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The influence of social capital on regional clusters and productive cooperation networks: concepts and proposals for empirical researches

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Abstract

The aim of this paper is to analyze the influence of the social capital on the development of inter-firms relationships among firms in regional clusters and productive cooperation networks. The concept of social capital will be studied based on the literature developed in the areas of sociology, highlighting Pierre Bourdieu, Norbert Elias and John Scotson writings. Besides the conceptual discussion, the paper presents some indicators to empiric verification of the factor social capital in clusters and networks. The methodological approach is based on an exploratory investigation dealing with a multi-disciplinary literature revision.

Keywords: social capital, regional clusters, cooperation networks, inter-firms relationships.

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1. Introduction

From the post-war period and, specially, from the years 1970, a new configuration was presented to the world economy and, in particular, to the industrial production systems. This new configuration caused profound changes in traditional industrial organization forms, in general, and in the production in particular. Such changes can be understood, mainly, through three basic elements, which are: the new work organization forms, the revolution in technical base with the new microelectronics technology, and, last but not least, the new pattern of inter-relationships among firms (Hoffman and Kaplinsky, 1989).

This study aims, fundamentally, to analyze the social capital influence in the establishment of inter-firms cooperation relationships concerning productive cooperation networks (including dynamic cooperation networks/ virtual organizations and clusters), highlighting the coordination among the actors of an inter-cooperation network. This includes: micro, small and medium size enterprises (MSMEs), big companies, higher education institutions, research and development institutes (R&D), non-governmental organizations etc. Initially, this paper aims to highlight the main theoretical contributions about the subject, and finally to present some methodological guidelines for the social capital assessment in networks and industrial agglomerations (clusters). The methodology approach is an exploratory character, based on a multidisciplinary literature review, involving the areas of production / industrial engineering, industrial economy, business administration, sociology and education.

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2. Networks and social capital in relationships of productive cooperation

The social capital analysis of a community and inter-relations firms can be carried out through the analytical framework of networks. Regarding inter-organisational networks, the most accepted definition is the one that consider it as an organizational economic activities method through coordination and cooperation among institutions (Porter, 1998). Therefore, the responsibilities and duties of a company network are basically related to the coordination processes that a coalition inter-firms can utilize. Note that a productive cooperation network is seen as a way of small and medium enterprises (SMEs) reduce costs, increase efficiency, quality of its products and distribution channels, and reduce the response time to market, through the scale and scope gains that are offered by the balance between cooperation and competition (Pyke and Sengenberger, 1992).

Regarding to social networks, related to the social capital, they might be understood as flows of interpersonal relationships that allows the linkage among people through mutual trust and cooperation in the search for mutual success of such networks participants. Social networks can also be considered "networks of functions within the human associations" (Elias, 1997a, p. 22) and "interdependence webs or many kinds of configurations, such as families, schools, cities, states or social sphere" (Elias, 1999, p. 15). Thus, "network is only understandable in terms of how [the individuals who participate] bind, their reciprocal relationship [...]" (Elias, 1997a, p. 35). The network is "in constant motion, as an uninterrupted weave and unweave the connections.

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This way the individual effectively increases, starting from a people network which existed before him to a network that is formed by him" (Elias, 1997a, p. 35). This has "high flexibility and adaptability degree of human relational functions, [...] [and] is responsible for the fact of the man be, in a special measure, a social being, dependent of the others company" (Elias, 1997th, p. 37), which may be understood when observe "people between people involved in games with the other" (Elias, 1999, p. 132).

To Pizarro (2003), social networks are a number of individuals and inter-individual relations (phenomena regarding to the nodes / individuals when provide elements for a social structure analysis). Thus, social networks and the society, as a whole, can be understood as groups with specific organization forms, with particular structure that constitute the "structures and figurations that individuals form together" (Elias, 1997b, p. 60).

3. Social Capital

The social capital definition is very broad, depending on the approach that the analysis of this element uses. This concept is generally defined as a network of interpersonal relationships and / or inter-group of cooperation in which its members, from resources deriving from social networks, are governed by certain rules, systems, beliefs, values, feelings (of recognition, respect, friendship) and trust, and establish relationships and institutions whose goal is to promote the group from the joint action, interaction, mutual recognition and learning of its agents (Silva,

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2006; Marteleto and Silva, 2004; Bourdieu, 1998; Sanabio, 2006; Degenne, 2004; Sebrae, 2004).

Thus, individuals are the capital source and composition, often forming groups and social networks of mutual cooperation. Individuals belonging to a group can cooperate with others belonging to the same group, but can, also, establish partnerships with people linked to other groups, establishing social inter-group relationships.

According Maximiano (2006), organizations are social groups deliberately directed to the achievement of goals, which reflect in the supply of goods and services. In this sense, people are the main recourse of the organizations, together other resources, as material (facilities, space, furniture, equipment etc.), or immaterial (time and knowledge). Thus, the organizations are constituted of interpersonal relationships networks and the accumulation of the advantages brought by them (social capital). Therefore, the analysis social capital of organizations (including the networks and clusters), must remember that these should be considered as social groups and their officers, directors and employees are the individuals that form them. We must remember that there is only "the individual in the company of others, society as a society of individuals [...]" (Elias, 1997a, p. 18). Moreover, "The structure and configuration of the control behavior of an individual depend on the structure of relations among individuals" (Elias, 1997a, p.56).

Thus, the social capital of an organization is formed by the social capital accumulation of individuals belonging to it. These organizations, however, distribute their social capital (collective) among individuals, according to its internal hierarchy (Bourdieu, 1998).

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Studies about social capital, typically, highlight three main authors (Durstun, cited by Marteleto and Silva, 2004): James Coleman (1990), which focuses the social capital as a recourse of the individual which belongs to a particular network, he studies the importance of this individual in the human capital developing; Robert Putnam (1996), which investigated the social capital importance in building popular and democratic government in some Italian regions, highlighting the fact that allowing the cooperation among individuals, create virtuous circles that promote good performance for institutions and society in general, and Pierre Bourdieu (1998, 1983), who investigated such capital emerge from the social hierarchy, highlighting the relationship between the dominant - individuals with more social capital - and dominated - those with less capital (Marteleto and Silva, 2004). For Marteleto and Silva (2004), the approaches of Coleman and Putnam consider the capital as a way based on norms and interpersonal relationships networks for exchange among individuals. For Silva (2006), Bourdieu and Coleman's visions considers the social capital as any horizontal relationship established, tacitly or explicitly, between individuals and groups of individuals, aiming to create stable economic relationships.

According to Putnam (1996) starting from the capital, individual resources are transformed into a collective good, and it is multiplied from their use, because, like any form of capital, is cumulative. Therefore, their reproduction or extinction is made through virtuous circles in vicious circles (Putnam, 1996; Reis, 2003).

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The Bourdieu's exposition about this theme considers the social capital as resources set (current or potential) that an individual has, coming from a sustainable relationship network with certain institutionalization and inter-knowledge level. The amount of social capital accumulated depends on the extension of individual networks relationships (Bourdieu, 1998). For this sociologist, the social capital, in spite of not be reduced to the economic and cultural capital, is not independent of these, since both forms of capital supporting the inter-recognition of individuals and groups, essential for the social capital multiplication (Bourdieu, 1998). Thus, the geographical concentration of enterprises, in the case of clusters, or so-called virtual organizations (those that are formed as global networks of businesses, through intensive use of the Internet) obtain, through the interaction among the organizations that composes them, the integration among human resources of such organizations, favoring the social relationships growth within such groups. Moreover, they offer to people and organizations "material profits as all kinds of 'services' provided by useful relationships and symbolic profits such as those associated with participation in a rare and prestigious group" (Bourdieu, 1998, p. 68) - in the case of companies, connected with its efficiency and competitiveness.

The social capital reproduction depends on mutual exchange of services, such as in cases production and technological cooperation relationships. So, this reproduction is based in institutions that promote the sharing and exchanges through the meeting of individuals / groups with similar interests, such as trade fairs, products exhibition, seminars and courses, in the productive cooperation case. On the other hand, the social capital is multiplied by sociability

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itself, or by "favors" and exchanges made between persons / organizations over time (Bourdieu, 1998).

The social capital basically depends on power networks (Ortiz, 1983), which is already a scarce resource and distributed unequally, which determines the individual position in the social hierarchy (Marteletto and Silva, 2004; Bourdieu, 1998) - as higher as the social capital highest its position and its power increase. Other authors, as Putnam (1996) do not emphasize the idea of inequality in the social capital distribution, however believe that the accumulation of this is a process of power acquisition and even a change in forces correlation of individuals and groups (Passos, Dias and Cruz, 2005).

The cooperation relationships among productive companies can be based on the social capital, as demonstrated Grandori and Soda (1995). The authors developed a typology of inter-networking firms, based on the coordination mechanisms type used, the network centralization degree and formalization degree of this network, identifying three basic types of business networks: social networks, bureaucratic networks and proprietary networks. For these authors, social networks, in fact productive cooperation networks based on social capital, has a fundamental feature the informality in relations inter-business, dispensing any formal agreement or contract. They are directed to the exchange of social goods (prestige, status, job mobility and others). They are, also, divided into symmetric and asymmetric social networks.

Symmetrical social networks are characterized by the lack of centralized power, all participants of this network share the same ability to influence. Inter-organizational arrangements

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are used in projects that are more exploratory, whose information have high potential, but the economic value unknown. They are typical examples of poles in the districts of high technology, where exist, an intense information and expertise exchange among the members, and their coordination is conducted through informal mechanisms (Grandori and Soda, 1995). In the asymmetric social networks there is a central agent, which has the primary function of coordinating the formal contracts of products and / or services supply among businesses / organizations participating of this network. An example of this network type is the Italian network supply of Benetton (Grandori and Soda, 1995).

Especially important is the fact that clusters and productive cooperation networks are usually formed by SMEs, which usually have in your organization a lot of informal aspects, as people linked by affective entails as what happens in small groups or communities. Therefore, the Elias and Scotson work (2000), which studied, under the sociological perspective, the power relations from a small community, can provide evidences for the understanding of this cooperation relationship.

In businesses networks, a higher social capital can be considered as a differential source of power among inter-related groups, established or outsiders. An establishment is a group that identifies itself, self-represented and is recognized as a "good society", influential and better, built on tradition pillars, authority and influence, presents in that social identity. On the other hand, the outsiders are designed as non-members of that society, placed in a diverse and heterogeneous grouping with interpersonal relations with less intensity that the establishment

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(Elias and Scotson, 2000). Groups established are characterized by having distinction strategies, as tradition and possession of rare goods (Bourdieu, 1983), and to have social reproduction mechanisms, such as schooling, enabling them to a certain security to remain in the top position (Bourdieu, 1974; 1998).

In clusters and companies networks, the main challenge, therefore, is to establish a internal cohesion degree that allows that the companies are highly integrated and engage actively in the democratic decisions taken by the group. Thus, the cooperation among enterprises will generate competitive advantage to those isolated companies (which, from the loss of markets and efficiency, may be considered outsiders) since established groups have greater power to compete with outsiders, preserving their identity and affirming its superiority (Elias and Scotson, 2000).

The categorization groups established pass to a *group charisma* which may be considered as a parallel of Elias and Scotson (2000, p. 26) to the social capital concept. Everyone that is inserted in a relationship network of a group participates of the *group charisma* and submits to the group rules more or less rigid, with the sacrifice of personal satisfaction, in favour of strengthening and community cohesion. Thus, each participant must pay a price and, as a result of submission to the group specific rules, each one and each group, as a whole, are rewarded with benefits as trust and spirit of collaboration acquisition (Elias and Scotson, 2000).

However, a figuration of outsiders is changeable, revealing a "complex movement polyphony of rise and decline of the groups along the time" (Elias and Scotson, 2000, p. 36) because "the connection network is the product of social investment strategies consciously or

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unconsciously oriented to the institution or reproduction of social relationships directly usable" (Bourdieu, 1998, p. 68). In the case of companies, this fact may mean that the search for competitive advantage should not ignore the need to establish new partnerships to strengthen the cooperation network.

The inter-organizational arrangements and the cooperation among enterprises through networks emerged and developed in recent history of various countries. These arrangements seek efficiency in the productive investments allocation aligned with the business competitiveness increase, linking up with new patterns of finding investments, which break the traditional trends based on conventional criteria of traditional competitive advantages of abundant raw materials supply, labour-cheap, and proximity to favorable consumer market, for example. In this context, the capital has been highlighting as one of the main propellants of the "clusterization" phenomenon, encouraging trade by disseminating best practices, reducing transaction costs and facilitating the conflict management and trust (Sebrae, 2004).

So, in networks and clusters, the social capital contributes to increase the interaction and cohesion between the personal and collective interests and institutions, promoting trust relationships among the inter-organisational network members (Lima, cited by Sanabio, 2006), besides promote the creation of intellectual capital and professional skills, the ability to entrepreneurship and the local development (Albagli and Maciel, 2002). The social capital can be considered as one of the competitive advantages of the structures located in the business associations, since stimulates the collective strategies adoption and inhibiting opportunistic

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behavior of the involved (Granovetter, 1985). Putnam (cited by Wegner and Wittmann, 2004) highlighted the social capital importance in the Third Italy: in this region, where companies' networks, under the flexible specialization paradigm became a case of global prominence, the author showed that the civic community of the region was very relevant in the formation of such networks and the local economy.

According Marteleto e Silva (2004), there are three types of social capital: social relationships among members of a community (*joining social capital*), relationships between community members and representatives of nongovernmental organizations (*bridge social capital*) and relationships between the social and community leaders and academic institutions representatives (*connection social capital*).

It should be noted the confidence importance of the social capital creation in cooperation networks and productive regional clusters: the trust and the cooperation culture makes the companies and their partners respect the commitments made among the participating organizations of the network, enabling mutual respect, lower opportunism risks and, above all, the learning of the group (Amato Neto, 2000). Thus, the social capital structuralization is based in the "trust not only individually, but collectively. Intelligent collective can only be constructed based in mutual trust among individuals" in the view of Lopes and Cabelleira (2004, p. 3794). According to these authors: "The trust, fundamental aspect in productive arrangements, is produced among social actors when they share beliefs and build the trust based on mutual expectation" (Lopes and Cabelleira, 2004, p. 3800).

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4. Social and intellectual capital evaluation in clusters and companies networks

The difficulty of measuring the social capital has been highlighted by many authors and institutions as Silva (2006), Degenne (2004) and Sebrae (2004).

Degenne (2004, p. 304) says that the social capital can be measured taking into account: (i) how extensive is the network in which a person is inserted, observing the social stratification system, (ii) what level it reached, (iii) how are distributed the relationships in that interval". This approach is based on the Granovetter postulates (cited by Degenne, 2004, p. 304): 1. As better as the individual position in the social structure, better your chances of having access and use the efficiently social capital; 2. As stronger as the link of the network, there will be more opportunities that the social capital affects positively the action success; 3. As weak as the link better will be the social capital to which it gives access 4. As much as people are near of bridges - understood as the link that connects different social sphere - in a network, the better their social capital; 5. The power of a position (in terms of their proximity to a bridge) depends on the differential level, within the social structure, between the ends of this bridge, 6. The social capital effects are limited to the social hierarchy ends (the top and base).

In searches about social capital in the inter-organisational relationships, Sebrae (2004), based on Boisier, there is a suggestion that could be investigated: the institutions or public and private organizations existent in the region: 1) number, climate of inter-institutional relationships

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(cooperation, conflict, neutrality), modernity degree, 2) the knowledge and skills stock that individuals who reside in the region have and their ability to exercise them, 3) the democratic policies practices of trust in the institutions, the concern about public subjects, associativeness between public and private spheres; 4) what allows community members trust each other and cooperate in the new groups formation; 5) the real or latent ability of the entire community to articulate, through a democratic way, the diverse intangible capital available forms (institutional, human, civic, social, synergetic, cultural, cognitive and symbolic).

The social capital of a community where there is a cluster or companies network can be judged by his innovative, entrepreneurial, participatory and associations character, covering the impact of the cluster implementation for the community in terms of jobs and acceptance of community, as the introduction of specific courses in schools and colleges in the region. It must also be discussed the active participation of various government spheres in cluster or cooperation network, through the development of effective public actions for the industry growth, through policies of financing, subsidies, exemption from taxes, promotion and attraction of businesses, relationships networks strengthening among agents, contribution in the efforts to preserve industry facing external competition.

Bortolotti (2005) proposes some indicators for the social capital assessment in a productive cooperation relationship. In its institutional dimension, it can be evaluated through the identification the agents who carry the main public effective actions for the cluster development: the municipal, state or federal governments, alone or together. Another indicator of the social and

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intellectual capital forms is the entrepreneur character of the community, which can be achieved by detection of the average number of businesses opened by year, linked to the cluster or cooperation network.

The interface between human capital and social capital can be measured not only by the learning institutions presence in the region, but through the interaction that they have with companies. These partnerships can occur in the field of R & D, from universities, schools and research centers, as well as through partnerships of first employment generation by firms. Therefore, must be analyzed what is the companies percentage that have partnered with educational institutions, research and development - highlighting, if possible, the development of such partnerships.

Finally, the social capital can be analyzed by the cluster representation for the community in terms of job generation. If the agglomeration does not create jobs for the region inhabitants, they will not feel obliged to get involved and will not seek to support the industry on crucial issues such as environment, company image, pressures facing the local government and promotion actions. Moreover, a cluster only represents strength in a region if it is responsible for a big parcel of income distribution to the population in terms of job supply. The indicator chosen to evaluate this relationship is the occupied population rate (% OP), which shows the jobs generated percentage by the agglomeration in relation to the total of the region. This index can be calculated with use of secondary data, dividing the number of jobs, offered by the cluster industry, by the job number throughout the region (Bortolotti, 2005).

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5. Final remarks

Clusters and productive cooperation networks are known to provide to companies that incorporate competitive advantages that would not be gained if such organizations not act together. In this context, the social capital manifests itself as a main tool for development of cooperation productive relationships. Through the interpersonal employees relationships, officers and employees of an institution, are detected affinities among them in the production level and through these contacts can structure agreements and cooperative projects. The affinity among individuals can promote inter-organizational cooperation relationships, where the collaboration among people, structure collaboration among organizations. From the creation of a cluster or productive cooperation network, joint actions, flow of people, exchange information and support institutions become fundamental to its development, reflecting advantage of the social and human capital accumulation in organizations. Therefore, through the establishment of networks / social relations, individuals and groups develop mutual trust, which allows partnerships and joint actions.

Another social capital advantage of an organization is the creation of institutions to support the network / cluster, through the establishment of common goals among companies based on mutual trust. It can also assist in the establishment of partnerships with other institutions outside from the cohesion and strength of the group, offered by this capital. This cohesion allows, consequently, facilitation in trade among organizations, facilitating the knowledge dissemination

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among those, from the generation of this knowledge, provided by activities directed to the intellectual capital development of institutions human resources.

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