The Role of Entrepreneurial Financial Ecosystem in Firm Growth.

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ABSTRACT

This paper examines the relationship between entrepreneurial financial ecosystem and enterprise growth, at the regional level. An analysis is done to expand the knowledge about how regional financial ecosystem influences enterprise growth and, therefore, the entrepreneurial activity consolidation. Obstacles in access to finance and financial constraints are an important environmental barrier in firm growth, especially in young firms' growth, within a single country. This study analyses a cohort of young Spanish manufacturing small and medium enterprises (SMEs) combining both firm-level and regional level information. Data set for this research consists in an unbalanced panel of 5.870 observations representing every Spanish region for the period 2007-2015. The empirical analysis applies the panel data methodology, specifically the fixed effects estimator (within estimator), measuring young firms´ growth in terms of annual variation of total assets. Our results show that the financial ecosystem is statistically significant, evidencing that better access to external finance favour enterprise growth. Therefore, develop an appropriate entrepreneurial financial ecosystem will allow enterprise and economic growth and, consequently, the consolidation of entrepreneurial activity. The findings of this study are valuable for entrepreneurs and policymakers and show that efforts at national and European level to solve the financing problems of small and young firms should continue.

**Introduction**

Entrepreneurial activity has been linked to both economic growth and regional development (Audretsch & Keilbach, 2004; Minniti, 2012), following the idea of Schumpeter (1934), which pointed to entrepreneurs as the economic agents that make growth possible. To study the entrepreneurial process, it is essential focussing on entrepreneurial ecosystem and regional development. Within this ecosystem, the access to finance is a key factor to favour entrepreneurial activity (Anton & Bostan, 2017).

Enterprise growth has been an area of study for many researchers. The growth of young enterprises differs from that of established firms (Gilbert *et al.*, 2006) and there is already evidence on how new firms grow. However, there is lack of literature on the effect of environmental factors in determining the growth path (Gupta *et al.*, 2013). Obstacles in access to finance and financial constraints are an important environmental barrier in firm growth, especially in young firms' growth (Coluzzi, *et al.*, 2015; Ennew & Binks, 1996).

SMEs are considered as the backbone of the economy, yet only a small percentage achieves growth and survive, being access to finance one of the mains barriers (Levy, 1993; Oliveira &

Fortunato, 2006). Financial barriers refer to lack of access to external financing and institutional financial support and these constraints are even greater for young firms (Coluzzi *et al*., 2015; Ennew *et al*., 1996). Environmental factors stimulate firm growth; therefore any problem in these factors would limit growth, being financial barriers one of the factors decelerating growth (Rauch, *et al.*, 2009). Access to finance has been identified as an important determinant for the development of SMEs and is a key issue in the entrepreneurial ecosystem, potentially serving as a constraint on both firm entry and growth (Brito & Mello, 1995; Teruel & Segarra, 2014; Beck, *et al.*, 2005).

Previous research has evidenced that institutional differences within country affect the levels of firms' growth (Fernández De Guevara & Maudos, 2009) and this evidence has highlighted the importance of financial support for SMEs in the development of regional policies aimed at improving the growth of SMEs (Sánchez-Val & Ramón-Llorens, 2016). The effect of regional institutional factors is specifically relevant for SMEs, because it favours business activity within the local environment (Demirgüc-Kunt & Maksimovic, 1998; Demirgüç-Kunt & Maksimovic, 1999). Therefore, to study the nexus between financial constraints and firm growth is crucial consider regional heterogeneity (Demirgüç-Kunt & Maksimovic, 1998; Sánchez-Val & Ramón-Llorens, 2016; Beck *et al.*, 2005).

This paper analyses the Spain context. Spanish SMEs are characterized by smaller companies than their European counterparts and with less capacity for growth (Teruel & Segarra, 2014), so to gain size and grow, is a relevant issue. Understanding how SMEs grow is especially important in the case of young firms because of has been little researched by previous literature (Ayyagari *et al.*, 2017; Federico & Capelleras, 2014). Previous studies show that Spain is a country where regional financial heterogeneity exits (Carbó *et al*., 2009; Palacin-Sanchez & Di Pietro, 2016). The aim of this paper is to study the role of the entrepreneurial financial ecosystem in young SMEs growth, at regional level, for the Spain case. This analysis is done to expand the knowledge about how regional financial ecosystems and initial firm characteristics influence firm growth and, therefore, the entrepreneurial activity consolidation.

To our knowledge, this paper introduces for the first time a number of aspects in the study of enterprise growth. First, the paper introduces financial regional heterogeneity as a relevant factor in the study of young firms' growth. Second, it combines micro-information at the firm level (from the SABI database) with macro-information at the regional level (from the GEM database). And third, it considers young firms' growth as a proxy for entrepreneurial activity

consolidation. Finally, it focuses on entrepreneurial financial ecosystems evidencing the importance of enhancing entrepreneurs financing opportunities on firm growth.

**Literature review**

Entrepreneurship and enterprise growth are determinants in fuelling country´s economic growth and development (Audretsch *et al*., 2006; Wennekers and Thurik, 1999). Entrepreneurial activity can be spur by the environment, or ecosystem (Hechavarria and Ingram, 2014), if exists an institutional context that is conducive to entrepreneurial activity (Audretsch, 2014). The GEM research program establishes the entrepreneurial framework conditions in terms of nine dimensions that were expected to enhance entrepreneurial activity (Reynolds *et al*., 2005). These are: Entrepreneurial Finance, Government Policy, Government Entrepreneurship Programmes, Entrepreneurship Education, Research & Development Transfer, Commercial & Legal Infrastructure, Entry Regulations, Physical Infrastructure and Cultural & Social Norms.

Understanding the institutional drivers of entrepreneurship and enterprise growth is crucial to design effective policies. A key component of the entrepreneurial ecosystem is finance. Previous research has studied environmental factors and entrepreneurship, focusing on financial support (Becker-Blease & Sohl, 2007; Grilo & Irigoyen, 2006; Mason & Stark, 2004; Ritsilä & Tervo, 2001; Roper & Scott, 2009), but only a few works have investigated enterprise growth (Cooper *et al*., 1994; Trulsson, 2002; Wetzel, 1987). Trulsson (2002) indicated that managers often perceive financial constraints are an important obstacle to growth. In his study, concluded that inadequacies in the financial system are related to lack of access to long-term finance that firms need for capital investments. Wetzel (1987) demonstrated risk capital is a crucial resource to the entry and growth of entrepreneurial ventures after analysing the informal market which entrepreneurs obtain financing form business angels.

To our knowledge, these previous papers have only focused on a single financing option for entrepreneurs therefore, have not studied the different financial options, that is, the entrepreneurial financial ecosystem. This paper focus on the entrepreneurial financial ecosystem to test empirically how the financial context affects enterprises growth, and therefore, to the entrepreneurial activity consolidation.

Enterprise growth and its determinants has been a topic widely studied. A crucial factor is finance, access to external finance has been identified as a constraint on both firm entry and growth. Existing papers have documented that the availability of external finance plays a vital role in new firm creation (Brito & Mello, 1995; Léon, 2019)**.** Also has been studied the characteristics of new firms´ growth, Cooper et al. (1994) developed a model based in the initial

human and financial capital to predict the growth of new firms, showing the amount of capital raised should be positively associated with firm survival. Coad *et al* (2018) shows that enterprise growth is more sustained in new firms and more erratic in older. These results suggesting that growth in one period is positively related to growth in the next. Gilbert *et al*. (2006) concluded growth is a vital indicator of any thriving firm. They studying if firms' growth is internally or externally, and if it is domestically or internationally, two growth decisions that entrepreneurs make: how and where.

One of the main contributions to the discussion of the relevance between firm size and growth is Gibrats Law (1931) who presents a stochastic model of firm growth, that is, all enterprises have the same probability of growth independently their size. A vast empirical literature on firm size and growth follow the Gibrats Law. Numerous papers accept Gibrats Law, however most papers reject it (Audretsch & Keilbach, 2004; Ayyagari *et al*., 2011; Becchetti & Trovato, 2002; Bentzen *et al*., 2012; Oliveira & Fortunato, 2006) (See Sutton, 1997 for a review). Therefore, empirical evidence is mixed and inconclusive.

Existing papers have documented that financial support is one of the crucial determinants to allows enterprise growth (Beck & Demirguc-kunt, 2005; 2006)**.** Zhang and Si, (2008) exploring the external factors that affects the survive of Chinese entrepreneurial enterprises. They proved that a good financial support and an appropriate entrepreneurial culture results in good enterprise growth. The findings suggest that Chinese entrepreneurial enterprises need more favourable financial support. Becchetti & Trovato (2002) presented an empirical analysis of the determinants of growth for a cohort of Italian SMEs, showing that firms with higher availability of external finance grow much more than low leverage firms. Also verified that access to external finance is more difficult for small and medium sized firms than large firms.

The entrepreneurial financial ecosystem is especially relevant in young enterprises because they are the companies with the lowest survival rate, therefore growth is crucial. However, there is a lack of literature about research papers young firms' growth specific. Coluzzi *et al*. (2015) analysed the nexus between financial obstacles and firm growth for a sample of non-financial firms in five countries the euro area, founding that being young, and being small, increases the probability of facing financial obstacles. Consequently, firms' growth, measuring in terms of changes in total assets, is affect.

Other studies show the importance of considering regional heterogeneity in the study of enterprise growth (Demirgüc-Kunt & Maksimovic, 1998; Fernández De Guevara & Maudos,

2009). Sánchez-Val and Ramón-Llorens (2016) studied the Spanish regions of Madrid and Murcia, and evidenced that regional conditions influence more in determining the probability of having financial constraints, that the specific characteristic of being a small business. Gupta *et al*., (2013) identified the need to develop a conceptual framework to study the growth of SMEs as influenced by the environmental factors.

Actually exits an interest in the literature about the growth of young firms and nexus with financial ecosystem, but the empirical results are mixed and inconclusive. This can be explained by the complexity to measure growth and financial ecosystem because of there are multiple ways to do it. Main forms to measure enterprise growth are: number of employees, sales and total assets. This study uses the annual variation of total assets to measure young enterprise growth following the research of Coluzzi et al., (2015). The GEM model defines finance conditions as follows: "is the availability of financial resources, equity and debt for new and growing firms, including grants and subsidies", and summarizes this information in a variable of first order called "Financing for Entrepreneurs". This paper considers the GEM variable, "Financing for Entrepreneurs" as a proxy of the entrepreneurial financial ecosystem, and the young enterprises growth as a proxy of the entrepreneurial activity consolidation. It is highlight, that our study focuses on regional entrepreneurial financial ecosystems to expand the research on determinants of firm growth; and focuses on young enterprises' growth, exclusively, to fill a gap in the investigation.

**Data, methodology and results**

This study measures firm growth in terms of annual variation of total assets, following previous researches (Leitao et al., 2010; Chen & Lu, 2010; Geroski et al., 2003; Singh & Whittington, 1975; Aslan, 2008; Bentzen et al., 2012; Coluzzi et al., 2015; Rogers et al, 2010), and considers enterprises of less than 14 years as a young firm, taking as reference the research of Federico and Capelleras (2014).

This work analyses a sample of young Spanish manufacturing SMEs combining both firm-level and regional level information from two databases. On the one hand, the firm-level data is taken from the SABI (Sistema de Análisis de Balances Ibéricos) database, collected and provided by Bureau Van Dijk and based on the Official Registry of Spanish Companies. The firm variables are used as control variables, specifically they are: TDR, Size and Profit. On the other hand, data at the regional level is necessary to study the entrepreneurial financial ecosystems, information from the Global Entrepreneurship Monitor (GEM) is used. Data set for this study

consists in an unbalanced panel of 5.870 observations from young Spanish manufacturing SMEs over the period 2007– 2015 from all Spanish regions (except the regions of Ceuta and Melilla).

The GEM research propose that business dynamics can be linked to conditions that enhance (or hinder) firms' creation and growth. The state of these conditions directly influences the existence of entrepreneurial opportunities, entrepreneurial capacity and preferences, which in turn determines entrepreneurship. These conditions are known as Entrepreneurial Framework Conditions (EFCs), and are nine: Entrepreneurial Finance, Government Policy, Government Entrepreneurship Programmes, Entrepreneurship Education, Research & Development Transfer, Commercial & Legal Infrastructure, Entry Regulations, Physical Infrastructure and Cultural & Social Norms.

Information about these items are recollected by GEM in the National Experts Survey (NES). The responses to the items follow a five-point Likert scale, where 1 means the statement is completely false according to the expert and 5 means the statement is completely true. In each country, GEM has a team of at least 36 experts stratified on the nine critical framework conditions to provides valuable insights about the national context and how that impacts entrepreneurship.

This paper focuses exclusively in the financial conditions of the entrepreneurship ecosystem. This specific condition is named as "Entrepreneurial Finance" by GEM, and is define as "the availability of financial resources—equity and debt—for small and medium enterprises (SMEs) (including grants and subsidies)". The NES questionnaire ask 8 questions related to any type of financing to measure the financial support for entrepreneurship in each country or region. The questions that the experts have to answer are:

*In my country there is sufficient …*

1. *Equity funding available for new and growing firms.*
2. *Debt funding available for new and growing firms.*
3. *Government subsidies available for new and growing firms.*
4. *Funding available from informal investors (family, friends and colleagues) who are private individuals (other than founders) for new and growing firms.*
5. *Professional Business Angels funding available for new and growing firms.*
6. *Venture capitalist funding available for new and growing firms.*
7. *Funding available through initial public offerings (IPOs) for new and growing firms.*

8. *Private lenders 'funding (crowdfunding) available for new and growing firms.*

With all these answers, a first-order variable called "Financing for entrepreneurs" is built by GEM. This information is what this research uses to analyse the regional entrepreneurial financial ecosystem.

*Descriptive Statistics*

Table 1 presents the mean, standard deviation, minimum and maximum for all the variables of the study in the whole sample. Table 2 shows average values of the variables by regions.

**Table 1.** Descriptive statistics

| Variables | Mean | Std. Dev. | Min. | Max. |
|---|---|---|---|---|
| GROWTH | 0,046 | 0,254 | -0,727 | 6,495 |
| TDR | 0,755 | 0,283 | 0,028 | 1,76 |
| SIZE | 8,793 | 0,688 | 7,602 | 10,644 |
| PROFIT | 0,105 | 0,092 | -0,787 | 1,031 |
| FE | 2,338 | 0,314 | 1,52 | 3,28 |

Notes: GROWTH is measured as the annual variation of total assets, TDR is the ratio of total debt to total assets, SIZE is the logarithm of the total assets, PROFIT is the ratio of earnings before interest and taxes to total assets, and FE is an institutional variable created by GEM to evaluate the financial support for entrepreneurship.

Tabla 2. Descriptive statistics by region

| | Average values of the variables | | | | |
|---|---|---|---|---|---|
| Region | GROWTH | FE | TDR | SIZE | PROFIT |
| Andalusia | 0,067 | 2,331 | 0,831 | 8,713 | 0,097 |
| Aragon | 0,045 | 2,361 | 0,769 | 8,813 | 0,108 |
| Asturias | 0,057 | 2,414 | 0,658 | 9,384 | 0,112 |
| Balearic Islands | 0,030 | 2,318 | 0,753 | 8,673 | 0,091 |
| Canary Islands | 0,098 | 2,055 | 0,566 | 9,261 | 0,126 |
| Cantabria | 0,052 | 2,401 | 0,733 | 8,854 | 0,135 |
| Castile-La Mancha | 0,069 | 2,403 | 0,748 | 8,835 | 0,114 |
| Castile-León | 0,030 | 2,207 | 0,828 | 8,770 | 0,100 |
| Catalonia | 0,031 | 2,329 | 0,715 | 8,673 | 0,106 |
| Valencian Community | 0,042 | 2,231 | 0,787 | 8,717 | 0,115 |
| Extremadura | 0,018 | 2,313 | 0,765 | 8,988 | 0,093 |
| Galicia | 0,059 | 2,384 | 0,706 | 8,872 | 0,123 |
| La Rioja | 0,066 | 2,256 | 0,891 | 8,476 | 0,095 |
| Madrid | 0,040 | 2,347 | 0,746 | 8,870 | 0,097 |

| | | | | | |
|---|---|---|---|---|---|
| Murcia | 0,076 | 2,207 | 0,843 | 8,811 | 0,082 |
| Navarre | 0,036 | 2,500 | 0,660 | 8,885 | 0,096 |
| Basque Country | 0,036 | 2,491 | 0,763 | 8,841 | 0,096 |
| Spain | 0,046 | 2,339 | 0,756 | 8,794 | 0,105 |

*Model and Methodology*

The equation model is presented as follows, additionally, includes years' dummies:

$$GROWTH_{it} = \alpha_i + \beta_0 TDR_{it1} + \beta_1 SIZE_{it} + \beta_2 PROFIT_{it} + \beta_3 FE_{rt} + years\ dummies + \mu_i + \mathcal{E}_{it} \quad (1)$$

where *i* is the firm, *t* is the time period, and *r* is the region; $\mu_{i\ represents}$ the unobservable individual effects, and $\mathcal{E}_{it}$ is the error term.

This paper uses the panel data methodology, specifically the fixed effects estimator (within estimator) to control unobservable heterogeneity. This decision has been supported by the Hausman Test. This paper exploits many advantages of using panel data to test the hypotheses stated. We are able to consider individual unobservable firm heterogeneity (such as managerial ability and other not measurable specifications of companies), possibly correlated with some explanatory variables, as well as the changes over time in the model´s variables. Hence, we base our inference on data more informed about the financial behaviour of SMEs, and this drives to estimates less affected by collinearity problems and more efficient.

*Main Results*

Tabla 3. Determinants of GROWTH

| **Variables** | **GROWTH** | | | | | |
|---|---|---|---|---|---|---|
| | *firms´ age* <= 7 | | *7 < firms´ age* <= 14 | | *Total sample* | |
| TDR | 0.546 | *** | 0.414 | *** | 0.437 | *** |
| | (0.081) | | (0.038) | | (0.031) | |
| SIZE | 0.428 | *** | 0.368 | *** | 0.303 | *** |
| | (0.044) | | (0.020) | | (0.016) | |
| PROFIT | -0.003 | | 0.062 | | 0.116 | ** |
| | (0.124) | | (0.065) | | (0.054) | |
| FE | 0.170 | ** | 0.047 | * | 0.073 | *** |
| | (0.058) | | (0.025) | | (0.022) | |
| Constant | -4.722 | *** | -3.714 | *** | -3.250 | *** |
| | (0.418) | | (0.184) | | (0.153) | |
| Year dummies | Yes | | Yes | | Yes | |
| R-square | 0.200 | | 0.148 | | 0.134 | |
| F-stat | 17.22 | | 50.5 | | 59.19 | |
| Observations | 1.146 | | 4.724 | | 5.870 | |

Notes: Standard errors in parentheses. *, ** and ***, indicate significant at the 10, 5 and 1% level, respectively.

The preliminary empirical analysis shows that the regional financial ecosystem is statistically significant. These results suggest that the growth of young Spanish manufacturing SMEs is explained by regional entrepreneurial financial ecosystems, evidencing the need to develop financial instruments and to enhance enterprises' funding opportunities.

Our results are in line with previous studies that consider regional heterogeneity as a key factor in enterprise growth (Demirgüç-Kunt & Maksimovic, 1998; Sánchez-Val & Ramón-Llorens, 2016; Beck *et al.*, 2005) and also shows young and small enterprises have more probability of facing financial obstacles (Coluzzi et al., 2015). Zhang & Si (2008) proved that enterprise growth is link financial support. Becchetti & Trovato (2002) showed that availability of external finance is positively related to small firm's growth.

**Conclusions**

The findings of this study are valuable for entrepreneurs and policymakers. These results support theories and empirical papers finding that access to finance is a constraint to firm growth, especially, in young firms' growth (Coluzzi et al., 2015) and small firm's growth (Becchetti & Trovato, 2002). It also provides empirical evidence about the importance of enhancing entrepreneurs financing opportunities on firm growth.

Enterprise growth is possible when the firm is able to finance it. The asymmetries in the entrepreneurs financing opportunities favour regional growth disparities. The efforts taken, at national and European level, to facilitate small firms' growth and support the access to external finance have not managed to homogenize access to finance at the local level, regional differences still exist. Therefore, it is necessary to develop new policies that eliminate financial barriers at the local level.

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