

A matter of trust and time: back to the adoption of embeddedness in economic geography (1985-2015)

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Résumé : Depuis la publication de l'article de Granovetter en 1985, le concept d'encastrement occupe une place de plus en plus grande en économie géographique. Nous notons que la littérature fondée sur l'hypothèse de Granovetter, sans nier l'avancée significative qu'elle a induite, est l'objet de contradictions avec l'hypothèse initiale : (1) Considérer que les arrangements organisationnels facilitent la coordination et réduisent l'opportunisme, (2) poser que l'analyse de la structure du réseau permet l'évaluation des connaissances créées, échangées et co-construites entre les agents, et (3) prendre en compte de manière insuffisante la dynamique et la perception qu'ont les acteurs de la temporalité. Ces trois erreurs récurrentes impliquent que l'interprétation et l'opérationnalisation en économie géographique du concept d'encastrement ne sont donc pas fidèles à la proposition initiale de Granovetter.

Abstract: Since the publication of Granovetter's article in 1985, the concept of embeddedness has been increasingly influential in economic geography. Thirty years later, without denying the significant advance it has triggered, contradictions appear between the literature and Granovetter's original hypothesis: (1) considering organizational agreements as easing coordination and reducing opportunism, (2) regarding network structure analysis as a method to assess the knowledge created, exchanged and co-constructed between actors, and (3) not questioning sufficiently the issues of dynamic and the temporal perception of interactions by actors. These three recurrent errors imply that the interpretation and the implementation of the embeddedness concept in economic geography is not faithful to the original proposition of Granovetter.

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**A Matter of Trust and Time:
Back to the Adoption of Embeddedness in Economic Geography
(1985-2015)**

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Abstract: Since the publication of Granovetter's article in 1985, the concept of embeddedness has been increasingly influential in economic geography. Thirty years later, without denying the significant advance it has triggered, contradictions appear between the literature and Granovetter's original hypothesis: (1) considering organizational agreements as easing coordination and reducing opportunism, (2) regarding network structure analysis as a method to assess the knowledge created, exchanged and co-constructed between actors, and (3) not questioning sufficiently the issues of dynamic and the temporal perception of interactions by actors. These three recurrent errors imply that the interpretation and the implementation of the embeddedness concept in economic geography is not faithful to the original proposition of Granovetter.

Key words: Embeddedness (Granovetter); Relational networks; Economic geography;

JEL codes: R12; Z13; B59

ABSTRACT

This year marks the celebration of the 30th birthday of Granovetter famous article “Economic action and social structure” published in 1985, in which he defined the concept of embeddedness, stating that individual actions are embedded in the social life of actors. Granovetter has emphasized the necessity to study the economic life considering the influence of interpersonal relations in their respective social lives, avoiding the “under-socialized” and “over-socialized” visions of the individual behavior. Reflecting on the articulation between economic actions relative to market transactions and non-economic actions, he stresses that individuals are not only guided by their personal interest, but also by their social environment. All their social relations do not have the same value and will influence more or less according to the same nature of these relations (Granovetter, 1973). As such, the concept of embeddedness intends to incorporate every bilateral relation into a bigger set of social relations. Economic actions are embedded into the social network where the actor is evolving.

The embeddedness concept has gained influence in economics since the 1980s, in various research fields: knowledge economics, industrial economics, knowledge management, etc. and in economic geography, in which applications are numerous. Considering the embeddedness of actors has allowed the development of thoughts on thematics hardly ever considered up to then: coordination, co-construction of the environment, agglomeration phenomena, power relations, trust, etc. The objective of this article is not to present a survey reporting the various development of literature in regards with the concept of embeddedness: we concentrate on how Granovetter’s original definition has been mobilized and implemented by economists. This leads us to present the errors of interpretation and operationalization generally committed during the mobilization of the concept in economic geography.

The study of the literature from 1985 to 2015 has allowed us to identify three recurrent and major contradictions on studies mobilizing the concept of embeddedness in economic geography. The first error consists in attributing a cause and effect relationship between embeddedness and economic performance while the forms of embeddedness do not presuppose in any way modalities of coordination, risks of opportunism and thus performance of collaborations. In fact,

the relation between organizational agreements and the reduction of opportunism is not systematic: the embeddedness of actors in an organization gives way to an unpredictable and possibly less efficient functioning. Coordination may prove to be chaotic, as the high level of trust may potentially lead to higher risks of opportunism and the embeddedness may cause noise in the interactions. The second error refers to the hypothesis assuming that the analysis of the structure of network allows the estimation of the knowledge created, exchanged and co-constructed between agents. It appears impossible to model satisfactorily collaboration networks of any kind, because the model would not correspond to the effective understanding of the network by the actors and their exploitation capacity. The third error is consecutive to the lack of consideration of the dynamic and the actors' perception of temporality. Different partners of a given project may perceive differently its temporal perspective, and as such, the construction of relations between individuals is chaotic and unpredictable. These three recurrent errors imply that the interpretation and the implementation of the embeddedness concept in economic geography, falling within a certain economic tradition, is not faithful to the original proposition of Granovetter. Thus these errors represent as many research perspectives which it is necessary to take to reach for the embeddedness concept, accurately to the original sociologic proposal.

Introduction

The concept of embeddedness has just celebrated its 30th birthday: defined by Granovetter in his famous article “Economic action and social structure” published in 1985, it stipulates that individual actions are embedded in the social life of actors. Granovetter emphasized the necessity to study the economic life considering the influence of the embeddedness of actors in their respective social lives, avoiding the “under-socialized” and “over-socialized” visions of the individual behavior. The under-socialized vision considers individuals as completely autonomous and free to make their own choices. Guided by the search of their personal interest, individuals take their decisions alone and selfishly. The key characteristic of this approach consists in analyzing individuals as an atom. On the contrary, the over-socialized vision of the individual choice considers that individual actions are exclusively influenced by norms and traditions of their environment. It is considered that the social status of every individual is imposed on them, the individual acting according to his social status without autonomy. This approach of individual behavior does not allocate any capacity to individuals to make their own independent choice. Thus, once again, each individual is considered as an atom of the system. Granovetter reproaches both visions for not taking into account interpersonal relations. Reflecting on the articulation between economic actions relative to market transactions and non-economic actions, he stresses that individuals are not only guided by their personal interest, but also by their social environment. The objective of Granovetter is to step the individual into the limelight and to consider the individual as maintaining social relations which might influence their choices.

According to Granovetter, economic actions are embedded into the social network where the actor is evolving. More precisely, he identifies two forms of embeddedness: relational and structural embeddedness. The relational embeddedness is the influence exerted by the social relations of individuals on their behavior. All their social relations do not have the same value and will have more or less influence according to the very nature of these relations (Granovetter, 1973). Considering the relational embeddedness alone is not adequate as it does not solve the issue of the atomicity of the individual behavior. Admittedly it allows to take into consideration the social relations of each individual, but the dyad, i.e. the relation between two individuals,

becomes the atom (Granovetter, 1985). As such, the structural embeddedness introduced by Granovetter intends to incorporate every bilateral relation into a bigger set of social relations.

The embeddedness concept has gained influence since the 1980s, in particular in economic geography in which applications are numerous, but also in knowledge economics, industrial economics, knowledge management, etc. Considering the embeddedness of actors has allowed the development of thoughts on thematics hardly ever considered up to then. We make reference for example to the issues of coordination, co-construction of the environment, agglomeration phenomena, power relations, trust, etc. The objective of this article is not to realize a survey presenting the various development of academic works in economic geography in relation with the concept of embeddedness: we will rather concentrate on how Granovetter's original definition has been mobilized and implemented by economists. This leads us to present the errors of interpretation and operationalization generally committed during the mobilization of the concept in economic geography.

The study of the literature from 1985 to 2015 has allowed us to identify three recurrent and major errors on studies mobilizing the concept of embeddedness in economic geography. The first error is to consider organizational agreements as factors easing coordination and reducing opportunism. The second error refers to the hypothesis assuming that the analysis of the structure of network allows the estimation of the knowledge created, exchanged and co-constructed between agents. The third error is consecutive to the lack of consideration of the dynamic and the actors' perception of temporality.

1. First error: Considering the organizational agreements as facilitating coordination and reducing opportunism

Granovetter (1985) defends the thesis that social embeddedness allows the development of coordination capacities and trust, and as such, it is not linked to the institutional and organization agreements.

« I have argued that social relations, rather than institutional arrangements or generalized morality, are mainly responsible for the production of trust in economic life. » (Granovetter, 1985, p. 491)

Thus social relations are non-intentional and spontaneous whereas organizational arrangements are intentional phenomena.¹ One argument in line with the theory of agency is largely spread in the literature based on Granovetter's hypothesis of embeddedness: organizational agreements ease the coordination and reduce risks of opportunism in the economic life. In our opinion, this is a fundamental contradiction, which is however central in several works in economic geography and industrial economics, in particular in the studies relative to the models of industrial cluster. Since the founding publications of Krugman (1991), and Porter (1990, 1998) who defines industrial clusters as the "geographic concentrations of interconnected companies and institutions in a particular field" (Porter, 1998, p.78), models of cluster have been of a growing interest, for both academics and political representatives, given its capacities to favor innovation activities and coordination at a local scale. The issue of embeddedness is central in the typology of cluster models. References to the article of Granovetter (1985) are abundant (see e.g., Markusen, 1996; Gulati *et al.*, 2006).

Given the complexity of productive processes, implying the development of innovations and skills, the modalities of work division and the modalities of coordination of activities, the creation processes of institutions have been central in the literature on clusters. The network, by establishing rules and norms, influences behaviors and thus the competitiveness of firms: the works considered here refer in this respect to the notion of embeddedness. These resources are specific, generated by the combination of idiosyncratic, inimitable and non-substitutable networks, given the existence of routines and experience effects in alliances. The example of the American automobile sector, with the development of long-term relations with partners and a consistent participation of suppliers in the processes of product creation, is an indicator of the role of the organizational network in the competitiveness of firms (Gulati *et al.*, 2006). Several

¹ If some authors, e.g. authors belonging to the institutionalist trend of the School of Proximity, effectively consider that social relations might result in non-intentional and spontaneous phenomena, they also state that organization and institutional arrangements (such as compromises) might also originate from social relations. By setting a direct link between social relations and its resulting organizational arrangements, this approach falls into the error considered here.

case studies corroborate this analysis: for example, in the textile industry (Lazerson, 1995) and biotechnologies (Owen-Smith and Powell, 2004). Furthermore, exchanges of information and knowledge are organized through the contractualization and/or the recourse to third parties. According to the authors, this has led to the emergence of organized flows of knowledge (see Giuliani, 2005; Moodysson, 2008) or, in the case of the recourse to third-parties, to the emergence of indirect contacts rather than direct interactions.

« Industrial clusters, being a spatially localized set of economic activities, are also envisaged as a locus where social relations are entangled with productive ones. Social embeddedness (Granovetter, 1985) is said to generate an environment of trustworthy relations which enhance knowledge exchange and at the same time promote a process of social monitoring among colocalized producers and technicians (e.g. Becattini, 1990). » (Giuliani, 2005, p. 274)

The assertion stating that organizational agreements ease coordination and reduce risks of opportunism contradict with the very concept of embeddedness as developed by Granovetter (1985). At the occasion of a critic of the transaction cost theory of Williamson (1975), Granovetter (1985) explains that the relation between organizational agreements and the reduction of opportunism is not systematic: the embeddedness of an organization members gives way to an unpredictable and possibly less efficient functioning. Granovetter claims that the coordination may prove to be chaotic, as the high level of trust may potentially lead to a higher risk of opportunism and the embeddedness may cause noise in the interactions.

« [...] The other side of my critique is to argue that Williamson vastly overestimates the efficacy of hierarchical power ("fiat," in his terminology) within organizations. He asserts, for example, that internal organizations have a great auditing advantage. [...] Thus, the oversocialized view that orders within a hierarchy elicit easy obedience [...] cannot stand scrutiny against these empirical studies [...] » (Granovetter, 1985, pp. 499-501)

The effects of embeddedness in economic performance are the objects of numerous debates. In fact, several authors claim that a high level of embeddedness increase the performance of actor in a relatively stable environment (Rowley *et al.*, 2000; Uzzi, 1997; Larson, 1992), the global coordination at the cluster scale being favored by the reinforcement of the links between members (Galaskiewicz and Zaheer, 1999; Gulati *et al.*, 2006). Some authors, like Uzzi (1996,

1997) and Rowley *et al.* (2000), moderate these arguments explaining that networks may be vector of inefficiency for different reasons than the ones mentioned by Granovetter. They present the risks of overembeddedness, consecutive to a strong network centralization around a limited number of actors, resulting eventually in the dependence to a technology or in a reduction in cognitive diversity. The link between embeddedness, development of interpersonal trust and success is nonetheless significant in the literature: the structural embeddedness is generally considered as favoring the construction of trust necessary to inter-firm collaborations, contributing to reduce the risk of hold-up (Nooteboom, 2000).

« For the purposes of examining interorganizational networks characterized by horizontal alliances, we measure tie strength by the frequency of interaction between partners and their level of resource commitment to the relationship. Strong tie alliances, such as equity arrangements, manufacturing joint ventures, and joint R&D projects, are 'broader and deeper' in terms of investment and interaction than marketing joint ventures and technology licensing, which require less coordination or understanding of partners' organizations (Powell, 1990: 314). » (Rowley *et al.*, 2000, p. 371)

« Network embeddedness can be regarded as the product of a process of trust building between network agents, which is important for successful and stable relationships. Even within intrafirm networks, where the relationships are structured by ownership integration and control, trust between the different firm units and the different stakeholders involved might be a crucial factor. » (Hess, 2004, p. 177)

In this way, it is generally admitted in the field of economic geography that long-term relations, by implying a strong commitment of the firms (such as takeovers), reinforce the capacity of clusters to activate relations between its members. The latter adopts gradually the same system of representations and knowledge: this allows for example to create a common structure producing mechanisms facilitating the resolution of conflicts (Gallaud and Torre, 2005). Several authors plead for a balance between embeddedness and decoupling to reduce the risks of lock-in and path dependance (Uzzi, 1996, 1997): firms involved in long term relationships may lose its capacity to react to sudden environmental changes. Thus phenomena of overembeddedness appear and lead to lock-in situations in suboptimal relational trajectories.

On the contrary Duysters *et al.* (2003) maintain that a strategy favoring alliances, even redundant, may increase the performance of firms in time of turbulence, more than the exploitation of structural holes. Thus, according to these authors, social embeddedness may allow productivity gains in innovation by high level of trust and strong and reciprocal relations between actors. It is also considered that embeddedness is vector of trust and stands as an alternative to institutional agreements. Nakano and Douglas White (2006) underline the importance of contractual obligations between pair and group of actors in the issues of investment, joint development and marketing program. These contractual obligations will favor the constitution of social networks, relations of different natures developing between these actors, individuals and organizations. However, faithful to the definition of embeddedness by Granovetter, Harrison White (2011) asserts, regarding the study of Nakano and Douglas White (2006), that the contractual obligations and its resulting interrelations are not sufficient conditions to the emergence of a cluster dynamic. Referring to Granovetter, Uzzi (1996) takes an interest in the link between performance and level of embeddedness. Studying the networks of clothing manufacturing firms in New York, he argues that the firms involved in networks of average density are more efficient than the firms maintaining no relations. According to him, the inscription of a firm in its networks offers certain advantages, such as trust and the access to information. However, he claims that when the integration to networks is too strong, advantages turn into constraints, some imperatives of friendships for example may supplant exigences of solvability. It echoes the argument of Rowley *et al.* (2000), stating that structural and relational overembeddedness may influence negatively the performance of firms due to the risk of lock-in in suboptimal trajectories.

The effects of the embeddedness of economic activities in the social sphere is thus at the center of a great debate in economic geography. The error presented in the first part consist in attributing a cause and effect relationship between embeddedness and economic performance, while the forms of embeddedness do not presuppose in any way modalities of coordination, risks of opportunism and thus performance of collaborations.

2. Second error: Considering the analysis of the network structure as allowing the assessment of created, exchanged and co-constructed knowledge between actors

The concept of embeddedness, in considering the inscription of economic actors in relational networks, offers a new interpretation on the exchange of information and knowledge, both at an individual and collective scale, and the capacities of innovation. This dimension is central in economic geography, in particular on the models of cluster, as clarified by Granovetter:

« Social networks function as a distinct governance mechanism, a “social glue” that binds actors and firms together into a coherent system. In high-technology industries in particular, social networks help transmit information and knowledge among different firms and individuals and produce innovation. In Silicon Valley, getting the right product out at the right time has become crucial for the survival and growth of a firm in a rapidly changing environment. Networks enhance the capacity to do this by enabling people to mobilize capital, find relevant and reliable information quickly, and link to appropriate outlets. » (Granovetter *et al.*, 2000, p. 222)

In economics, the notion of embeddedness contributes greatly to enrich a debate on the issues of knowledge exchange and the benefits generated by the affiliation to a network, which echo the notion of “increasing returns” developed by Arthur (1990). Arthur states that the more agents connected to a network, the stronger the probability for agents to communicate, to exchange and to capture strategic information in order to increase their satisfaction. In this way, the existence of an industrial cluster relies on co-localization processes based on the search of complementarity between actors, the sharing of a non-redundant knowledge and the access to a knowledge base increasing according to the number of firms present in the network (Suire and Vicente, 2009a).

However, an argument is largely widespread in the literature among the works based on the embeddedness hypothesis of Granovetter: the concomitant analysis of the cognitive structure of agents and their relational structures allows the assessment of created, exchanged and co-constructed knowledge. This argument, although central in several works in economic geography, is in our opinion a second fundamental error. It refers to two dimensions: the limited exploitation capacities of relational networks and the difficult understanding of systems of individual representations.

2.1 The limited exploitation capacities of relational networks

The first dimension has been already explicated by Granovetter since the publication of his work on weak ties (Granovetter, 1973). In 2003, he recalls that the study of the structure of social networks does not presume the knowledge diffusion, in particular given the individual cognitive limits:

« Recent attention to “six degrees of separation” has made the naiveté that amused Milgram rare. But it does not follow that people now know more about their social networks. Just 500 acquaintances require more than 100,000 bits of information to track who knows whom, and if each acquaintance knows 500 others, there can be as many as a quarter of a million people at one remove. Overlap in ties reduces these numbers but introduces structural complexity that is equally if differently daunting. Limitations of cognition and time, not to mention competing obligations of every-day life, keep our network knowledge small and nonrandom. Even prolific and determined “networkers” cannot hope for more. » (Granovetter, 2003, p. 773).

In this way, it seems impossible to model satisfactorily collaboration networks of any kind, because the model would not correspond to the effective understanding of the network by the actors and their exploitation capacity. However, several authors emphasize the influence of relational characteristics in the coordination (Nooteboom *et al.*, 1997; Nahapiet and Ghoshal, 1998; Inkpen and Tsang, 2005), such as (1) the capacity of actors to set a complex network of relations, depending not only on the number of personal ties but on the relational characteristics of the other actors belonging to the same relational network and (2) on the capacity for entities to build a network composed by other entities of which they know with confidence that they have access to high quality information and knowledge (Gulati, 1998). Other authors analyze the structure of collaboration networks in order to determine the factors favoring the coordination and innovation, like for example the study of R&D collaborative projects financed by the European Union in the satellite navigation systems sector by Balland (2011) or the analysis of knowledge networks in the Italian footwear district (Boschma and Ter Wal, 2007).

2.2 The difficult understanding of individual representation systems

As for the second dimension, it is linked to the difficult understanding of individual identities and representation systems. It is impossible to presuppose beforehand the result of an exchange of knowledge. Learning is a personal construct which takes sense in a specific context. Thus, the exchanged knowledge may be completely disconnected from the context: distinct representation systems and symbols, interpretation and understanding errors, etc. Yet several works develop the idea that the embeddedness of economic activities manifests itself as the multiplication of interactions based on trust, as explained by Boschma (2005) and Knoben and Oerlemand (2006). It is argued that embeddedness encourages and develops exchanges of information and knowledge, and thus contributes to the rapid reinforcement of cognitive proximity, which stands for the existence of overlappings in the mental categories and the cognitive structures of actors (Wuyts *et al.*, 2005). Staber (2008) describe for example the role played by networks in the circulation of ideas, and hence the increase in the cognitive proximity. The underlying hypothesis as expressed by Moran (2005) sets that the relational embeddedness plays a major role in the efficiency of innovation activities. These hypothesis are inconsequent with Granovetter's work, which emphasizes the complexity of embeddedness forms and the specificities of individual constructs, in particular regarding learning processes. We find this interpretation error in various works related to knowledge diffusion at territorial and non-territorial scales. Cognitive proximity is presented as a key factor of knowledge diffusion: for example, cognitively similar entities are more inclined to exploit given pieces of information and knowledge (Nooteboom, 2000). Methodologically, this is assessed through the sharing of the same code in the normalized industrial classification (Wuyts *et al.*, 2005; Rondé and Hussler, 2005). In this way, on the industrial cluster thematic, several contributions highlight the positive effect of knowledge complementarities in cluster success (Boschma and Iammarino, 2009; Suire and Vicente, 2009a) or, more generally, of the existence of a favorable context (Gertler, 2003), as shared representation systems are identified as key factors allowing the circulation of knowledge within these local organization models. At a cluster scale, the presence of different actors led to the emergence of organized knowledge flows (Giuliani, 2005; Moodysson, 2008; Cantner *et al.*, 2010), information and knowledge exchanges may be organized through contractualization and/or recourse to third parties, such as research laboratories. Thus the authors withdraw from the

embeddedness concept as defined by Granovetter (1985), i.e. complex and implying chaotic economic behaviors, even if it is the starting point of their works. Amin and Cohendet (2004) and Jones (2008) will give meaning anew to Granovetter's concept, stating that practices which participate to exchanges between actors and to the redeployment of information and knowledge, will define in return the embeddedness of actors in firms, clusters and regions.

3. Third error: The insufficient consideration of dynamic and the perception of temporal perspectives.

The third error is linked with the consideration of dynamic and temporal perspectives in interaction and collaboration. It covers more precisely two errors generally committed in the field of economic geography. The first error refers to the consideration of agglomeration dynamics of economic activities; the second error is relative to the lack of attention on the perception of temporality by actors.

3.1 The absence of consideration to dynamic processes in the agglomeration effects of economic activities

According to Granovetter, it is necessary to consider the social and economic phenomena in a dynamic perspective, as quoted by Ettliger (2003) and Hess (2004). Such a perspective allows to better consider the emergence of these processes.

« Many economists would agree that dynamics is the weakest part of modern economics. I believe that an account of the social construction of economic institutions can be useful in making more sophisticated dynamic models. Existing ones are frustrating because they are often underdetermined, with multiple stable equilibria. As in similar physical models, it is possible to understand which state the system reaches only by looking at its history. But the contingencies involved in that history are outside the economic framework, and thus seem ad hoc and satisfying to economists; within a sociological framework, however, they can be given systematic treatment. » (Granovetter, 1990, pp. 106-107)

Given the embeddedness effects, the social interaction, inside and outside the workplace, in the

case of collaborative work in the study of Ettliger (2003), affects decision making and individual and collective behaviors and performance. In this way, in whatever context, individuals are characterized by their relational networks, which may influence positively or negatively economic decisions (Ettliger, 2004). Relational networks, beyond its influence in decision making and creation of specific resources, configure power and control relations at a territorial or non territorial scale. The issue of power is particularly central in economic geography, because it is considered as fundamental in the understanding of industrial networks (Faulconbridge and Hall, 2009). As the structuring of a cluster is realized through the emergence of interactions and agglomeration dynamics, the articulation of ties formed by the members of a cluster, according to its intensity — strong or weak, and the embeddedness decoupling dynamics, will condition cluster dynamic. In this way, the analysis of individual and collective dynamics will allow to understand territorial dynamics: the significance of territory as a localization norm is conditioned by the existence of social networks within it (Suire and Vicente, 2008).

However, several studies in economic geography do not consider the long term construction of individual and collective localization, even if it appears necessary in the perspective of Granovetter's embeddedness hypothesis. As stated by Becattini, "problems of a territory may be solved by simply considering its past, in particular the characteristics of the population constituted during centuries" (Becattini, 1998, p. 43, our translation). According to Amisse *et al.* (2012), relational data in the literature are ad-hoc, associating territories to attraction pools through the homogenization of its member characteristics. Jones (2008) adds that literature tends to consider embeddedness in a static perspective at the expense of a fine understanding of territorial dynamics.

3.2 Considering the perception of temporality by actors

Some studies try effectively to question agglomeration dynamics of economic activities. Di Maggio and Powell (1983) underline for example the importance of mimetic processes in cluster construction. Vicente confronts the "penguin effect", referring to pure mimetic agglomeration processes, to the "network effect", co-localization processes revealing consecutive to an

industrial dynamic based on the complementarity and interactions between actors (Vicente, 2005). It is specified that the historic and social existence of clusters requires its structuring on a long term perspective (Waluszewski, 2004). The study of localization dynamics of economic activities rests upon the attribution of temporal perspectives to individual actions. In other words, does the existence of an activity at a territorial scale, or the partnership of two co-localized actors, fall within the short term or the long term perspectives? In economic geography, the presence of actors in collaborative projects is defined by the length of contracts and the commitments which bind members in these relations. For example, Gordon and McCann, discussing models of cluster, points out that collaboration forms between firms may go beyond immediate interests, setting potentially long-term relations between organizations (Gordon and McCann, 2000). We qualify this perspective as “objective”. Some authors put forward the existence of life cycles for clusters (see for example Atherton, 2003; Suire and Vicente, 2014). Thus cluster dynamics would be underlaid by three successive phases (Suire and Vicente, 2014): first, adopting an exploration behavior, second increasing strategic links within actors, third facing a decrease in trust. The study of path dependence in economic geography is sometimes based on the embeddedness concept (see for example Uzzi, 1996, 1997), assessing interaction and collaboration dynamics. This work like the studies presented above does not question the perception of temporality by the actors. In this sense, they constitute an impoverished reflexion on dynamic in economic geography.

These approaches disregard the “subjective temporal perspective”, i.e. the temporal perspective perceived by the actors. This perception may be impacted by emotions (Ettlinger, 2004) and “styles” (White, 2011). In support of the analysis of Granovetter, Ettlinger (2004) presents emotions as a critical element of social interactions and decision making processes: emotions do not rely on a geographic space or a given period of time, but they follow (and influence) individuals according to contexts and mix with thoughts and feelings associated to previous experiences. Likewise, defining the notion of “style”, the sociologist Harrison White (2011) highlights the fact that individuals may perceive their environment in distinctive ways including the temporal perspective of a project. The subjective character of the environment perception is fundamental in Granovetter’s work as it contributes to define the strength of ties between individuals.

« The strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie. » (Granovetter, 1973, p. 1361)

Individual and collective trajectories result from social embeddedness. Thus, for White (2011), dynamics of any group of firms, in particular when organized in cluster, may be grasped on the form of what he defines as “style”. White (2011) considers as stated above that a cluster organization may only be constituted throughout history in reaction with modifications of the environment.

In this way, the subjective temporal perspective of a project may be different from the temporal perspective stated as “objective”. Likewise, different partners of a given project may perceive differently its temporal perspective. Thus, the construction of relations between individuals is chaotic and unpredictable. Growth of clusters will not be regular or cyclical as highlighted by Becattini (1998): firms appear, merge, disappear, etc. This reduces the explanatory impact of life cycles to comprehend territorial dynamics. Becattini even qualifies the very notion as “simplistic” (Becattini, 2000, p. 56): local dynamics, being chaotic and unpredictable, are too complex to be determined by recurrent phases.

Conclusion

Since the publication of Granovetter’s article in 1985, the concept of embeddedness has been increasingly influential in economic geography and has allowed the development of several reflections on issues as central as coordination, the co-construction of environment and the agglomeration phenomena. However, thirty years later, we notice without denying the significant advance it has allowed, that the literature based on Granovetter’s hypothesis is the subject of three recurrent errors, implying contradictions with the fundamental hypothesis: (1) considering organizational agreements as easing coordination and reducing opportunism, (2) regarding network structure analysis as a method to assess the knowledge created, exchanged and co-constructed between actors, and (3) not considering sufficiently dynamic and the temporal

perception of interactions by actors. These three recurrent errors imply that the interpretation and the implementation of the embeddedness concept in economic geography are not faithful to the original proposition of Granovetter. Mobilizing the embeddedness concept in economic geography falls within a certain economic tradition. Thus these errors represent as many research perspectives which it is necessary to take to reach for the embeddedness concept, accurately to the original sociologic proposal. To a greater extent, our work stresses the difficulty to overcome the notion of field, so much that the adoption of a concept originating from an extraneous field will fit into a pre-existent theoretical framework. Overcoming this theoretical framework would represent an ambitious subject for future research yet necessary for economic sciences.

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