Structural social capital and knowledge acquisition: implications of cluster membership

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ABSTRACT
This paper analyzes the implications of belonging to a cluster through the relationship between structural social capital and knowledge acquisition. The findings suggest structural social capital only indirectly affects knowledge acquisition through the relational and cognitive dimensions of firms’ membership of a cluster. However, the structural dimension also has a direct impact on knowledge for external firms outside a cluster. This paper contributes to the cluster literature with a better contextualization and understanding of the relationship between structural social capital and knowledge acquisition. In addition, the paper also consolidates the inter-organizational approach to social capital theory by helping to understand how and in what context social capital dimensions are interrelated. The study analyzes how firms can acquire valuable knowledge from their networks, filling the gap in the literature on how this process occurs inside and outside clusters. This works also proposes recommendations for companies and institutions, and new complementary lines of research.

1. Introduction

Contexts of geographical proximity such as those defined as industrial clusters or districts (Becattini 1990; Porter 1998) exist in different industries, countries and at different technological levels (see, for example, Tallman et al. 2004; Inkpen and Tsang 2005). Industrial clusters can be defined as a network of inter-organizational relationships between different actors, such as customers, competitors, suppliers, support organizations and local institutions (Piore 1990). Geographical proximity and a strong feeling of belonging are primary elements facilitating such relationships, which are in turn based on norms and values such as trust and reciprocity, among others (Antonelli 2000). Within industrial clusters, proximity among firms makes it easy to generate shared goals, values and beliefs that relate to high levels of social capital (Bolino, Turnley, and Bloodgood 2002). In fact, clusters are associated with high average levels of social capital among firms, triggered by close proximity (Trigilia 2001; Cooke 2002; Wolfe 2002), which explain intense knowledge exchanges in the area (Baptista and
Swann 1998). According to these authors, social capital allows clustered firms to receive a large amount of knowledge and other resources from the other members of the cluster.

The literature on industrial clusters and districts has traditionally sought to verify how companies belonging to clusters, and thanks to the existence of certain externalities of location, show better results compared to companies located outside these territories. In general, this superiority of companies in clusters has been evidenced by diverse indicators such as economic and financial results, export capacity or the efficiency of the companies (see: Ybarra 1991; Signorini 1994, Paniccia 1998; Ruiz-Ortega, Parra-Requena, and García-Villaverde 2016). From a social capital viewpoint, the belonging effect may provide a justification. Proximity, reciprocity, trust, etc., are conditions which arise inside the clusters and that benefit its members. However, this continuity cannot be created in firms located outside clusters, at least at the same level. In contrast with what happens in geographically distant relationships, organizations inside the cluster benefit in different ways, such as the exchange of high-quality information and tacit knowledge, as well as cooperative exchanges.

We aim to analyze the interactions between social capital dimensions (Huggins and Johnston 2010; Lehner 2014) and how they influence firms’ knowledge acquisition, comparing those both inside and outside cluster locations (Aslesen and Harirchi 2015). Specifically, we investigate how the structural dimension of social capital impacts differently on access to knowledge sources in clustered and non-clustered companies. We propose that for clustered firms, the relational and cognitive dimensions totally mediate the relationship between structural dimension of social capital and knowledge acquisition, since, as firms inside industrial clusters have more structural social capital than firms outside industrial clusters, these interactions induce the redundancy of the links (McEvily and Zaheer 1999), accentuating the disadvantages of over-density in a local context. However, both direct and indirect effects coexist for non-clustered firms, so in this case the mediation effect or the relational and cognitive dimension will be partial.

Social capital is a multidimensional concept studied from different perspectives (Huggins and Johnston 2010; Lehner 2014). Nahapiet and Ghoshal (1998) distinguished three dimensions: structural, relational, and cognitive, which correspond respectively to social interaction, trust relationships, and shared goals and culture. Although there are precedents arguing the positive direct effect of social capital on firms’ knowledge acquisition (Yli-Renko, Autio, and Sapienza 2001; Inkpen and Tsang 2005), some relevant issues have, in our opinion, been neglected or underestimated. In this line, Hughes et al. (2014) stated that the effects of social capital on network-based learning are not uniform, implying that this black box remains a conundrum. The most controversial issues affect the structural dimension of social capital (Zaheer, Gözübüyük, and Milanov 2010), which refers to the overall pattern of connections between actors in the network, such as the density and frequency of ties (Nahapiet and Ghoshal 1998; Greve and Salaff 2003). Thus, the results of previous studies regarding acquisition, innovation and performance are ambiguous and often divergent (positive, negative, U-inverted, non-significant), depending on the measures, factors and methods of analysis used and the industrial and geographical context studied (Inkpen and Tsang 2005; Molina-Morales and Martinez-Fernandez 2009; Rost 2011; Zhang and Wu 2013). These ambiguous arguments and results reveal a gap in the literature, requiring an in-depth analysis of new relational mechanisms that drive structural social capital’s impact on knowledge acquisition, and the key geographical conditions affecting these relationships.
First, the interdependence between the dimensions of social capital can help to disentangle the ambiguous relationship between structural social capital and knowledge acquisition (Mael and Ashforth 1995; Hsu and Hung 2013). This is because trust and shared values are key mechanisms, derived from dense and frequent ties, which can help to identify and understand the potential value of network information and lead firms to take advantages of their social interactions to acquire valuable knowledge (Tsai and Ghoshal 1998). Specifically, we propose that relational and cognitive dimensions of social capital can explain how structural social capital drives the acquisition of relevant knowledge (Castro and Roldan 2013). Testing the direct effects of structural social capital masks its potential contribution if mediation effects are unaccounted for (Hughes et al. 2014). In this line, we analyze the mediation effect of the other two dimensions of social capital.

Second, geographical proximity between actors is relevant, and should be considered (Vittoria and Lubrano Lavadera 2014). We found no previous evidence in the context of industrial clusters, where there are specific conditions for knowledge exchanges. Thus, we can expect geographical proximity to reduce the costs of ongoing relationships and increase the frequency of personal contacts that build social relations between individuals and organizations, thereby facilitating the flow and transfer of knowledge in a local context (Rosenkopf and Almeida 2003; Li, Poppo, and Zhou 2010). However, membership to an industrial cluster can also accentuate the disadvantages of over-density (McEvily and Zaheer 1999) and worsen the ‘dark side’ of network paradoxes, hindering the acquisition of relevant external knowledge (Hakansson and Ford 2002). Some precedents exist of using different dimensions of social capital in clustered contexts. For instance, Parra-Requena, Molina-Morales, and Garcia-Villaverde (2010) showed how the cognitive dimension is more significant in explaining knowledge acquisition than simple physical proximity. However, some interesting new issues are still to be investigated. Specifically, we are interested in studying the effects of the structural dimension of social capital on firms inside and outside the cluster.

These findings may contribute to the literature on both social capital dimensions and clusters, improving our understanding of the effects of a firm’s membership / non-membership of a cluster on knowledge acquisition through the dimensional interactions of social capital. First, our results support the inter-organizational approach to social capital theory in explaining where and how social capital dimensions are interrelated (Tsai and Ghoshal 1998). In this way, the process that allows firms with greater structural social capital to acquire more valuable knowledge is better understood. Tsai and Ghoshal (1998) originally proposed three interrelated dimensions; we go further than this, suggesting a mediated relation of the structural dimension with respect to the two other dimensions, relational and cognitive. Secondly, we contribute to cluster literature (Becattini 1990; Porter 1990) by improving the understanding of the implications of dense and closed networks for clustered firms and comparing them with non-clustered firms. We also look at how to address these issues by developing trust and sharing values and culture. The literature has long talked about the positive ‘belonging’ effect, that is talking about the advantages of being a member of the cluster. In our case, we deepen the analysis by categorizing these advantages from a relational point of view.

We gathered data for this study from a questionnaire survey on a country-wide sample of 224 Spanish companies in the footwear industry. This industry can be considered a mature, traditional industry with a significant presence of industrial clusters, thus being particularly suitable to the aims of this study. The paper is structured as follows. First, we explain the
main concepts and grounding and justify the hypotheses. Next, we describe the design of the empirical study and present the findings. Finally, the paper proposes a number of conclusions, underlining the contributions and further implications of this research.

2. Theoretical framework

2.1. Relational perspectives and industrial clusters

Over the last two decades, management research has paid increasing attention to the social capital theory (Ahuja 2000; Owen-Smith and Powell 2004). This relational perspective proposes that social capital provides firms with relevant external knowledge, generating competitive advantages (Molina-Morales and Expósito-Langa 2012). Industrial clusters or districts have been defined as contexts of geographical proximity (Becattini 1990; Porter 1998) that exist in diverse industries, countries and at various technological levels (Inkpen and Tsang 2005). Cluster literature taking social capital as its theoretical basis deserves a special mention. This perspective focuses on the relationships and interactions between the various actors in the network, placing the source of the benefits accruing to organizations in the clusters in this relational field. Several studies suggest that geographical proximity and interaction between individuals or companies favors the generation of structural social capital (Coleman 1990; Boland and Tenkasi 1995; McKeever, Anderson, and Jack 2014). Moreover, a cluster may be identified as a category of strong-tie network with intense, frequent and close relationships among its members. In fact, it is frequently argued that this category of network provides substantial benefits for the companies involved in terms of knowledge flow (Uzzi 1996).

Clusters are considered as inter-organizational networks which combine social links that provide access to tacit knowledge, with links that provide bridging opportunities and access to new and exclusive external resources (McEvily and Zaheer 1999; Molina-Morales and Martínez-Fernández 2006; Besser and Miller 2011). In particular, relational assets are associated with access to sources of information and knowledge to create value and improve innovation (Molina-Morales and Martinez-Fernandez 2009).

Companies in clusters have distinctive individual attributes (Boschma and Ter Wal 2007). These attributes will determine the differences between companies in the cluster when it comes to exploiting the advantages of the location (Giuliani and Bell 2005; in Spain Hervas-Oliver and Albors-Garrigos 2012). Furthermore, the opportunities and constraints generated by the location in the cluster are also unevenly distributed among its members (Giuliani 2007; Suire and Vicente 2014).

2.2. Social capital: interdependent dimensions

Social capital has become an ‘umbrella concept’. We use the definition provided by Nahapiet and Ghoshal (1998, 243), who considered social capital as the sum of current and potential resources inserted in, available through, and derived from, the network of relationships possessed by a social unit. According to the social capital perspective, actors (individuals, organizations or communities) benefit from the value provided by the networks of relationships. As a result, actors may exploit resources inserted into such relationships for their own benefit (Rampersad, Quester, and Troshani 2010). Consequently, social capital has been
viewed as an explanatory factor of the advantages of organizations (e.g. Dyer and Singh 1998).

Social capital is a multidimensional concept which should be addressed from different perspectives (Huggins and Johnston 2010; Lehner 2014). Nahapiet and Ghoshal (1998) distinguished three dimensions: structural, relational and cognitive, which correspond respectively to social interaction, trust and common goals and culture in networks. As Bolino, Turnley, and Bloodgood (2002) argued, this distinction is adequate for an analysis at organizational level in contrast to other perspectives focusing on an individual level (Granovetter 1973; Burt 1992; Seibert, Kraimer, and Liden 2001).

The structural dimension covers the interaction of the social network, focusing on the properties of the social system and the network of relationships as a whole. The structural dimension also emphasizes the value of the information and the control advantages provided by the structural position of the firm in the network (Granovetter 1973, 1985; Burt 1992). The most relevant aspects of this dimension include the existence of network ties between agents and actors, the network configuration -density- and the appropriability issue.

The relational dimension analyzes the characteristics and attributes of relationships between agents or actors in the network, which are mainly derived from the company’s history and reputation (Granovetter 1992; Gulati, Nohria, and Zaheer 2000). This dimension focuses on characteristics of the relations between actors regarding relational assets such as trust, norms, obligations, and solidarity. Trust is probably the most important relational asset of social capital. Trust between different actors and organizations refers to the certainty that other agents in the network will not act opportunistically (Barney and Hansen 1994; Bhattacharya, Devinney, and Pillutla 1998).

The cognitive dimension represents the resources provided by the understanding and meaning shared among members of the network (Nahapiet and Ghoshal 1998, 244). Cognitive social capital facilitates a shared vision of collective goals and aims (Tsai and Ghoshal 1998). In fact, the common culture and shared goals of members of the network are the key concepts of this dimension (Inkpen and Tsang 2005). Shared goals represent the degree to which network members share a common understanding and approach to the achievement of tasks and results (Inkpen and Tsang 2005). Shared culture refers to the degree to which the norms of behavior drive relations, that is the set of rules and institutionalized norms that guide appropriate behavior in the network (Gulati, Nohria, and Zaheer 2000, 205).

Finally, it must be mentioned that social capital dimensions are not independent of each other. Indeed, all social dimensions can be considered highly interdependent, as highlighted in previous research (Mael and Ashforth 1995; Butler and Purchase 2008; Westerlund and Svahn 2008; Castro and Roldan 2013; Hsu and Hung 2013). The way in which a company is integrated within a social network may be identified by different dimensions. In distinguishing between the structural and relational dimensions of social capital, Nahapiet and Ghoshal (1998) relied on Granovetter’s (1992) distinction between structural and relational embeddedness (Tsai and Ghoshal 1998). We identify the structural dimension resulting from the density or the cohesion of the network. However, there is also a relational dimension, which refers to assets rooted in these relationships, such as trust and trustworthiness. There may be high social capital within a group (‘bonding’ social capital) which helps members, but they may be excluded from other groups (they lack ‘bridging’ social capital).
2.3. **Clusters, social capital and knowledge acquisition**

Being located in a cluster provides organizations with specific social capital characteristics and, consequently, gives them advantages in the knowledge acquisition process. In terms of social capital, proximity provides frequent, repeated, informal contacts, all of which facilitate strong ties within a dense network. Face-to-face interactions between the actors induce the frequency and redundancy of the links (McEvily and Zaheer 1999). Intense interorganizational relationships occurring in geographical proximity are regarded as a driver of a broad range of knowledge sources (Presutti, Boari, and Majocchi 2013). Physical proximity increases the probability of collaboration (Correia and Petiz 2007) and facilitates technical and market information exchanges among co-localized firms (Boschma and Ter Wal 2007). Proximity produces spontaneous social and professional interactions among entrepreneurs and employees in the industry, facilitating knowledge diffusion (Lazerson and Lorenzoni 1999). Thus, these interactions channel intangible resources such as knowledge (Warren, Patton, and Bream 2009).

In consequence, particularly tacit or uncodified knowledge transmission requires intense interactions (Dyer and Nobeoka 2000), and, therefore, knowledge is more easily spread through face-to-face communication (Uzzi 1996). However, clustered firms can also suffer the drawback of overdensity and problems linked to network paradoxes, which hinder access to valuable external knowledge (McEvily and Zaheer 1999; Hakansson and Ford 2002).

Social capital facilitates the acquisition, integration, recombination and release of resources for firms (Coff and Blyler 2003). More specifically, structural social capital provides access to numerous information sources and improves the quality and relevance of the acquired knowledge (Adler and Kwon 2002).

Dense networks are suitable structures for learning through interaction and exchange of tacit knowledge resources between agents. Thus, companies in interconnected networks can better exploit the existing opportunities and shared information and knowledge in collaborative exchanges (Parra-Requena, Ruiz-Ortega, and Garcia-Villaverde 2013).

In addition, structural social capital provides channels for firms for information flows and an optimal context for resource exchanges, thus facilitating their access to valuable information (Burt 1992; Nahapiet and Ghoshal 1998). In fact, network members should establish a structure with dense interactions in order to exchange more reliable information and resources (Tsai and Ghoshal 1998; Villena, Revilla, and Choi 2011). In short, frequent social interactions allow network members to learn more about each other and to exchange more important and valuable information (Li, Ye, and Sheu 2014).

Despite the advantages of structural social capital for the acquisition of relevant, innovation-related knowledge, several authors agree that excessive interaction between agents in a network can cause redundancy in the information exchanged (Koka and Prescott 2002). Moreover, in an overdense network with frequent interactions, firms usually focus on their close contacts, leading to a situation of blindness and myopia because they pay little attention to agents outside the network (Inkpen and Tsang 2005). Thus, dense, close ties can restrict the detection of, and access to, new and valuable information (Hakansson and Ford 2002). These ambiguous consequences of structural social capital generate divergent results in empirical studies. Therefore, we can observe positive (Rost 2011), non-significant (Zhang and Wu 2013), and even negative effects (Levin and Cross 2004) on knowledge, innovation, or performance.
2.4 The mediating role of relational social capital and cognitive social capital

In general, in spite of the diversity of arguments and findings, it is expected that companies with greater structural social capital can access many more knowledge resources. However, analyzing only the direct effect can mask its contribution if the opportune mediation and/or moderation effects are not introduced. In this way, several studies establish absorptive capacity as a moderating element in the relationship between social capital and learning of firms (Hughes et al. 2014). In a deeper analysis of the controversial effect of structural social capital on knowledge acquisition, several authors have underlined the role of links between the dimensions of social capital (Tsai and Ghoshal 1998). Butler and Purchase (2008) pointed out that each dimension of social capital builds on or affects the other dimensions. Specifically, Castro and Roldan (2013) suggested that the structural dimension is key since it generates the other components of social capital and influences their formation and development. We suggest that the relational and cognitive dimensions of social capital are complementary, and facilitate structural social capital’s role as a driver of new and relevant external knowledge acquisition.

2.4.1. The role of relational social capital

Tsai and Ghoshal (1998) emphasized the influence of structural social capital in the development of relational social capital. Structural configurations can boost confidence and reliability perceived by network agents due to the relationships of trust arising from social interactions (Granovetter 1985). So, as two agents interact with each other over time, the cohesion of their ties increases, and the agents are perceived as trustworthy (Gabarro 1978; Gulati 1995; Tsai 2001; Castro and Roldan 2013). Therefore, frequent social interactions allow players to become better acquainted with each other and build mutual trust to share important information (Gulati and Gargiulo 1999). Li, Ye, and Sheu (2014) highlight that social interaction is a prerequisite of the creation of trust. In fact, cooperation and mutual behavior during social interaction processes help to enhance the level of trust.

A firm’s relational social capital favors the acquisition of relevant and innovative knowledge. Trust plays a key role in the willingness of actors in the network to transfer confidential information and valuable knowledge (Gulati, 1995; Doz 1996; Koka and Prescott 2002; Parra-Requena, Ruiz-Ortega, and Garcia-Villaverde 2013). Li, Ye, and Sheu (2014) argued that network members tend to keep private information for their own benefit. Frequently, they prefer not to share proprietary information, because free-riding of information produces risks. However, trust discourages the opportunistic behavior of agents and promotes the exchange and combination of knowledge (Inkpen and Tsang 2005; Castro and Roldan 2013). Thus, a trusting relationship encourages greater strategic-level information sharing among network members and further enhances the benefits of information sharing (Fawcett, Ellram, and Ogden 2006; Li, Ye, and Sheu 2014).

As previously noted, structural social capital tends to generate relevant knowledge exchange between agents in the network. However, external knowledge can be limited by the negative effects of excessive interaction with network members (Koka and Prescott 2002; Inkpen and Tsang 2005). We believe that these negative effects can be compensated by trust. Although trust does not avoid the problems of redundancy and isolation from the external world, it can allow companies to acquire relevant knowledge from their close contacts because trust promotes cooperation between agents and avoids the risk of
opportunistic behavior (Eapen 2012). Thus, if firms utilize their interconnected networks to create trust with key members of the network, they reinforce learning through interaction and the exchange of tacit knowledge between agents, which in turn leads to access to confidential information and valuable knowledge (Levin and Cross 2004). Relational social capital allows and encourages an intense flow of information and knowledge, channeling the potential benefits of structural social capital (Carey, Lawson, and Krause 2011).

2.4.2. The role of cognitive social capital
Frequent and intensive interaction between firms is an important source for establishing higher levels of mutual understanding (Leuthesser 1997; Pulles and Schiele 2013). Tsai and Ghoshal (1998) state that social interaction plays an important role in setting common goals and values between the different agents of a network. Thus, the structure of social interactions influences the formation of a shared vision between agents. Network members can share culture, codes, values and practices through their frequent social interaction. Moreover, dense interactions foster shared vocabulary and language between network members (Mael and Ashforth 1995). The social interaction process can also generate new sets of visions based on common interest and mutual understanding (Yim and Leem 2013; Li, Ye, and Sheu 2014). In short, structural social capital favors the development of cognitive social capital.

Knowledge can be communicated, transferred and acquired more efficiently between firms with similar reference structures (Knoben and Oerlemans 2006). Actors who are involved in the same network, who share a vision and values, who have similar perceptions on how to act with each other, and who subsequently have mutual understanding, tend to exchange valuable knowledge (Tsai and Ghoshal 1998). However, cultural conflicts and the lack of coherence in organizational missions limit knowledge acquisition and inter-organizational learning (Simonin 1999). Therefore, the more network members share their objectives, expectations and culture, the more they will transfer and acquire valuable knowledge (Mowery, Oxley, and Silverman 1996). Chiu, Hsu, and Wang (2006) noted that a shared vision will help network members to understand the benefits of knowledge sharing, and, in turn, will increase the quantity and quality of shared knowledge. According to this approach, cognitive social capital provides companies with access to relevant external knowledge.

Consequently, cognitive social capital is key in driving structural social capital’s impact on knowledge acquisition. Firms with frequent, dense interactions can share their language and vision, avoiding possible misunderstandings in communications (Li, Ye, and Sheu 2014). Moreover, network members who share a vision can detect higher potential value in knowledge exchange and will be more favorable to intensifying knowledge exchange (Pulles and Schiele 2013). Thus, network members who are able to take advantage of close, dense interactions to share values, culture and vision with their contacts will acquire more new, relevant information and knowledge. In short, structural social capital will allow firms to access key network knowledge through their cognitive social capital.

3. Hypotheses

3.1. Social capital and knowledge acquisition inside and outside clusters
The literature on geographical agglomeration highlights the strong implications of physical proximity on the development of social capital and the effects on knowledge exchange (e.g.
Muscio 2006; Boschma and Ter Wal 2007; Molina-Morales and Martínez-Fernández 2008; Warren, Patton, and Bream 2009; Molina-Morales and Expósito-Langa 2012). Thus, geographical proximity is a key factor influencing the intensity and prevalence of each type of social capital effect. We focus on how a firm’s membership of an industrial cluster influences these structural social capital effects. Several studies argue that a spatially concentrated configuration allows a greater exchange of information between co-located firms (Utterbact 1974; Jaffe, Trajtenberg, and Henderson 1993; Paniccia 1998; LeSage and Fischer 2012). In fact, knowledge transfer between companies in the cluster is one of its major externalities (Krugman 1991), since several elements of industrial clusters can act as accelerators of the dissemination of knowledge (Brenner 2001). First, geographical proximity between firms facilitates the transfer process, since it increases the number of personal contacts. Second, local institutions in clusters provide supporting services to the companies in the region, since they gather and spread knowledge among firms, thereby reducing search costs (Molina-Morales 2005). Third, the mobility of employees in an industrial cluster is another of the opportunities for information exchange (DeCarolis and Deeds 1999). In consequence, clustered firms can benefit from access to a large body of semi-public knowledge, which is ‘in the air’ or in the ‘industrial atmosphere’ of the clusters (Marshall 1890).

Professional, social and family ties between actors in clusters facilitate the formation of a dense network. These overlapping links (McEvily and Zaheer 1999), if not managed correctly, may result in redundancy, lock-ins, isolation, myopia and inertia that typically arise from dense, close networks, which could then exert a counter-effect reducing the intensity of the initial positive direct effect. In this context, we believe that structural capital does not allow clustered firms direct access to new information and relevant knowledge and the positive effects detected in the previous literature are due to intermediate variables that drive this effect. Therefore, the development of structural social capital is insufficient to access valuable information and knowledge. Thus, within clusters, only companies which exploit density to develop trust and shared values with their contacts will be able to acquire key knowledge.

Thus, although the total initial effect is positive, and the positive effects outweigh the negative ones, we consider this is a masked effect since the elements explaining why this relationship occurs are not taken into account. In this way, when the other two dimensions of social capital, cognitive and relational, are taken into account, the true effect of structural social capital on knowledge acquisition emerges. In this case, we consider that if we isolate the effect of structural social capital on knowledge acquisition such an effect will disappear since the advantages of density will be compensated for by the disadvantages of belonging to a highly agglomerated network.

This is because firms which are able to utilize dense, frequent ties with other local agents to achieve strong trust will have access to more confidential information and tacit knowledge. Moreover, if clustered firms focus their dense networks and close ties to understand and share the goals and culture of their contacts, they will increase the quantity and quality of shared knowledge. Therefore, we can say that structural social capital has only an indirect effect, through relational and cognitive social capital, on knowledge acquisition. Consequently, we expect a total mediator effect of both relational and cognitive social capital in the relationship between structural capital and the knowledge acquisition of companies located in industrial clusters. These arguments allow us to define the following hypotheses:
H1a: For clustered firms, relational social capital exerts a total mediation effect on the relationship between structural social capital and knowledge acquisition.

H1b: For clustered firms, cognitive social capital exerts a total mediation effect on the relationship between structural social capital and knowledge acquisition.

Firms located outside clusters have more difficulties in accessing relevant semi-public knowledge through informal relations based on geographical proximity. Therefore, to obtain valuable external knowledge, non-clustered firms rely more on social capital generated through any of its three dimensions within their own networks.

Outside clusters, the disadvantages of so-called paradoxes are much less likely to appear (Hakansson and Ford 2002). Furthermore, membership of dense networks is particularly important to exploit opportunities and share information and knowledge in cooperative exchanges. According to these arguments, firms outside industrial clusters with high levels of structural social capital are able to acquire new and valuable knowledge (Lane, Salk, and Lyles 2001). Thus, structural social capital is a key factor for firms outside a cluster to acquire external knowledge, which they cannot easily access through face-to-face communication as part of personal relationships (Audretsch 1998). Therefore, we expect a significant direct effect of structural social capital on knowledge acquisition by firms outside clusters.

Additionally, the frequency and density of relationships between firms and their contacts also promotes greater trust between agents, giving them access to confidential information and valuable knowledge (Li, Ye, and Sheu 2014). Thus, in non-clustered companies, relational social capital drives the effect of structural capital on knowledge acquisition. Also, social interaction with contacts promotes the development of values and a shared culture, making it much easier to transfer and acquire knowledge (Chiu, Hsu, and Wang 2006). From this perspective, cognitive social capital provides a way to direct structural social capital towards knowledge acquisition. We propose that when firms cannot utilize the benefits of agglomeration in an industrial cluster, structural social capital becomes a key factor in accessing valuable tacit knowledge either directly or through relational and cognitive social capital. Although the connection between structural social capital and relational and cognitive social capital allows firms to promote knowledge acquisition, these two factors are not essential in order to achieve effective knowledge acquisition. Therefore, the mediation of the relational and cognitive dimensions will be only partial.

In sum, for firms located outside clusters, the density and frequency of relationships allows them direct and indirect access to new and valuable knowledge, through the development of a greater level of trust and shared values with contacts. Therefore, in the context of firms outside a cluster, the direct effect of structural social capital on the acquisition of knowledge coexists with indirect effects generated by relational and cognitive social capital. Consequently, we expect a partial mediation effect of both relational and cognitive social capital on the relationship between structural capital and the knowledge acquisition of non-clustered companies. Drawing on these arguments, we can establish the following hypotheses:

H2a: For non-clustered firms, relational social capital exerts a partial mediation effect on the relationship between structural social capital and knowledge acquisition.

H2b: For non-clustered firms, cognitive social capital exerts a partial mediation effect on the relationship between structural social capital and knowledge acquisition.
4. Method and empirical setting

4.1. Sampling

Our empirical study has been conducted with reference to the Spanish footwear industry. As a labor-intensive industry, it is characterized by the predominance of small and medium-sized firms. This industry is also characterized by the concentration of firms in Spanish regions with a long shoemaking tradition. The Valencian Community is the region with the highest number of firms (66 percent), followed by Castilla-La Mancha (10 percent), La Rioja (7 percent) and the Balearic Islands (3.55 percent). Furthermore, the high concentration of firms in certain areas allows us to identify 30 industrial clusters in this industry, as mapped by Boix and Galletto (2006). We consider this industry is appropriate for our research proposals since the geographical distribution of firms allows us to compare firms located in industrial clusters with isolated firms. In addition, social capital needs time to develop and the footwear industry is a mature and highly competitive industry, and thus it is the optimal scenario to analyze social capital, as well as aspects related to knowledge transfer. Our analyses focus on the particular context of a low-tech industry (Hervas-Oliver and Albors-Garrigós 2012).

In order to establish the population of firms, we used two databases – SABI¹ and Camerdata.² We completed this information with other data from Spanish footwear-industry associations such as AICE (Elche Footwear Industry Association) and IDECA (Almansa Association for Footwear Industry Innovation and Business Development). We decided not to include firms with fewer than five employees in our database. This criterion has been proposed in previous works in the field of industrial clusters and business management (Spanos and Lioukas 2001; Boschma and Ter Wal 2007; Parra-Requena, Molina-Morales, and Garcia-Villaverde 2010), because a minimal operative structure is required to define the firms’ behavior. Once duplicated cases were eliminated, we obtained a population of 1403 firms. We sent a questionnaire by post to the company CEOs. The information was collected between October 2007 and January 2008. After two deliveries and mail and telephone monitoring, we eliminated questionnaires that had not been answered by the CEO or that were incomplete. Thus, we obtained 224 valid completed questionnaires, representing a response rate of 16.97%. With regard to the significance of the total sample, for a confidence level of 95% and the most unfavorable scenario of \( p = q = 0.5 \), we have a sampling error of 5.96%, so we can consider the significance of the sample is suitable. Of the 224 firms, 166 are located in industrial clusters. We observed that firms in industrial clusters show a significantly greater feeling of belonging (5.13) than firms located outside (3.69). We performed an ANOVA test for social capital dimensions and knowledge acquisition variables across all the firms that replied to the first and second sending of surveys. This test revealed no significant differences in any of the analyzed variables. Furthermore, we observed no differences between the population and our sample in structural characteristics such as size and age, so a non-response bias was not detected (Armstrong and Overton 1977).

4.2. Variables

The variables were measured by means of a seven-point Likert³ scale, with the exception of cluster membership. In these questions, the company manager was asked to establish the valuation (see Appendix 1).
4.2.1. Cluster membership
We used the location of the firms in order to identify firms belonging to industrial clusters (see Appendix 2). When a firm was located in one of the industrial clusters detected by Boix and Galletto (2006), it was designated as a firm belonging to an industrial cluster. According to Becattini (1979), firms in industrial clusters have a greater sense of belonging than firms located outside, and this sense is crucial to determine the identification of the firms in industrial districts (Molina-Morales et al. 2013, 773). These authors interpret the sense of belonging as the degree to which firms in a community identify with the community. In order to give more strength to our measure of sense of belonging to an industrial cluster, we have compared the level of sense of belonging between firms inside and outside a cluster. We observed that firms in industrial clusters show a greater feeling of belonging (5.13) than firms located outside (3.69). In order to compare the two empirical models, we ran a multigroup comparison test. The results showed significant differences in the relationship between structural social capital and knowledge acquisition depending on whether or not they belonged to a cluster. Thus, these results are coherent with the concept of cluster membership.

4.2.2. Structural social capital
To measure structural social capital, we used a molecular second order construct (with reflective indicators). This construct is formed by two first order constructs—network ties and network configuration. To measure network links, based on previous research (Hansen 1999, 2002; Brown and Konrad 2001; Yli-Renko, Autio, and Sapienza 2001; Maula, Autio, and Murray 2003), we decided to use the three-item-scale by Maula, Autio, and Murray (2003) since it fits with the aim of our study and has already been extensively used in the literature. This scale captures the social interaction generated in a relationship between two actors. We used network density to measure network configuration. Several previous studies measured density in ‘snowball’ method studies. To adjust this measure to a multi-item scale, we operationalized the density variable used in this type of studies (e.g. McEvily and Zaheer 1999; Rowley, Behrens, and Krackhardt 2000). In our case, as in recent studies such as that by Parra-Requena, Ruiz-Ortega, and Garcia-Villaverde (2013), we used a three-item scale, adapted from Molina-Morales and Ares (2007) and Exposito-Langa, Molina-Morales, and Capó-Vicedo (2010). Two items were used to measure redundancy, while the third item measures the degree of interconnection in the networks. Appendix 2 provides a complete description of the items used. The high reliability of this second order construct is described in the next section.

4.2.3. Relational social capital
We use trust as a representation of this dimension of social capital. After analyzing different studies (e.g. Tsai and Ghoshal 1998; Kale, Singh, and Pelmutter 2000; Yli-Renko, Autio, and Sapienza 2001), we decided to use the scale designed by Kale, Singh, and Pelmutter (2000) for two reasons. First, as stated by Ruiz-Ortega, Parra-Requena, and Garcia-Villaverde (2016), this scale is considered the most comprehensive for application to the external networks of companies. Second, this scale has been used in recent literature (Kohtamäki et al. 2012).

4.2.4. Cognitive social capital
In order to measure this dimension of social capital, we used a molecular second-order construct formed by two first-order constructs—shared goals and shared culture. After the
review of the proposed scales of several studies (Tsai and Ghoshal 1998; Young-Ybarra and Wiersema 1999; Yli-Renko, Autio, and Sapienza 2001), we decided to use the six-item scale used by Ruiz-Ortega, Parra-Requena, and García-Villaverde (2016), as it is an adaptation of the items used in the three studies and it fits well with the scope of our study. With regard to shared culture, we adapted the scale by Simonin (1999), because it has been used in the literature and has demonstrated high validity. Originally, the scale was used in the study of alliances, so we have generalized the items for the firm’s contacts. As in the case of structural social capital, this second order construct shows high reliability. These results can be observed in the next section.

4.2.5. Knowledge acquisition
In order to measure this variable, we revised the precedents in the literature, after which we chose the scale used in Parra-Requena, Molina-Morales, and Garcia-Villaverde (2010), which is an adaptation of the scales by Kale, Singh, and Pelmutter (2000) and Maula, Autio, and Murray (2003): it is the most suitable for our study and it has been widely used in the current literature. This construct allows us to measure the relevant knowledge acquisition of firms derived from their relationships with their contacts. This construct includes valuable knowledge acquisition about competition, trends, customer needs and technical issues. It also includes the acquisition of key information for critical capabilities of the firms. This kind of knowledge is fundamental for firms’ competitiveness (Teece, Pisano, and Shuen 1997; Spanos and Lioukas 2001).

4.2.6. Control variables
In this study, we included three control variables; age, size and type of shoes produced. Firm age was measured by the number of years from the creation of the firm to the survey date. Size was measured by the number of employees of the firms at the moment of the survey. We consider it of interest to analyze the type of shoes produced since the specific sector can affect the process of company behavior as each sector has particular characteristics and different competitive conditions (Bremmers et al. 2007). We used the classification of formal shoes or sports shoes. Finally, the relevance of absorptive capability in terms of knowledge acquisition has been established in the literature, so we included an item (our employees have skills in the combination and in the interchange of ideas in order to solve problems or create opportunities) to control this effect.

4.3. Analysis techniques
We used partial least squares regression (PLS) to test the hypotheses. This technique is particularly recommended for testing mediation hypotheses (James, Mulaik, and Brett 2006). Furthermore, PLS is a suitable analysis technique for small samples and places minimum requirements on both measurement scale and multivariate normality (Chin 1998; Hulland 1999). We used PLS-Graph 3.0 software and a bootstrap resampling procedure of 500 sub-samples to determine statistical significance of the coefficients. Previously, we added the inside and outside correlation matrixes (Tables 1 and 2).
5. Results

5.1. Measurement model

In order to evaluate the measurement model, we need to study individual reliability, composite reliability, convergent validity and discriminant validity. With regard to the reliability of the items, all loadings (λ) show values higher than the recommended threshold of 0.707 (Carmines and Zeller 1979). In the case of the two second-order constructs, the individual reliability of their first-order constructs is higher than 0.8, so we can assume these items are adequate for measuring the constructs. In order to test construct reliability, we use the composite statistic of reliability ($\rho_c$) which is similar to Cronbach’s alpha. As can be seen in Tables 3 and 4, all the constructs are higher than 0.8 so we can confirm the strict reliability of the constructs used in our study (Nunnally 1978). To evaluate the convergent validity, we analyze AVE (Average Variance Extracted). The AVEs of the two second-order constructs are higher than the AVEs of their first-order constructs. In Tables 3 and 4, it can be seen that the results show high convergent validity since all values are higher than this recommended threshold of 0.5 (Fornell and Larcker 1981).
Finally, Barclay, Higgins, and Thompson (1995) proposed that for discriminant validity, a variable must share more variance with its indicators than with other variables in the model. In this line, we compared the square root of the AVE of each variable with the correlations between constructs. As can be seen in Tables 5 and 6, the square root of AVE (the diagonal in Tables 5 and 6) is higher than the correlation between constructs (the off-diagonal data in Tables 5 and 6), so we can affirm that each construct relates more strongly to its own measures than others. This shows that each construct measures different things. Hence, we can say that we have a good model of measurement in both cases.

### 5.2. Structural model

#### 5.2.1. Inside industrial clusters

In order to test the structural model, we examined the size and significance of the path coefficients and the $R^2$ values of the dependent variable. In the case of firms located in industrial clusters, as shown in Figure 1, analysis of the direct effect of structural social capital\(^6\) demonstrates a positive and significant effect on knowledge acquisition ($\beta = 0.254; p < 0.01$). Similarly, this dimension influences the relational dimension of social capital, so we can observe a positive and significant effect ($\beta = 0.555; p < 0.001$). In this model, structural social capital explains 25.3% of the total variance in knowledge acquisition. When we introduce the effect of relational social capital on knowledge acquisition in the model, we observe that the initial direct effect of structural social capital on knowledge acquisition disappears ($\beta = 0.087$). However, relational social capital ($\beta = 0.310; p < 0.001$) shows a positive and significant effect on the dependent variable. This means it totally mediates the relationship between structural social capital and knowledge acquisition. Thus, we can accept hypothesis 1a, since in the case of firms inside industrial clusters, structural social capital only exerts an indirect effect on knowledge acquisition through the relational dimension of social capital. In this model, structural and relational social capital explain 31.6% of the total variance in knowledge acquisition.

In the same way, when we introduce the effect of cognitive social capital on knowledge acquisition in the model (Figure 2), we observe that structural social capital has a positive and significant effect on the cognitive dimension of social capital ($\beta = 0.366; p < 0.001$).
However, the initial direct effect of structural social capital on knowledge acquisition also disappears ($\beta = 0.102$), while cognitive social capital ($\beta = 0.449; p < 0.001$) shows a positive and significant effect on the dependent variable. This means that cognitive social capital totally mediates the relationship between structural social capital and knowledge acquisition. Thus, we can accept hypothesis 1b, since in the case of firms inside industrial clusters, structural social capital only exerts an indirect effect on knowledge acquisition through the
cognitive dimension of social capital. In this model, structural and cognitive social capital explain 36% of the total variance in knowledge acquisition.

If we consider both relational and cognitive dimension as mediators in the same model (Figure 3), we can observe that relational \( (\beta = 0.184; p < 0.05) \) and cognitive \( (\beta = 0.374; p < 0.001) \) social capital have a positive and significant effect on knowledge acquisition. Thus, both dimensions totally mediate the effect of structural social capital on knowledge acquisition. The structural dimension only exerts an indirect effect through the relational and cognitive dimensions of social capital. These indirect effects can be calculated by multiplying the significant structural paths. In this case, these indirect effects have a value of 0.102 through relational social capital and 0.137 through cognitive social capital, so we obtain a total indirect effect of structural social capital on knowledge acquisition of 0.239. The results obtained are shown in Table 7. In this model, we observe a significant change of \( R^2 \) since this model now explains 41% of the total variance of the dependent variable. While relational social capital explains only 11% of this variance in knowledge acquisition, cognitive social capital explains 19%.

**5.2.2. Outside industrial clusters**

In the case of firms located outside industrial clusters, Figure 4 shows that when we analyze the direct effect of structural social capital, it has a positive and significant effect on knowledge acquisition \( (\beta = 0.577; p < 0.001) \). Furthermore, this dimension has a positive and significant effect on relational social capital \( (\beta = 0.679; p < 0.001) \). In this model, structural social capital explains a high percentage (47.4) of the total variance in knowledge acquisition.

When we introduce the effect of relational dimension of social capital on knowledge acquisition in the model, we observe that the initial direct effect of structural social capital is reduced but not eliminated \( (\beta = 0.453; p < 0.01) \). Relational social capital exerts a positive and significant effect on knowledge acquisition \( (\beta = 0.225; p < 0.05) \). This means that relational social capital partially mediates the relationship between structural social capital and knowledge acquisition. Thus, we can accept hypothesis 2a, since in the case of firms outside

![Figure 3. Complete model inside clusters. **p < 0.05; ***p < 0.01; ****p < 0.001. Value without the intermediate variables in parenthesis.](image-url)
industrial clusters, structural social capital exerts both a direct and indirect effect on knowledge acquisition through the relational dimension. In this model, structural and relational social capital explain 49.8% of the total variance in knowledge acquisition.

In the same way, when we introduce the effect of cognitive social capital on knowledge acquisition in the model (Figure 5), we observe that structural social capital has a positive...
and significant effect on the cognitive dimension of social capital (β = 0.559; p < 0.001). However, the initial direct effect of structural social capital on knowledge acquisition is reduced but not eliminated (β = 0.490; p < 0.001). Cognitive social capital shows a positive and significant effect on the dependent variable (β = 0.200; p < 0.05). This means that cognitive social capital partially mediates the relationship between structural social capital and knowledge acquisition. Thus, we can accept hypothesis 2b, since in the case of firms outside industrial clusters, structural social capital exerts a direct and indirect effect on knowledge acquisition through the cognitive dimension of social capital. In this model, structural and cognitive social capital explain 49.8% of the total variance in knowledge acquisition.

If we consider both the relational and cognitive dimensions as mediators in the same model (Figure 6), we can observe that relational (β = 0.196; p < 0.05) and cognitive (β = 0.183;
social capital have a positive and significant effect on knowledge acquisition. Thus, both dimensions partially mediate the effect of structural social capital on knowledge acquisition because the direct effect of structural dimension is not eliminated.

The structural dimension exerts a direct and indirect effect through the relational and cognitive dimension of social capital. These indirect effects have a value of 0.133 through relational social capital and 0.102 through cognitive social capital, so we obtain a total indirect effect of structural social capital on knowledge acquisition of 0.232 and a direct effect of 0.402. The results obtained are shown in Table 8. In this model, we observe a significant change of $R^2$ since this model now explains 50.9% of the total variance of the dependent variable. While structural social capital explains 27% of this variance in knowledge acquisition, relational social capital explains 11.7% and cognitive social capital 10%.

6. Discussion

This research explores the relevance of structural social capital on knowledge acquisition, as well as the role of relational and cognitive dimensions of social capital as mediating variables in this relationship. In this line, we analyze and contrast the different effects of these variables on knowledge acquisition in two different samples – one of agglomerated companies and another of non-agglomerated companies – in the footwear industry.

The results confirm our main initial assumption since the effect of structural social capital on knowledge acquisition will be different depending on the degree of agglomeration or the
degree of geographical proximity, following the suggestions of various studies (Li, Poppo, and Zhou 2010; Aslesen and Harirchi 2015). In firms belonging to an industrial cluster, the advantages of structural social capital are compensated by the disadvantages. This balance reveals the network paradoxes proposed by Hakansson and Ford (2002). However, structural social capital appears as the key dimension for companies outside clusters to access external knowledge, as suggested by Rost (2011). Furthermore, our findings also show that relational and cognitive social capital is much more relevant for knowledge acquisition in firms located inside an industrial cluster than firms outside clusters. Thus, the geographical proximity and interdependence between the dimensions of social capital can help to explain the ambiguous relationship between structural social capital and knowledge acquisition (Hsu and Hung 2013).

The results show that for firms inside a cluster the direct effect of structural social capital on knowledge acquisition disappears when the relational and cognitive dimensions of social capital are introduced. This means that in agglomerated firms density by itself does not allow companies to acquire external knowledge. Thus, these companies will only access external knowledge if they take advantage of the density of the network to promote trust, common goals and values between their contacts, as suggested by Levin and Cross (2004). As noted above, the net benefits of density are weaker within the cluster (non-significant) than outside the cluster (significant), due to the special features of clusters. This premise is supported by the results shown in Table 9. As can be observed, firms in industrial clusters have more structural social capital and less variation between them than firms outside industrial clusters.

In clustered firms, the relevance of cognitive and relational social capital is reflected in the increase in $R^2$, which rises from 0.253 in the model that only considers the structural social capital to 0.410 in the model that considers the three dimensions. So, the inclusion of relational and cognitive social capital yields an increase of 0.157. We can also indicate that, in this case, the indirect effect that structural capital exerts through cognitive social capital is higher than that exerted through relational social capital. This highlights that cognitive social capital explains 19% of the variance in knowledge acquisition (41%). Thus, the cognitive dimension of social capital exerts the greatest impact on knowledge acquisition in companies belonging to a cluster. Our results reveal the key role of cognitive social capital in the acquisition of knowledge, as suggested in several studies (Chiu, Hsu, and Wang 2006; Li, Ye, and Sheu 2014; among others), although only residually in contexts of agglomeration.

Table 9. Equality means contrast: structural social capital.

| Constructor                                | Inside clusters | Outside clusters | Welch   | Brown-Forsythe |
|--------------------------------------------|----------------|-----------------|---------|---------------|
| Frequent relationships                     | 5.21           | 4.74            | 3.730*  | 3.730*        |
| Know in a personal way                      | 5.31           | 4.98            | 1.633   | 1.633         |
| Close relationships                         | 4.14           | 3.28            | 9.865***| 9.865***      |
| Strong ties                                 | 4.89           | 4.33            | 6.491***| 6.491***      |
| Exchange similar                            | 4.45           | 4.00            | 3.623** | 3.623**       |
| Contacts know each other                    | 4.40           | 3.94            | 3.210*  | 3.210*        |
| Contacts who give information are related to each other | 4.04           | 3.67            | 2.091   | 2.091         |
| Density                                    | 4.30           | 3.87            | 3.938*  | 3.938*        |
| Structural social capital                   | 4.59           | 4.10            | 6.120** | 6.120**       |

$N = 224$.

*p < 0.10; **p < 0.05; ***p < 0.01.
In short, we can underline the importance of developing shared norms and values and a common culture, utilizing the density and cohesion of the network to acquire external knowledge in industrial clusters.

In companies outside industrial clusters, we can highlight the important role of structural social capital in the acquisition of external knowledge. Even when we introduce the relational and cognitive dimensions of social capital in the model, although the indirect effect through these dimensions is significant, the direct effect of structural social capital remains significant. This dimension exerts the greatest influence on knowledge acquisition. This relevance can be observed in two aspects: first, structural social capital is the variable with the greatest explanatory power because it explains 27% of the explained variance (50.9%); second, the variance in knowledge acquisition only increases 3.5% when we consider the effect of the other two dimensions. Following Rost (2011), these findings support the importance of creating dense and strong networks for accessing valuable external knowledge in geographically disperse contexts. Thus, geographical distance can avoid the potential drawbacks of excessive structural social capital to acquire external knowledge, as proposed by McEvily and Zaheer (1999). This highlights the relevance of structural social capital for firms outside clusters to strengthen their networks of relationships and the density of the relationships with their contacts in order to directly access external knowledge.

Furthermore, we observe that in firms outside clusters, the dimensions of social capital explain a higher percentage of the variance in knowledge acquisition than in firms inside clusters. Thus, for firms located outside clusters, the direct effect of network density on the acquisition of knowledge is complemented by the indirect effect of trust and shared values and goals. These findings can help explain the relationship between all three dimensions of social capital and knowledge acquisition, as demanded by Hughes et al. (2014).

Finally, we corroborate the high interrelation between the three dimensions of social capital. Thus, in both cases—firms inside and outside a cluster—we observe a strong effect of structural social capital on the relational and cognitive dimensions. Consequently, in line with Castro and Roldan (2013), we confirm the importance of belonging to a dense network with close links to promote trust between contacts and the creation of shared values and a common culture.

7. Conclusions, limitations and future research

Our research shows that, in geographical agglomerations of firms, the density and cohesion of ties should be utilized to develop greater trust, shared values and goals with their contacts as a condition for generating greater knowledge acquisition. In contrast, we observe that in firms located outside clusters, structural social capital leads to the acquisition of external knowledge directly and through the relational and cognitive social capital. Our study contributes to a better understanding of the effects of belonging or not belonging to an industrial cluster on the differences in the relationship between social capital and knowledge acquisition. Previous research has already shown that clustered firms create and enjoy a greater amount of social capital and access to newer and more valuable knowledge than firms located outside clusters (Ruiz-Ortega, Parra-Requena, and Garcia-Villaverde 2016). Other authors have also analyzed the consequences of geographical proximity (Knoben and Oerlemans 2006). However, to the best of our knowledge, there are no precedents of analyzing the effect of structural social capital on knowledge acquisition, making a comparison

(Parra-Requena, Molina-Morales, and Garcia-Villaverde 2010).
between the companies inside and outside a cluster. The results of our study show that this dichotomy constitutes a key contextual factor to understand the process by which the structural dimension of social capital influences knowledge acquisition.

Our research contributes to the social capital literature by establishing where and how social capital and knowledge acquisition are associated, shedding light on this ‘black box’ illustrated by Hughes et al. (2014). Specifically, we reinforce the study of the relational antecedents of knowledge acquisition, focusing on the interrelation between the dimensions of social capital.

We also contribute to consolidating the inter-organizational approach to social capital theory as an element to understand how, and in what context, social capital dimensions are interrelated (Tsai and Ghoshal 1998). Specifically, this study highlights the role of the relational and cognitive dimensions of external social capital as key mechanisms in driving the effect of structural social capital on knowledge acquisition, both in clustered and non-clustered firms, as proposed by Castro and Roldan (2013).

Furthermore, following Molina-Morales and Martinez-Fernandez (2009), we enhance the cluster literature (Becattini 1990; Porter 1990) by providing a better contextualization and understanding of the controversial relationship between structural social capital and knowledge acquisition. In fact, geographical proximity helps to understand how density and frequency of ties lead to external valuable knowledge, comparing firms inside and outside clusters. Thus, we demonstrate how the net benefits of higher density and closer ties are weaker for clustered firms than for firms outside clusters, hindering direct access to valuable external knowledge. In short, we reinforce the connection between social capital and cluster perspectives to analyze how firms can acquire valuable knowledge from their networks, filling the gap in the literature on how this process occurs inside and outside clusters.

The results allow us to make recommendations for both companies and institutions in mature industries such as the footwear industry. Companies should address the development of social relationships to acquire valuable knowledge, exploiting the advantages of geographical proximity to their contacts. Companies belonging to a cluster should assess potential concerns deriving from redundancy, internal closeness and overdensity of the network. To avoid these problems and to access relevant external knowledge, these companies should take advantage of the cohesion of their networks to build trust and, above all, shared values and goals with their contacts.

Institutions located in clusters should solve problems arising from the combination of geographical proximity and density of networks and reinforce the process that allows companies to access new and relevant information for decision-making. However, companies located outside a cluster should balance the geographical dispersion of contacts, accessing dense networks with strong links as the primary mechanism for acquiring new external knowledge. However, this mechanism must be reinforced by aligning such networks to strengthen trust and shared goals with contacts.

This paper has some limitations. First, the empirical analysis was carried out in the footwear industry, which is characterized as mature and territorially embedded, and we must therefore be cautious in generalizing the findings to other industries. Moreover, the study is cross-cutting, due to the difficulty of conducting longitudinal studies in particular complex conceptualizations such as dimensions of social capital and the acquisition of knowledge. Finally, in spite of the effort made to ensure the robustness of the analysis, we accept that some biases could not be avoided.
In addition, we are aware that, due to cultural and social diversity, the level of social capital can vary between Spanish regions. However, we have confirmed that there were no significant differences in the structural, relational and cognitive social capital among the clusters analyzed, located in different regions such as the Valencian Community, Castilla-La Mancha, La Rioja, Aragon, Andalusia, etc. Furthermore, other implications of the analysis should be reconsidered and discussed in more detail. For instance, our study captures the effect of social capital dimensions in order to explain knowledge acquisition; however, the role of networking behavior in this structure was not analyzed, in line with Burt (2012). Finally, and probably most importantly, we have to assume that the effect of knowledge acquired through social capital is not always valuable in terms of enhancing performance, as has recently been suggested (Hughes et al. 2014).

This work also opens new directions for future research. Firstly, it would be interesting to extend the analysis of the impact of the interrelationships of the dimensions of social capital on other variables related to corporate behavior. We also consider it interesting to study the interaction of different internal and external dimensions of social capital, studying potential complementary relationships. In addition, we propose to study how firms and actors within networks make these networks more valuable (Hughes, Ireland, and Morgan 2007), which can be critical to generating value in a cluster. Furthermore, we consider it of interest to analyze the effect of the network position on acquisition knowledge. Secondly, our research questions could be addressed in contexts of high-tech industries, where relations between the dimensions of social capital and their impact on the acquisition of new knowledge may be configured differently. Thirdly, in parallel with previous expectations, we would also like to focus on the interrelationships of the dimensions of capital suggested by Putnam (1993)—bridging and bonding capital, linked with internal and external relationships to clusters, and their impact on knowledge acquisition. We could also enhance the research by including the effectiveness of the acquired knowledge in the analysis, investigating the role of absorptive capacity, since this capacity converts acquired knowledge into learning outcomes. Finally, following Hughes et al. (2014), who suggest the need to introduce new indirect effects, it might be appropriate to search for new mediating variables on the relationship between structural social capital and knowledge acquisition for firms outside industrial clusters.

Notes

1. SABI is a directory of Spanish and Portuguese firms that provides general information and financial data. In the case of Spain, it compiles information from the 17 Spanish regions on more than 95 percent of the firms with total yearly revenues over 360,000–420,000 €.
2. The Camerdata database compiles a directory of all Spanish firms from the network of local Chambers of Commerce.
3. In these scales the values 1 and 7 indicated ‘strongly disagree’ and ‘totally agree’ respectively. 2, 3, 4, 5 and 6 show intermediate ratings between the two extremes.
4. We group the companies belonging to the different clusters to contrast the hypotheses. We analyze the average of the three social capital dimensions for each industrial cluster (Almansa, Arnedo, Crevillent, Elche, Elda, Fuensalida, Illueca, Valverde, Villena and others), which are located in different Spanish regions. The results of the Anova and Scheffe tests demonstrate there are no significant differences in structural, relational and cognitive social capital between the analyzed clusters. These results allow us to verify there are no major biases in the grouping of companies belonging to the different clusters in the study.
5. With regard to the content validity of our constructs, above all the second order constructs, it should be mentioned that we used scales extensively used and corroborated in the previous literature. Furthermore the questionnaire was submitted to a pre-test with managers from the footwear sector and to a panel of experts and academics in the scope of the study, thus ensuring content validity.

6. In order to strengthen our model, we separately tested all the relationships for the two dimensions of structural social capital. We obtained similar results and there were no differences in the relationships.

7. In order to compare the two empirical models, we ran a multigroup comparison test. The results showed there are significant differences in the relationship between structural social capital and knowledge acquisition, depending on whether or not they belong to a cluster.

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References

Adler, P., and S. Kwon. 2002. “Social Capital: Prospects for a New Concept.” Academy of Management Review 27 (1): 17–40.

Ahuja, G. 2000. “Collaboration Networks, Structural Holes, and Innovation: A Longitudinal Study.” Administrative Science Quarterly 45 (3): 425–453.

Antonelli, C. 2000. “Collective Knowledge Communication and Innovation: The Evidence of Technological Districts.” Regional Studies 34 (6): 535–547.

Armstrong, J. S., and T. Overton. 1977. “Estimating Nonresponse Bias in Mail Surveys.” Journal of Marketing Research 14: 396–402.

Aslesen, H. W., and G. Harirchi. 2015. “The Effect of Local and Global Linkages on the Innovativeness in ICT SMEs: Does Location-specific Context Matter?” Entrepreneurship & Regional Development 27 (9–10): 644–669.

Audretsch, D. 1998. “Agglomeration and the Location of Innovative Activity.” Oxford Review of Economic Policy 14: 18–29.

Baptista, R., and P. Swann. 1998. “Do Firms in Clusters Innovate More?” Research Policy 27 (5): 525–540.

Barclay, D., C. Higgins, and R. Thompson. 1995. “The Partial Least Squares (PLS) Approach to Causal Modelling: Personal Computer Adoption and Use as an Illustration.” Technology Studies, Special Issue on Research Methodology 2 (2): 285–309.

Barney, J., and M. Hansen. 1994. “Trustworthiness as a Source of Competitive Advantage.” Strategic Management Journal 15: 175–190.

Becattini, G. 1979. “Dal settore industriale al distretto industriale. Alcune considerazioni sull’unità di indagine dell’economia industriale.” [From the Industrial Sector to the Industrial District: Looking for the Unit of Investigation of the Industrial Economy.] Rivista di Economia e Politica Industriale 5 (1): 7–21.
Becattini, G. 1990. “The Marshallian Industrial District as a Socio-economic Notion.” In Industrial Districts and Inter-firm Co-operation in Italy, edited by F. Pyke, G. Becattini, and W. Sengenberger, 37–51. Geneva: International Institute for Labour Studies.

Besser, T. L., and N. Miller. 2011. “The Structural, Social, and Strategic Factors Associated with Successful Business Networks.” Entrepreneurship and Regional Development 23 (3–4): 113–133.

Bhattacharya, R., T. M. Devinney, and M. M. Pillutla. 1998. “A Formal Model of Trust Based on Outcomes.” Academy of Management Review 23 (3): 459–472.

Boix, R., and V. Galletto. 2006. “Sistemas locales de trabajo y distritos industriales marshallianos en España.” [Local Work Systems and Marshallian Industrial Districts in Spain.] Economía Industrial 359: 165–184.

Boland, R. J., and R. V. Tenkasi. 1995. “Perspective Making and Perspective Taking in Communities of Knowing.” Organization Science 6: 350–372.

Bolino, M. C., W. H. Turnley, and J. M. Bloodgood. 2002. “Citizenship Behaviour and the Creation of Social Capital in Organisation.” Academy of Management Review 27 (4): 505–522.

Boschma, R., and A. Ter Wal. 2007. “Knowledge Networks and Innovative Performance in an Industrial District: The Case of a Footwear District in the South of Italy.” Industry and Innovation 14 (2): 177–199.

Bremmers, H., O. Omta, R. Kemp, and D. J. Haverkamp. 2007. “Do Stakeholder Groups Influence Environmental Management System Development in the Dutch Agri-food Sector?” Business Strategy and the Environment 16 (3): 214–231.

Brenner, T. 2001. Geographical Proximity and Technological Spillovers between Industries. Jena: Max-Planck Institute.

Brown, D., and A. Konrad. 2001. “Granovetter Was Right.” Group & Organization Management 26: 434–462.

Burt, R. S. 1992. Structural Holes: The Social Structure of Competition. Cambridge, MA: Harvard University Press.

Burt, R. S. 2012. “Network-related Personality and the Agency Question: Multirole Evidence from a Virtual World.” American Journal of Sociology 118: 543–591.

Butler, B., and S. Purchase. 2008. “Use of Social Capital among Russian Managers of a New Generation.” Industrial Marketing Management 37 (5): 531–538.

Carey, S., B. Lawson, and D. R. Krause. 2011. “Social Capital Configuration, Legal Bonds and Performance in Buyer–Supplier Relationships.” Journal of Operations Management 29 (4): 277–288.

Carmines, E. G., and R. A. Zeller. 1979. “Reliability and Validity Assessment.” In Sage University Paper Series on Quantitative Applications in the Social Sciences, N.07-017. Beverly Hills, CA: Sage.

Castro, I., and J. L. Roldan. 2013. “A Mediation Model between Dimensions of Social Capital.” International Business Review 22 (6): 1034–1050.

Chin, W. W. 1998. “Issues and Opinion on Structural Equation Modeling.” MIS Quarterly 22 (1): 7–15.

Chiu, C. M., M. H. Hsu, and E. T. Wang. 2006. “Understanding Knowledge Sharing in Virtual Communities: An Integration of Social Capital and Social Cognitive Theories.” Decision Support Systems 42 (3): 1872–1888.

Coff, R. W., and M. Blyler. 2003. “Dynamic Capabilities, Social Capital, and Rent Appropriation: Ties That Split Pies.” Strategic Management Journal 24: 677–686.

Coleman, J. S. 1990. Foundations of Social Theory. Cambridge, MA: Harvard University Press.

Cooke, P. 2002. Knowledge Economies. London: Routledge.

Correia, I., and O. Petiz. 2007. “Firms and Universities, Do Spillovers Enhance Firm’s Performance?” International Entrepreneurship and Management Journal 3 (2): 145–157.

DeCarolis, D. M., and D. L. Deeds. 1999. “The Impact of Stocks and Flows of Organizational Knowledge on Firm Performance: An Empirical Investigation of the Biotechnology Industry.” Strategic Management Journal 20 (10): 953–968.

Doz, Y. L. 1996. “The Evolution of Cooperation in Strategic Alliances: Initial Conditions or Learning Processes?” Strategic Management Journal 17 (summer special issue): 55–84.

Dyer, J., and K. Nobeoka. 2000. “Creating and Managing a High-performance Knowledge-sharing Network: The Toyota Case.” Strategic Management Journal 21: 345–367.

Dyer, J., and H. Singh. 1998. “The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage.” Academy of Management Review 23 (4): 660–679.
Eapen, A. 2012. “Social Structure and Technology Spillovers from Foreign to Domestic Firms.” *Journal of International Business Studies* 43 (3): 244–263.

Expósito-Langa, M., F. X. Molina-Morales, and J. Capó-Vicedo. 2010. “Influence of the Dimensions of the Absorptive Capacity in the Development of New Products in a Context of Industrial District. an Empirical Study to the Case of the Valencian Textile.” *Investigaciones Regionales* 17: 29–49.

Fawcett, S. E., L. M. Ellram, and J. A. Ogden. 2006. *Supply Chain Management: From Vision to Implementation*. Upper Saddle River, NJ: Prentice Hall.

Fornell, C., and D. F. Larcker. 1981. “Evaluating Structural Equation Models with Unobservable Variables and Measurement Error.” *Journal of Marketing Research* 18: 39–50.

Gabarro, J. J. 1978. “The Development of Trust, Influence, and Expectations.” In *Interpersonal Behavior: Communication and Understanding in Relationships*, edited by A. G. Athos and J. J. Gabarro, 290–303. Englewood Cliffs, NJ: Prentice Hall.

Giuliani, E. 2007. “The Selective Nature of Knowledge Networks in Clusters: Evidence from the Wine Industry.” *Journal of Economic Geography* 7 (2): 139–168.

Giuliani, E., and M. Bell. 2005. “The Micro-determinants of Meso-level Learning and Innovation: Evidence from a Chilean Wine Cluster.” *Research Policy* 34 (1): 47–68.

Granovetter, M. S. 1973. “The Strength of Weak Ties.” *American Journal of Sociology* 78: 1360–1380.

Granovetter, M. S. 1985. “Economic Action and Social Structure: The Problem of Embeddedness.” *American Journal of Sociology* 91: 481–510.

Granovetter, M. S. 1992. “Problems of Explanation in Economic Sociology.” In *Networks and Organizations: Structure, Form an Action*, edited by N. Nohria and R. Eccles, 25–56. Boston, MA: Harvard Business School Press.

Greve, A., and J. W. Salaff. 2003. “Social Networks and Entrepreneurship.” *Entrepreneurship Theory and Practice* 28 (1): 1–22.

Gulati, R. 1995. “Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliances.” *Academy of Management Journal* 38: 85–112.

Gulati, R., and M. Gargiulo. 1999. “Where do Interorganizational Networks Come From?” *American Journal of Sociology* 104 (5): 1439–1493.

Gulati, R., N. Nohria, and A. Zaheer. 2000. “Strategic Networks.” *Strategic Management Journal* 21 (3): 203–215.

Hakansson, H., and D. Ford. 2002. “How Should Companies Interact in Business Networks?” *Journal of Business Research* 55 (2): 133–139.

Hansen, M. 1999. “The Search-transfer Problem: The Role of Weak Ties in Sharing Knowledge across Organization Subunits.” *Administrative Science Quarterly* 44 (1): 82–111.

Hansen, M. 2002. “Knowledge Networks: Explaining Effective Knowledge Sharing in Multunit Companies.” *Organization Science* 13 (3): 232–248.

Hervas-Oliver, J. L., and J. Albors-Garrigos. 2012. “The Role of a Firm’s Absorptive Capacity and the Technology Transfer Process in Clusters: How Effective Are Technology Centres in Low-tech Clusters?” *Entrepreneurship and Regional Development* 24 (7–8): 523–559.

Hsu, J. S., and W. Hung. 2013. “Exploring the Interaction Effects of Social Capital.” *Information & Management* 50 (7): 415–430.

Huggins, R., and A. Johnston. 2010. “Knowledge Flow and Inter-firm Networks: The Influence of Network Resources, Spatial Proximity and Firm Size.” *Entrepreneurship and Regional Development* 22 (5): 457–484.

Hughes, M., R. D. Ireland, and R. E. Morgan. 2007. “Stimulating Dynamic Value: Social Capital and Business Incubation as a Pathway to Competitive Success.” *Long Range Planning* 40 (2): 154–177.

Hughes, M., R. E. Morgan, R. D. Ireland, and P. Hughes. 2014. “Social Capital and Learning Advantages: A Problem of Absorptive Capacity.” *Strategic Entrepreneurship Journal* 8 (3): 214–233.

Hulland, J. 1999. “Use of Partial Least Squares (PLS) in Strategic Management Research: A Review of Four Recent Studies.” *Strategic Management Journal* 20 (2): 195–204.

Inkpen, A., and E. Tsang. 2005. “Social Capital, Networks, and Knowledge Transfer.” *Academy of Management Review* 30 (1): 146–165.

Jaffe, A. B., M. Trajtenberg, and R. Henderson. 1993. “Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations.” *The Quarterly Journal of Economics* 108 (3): 577–598.
James, L. R., S. A. Mulaik, and J. M. Brett. 2006. “A Tale of Two Methods.” Organizational Research Methods 9 (2): 233–244.

Kale, P., H. Singh, and H. Pelmutter. 2000. “Learning and Protection of Proprietary Assets in Strategic Alliances: Building Relational Capital.” Strategic Management Journal 21 (3): 217–237.

Knoben, J., and L. A. Oerlemans. 2006. “Proximity and Inter-organizational Collaboration: A Literature Review.” International Journal of Management Reviews 8 (2): 71–89.

Kohtamäki, M., J. Vesalainen, S. Henneberg, P. Naudé, and M. J. Ventresca. 2012. “Enabling Relationship Structures and Relationship Performance Improvement: The Moderating Role of Relational Capital.” Industrial Marketing Management 41 (8): 1298–1309.

Koka, B., and J. Prescott. 2002. “Strategic Alliances as Social Capital: A Multidimensional View.” Strategic Management Journal 23 (9): 795–816.

Krugman, P. 1991. Geography and Trade. Cambridge, MA: MIT Press.

Lane, P. J., J. E. Salk, and M. A. Lyles. 2001. “Absorptive Capacity, Learning and Performance in International Joint Ventures.” Strategic Management Journal 22: 1139–1161.

Lazerson, M. H., and G. Lorenzoni. 1999. “The Firms That Feed Industrial Districts: A Return to the Italian Source.” Industrial and Corporate Change 8 (2): 235–266.

Lehner, O. M. 2014. “The Formation and Interplay of Social Capital in Crowdfunded Social Ventures.” Entrepreneurship and Regional Development 26 (5–6): 478–499.

LeSage, J. P., and M. M. Fischer. 2012. “Estimates of the Impact of Static and Dynamic Knowledge Spillovers on Regional Factor Productivity.” International Regional Science Review 35 (1): 103–127.

Leuthesser, L. 1997. “Supplier Relational Behavior: An Empirical Assessment.” Industrial Marketing Management 26 (3): 245–254.

Levin, D. Z., and R. Cross. 2004. “The Strength of Weak Ties You Can Trust: The Mediating Role of Trust in Effective Knowledge Transfer.” Management Science 50 (11): 1477–1490.

Li, J. J., L. Poppo, and K. Z. Zhou. 2010. “Relational Mechanisms, Formal Contracts, and Local Knowledge Acquisition by International Subsidiaries.” Strategic Management Journal 31 (4): 349–370.

Maula, M., E. Autio, and G. Murray. 2003. “Prerequisites for the Creation of Social Capital and Subsequent Knowledge Acquisition in Corporate Venture Capital.” Venture Capital 5 (2): 117–134.

Molina-Morales, F. X. 2005. “The Territorial Agglomerations of Firms: A Social Capital Perspective from the Spanish tile Industry.” Growth and Change 36 (1): 74–99.

Molina-Morales, F. X., J. Capó-Vicedo, M. T. Martínez-Fernández, and M. Expósito-Langa. 2013. “Social Capital in Industrial Districts: Influence of the Strength of Ties and Density of the Network on the Sense of Belonging to the District.” Papers in Regional Science 92 (4): 773–789.

Molina-Morales, F. X., and M. A. Ares. 2007. “Factores inhibidores de la relocalización de actividades en los distritos industriales. El caso de la cerámica de Castellón.” [Inhibitory Factors of the Relocation of Activities in Industrial Districts. The Case of Castellón Ceramics.] Cuadernos de Estudios Empresariales 17: 9–30.

Molina-Morales, F. X., and M. Expósito-Langa. 2012. “The Impact of Cluster Connectedness on Firm Innovation: R&D Effort and Outcomes in the Textile Industry.” Entrepreneurship and Regional Development 24 (7–8): 685–704.
Molina-Morales, F. X., and M. T. Martinez-Fernandez. 2009. “Too Much Love in the Neighborhood Can Hurt: How an Excess of Intensity and Trust in Relationships May Produce Negative Effects on Firms.” *Strategic Management Journal* 30: 1013–1023.

Mowery, D. C., J. E. Oxley, and B. S. Silverman. 1996. “Strategic Alliances and Interfirm Knowledge Transfer.” *Strategic Management Journal* 17: 77–91.

Muscio, A. 2006. “Patterns of Innovation in Industrial Districts: An Empirical Analysis.” *Industry and Innovation* 13 (3): 291–312.

Nahapiet, J., and S. Ghoshal. 1998. “Social Capital, Intellectual Capital, and the Organizational Advantage.” *Academy of Management Review* 23 (2): 242–266.

Nunnally, J. 1978. *Psychometric Theory*. 2nd ed. New York: McGraw-Hill.

Owen-Smith, J., and W. Powell. 2004. “Knowledge Networks as Channels and Conduits: The Effects of Spillovers in the Boston Biotechnology Community.” *Organization Science* 15: 5–21.

Panaccia, I. 1998. “One, a Hundred, Thousands of Industrial Districts. Organizational Variety in Local Networks of Small and Medium-sized Enterprises.” *Organization Studies* 19 (4): 467–499.

Parra-Requena, G., F. X. Molina-Morales, and P. M. García-Villaverde. 2010. “The Mediating Effect of Cognitive Social Capital on Knowledge Acquisition in Clustered Firms.” *Growth and Change* 41 (1): 59–84.

Parra-Requena, G., M. J. Ruiz-Ortega, and P. M. García-Villaverde. 2013. “Social Capital and Effective Innovation in Industrial Districts: Dual Effect of Absorptive Capacity.” *Industry and Innovation* 20 (2): 157–179.

Piore, M. J. 1990. “Work, Labor and Action: Work Experience in a System of Flexible Production.” In *Industrial Districts and Inter-firm Cooperation in Italy*, edited by F. Pyke, G. Becattini, and W. Sengenberger, 10–19. Geneva: International Institute for Labor Studies.

Porter, M. 1990. “The Competitive Advantage of Nations.” *Harvard Business Review* 68 (2): 73–93.

Porter, M. 1998. “Cluster and the Economics of Competition.” *Harvard Business Review* 76 (6): 77–91.

Presutti, M., C. Boari, and A. Majocchi. 2013. “Inter-organizational Geographical Proximity and Local Start-ups’ Knowledge Acquisition: A Contingency Approach.” *Entrepreneurship and Regional Development* 25 (5–6): 446–467.

Pullens, N., and H. Schiele. 2013. “Social Capital Determinants of Preferential Resource Allocation in Regional Clusters.” *Management Revue* 24 (2): 96–113.

Putnam, R. D. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.

Rampersad, G., P. Quester, and I. Troshani. 2010. “Managing Innovation Networks: Exploratory Evidence from ICT, Biotechnology and Nanotechnology Networks.” *Industrial Marketing Management* 39 (5): 793–805.

Rosenkopf, L., and P. Almeida. 2003. “Overcoming Local Search through Alliances and Mobility.” *Management Science* 49 (6): 751–766.

Rost, K. 2011. “The Strength of Strong Ties in the Creation of Innovation.” *Research Policy* 40 (4): 588–604.

Rowley, T., D. Behrens, and D. Krackhardt. 2000. “Redundant Governance Structures: An Analysis of Structural and Relational Embeddedness in the Steel and Semiconductor Industries.” *Strategic Management Journal* 21: 369–386.

Ruiz-Ortega, M. J., G. Parra-Requena, and P. M. García-Villaverde. 2016. “Do Territorial Agglomerations Still Provide Competitive Advantages? A Study of Social Capital, Innovation, and Knowledge.” *International Regional Science Review* 39 (3): 259–290.

Seibert, S. E., M. L. Kraimer, and R. C. Liden. 2001. “A Social Capital Theory of Career Success.” *Academy of Management Journal* 44 (2): 219–237.

Signorini, L. F. 1994. “The Price of Prato, or Measuring the Industrial District Effect.” *Papers in Regional Science* 73 (4): 369–392.

Simonin, B. L. 1999. “Ambiguity and the Process of Knowledge Transfer in Strategic Alliances.” *Strategic Management Journal* 20 (7): 595–623.

Spanos, E., and S. Lioukas. 2001. “An Examination into the Causal Logic of Rent Generation: Contrasting Porter’s Competitive Strategy Framework and the Resource-based Perspective.” *Strategic Management Journal* 22: 907–934.
Suire, R., and J. Vicente. 2014. “Clusters for Life or Life Cycles of Clusters: In Search of the Critical Factors of Clusters’ Resilience.” *Entrepreneurship and Regional Development* 26 (1–2): 142–164.

Tallman, S., M. Jenkins, N. Henry, and S. Pinch. 2004. “Knowledge, Clusters, and Competitive Advantage.” *Academy of Management Review* 29 (2): 258–271.

Teece, D., G. Pisano, and A. Shuen. 1997. “Dynamic Capabilities and Strategic Management.” *Strategic Management Journal* 18 (7): 509–533.

Trigilia, C. 2001. “Social Capital and Local Development.” *European Journal of Social Theory* 4 (4): 427–442.

Tsai, W. 2001. “Knowledge Transfer in Intraorganizational Networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance.” *Academy of Management Journal* 44 (5): 996–1004.

Tsai, W., and S. Ghoshal. 1998. “Social Capital and Value Creation: The Role of Intrafirm Networks.” *Academy of Management Journal* 41: 464–476.

Utterbact, J. 1974. “Innovation in Industry and the Diffusion of Technology.” *Science* 183: 620–626.

Uzzi, B. 1996. “The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: The Network Effect.” *American Sociological Review* 61 (4): 674–698.

Villena, V., E. Revilla, and T. Choi. 2011. “The Dark Side of Buyer-supplier Relationships: A Social Capital Perspective.” *Journal of Operations Management* 29 (6): 561–576.

Vittoria, M. P., and G. Lubrano Lavadera. 2014. “Knowledge Networks and Dynamic Capabilities as the New Regional Policy Milieu. A Social Network Analysis of the Campania Biotechnology Community in Southern Italy.” *Entrepreneurship & Regional Development* 26 (7–8): 594–618.

Warren, L., D. Patton, and D. Bream. 2009. “Knowledge Acquisition Processes during the Incubation of New High Technology Firms.” *International Entrepreneurship and Management Journal* 5 (4): 481–495.

Westerlund, M., and S. Svahn. 2008. “A Relationship Value Perspective of Social Capital in Networks of Software SMEs.” *Industrial Marketing Management* 37 (5): 492–501.

Wolfe, D. 2002. “Social Capital and Cluster Development in Learning Regions.” In *Knowledge, Clusters and Learning Regions*, edited by A. Holbrook and D. Wolfer, 11–38. Kingston: School of Policy, Queen’s University.

Ybarra, J. A. 1991. Industrial Districts and the Valencian Community. OIT, Discussion Papers DP/44. Geneva: New Industrial Organisation Programme.

Yim, B., and B. Leem. 2013. “The Effect of the Supply Chain Social Capital.” *Industrial Management & Data Systems* 113 (3): 324–349.

Yli-Renko, H., E. Autio, and H. Sapienza. 2001. “Social Capital, Knowledge Acquisition, and Knowledge Exploitation in Young Technology-based Firms.” *Strategic Management Journal* 22 (6–7): 587–613.

Young-Ybarra, D., and M. Wiersema. 1999. “Strategic Flexibility in Information Technology Alliances: The Influence of Transaction Cost Economics and Social Exchange Theory.” *Organization Science* 10 (4): 439–459.

Zaheer, A., R. Göüzübüyük, and H. Milanov. 2010. “It’s the Connections: The Network Perspective in Interorganizational Research.” *Academy of Management Perspectives* 24 (1): 62–77.

Zhang, J., and W. P. Wu. 2013. “Social Capital and New Product Development Outcomes: The Mediating Role of Sensing Capability in Chinese High-tech Firms.” *Journal of World Business* 48 (4): 539–548.
Appendix 1

Please, indicate your level of agreement with the following statements about your contacts\(^6\) (1 = totally disagree; 7 = totally agree)

**Structural social capital (network ties)**
We interact frequently with our contacts  
We know our contacts at a personal level  
We maintain close social relationships with our contacts

**Structural social capital (network configuration)**
The exchange of resources, information, etc., among our contacts usually have a similar content  
The contacts with whom we maintain frequent relationships, in general, know each other  
The contacts from whom we receive advice, information or any element relevant to important decisions know each other, that is, they maintain reciprocal relationships

**Relational social capital (trust)**
There are personal relationships with our contacts  
The relationships are characterized by mutual respect between the parties  
The relationships are characterized by mutual trust between the parties  
The relationships are characterized by high reciprocity between the parties  
The relationships are characterized by personal friendship between the parties

**Cognitive social capital (shared goals)**
We share the same ambition and vision as our contacts*  
My firm is enthusiastic about pursuing the collective goals and missions of our relationships  
We share our goals and objectives with our contacts  
We understand our contacts' strategy and needs  
My firm's employees and my contacts' employees have positive attitudes toward a cooperative relationship  
My firm and my contacts tend to agree on how to make the relationship work

**Cognitive social capital (shared culture)**
The business practices and operational mechanisms of your contacts are very similar to your own  
The corporate culture and management style of your contacts is very similar to your own

Please, show your level of agreement with the following statements about the acquisition of knowledge
(1 = totally disagree; 7 = totally agree)

**Knowledge acquisition**
Your company has learnt or acquired new or important information from your contacts  
Your company has learnt or acquired critical capability or skill from your contacts  
Your relationships or contacts have helped your company to enhance its existing capabilities/skills  
Your contacts have been an important source of information/know-how for you on customer needs and trends  
Your contacts have been an important source of information/know-how for you on competition  
Your contacts have been an important source of information/know-how for you in technical issues

*Consider as contacts people, firms or institutions in the same industry with which you relations.
Appendix 2

Firms belonging to each cluster of the sample.

| Location                      | Count |
|-------------------------------|-------|
| ALMANSAA                      | 27    |
| ALAIOR                        | 1     |
| ASPE                          | 2     |
| ARNEDO                        | 12    |
| BREA DE ARAGON                | 3     |
| CALAHORRA                     | 2     |
| CARAVACA DE LA CRUZ           | 1     |
| CIUTADELLA                    | 3     |
| CREVILLENTE                   | 8     |
| ELCHE                         | 44    |
| ELDA                          | 27    |
| FUENSALIDA                    | 4     |
| ILLUECA                       | 5     |
| INCA                          | 2     |
| MONOVAR                       | 3     |
| PINOSO                        | 1     |
| PRADO DEL REY                 | 1     |
| SAX                           | 3     |
| VALVERDE DEL CAMINO           | 6     |
| VILLENA                       | 11    |