy: knowledge and local development policies" presented by Edward Malecki discusses how, in this context, competitive places have developed diverse, multidimensional ways to attract mobile workers as well as mobile investment. Creative workers are the core of the knowledge economy and account for the varieties in its geography. Benchmarks, including knowledge metrics, innovation indices, and report cards, are increasingly common and increasingly critical in monitoring key features of economies and societies whose factors of production and of success are highly mobile. Consequently, policies have become more sophisticated, but policy makers need to grasp the nature of place competition and the critical roles of knowledge in the strategies of the most competitive places.

As firms become exposed to increasing amounts of tacit knowledge, probably as a result of links with new, external partners, an emerging concept is reshaping the debate: proximity. This can be institutional, if national industrial specialization patterns are to be achieved, or geographical, if this is not the case. Face-to-face interaction between partners becomes a positive externality. Common links like language, codes of communication, conventions, personal contacts, past history, or successful informal interactions (Gertler, 2001; 2004, Nightingale, 1998) take place, thereby increasing trust and reducing risk. In this theme issue, Björn Asheim, Lars Coenen, and Jan Vang provide a new view and framework for developing a more nuanced understanding of the spatial implications of face-to-face and buzz for learning. While concurring with the new streams of literature in geography that highlight the importance of face-to-face and buzz in the globalizing learning economy, they argue that this literature is misleading on three interrelated accounts. Firstly, it conflates face-to-face and buzz; secondly, it fails to distinguish between the importance

of face-to-face and buzz for industries that draw on different knowledge bases; and, thirdly, these conceptual inadequacies lead to an exaggeration of the importance of cities as sites for creativity and innovation, and hence regional competitiveness.

The enlargement of the knowledge base through its creation and better diffusion is nowadays the most pertinent issue connected with innovation. Asheim (2001) highlights how territorial-based complexes are becoming a regular way to re-create knowledge at the local level, which certainly, but not exclusively, concerns the performance and survival of firms and extends the issue more deeply into the interests of development policy and regional awareness. The degree of strategic responsibility taken at the regional administrative level in what concerns the design and execution of innovation policy tools becomes unavoidable, particularly in Europe where there is frequently a lack of complementary efforts between national innovation policies and regional governance structures. Janet Kohlhase and Xiaohong Ju demonstrate in their research paper on "Firm location in a polycentric city: the effects of taxes and agglomeration economies on location decisions" that tax effects can have strong impacts on firm location. The paper explores the determinants of firm location in a polycentric city using data for the Houston region. Firm location is modelled in a discrete choice framework using eight employment centres and outlying areas as possible choices. Agglomerative and dispersive forces are explicitly treated, as are taxes and other characteristics that vary over space. The findings show that property taxes have large deterrent effects on firms' locations for the four industrial groups analyzed here: oil and gas; manufacturing; finance, insurance and real estate (FIRE); and services. When agglomeration economies are present, they are weaker than the tax effects and are positive only for the FIRE and services industrial groups.

But more significant than the political endeavour to increase knowledge creation and diffusion is the natural ability of socioeconomic agents to interact, produce, and compete on the basis of networking. Bertuglia et al (1997) have already pointed out that urban areas are incubators of change, through their cultural opportunities and geographical connectivity. Considering that geographical and institutional networking have an influence on the different ways to diffuse knowledge, one question that may be raised concerns how knowledge can be introduced in spatial areas and how the space can be reorganized in order to better accept new technological and organizational contributions from external agents. Space has institutional contexts that, either formally or informally, favour exchange between the stakeholders, some of whom already have the prerequisites for such interaction in their historic-cultural past, but some do not. However, some restrictions should be considered. In fact, Gallego (2003) presents a gratifying theoretical formulation to explain that tacit knowledge diffusion demands the association of both geographic and institutional proximity, distance being a factor that does not, however, restrain the transmission of codified knowledge. An illustrative example of the importance of geographical proximity is provided in the paper from Marina van Geenhuizen and Peter Nijkamp entitled "Cities and footlooseness: in search of place-bound companies and effective location policies". Their research addresses the relevance of geographic proximity for companies in our age of advanced ICT. Many accounts of the increased footlooseness of companies and a concomitant dispersal of urban agglomerative activity have been published in recent years. To determine whether urban agglomeration economies (in particular, knowledge spillovers) are still a key force in preventing such dispersal, the degree of footlooseness of young, innovative companies was investigated. The crucial factors that influence needs for physical proximity were detected, allowing the authors to argue that agglomeration economies still remain important.

In addition, to help answer the question posed above, it may be useful to refer to the regional innovation systems in which innovating and noninnovating companies coexist, the leader companies being the ones most responsible for the development of new products, differentiation, or interrelationships with other firms. These enterprises are fundamentally those which induce the emergence of technological needs through their participation in external networks with other companies or R&D centres. Frequently, these interactions are based on nonmercantile informal relations of cooperation that are strengthened by the mutual knowledge bases and eventually supported by their proximity (Torre and Gilly, 2000). In an environment of improved confidence, changes in entrepreneurial relations occur, increasing tacit knowledge diffusion and codified knowledge transmission. But, even if these alterations in the knowledge transmission processes occur, are they enough to permit continuous growth and encourage positive impacts on the geographical space? Or, conversely, does knowledge diffusion spread so fast and asymmetrically that it tends to “degenerate” into *footloose* activities and unexpected location choices? The study “Does it matter where IT workers are located?”, presented by Elsie Echeverri-Carroll, Sofia Ayala, Mayuresh Kshetramade and Priyanka Murthy, suggests possible answers to this topical question. According to those authors, the predominant view in the literature is that cities affect labour productivity because *spatial proximity* facilitates the transfer of ideas that make workers more productive. By facilitating human communication and speeding up the flow of ideas and data, *information technology* also contributes to enhancing the productivity of workers within cities.

The various studies in this theme issue have clearly demonstrated that innovation, knowledge, entrepreneurship, and growth are part of a broader local or regional network complex, where many formal and informal relationships provide the basis for the competitive development of cities and regions (see, eg, Gomes-Casseres, 1996; Suarez-Villa, 2001). ICT developments—linking local and global scales—support the emergence of creative networks among actors and provide great opportunities for open-access localities. Public policy may play a strategic role in favouring the emergence of effectively operating networks through the provision of tailor-made infrastructural provisions in both the ICT and the knowledge field.

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