

**Technological Change and the challenges for Regional Development:
*building 'social capital' in less-favoured regions***

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Abstract. The relevance of regional policy for less favoured regions (LFRs) reveals itself when policy-makers must reconcile competitiveness with social cohesion through the adaptation of competition or innovation policies. The vast literature in this area generally builds on an overarching concept of '*social capital*' as the necessary relational infrastructure for collective action diversification and policy integration, in a context much influenced by a dynamic of industrial change and a necessary balance between the creation and diffusion of '*knowledge*' through learning. This relational infrastructure or '*social capital*' is centred on people's willingness to cooperate and '*envision*' futures as a result of "social organization, such as networks, norms and trust that facilitate action and cooperation for mutual benefit" (Putnam, 1993: 35). Advocates of this interpretation of '*social capital*' have adopted the 'new growth' thinking behind '*systems of innovation*' and '*competence building*', arguing that networks have the potential to make both public administration and markets more effective as well as 'learning' trajectories more inclusive of the development of society as a whole. This essay aims to better understand the role of '*social capital*' in the production and reproduction of uneven regional development patterns, and to critically assess the limits of a '*systems concept*' and an institution-centred approach to comparative studies of regional innovation. These aims are discussed in light of the following two assertions: i) learning behaviour, from an economic point of view, has its determinants, and ii) the positive economic outcomes of '*social capital*' cannot be taken as a given. It is suggested that an agent-centred approach to comparative research best addresses the 'learning' determinants and the consequences of social networks on regional development patterns. A brief discussion of the current debate on innovation surveys has been provided to illustrate this point.

Introduction

Positivist interpretations of '*vision*', '*knowledge*' and '*social capital*' have contributed to a diverse range of public and academic discourse on complex and participatory social processes, concerning new approaches to national and regional policy-making over the last two decades. The use of the terms re-emerges partially as a response to the local and regional market consequences of increasingly

fragmented and variable market economies. The re-emergence of 'social capital', in particular, is a direct response to this 'new economic' paradigm, calling for the rapid and flexible adaptation to adverse market conditions, and emphasizing high value-added products as the means to higher standards of living (Triglia, 2001:9).

This perspective, also understood as "new entrepreneurialism" (Harvey, 1989), consists of four aspects: creating jobs, expanding the local tax base, fostering small firm growth and attracting new forms of investment (Hall and Hubbard, 1998). It is associated with an increasing ideological view of the world economic order generally, which has also been specifically referred to as 'privatism'; 'privatism', though, should not be confused with 'privatization' (Squires, 1991).¹ The ideology of 'privatism' and the policies of 'privatization,' which have been adopted by national governments worldwide, constitute the transformation to entrepreneurial practices. Framed by these worldviews of global market dynamics, the consensus is that new and high quality products are contingent on *innovation*.

The positivist interpretations of the above terms into social and economic development, though, are often ambiguous because of their multiple meanings or elusive connotations. Furthermore, these positivist interpretations contribute to the social and economic visionary discourses of the 'European Project', for example, which rest on an understanding of the world through worldviews structured on scientific 'knowledge' and its use in the rationalization of social behaviour and its causal laws (Taylor, 1998).

Fred Polak (*cited in* Shipley, 2000: 228) first recognized the significance of the term 'vision' for the spatial conception of the 'European Project'. As a part of the process for creating the European Union, Polak argued that all choice-oriented behaviour is contingent upon the ability to produce a clear mental image of events yet to come (*ibid.*). In fact, the *Lisbon Strategy* (Rodrigues, 2003, Conceição et al, 2003) recognizes the challenges put forth by global economic activity and the increased inter-regional competitiveness and disparity that 'globalization' threatens to propagate if left unchecked. The strategy aims to make the EU "*the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*" by 2010. The objective of this common 'vision' between Member States and the European Commission is to have the *Lisbon Strategy* serve as a benchmark for EU, national and regional

¹ Contrary to privatism, privatization is the regulatory policy that transfers the ownership of particular industries or public services from the government to the private entrepreneur. In other words, this could also be viewed as the 'marketization' of public services, which ensures quality through competition.

policies through ‘open methods of social participation’ (i.e., participatory spatial planning processes). Central to the *Lisbon Strategy* is the recognition that various aspects of European research and innovation performance is continuously lagging in some areas of the EU, placing research and innovation policy (RTDI) at the top of the European policy agenda (EC, 2000, Edler, et al, 2003; Conceição et al, 2004). This follows the original reflection of Ruberti and Andre (1995), but represents the first serious attempt of European governments to raise science and innovation at the highest political level.

Political ‘visions’, such as the *Lisbon Strategy*, have been the subject of considerable research by Robert Shipley (2002), who elaborates upon ‘visioning’ as ‘systems of visioning’ or “thought-out programs of action” in order to provide an understanding of the underlying philosophy of the term ‘vision’ as well as the reasons why these “programs of action” fail to achieve their objectives. He first concludes in this most recent work that there is a lack of an underlying theory [of action] because every case has been designed as a step-by-step instructional guide together with general assumptions of the expected outcomes. Second, these ‘visioning systems’ are more promotional than an analytical discussion of the principles on which they are based; most of these ‘systems’ albeit proprietary.

As for the meaning of ‘knowledge’, Keith Smith (2000:4) also finds that the elusiveness of the concept is attributed to the “*very different implicit notions of knowledge*”, which make it “*rhetorical rather than analytically useful*”. ‘Knowledge’ is commonly distinguished through the concepts of ‘codified’ (disembodied) and ‘tacit’ (embodied) knowledge, but even this distinction is rather “hazy” according to Smith. Regardless of the term’s elusiveness, Smith suggests that it normally aims to reduce uncertainty, offer an explanatory structure and/or transmit data in the form of practical guides - similarly suggested by Shipley (2000) of ‘vision’ statements since the late 1980s.

Inclusive of the ‘visions’ of social cohesion, competitiveness and sustainable economic growth in a leading knowledge-based economy, what challenges, then, are facing attempts at technology-based development and cooperation through regional policies that desire to stimulate localized learning, innovation and indigenous development within less-favoured regions (LFRs)? *How should ‘knowledge’ be properly linked to action?* The latter question by John Friedmann (1987) is central to discussing technological change and the challenges to regional development, and particularly encouraging ‘social capital’ in LFRs. For the purposes of this essay, ‘social capital’ can impact economic activity in different ways. Conceived as social networks, it can facilitate inclusive and participatory “arenas” for action just as well as contribute to individual opportunism and exclusion.

Critical Aspects of ‘Social Capital’ and ‘Learning’

In order to begin to establish the critical mindset necessary for a theoretically sound discussion of ‘social capital’ and ‘learning’, one must first absolve of the medieval English philosopher Francis Bacon’s renowned dictum: “*knowledge is power*”, whereby one acquires the knowledge to empower oneself competitively with the potential to undertake unmet opportunities, for one that considers the potential inverse relationship. Michel Foucault turns Bacon’s dictum on its head and claims, instead, that “*power is knowledge*”, implying that those who already possess power will use the knowledge of others to maintain their competitive position. This inverse relationship between ‘knowledge’ and ‘power’ is clearly evident when discussed in terms of “*negative social capital*” (Portes, 1998: 15-18) and “*contingent learning*” (Slembeck, 1998) , which will be discussed throughout the remaining sections of this essay.

“Toward a Renewal of Regional Systems of Innovation, RSI”?

While much attention has been devoted to information and communication technologies, a more fundamental change at the start of the new millennium is the increasing importance of innovation for economic prosperity and the emergence of a ‘learning society’. Innovation is a broad social and economic activity; it transcends any specific technology, even when revolutionary, and it is manifest through the attitudes and behaviours of individuals oriented towards the exploitation of value-added change.

To claim innovation as a broad social and economic activity, though, one first must have an understanding of the conditions for integrated ‘learning’ processes. This has led Conceição *et al.* (2003) and Conceição & Heitor (2003) to build on Lundvall & Johnson’s (1994) ‘learning economy’ and to discuss the ‘learning society’ in terms of innovation and competence building with social cohesion. They view innovation as the key process that characterizes a ‘knowledge’ economy understood from a dynamic perspective, where competence is the foundation from which innovation emerges, and which allows many innovations to be enjoyed. In other words, ‘learning’ contributes both to the “generation” of innovations and to the “utilization” of innovations. Conceptually, the founding relationship between ‘learning’ and economic growth addresses skills improvement and the generation, diffusion, and usage of new ideas.

The inclusive “learning” ideal of the ‘learning society’, which entails a process of shared prosperity across the globe via local economic and social conditions, argues that it is crucial to understand the features of knowledge-induced growth in wealthy nations and regions, as well as the challenges and

opportunities for late-industrialized nations and less-favoured regions. In order to comprehend these features of knowledge-induced growth, it is important to recognize the relative importance of *infrastructures* and *incentives*, while considering the increasing significance of *institutions* in the development of ‘social capital’(Conceição, Heitor and Veloso, 2003). This is because “learning” societies will increasingly rely on “distributed knowledge bases”, as a systematically coherent set of knowledge, maintained across an economically and/or socially integrated network of agents and institutions.

From this neoclassical economic point of view, infrastructure is related to the existing amount of labour, capital, and natural resources. The ‘new growth’ theories bring to stage other determinants, in particular human capital, and R&D expertise embodied in firms, universities, and laboratories. Thus, infrastructure will encompass, in addition to labour and capital, technology infrastructure, or technostructure. A consideration of the distinction between labour and capital on one hand, and technostructure on the other, enables a separate analysis of the roles played by each of these aspects in the development path of a particular industry or region. The ‘new growth’ theories attempt to formalize the way in which these ‘learning’ mechanisms can impact on economic growth. *However, the interaction between sets of incentives and the technostructure of a particular region, industry, or nation fosters as well as hampers the patterns of knowledge accumulation and development.* Nevertheless, whilst it is clear that *incentives* and *infrastructure* greatly inform our understanding of the behaviour of firms, government policies and industrial trajectories, they do not tell the whole story about the differences across countries and regions. That is, both incentives and infrastructure provision are shaped by individual choice behaviour (i.e., opportunism as opposed to acts of mutual benefit) and mobility.

While it has been claimed by some researchers that regional variation exceeds that across nation-states, thereby justifying the need to regionally address national economic development issues, others find that regional policies aimed at particular regions have one main weakness: scale. Oughton, *et al.* (2002: 99) argue that regional variation exceeds that of the nation states, in favour of extending the analysis of national systems of innovation (NSIs) to the regional scale. Hommen and Doloreux (2003) maintain, however, that consistent attention has been given to technology and finance resources, but little attention has been directed to labour, its development and deployment, all of which are easily supplied inter-regionally. Moreover, labour mobility reinforces the need to not only recognize the positive and negative impacts on development, but to consider it, among other factors, as a condition of the following determinants of “*negative social capital*” and “*contingent learning*”.

“Negative Social Capital”

James Coleman, Mark Granovetter and Alejandro Portes illustrate that the positive-functionalist interpretation of ‘social capital’ does not take full consideration of the complexity of “social-networks-and-mobility” literature (Portes, 1998:12-13). This is evident in the gender, ethnic and class relations-driven informal networks observed through the spatial division of labour and migration (e.g., immigrant entrepreneurship). Carlo Trigilia (2001) argues that a proper definition of ‘social capital’, in economic terms, must allow for both positive and negative networked forms of impact on local development. He describes how the ‘*social network*’ perspective, which factors in kinship, ethnicity and class relations, is inclusive of stratified social and economic relations, whereas the ‘*cultural interpretation*’ perspective is centred on a people’s willingness to cooperate or a “civic virtue” as the result of shared values and trust. Unlike the “social network” perspective systematically studied by Bourdieu, Loury, Coleman and Granovetter, the “cultural interpretation”, in well-known studies by Robert Putnam and Francis Fukuyama, leaves little room for the consideration of networks of *incivisme* (unciviness) or, as Granovetter so rightly put it, the “strength of weak ties” or informal networks (*cited in* Portes, 1998:12). Trigilia (2001) reemphasizes this point by describing at some length the potential for “criminal economies” (e.g., the Italian Mafia), political sub-cultures, parochialism, etc. In order to incorporate both of these perspectives into ‘social capital’, he suggests that it be understood as a “*network of social relations open to diverse outcomes from the economic point of view*” rather than “*understood generically as a willingness to cooperate based on a shared culture*”.

‘Contingent Learning’

Positivist-neoclassical economic assertions hold that in order for a market system to function well, the country or region must have “embedded” a set of social capabilities that allow it to function. This presupposes that the “embedded” social capabilities are competent and that the agents act in the collective interests of the region or nation, within their inherited institutional framework or jurisdiction. In other words, the assumptions are founded on a non-opportunistic and rational human capacity. On the contrary however, one might consider the “conditions for learning and the limits imposed by these conditions instead”, as suggested by Slembeck (2001:13). Slembeck draws from psychology’s cognitive constraints in models of bounded rationality to enrich economic analysis, linking the cognition and behaviour of an individual to a particular situation “by some action that yields consequences which feed back to the individual” and so on until individual aspiration levels are satisfied for the purposes of theoretical equilibrium. Brown *et al.* (2001) extend this discussion on cognitive qualities in methodological inquiry to argue for an agent-centred as opposed to an institution-centred approach to the comparative study between cities, regions and nations of different

cultures and economies. Their argument claims that “agents can and do challenge institutional structures”, recognizing that “individuals are conscious beings that have the capacity to think, learn, act and interact”. This does not deny an individual’s ability to persuade, coerce, motivate and lead, whereby “institutions”, manifest through social networks, can emerge from unintended human action. That is, to borrow from Partha Drasgupta (2002: 30), “to identify ‘social capital’ with institutions *is* [italics added] a mistake: institutions emerge from networks, they are themselves not networks”.

Brown *et al.* (2001) emphasize that the main difference between the two approaches is the issue of “autonomy”. One could argue, then, that the terrain of ‘social capital’ discourse is rather a tenuous relationship between “autonomy” and its corollary “subsidiarity” (Amaral, 1998: 266)², than one solely founded on cooperative networks for community-wide benefit or “*civicness*”. By addressing the issue of autonomy, Brown and colleagues treat institutions as “resource endowments, providing agents with physical, social and intellectual resources.

Compare this with Braczyk *et al* (*eds.*, 1998: 12) who adopt the ‘system concept’ as the analytical framework for a regional comparative study of innovation. They claim that the ‘system concept’ requires no assumption that innovation systems always consist of closely linked actors or that they have clear-cut boundaries. Neither need it be anticipated that innovation systems consist of similar actors performing *comparable* [italic added] functions”. This analytical assertion is seemingly contradictory to Brown *et al.* (2002: 275), who claim that “agents in the same industries in different jurisdictions characterized by rather different cultural and social traditions seem to respond to common economic imperatives using different instruments at their disposal.” The problem here lies with the issue of scale and comparability. Where does one draw the boundaries? Where boundaries are acceptable, are the respective innovation systems comparable across the different industries for that jurisdiction? Instead, might one consider “*national-sectoral systems of innovation*” (Oosterwijk, 2003) and/or “*multi-level systems of innovation*” (Kaiser and Prange, 2003)?

As for the positivist neoclassical thinking noted earlier, competence is the foundation from which innovation emerges. Although, to what extent can a national economic development agenda, which is centred on regional systems of innovation and its embedded contingencies of ‘competence building’ and ‘social capital’, contribute to greater social cohesion as the result of interregional competition? In

² “The principles of autonomy and subsidiarity imply the interpenetration of various entities that together constitute the State [governance] through the effective collaboration among all, and the participation of lower tiers in the mechanisms and decision-making processes of upper tiers in which they are integrated” (author’s translation). See Amaral, 1998: 266-301 for elaboration.

other words, to what extent is it safe to expect that a national economic development agenda, which is centred on competitive interregional systems of innovation initiatives, increases the chances of social cohesion and economic convergence for less-favoured regions?

Regardless, however, Braczyk *et al.* and Brown *et al.* both seem to agree that the social networks they describe are socially constructed, fluid, open and dynamic. The apparent shift from “embeddedness” to autonomy and an agent-centred methodological approach is explored by Cooke (2004, this volume) through four types of ‘social capital’. Suffice to say that ‘social capital’ is the act of risk management between economic agents and institutions for political or economic purposes, which also is competitively expressed through a desire for autonomy, as opposed to one solely founded on cooperative networks for community-wide benefit.

Behaviour, Urbanization and Industrial Localization of Innovation Activity

The degree of local and regional development has a share of external factors impacting its capacity for qualified human resources and ‘social capital’, and the creation and diffusion of knowledge. These regional characteristics include the overall effects of population dynamics (i.e., rural-urban shift or urban agglomeration), and endogenous and foreign direct investment. While showing signs of some diffusion to other regions in the country (United Nations Secretariat, 2002), the strong urban orientation in Portugal, for example, persists. The significance of this seemingly growing propensity to agglomerate in urban areas, namely in the Lisbon and Porto Metropolitan Areas along the Portuguese coastal corridor, has its implications for the location decisions of Portuguese entrepreneurs and the national agglomeration of foreign direct investment. The spatial distribution of both forms of Portuguese investment has been discussed and illustrated in two separate studies (Guimarães, *et al.*, 2000; Figueiredo *et al.*, 2002), which are summarized below:

- Urbanization³ economies far outweigh traditional industry specific localization⁴ factors (e.g., labour and land costs); “*urban diversity economies, not industry localization, drives economic growth according to [the] ‘new economic geography’*”. Whereby urbanization economies offset “information costs”;⁵

³ The increase and development of urban services (e.g., housing, hotel, leisure, food and retail)

⁴ The localization or the attraction of new economic activity to an area’s existing cluster of economic concentration (local knowledge, skilled workforce, etc.); “specialization attracts more specialization”

⁵ “Information costs” and agglomeration effects compensate for the lack of ‘knowledge’ about product and market conditions.

- “Information costs” and available services to foreign investors, due to unfamiliar environment (local laws, customs, taxes, etc.), remain a key issue for agglomeration along the coastal corridor, followed by industry-level localization factors (e.g., percentage of skilled workforce); and
- “Informational cascading”: despite comparable advantages in less urbanized neighbouring regions, firms continue to migrate to cities, imitating previous location decisions. Most entrepreneurs invest in their previous area of economic activity, apparently paying a premium to compete in their “home” territory; study shows that these “home” investors are willing to pay up to 3.4 times what could be paid out in wage costs elsewhere in the country (whether, the dense concentration of entrepreneurial investment is simply the tendency of Portuguese entrepreneurs to invest in their “home” territories, or their increased need in skilled labour *versus* the low-wage labour pools of peripheral regions is not clear).

Albeit, Portuguese peripheral regions provide no evidence that their less expensive labour costs have influenced location. The studies even suggest that public transport policy might influence this finding in favour of the peripheral regions, since distance to peripheral cities remains an important factor. More importantly noted, however, is that the strong urban orientation, which is centred on the metropolitan areas of Lisbon and Porto, seemingly goes beyond the traditional explanations of localization and urbanization agglomeration economies to one of strong endogenous social networks. This is particularly apparent in explaining the behaviour of investors willing to pay up to 3.4 times what could be paid in wage costs elsewhere in the country. Both studies elude to but do not discuss the social networks behind these patterns of industrial localization (i.e., extend the discussion from the linear cause and effect explanations of neoclassical economics to the complex interdependencies of social networks embedded in areas of previous economic activity or previous location decisions); suffice to say that the authors of both studies claim urbanization agglomeration has driven the location of entrepreneurial investment, as opposed to industrial localization agglomeration economies.

One could draw from these studies the argument that *geography* and *institutions* matter! How to study ‘social capital’ in the context of these development patterns, though, is uncertain, particularly for imitative firm behaviour or norms, or where institutions have seemingly failed to provide the necessary endowments to encourage or minimize the risk economic agents would incur otherwise. Using ‘social capital’ in these circumstances must be exercised with some caution because its definition(s) tends to be elusive and generally interpreted with functionalist or causal links to economic growth, for instance. Although, due to ‘social capital’s’ context specificity or the agent-centred contingencies discussed above (i.e., ‘*negative social capital*’ and ‘*contingent learning*’), policy implications remain unclear and its measurement difficult; limit the study of ‘social capital’ to the rationalization of its positive effects is a mistake, or, at the very least, a misleading representation

of the social construction of [new] technology or the innovation process. It also is apparent, then, that *history* matters. In the light of both organizational and technological innovation development, which comes first? The “debate on innovation surveys” raises a number of critical questions in this respect (Conceição and Heitor, 2003).

Measuring the ‘Social Capital’ of Innovation Activity

For Mónica Salazar and Adam Holbrook (2003), the critical questions concerning the debate on innovation surveys are structured according to five conceptual and methodological dichotomies that include issues centred on ‘unit of [innovation] analysis’, ‘levels of novelty’ or degree of innovativeness, ‘*potentially* innovative firms’ as a third category response to innovation in developing countries (first and second being *innovative* and *non-innovative firms*), public vs. private sector innovation, and the social and geographic dimension of innovation. The authors provide an historical review of innovation surveys or questionnaires that begin with the conceptual framework for innovation indicators in 1988, which was revised a year later in Oslo, Norway (Oslo Manual), and contributed to the launch of the first European Community Innovation Survey (CIS) in 1991 and subsequent versions in 1997 and 2001.

Their main argument holds that the questionnaires based on the Oslo Manual use the systems of innovation approach, but they collect little information on the dynamic of such systems. The argument is discussed in accordance with the principles of the recently published *Bogatá Manual*, which is structured on a broader definition of innovation that includes organizational and technological innovation as well as its commercialization. The Bogatá Manual stands in direct opposition to the innovative firm focus of the Oslo Manual whereby surveys are more geared to the ‘process of innovation’, rather than solely aimed at quantifying the ‘results of innovation’ (e.g., the bias toward technology producing innovation).

Moreover, Salazar and Holbrook (2003: 11) direct some attention to the Canadian ISRN⁶ survey, which, unlike traditional innovation surveys that aim to characterize innovation activities at the firm level, attempts to characterize networks of ‘differential relationships’ between local and non-local *agents* in a seemingly agent-centred approach. While CIS III accounts for the collaborative tendencies and organizational changes of firms, the authors find they are not investigated as activities directly linked to innovation, but potential correlations of innovative firm behaviour worthy of analysis. They point out the lack of location data useful to cluster studies, such as that of the Canadian ISRN survey, and the embedded social structures and social roles that determine the power of an individual in the workplace and, thereby, the type of innovation one participates in across different industry sectors and

⁶ Innovation Systems Research Network

throughout different nations. Such is the potential ‘gender-bias’ of methodological approaches, for example, that do not undertake a gender-inclusive dimension in the measurement of innovation, concerning syntheses on collaborative vs. radical, individualistic innovative actions.

Conclusion

From this essay one may conclude that the study and understanding of non-innovative behaviour and/or innovation failures (i.e., *negative social capital*), which potentially add to the individual tacit knowledge that contributes to workplace productivity (i.e., *contingent learning*), is equally as important as the multi-dimensional considerations of innovation measurement methodologies. However, one must also conclude that an albeit exhaustive understanding of innovation goes beyond the firm focus of traditional innovation surveys to one inclusive of social and geographic as well as economic dimensions of an agent-centred approach. Methodological approaches, then, must understand the “object” of innovation surveys to be an investigation of the determinants of successful *and* non-successful innovation processes, as opposed to solely understanding these surveys as the measurement of the “results” of innovative actions (e.g., technology producing processes). The “subject” of such surveys is the differential relationships between local and non-local agents; and only in this way is it possible to appreciate the critical aspects of ‘social capital’ and ‘learning’ in innovation processes.

Moreover, there is no definitive answer(s) to the problem of achieving ‘learning’ societies. As in every situation where institutions are important, history and geography ought to be of equal or greater concern. Path dependence and increasing returns lead to self-reinforcing cycles, whereby events, often sporadic and serendipitous, define current patterns of development (good and bad). The good news is that if one understands the dynamics of institutional change through an agent-centred approach and the evolution in resource endowments, then one may also create conditions for desired future development.

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