Knowledge and entrepreneurship creation. What is the connection?

Objectives

This research approaches the determinants of the knowledge necessary to founding new companies based upon the Global Entrepreneurship Monitor - GEM database over the 2009 to 2013 timeframe. A range of earlier research works have defended the importance of knowledge to improving employee performance levels (Arthur, 1994; Boselie et al, 2001; Fernandes and Ferreira, 2013; Huselid, 1995). Similarly, these knowledge related factors have also been identified as bearing repercussions for entrepreneurial activities and the performance of new companies (Brüderl and Preisendorfer, 1998; Cooke and Wills, 1999; Liedholm, 2002; Van Praag and Cramer, 2001). We find that the literature has placed a particular emphasis on the role of knowledge and entrepreneurship in small businesses (Clercq and Arenius, 2013) and guided by a limited body of theory concentrated specifically on the role of knowledge in decision making over launching a new business. Through this research, we aim to deepen and further knowledge on this theme and overcome this shortcoming in the literature.

Hence, this study focuses upon the role of two groups of components related with the knowledge held by individuals: i) the intrinsic core of existing knowledge and; ii) the exposure to external knowledge. These two components reflect the fact that possession and access to knowledge proves crucial to the confidence of individuals in their own abilities to successfully launch a company.

The data deployed to determine the factors influencing the intention to start up a company stem from the aggregate panel data structured at the national level and based on the Global Entrepreneurship Monitor findings for a five year period (2009-2013). We furthermore deployed multiple linear regression techniques based on both panel data (for every year) and cross-section data (each year).

Literature review

The idea emerging about entrepreneurs from earlier studies were that such persons emerged out of otherwise homogeneous groups due to different psychological characteristics to the rest of society (Hebert and Link, 1989). The need to establish a relationship between the decisions taken by entrepreneurs and their personal characteristics such as the professions of their parents, their gender (male or female);

race or ethnic background, academic qualifications, years of experience in the sector of activity and age, have only more recently drawn the attention of researchers (Mitchell et al., 2002; Lafuente et al., 2010).

According to the Global Entrepreneurship Monitor report (GEM, 2014), the phenomena surrounding entrepreneurship are above all complex. The variety of interrelated concepts proves extremely high. Even before a company actually goes operational, the entrepreneurial process is already under way. Here, we need to emphasize that the literature identifies two types of entrepreneur: the individual who simply seeks to engage in a business adventure and attempts to prevail in a competitive market despite not having major aspirations over rapid growth; and/or individuals that have a particular business, for a determined period of time and strive to advance with innovating that business in this same period. This latter individual best represents the entrepreneur. The GEM report (2014) also features some of the characteristics inherent to the entrepreneur such as their motivations, innovations and the desire to attain high growth rates. Thus, we verify that the skills of each individual and their respective characteristics may be the drivers of new businesses. Hence, we arrive at our first research hypothesis:

H1: The entrepreneur's knowledge is positively related to the likelihood to engage in a new business activity

Research on academic knowledge and its respective transfer first began to flourish in the 1980s when particular attention began getting paid to the economy and new economic policies (Varga, 2009). This new approach stemmed not only from the literature emerging out of the new economic geographies (Krugman, 1991b) but also from endogenous growth theories (Romer, 1986, 1990) that pointed to the importance of empirically testing the existence and dissemination of knowledge alongside the rising interest in the appropriate “mix” of policies able to nurture university-based regional development similar to Silicon Valley or Route 128 (Isserman, 1994; Reamer et al, 2003). The neoclassical theories include both endogenous and exogenous growth models. These models have also come to stand out within the framework of economic growth theory (North, 1990). At the heart of this theory is the perception that technological transfers emerge out of the concrete intentions of various economic actors to raise their respective profits (Romer, 1990; Sugerstrom et al, 1990; Aghion and Howitt, 1992). However, according to Acs et al (2009), endogenous growth theories fail on a highly important point: the transmission of knowledge made by entrepreneurial spillovers to entrepreneurs (Audretsch, 1995). This implies that knowledge itself

constitutes a fundamental condition to the successful growth and expansion of companies (Acs et al, 2009).

According to the OECD (2007) position, universities perform an increasingly important role in terms of both transferring knowledge and the prevailing competitiveness of their host regions. A rising number of analytical findings on the importance of entrepreneurship at the regional level point to knowledge as the core driver of new companies and correspondingly emphasizing the spillovers of knowledge from universities and other R&D institutions. Thus, we propose the following hypothesis:

H2: The level of network knowledge positively relates to the likelihood of engaging in new business activities.

Methodology

The data applied refer to aggregate unbalanced panel data, structured at the national level and based on the Global Entrepreneurship Monitor over a five year period (2009 – 2013) (2009: 55 countries; 2010: 59 countries; 2011: 55 countries; 2012: 67 countries; 2013: 63 countries). In order to obtain these aggregate data, the GEM carried out telephone interviews of adults of a working age (aged between 18 and 64) applying a standardized questionnaire translated into the language(s) of the respective different country.

Measures

Dependent and Predictor Variables: Proportion of persons engaged in new business activities. This analysis serves as a dependent variable and incorporates the proportion of individuals in the process of setting up their own company at the time of data collection.

Entrepreneur Knowledge: As there are no aggregate data detailing the level of schooling of respondents at the national level, as variables we applied the previous experience of setting up businesses, thus, the proportion of persons currently owner-managers and running businesses and the perceptions as to respondent capacities to engage in launching a business and hence the proportion of persons who have the knowledge/skills required to start businesses.

Level of network knowledge: This evaluates the exposure of individuals to external knowledge through their networks and carried out according to the following variables:

firstly, the proportion of persons who know someone who started a business in the past two years and, secondly, the proportion of persons who acted as informal investors in the last three years.

Control variables: This includes the various control variables approaching the proportion of persons who experience a fear of failure that prevents them ever starting businesses, the proportion of persons who consider there are good conditions for starting businesses (opportunity), the proportion of persons perceiving starting businesses as a good career choice, the proportion of persons who think the media pay lots of attention to entrepreneurship and the proportion of persons attaching high status to successful entrepreneurs.

Data Analysis

The methodologies deployed to determine the factors influencing the proportion of individuals then undertaking processes resulting in the launch of their own companies featured multiple linear regression techniques based on panel data (for all years) and on cross-sections (for each year). The panel data methods (fixed effect and random effect models) generate advantages such as the ability to identify the relationships between the variables over the course of time and thus preventing estimate bias. The Hausman test was applied to determine just which model, fixed effects or randomized effects, proved the most robust. Four models underwent calculation: (I) a model including the two entrepreneur knowledge variables as its independent variables; (II) a model including the two variables to the level of network knowledge as its independent variables; (III) a model including the independent variables as its control variables; (IV) a model including the three aforementioned sets of variables as independent variables.

Results

The Hausman test results demonstrated the fixed effect model attained the highest robustness levels. The estimated fixed effect results display a high level of adjustment ($R^2 \geq 0.927$). Models I (Entrepreneur Knowledge) and IV (all variables) report a statistically significantly positive relationship between the proportion of persons currently running businesses they own and the proportion of persons engaged in business start-up activities (Model I: $b = 0.506$; $t = 10.960$; $p < 0.001$ and Model IV: $b = 0.468$; $t = 9.354$; $p < 0.001$). This thus demonstrates the relationship between an already existing characteristic, that of being an entrepreneur, and the propensity to found new companies and thereby partially supporting hypothesis 1. Model II (Level of network

knowledge) returns a statistically significant positive relationship between the proportion of persons who acted as informal investors in the last three years and the percentages of persons engaged in new business activities ($b = 0.068$; $t = 2.117$; $p < 0.05$). Correspondingly, this conveys how entrepreneurial knowledge gained as an informal investor holds a major influence over the opening of new businesses and thereby again partially in support of hypothesis 2. As regards the control variables, Models III (Control variables) and IV (all variables) both display the presence of a statistically significant and positive relationship between the proportion of people who consider starting businesses as a good career choice and that of persons actually engaged in business start-up activities (Model III: $b = 0.125$; $t = 2.545$; $p < 0.001$ and Model IV: $b = 0.094$; $t = 2.272$; $p < 0.001$) while Model III also identifies a statistically significantly relationship between the proportion of persons considering there are good opportunities to start businesses ($b = 0.084$; $t = 2.656$; $p < 0.01$) and the numbers perceiving that the media pays lots of attention to entrepreneurship ($b = 0.098$; $t = 2.903$; $p < 0.001$) and the proportion of persons actually engaged in business start-up activities. Hence, we verify that the characteristics of entrepreneurs, perceived as a good career option, with good opportunities prevailing and the importance attributed by the media to successful entrepreneurs all generate positive influences on the founding of new companies.

Analyzing the trends in the factors influencing the proportion of individual engaged in setting up their own firms by year (Table 5), we may also conclude that the estimated results for each year also demonstrate that the models display a robust level of adjustment ($R2 \geq 0.779$). We may thus observe how the proportion of persons currently running their own businesses significantly and positively influences the proportion of persons engaged in new business activities. As detailed above, the data for Models I and IV, and also for each year between 2009 and 2013, reports a positive relationship between the fact of being an owner and entrepreneur and launching new companies. As regards the required knowledge and skills necessary to launching businesses, this proves positively associated with the rate of persons engaged in new business activities in every year with the exception of 2011. When we analyze the annual values, we discover that contrary to that resulting from analysis of models I and IV, the need to obtain knowledge and skills to open a new business gets perceived as fundamental to its success. Thus, we may assume we prove hypothesis 1 with the exception of year 2011. In the case of the level of network knowledge variables, also reflected in model II, we

find that only for the years of 2009 and 2010 does this effect assume a positive effect on the founding of new companies. In 2009, the experience as an informal investor variable positively interlinks with the proportion of persons engaged in new business activities. In 2010, the factor of having personally known an entrepreneur does prove statistically and positively significant in terms of the proportion of persons engaging in new business activities. We thereby gain partial backing for hypothesis 2.

In the years between 2011 and 2013, the variables incorporated into model III return a statistically significant relationship between the percentage of persons who believe there are good opportunities for starting businesses and the proportion of persons engaged in new business activities. Only in 2009, does the media level of attention to entrepreneurship generate a positive and significant effect on the proportion of persons engaging in new business activities. Finally, the percentage of people attaching high status to successful entrepreneurs negatively impacts on the proportion of persons engaged in business start-up activities in the years of 2010, 2012 and 2013, hence, the greater the percentage of people attaching high status to successful entrepreneurs, the lower the actual proportion of persons engaging in new business activities. In this case, the status variable in model III, for the years of 2010, 2012 and 2013, holds no positive influence on the launch of new companies and instead has a contrary impact.

Implications and Value

When we consider our data broken down by years, we encounter just how the factors of knowledge and skills needed to launch new companies along with their being founded by already experienced entrepreneurs and consequently already holding such knowledge, positively drive the appearance of new businesses. Along with the perception that they represent a good career option, a good opportunity and the importance that the media attribute to successful entrepreneurs also generates a positive influence over the founding of new companies and firms. Thus, we may report on how in global terms, the intrinsic knowledge held by the entrepreneurs proves extremely important to the new entrepreneurship. This also reflects on the fact that we have increasingly qualified generations and they themselves attribute value to the knowledge acquired. We also encounter here the relationship between self-efficacy and entrepreneurship and stemming from three different reasons. Firstly, because people avoid careers and environments that they perceive as beyond their capacities (without

considering the benefits that they might obtain), and engage in those careers they deem themselves apt for (Krueger & Dickson, 1994). Secondly, as going into business implies important risks and difficulties, owners and managers would clearly seem to require high levels of self-efficacy. Thirdly, as self-efficacy shapes career choices, professional interests, levels of perseverance when facing difficulties and personal efficiency levels (Krueger & Dickson, 1994), the same needs interrelating with business activities.

Furthermore, given the importance attributed to knowledge, we would emphasise how this does not refer uniquely and exclusively to that intrinsically held by entrepreneurs but also that obtained through their respective networks and known as spillovers of knowledge. This is the point at which new entrepreneurs having already held the role of investor in informal terms attains greater influence due to the respective new entrepreneurs already knowing others in such positions. One feasible explanation would derive from how making such investments would provide information on the most profitable businesses along with means of access to all participants in a particular sector of activity. Thus, new business owners do not allow themselves to be either overly captivated or disenchanted by the experiences told by others but are rather swayed by that which they prove in the terrain. We are thus in the presence of two types of knowledge: tacit knowledge (from experience) and explicit knowledge (from the capacities acquired). Combining these knowledge types fosters and nurtures the conditions necessary for new companies to get launched.

References

Acs, Z., Braunerhjelm, P., Audretsch, D., Carlson, B., (2009). The knowledge spillover theory of entrepreneurship. Small Business Economics, 32 (1), 15-30.

Aghion, P, Howitt, P. (1992): “A model of growth through creative destruction. Econometrica, 60, 323 - 351

Arthur,J. B. (1994) ‘Effects of Human Resource Systems on Manufacturing Performance and Turnover’,Academy of Management Journal 37(3): 670–87

Boselie,P.,Paauwe,J. and Jansen,P. (2001) ‘Human Resource Management and Performance: Lessons from the Netherlands’,International Journal of Human Resource Management 12(7): 1107–25.

Brüderl, J. and Preisendörfer, P. (1998) ‘Network Support and the Success of Newly Founded Businesses’,Small Business Economics 10(3): 213–25.

Clerq, D and Arenius, P. (2013) ‘The Role of Knowledge in Business Start-up Activity’. International Small Business Journal 24(4):339–358

Cooke, P. and Wills, D. (1999) 'Small Firms, Social Capital and the Enhancement of Business Performance through Innovation Programmes', Small Business Economics 13(3): 219–34.

Fernandes, C., Ferreira, J. (2013) Knowledge Spillovers: Cooperation between Universities and KIBS, R&D in Management, 43(5): 461-472.

GEM (2014) 'Global Entrepreneurship Monitor'

Hebert, RF, and Link, A (1989): "In search of the meaning of entrepreneurial" Small Business Economics, 1: 39 – 49.

Huselid, M. A. (1995) 'The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance', Academy of Management Journal 38(3): 635–72.

Isserman, A. (1994): "State Economic development policy and practice in the United States: a survey article", International Regional Science Review, 16, 49-100.

Krueger, N. F. and Brazeal, D. (1994) 'Entrepreneurial Potential and Potential Entrepreneurs',Entrepreneurship Theory and Practice 15(3): 91–104.

Krugman, P. (1991): Geography and Trade. Leuven: Leuven University Press.

Lafuente, E., Vaillant, Y., and Serarols, C., (2010). Location decisions of knowledge-based entrepreneurs: Why some Catalan KISAs choose to be rural? Technovation 30, 590–600.

Liedholm, C. (2002) 'Small Firm Dynamics: Evidence from Africa and Latin America', Small Business Economics 18(1–3): 227.

Mitchell, R. K., Busenitz, L., Lant, T., McDougall, P. P., Morse, E. A., & Smith, J. B. (2002). Toward a theory of entrepreneurial cognition: rethinking the people side of entrepreneurship research. Entrepreneurship: Theory & Practice, 27(2), 93–104.

North, D. (1990), Institutions, Institutional Change and Economic Performance, Cambridge: Cambridge University Press.

OECD., 2007. Globalisation and Structural Adjustment –Summary report of the study on globalisation and innovation in the business services sector, available at, http://www.oecd.org/dataoecd/18/55/38619867.pdf.

Reamer, A., Icerman, L., Youtie, J. (2003): "Technology transfer and commercialization: their role in economic development", Economic Development Administration, US Department of Comerce.

Romer, P. (1986): "Increasing returns and long-run growth". Journal of Political Economy, 94, 1002-1037.

Romer, P. (1990): "Endogenous technology change", Journal of Political Economy, 98, S71-S102

Sugerstrom, P.S., Anant, T.C.A. Dinopoulus E. (1990). "A Schumpeterian model of the product life cycle". The American Economic Review, 80, 1077-1091.

Van Praag, C. M. and Cramer, J. S. (2001) ‘The Roots of Entrepreneurship and Labor Demand: Individual Ability and Low Risk Aversion’, Economica 86(269): 45–62.

Varga, A. (2009): Universities, Knowledge Transfer and Regional Development – Geography, Entrepreneurship and Policy. New Horizons in Regional Science, Edward