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# Entrepreneurship and Social Capital: Evidence from a Colombian Business Incubator

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## EMPRENDIMIENTO Y CAPITAL SOCIAL: EVIDENCIA DE UNA INCUBADORA EMPRESARIAL COLOMBIANA

**RESUMEN:** Este artículo contribuye a la literatura sobre emprendimiento y capital social. La mayor parte de los trabajos previos sobre capital social e incubadoras empresariales han analizado cómo la estructura de las redes personales (medida por tamaño o densidad de la red) y su calidad (medida por la fortaleza de los lazos) influyen en el desempeño emprendedor. Sin embargo, pocos estudios se han enfocado en la movilización de los recursos de los socios. Este artículo analiza cómo estas tres dimensiones del capital social—definidas en este artículo como la dimensión estructural, la dimensión relacional y la dimensión de recursos—están vinculadas con los tres tipos de interacciones que existen en una incubadora empresarial: la creación de redes, el asesoramiento y la obtención de recursos. Se aplicó una regresión de mínimos cuadrados ordinarios a una muestra constituida por empresas colombianas en incubación. Los resultados del análisis de datos muestran que las interacciones para la obtención de recursos constituyen el aspecto más significativo de las incubadoras empresariales para los empresarios.

**PALABRAS CLAVE:** emprendimiento, incubadora empresarial, capital social, Colombia.

## ENTREPRENEURIAT ET CAPITAL SOCIAL : EXEMPLE D'UN INCUBEUR D'ENTREPRISES COLOMBIEN

**RÉSUMÉ :** Cet article s'inscrit dans l'important corps de recherche sur l'entrepreneuriat et le capital social. La plupart des précédents travaux sur le capital social et les incubateurs d'entreprises ont analysé la manière dont la structure des réseaux personnels (mesurés par taille ou la densité du réseau) et leur qualité mesurée par la force de leurs liens influent sur le résultat de l'entreprise. Cependant, peu d'études se sont centrées sur la mobilisation des ressources des associés. Cet article analyse la manière dont ces trois dimensions du capital social—définies dans cet article comme la structurelle, la relationnelle et celle des ressources—sont impliquées de près avec les trois types d'interactions qui existent dans un incubateur d'entreprise : création de réseaux, conseil et obtention de ressources. Une régression des moindres carrés ordinaires (MCO) a été appliquée à un échantillon d'entreprises colombiennes en incubation. Les résultats de l'analyse des données montrent que les interactions pour obtenir des ressources constituent l'aspect le plus significatif des incubateurs d'entreprises pour les entrepreneurs.

**MOTS-CLÉS :** Entrepreneuriat, incubateur d'entreprise, capital social, Colombie.

## EMPRENDEDORISMO E CAPITAL SOCIAL: EVIDÊNCIA DE UMA INCUBADORA EMPRESARIAL COLOMBIANA

**RESUMO:** Este artigo contribui para o importante corpo de pesquisa sobre empreendedorismo e capital social. A maioria dos trabalhos anteriores sobre capital social e incubadoras empresariais têm analisado como a estrutura das redes pessoais (medida por tamanho ou densidade da rede) e sua qualidade (medida pela fortaleza dos laços) influem no desempenho empreendedor. No entanto, poucos estudos têm se focado na mobilização dos recursos dos sócios. Este artigo analisa como estas três dimensões do capital social—definidas neste artigo como a estrutural, a relacional e a de recursos—se vinculam de perto com os três tipos de interações que existem em uma incubadora empresarial: Criação de redes, assessoria e obtenção de recursos. Foi aplicada uma regressão de mínimos quadrados ordinários a uma amostra constituída por empresas colombianas em incubação. Os resultados da análise de dados mostram que as interações para obter recursos constituem o aspecto mais significativo das incubadoras empresariais para os empresários.

**PALAVRAS-CHAVE:** Empreendedorismo, incubadora empresarial, capital social, Colômbia.

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**ABSTRACT:** This paper contributes to the important body of research on entrepreneurship and social capital. Most previous work on social capital and business incubators has analyzed how the structure of personal networks (measured by network size or density) and their quality (measured by tie strength) influence venture performance. However, few studies have focused on the mobilization of partners' resources. This paper analyses how these three dimensions of social capital—defined in this article as the structural dimension, the relational dimension and the resource dimension—are closely linked to the three types of interactions in a business incubator: networking, counseling and resourcing. An Ordinary Least Squares regression was applied to a sample made up of incubating firms in Colombia. Results from the data analysis show that resourcing interactions constitute the most significant aspect of business incubators for entrepreneurs.

**KEYWORDS:** Entrepreneurship, business incubator, social capital, Colombia.

## Introduction

Entrepreneurs play a critical role in the development of emerging economies (Bollingtoft & Ulhoi, 2005). Business incubators are one of the most useful tools for helping entrepreneurs to create networks and enhancing the likelihood their emerging businesses will survive and be successful (Totterman & Sten, 2005). Some researchers argue that one of the most important advantages which business incubators should offer is the fostering of social relationships (Totterman & Sten, 2005). Accordingly, entrepreneurs engage in economic relationships with many actors and these relations end up embedded in social networks (Granovetter, 1985). These social relationships and the resources which are both embedded in them and controlled by partners give rise to a critical resource known as social capital (Batjargal, 2003; Nahapiet & Ghoshal, 1998). Social capital is a multidimensional concept whose value cannot be directly measured (Koka & Prescott, 2002). Different dimensions of social capital have been examined in the literature (Wu, 2008). This paper builds on ideas advanced by

Steier (2000) and Batjargal (2003) and focuses on three dimensions of social capital: the *structural dimension* (the size of the network), the *relational dimension* (trust) and the *resource dimension*.

According to Allen and McCluskey (1990), in order to overcome the many obstacles facing businesses in their initial stages, emerging firms require access to different resources and capabilities both tangible (venture capital) and intangible (knowledge). In this business context the differential distribution of social capital among entrepreneurs in all three dimensions (structural, relational and resource-related) might explain why they achieve different levels of performance (Batjargal, 2003; Uzzi, 1996, 1997). Therefore, successful new ventures depend upon the ability of entrepreneurs to establish and strategically manage a network of supportive relationships (Steier, 2000).

Building on the insights of previous research, the objective of this paper is to investigate a central question: How do the dimensions of social capital influence the performance of incubating firms? The research is based on the analysis of data collected from a sample of 83 entrepreneurs located at a Colombian technological incubator called Parquesoft, the largest technology business incubator in Latin America. We begin with a review of the literature on social capital and business incubators in order to identify and measure each of the dimensions that make up the construct, as well as its impact on the performance of incubating firms. Using the ideas of Batjargal (2003) on social capital and of Scillitoe and Chakrabarti (2010) on the interactions that occur in business incubators, we propose a model makes the three dimensions of social capital explicit. Finally, we present and discuss our results, before bringing out the implications of the study and its limitations and suggesting future lines of research.

## Literature Review and Research Hypotheses

### Business Incubators and Social Capital

A business incubator may be defined as a kind of infrastructure which seeks to support and foster the establishment and growth of small and medium sized enterprises (SMEs) (Bollingtoft & Ulhoi, 2005). However, the term incubator is an umbrella concept that encompasses a wide range of institutions that are heterogeneous in their aims, configuration, resources, services offered, etc. (Bollingtoft & Ulhoi, 2005; Scillitoe & Chakrabarti, 2010). Accordingly, business incubators have been marketed and

studied with multiple labels such as: "Business Accelerators", "Research Parks", "Science Parks", "Knowledge Parks", "Seedbeds", "Industrial Parks", "Innovation Centers", "Technopoles" and "Networked Incubators" (Bollingtoft & Ulhoi, 2005). Regardless of the label used, business incubators in emerging economies have represented a critical tool in both the acceleration of regional economic development and the capitalization of investment opportunities (Bollingtoft & Ulhoi, 2005).

The literature on business incubators has focused principally on tangible and direct aspects with little emphasis on social issues (Bollingtoft & Ulhoi, 2005). The concept that best captures the essence of these aspects of social networks is social capital (Adler & Kwon, 2002).

Social capital is conceptualized as the network of relationships enjoyed by a focal firm, which generates value by providing access to resources that are owned or controlled by partners (Florin, Lubatkin & Schulze, 2003; Nahapiet & Ghoshal, 1998). According to this definition, the set of relationships and their characteristics (e.g., path dependence or trust) allows entrepreneurs to access and mobilize partners' resources.

Consequently, social capital is a multidimensional construct whose value cannot be measured in a direct way; instead it must be approached by identifying and measuring certain dimensions (Koka & Prescott, 2002). The literature has analyzed different dimensions of social capital (Wu, 2008). Nahapiet & Ghoshal (1998) categorize social capital in three dimensions: cognitive (shared codes, language and narratives), structural (network ties and configurations) and relational (trust, norms, obligations, and identification). For their part, Koka and Prescott (2002) considered social capital to be a multidimensional concept, proposing three different dimensions: information diversity (structural holes and technological and country diversity), information volume (eigen-vector centrality, number of partners and number of ties) and information richness (multiplex and repeated ties). Similarly, Batjargal (2003) conceptualized social capital according to three dimensions: structural embeddedness, relational embeddedness and resource dimension (access to partners' resources).

In this paper, we define social capital according to the structural characteristics of the network (the *structural dimension*), features of the alliance, such as trust (the *relational dimension*) and the resources of partner firms (the *resource dimension*) (Batjargal, 2003; Rivera-Santos & Inkpen, 2009).



Scillitoe and Chakrabarti (2010) relate the dimensions of the business incubator to those of social capital, suggesting, as a result, the existence of two critical aspects of business incubators: networking interactions and counseling interactions. These aspects make up the structural and relational dimensions of social capital (Scillitoe & Chakrabarti, 2010). Using the concept of social capital noted by Batjargal (2003), this paper proposes a third critical aspect of business incubators. We refer to this concept as resourcing interactions, which refers to the mobilization of partners' resources. Consequently, the complexity associated with the different dimensions of social capital and the varied aspects of business incubators present real challenges to entrepreneurs (Totterman & Sten, 2005). Firstly, in relation to the structural dimension, incubating firms can get help because of the size of the network. Secondly, with regard to the relational dimension, business incubators should facilitate the development of trust that is embedded in the relationships between fellow tenants. This trust enhances the chances that tenants' businesses will be successful. Thirdly, in relation to the resource dimension, business incubators should facilitate both the mobilization of resources and access to them (Totterman & Sten, 2005).

### **Networking Interactions and the Structural Dimension**

Scillitoe and Chakrabarti (2010) posit that business incubators facilitate and foster networking interactions. This is a critical issue in the incubation process. In this manner, business incubators act as a focal point for entrepreneurial ventures.

Networking interactions can be conceptualized as the degree to which a business incubator facilitates access to and mobilization of resources (Scillitoe & Chakrabarti, 2010). Accordingly, a business incubator should, in addition to providing shared office buildings and access to infrastructure, offer a valuable network of contacts. This contacts network may be internal or external; both models may be equally important for accessing and mobilizing the resources required for the survival and success of the incubating firms (Lyons, 2000). The incubator's external networks are described as individuals drawn from the ranks of professional providers of business services and resources, as well as business people who are able to provide valuable advice and assistance to entrepreneurs (Totterman & Sten, 2005). This external network can facilitate the access

of incubating firms to universities or research centers; government agencies and service providers, financial institutions and other sector partners (Batjargal, 2003; Scillitoe & Chakrabarti, 2010). For this paper, we studied incubating firms' external networks. In addition, (O'Donnell, Gilmore, Cummins & Carson, 2001) analysed the network construct in entrepreneurship research, drawing a distinction between inter-organizational networks and personal networks. This research noted that a personal (egocentric) social network is made up of individual actors who are bonded through informal ties. These personal networks are studied using social network theory and sociology. Thus, in this work we study the personal and external networks of incubating firms.

Scillitoe and Chakrabarti (2010) suggest that networking interactions are closely linked to the structural dimension of social capital. This highlights the overall fabric of relationships enjoyed by the focal firm (Granovetter, 1992). This dimension aims to embrace all social interactions taking place in the network (Nahapiet & Ghoshal, 1998). Accordingly, Steier (2000) and Batjargal (2003) point out that the size of networks is a critical aspect of the structural dimension of social capital. Therefore, when the incubating firms possess more networks made up of a greater number of partners, networking interactions will be higher. In this sense, Coleman (1988) and Bratkovic, Antoncic and Ruzzier (2009) suggests that dense or prominent networks facilitate the development of effective rules, which in turn strengthen social capital. In consequence, the exchange of intangible resources—for example, knowledge—and tangible resources—such as assets or equipment—will be more fluid. In short, when the incubating firms' network displays high levels of density in the relationships it involves or is marked by frequent networking interactions it facilitates the exchange of resources, generates obligations and expectations and penalizes free-riding firms (Koka & Prescott, 2002). Along the same lines, Ahuja (2000) posits that the number of ties, both direct and indirect, and thus the size of the network, influences the firm's performance positively.

To conclude, more prominent firms can access a greater amount of valuable resources and knowledge. The benefits accrued by the incubating firm thus depend on the number of partners (Koka & Prescott, 2008).

Based on this logic, and on previous research, we hypothesize the following:

H1: The greater the size of the incubating firm's network, the better the incubating firm performance.

## Counseling Interactions and the Relational Dimension

Scillitoe and Chakrabarti (2010) posit that business incubators facilitate and foster counseling interactions which are a critical aspect of the incubation process. These authors closely link counseling interactions to the relational dimension of social capital. In accordance with Granovetter's idea of weak versus strong ties, the relational dimensions of social capital aim to show how economic actions are affected by the quality of relations (Granovetter, 1985, 1992). Thus, this dimension refers to the characteristics and attributes of relationships such as trust and other complex incentives (relationship quality) which are mainly derived from a company's history and reputation (Granovetter, 1992; Gulati, Nohria & Zaheer, 2000). Previous studies have observed that when two actors interact over time their relationships become stronger and they are more likely to view each other as trustworthy (Granovetter, 1985, 1992; Gulati & Gargiulo, 1999; Tsai & Ghoshal, 1998; Tsai, 2001). In this vein, various researchers (Doz, 1996; Gulati, 1995a, 1995b; Koka & Prescott, 2002) have argued that trust is the critical factor in the creation and transference of knowledge and other resources. This is because it decreases the likelihood of opportunistic relationships developing and allows for greater fluidity in the sharing and combination of resources. Therefore, the relationships enjoyed by incubating firms are characterized by trust and by their strength. Trust thus acts as an important social lubricant (Rivera-Santos & Inkpen, 2009, p. 208) facilitating the flow of valuable resources via different network ties (Tsai & Ghoshal, 1998).

Accordingly, the more frequent the counseling interactions, the stronger the relationships between the focal incubating firms with their partners and vice versa -the stronger the incubating firm's ties the more frequent counseling interactions will be. This strength of ties, characterized as the frequency or intensity of counseling interactions, facilitates the exchange of resources between the focal incubating firm and its partners (Bratkovic *et al.*, 2009).

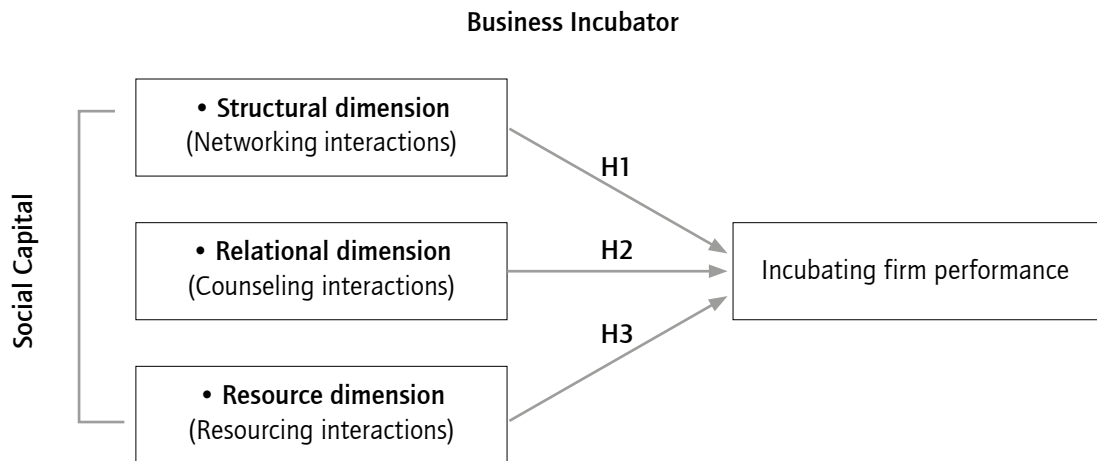
In accordance with these ideas:

H2: The strength of its ties enhances the performance of the incubating firm.

## Resourcing Interactions and Resource Dimension

The main objectives of networking are to facilitate access to resources and the acquisition of knowledge (Hughes, Ireland & Morgan, 2007). The resource dimension of social capital refers to the extent to which the contacts within

FIGURE 1. Proposed Theoretical Model



Source: Prepared by the authors.

the incubating firm's network possess valuable resources (Batjargal, 2003; Lin, 1999). Here we must consider access to both tangible and intangible resources, as well as their mobilization (Håkansson & Snehota, 1995). There are two points that are critical to ascertaining whether firms are capable of mobilizing the resources of their contacts. Firstly, they must be aware of the resources that exist within the network if the incubating firm is to be able to access them (Batt & Purchase, 2004; Westerlund & Svahn, 2008). Secondly, there must be a social structure, as relationships form conduits through which resources such as knowledge or financial support will be mobilized (Partanen, Möller, Westerlund, Rajala & Rajala, 2008; Puhakka, 2006; Tsai & Ghoshal, 1998; Westerlund & Svahn, 2008). Accordingly, Batjargal (2003) posits that connections with executives who manage corporations and with banks are conducive to mobilizing greater volumes of resources. Thus, the creation of inter-organizational and social capital networks can be motivated by an incubating firm's desire to access and mobilize their partners' resources.

An incubator's network offers access to resources and knowledge that entrepreneurs do not have, yet which they need if they are to obtain a competitive advantage (Totterman & Sten, 2005). Therefore, resourcing interactions constitute a critical third aspect or dimension of business incubators. In this paper we propose that resourcing interactions are closely linked to the resource dimension of social capital (Batjargal, 2003; Lin, 1999) and, in particular, to the mobilization of resources between the incubating firm and its contacts. We conclude that this dimension becomes a critical explanatory factor of inter-organizational networks resulting from business incubators (Hsieh & Tsai, 2007).

In accordance with these ideas:

H3: The greater the resourcing interactions among the actors, the better incubating firm performance.

All three hypotheses are shown in Figure 1.

## Methodology

### Sample

This research was carried out at Parquesoft, the largest technology business incubator in Latin America. The incubator's management allowed us access to a database of 126 incubating firms, which provided information on their location, economic activity and the contact details of their representatives; most were located in the city of Cali, in the Department of Valle de Cauca (37%) and the Departments of Quindío (25%) and Risaralda (28%), in Colombia.

A questionnaire, considered the most accurate tool for data gathering, was presented to the managers or legal representatives of each company. First, we visited the companies located in Cali and carried out face-to face interviews with 29 managers. The remaining companies, located in different areas of Colombia, were contacted by letter and email. We received 54 responses from the so-called "Eje Cafetero", or coffee belt (Pereira, Armenia and Manizales), giving a total of 126 responses over the three months from November 2009 to January 2010. After this stage, we initiated a validation process. 43 questionnaires were returned with inconsistencies and had to be removed from the research sample. Simultaneously, we contacted some managers by telephone to clarify their

answers and avoid the loss of information. The final sample, then, consisted of 83 companies, or 65.87% of the 126 companies operating at Parquesoft, a significant sample on which to base the research.

## Measurement

### Dependent Variable

Our dependent variable is the performance of the incubating firm. This indicator was measured by revenue growth, market share and profit (Batjargal, 2003). With these three indicators we carried out a principal components factor analysis with varimax rotation in order to develop a composite measure. The three indicators loaded onto one factor. The factor scores as a composite measure for the performance of the incubating firm.

### Independent Variables

Two methodologies were used to measure personal (ego-centric) social networks: the name generator and the position generator. We used the position generator method because it is an accurate tool for the collection of data on the three dimensions of social capital—that is, structural, relational and resources (Batjargal, 2003, 2010; Lin, Fu & Hsung, 2001).

The indicator *network size* was measured by the number of ties noted by the incubating firms. We prepared a table containing 13 types of occupation. These were, specifically: bank managers; bank employees; managers of government entities that support business creation; employees of government entities that support business creation; legal advisors and lawyers specialized in business creation; managers of large manufacturing plants; managers of medium and small manufacturing plants; managers of large distribution and trade companies; managers of medium and small distribution and trade companies; managers of large resource-sector firms; managers of medium and small resource-sector firms; experts in business creation and administration; and university professors specialized in the same field.

To measure the strength of these ties we used a 7-point Likert scale, asking respondents to indicate the intensity of the relationship they enjoy with each of the 13 types of occupation (7: very strong and 1: very weak).

Finally, we used two items to measure resource mobilization. Firstly, we use a binary variable of one if the incubating firm had mobilized resources owned or controlled by each of the 13 types of occupations and zero if resources were not mobilized. Secondly, in the affirmative

cases we use a 7-point Likert scale to point out the amount of mobilizing resources (7 is many resources and 1 few). Table 1 describes the individual items and original sources of the measurement scales of these principal constructs.

**TABLE 1. Individual Items and Original Sources of the Measurement Scales of the Principal Constructs**

| Construct            | Indicators   | The Position Generator Method   | Sources                       |
|----------------------|--------------|---|-------------------------------|
| Structural Dimension | Network size | The number of ties identified by the incubating firms (identified from a table presenting 13 types of occupation) | Adapted from Batjargal (2003) |
| Relational Dimension | Strong ties  | The intensity of the relationships for each of the 13 types of occupation   |                               |
| Resource Dimension   | Mobilization | The quantity of mobilizing resources  |                               |

Source: Prepared by the authors based on Batjargal (2003).

### Control Variables

Several control variables were used in the analysis. First, we controlled firm age (number of years a given venture has been registered) because it has been argued that younger firms suffer considerably from a liability of newness (Batjargal, 2003). Second, we also controlled for firm size (large or medium and small) since it has been noted that, the larger a firm, the bigger the resource acquisition network (Bratkovic *et al.*, 2009). Third, we controlled for firm origin (family or non-family equity) because some researchers have noted that many entrepreneurs are embedded in a social context that includes a family dimension. For these firms, family represents a rich repository of resources: economic, affective, educational, and connective (Nordqvist & Melin, 2010). Finally, we also controlled for region (Cali, Quindío and Risaralda), since each regional location provides different endowments of resources and advantages for entrepreneurial firms (Batjargal, 2003; Scil-litoe & Chakrabarti, 2010). As other researchers have argued (Batjargal, 2003, 2010) these control variables can exert an influence on the performance of new firms. All control variables were turned into dummies and included in the regression analysis (Batjargal, 2003).

## Results

The results of a correlation matrix and the descriptive statistics are presented in Table 2. What is remarkable is the positive correlation between measurements of the performance of the incubating firm and the mobilization of resources.

**TABLE 2. Means, Standard Deviations and Pearson's Correlations**

|                   | M    | SD    | 1       | 2       | 3       | 5       | 6       | 7 |
|-------------------|------|-------|---------|---------|---------|---------|---------|---|
| 1. Network size   | 7.08 | 3.475 | 1       |         |         |         |         |   |
| 2. Strong ties    | 4.27 | 1.286 | 0.388** | 1       |         |         |         |   |
| 3. Mobilization   | 1.79 | 1.166 | 0.273*  | 0.631** | 1       |         |         |   |
| 4. Revenue growth | 4.28 | 1.549 | 0.064   | 0.102   | 0.335** | 1       |         |   |
| 5. Profit         | 3.96 | 1.502 | 0.073   | 0.181   | 0.347** | 0.833** | 1       |   |
| 6. Market share   | 3.92 | 1.647 | 0.050   | 0.112   | 0.393** | 0.813** | 0.807** | 1 |

\*  $p < 0.5$ ; \*\* $p < 0.01$

Source: Prepared by the authors.

Table 3 shows the results of the regression analysis predicting the performance of the incubating firm as a function of different dimensions of social capital or of business incubators. As is evident from the table, Model 0 –control variables only– demonstrates that firm age displays a significant relationship with the incubating firm's performance. Models 1, 2 and 3 incorporate the different dimensions of social capital (structural, relational and resources) or different interactions of business incubators (networking, counseling and resourcing). The three overall models are significant. The positive influence of the mobilization of contact resources is of interest in Model 3. Model 4 is significant ( $R^2 = 0.31$ ;  $p < 0.001$ ). The results of Model 4 (the complete model) show that the incubating firm's performance has a positive association with firm age, family ownership and with resource mobilization.

## Discussion and Conclusions

The findings suggest that older incubating firms do slightly better than younger ones in terms of performance. This is due to the fact that a firm's experience is very important in the development of relational capabilities and resources such as trust. These resources and capabilities allow incubating firms to achieve greater performance. Thus, Batjargal (2003) posits that the younger the firm, the worse the performance, because younger firms suffer from a liability of newness.

Large incubating firms perform better than small ones. This is because larger firms possess greater assets, providing the firm with more financial strength and flexibility (Bratkovic *et al.*, 2009).

**TABLE 3. Regression Analysis Predicting the Incubating Firm's Performance**

| Dependent Variable Incubating Firm's Performance |                       |      |   |      |   |      |   |      |                    |      |
|--|-----------------------|------|---|------|---|------|---|------|--------------------|------|
| Variables  | Model 0 Controls only |      | Model 1 Adding main effects (networking interactions) |      | Model 2 Adding main effects (counseling interactions) |      | Model 3 Adding main effects (resourcing interactions) |      | Model 4 Full model |      |
|  | B                     |      | B   |      | B   |      | B   |      | B                  |      |
| Size   | 0.268                 |      | 0.287   |      | 0.251   |      | 0.142   |      | 0.183+             |      |
| Age  | 0.631**               |      | 0.614**   |      | 0.636**   |      | 0.301**   |      | 0.280*             |      |
| Region   | 0.209                 |      | 0.197   |      | 0.186   |      | 0.008   |      | -0.026             |      |
| Family   | 0.465+**              |      | 0.499+  |      | 0.462+**  |      | 0.200*  |      | 0.232*             |      |
| Network size                                     |                       |      | 0.013   |      |   |      |   |      | -0.124             |      |
| Strong ties                                      |                       |      |   |      | 0.084   |      |   |      | -0.118             |      |
| Resources mobilisation                           |                       |      |   |      |   |      | 0.309**   |      | 0.422**            |      |
| Statistics                                       | Value                 | Sign | Value   | Sign | Value   | Sign | Value   | Sign | Value              | Sign |
| $R^2$  | 0.199                 | 0.00 | 0.201   | 0.00 | 0.209   | 0.00 | 0.285   | 0.00 | 0.310              | 0.00 |
| N  | 83                    |      | 83  |      | 83  |      | 83  |      | 83                 |      |

Source: Prepared by the authors.



Family-owned firms significantly influence positive reported performance. This may indicate that this kind of incubating firm has external personal social networks in which interactions –networking, counseling and resourcing– are very frequent (Nordqvist & Melin, 2010).

The differences in the size of incubating firms' networks (related to the number of external personal contacts) is not related to greater performance. Accordingly Granovetter (1992) stated that the structural dimension may have subtle and indirect impacts on economic transactions (Batjargal, 2003).

Strong ties affect the incubating firm's performance negatively, but this relation is not significant. This is consistent with the theorizing of Burt (1992) about the importance of weak ties and structural holes for entrepreneurs. With regard to this result, Bratkovíc *et al.* (2009, p. 491) argued that strong ties are more a source of constraint than an advantage for emerging firms.

Finally, the results show that the ability of incubating firms to mobilize resources from their external personal contacts strongly and positively predicts the performance. Accordingly, the availability of financial resources, referrals and legal and technical advice are critical resources for the survival and success of incubating firms.

In sum, scholars view the personal networks of entrepreneurs as conduits for the flow of relevant, valuable resources (Vissa, 2012). Researchers have mainly studied how personal networks structures (measured by network size or density) and network quality (measured by tie strength) influence venture performance. However, few studies have focused on accessing and mobilizing partners' resources. In this work we have analyzed how these three dimensions of social capital are closely linked with the three kinds of interaction that occur in business incubators: networking, counseling and resourcing. The study reveals that for firms the most important aspect of business incubators is the opportunity they provide for resourcing interactions –that is, the capability of incubating firms to mobilize the resources of their contacts. Accordingly, entrepreneurs play a critical role in the development of emerging economies such as Colombia (Bollingtoft & Ulhoi, 2005) and business incubators are among the most useful tools facilitating the progress of entrepreneurs in creating networks and enhancing the chances of survival and success for emerging businesses (Totterman & Sten, 2005). Therefore, the management of business incubators in emerging economies should facilitate and foster networking and counseling interactions (Scillitoe & Chakrabarti, 2010). However, the resource

aspects of business incubators are as important as their structural and relational dimensions (Batjargal, 2003).

This study is also characterized by a series of limitations, each of which could form the basis for future lines of research to complement its principal insights. In the first place, it was not possible to conduct a longitudinal analysis of the different dimensions. This would have provided a more complete and dynamic understanding of such a complex question as social capital and the interactions that take place in business incubators. Accordingly, future research should focus on measuring the concepts at several points in time, taking the dynamics into account in order to explore the configuration of the different dimensions of social capital in business incubators. In second place, the research was carried out using primary information that was gathered from a sample of firms using a survey. The data is therefore perceptual in nature. Finally, the use of a relatively small and multi-sectorial sample of firms from a single country might present serious inconveniences when extrapolating the conclusions of our analysis. An interesting future line of research would be to analyze the possible differences in the development of social capital dimensions in business incubators as a consequence of the cultural differences between countries.

In conclusion, while accepting the important difficulties entailed in the analysis and measurement of an organizational resource such as social capital in business incubators, we consider that this work has contributed to gaining a better understanding of the concept. This should focus and guide future research in this field. The growing interest in innovation and entrepreneurship in emerging economies highlights the need to understand the processes and skills which are needed to develop and manage social capital in business incubators. Accordingly, our study shows that different dimensions of social capital have a differential influence on the incubation of firm performance. Our findings will also have practical implications for managers who make decisions about social capital, for example in relation to the importance of the question of resources, which is as important as the structural and relational dimension (Batjargal, 2003). Thus, firms need to evaluate and manage resourcing interactions in business incubators – that is, the ability of incubators to help firms mobilize their contacts' resources in order to translate the potential of a firm's social capital into realized benefits (Sarkar, Aulakh & Madhok, 2009). With this research a step taken in this direction, and our findings might be extrapolated to other emerging economies with similar characteristics to Colombia.

## References

- Adler, P. S., & Kwon, S. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 27(1), 17-40.
- Allen, D. N., & McCluskey, R. (1990). Structure, policy, services, and performance in the business incubator industry. *Entrepreneurship Theory and Practice*, 15(2), 61-77.
- Ahuja, G. (2000). Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly*, 45(3), 425-455.
- Batt, P. J., & Purchase, S. (2004). Managing collaboration within networks and relationships. *Industrial Marketing Management*, 33(3), 169-174.
- Batjargal, B. (2003). Social capital and entrepreneurial performance in Russia: A longitudinal study. *Organization Studies*, 24(4), 535-556.
- Batjargal, B. (2010). The effects of network's structural holes: Polycentric institutions, product portfolio, and new venture growth in China and Russia. *Strategic Entrepreneurship Journal*, 4(2), 146-153.
- Bollingtoft, A., & Ulhoi, J. P. (2005). The networked business incubator - leveraging entrepreneurial agency? *Journal of Business Venturing*, 20(2), 265-290.
- Bratkovic, T., Antoncic, B., & Ruzzier, M. (2009). Strategic utilization of entrepreneur's resource-based social capital and small firm growth. *Journal of Management and Organization*, 15(4), 486-499.
- Burt, R. S. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *The American Journal of Sociology*, 94, S95-S120.
- Doz, Y. L. (1996). The evolution of cooperation in strategic alliances: Initial conditions or learning processes? *Strategic Management Journal*, 17(Summer Special Issue), 55-83.
- Florin, J., Lubatkin, M., & Schulze, W. (2003). A social capital model of high-growth ventures. *Academy of Management Journal*, 46(3), 374-384.
- Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *The American Journal of Sociology*, 91(3), 481-510.
- Granovetter, M. (1992). Problems of explanation in economic sociology. In N. Nohria and R. G. Eccles (Eds.), *Networks and organizations: Structure, form, and action* (pp. 25-56). Boston: Harvard Business School Press.
- Gulati, R. (1995a). Social structure and alliance formation patterns: A longitudinal analysis. *Administrative Science Quarterly*, 40(4), 619-652.
- Gulati, R. (1995b). Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal*, 38(1), 85-112.
- Gulati, R. (1999). Network location and learning: The influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal*, 20(5), 397-420.
- Gulati, R., & Gargiulo, M. (1999). Where do interorganizational networks come from? *The American Journal of Sociology*, 104, 1439-1493.
- Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, 21(3), 203-215.
- Håkansson, H., & Snehota, I. (1995). *Developing relationships in business networks*. London and New York: Routledge.
- Hsieh, M., & Tsai, K. (2007). Technological capability, social capital and the launch strategy for innovative products. *Industrial Marketing Management*, 36(4), 493-502.
- Hughes, M., Ireland, R. D., & Morgan, R. E. (2007). Stimulating dynamic value: Social capital and business incubation as a pathway to competitive success. *Long Range Planning*, 40(2), 154-177.
- Koka, B. R., & Prescott, J. E. (2002). Strategic alliances as social capital: A multidimensional view. *Strategic Management Journal*, 23(9), 795-816.
- Koka, B. R., & Prescott, J. E. (2008). Designing alliance networks: The influence of network position, environmental change, and strategy on firm performance. *Strategic Management Journal*, 29(6), 639-661.
- Lin, N. (1999). Building a network theory of social capital. *Connections*, 22(1), 28-51.
- Lin, N., Fu, Y., & Hsung, R. (2001). The position generator: Measurement techniques for investigations of social capital. In N. Lin, K. Cook & R. S. Burt (Eds.), *Social capital, theory and research* (pp. 57-81). New York: Aldine de Gruyter.
- Lyons, T. S. (2000). Building social capital for sustainable enterprise development in country towns and regions: Successful practices from the United States. LaTrobe University, Center for Sustainable Regional Communities, Australia.
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2), 242-266.
- Nordqvist, M., & Melin, L. (2010). Entrepreneurial families and family firms. *Entrepreneurship and Regional Development*, 22(3-4), 211-239.
- O'Donnell, A., Gilmore, A., Cummins, D., & Carson, D. (2001). The network construct in entrepreneurship research: A review and critique. *Management Decision*, 39(9), 749-760.
- Partanen, J., Möller, K., Westerlund, M., Rajala, R., & Rajala, A. (2008). Social capital in the growth of science-and-technology-based SMEs. *Industrial Marketing Management*, 37(5), 513-522.
- Puhakka, V. (2006). Effects of social capital on the opportunity recognition process. *Journal of Enterprising Culture*, 14(2), 105-124.
- Rivera-Santos, M., & Inkpen, A. C. (2009). Joint ventures and alliances. In M. Kotabe & K. Helsen (Eds.), *The SAGE Handbook of International Marketing* (pp. 198-217). London: SAGE Publications.
- Sarkar, M. B., Aulakh, P. H., & Madhok, A. (2009). Process capabilities and value generation in alliance portfolios. *Organization Science*, 20(3), 583-600.
- Scillitoe, J., & Chakrabarti, A. (2010). The role of incubator interactions in assisting new ventures. *Technovation*, 30(3), 155-167.
- Steier, L. (2000). Entrepreneurship and the evolution of angel financial networks. *Organization Studies*, 21(1), 163-192.
- Totterman, H., & Sten, J. (2005). Start-ups: Business incubation and social capital. *International Small Business Journal*, 23(5), 487-511.
- 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., & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, 41(4), 464-476.

- 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.
- Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42(1), 35-67.
- Vissa, B. (2012). Agency in action: Entrepreneurs' networking style and initiation of economic exchange. *Organization Science*, 23(2), 492-510.
- Westerlund, M., & Svahn, S. (2008). A relationship value perspective of social capital in networks of software SMEs. *Industrial Marketing Management*, 37(5), 492-501.
- Wu, W. (2008). Dimensions of social capital and firm competitiveness improvement: The mediating role of information sharing. *The Journal of Management Studies*, 45(1), 122-146.