

Trends of rural entrepreneurship: essays concerning the theme

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BIOGRAPHICAL NOTE

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RESUMO

Esta tese consiste numa coleção de quatro ensaios relacionados com a temática do empreendedorismo rural.

No ensaio 1 dá-se conta que embora o empreendedorismo se tenha tornado um campo dinâmico de pesquisa nas últimas duas décadas, o empreendedorismo rural tem sido subestimado. Com base em 181 artigos sobre empreendedorismo rural publicados em revistas indexadas na *Scopus*, observou-se que o empreendedorismo rural é uma preocupação essencialmente Europeia. Além disso, as ‘características organizacionais’, as ‘medidas políticas’ e ‘os quadros institucionais e a governança’ são tópicos emergentes de pesquisa, tendo sido a ‘construção do conceito’ subestimada.

Daí que no ensaio 2 se tenha aprofundado o conceito e contornos do ‘empreendedorismo rural’. Com base numa pesquisa envolvendo 408 novas empresas localizadas em incubadoras de empresas e parques científicos e tecnológicos em Portugal, observou-se que apenas uma percentagem residual de empresas localizadas no espaço rural são exemplos de ‘empreendedorismo puramente rural’. Essas empresas tendem a ser pequenas em termos de força de trabalho e volume de vendas, funcionam principalmente no mercado nacional e apresentam constrangimentos em termos de desempenho.

Considerando as diferenças entre áreas rurais e urbanas, no ensaio 3 procura-se descobrir e racionalizar as diferenças entre as novas empresas localizadas no espaço rural e urbano. Com base na pesquisa referida, por meio de estatísticas descritivas e inferenciais, apurou-se que essas empresas diferem em termos de setor, dimensão, força de trabalho e desempenho, mas não em termos das características dos empreendedores.

Uma vez que existe pouca literatura acerca dos determinantes, nomeadamente institucionais, dos desempenhos das novas empresas localizadas em áreas urbanas e

rurais, no ensaio 4 procura-se atenuar esta lacuna. O estudo evidencia que os fatores institucionais que influenciam de maneira diferente as empresas em áreas rurais e/ou urbanas são o apoio financeiro, as redes sociais e as infraestruturas de conhecimento e tecnologia.

ABSTRACT

This thesis consists of a collection of four essays under the theme of rural entrepreneurship.

In essay 1 it is realized that although entrepreneurship has become a dynamic field of research in the last two decades, rural entrepreneurship has been underestimated. Based on 181 articles on rural entrepreneurship published on journals indexed in Scopus, it was noted that rural entrepreneurship is essentially a European concern. In addition, ‘organizational characteristics’, ‘policy measures’ and ‘institutional frameworks and governance’ are emerging topics of research, having been ‘theory building’ neglected.

Hence, in essay 2 the concept and outlines of ‘rural entrepreneurship’ have been deepened. Based on a survey involving 408 new companies located in business incubators and science and technology parks in Portugal, it was observed that only a residual percentage of new ventures located in rural areas are examples of ‘purely rural entrepreneurship’. These ventures tend to be small in terms of workforce and sales turnover, operate mainly in the domestic market and present performance constraints.

Considering the differences between rural and urban areas, the aim of essay 3 is to uncover and rationalize the differences between the new ventures in rural and the urban space. Based on the referred survey, through descriptive and inferential statistics, it was found that these ventures differ in terms of sector, size, workforce and performance, but not in terms of entrepreneurs’ traits.

Since there is little literature on the performance determinants of new ventures in rural and urban areas, particularly the institutional ones, this aim of essay 4 is to fill in this gap. The study shows that the institutional factors that influence companies differently in rural and/or urban areas are financial support, social networks and knowledge and technology infrastructures.

PUBLISHED PAPERS

An earlier version of the first essay ('Twenty years of rural entrepreneurship: a bibliometric survey' was published in FEP Working papers. Afterwards it was published in the *Journal Sociologia Ruralis* (Impact Factor (IF) 2016: 1.698; 31/79 (Geography); 35/143 (Sociology); Scimago Journal Rank Indicator (SJR) 2016: 0.605; 257/1001 (Sociology and Political Science)). Available from <https://onlinelibrary.wiley.com/doi/pdf/10.1111/soru.12058>

An earlier version of the second essay ('Rural entrepreneurship: the tale of a rare event') was presented at the Ciem2017 (7th Iberian Conference on Entrepreneurship: <http://www.empreend.pt/ciem2017/>), which took place in Esposende in 2017. This work was awarded the 1st Honourable Mention. Afterwards it was published in the *Journal of Place Management and Development* (Emerging Sources Citation Index; SJR 2016: 0.451; 102/344 (Business and International Management); 66/157 (Marketing); 138/373 (Strategy and Management); 40/84 (Tourism, Leisure and Hospitality Management); Geography, 223/638 (Planning and Development); 48/138 (Urban Studies)). Available from <https://www.emeraldinsight.com/doi/abs/10.1108/JPMD-08-2017-0085>

An earlier version of the third essay ('Are rural new ventures different from new urban ones? An exploratory analysis of businesses located in Portuguese incubators and science parks') was presented at the Ciem2015 (5th Iberian Conference on Entrepreneurship: <http://www.empreend.pt/conferencia2015/>), which took place in Oeiras. This work was awarded the 2nd Best Paper Prize. Afterwards the paper was submitted to the *Journal of Enterprising Communities: People and Place* (Emerging Sources Citation Index; SJR 2016: 0.296; 152/344 (Business, Management and Strategy); 350/560 (Economics and Econometrics); 192/373 (Strategy and Management)).

An earlier version of the fourth essay (‘Determinants of performance of new ventures located in incubators and science parks with a focus on institutional factors. Do rural and urban new ventures differ?’) is going to be submitted to an international journal related to Entrepreneurship, Marketing and Strategy.

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LIST OF ACRONYMS

BIs	Business Incubators
CCDR	Commission for Regional Coordination and Development
CEEDR	Centre for Enterprise and Economic Development Research
DGEEC	Direção Geral de Estatísticas da Educação e Ciência
EC	European Commission
ESPON	European Observation Network, Territorial Development and Cohesion
EU	European Union
GEE	Gabinete de Estratégia e Estudos
GEM	Global Entrepreneurship Monitor
GS	Google Scholar
GVA	Gross Value Added
ICT	Information and Communication Technologies
IF	Impact Factor
INE	Instituto Nacional de Estatística
IT	Information Technology
KISA	Knowledge-Intensive Service Activity
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
R	Rural
R&D	Research and Development
RDA	Regional Development Agencies
SJR	SCImago Journal Rankings
SMEs	Small and Medium Enterprises
SNIP	Source Normalised Impact per Paper
SPs	Science Parks
SPSS	Statistical Package for the Social Sciences
U	Urban
UK	United Kingdom
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States
VIF	Variation Inflation Factor
WOS	Web of Science

ESSAY 1: TWENTY YEARS OF RURAL ENTREPRENEURSHIP: A BIBLIOMETRIC SURVEY

Twenty years of rural entrepreneurship: a bibliometric survey

Abstract

Entrepreneurship has become a dynamic field of research in the last two decades. However, 'rural entrepreneurship' has been largely overlooked. It seems therefore timely to present a quantitative survey of the literature in this particular area. Based on 181 articles on rural entrepreneurship published in journals indexed in Scopus, we found that rural entrepreneurship is an essentially European concern, whose most prolific authors are affiliated in institutions located in the UK and Spain. 'Organisational characteristics', 'Policy measures' and 'Institutional frameworks and Governance' have attracted considerable attention in recent years, being considered as emergent topics of research. In contrast, 'Theory building' has not attracted much research over the period in analysis, which suggests that the theoretical body of rural entrepreneurship is still incipient, hindering the establishment of its boundaries and of a suitable research agenda. Empirical literature on rural entrepreneurship has mainly focused on developed countries, most notably, the UK, USA, Spain, Finland and Greece. Given the potential rural entrepreneurship represents for less developed and underdeveloped countries, more research on the topic targeting these countries is an imperative.

Keywords: rural entrepreneurship; bibliometric analysis

1. Introduction

Although the references to ‘rural entrepreneurship’ related topics predate the 1980s (Gladwin et al., 1989), using other concepts than ‘rural entrepreneurship’, it only came to feature more prominently in the literature in the 1980s due to changes and crises in rural society (Wortman Jr., 1990). A greater awareness that entrepreneurship could contribute to rural development may explain this rise in interest (Kulawczuk, 1998; Fuller-Love et al., 2006; Vaillant and Lafuente, 2007). Indeed, it was found that entrepreneurship, viewed as the establishment of new business, has generally had a positive influence on employment (Labrianidis, 2006a) and welfare in rural areas (Chun and Watanabe, 2012). Moreover, several opportunities have emerged in rural areas, including an increased demand for recreational and rural amenities and the quality of rural products and services, such as tourism (Stathopoulou et al., 2004).

In general, rural regions represent about 75% of the land and almost a quarter of the population in the Organisation for Economic Co-operation and Development (OECD) countries (OECD, 2006). In the European Union (EU), rural regions cover 57% of the territory and 24% of the population (European Commission [EC], 2012). Rural regions face significant challenges in comparison to other regions (Brown and Schafft, 2011), which are even more critical in the so-called peripheral or mountain regions (López-i-Gelats et al., 2009). Here, the problems generally stem from a rapid decline in employment in a supposedly dominant agricultural sector (Terluin, 2003), suffering from a poor socioeconomic environment, low density, and an ageing population, as well as from distance to markets and services (OECD, 2006). Such characteristics, among others, have substantial influence on entrepreneurial dynamics and job creation (Dinis, 2006a; Culliney, 2014), on the quality of educational and other public service resources, and on the existence and quality of certain types of infrastructure (OECD, 2006; von Reichert et al., 2014). Problems are particularly evident in terms of employment opportunities (Bosworth, 2012) and access to public services, such as education and health services (Lehmann et al., 2008).

The issue of rural development is on the agenda of several governments and institutions (e.g., EC, OECD, United Nations). For instance, in the EU the strong risk of depopulation in rural areas, combined with their unquestioned importance, have led to

the formulation of several different European programmes and policies which national governments have adopted to encourage the development of these areas and their corresponding sectors (Hernández-Maestro and González-Benito, 2014).

In general, all the agents involved, but most particularly, public policy authorities agree on the urgency of developing enterprises located in rural areas (Petrin and Gannon, 1997; Steiner and Atterton, 2014): farmers consider it an instrument to increase farm earnings (McElwee, 2006); women perceive it as an employment prospect and a way to apply their capabilities (Driga et al., 2009); young people understand it as a job opportunity in their region (Moreira and Martins, 2009); and public policy authorities regard it as a key strategy to promote local development (North and Smallbone, 2006).

Despite keen interest in rural entrepreneurship, and the existence of some high-quality surveys on the concept of rural entrepreneurship (e.g., McElwee and Atherton, 2011; McElwee and Smith, 2014), to the best of our knowledge, a quantitative, bibliometrically based survey has yet to be conducted on this matter. Existing surveys offer a focused (and in-depth) perspective, without generally providing a comprehensive picture and the relative positioning of topics within the rural entrepreneurship literature. Bibliometric tools and bibliometric surveys provide, in complement to these more qualitatively-led surveys, an analysis of recent paths in a given research field (Teixeira, 2011, 2014) and an objective assessment of the seminal contributions and contributors (Du and Teixeira, 2012). In addition, they contribute to shedding light on the dynamics of particular types of methodologies (formal versus appreciative and empirical) (Cruz and Teixeira, 2010) and topics (e.g., historical accounts, policy-related issues) (Silva and Teixeira, 2009), as well as providing an analysis of publication trends for authors, journals and patterns of research (McElwee and Atherton, 2005).

This paper is based on a bibliometric analysis of the literature on rural entrepreneurship. Specifically, the most important contributors and their geographical distribution are identified, as well as the major outlets where rural entrepreneurship studies have been published, the evolution of the main subject areas, main topics, main empirical methodologies and countries analysed.

The paper consists of five parts. After the introduction (Section 1), Section 2 contains a review of the concept of rural entrepreneurship and main topics within it. The study

design is explained in Section 3, while Section 4 presents and discusses the results of the bibliometric analysis. Finally, in the Conclusions (Section 5), the study's main results are summarised, the study's limitations are pointed out, and possible areas for future research are put forward.

2. Rural entrepreneurship: a qualitative overview

In order to provide an overview of the literature on rural entrepreneurship, it is important to first clarify the meaning of 'rural', positioning rural entrepreneurship within the more general entrepreneurship literature, and discuss the main sub-topics within extant rural entrepreneurship literature (including, theory building; entrepreneurs' demographic traits; entrepreneurs' psychological traits; organisational characteristics; embeddedness; rurality; growth and development; policy measures; and institutional frameworks and governance).

2.1. The meaning of rural

To define rural is not an easy task. Indeed, rural means different things to different people. For local people it represents the (often) hard conditions of life and for urban people it can be seen as a nostalgic and idyllic place (Figueiredo, 2011) comprising diverse characteristics, such as open spaces, or certain behavioural qualities (European Observation Network, Territorial Development and Cohesion [ESPON], 2005) that seem to attract outsiders.

In this broad debate on rural spaces, several authors put forward their own vision or definition of the concept. One of the most used criteria is the demographic one (Copus et al., 2008). Although rural spaces are usually characterised by having less people than urban spaces, the territorial unit, criteria and threshold vary considerably between countries. For instance, in Portugal a rural space is a parish that has a population density below 100 inhabitants per square kilometer (Instituto Nacional de Estatística [INE], 2013) whereas in Spain the rural space is defined as the municipality that has less than 10000 inhabitants (Camarero et al., 2009).

Additionally, we also observe a variety of typologies to classify rural or rural-urban space. Three main reasons (EU, 2013) explain this diversity in typologies: (1) the various perceptions of what is (and what is not) rural and of the elements characterising 'rurality' (demographic, socioeconomic or cultural) ; (2) the objectives of the study; and (3) the difficulty in collecting relevant data at the level of the basic units analysed (administrative unit, grid cell, parish, etc.).

Rural typologies usually go beyond the simple dichotomy of rural-urban space. Two types of typologies are often mentioned: spatial and socioeconomic or performance typologies. The spatial typology is based on demographic criteria such as settlement size, population density or active population in agriculture. Socioeconomic or performance typologies are often based on indicators such as institutional , social, economic and environmental conditions and performance (Copus et al., 2008). Although is not easy to establish a precise boundary because some typologies are hybrids (Copus et al., 2008), the difference between the spatial and performance typologies reflects the fact that the former mirrors the existing structure of rural-urban relations, whereas the latter expresses problems and dynamics related to rural areas (ESPON, 2003).

Regardless of the definitions and typologies, which are often associated with some threshold, the European Community's (EC, 1988) definition, put forward more than twenty five years ago, remains valid. Thus, rural spaces extend over regions and areas presenting a variety of activities and landscapes which comprise natural countryside, farmland, villages, small towns, regional centres and industrialised rural areas and incorporate a wide range of activities like farming, commerce, services and also small and medium industries.

2.2. Entrepreneurship and rural entrepreneurship

The origin of the word 'entrepreneur' comes from the French verb 'entreprendre', which means 'to undertake' (Landström, 2005). Joseph Schumpeter contributed significantly to the theory of entrepreneurship through his seminal book 'The Theory of Economic Development' (published originally in 1934), where entrepreneurship is viewed as the primary engine of economic development with innovation as a central element (Lordkipanidze et al., 2005).

According to Schumpeter (1934), an entrepreneur is an individual who innovates and creates new combinations, thus becoming a dynamic agent of change for the economy. Such combinations can take various forms, such as (Brockhaus, 1987; Bull et al., 1995): developing new products; developing new methods of production; identifying new markets; developing new sources of supply; and implementing some new organisational forms of the industry. In this sense, entrepreneurship is a multifaceted phenomenon with diverse definitions and meanings. In fact, almost 80 years since the publication of Schumpeter's pioneering work (1934), there is still little agreement among scholars regarding the concept. Entrepreneurship has distinct meanings for a diverse range of authors, namely: innovation (Dinis, 2006a), risk-taking (Hawley and Fujii, 1993), establishment of a market (Polo-Peña et al., 2013), and the creation and management of a (small) business (Bryden and Keith, 2004).

With regard to rural areas, which encompass territories with specific physical, social and economic characteristics (Stathopoulou et al., 2004), there is increasing demand and interest in proposing entrepreneurship as a new form of business and therefore as a key element in the process of rural development, especially of more laggard areas (Lafuente et al., 2007).

One of the first studies that conceptualised rural entrepreneurship was that of Wortman Jr. (1990). Rural entrepreneurship is defined as ... 'the creation of a new organization that introduces a new product, serves or creates a new market, or utilizes a new technology in a rural environment' (Wortman Jr., 1990, p. 330). Similarly, more recently, other authors identify rural entrepreneurship with the creation of firms in rural areas (Lafuente et al., 2007; Vaillant and Lafuente, 2007) and/or the development of small firms (Dinis, 2006a; Meccheri and Pelloni, 2006).

It is important to note, however, that whilst many firms in rural areas present 'rural characteristics' as they are embedded in the local economy, others simply appear more or less fortuitously in the rural space (Labrianidis, 2006b). In this context, an effective definition identifies rural enterprises with businesses that employ local people, use and provide local services and generate income to the rural environment (McElwee and Atherton, 2011; McElwee and Smith, 2014). Subsequently, a rural entrepreneur is someone living in a rural environment (Stathopoulou et al., 2004), who is community-

based and very much influenced by social networking and social traits of that rural locality (Akgün et al., 2010a).

This definition would exclude the businesses located in a rural setting but exclusively trade outside the local economy, do not employ local people nor use local resources or local business services and therefore, do not contribute to the rural economy (McElwee and Atherton, 2011). In fact, when enterprise and entrepreneurship are explored in a rural context, studies often focus on entrepreneurs within a rural context (Vik and McElwee, 2011).

As in businesses located in urban areas, the ability to recognise innovative, unexploited market opportunities is also important in rural entrepreneurship (North and Smallbone, 2000a). Rural businesses need to create something different that can change the rules of the game and add value (Bhattacharyya, 2006). This is often achieved by extracting new value from the traditional and by linking the characteristic and uniqueness of the local to produce genuine goods with value (Anderson, 2000).

2.3. Main sub-topics on rural entrepreneurship

Existing studies on rural entrepreneurship have focused on quite distinct yet interrelated topics, highlighting a noticeable multidisciplinary trend in the approaches (ranging from demographic to health-related issues). It is possible to identify several main topics, which beside the (1) theory building category, include, from micro to macro (cf. Table 1): (2) entrepreneurs' demographic traits; (3) entrepreneurs' psychological traits; (4) organisational characteristics; (5) embeddedness; (6) rurality; (7) growth and development; (8) policy measures; and (9) institutional frameworks and governance.

'Entrepreneurs' demographic traits' includes aspects such as age, gender or origin of the entrepreneur. Although placing particular emphasis on the role of variables reflecting the human capital of entrepreneurs, Meccheri and Pelloni (2006) analyze the effects produced by a number of other factors, namely the entrepreneur's age. They note that younger entrepreneurs are generally more dynamic and more likely to adopt riskier business development strategies, which may suggest a greater need for financial resources. On the other hand, Akgün et al. (2010b) stress the importance of the entrepreneurs' origin and conclude that newcomer entrepreneurs are relatively older,

better educated, and develop non-agricultural businesses. They also found that newcomer entrepreneurs are not directly the instigators of rural economic development, but their contribution to physical capital formation is greater than that of locals.

Table 1: Rural entrepreneurship topics identified in the literature

	Topic	Sub-topic
History and roots of the concept	Rural entrepreneurship theory building	
	Entrepreneurs demographic traits	Age; Origin; Gender
	Entrepreneurs psychological traits	Motivations; Individual skills; Human Capital
Microeconomic approach		Innovation; Size; Internationalisation; Sector; Product/ Service Innovation; Market Development; Marketing Methods; Process Technology; Use/adoption of ICTs
	Organisations' characteristics	
Micro-macro approach	Embeddedness	Networks; Social Ties; Collaboration
Macroeconomic approach	Rurality	Physical, Social, Economic characteristics
	Growth and development	Economic Growth and Development
	Policy measures	Supporting; Financing; Funding
	Institutional frameworks and governance	Socio-cultural Factors; Social Traits; Self-governance; Institutional Capacity

A reasonable number of studies, such as the one by Rijkers and Costa (2012), stresses gender traits in rural entrepreneurship. In particular, these authors conclude that in the countries they investigated (Bangladesh, Indonesia and Sri Lanka), women are less likely to be non-farm entrepreneurs than men. Moreover, they find that women's non-farm entrepreneurship is neither strongly correlated with household composition nor with educational attainment and that firms by female entrepreneurs are, in general (with the exception of those in Indonesia), smaller and less productive. Additionally, Pagán (2002) notes that in rural Guatemala there are substantial differences in the labour force participation rates for man and women and in self-employment – men have higher rates of labour force participation and also in self-employment. Focusing exclusively on female entrepreneurship, Frear's (2007) findings are very similar to those of Hisrich and Brush (1984), i.e., the majority of female entrepreneurs is married with children, tends to start new businesses around the age of 40, and has some college education.

'Entrepreneurs' psychological traits' have also been widely studied, particularly the sub-topic of entrepreneurial motivations. Gladwin et al. (1989) point out motivations

related to the desire for autonomy, a new challenge or adventure, more money or income, the sudden appearance of a good opportunity, and even the loss of a previous job/farm. More recently, some authors (e.g., Ateljevic and Doorne, 2000; Hollick and Braun, 2005) emphasize the concept of lifestyle entrepreneurship. For instance, in the rural tourism sector, findings by McGehee and Kim (2004) coincide with Getz and Carlsen's (2000) idea of entrepreneurship as a lifestyle. It can be said that the motivations of these 'new entrepreneurs' are quite different, since they are individuals who own and operate a business without focusing mainly on profits, i.e., the way they run their business is closely aligned with their personal values, interests and passions (Marcketti et al., 2006). Another sub-topic that has drawn attention in recent studies is individual skills. Indeed, Pyysiäinen et al. (2006) show how it is possible to develop a fuller understanding of the skills rural farmers require in order to become entrepreneurs. These authors conclude that the contexts of conventional farming and business diversification call for different entrepreneurial skills, some of which are more amenable to training than others. In this sense, McElwee (2006) also suggests that a major challenge for the agricultural sector is enabling farmers to develop their entrepreneurial skills. As Skuras et al. (2005) found, human capital accumulation processes related to education and training or managerial experience still play a prime role in predicting successful businesses in rural areas.

In terms of 'organisational characteristics', some authors (e.g., North and Smallbone, 2000a, 2000b; Dinis, 2006a, 2006b), have emphasised the topic of 'innovation', i.e., the attempt to create competitive advantage by perceiving new and better ways of trading and competing in an industry and bringing them to market (Porter, 1998). North and Smallbone (2000a) for instance, inspired by a broad, evolutionary view of the innovation process of firms in rural areas of England, identify and measure innovative behavior in five dimensions, namely: product and service innovation, market development, marketing methods, process technology and innovation and use of computers/Information Technology (IT) in administration. Based on an index (ranging from 1 to 10 points) of total innovative activity, these authors found that there is a small, but nevertheless significant, number of highly innovative rural firms. Indeed, 25 of the firms studied (7.5% of the total) achieved scores of 7 or more, showing that they

were innovative across the five dimensions, and approximately 50 (15.0%) achieved a score of 6 indicating that they were innovative in most aspects of the business.

Polo-Peña et al. (2012), in their turn, emphasize the importance of marketing in rural enterprises. These authors argue that the use of marketing adapted to the aims, capacities and resources of such enterprises is a mechanism for improving their performance.

Aware that research should not consider the rural entrepreneur in isolation but also investigate the social context in which the entrepreneurial process takes place, a large number of authors (Kalantaridis and Bika, 2006b, 2006a) also have been emphasised the topic of ‘embeddedness’.

The concept has been used recently in social science research (Wang and Altinay, 2012) and arose from Granovetter’s (1985) study. It refers to a conceptual and operational approach to identify the nature, depth, and extent of entrepreneurs’ ties to a (rural) location. According to Granovetter (1985), economic activities need social relations, which have an important and significant role in terms of generating trust for economic activities to happen. Thus, embeddedness is also related with networks (cf. Akgün et al., 2010a), a prominent sub-topic studied in rural entrepreneurship. Other authors, such as Barkham (1994) and Portes (1998), highlight the importance of entrepreneurs’ social capital, i.e., the ability of actors to take advantage of their social structures, networks, collaborations and ties (Woolcock and Narayan, 2000).

More recently, Floysand and Sjaholt (2007) define network as local, informally organised links among actors which generally promotes endogenous development. On this matter, Atterton (2007) notes that networks help to overcome some of the disadvantages of a peripheral location by often serving as a means to achieve economies of scale (for instance, in accessing distant markets) or as a source of support, information and knowledge, especially given the absence of more formal information in many sparsely populated areas. Besides the attention paid to networks, some authors also stress the importance of collaborations in rural entrepreneurship. Young (2010), for example, explores the kind of partnerships or links a firm establishes with another business or businesses and notes some interesting collaborations. These collaborations involve not only inter-firm support, but also the coordinated provision of services to

clientele. Gerasymchuk (2009) also underlines collaborations among small agricultural and agro-tourist enterprises. According to this author, the model of such cooperation should allow enterprises to make use of its advantages so as to overcome the seasonality in their activity. Taking rural entrepreneurship into consideration, Meccheri and Pelloni (2006) also introduce the concept of social/local ties. These authors conclude that entrepreneurs with strong social ties within rural communities are more involved with networks of local assistance and less inclined to exploit institutional assistance.

From a more global or macro perspective, some authors (e.g., Stathopoulou et al., 2004) highlighted the sub-topic 'rurality'. In traditional descriptive terms, it focuses on the milieu and includes issues such as the level of population density, the rate of population loss or gain, settlement size, local economic structure and landscape (Skuras, 1998). As Avramenko and Silver (2010) claim, rurality offers a different entrepreneurial milieu in which enterprises may flourish and prosper (Stathopoulou et al., 2004). Additionally, the shift in society and the opportunities offered by Information and Communication Technologies (ICTs) can gradually eliminate the boundaries of local markets, expose economic activity to greater competition from the outside (Grimes, 2003), and enhance the learning capacities of rural areas by improving access to relevant information (Grimes, 2000). Nevertheless, the milieu of rural areas also presents strong constraints in relation to entrepreneurship. For instance, as noted by Stathopoulou et al. (2004), distance to urban centres affects the transport costs of inputs and outputs and still has implications on information dissemination.

Other sub-topic within the macro perspective is 'growth and development'. Studies under this sub-topic, such as that of Fuller-Love et al. (2006), advocate the use of scenario analysis to develop foresight for the improvement of policies to support rural entrepreneurship and ultimately economic development. Other types of studies (e.g., Goetz et al., 2010) explore the role of entrepreneurship in economic growth and development, paying particular attention to types of entrepreneurship (namely, necessity versus opportunity) and the various ways in which entrepreneurship can be modeled to improve the rural economy. The need to promote entrepreneurship to accelerate economic development is also explored by Rena (2009), who contends that entrepreneurial orientation in rural areas is based on stimulating local entrepreneurial talent and subsequent growth of indigenous companies.

A substantial number of studies (e.g., Drabenstott et al., 2003; North and Smallbone, 2006) emphasize the issue of ‘policy measures’. Many are concerned with the various policies that encourage rural entrepreneurship and further support rural firms. According to Drabenstott et al. (2003, p. 75), the role of entrepreneurship policy is to help regions create an ‘entrepreneurial ecosystem’. Currently, there is a diverse range of policies, programmes and measures which are concerned with stimulating and supporting various types of rural entrepreneurship. However, much of the evidence shows that the policies are often unable to leverage the growth and development of rural entrepreneurship (Pezzini, 2001). Given the complex structure of the required policies, a more strategic and coordinated approach is necessary, directed at building the entrepreneurial capacity of rural areas, based on a clear view of the mission that enterprises can have in future rural development (Smallbone and Welter, 2006).

The topic of ‘Institutional frameworks and governance’ has attracted considerable attention from several researchers. Effective policies to encourage and support rural entrepreneurship are likely to be influenced by the regions’ governance bodies (Avramenko and Silver, 2010). Indeed, evidence indicates that many regions are entrepreneurially laggard, not only because of their physical disadvantages, but because of inadequate governance bodies and the sociocultural traits of their institutional framework, which make them non-conducive to effective entrepreneurial activity (Fornahl, 2003). Avramenko and Silver (2010) call for the need to improve the effectiveness of rural governance by shifting the emphasis from localised changes in the existing and sometimes inadequate policies of rural entrepreneurship towards fostering rural entrepreneurship on a wider scale, by building and developing the indicators for inclusion in rural governance policies.

Rural governance draws attention to the ways in which governmental and non-governmental organisations work together (Goodwin, 1998). However, the meaning of governance transcends what happens to organisations and businesses in a region. It addresses issues related to the capacity to represent regions, organisations and businesses outside the region. It develops more coordinated strategies and organizes collective action towards specific goals (Stathopoulou et al., 2004). Weak governance, allied to sociocultural barriers and the lack of previous entrepreneurial role models, are

some of the most important ‘institutional’ barriers that hinder (rural) entrepreneurship (OECD, 2003; Lafuente et al., 2007; Vaillant and Lafuente, 2007).

3. Methodological approach

To provide additional insights on the main trends of rural entrepreneurship research, a major bibliometric exercise was performed, which involved the gathering of relevant articles in a first phase, and then the analysis and classification of the abstracts/papers from all articles published on rural entrepreneurship found in the Scopus Sci Verse bibliographic databases up to 31 March 2013.¹

Bibliometric studies are based on three main sources of data: the ISI Web of Science (WOS), Google Scholar (GS) and Scopus. WOS is the oldest citation resource, containing the most prestigious academic journals, whereas GS and Scopus appeared in 2004 (Adriaanse and Rensleigh, 2013). Adriaanse and Rensleigh (2013: 741) demonstrate that ‘Scopus performed better (surpassed) WOS and GS regarding inconsistencies [such as incorrect titles and volume numbers] encountered during the completeness and quality of the content verification process’. Besides retrieving multiples copies, GS also yields the most inconsistencies. Comparing the strengths and weaknesses of the three databases, Falagas et al. (2008) conclude that GS, although providing the retrieval of more information, is marred by inadequate, less frequently updated, citation information. They further add that, compared to WOS, Scopus covers a wider range of journals, including more articles, but is currently limited to recent articles (published after 1995). Focusing on the social sciences, Norris and Oppenheim (2007) demonstrate that when aspects related to functionality, the quality of record processing and depth of coverage are taken into account, Scopus has a significant advantage over WOS and GS, urging researchers to use Scopus as an alternative to WOS (and GS) as a tool to evaluate research impact in the social sciences. Based on the above arguments, we opted to use Scopus as our bibliographic database in this study.

It should be noted that although bibliometric methods have expanded across the research evaluation landscape, several questions have arisen related to coverage,

¹ Scopus is the largest abstract and citation database of peer-reviewed literature, covering 16500 peer-reviewed journals on scientific, technical, medical and social sciences fields.

communication practices among scholars and language employed (Archambault et al., 2006). For example, bibliometric analyses can only be applied to the published literature in journals that are indexed with respect to citations and do not cover unpublished works, works in non-indexed journals, and non-journal printed works such as books, dissertations, reports, or government documents. Bibliometric assessment of research presence, performance, and impact has been based on a core assumption that scientists with important information actively seek to publish their findings in international journals (Van Raan, 2005). This might be the case for a well-established area, in which the above limitations are not really problematic. However, in the case of emergent areas of scientific knowledge or areas more related to the social sciences, where informal meetings, conference outputs and books are important outlets for diffusing knowledge produced, such limitations can reduce the scope of the analysis.

The methodological guidelines of Trettin and Welter (2011) served as the basis to select the set of relevant studies, in terms of journal articles, that could reflect the field of rural entrepreneurship. Accordingly, a list of keywords related to entrepreneurship was used (most notably, ‘entrepreneur*’ and then ‘young firm’, ‘spinoff’, ‘firm births’, ‘new firms’, ‘new businesses’, ‘new ventures’, ‘business creation’ and ‘self-employment’). The search was conducted considering all years up to the moment of the search, selecting only articles or reviews indexed in Scopus. We subsequently limited the outcome of the search to articles related to ‘regional’ and then to ‘rural’.

Although bibliometric exercises have a limitation with regard to the chosen keywords (Silva and Teixeira, 2009), as it is virtually impossible with only some keywords to embrace the entire reality under analysis (in this case, rural entrepreneurship), these exercises serve to capture the core journal articles published in a given area of study (Santos and Teixeira, 2009).

This procedure yielded 671 articles. We exported all these articles to an Excel spreadsheet and created a new database with the following relevant fields: authors’ name, title of the article, year of publication, source and abstract. In a first stage of the process, we read the abstracts (and, in several cases, the whole article) and selected only those that effectively referred to matters related to ‘rural entrepreneurship’. Of the 671 articles, 181 addressed the general theme of ‘rural entrepreneurship’.

In a second stage, we downloaded the 181 relevant articles, read and classified each of them according to several dimensions: main topic, type of article, empirical methodologies, unit of analysis, and countries of analysis.

Regarding the main topics, and following the previous section, articles were classified into 9 topics (cf. Section 2) plus a residual category ‘Others’: (1) rural entrepreneurship theory building, (2) entrepreneurs’ demographic traits, (3) entrepreneurs’ psychological traits, (4) organisational characteristics, (5) embeddedness, (6) rurality, (7) growth and development, (8) policy measures, (9) institutional frameworks and governance, and (10) other.

In order to identify the type of article according to the main method of research, and following Nelson and Winter’s (1982) original proposal, as well as the contributions of Yadav (2010) and Castro e Silva and Teixeira (2011), the articles were divided into four categories: (1) conceptual; (2) appreciative/discursive; (3) empirical; and (4) formal. The articles classified as ‘conceptual’ focus primarily on theory development and do not present data and/or analyses for purposes of theory testing. The articles classified as ‘appreciative/discursive’ include mainly appreciations, critical papers, and judgments. Articles characterised as ‘empirical’ are exclusively concerned with testing of data, namely using econometric or statistical analyses. Papers characterised as ‘formal’ devise mathematical and/or analytical/logical frameworks.

We then classified the empirical articles, adapting the proposals of Malhotra et al. (2013) and Castro e Silva and Teixeira (2011), by main empirical methodologies used: (1) descriptive and exploratory analysis; (2) multivariate models; (3) qualitative analysis; and (4) survey. ‘Exploratory and descriptive statistics’ provides numerical and graphic procedures to summarize a collection of data in a clear and understandable manner. It can include not only distribution, central tendency or dispersion of variables but also ANOVA and correlation tests and cross-tabulation measures. ‘Multivariate models’ are more sophisticated in terms of analysis. They are concerned with the understanding of the different aims and background of each of the different forms of multivariate analysis, and how they relate to each other. They include regression analysis, factor analysis, cluster analysis, and so forth. ‘Qualitative analysis’ employs a qualitative approach (instead of quantitative) and often includes case studies,

ethnographic or narrative studies. The articles involving a comprehensive review of published and unpublished works from secondary source data in the areas of a specific interest are classified as ‘survey’.

We also classified the empirical articles according to their unit of analysis, which could range from micro to macro: (1) individuals, (2) firms, (3) other organisations/firms, and (4) regions and countries. Regarding this latter category – countries – our database includes reference to the countries analysed as well as their income group (according to the World Bank categorization: Low, Lower and Upper Middle, and High income).

In a third stage, in order to identify which were the main subject areas that have published research related with rural entrepreneurship, we employed to the SCImago classification to identify the journals’ main subject areas as well as their impact factor (IF), which is often considered a proxy for the journals’ scientific ‘quality’ (Vieira and Teixeira, 2010). Two impact measures referring to 2012 were used: SCImago Journal Rankings (SJR) and Source Normalised Impact per Paper (SNIP). SJR is a measure of the scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations come from.² SNIP measures the average citation impact of the publications of a journal and, unlike the well-known journal impact factor, SNIP corrects for differences in citation practices between scientific fields, thereby allowing for more accurate between-field comparisons of citation impact.

In a fourth stage, we performed the bibliometric analysis, based on simple, exploratory statistics (cf. next section).

4. Bibliometric analysis of rural entrepreneurship research

4.1. The evolution of studies on rural entrepreneurship

Rural entrepreneurship began to have a place in the literature (although still small) in the 1980s. As shown in Figure 1, before 2000, the number of rural entrepreneurship

² The SJR indicator is a free journal metric which uses an algorithm similar to PageRank and provides an alternative to the IF, which is based on data from the Science Citation Index.

related papers published in journals indexed in Scopus was rather negligible.³ Similarly to general entrepreneurship articles, the number of rural entrepreneurship papers increased gradually in the last six years. This can be explained not only because the literature on entrepreneurship is growing, but also because problems (such as depopulation, unemployment and lack of opportunities) in rural areas (particularly in laggard ones) are increasing, attracting the attention of an increasing number of researchers.

Nonetheless, it is evident that studies on rural entrepreneurship are still quite low in the literature on entrepreneurship (representing less than 30% in the period considered). This difference is still more noticeable after 2010, where there are more than one hundred articles per year on entrepreneurship, and just over 25 on rural entrepreneurship.

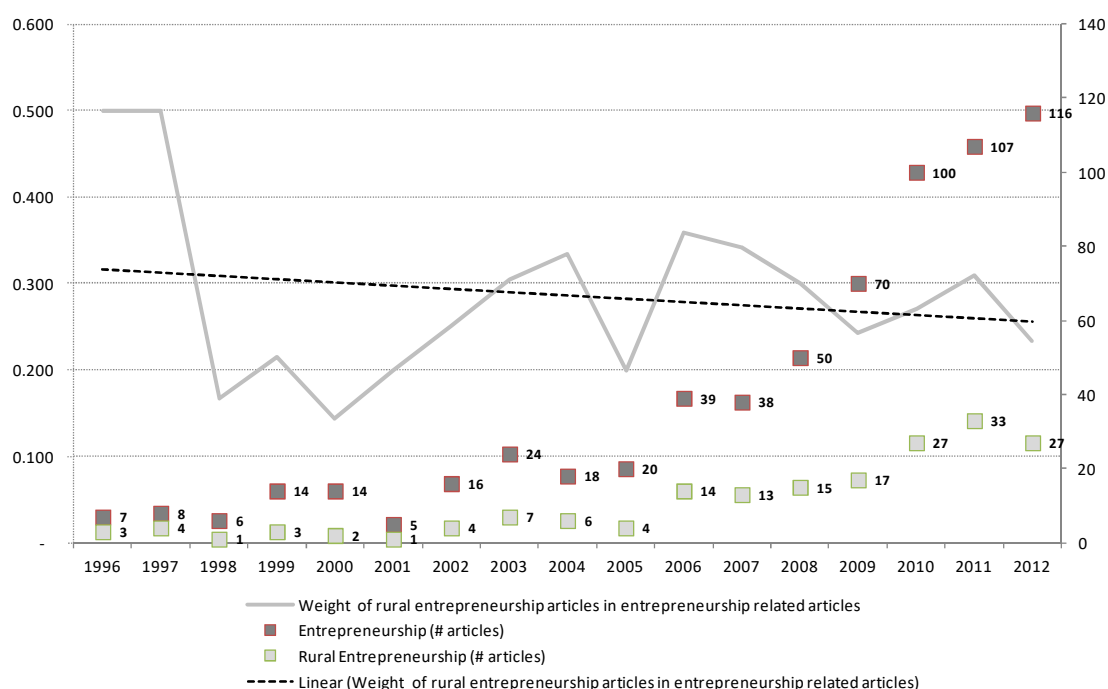


Figure 1: Weight of rural entrepreneurship articles in entrepreneurship-related articles

Source: Own computation based on data gathered from Scopus Sci Verse.

³ It is important to note that the Scopus database is not very representative of publications before 1995, which in part may explain the negligible figures we found in the earlier periods.

The evolution and weight of rural entrepreneurship related articles is lower than that of general entrepreneurship related articles, reflected by the (slightly) negative trend shown in Figure 1.

Summing up, in addition to being residual, literature on rural entrepreneurship, at least in the articles published in journals indexed in Scopus, has been losing momentum in (general) entrepreneurship literature.

4.2. Main contributors

It is interesting to note that seven of the thirteen authors in the Top-10 most prolific authors on rural entrepreneurship belong to universities or schools from the United Kingdom (UK). There are no authors affiliated to organisations in the United States (US) in this ranking. Given the hegemony of US authors in entrepreneurship literature (Teixeira, 2011), it is apparent that rural entrepreneurship is a European concern, most notably in the UK and Spain. The vast majority of authors within this ranking present research interests around rural entrepreneurship. The exceptions are Peter Nijkamp (Vrije University, The Netherlands) and Colin Williams (University of Sheffield, UK), whose research interests are related, respectively, to regional studies and informal entrepreneurship. These two authors have a remarkable number of publications indexed in Scopus and also a large number of citations and a high h-index, which reflects their scientific visibility and influence (see Table 2).

Table 2: Main contributors in rural entrepreneurship

Ranking	Name of the author	Affiliation (country)	Total n° of publications in Scopus (N° Citations) [h index]*	Main research interests	N° of articles published on 'rural entrepreneurship'
1	Kalantaridis C.	Bradford University, Enterprise and Innovation Lab, Bradford (UK)	29 (199) [8]	Rural entrepreneurship	7
2	McElwee G.	Sheffield Business School, Sheffield (UK)	20 (92) [6]	Rural entrepreneurship (with a focus on farmers)	6
3	Baycan-Levent T.	Istanbul Technical University, Department of Urban and Regional Planning (Turkey)	17 (64) [4]	Ethnic entrepreneurship	4

Ranking	Name of the author	Affiliation (country)	Total n° of publications in Scopus (N° Citations) [h index]*	Main research interests	Nº of articles published on 'rural entrepreneurship'
4	Bosworth G.	University of Lincoln, College of Social Science, Lincoln (UK)	10 (24) [3]	Rural tourism entrepreneurs	4
5	Lafuente E.	Universitat Politècnica de Catalunya, Barcelona Tech, Barcelona (Spain)	9 (55) [3]	Entrepreneurship; Technology transfer	4
6	Nijkamp P.	Vrije University Amsterdam, Department of Spatial Economics (The Netherlands)	597 (4132) [30]	Regional studies	4
7	Smith R.	Robert Gordon University, Aberdeen (UK)	14 (34) [2]	Entrepreneurship	4
8	Vaillant Y.	Universidad Autónoma de Barcelona, Department of Business Economics, Barcelona (Spain)	7 (83) [4]	Entrepreneurship	4
9	Williams C.C.	University of Sheffield, Management School (UK)	186 (1092) [16]	Informal entrepreneurship	4
10	Akgun A.A.	Istanbul Technical University, Department of Urban and Regional Planning (Turkey)	8 (3) [1]	Rural entrepreneurship	3
10	Bika Z.	University of East Anglia, Norwich Business School (UK)	7 (50) [3]	Rural entrepreneurship	3
10	Galloway L.	Heriot-Watt University, School of Management and Languages (UK)	12 (63) [4]	Entrepreneurship	3
10	Koutsou S.	Aristotle University of Thessaloniki, Department of Agricultural Economics (Greece)	9 (6) [1]	Women entrepreneurship; Rural tourism	3

Note: These figures are referred to 31st March 2013.

Source: Own computation based on data gathered from Scopus SciVerse.

4.3. Main outlets and their scientific visibility

The outlets recording the highest number of articles published on rural entrepreneurship are *Entrepreneurship and Regional Development* (with 16 articles), *International Journal of Entrepreneurship and Small Businesses* and *Journal of Rural Studies* (both with 10 articles). The latter and the first journal are top journals, as reflected by their

high impact factors, evaluated through SNIP (1.252 and 1.768, respectively). Table 3 further shows that about two thirds of the journals that have the highest rate of articles on rural entrepreneurship are scientifically quite visible and influential, including high-ranking journals such as *Tourism Management*, *Technovation*, *World Development* or *Annals of Tourism Research*.

Table 3: Main journals in rural entrepreneurship

Rank in terms of frequency	Journal	SCImago subject area	SCImago Journal Rankings 2012	Source Normalized Impact per Paper 2012	Frequency
1	Entrepreneurship and Regional Development	Business and International Management; Economics and Econometrics	0.840	1.252	16
2	International Journal of Entrepreneurship and Small Business	Business and International Management; Economics and Econometrics	0.194	0.278	10
2	Journal of Rural Studies	Forestry; Development; Geography, Planning and Development; Sociology and Political Science	0.983	1.768	10
3	International Journal of Entrepreneurial Behaviour and Research	Business, Management and Accounting (miscellaneous)	0.441	1.155	5
4	European Planning Studies	Geography, Planning and Development	0.579	1.029	4
5	Environment and Planning A	Environmental Science (miscellaneous); Geography; Planning and Development	1.248	1.321	3
5	Journal of Developmental Entrepreneurship	Business and International Management; Strategy and Management; Economics and Econometrics	0.433	0.404	3
5	Journal of Enterprising Communities	Business and International Management; Strategy and Management; Economics and Econometrics	0.184	0.536	3
5	Journal of Rural Development	Development	0.113	0.115	3
5	Local Economy	Economics, Econometrics and Finance	0.315	0.446	3
5	Tijdschrift voor Economische en Sociale Geografie	Economics and Econometrics; Geography, Planning and Development	0.884	0.980	3
6	Agricultural Economics	Agronomy and Crop Science; Economics and Econometrics	0.913	1.139	2
6	Annals of Tourism Research	Tourism, Leisure and Hospitality Management	1.431	2.241	2

Rank in terms of frequency	Journal	SCImago subject area	SCImago Journal Rankings 2012	Source Normalized Impact per Paper 2012	Frequency
6	Economic Development Quarterly	Economics and Econometrics; Development; Urban Studies	0.593	0.854	2
6	Forest Policy and Economics	Forestry; Economics and Econometrics; Management, Monitoring, Policy and Law; Sociology and Political Science	0.906	1.420	2
6	International Journal of Business Innovation and Research	Business and International Management; Management of Technology and Innovation	0.210	0.424	2
6	Journal of Contemporary African Studies	Development; Geography, Planning and Development; Political Science and International Relations	0.434	0.850	2
6	Journal of Development Studies	Development	0.654	1.008	2
6	Journal of Small Business and Enterprise Development	Business, Management and Accounting (miscellaneous); Strategy and Management	0.331	0.779	2
6	Papers in Regional Science	Environmental Science (miscellaneous); Geography, Planning and Development	1.315	1.345	2
6	Rural Sociology	Sociology and Political Science	0.837	1.238	2
6	Service Industries Journal	Management of Technology and Innovation; Strategy and Management	0.327	0.746	2
6	Sociologia Ruralis	Sociology and Political Science	0.578	1.463	2
6	Technovation	Management of Technology and Innovation	1.683	2.430	2
6	Tourism Management	Strategy and Management; Tourism, Leisure and Hospitality Management	1.703	3.110	2
6	World Development	Economics and Econometrics; Development; Geography, Planning and Development; Sociology and Political Science	1.488	2.296	2

Note: The 26 journals considered represent 50% of the total number of articles published on rural entrepreneurship; SNIP – source normalized impact per paper. This indicator measures the average citation impact of the publications of a journal. Unlike the well-known journal impact factor, SNIP corrects for differences in citation practices between scientific fields, thereby allowing for more accurate between-field comparisons of citation impact.

Source: Own computation based on data gathered from Scopus SciVerse.

Concerning the journals' impact factor (measured by SJR), we found that over the period in analysis, the average impact decreased from 0.945 to 0.622 (cf. Figure 2).

Although the proportion of articles published in journals that belong to the top quartile (Q1) decreased, there was a noticeable increase in the proportion of articles published in journals with intermediate impact factors (i.e., that are in the Q2 and Q3 quartiles). This indicates that the average quality of journals in which research on rural entrepreneurship has been published decreased but its visibility has to some extent increased.

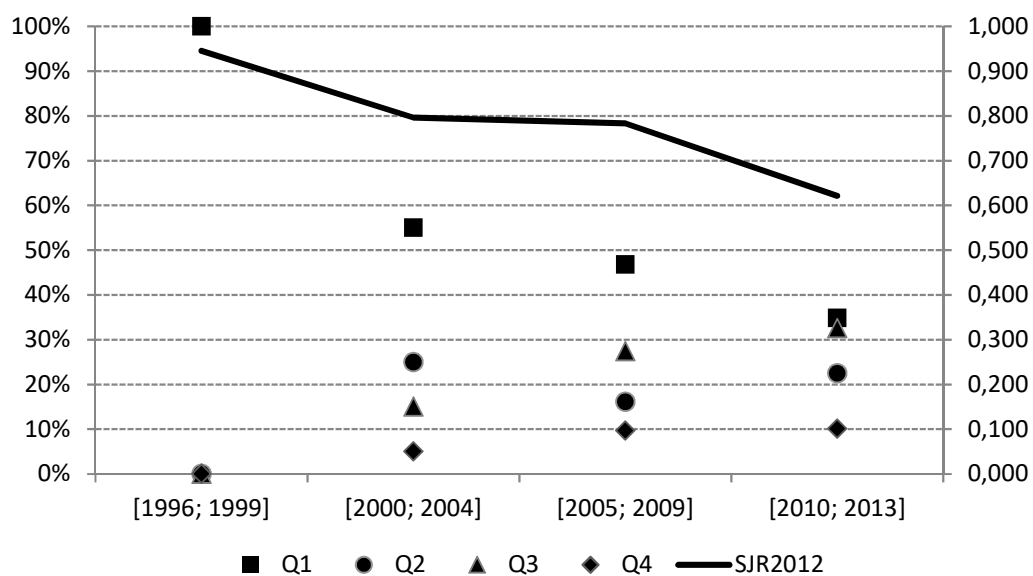


Figure 2: Proportion of articles by quartile [left scale] and average impact factor (SJR) [right scale]
Note: The SJR is a measure of scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations come from; Q1 – first quartile or top ranked journals ... Q4 – fourth quartile or lowest ranked journals.
Source: Own computation based on data gathered from Scopus SciVerse.

4.4. Main subject areas

It is worth noting that articles on rural entrepreneurship have been mainly (51% of the total published articles) and increasingly published in journals whose subject areas include Economics, Business, Management and Hospitality, Leisure, Sport & Tourism. Subject areas related to space (e.g., Planning & Development, Geography, Urban Studies) are predominant, as expected, although showing a slight decrease in their relative importance in the last period (cf. Figure 3). Less represented subject areas (namely, Sociology, Social Science, Area Studies) have lost importance over time. Such

trends seem to indicate that rural entrepreneurship research has become a less multidisciplinary field, focusing more on economics and business-related issues.

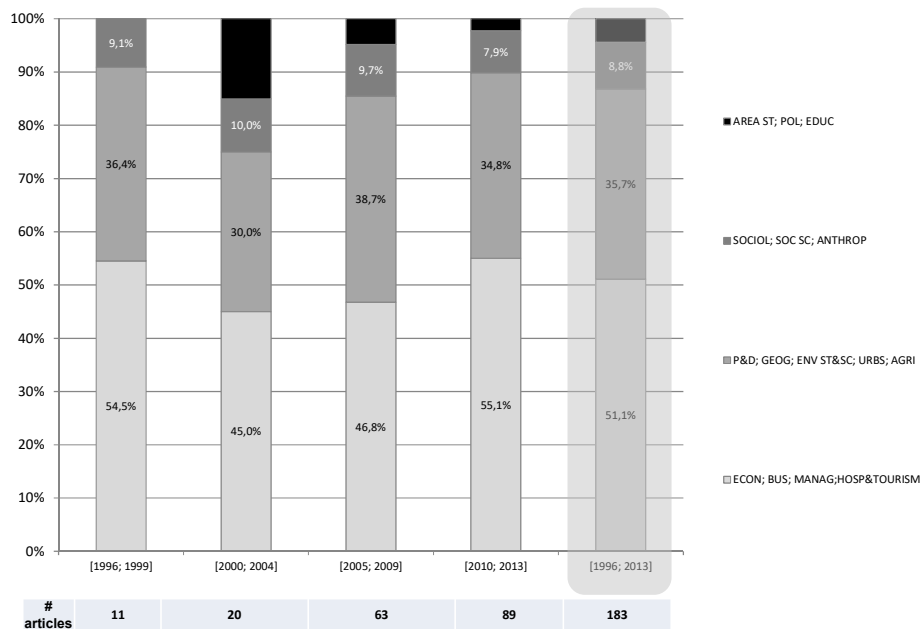


Figure 3: Evolution of the relative importance of the main subject areas in rural entrepreneurship, 1996-2013

Note: ECON; BUS; MANAG; HOSP & TOURISM includes Business and International Management and Accounting, Development, Economics and Econometrics and Finance, Management of Technology and Innovation, Strategy and Management, and Tourism, Leisure and Hospitality Management. P&D; GEOG; ENV ST&SC; URBS; AGRI include Agricultural and Biological Sciences; Earth and Planetary Sciences; Ecology; Environmental Science; European Planning Studies; Forestry; Geography, Planning and Development; Urban Studies. SOCIOL; SOC SC; ANTHROP include Anthropology; Multidisciplinary; Philosophy; Social Sciences; Sociology and Political Science. AREA ST; POL; EDUC include Demography; Education; Gender Studies; Health (social science); Medicine; Political Science and International Relations; Public Administration.

Source: Own computation based on data gathered from Scopus SciVerse.

4.5. Main topics

With regard to the dominant research topics in rural entrepreneurship literature, our bibliometric exercise allowed us to identify possible literature gaps or less explored topics and (at the same time) new emergent fields of research.

Analyzing the distribution of rural entrepreneurship research by main topic over time (cf. Figure 4), we can see that macro-related topics, most notably, ‘Growth & Development’ and ‘Rurality’, lost importance in favor of more micro-level topics, namely ‘Entrepreneurs’ psychological traits’ and ‘Organisational characteristics’. The latter, together with ‘Policy measures’ and ‘Institutional frameworks and Governance’, may be considered as ‘emergent’ topics at the beginning of the 2000s, since their

weights were quite small or negligible (0% in the case of ‘Organisational characteristics’ and ‘Policy measures’), reaching in the more recent period (2010-2013) a rather significant proportion of the articles published: 13% in case of ‘Institutional frameworks and Governance’, 6% for ‘Organisational characteristics’, and 3% for ‘Policy measures’. This confirms that, within rural entrepreneurship, issues such as enterprise strategies (cf. Battisti et al., 2012), the use of ICT (cf. Galloway et al., 2011) and institutional and policy frameworks (cf. Vaillant and Lafuente, 2007) are drawing increasing attention.

‘Entrepreneurs’ psychological traits’ and ‘Embeddedness’ are nevertheless the most researched topics, representing, for the entire period, an average weight of 18% each. They present, however, distinct dynamics over the period in analysis. Whereas ‘Entrepreneurs’ psychological traits’ saw its weight increase 11 percentage points from the early 2000s, ‘Embeddedness’ slightly decreased its relative importance, losing 3 percentage points, despite its recognised importance for the entrepreneurial process (Jack and Anderson, 2002). Since entrepreneurs’ psychological traits are a main driver of the birth, survival and growth of rural enterprises (Meccheri and Pelloni, 2006), it is justifiable that research on the topic has been on the rise.

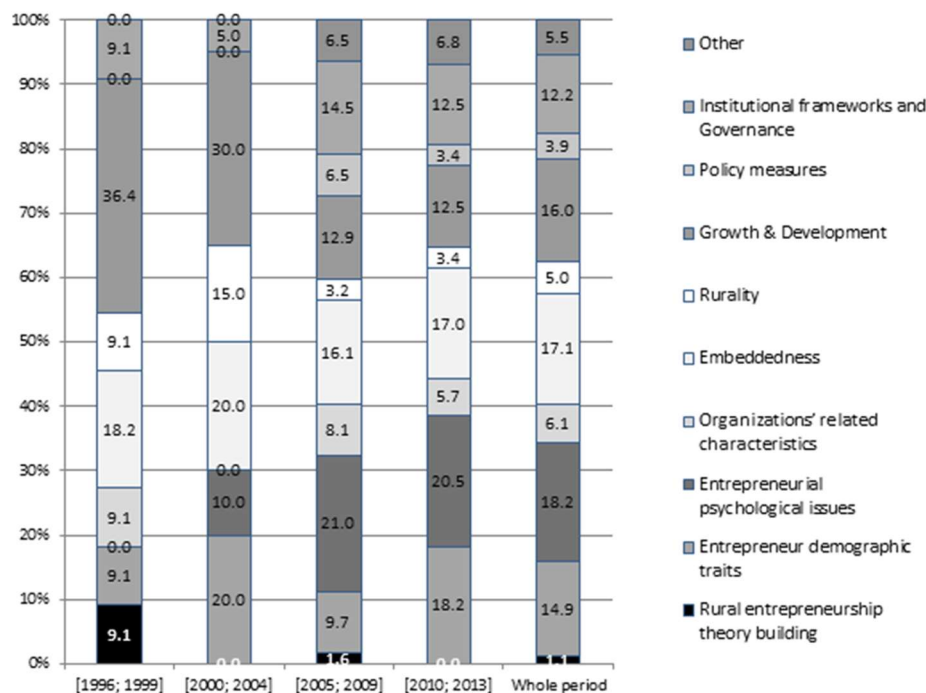


Figure 4: Evolution of the relative importance of the distinct topics on rural entrepreneurship, 2000-2013

Source: Own computation based on data gathered from Scopus SciVerse.

The ‘Rural entrepreneurship theory building’ topic did not attract much research over the period in analysis, which suggests that the theoretical body of rural entrepreneurship is still incipient (Santos and Teixeira, 2009). Among the few authors concerned with the building blocks of rural entrepreneurship, there is Max S. Wortman Jr., who first suggested a framework and a set of typologies for integrating rural entrepreneurship and then, based on this framework, argued that high priority should be given to the conceptualization of rural entrepreneurship and its components (Wortman Jr., 1990). Unfortunately, this issue has been rather overlooked within rural entrepreneurship, which hinders the establishment of its boundaries and of an adequate research agenda. As Shane and Venkataraman (2000) once argued with regard to the field of (general) entrepreneurship, and to a much larger extent, to rural entrepreneurship, this phenomenon lacks a conceptual framework. Rather than explaining and predicting a unique set of empirical phenomena, entrepreneurship (and by the same token, rural entrepreneurship) has become a broad umbrella under which a wide diversity of research is housed (Shane and Venkataraman, 2000).

4.6. Main empirical methodologies used

Regarding the empirical methodologies used in entrepreneurship-related papers, it is apparent that qualitative methods have been favored over the period in analysis, accounting for 51% of the total published articles (cf. Figure 5).

In dynamic terms, since the early 2000s, descriptive and exploratory analysis lost importance in favor of more causality testing methods, which may in part be explained by the availability of (large) databases. The absence of an axiomatic and theoretical corpus prevents researchers from making full use of causality and hypotheses testing methodologies.

As a recent field of research with a weak theoretical basis (recall the negligible amount of research devoted to theory building within rural entrepreneurship), qualitative analyses tend to be the ‘natural’ way of producing science which may then lead to ‘generalised theorization’ through ‘appreciative theorizing’ (Castellacci, 2006).

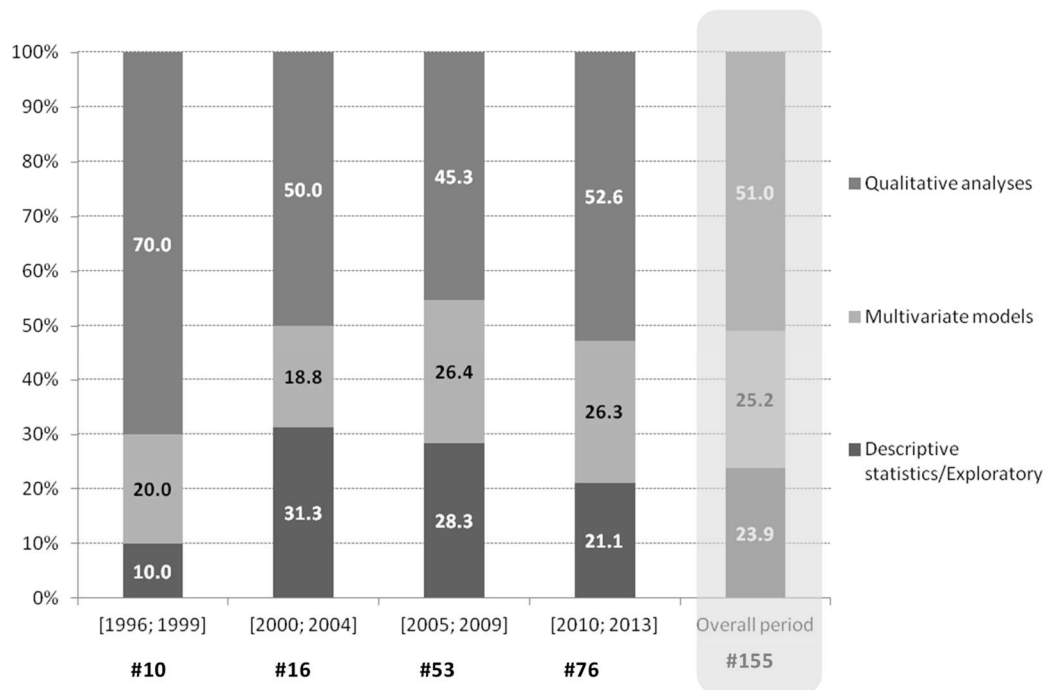


Figure 5: Evolution of the empirical methodologies used, 1996-2013

Source: Own computation based on data gathered from Scopus SciVerse.

4.7. Main countries under analysis

The bulk of the empirical research on rural entrepreneurship focuses on high (74%) or upper middle (13%) income countries. The lower income countries are seldom studied in the period considered. Indeed, there is even a decrease in their already negligible share.

Thus, research on rural entrepreneurship has addressed mainly developed countries. This may be explained by the fact that these countries are increasingly adopting specific macroeconomic policies, seeking to strengthen more open institutions, actively engaging in education, skill development and technology, not only in urban areas but increasingly targeting rural, laggard regions by fostering industrial policy and the promotion of entrepreneurship (United Nations Development Programme [UNDP], 2013).

Within the high income countries, the UK, Spain, Finland and Greece, together with the USA, are the most frequently studied countries (Figure 6). At least in the case of the European countries in question, such a trend may be explained by fact that, in recent years, significant changes have occurred in the rural areas of the EU. These changes have mostly taken place with regard to agricultural policy reforms and EU Structural

Funds, the strengthening of rural development policies, international trade liberalization, and (more generally) the processes of globalization, technological change and localization (Stathopoulou et al., 2004). In the context of these developments, entrepreneurship emerged as a way of mobilizing the endogenous potential of rural territories (Baumgartner et al., 2013). In fact, the importance of small and medium enterprises (SMEs) to the economies of EU member states, most notably the UK, in terms of employment is today widely acknowledged (McElwee and Smith, 2012).

In the case of less developed countries, only China and India reveal a noteworthy increase in the number of empirical papers on rural entrepreneurship.

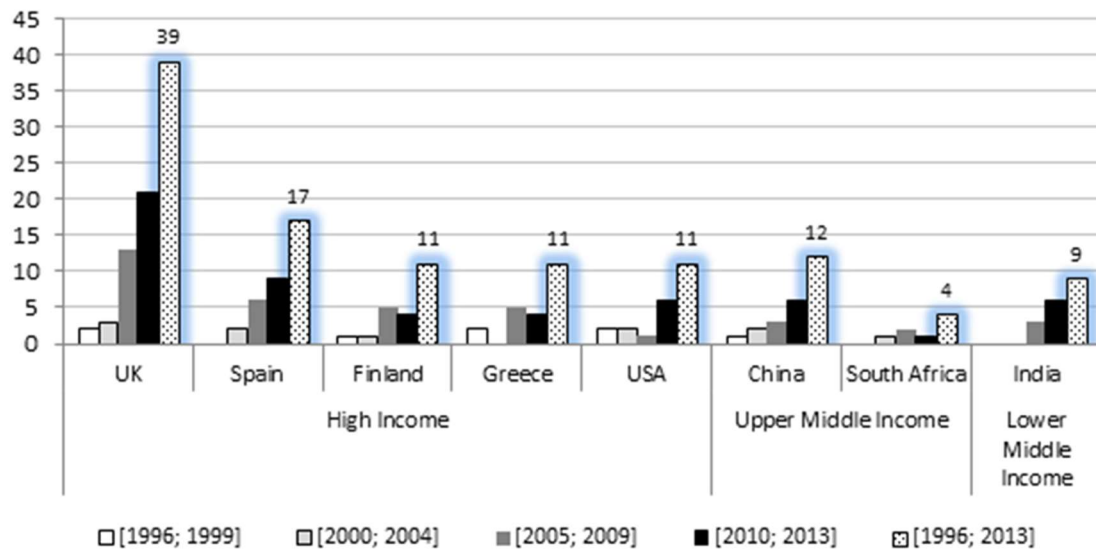


Figure 6: Main countries of analysis, 1996-2013

Note: In relation to countries with High, Upper Middle and Lower Middle income, we consider the countries that appear in the analysis at least 10 times, four times and once, respectively. No Low income country was analyzed in the set of articles considered.

Source: Own computation based on data gathered from Scopus SciVerse.

In the case of China, the government's programme of economic reforms had several implications for rural areas (Liu, 2011). Before these reforms, rural non-farm sectors were almost non-existent and began to develop gradually in the early 1980s (Mukherjee and Zhang, 2007). On the other hand, growing migration to rural areas has contributed to the development of rural entrepreneurship alongside agrarian activities (Murphy, 1999). This shift has prompted the study of the matter (cf. Xiaobing et al., 2011; Hu and

Wu, 2012) and related topics, such as social capital and social networks (cf. Zhao et al., 2010).

Likewise, the rural economy of developing countries has been a crucial matter of discussion in the development literature (Folmer et al., 2010), as in the case of India, which has a rural-based economy (Khanduja and Kaushik, 2008). In this context, the promotion of entrepreneurship and self-employment for poor people living in rural areas is vital (Monsen et al., 2012) and deserves more attention from researchers.

5. Conclusions

Drawing on a bibliometric analysis, this paper makes three main contributions to the literature on rural entrepreneurship. First, it provided an objective account of the field's main contributors and outlets, as well as the evolution of its scientific impact and visibility (reflected in the increasing diversity of journals publishing on this topic).

Second, it has to some extent exposed the disciplinary boundaries of the area (interconnecting Business and Economics, Geography and Sociology subject areas) and uncovered the declining ('Rurality' and 'Growth and Development') and emergent ('Organisational characteristics', 'Policy measures', and 'Institutional frameworks and governance') sub-topics. Third, it has unveiled interesting research gaps that should be addressed in future studies. Specifically, it is important to invest in building solid, theoretical frameworks to analyze the issue of rural entrepreneurship. Further empirical research encompassing lower income countries would enrich the basis for proposing and implementing solid policy measures aimed at fostering rural entrepreneurship in a wider range of contexts.

Notwithstanding the fact that the dramatic economic downturn in many EU member states made the promotion and strengthening of entrepreneurship one of the most important approaches to address the economic problems of rural communities, attracting renewed attention most notably from public bodies and policy authorities (McElwee and Smith, 2014), the evidence collected in this paper highlights that the evolution of the relative weight of articles on rural entrepreneurship has lagged behind that of articles on (general) entrepreneurship. It thus seems to suggest that rural entrepreneurship literature

has been losing momentum. Such a conclusion might, however, be rather simplistic and underlines an important limitation to the methodology used here: the bibliometric exercise performed was based only on articles published in journals indexed in Scopus, thus excluding (valid and high quality) scientific production published in other type of outlets, most notably books and book chapters.

An interesting possibility for further research that would complemented the analysis pursued in the present study, is to analyse the scientific structure of rural entrepreneurship field or its ‘invisible colleges’ (in the line of Teixeira, 2011), which encompasses the network of formal and informal communication linkages (besides journals articles) among the scholars within the area.

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ESSAY 2: RURAL ENTREPRENEURSHIP: THE TALE OF A RARE EVENT

Rural Entrepreneurship: the tale of a rare event

Abstract

The extant literature on entrepreneurship has neglected the empirical implications of mixing, confounding and/or merging the concepts of ‘rural entrepreneurship’ and ‘entrepreneurship activities in rural areas’. In this study, we discuss and analyze the empirical boundaries of such concepts and uncover the magnitude of pure ‘rural entrepreneurship’. Based on a direct survey involving 408 new ventures, 142 of which located in rural municipalities, we found that only a very small percentage (3.5%) of new ventures operating in rural municipalities constitute examples of pure ‘rural entrepreneurship’, that is, new ventures located in a rural setting, employing local people, and contributing to local gross value added. Rural new ventures tend to be small (in term of employees and turnover), rely mainly on the internal market, and lag behind other new ventures (located in both rural and urban municipalities) in terms of performance.

Keywords: rural entrepreneurship; new ventures; municipalities; Portugal

1. Introduction

With the ongoing challenges facing rural areas and traditional rural sectors, the future success of much of these territories is inextricably linked to the capacity of rural local people to innovate, and to identify new business opportunities that create jobs, wealth and improve local conditions of life (Strano et al., 2012). Entrepreneurship can be undertaken by a diversity of rural actors including, but by no means restricted to, farming and farmers – the traditional focal point for much of the rural development literature (Korsgaard et al., 2015). Furthermore, the Organisation for Economic Co-operation and Development (OECD) ‘New Rural Paradigm’ emphasizes the promotion of rural enterprise as one of the four priorities for rural development (OECD, 2006). The concept of rural entrepreneurship suggests that business activity adds something extra: a ‘value added’ that has to do with the socio-spatial dimension of the rural (Korsgaard et al., 2015). Furthermore, rural places offer certain ‘location-specific advantages’ in the form of physical, social and cultural amenities (Müller, 2013).

Nevertheless, much of the literature about entrepreneurship has an urban focus (Baumgartner et al., 2013), where entrepreneurship is often more frequent due to localization and urbanization effects (Freire-Gibb and Nielsen, 2014). Very little is known about entrepreneurship in rural areas or with a rural dimension (Pato and Teixeira, 2016). Additionally, there is little empirical evidence about ‘enterprises in rural areas’ and/or about ‘rural enterprises’. Since the two types primarily serve as heuristics, it would be fruitful to further investigate the extent to which these two types exist and the extent to how they differ (Korsgaard et al., 2015). On the one hand, the few studies on the subject have essentially a theoretical stance. Wortman Jr. (1990) is concerned with the concept itself, defining it as the creation of enterprises in rural space, whereas Korsgaard et al. (2015) investigate, at theoretical level, how rural entrepreneurship engages with place and space. On the other hand, many studies on rural entrepreneurship encountered in the literature are not pure examples of this type of entrepreneurship, but rather examples of entrepreneurship and enterprises located in rural areas. Thus, a lack of clarity persists as ‘rural entrepreneurship’ is also often (albeit erroneously) defined as the creation and development of enterprises in rural areas (Dinis, 2006; Vaillant and Lafuente, 2007).

To date, research has neglected the empirical implications of mixing, confounding and/or merging the concepts of ‘rural entrepreneurship’ and ‘entrepreneurship activities in rural areas’. Consequently, it is important to gain insights into the effective empirical boundaries of such concepts, so as to obtain an in-depth understanding of pure ‘rural entrepreneurship’ occurring in rural areas.

The intention is to determine whether new rural ventures represent effective rural entrepreneurship or are just entrepreneurial ventures located in rural settings. For this purpose, data was collected from a direct questionnaire involving 408 new ventures headquartered in Portuguese business incubators (BIs) and Science Parks (SPs), of which 142 are located in rural areas. We select them because these infrastructures support new venture creation and start-up companies (van Weele et al., 2017). They further constitute adequate locus to compare businesses and ventures characterized by a given common profile (Shepard, 2017).

After taking into account some criteria regarding the definition of ‘rural entrepreneurship’, we demonstrate that only a small percentage of ventures operating in rural areas constitutes examples of effective ‘rural entrepreneurship’, with the bulk of them being just enterprises located in rural space.

The paper is divided into four sections after the introduction. Section 2 explores the meaning of rural entrepreneurs and rural enterprises, while Section 3 presents the methodology of the study. The results of the study are presented in Section 4. The main findings, limitations, as well as the study’s contribution to knowledge and practice, are presented in Section 5.

2. Entrepreneurship opportunities, rural entrepreneurs and rural enterprises

2.1. Rurality and entrepreneurship opportunities

Rurality offers an innovative and entrepreneurial milieu in which rural enterprises may prosper (Stathopoulou et al., 2004). Camagni’s (1995) concept of the ‘innovative milieu’ was first applied to European lagging regions. Camagni (1995) used the term ‘innovative milieu’ to describe areas that have an environment conducive to innovation.

Indeed, rural areas have many advantages to launch diverse types of businesses that can produce a variety of low and high-tech innovations in sectors such as agriculture, tourism, food, textiles, water, energy, as well as interesting new uses of traditional craft, arts, food and beverages (Fortunato, 2014).

First of all, rural areas have an absolute advantage in the production of natural resources (OECD, 2014). This because, often, the distance from major urban centers has favored the preservation of landscapes and environmental features such as wildlife, both fauna and flora, biodiversity, geology and soils, among other physical resources, that provide entrepreneurial opportunities (Garrod et al., 2006). For instance, due to favorable environmental conditions, tourism and high-quality food and wine businesses have experienced remarkable change with the increasing number of food and wine quality certifications (Santini et al., 2011).

Secondly, rural areas are also rich in social resources that can promote entrepreneurship and innovation. The lower population density in rural areas fosters stronger ties among local actors (Freire-Gibb and Nielsen, 2014). This increases social capital and, therefore, the willingness of people to act collectively (Woolcock and Narayan, 2000). Also, from a social point of view, the culture and heritage of rural areas are often well preserved from generation to generation and it is in periods of economic decline that local residents seem to cling more to their distinct heritage (MacDonald and Jolliffe, 2003). Culture and heritage can indeed become important resources for socioeconomic development and entrepreneurship in rural communities.

Equally important is the economic environment of rural areas. Traditional activities such as farming, livestock production and forestry remain at the heart of rural communities where entrepreneurial activity takes place. Even though certain enterprises can be found in both rural and urban areas, farming is specific of the former. Furthermore, the importance of the farming sector is multifaceted (Stathopoulou et al., 2004). First, farming provides the raw materials for many of the entrepreneurial activities in the drink and food industry. Second, these activities foster the emergence of other entrepreneurial activities, such as retailing (e.g., farm shops, crafts centers, direct sales, and food processing); sports and recreation (e.g., water-based and equestrian activities); services (e.g., agricultural, non-agricultural, and industrial workspace); and

tourism (e.g., leisure centers and accommodation) (Smallbone, 2009). Third, the farming sector directly affects and shapes the physical, social and cultural environment of rural areas (Stathopoulou et al., 2004). In Portugal, for instance, the Alto Douro Wine Region is a World Heritage Site from the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Given this context, it is not surprising that rural areas are currently attracting a growing number of people who are looking to settle and, ultimately, to start a new business (Akgün et al., 2010a). The newcomers often bring important entrepreneurial attributes, such as experience, market knowledge and networks of contacts (Kalantaridis and Bika, 2006a), which in turn strengthen business and innovation (Annibal et al., 2013).

However, even if rural areas offer opportunities for the creation and development of rural enterprises, entrepreneurial actions may be particularly adverse (Dinis, 2011). In a globalized world dependent on instant communication and globalizing markets, the remoteness of many rural areas, their isolation from important business support networks, and restricted demand for innovative products and services continue to be the main problems facing rural business development (Dabson, 2001). Moreover, the limited population size and density, paired with poor local demand, the small size of local markets and the availability of business premises (Smallbone, 2009) make it difficult for rural businesses to achieve economies of scale (Dabson, 2001). Whereas in urban areas, multiple enterprises in a single industry can survive because the home market is large enough, rural areas can typically support only one, or at most a few, enterprises that provide the same type of goods or services, due precisely to the small size of the market and rural communities (OECD, 2014). The small size of rural communities and their isolation also means restricted access to human resources and a diversified labor pool (North and Smallbone, 2000; Fortunato, 2014). In reality, despite the inflows of newcomers, many communities continue to experience high rates of outbound migration and deficits in human capital. Many remote rural areas also lack adequate communications and transport infrastructure, raising a number of obstacles to businesses dependent on external services and markets (Smallbone, 2009).

Moreover, some rural areas have very few positive entrepreneurial examples or role models (Vaillant and Lafuente, 2007). Apart of this, some rural business policies are not

adjusted to local reality and institutional mechanisms for business support are poor (North and Smallbone, 2000), whether by reason of excessive bureaucracy or weak local government (North and Smallbone, 2006). Smallbone (2009) also mentions insufficient access to financing for rural enterprises. Although finance is a commonly reported constraint on small business, regardless of where they are located, differences in access to finance also result from structural weaknesses in many of the businesses run by disadvantaged and underrepresented groups (OECD, 2013), which is the case of many rural entrepreneurs.

2.2. Rural entrepreneurs

In many cases, rural entrepreneurs and enterprises have been defined in the same way as their urban counterparts (Fortunato, 2014). However, the apparent differences between the milieu created by rural and urban areas in terms of social relations – and the specific effects of these relations on their economic life (Akgün et al., 2010b) – mean the terms require additional clarification.

The difference between rural and urban entrepreneurs may be found in the effects of rurality on the entrepreneurial process (Stathopoulou et al., 2004). Although a specific type or a clear definition of rural entrepreneur may not exist, a rural entrepreneur can be considered ‘an individual who manages a venture in a rural setting’ (Henry and McElwee, 2014, p. 2). But can all entrepreneurs who operate and manage a venture in rural areas be considered rural entrepreneurs? We think not. Apart of living in a rural environment (Stathopoulou et al., 2004), a rural entrepreneur is an individual who is community-based, is strongly influenced by social networking and the social traits of their rural space (Akgün et al., 2010b), and has a relatively strong impact on the local community (Hoy and Vaught, 1980). This, in turn, emphasizes the importance of local embeddedness. Recent studies (e.g., Kalantaridis and Bika, 2006b; Bosworth and Farrell, 2011; Wang and Altinay, 2012) have shown that rural entrepreneurs tend to be embedded in the local environment, thereby increasing their chances of success (Dahl and Sorenson, 2012). At the same time, it is generally acknowledged that many rural entrepreneurs are less concerned with monetary incentives and profit, being more concerned with the pursuit of personal, societal, or cultural aspirations (Korsgaard et al., 2015). For instance, a recent study of Norwegian and Scottish rural entrepreneurs

showed that they are often driven, at least partly, by strong feelings of engagement and responsibility for their communities and that these feelings can be triggered in the development of new business activities (Alsos et al., 2014). In particular, they have adopted strategies to make the most of the resources that were locally available or available within the family household. Such strategies limit not only the risk involved in the development of the rural venture, but also increase the connection between place and venture (Korsgaard et al., 2015).

Rural entrepreneurs are also more likely to engage in bricolage (Müller, 2013). Prior research suggests that bricolage behaviors enable firms to ‘make do’ by recombining existing resources and may assist in the development of firms that are better able to deal with market uncertainties, survive and perhaps even flourish despite resource constraints (Senyard et al., 2010). This may occur because financial and human capital is typically scarcer in rural areas (Pato and Kastenholz, 2017) than in urban ones, which imposes certain restrictions on resource use (Müller, 2013). Also, rural entrepreneurs are deeply embedded in rural places, being thus likely to have more knowledge of the locally available resources and more inclined to use them, even if they are not technically and economically the most suited means (Müller, 2013).

2.3. Defining rural ventures: an account of the main criteria

Similarly to rural entrepreneur, the topic of rural enterprise has not been the object of much academic attention (Henry and McElwee, 2014), and there is little discussion on the rural enterprise as a distinct concept (McElwee and Smith, 2014).

The most significant contributions on rural enterprises appear to be mainly theoretical, with much of the literature framed within entrepreneurship theory or theories of family (McElwee and Smith, 2014).

In practical terms, the distinction between a rural and an urban enterprise is arbitrary (McElwee et al., 2011; Henry and McElwee, 2014). Generally speaking, a rural enterprise should consider the nature of the endogenous factors (such as personal characteristics of the entrepreneur – qualities and skills) and exogenous factors which influence the potential strategic capability and activity of the enterprise in rural areas (McElwee et al., 2011; Henry and McElwee, 2014; McElwee and Smith, 2014).

According to several authors (e.g., Stathopoulou et al., 2004; Henry and McElwee, 2014; McElwee and Smith, 2014), what really distinguishes rural enterprises from urban enterprises are exogenous or external factors which may influence their start-up, growth and/or failure rates. These factors are related to the physical environment: location, natural resources, landscape; social environment: social capital and governance; and economic environment: infrastructure and business networks of enterprises (Stathopoulou et al., 2004). Indeed, rural enterprises are influenced by a wide range of factors, including geography, physical location, access to transport and distribution networks, proximity to markets, size and skill of the labor force, culture and social networks, and capital (McElwee et al., 2011).

Despite the difficulty, it is important to define a ‘rural enterprise’ because when rural entrepreneurship is measured by indicators such as new firm formation rates, it has been correlated with the economic prosperity and growth of rural areas (Henry and McElwee, 2014).

McElwee and Smith (2014) and Henry and McElwee (2014) suggest that a rural enterprise is a venture with the following characteristics:

- its primary location is in a rural setting;
- it employs local people, that is, within a specified travel-to-work area;
- it contributes to local gross value added.

These characteristics suggest that a rural enterprise is a venture which is located in a rural space, but also employs local people, uses and provides local services, and generates income flow to the rural environment. Location in the given rural area is thus driven by advantages for the business or the entrepreneur, and the desired outcomes of the venture are linked to the overall well-being and development of the rural area (Korsgaard et al., 2015).

Apart from the abovementioned characteristics, a fourth parameter is ‘selling a rural product’, whether it be food or other natural products, traditional crafts, recreational activities or environmental goods (Bosworth, 2012) (see Figure 1). Although the definition of ‘rural product’ falls outside the scope of this paper, it is worth mentioning

that rural resources, whether skill-based, land-based or environmental, are required to make the final product with characteristics of rurality (Bosworth, 2012).

Therefore, in contrast to ventures in urban settings, a rural enterprise cannot be ‘uprooted’ and relocated elsewhere without losing all or part of its key value propositions due to its close engagement with place (Müller and Korsgaard, 2014).

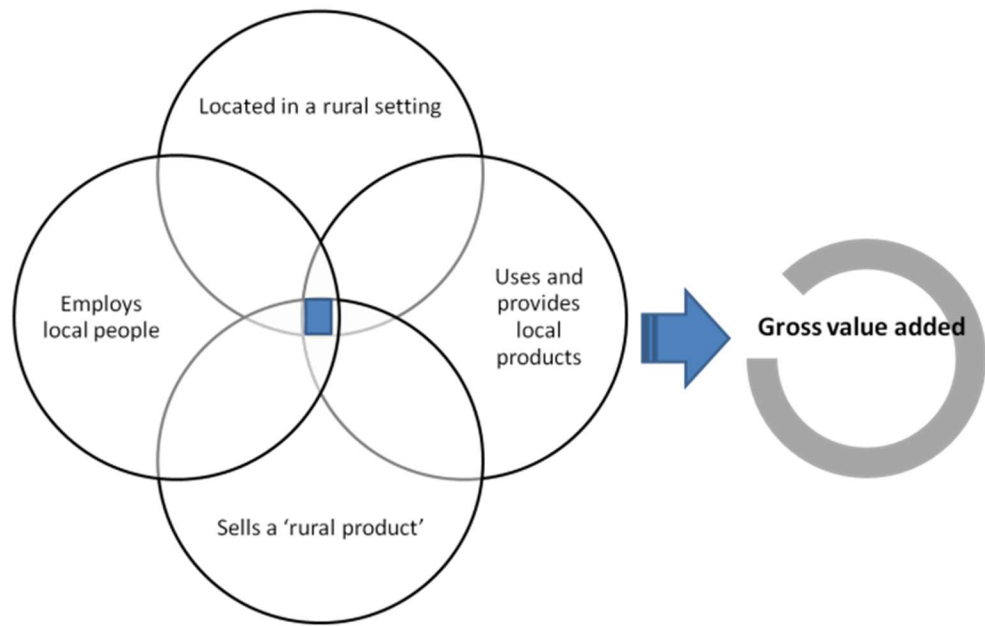


Figure 1: Characteristics of a rural enterprise

Source: Adapted from McElwee and Smith (2014) and Bosworth (2012).

Consequently, rural enterprises involve new combinations of place-based or localized rural resources that create value not solely for the entrepreneur but also for the rural place (Korsgaard et al., 2015).

3. Methodology

In order to determine whether new rural ventures represent rural entrepreneurship or are just entrepreneurial ventures located in rural settings, we developed a methodological procedure that comprises six inter-related stages.

In the first stage, we classified all the municipalities of Portugal into urban or rural categories. We adapted the classification of local units provided by the Ministry of

Agriculture, Sea, Environment and Spatial Planning (2011) (see Appendix 1). Based on this classification procedure, 209 of the total municipalities (i.e., 75%) in mainland Portugal were classified as ‘rural’ and 69 as ‘urban’.

In the second stage of the process, we built a database of support infrastructures for new venture creation. As we said before, BIs and SPs were selected for this purpose, because these infrastructures support new venture creation and start-up companies. They further serve to compare businesses and ventures characterized by a given common profile, in this case, by being technology-based and knowledge-intensive.

Considering that the information on these infrastructures was dispersed, we started with the work of Caetano (2012) and complemented it with information available on the internet. At the end of this step, we obtained a database with one hundred BIs and SPs infrastructures (see Appendix 2).

The third stage involved gathering general information (such as location, email, and telephone) on individual new ventures headquartered in the selected BIs and SPs. This was a complex and timing-consuming task because such information was not often available and/or visible on the organizations’ web page. Nevertheless, after crossing several sources, we collected contacts for one thousand and four hundred new ventures headquartered in BIs and SPs, of which about 43% located in rural municipalities.

In the fourth stage, we developed a questionnaire based on the literature review (see Appendix 3), which included questions intended to identify and separate those new ventures that represent rural entrepreneurship. Indeed, in line with the literature review, we included conditions to classify such new ventures: i) municipality of the venture, ii) workers’ place of residence, iii) origin of intermediate consumptions (raw materials and other goods and services), and iv) description of the products and services produced by the firm.

The fifth stage involved the application of the questionnaire. The questionnaire was first tested as a pilot survey on five companies, during the third week of March 2016. According to the feedback gathered, we corrected the questionnaire and clarified some questions. The next sub-stage (from April to May 2016) involved sending the questionnaires by email to all (1400) the enterprises in our database, as well as to the BIs and SPs. At the end of the gathering process, we obtained 408 complete

questionnaires, which represents a response rate of about 30%, a reasonably acceptable response rate for a non-compulsory questionnaire.

Finally, in the sixth stage, a preliminary and exploratory analysis of the data gathered was performed.

4. Results

4.1. Rural ventures or ventures in rural settings: the evidence

Based on the 408 responses to our questionnaire, we performed a preliminary and exploratory statistical analysis. We exported data concerning the four conditions/criteria mentioned above to an Excel spreadsheet and created a new database with the following fields: location, employees' place of residence, intermediate consumption, and description of products/services.

With regard to the first condition, out of the 408 new ventures, 142 (34.8%) were located in rural municipalities (see Figure 2).

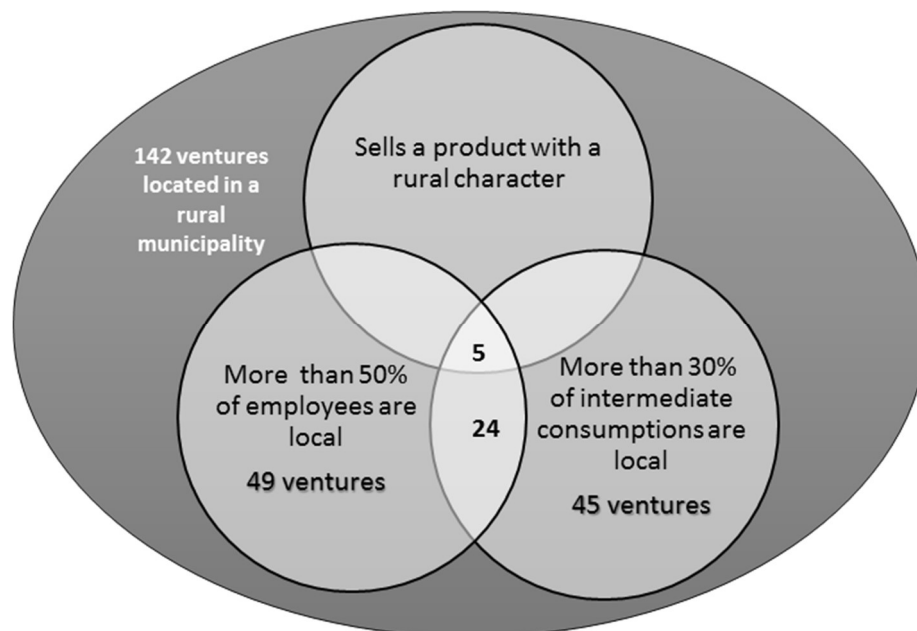


Figure 2: Finding the rural new ventures

Source: Authors' calculations, based on data from direct survey to start-up companies located in BIs and SPs in Portugal, April to May 2016. A total of 408 start-up companies responded to the survey.

Restricting to those 142 rural municipalities, and to identify the workers' place of residence, we considered the 'municipality' as the geographical reference unit, and classified the new venture as a 'rural new venture' when 'more than 50% of workers come from that given municipality'. Accordingly, we found that 49 ventures, out of the 142 located in rural municipalities, have more than 50% of their employees coming from the respective municipality. Regarding the issue of intermediate consumption, and using again the municipality as the relevant geographical unit of analysis, we considered that a new venture in which 'more than 30% of intermediate consumptions come from the respective rural municipality', draws considerably on the region's endogenous resources. We found that (only) 45 ventures located in rural municipalities used more than 30% of the corresponding municipality's intermediate consumptions.

Combining the ventures that are located in rural municipalities and that respect the second and third criteria, we obtained only 24 new ventures. Finally, we went on to analyze these latter firms' products and services and classified them by categories of products/services produced/provided by these 24 new ventures (see Table 1).

Table 1: Potential rural new ventures: products and services provided

Description of products and services	Categorization
Handmade olive oil soaps	Manufacturing local products
<i>Alheiras</i> with mushrooms, sausage with mushrooms, strawberry jams, preserves with mushrooms, cheeses, olives, bittersweet preserves	
Raspberry and blueberry	
Honey, pollen, royal jelly, bee venom, propolis, wax and swarms	Local/rural tourism
Local accommodation	
Leadership training and communication	Support services
Application Programming, Websites, Online Shops, Communication Design	
Nutrition counselling	
Provision of software development and consulting services	
Notebooks and cleaning kits	
Advertising and cultural agenda	
Accounting and Consulting Services	
Property sale, purchase and rental	
Transport service, study support	
Architecture, engineering, interior designer, consulting and furniture	
Accounting	
Consulting	
Topography	

On-demand software solutions, IT consulting and advice
Development of communications encryption applications for military and security agencies
Web and mobile development, design, marketing and branding services, etc.
Human Resources, recruitment of people to work in hospitality, laundry services, treatment of clothes
Accounting and consulting
Tourism and architecture

Note: The new ventures selected are located in rural municipalities with more than 50% of their workers and more than 30% of intermediate consumptions coming from the municipality where they operate.

Source: Direct survey to start-up companies located in BIs and SPs in Portugal, April to May 2016. A total of 408 start-up companies responded to the survey.

Out of the 24 potential rural new ventures, only 5 could be considered examples of effective ‘rural entrepreneurship’, with the bulk of them (19) being just enterprises located in a rural area. These five ventures operate in the production of local products (4) and local/rural tourism (1). In the next Section, these five ventures are described in detail.

4.2. Describing the rural new ventures

In terms of location, these five ventures are dispersed in the national territory, each located in a different region and municipality. Specifically, one venture is located in the *Norte* (North) Region (in the municipality of Viana do Castelo), three ventures in the *Centro* (Center) Region (in the municipalities of Castelo Branco, Vagos and Viseu), and one venture in the *Alentejo* Region (in the municipality of Marvão) (see Table 2). Two of these municipalities, Castelo Branco and Marvão, present the lowest population density in the country, 37.2 and 20.9 inhabitants per square kilometer, respectively, and like other inland regions in Portugal, symptoms of economic poverty and demographic decline (Instituto Nacional de Estatística [INE], 2016b, 2016a).

In terms of the business experience of the new venture (i.e., their age), all of them were established recently – four of which had, in 2016, three years and one four years. Regarding size, and similarly to the majority of the enterprises in Portugal (Gabinete de Estratégia e Estudos [GEE], 2014), these five ventures are small in size, with three of them employing 2 to 4 individuals, one 5 to 7 individuals, and one venture only 1 individual.

Regarding venture performance, using sales turnover and gross value added as proxies, we can see in Table 2 that these values are rather low. Indeed, in terms of sales turnover, only one venture earned more than €50000 (but less of €100000). Three of the ventures have annual sales turnover below €10000. The annual gross value added reflects the same reality (i.e., the smallness of the new rural ventures). In four cases, the annual gross value added is below €10000. Excluding new venture E, all the remaining ventures rely mainly in the internal market.

Table 2: Description of the five rural new ventures

New venture	Municipality (NUTS II)	Years in business	Size (Average 2013-2015)	Annual sales turnover (Average 2013-2015)	Annual gross value added (Average 2013-2015)	Exports 2015
A	Marvão (Alentejo)	2	1 employee	<€10000	<€10000	Positive, but under 11%
B	Viseu (Centro)	2	Between 5 and 7 employees	>€50000-€100000	<€10000	Positive, but under 11%
C	Vagos (Centro)	2	Between 2 and 4 employees	€10000-€50000	€10000-€50000	Positive, but under 11%
D	Castelo Branco (Centro)	3	Between 2 and 4 employees	<€10000	<€10000	0%
E	Viana do Castelo (Norte)	2	Between 2 and 4 employees	<€10000	<€10000	100%

Source: Direct survey to start-up companies located in BIs and SPs in Portugal, April to May 2016. A total of 408 start-up companies responded to the survey.

New venture A, located in one of the most depopulated municipalities of Portugal, Marvão in Alentejo, was born out of the need to take advantage of the olive oil produced by the family of a young man who was working in Portugal's largest urban center (Lisbon). With this need in mind, the entrepreneur decided to give up his job and took on this new project. He won (in 2012) the contest 'New Ideas New Businesses', promoted by the municipality of Marvão, which provided a critical incentive by financially leveraging the company. Currently, the venture produces totally natural olive oil soaps using local products, which are selling in several stores in the country and

even in the international market. In the future, he intends to help the community and create some additional jobs.

New venture B is located in the center of Portugal, in Viseu, operated by three young farmers and producing mushrooms on tree trunks. Several new ideas and forms of market presence were devised and idealized to produce new products using mushrooms: *alheiras* with mushrooms, sausages with mushrooms, strawberry jams, preserves with mushrooms, cheeses, olives, as well as bittersweet variations. At the origin of the company, the entrepreneurs had a strong desire to help local producers, who still produce in traditional ways. The venture focuses on the domestic market as the main platform for the dissemination of products, present in several supermarket distribution areas in Portugal. The company intends to expand to different gourmet stores, whose main mission is the promotion of new value-added and genuine national products. In the international market, they are already present in France, Switzerland and England, still on a small scale, where it is already possible to perceive and understand the positive reception of consumers, who want traditional and high-quality products.

New venture C is also located in the *Centro* Region, specifically in Vagos, where the agricultural sector shows signs of some recovery. This venture operates in the primary sector, producing small red berries, namely raspberry and blueberry, in an area of 5100 m². Taking advantage of the endogenous and environmental conditions of the region, a young farmer decided to submit the project to a rural development program (PRODER). The berries produced are already exported (at least partially) to Poland, Germany and England. Apart of the production of red berries, the venture also produces preserves, liqueurs, spirits and dehydrated fruit (although on a much smaller scale).

Like new venture A, new venture D is located in one of the most depopulated municipalities of Portugal, Castelo Branco. One of the company's core products is honey whose high quality is due to the local flora. It operates only in the local/regional market, being very small.

New venture E operates in tourism, having restored an old country house according to traditional methods and styling. In a rural environment, among ancient trees and a small orchard, it is situated a few kilometers from Ponte de Lima, the oldest town in Portugal.

When we compared the five rural new ventures and others new ventures located in the same municipality, we found some differences concerning generic characteristics and average performance values (see Table 3). In relation to the first criteria, namely age and size, differences occur in the cases of B and C. New venture B is older and larger than its counterparts located in the same municipality. The opposite occurs for new venture C, which is more recent (2 years) and larger (has between 2 and 4 employees) than other companies in the same municipality (which have 3 years in average age and between 5 and 7 employees).

Table 3: Comparing general characteristics and performance values of ventures

Rural new ventures	Average age	Median size (2013-2015)	Median sales turnover (2013-2015)	Median gross value added (2013-2015)	Exports (2015)
A	2	1 employee	<€10000	<€10000	Positive, but under 11%
Located in A's municipality	2	1 employee	<€10000	<€10000	Positive, but under 11%
B	2	Between 5 and 7 employees	>€50000-€100000	<€10000	Positive, but under 11%
Located in B's municipality	0.67	Between 2 and 4 employees	>€50000-€100000	€10000-€50000	Positive, but less than 10%
C	2	Between 2 and 4 employees	€10000-€50000	€10000-€50000	Positive, but under 11%
Located in C's municipality	3	Between 5 and 7 employees	<€10000	<€10000	11-20%
D	3	Between 2 and 4 employees	<€10000	<€10000	0%
Located in D's municipality	3	Between 2 and 4 employees	>€50000-€100000	€10000-€50000	Positive, but under 11%
E	2	Between 2 and 4 employees	<€10000	<€10000	100%
Located in E's municipality	2	Between 2 and 4 employees	€10000-€50000	<€10000	11-20%
Ventures located in other rural municipalities	2.36	Between 2 and 4 employees	€10000-€50000	€10000-€50000	11-20%
Ventures located in urban municipalities	2.23	Between 2 and 4 employees	>€50000-€100000	€10000-€50000	11-20%

Source: Direct survey to start-up companies located in BIs and SPs in Portugal, April to May 2016. A total of 408 start-up companies responded to the survey.

Differences are even more pronounced in terms of performance. Indeed, four new ventures (B, C, D and E) show noticeable differences in terms of performance when compared to their municipality's counterparts. The rural new ventures B, D and E

present relatively lower performances (less than €10000 vs. between €10000 and €50000, in terms of value added and/or median sales turnover), whereas new venture C presents higher values of sales turnover and value added (both between €10000 and €50000) than other new ventures in its municipality (both lower than €10000). New venture E is much more export led (100%) than its municipality's counterparts (which export, on average, between 11% and 20%).

Based on the above analysis, it is apparent that rural ventures tend to present lower performance values than other new ventures, located in both rural and urban municipalities. Indeed, when comparing rural new ventures with other types of new ventures located in other rural and urban municipalities, we can see (Table 3) that the latter tend to outperform the former.

5. Discussion and conclusion

Drawing on an exploratory analysis involving 408 new ventures headquartered in Portuguese BIs and SPs, the present paper makes some important contributions. First, it underlines the reduced extension of 'rural entrepreneurship' when compared to 'entrepreneurship in rural areas'. Second, it exposes, to some extent, some relevant characteristics of rural ventures, complementing the extant theoretical contributions (McElwee and Smith, 2014).

Existing public policies to promote entrepreneurship in rural areas have not taken fully into account the role of genuine, place-based rural entrepreneurship (Moreira, 2011; Korsgaard et al., 2015). In fact, as our results highlight, there is a need for new rural economic agendas, which emphasize what is genuine and typical in a given region.

Rural entrepreneurship involves, as demonstrated in all five cases analyzed, new combinations of place-based or localized rural resources that create value not solely for the entrepreneur(s), but also for the rural place (Johnstone and Lionais, 2004; Korsgaard et al., 2015). For instance, the entrepreneurs of new venture B tried to involve local producers in the supply of raw materials, which reflects the embeddedness of the rural entrepreneurs in the local place (Korsgaard et al., 2015), for which they become 'ambassadors'. Furthermore, rural entrepreneurship has the potential to create more

resilient localities (Christopherson et al., 2010; Hudson, 2010), with businesses being less likely to relocate elsewhere and less dependent on local resources acquired on the global market (Korsgaard et al., 2015).

Local resources are the basis for the production of new and sometimes original products/services, appreciated precisely for their rural context (Finke and Bosworth, 2016). Although this is more noticeable in the cases of new ventures A and B, it is also extended to the other ventures analyzed. It is this appreciation of products and services with a rural character that can help to brand rural regions, which may attract tourists and visitors, as reflected in the case of the new venture E (rural/local tourism).

Contrary to past research (e.g., Galloway and Mochrie, 2006), we cannot argue that the rural ventures under analysis are smaller than others located in other rural or urban municipalities. Moreover, it was clear that they operate in local and regional markets in terms of sourcing (cf. Korsgaard et al., 2015) and selling. Nevertheless, these rural new ventures seek to enter new international markets and four of them export at least part of their products/services.

Rural ventures tend to present lower performance rates (i.e., sales turnover and/or value added) than other new ventures located in rural and urban municipalities. Despite their likely slower and lower performances when compared with the so-called ‘opportunistic entrepreneurship’ (Korsgaard et al., 2015), it is essential not to overlook the potential of rural entrepreneurs/enterprises for the creation of value for the community. Thus, without the necessary policy support, a number of traditional rural businesses may become so constrained that they are forced to leave, endangering a critical component of rural life (Moreira, 2011; Finke and Bosworth, 2016). Therefore, an interesting path for future research would be to examine institutional support for venture creation.

The findings presented in the present paper entail an important limitation as it only includes new knowledge-intensive ventures, that is, those headquartered in BIs and SPs. Therefore, it cannot be generalized to other new ventures located in rural settings. As such, an additional interesting path for future research would be to extend the study to other ventures not headquartered in BIs and SPs.

Appendix 1: Rural versus urban - the relevant threshold

By reviewing several definitions and typologies of rural (e.g., Ferrão and Lopes, 2003; Rolo and Cordovil, 2014; Goerlich et al., 2016), we found that one of the most widely quoted measures used derives from the population criteria, most notably settlement size or population density. Often, rural areas have low population densities due to small and spread out settlements, but within the same country or between countries, researchers and entities have used different criteria and thresholds to define and demarcate the rural area (Copus et al., 2008; Pato and Teixeira, 2016). For instance, in Portugal, official statistics define the rural area as a parish that has a population density below or equal 100 inhabitants per square kilometer or when the space does not have a resident population equal to or over 2000 inhabitants (INE, 2013), whereas in Spain, the rural space is define as a municipality that has less than 10000 inhabitants (Camarero et al., 2009).

With the purpose of establishing a framework to compare rural conditions and trends which form the background for the design, implementation and impact of policies across countries, the OECD established a regional typology, classifying regions (Nomenclature of territorial units for statistics – NUTS) as predominantly urban, intermediate or predominantly rural. The methodology used by the OECD is mainly based on the two following steps (OECD, 2010):

- 1) The first step consists in classifying ‘local units’ (administrative entities at a geographical level lower than NUTS III) as rural if their population density is below 150 inhabitants per square kilometer;
- 2) The second step consists in aggregating local units into NUTS III regions and classifying the latter as ‘predominantly urban’, ‘intermediate’ and ‘predominantly rural’ using the percentage of population living in rural local units:
 - predominantly rural regions - if the share of population living in rural local units is higher than 50%;
 - intermediate regions - if the share of population living in rural local units is between 15% and 50%;

- predominantly urban - if the share of population living in rural local units is below 15%.

This typology, based essentially on the percentage of rural population living in rural communities (parishes or municipalities), has proved to be meaningful in better explaining regional differences in labor market and economic performance (Brezzi et al., 2011) and is also used (with some adaptations) by Eurostat (Copus et al., 2008).

In order to classify the Portuguese municipalities into rural or urban, we started with the classification of local units (parishes in the Portuguese case) of the Ministry of Agriculture, Sea, Environment and Spatial Planning (2011). This classification, which is based on the OECD methodology, considers that:

- 1) the parishes in NUTS III classified as predominantly urban are considered rural if they are disadvantaged;
- 2) the parishes in NUTS III classified as significantly rural are considered rural if they:
 - are disadvantaged, or
 - are not disadvantaged, they belong to municipalities where at least 10% of the active population work in agriculture and forestry;
- 3) the parishes in NUTS III considered predominantly rural are considered rural;
- 4) are not classified as rural parishes of any NUTS III, integrating population centers with at least 15000 inhabitants.

Taking account of the list of Portuguese rural parishes, in analogy with the OECD NUTS classification, we then considered that:

- if the share of population living in rural parishes is below 15%, the municipality is predominantly urban;
- if the share of population living in rural parishes is between 15% and 50%, the municipality is intermediate;
- if the share of population living in rural parishes is higher than 50%, the municipality is predominantly rural.

According to these criteria, of the 278 municipalities in mainland Portugal, 194 are predominantly rural, 17 intermediate and 67 predominantly urban. Taking into account that our intention was to compare urban and rural municipalities, in a second step of this process, we classified all of the intermediate municipalities as urban, and in a third step, all of the intermediate municipalities as rural. Finally, because two of the intermediate municipalities have a higher population density, with the exception of these two municipalities¹, all of the ‘intermediate’ municipalities² were classified as ‘rural’. Summing up, of the 278 municipalities, we obtained 69 ‘urban’ municipalities and 209 ‘rural’ municipalities (i.e., 75% of the total municipalities in mainland Portugal were classified as rural), based on this classification procedure.

¹ Specifically, Valongo and Oliveira de Azeméis, with 1265,7 and 418 inhabitants per square kilometer, respectively (INE, 2015b, 2015a).

² These municipalities have around 150 inhabitants per square kilometer or less than 150 inhabitants per square kilometer.

Appendix 2: BIs and SPs by region

Table 1: Norte Region

Name	Nut III	Municipality	Rural/Urban
AvePark – Parque de Ciência e Tecnologia, S.A	Ave	Guimarães	Urban
SpinPark – Centro de Incubação de Base Tecnológica	Ave	Guimarães	Urban
Brigantia EcoPark – Parque de Ciência e Tecnologia	Terras de Trás-os-Montes	Bragança	Rural
CiDEB, Centro de incubação e desenvolvimento de Empresas de Biotecnologia	Área Metropolitana do Porto	Porto	Urban
Fábrica Santo Thyrsó	Área Metropolitana do Porto	S. Tirso	Urban
TecTirso – Incubadora de Santo Tirso	Área Metropolitana do Porto	S. Tirso	Urban
CACE de Vale do Ave	Área Metropolitana do Porto	S. Tirso	Urban
IEMinho – Instituto Empresarial do Minho	Cávado	Vila Verde	Rural
Instituto Empresarial do Tâmega	Tâmega e Sousa	Amarante	Rural
Régia-Douro Park – Parque de Ciência e Tecnologia	Douro	Vila Real	Rural
SANJOTEC – Centro Empresarial e Tecnológico de S. João da Madeira	Área Metropolitana do Porto	S. João da Madeira	Urban
Tecmaia – Parque de Ciência e Tecnologia da Maia, S.A	Área Metropolitana do Porto	Maia	Urban
Tecval - Centro de Incub. de Empresas do Vale do Sousa	Tâmega e Sousa	Paços de Ferreira	Urban
Incubadora do Vale do Sousa, associação	Tâmega e Sousa	Penafiel	Urban
UPTEC – Parque de Ciência e Tecnologia da Universidade do Porto	Área Metropolitana do Porto	Porto	Urban
Cace do Nordeste Transmontano – Ninho de Empresas de Mirandela	Terras de Trás-os-Montes	Mirandela	Rural
CACE do Vale do Sousa e Baixo Tâmega - Ninho de Empresas de Castelo de Paiva	Tâmega e Sousa	Castelo de Paiva	Rural

Name	Nut III	Municipality	Rural/Urban
CACE Cultural do Porto	Área Metropolitana do Porto	Porto	Urban
In.Cubo Incubadora de Iniciativas Empresariais Inovadoras	Alto Minho	Arcos de Valdevez	Rural
INOVAGAIA – Centro de Incubação de Base Tecnológica de Vila Nova de Gaia	Área Metropolitana do Porto	Vila Nova de Gaia	Urban
INSerralves Indústrias Criativas	Área Metropolitana do Porto	Porto	Urban
NET – Novas Empresas e Tecnologias SA	Área Metropolitana do Porto	Porto	Urban
Ninhos de Empresas Porto - Fundação da Juventude	Área Metropolitana do Porto	Porto	Urban
BICMINHO (Oficina da Inovação – Empreendedorismo e Inovação Empresarial, S.A.)	Cávado	Braga	Urban
BICMINHO (Oficina da Inovação – Empreendedorismo e Inovação Empresarial, S.A.)	Alto Minho	Viana do Castelo	Rural
Centro de Incubação de Braga – Anje	Cávado	Braga	Urban
Centro de Incubação de Gondomar – Anje	Área Metropolitana do Porto	Gondomar	Urban
Centro de Incubação de Matosinhos – Anje	Área Metropolitana do Porto	Matosinhos	Urban
Centro de Incubação da Maia – Anje	Área Metropolitana do Porto	Maia	Urban
Centro de Incubação do Porto – Anje	Área Metropolitana do Porto	Porto	Urban
Centro de Incubação da Trofa— Anje	Área Metropolitana do Porto	Trofa	Urban
Centro de Incubação de Vizela – Anje	Ave	Vizela	Urban
Incubadora tecnológica Portugal Global	Área Metropolitana do Porto	Porto	Urban
Famalicão Made Incubar	Ave	Vila Nova de Famalicão	Urban

Name	Nut III	Municipality	Rural/Urban
Incubadora Indústrias Criativas Bienal de Cerveira	Alto Minho	Vila Nova de Cerveira	Rural
Gabinete de Apoio ao Empreendedor	Tâmega e Sousa	Felgueiras	Urban
Amorim Cork Ventures	Área Metropolitana do Porto	Santa Maria da Feira	Urban
Gabinete de Apoio ao Empresário Vila Pouca de Aguiar	Alto Tâmega	Vila Pouca de Aguiar	Rural
ParK do EDT	Tâmega e Sousa	Amarante	Rural

Table 2: Centro Region

Name	Nut III	Municipality	Rural/Urban
AIRO – Centro Incubadora Caldas Rainha	Oeste	Caldas da Rainha	Urban
AIRV – Incubadora	Viseu Dão-Lafões	Viseu	Rural
Associação para a Incubadora do Beira Atlântico Parque	Região de Coimbra	Cantanhede	Rural
Instituto Pedro Nunes – Associação para o Desenvolvimento de Actividades de Incubação de Ideias e Empresas	Região de Coimbra	Coimbra	Urban
Associação BLC3 – Plataforma para o Desenvolvimento da Região Interior Centro	Região de Coimbra	Oliveira Hospital	Rural
Parkurbis – Parque de Ciência e Tecnologia SA	Beiras e Serra da Estrela	Covilhã	Rural
IEFF – Incubadoras de Empresas da Figueira da Foz	Região de Coimbra	Figueira da Foz	Urban
Biocant Park Tecnológico de Cantanhede	Região de Coimbra	Cantanhede	Rural
OPEN – Associação para Oportunidades Específicas de Negócio	Região de Leiria	Marinha Grande	Urban
Incubadora D. Dinis	Região de Leiria	Leiria	Urban
Tagus Valley – Parque de Ciência e Tecnologia	Médio Tejo	Abrantes	Rural
IDN – Incubadora de Empresas de Idanha -à Nova	Beira Baixa	Idanha à Nova	Rural
Incubadora de base rural	Beira Baixa	Idanha à Nova	Rural
IERA – Incubadora de Empresas de Águeda	Região de Aveiro	Águeda	Rural
IERA – Incubadora de Empresas de Albergaria à Velha	Região de Aveiro	Albergaria a Velha	Rural
IERA – Curia Tecnoparque	Região de Aveiro	Curia / Anadia	Urban
IERA – IEUA - Incubadora de Empresas da Universidade de Aveiro	Região de Aveiro	Aveiro	Urban
IERA – Incubadora de Empresas do Município de Estarreja	Região de Aveiro	Estarreja	Urban
IERA – Incubadora de Empresas do Município de Ilhavo	Região de Aveiro	Ilhavo	Urban

Name	Nut III	Municipality	Rural/Urban
IERA – Incubadora de Empresas do Município da Murtosa	Região de Aveiro	Murtosa	Urban
IERA – Incubadora de Empresas do Município de Oliveira do Bairro	Região de Aveiro	Oliveira do Bairro	Urban
IERA – Incubadora de Empresas do Município de Sever do Vouga - Incubadora de Empresas do Vougapark	Região de Aveiro	Sever do Vouga	Rural
IERA – Incubadora de Empresas do Município de Vagos	Região de Aveiro	Vagos	Rural
Centro de Incubação de Aveiro – Anje	Região de Aveiro	Aveiro	Urban
Coimbra Iparque	Região de Coimbra	Coimbra	Urban
Parque Industrial de Vila Velha de Ródão	Beira Baixa	Vila Velha de Ródão	Rural
SmartRural Living Lab	Região de Coimbra	Penela	Rural

Table 3: Lisboa Region

Name	NUT III	Municipality	Rural/Urban
Parque Tecnológico da Mutela	Área Metropolitana de Lisboa	Almada	Urban
Parque de Ciência e Tecnologia Tagus Park	Área Metropolitana de Lisboa	Oeiras	Urban
INOVISA – Inovação no setor Agrícola, Alimentar e Florestal	Área Metropolitana de Lisboa	Lisboa	Urban
MADAN Parque	Área Metropolitana de Lisboa	Almada	Urban
Ninho de Empresas DNA Cascais	Área Metropolitana de Lisboa	Cascais	Urban
Start Up Lisboa TECH	Área Metropolitana de Lisboa	Lisboa	Urban
Start U Lisboa Commerce	Área Metropolitana de Lisboa	Lisboa	Urban
Lispolis - Centro de Incubação e Desenvolvimento	Área Metropolitana de Lisboa	Lisboa	Urban
Labs Lisboa - Incubadora de Inovação	Área Metropolitana de Lisboa	Lisboa	Urban
TEC Labs Centro de Inovação	Área Metropolitana de Lisboa	Lisboa	Urban
EDP starter	Área Metropolitana de Lisboa	Sacavém / Loures	Urban
EggNEST SGPS	Área Metropolitana de Lisboa	Oeiras	Urban

Name	NUT III	Municipality	Rural/Urban
Incubadora Criativa e Tecnológica - PLAY – Projects Lab Alliance for You - Universidade Tecnológica	Área Metropolitana de Lisboa	Lisboa	Urban
IDEIAhub	Área Metropolitana de Lisboa	Lisboa	Urban
LINNK	Área Metropolitana de Lisboa	Lisboa	Urban
Startup Campus powered by Banif –Fábrica de Startups	Área Metropolitana de Lisboa	Lisboa	Urban
Lisbon Challenge	Área Metropolitana de Lisboa	Lisboa	Urban
Ninhos de Empresas Lisboa – Fundação da Juventude	Área Metropolitana de Lisboa	Lisboa	Urban
NNIES – Ninho de Novas Iniciativas Empresariais de Setúbal	Área Metropolitana de Lisboa	Setúbal	Urban
Centro de Incubação de Lisboa – Anje	Área Metropolitana de Lisboa	Lisboa	Urban

Table 4: Alentejo Region

Name	NUT III	Municipality	Rural/Urban
Sines Tecnopolo	Alentejo Litoral	Sines	Rural
Parque de Ciência e Tecnologia do Alentejo	Alentejo Central	Évora	Rural
Parque Empresarial de Barrancos	Baixo Alentejo	Barrancos	Rural
Ninho de Empresas de Elvas	Alto Alentejo	Elvas	Rural
Ninho de Empresas de Marvão	Alto Alentejo	Marvão	Rural
Ninho de Empresas de Monforte	Alto Alentejo	Monforte	Rural
Ninho de Empresas de Ponte de Sor	Alto Alentejo	Ponte de Sor	Rural
Ninho de Empresas de Portalegre	Alto Alentejo	Portalegre	Rural
Coruche Empreende - Núcleo de Inovação e Empreendedorismo	Lezíria do Tejo	Coruche	Rural
Sítio do Empreendedor da NERSANT (Associação Empresarial da Região de Santarém)	Lezíria do Tejo	Santarém	Rural

Table 5: Algarve Region

Name	NUT III	Municipality	Rural/Urban
CACE Algarve – Centro de apoio à criação de empresas do Algarve	Algarve	Loulé	Rural
Ninho de Empresas do Algarve – Fundação da Juventude	Algarve	Loulé	Rural
Centro de Incubação de Faro – Anje	Algarve	Faro	Urban
CRIA, Centro Regional para a Inovação do Algarve	Algarve	Faro	Urban
NERA – Associação Empresarial da Região do Algarve	Algarve	Loulé	Rural
Área Empresarial de Loulé	Algarve	Loulé	Rural

Appendix 3: Questionnaire

The survey is part of an PhD academic work on the differences between rural and urban companies, being developed at the Faculty of Economics of the University of Porto. We thank you if the response to the survey could be made by the owner or, in the case of companies, the majority shareholder and/or the executive associate. The survey consists of two parts: Part I related to the characteristics of the company and Part II concerning the characteristics of person who is answering and the company surroundings. We kindly ask you to answer all the questions. The collected data will be used for academic and scientific purposes only, being guaranteed the confidentiality of the data.

For clarifications and / or questions, please contact empreendrural@fep.up.pt

I. COMPANY

YEAR OF VENTURE CREATION _____

A. INNOVATION PERFORMANCE

1. PRODUCT

A **Product Innovation** is the market introduction of a new or significantly improved good or service with respect to its capabilities, user friendliness, components or sub-systems.

- A good is usually a tangible object (ex. smartphone, furniture, downloadable software, etc.).
- A service is usually intangible (ex. retailing, insurance, educational courses, air travel, etc.).

During the three years 2013 to 2015, did your enterprise introduce:

	Yes	No	Not applicable
New or significantly improved goods?	☐	☐	☐
New or significantly improved services?	☐	☐	☐

2. PROCESS

A **Process innovation** is the implementation of a new or significantly improved production process or supporting activity.

During the three years 2013 to 2015, did your enterprise introduce:

	Yes	No	Not applicable
New or significantly improved methods of manufacturing or producing goods or services?	☐	☐	☐
New or significantly improved supporting activities for your processes (ex. maintenance systems or operations, accounting, or computing)?	☐	☐	☐

3. ORGANISATIONAL INNOVATION

An **organisational innovation** is a new organisational method in your enterprise's business practices (including knowledge management), workplace organisation or external relations that has not been previously used by your enterprise.

- It should not have been previously used by your enterprise.
- It must be the result of strategic decisions taken by management.

During the three years 2013 to 2015, did your enterprise introduce:

	Yes	No	Not applicable
New business practices for organising procedures (i.e. supply chain management, business reengineering, knowledge management, quality management, etc.)?	☐	☐	☐
New methods of organising work responsibilities and decision making (i.e. first use of a new system of employee responsibilities, team work, decentralisation, education/training systems, etc.)?	☐	☐	☐
New methods of organising external relations with other firms or public institutions (i.e. first use of alliances, partnerships, or sub-contracting, etc.)?	☐	☐	☐

4. MARKETING INNOVATION

A **marketing innovation** is the implementation of a new marketing concept or strategy that differs significantly from your enterprise's existing marketing methods and which has not been used before.

- It requires significant changes in product design or packaging, product placement, product promotion or pricing.
- Exclude seasonal, regular and other routine changes in marketing methods.

During the three years 2013 to 2015, did your enterprise introduce:

	Yes	No	Not applicable
Significant changes to the aesthetic design or packaging of a good or service? (exclude changes that alter the product's functional or user characteristics – these are product innovations)	☐	☐	☐
New media or techniques for product promotion (i.e. the first time use of a new advertising media, a new brand image, introduction of loyalty cards, etc.)?	☐	☐	☐

New methods for product placement or sales channels (i.e. first time use of franchising, direct selling, new concepts for product presentation, etc.)?	☐	☐	☐
New methods of pricing goods or services (i.e. first time use of variable pricing by demand, discount systems, etc.)?	☐	☐	☐

B. ECONOMIC PERFORMANCE (values recorded at the end of December of each year)

	2013	2014	2015
Nº. of persons employed			
Business Turnover (net value of sales and services) (in €)			
Gross value added (in €) (production value minus intermediate consumption)			

C. BUSINESS CHARACTERIZATION

Municipality of the venture?

Code of Economic activity:

Please describe the main product(s) / service(s) that your company produces / commercializes?

Taking by reference the year of 2015

What percentage (0-100%) of persons employed in the company were residing in the municipality

Municipality?

Region?

note: the NUT III to which the municipality belongs appears automatically

What percentage (0-100%) of persons employed in the company had bachelors degree, graduation or more?

What percentage (0-100%) of intermediate consumptions (raw materials and other goods and services) used by the company coming from ...

The municipality?

The region mentioned above (including the municipality)?

What percentage (0-100%) of goods / services produced by the venture is consumed

In the region (including the municipality)?

In the country? In other countries?

II. ENTREPRENEUR

A. HUMAN CAPITAL

Choose the highest educational level you have:

In case of higher education or specialization, please mention the degree specialization's name you have?

Years of professional experience as a:

Employee

Entrepreneur

Mention 3 professional activities/ functions you have performed for more years

Based on your day-to-day business activities, please mark with an X, in the corresponding box, the degree of agreement regarding the following statements

	1: Totally Disagree ... 5: Totally Agree				
	1	2	3	4	5
I execute result-oriented tasks.	☐	☐	☐	☐	☐
Success is essentially the result of individual / team work/ efforts	☐	☐	☐	☐	☐
Generally, I am willing to take risks.	☐	☐	☐	☐	☐
In Overall, when I am facing difficult tasks, I am sure that I will solve them.	☐	☐	☐	☐	☐
I like to determine how tasks are executed.	☐	☐	☐	☐	☐
I tend to think of new ideas and new ways of solving tasks.	☐	☐	☐	☐	☐
I perform the tasks independently of its results.	☐	☐	☐	☐	☐
I am pleased with income stability.	☐	☐	☐	☐	☐
Success is essentially the result of external factors, regardless of the individual's efforts.	☐	☐	☐	☐	☐
I like to be assigned the tasks to be done.	☐	☐	☐	☐	☐
Sometimes I have doubts that I can perform certain tasks.	☐	☐	☐	☐	☐
I am tendency to perform the tasks routinely.	☐	☐	☐	☐	☐

B. CONTEXT

Have / had parents or other close family members (e.g., grandparents) that were / are entrepreneurs?

Yes ☐ No ☐

Based on the creation of your company, please put a X, in the corresponding box, the degree of importance of the support (financial or other) of the following entities:

	1: Not important ... 5: Quite important				
	1	2	3	4	5
Commission for Regional Coordination and Development (CCDRs)	☐	☐	☐	☐	☐
Regional / local development associations (e.g., LEADER associations)	☐	☐	☐	☐	☐
Regional / Local Business Associations	☐	☐	☐	☐	☐
Universities and / or other higher education institutions of the region or surrounding region	☐	☐	☐	☐	☐
Professional business structures (e.g. incubators, science and technology parks)	☐	☐	☐	☐	☐
Credit institutions (e.g., banks)	☐	☐	☐	☐	☐
Other lenders (e.g., Business Angels, Venture Capital)	☐	☐	☐	☐	☐
Local Government / City Hall	☐	☐	☐	☐	☐
Central Government	☐	☐	☐	☐	☐
European Commission (Other European Funds)	☐	☐	☐	☐	☐

If there are other relevant entities, please mention which:

The company owners of the company had meetings other entities (associations, other entrepreneurs, local community, etc.) with the purpose of ...

... receiving advice to start the company's activity?

No ☐ Yes ☐

... exchange experiences / advices relevant to the company's ongoing activity?

Never ☐ Rarely ☐ With some frequency ☐ Frequently ☐

Does your company engage in joint activities with other companies or institutions in the Region?

	Nothing	Little	In a certain way	With regularity	Very regularly
Attract Employees	☐	☐	☐	☐	☐
Development of the business environment	☐	☐	☐	☐	☐
Access to new markets	☐	☐	☐	☐	☐
Investigation and development	☐	☐	☐	☐	☐
Employee training	☐	☐	☐	☐	☐

To what extent do each of the following constitute an advantage/ obstacle to the current operation of your company in the municipality where you are located?

	Significant obstacle	Moderate obstacle	Neutral	Moderate advantage	Significant advantage
Labour costs and regulations	☐	☐	☐	☐	☐
Energy and natural resources	☐	☐	☐	☐	☐
Transportation	☐	☐	☐	☐	☐
Telecommunications	☐	☐	☐	☐	☐
Access to financing	☐	☐	☐	☐	☐
Workforce with appropriate qualifications	☐	☐	☐	☐	☐
Access to research and development institutions	☐	☐	☐	☐	☐
Crime, violence and / or robbery	☐	☐	☐	☐	☐
Cooperation Culture	☐	☐	☐	☐	☐
Local market size	☐	☐	☐	☐	☐
Quality and presence of specialized suppliers	☐	☐	☐	☐	☐
Business regulations	☐	☐	☐	☐	☐
Local Policies	☐	☐	☐	☐	☐

Has the company received any public financial support (including tax incentives / benefits, subsidies, bank loans or bank guarantees) for its creation and / or activity?

No ☐

Yes ☐

If yes, please check (from the list below) which entities have provided support? (You can check several entities)

European Union
 QREN ☐
 PRODER ☐
 Portugal 2020 ☐
 PDR 2020 ☐
 Others (please specify): ☐

Central Administration ☐
(includes Agencies or Ministries, through government programs)
Regional or Local Administration ☐
Others (please specify): ☐

The survey is over. Thank you very much for your collaboration!

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**ESSAY 3: ARE NEW RURAL VENTURES DIFFERENT FROM
NEW URBAN ONES? AN EXPLORATORY ANALYSIS OF
BUSINESSES LOCATED IN PORTUGUESE INCUBATORS AND
SCIENCE PARKS**

Are new rural ventures different from new urban ones? An exploratory analysis of businesses located in Portuguese incubators and science parks

Abstract

In a context of emerging new ventures in rural areas and considering the differences between rural and urban spaces, we have developed a model based on the literature review performed that intends to uncover and rationalize the differences between rural and urban new ventures – personality traits and human capital, environmental factors, the ventures' general characteristics, innovation strategies, and venture performance. This model was then empirically assessed resorting to exploratory statistical analysis based on data collected from a questionnaire survey targeted at 1400 new ventures located in Portuguese Business Incubators and Science Parks. Although some results are in line with the literature review, specifically those related with business characteristics and economic performance, others are not. Specifically, we did not find statistically significant differences between a rural and a non-rural entrepreneur in terms of their personality traits, between general environmental factors, or between innovation strategies in the model. Therefore, the different economic performances of rural ventures may be due to size, sector and other characteristics, but not because they are located in a rural or an urban setting. However, the study evidences that rural ventures are more innovative than urban ones. It seems that in a context of scarce economic and human resources, characteristic of rural areas, entrepreneurs are aware that promotion is required to attract clients from external markets. The study also highlights the importance of the support of municipal policies in the creation of businesses located in rural areas. This suggests that the implementation of political measures must be adapted to the realities of locations and must be based on proximity with entrepreneurs.

Keywords: entrepreneurship; rural; theoretical framework; new venture strategy

1. Introduction

Rural regions face significant challenges in comparison to other regions, which are even more critical in the so-called peripheral or mountain regions. The problems stem, in general, from a rapid decline in employment in the agricultural sector, a poor socioeconomic environment, a low density and ageing population, and also from distance to market and services (Organisation for Economic Co-Operation and Development [OECD], 2006; Smallbone, 2009). It is thus not surprising that the European Union (EU) has successively adopted measures to promote their development. Since several opportunities emerge in rural areas (Stathopoulou et al., 2004), one of these measures involves the promotion of innovation and entrepreneurship (European Commission [EC], 2012; Korsgaard et al., 2015; Lane et al., 2016).

Entrepreneurship has emerged as one of the most important tools to bolster the development of rural areas (Baumgartner, et al., 2013b). Entrepreneurship, measured by indicators such as new firm creation rates, has been correlated with the economic prosperity and growth of these areas (McElwee and Atherton, 2011). However, the role of entrepreneurship in economic development has mainly been studied in metropolitan and urban regions (Baumgartner, et al., 2013a), where entrepreneurship is higher as a result of localization and urbanization effects (Freire-Gibb and Nielsen, 2014). Moreover, it could be said that rural areas are at a perpetual disadvantage in terms of their ability to spawn entrepreneurial opportunity (Fortunato and Alter, 2016). If much of the literature on entrepreneurship has an urban focus, some authors contend (e.g., McElwee and Smith, 2014) that there is a need to clarify whether a rural enterprise is a distinctive category in its own right.

In a context of emerging new ventures in rural areas and considering the differences between rural and urban spaces, the theoretical framework developed in this paper tries to uncover and rationalize the differences between rural and urban new ventures in terms of the characteristics of the individual(s) who create(s) the venture, the environment surrounding the new venture, their general characteristics (e.g., sector, size), strategies (e.g., product innovation, marketing), and performance. Such a theoretical framework is then empirically assessed resorting to exploratory statistical analysis based on data collected from a questionnaire survey targeted at 1400 new

ventures headquartered in Portuguese Business Incubators (BIs) and Science Parks (SPs).

This research is deemed important because, with some exceptions (e.g., Patterson and Anderson, 2003; Bergmann and Baumgartner, 2010; McElwee and Smith, 2014), very few studies look into the differences between rural and urban ventures and, concomitantly, there is little evidence of whether rural enterprises face barriers that differ from their urban counterparts (Lee and Cowling, 2014). Moreover, and to the best of our knowledge, very few empirical analyses focus on newly established rural ventures.

The paper consists of four sections after the introduction. The theoretical framework of analysis and the hypotheses explored are presented in the Section 2. The study design is explained in the next section, followed by a presentation and discussion of the results of the quantitative analysis, in Section 4. In the conclusion, the study's main contributions are highlighted and possible avenues for future research are put forward.

2. Theoretical framework of analysis and main hypotheses to be tested

2.1. The process of venture creation: a general overview

The process of new venture creation can only be completely understood by studying the interaction of four major components (Gartner, 1985): i) characteristics of the individual(s) who start the venture, ii) the environment surrounding the new venture, iii) the process by which the new venture is started, and iv) the organization which they create.

In fact, 'the creation of a new venture is a multi-dimensional phenomenon; each variable describes only a single dimension of the phenomenon and cannot be taken alone' (Gartner, 1985, p. 697).

In the same line, it must be emphasized that venture creation requires more than just resources (Barney, 2001) and a business idea or opportunity (Shane, 2012). Its success depends on a series of circumstances and factors, such as those related to personality traits and the context (Bygrave and Zacharakis, 2014). The understanding of venture

creation as a process dependent on environmental resources (regional determinants) and human action (individual-related determinants) is presented in the conceptual model of entrepreneurship, adapted by Bergmann and Baumgartner (2010) from the work of Stathopoulou et al. (2004) (see Figure 1).

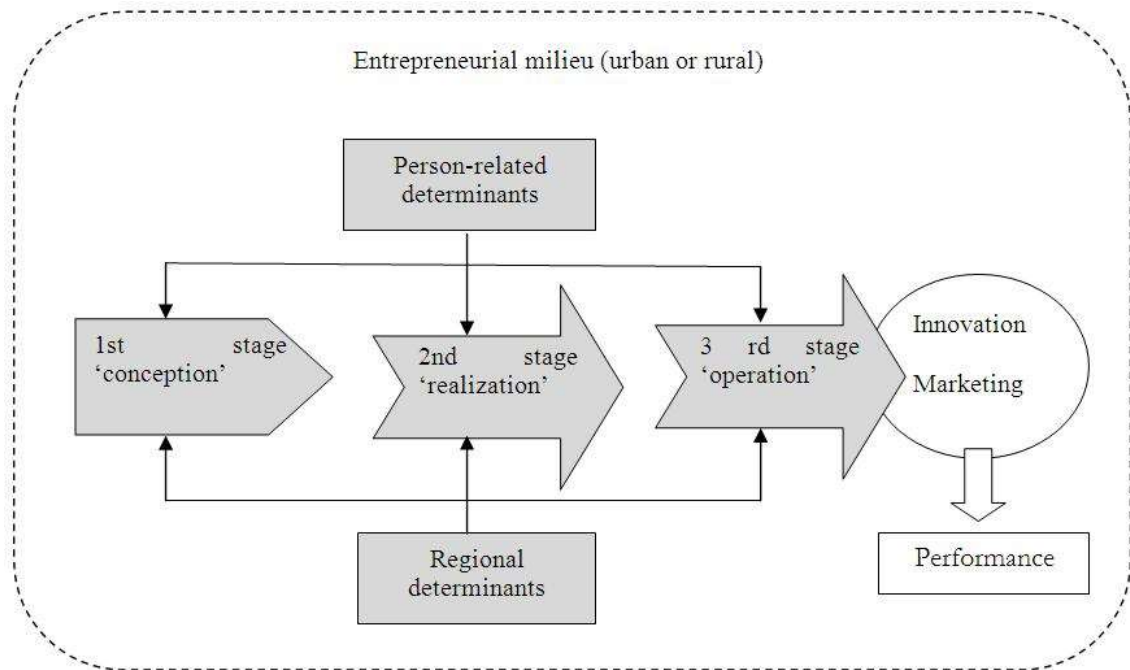


Figure 1: The process of venture creation

Source: Adapted from Bergmann and Baumgartner (2010).

Accordingly, entrepreneurship involves three stages:

- The conception stage: the entrepreneur discovers an opportunity. Potential entrepreneurs have to identify, evaluate and exploit business opportunities in order to start a business venture (Shane, 2012).
- The realization stage: potential entrepreneurs engage in entrepreneurial activities and assemble the necessary resources to start the business. For instance, in order to create a viable business, the entrepreneur must contact and interact with several institutions and create market partnerships (Stathopoulou et al., 2004).
- The operation stage, in which the entrepreneur manages the venture in such a way that it grows and survives (Frese and Gielnik, 2014). To accomplish this,

some attitudes are required, related, for instance, with innovation and marketing. This stage reflects clearly the results of the entrepreneurial process in the foregoing stages.

2.2. The conceptual model

The model developed constitutes a framework for examining whether newly established rural and urban ventures differ in terms of the characteristics of the individual(s) who found them, the environment surrounding the new venture, their general characteristics (e.g., sector, size, labor force), innovation (e.g., product, process, organization and marketing), and performance.

We hypothesize that individuals and their human capital show different characteristics according to rural and urban locations, as well as regarding the environment/context surrounding the venture. Additionally, we hypothesize that rural and urban ventures differ in terms of their general characteristics (e.g., sector, size, labor force), innovation, and entrepreneurial performances (see Figure 2).

The rationale underlying such hypotheses is discussed below in more detail.

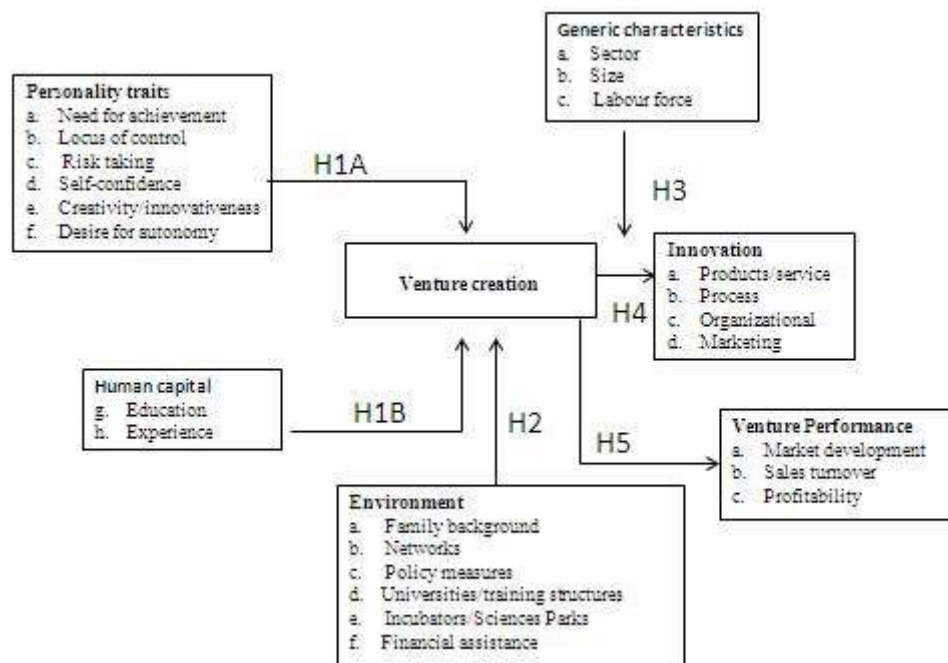


Figure 2: Theoretical framework of the study and its hypotheses

2.3. Rationale of the main hypotheses

2.3.1. Individual(s)

Entrepreneurship involves individuals and groups of individuals seeking and exploiting economic opportunity (McKenzie et al., 2007). Individual(s) ‘discover, evaluate or exploit’ opportunities and barriers that emerge from within or outside the community into entrepreneurial initiatives (Baumgartner, et al., 2013b). Like Schumpeter (1934), more recently, researchers have acknowledged the importance of a psychological perspective in the entrepreneurial process. This because entrepreneurship is essentially a personal phenomenon (Baum et al., 2007). In fact, personality traits and human capital play an essentially role in each of the mentioned stages of the entrepreneurial process (Stathopoulou et al., 2004; Bergmann and Baumgartner, 2010; Frese and Gielnik, 2014).

Personality traits

Personal traits are defined as dispositions to display a certain kind of response across a certain situation (Caprara and Cervone, 2000). They are also strong dispositions that show a relative stability across time and context (Roccas et al., 2002), being crucial in the entrepreneurial process.

Furthermore, the so-called Giessen-Amsterdam model puts forward, first of all, personality traits as predictors of the success of the entrepreneurial process (Frese and Gielnik, 2014). The model includes: need for achievement, locus of control, innovativeness, and risk-taking. Owing to their importance in entrepreneurship (Stokes et al., 2010), in this paper, we also include self-confidence and desire for autonomy.

The basis of much of the literature on the personal qualities of the entrepreneur was first developed by David McClelland in his book, ‘The Achieving Society’. According to McClelland’s (1961) early work, entrepreneurs have a high need for achievement. This personality trait is characterized by an enduring drive, consistent with setting and meeting high standards of realization (Collins et al., 2004). McClelland (1961) surmised that individuals who score high on ‘need for achievement’ are attracted to situations in which they experience direct and timely control over outcomes and have personal control over their performance (Zhao et al., 2010).

If the trait is essential in any type of entrepreneur, it seems that there may be differences between entrepreneurs from distinct locations. For instance, Huovinen and Koiranen (2011) showed that the ‘need for achievement’ is higher in entrepreneurs in urban areas than in rural ones. This is because the competition among entrepreneurs and firms in urban areas may be more intense than in rural areas, requiring entrepreneurs to have a certain competitive mindset (Huovinen and Koiranen, 2011). Based on this argument, we hypothesize that for newly created ventures:

Hypothesis 1a: Rural entrepreneurs show a lower need for achievement than urban ones.

Besides the ‘need for achievement’, it has been shown that entrepreneurs have a higher internal ‘locus of control’ (than non-entrepreneurs), that is, have a stronger desire to be in control of their own actions (Bygrave and Zacharakis, 2014). Locus of control is important in the individuals’ motivation and intentions to start new ventures (Shane et al., 2003). It refers to individual belief in how they can wield control over their destiny (Schjoedt and Shaver, 2012). People who believe they have control over their actions and future are considered to have an internal locus of control, whereas those who think facts are being controlled by external forces are classified as having an external locus of control (Ishak et al., 2015).

Kamaraj and Jayakumar (2012) found that entrepreneurs in rural areas reveal a high degree of internal locus of control. This may be due to the fact that entrepreneurs in rural areas have to deal with important obstacles which commonly affect venture creation (Meccheri and Pelloni, 2006). Consequently, it is expected that in order to overcome these obstacles they need to work harder and trust in their own actions to a greater extent.

Based on this, we hypothesize that for newly created ventures:

Hypothesis 1b: Rural entrepreneurs have a higher internal locus of control than urban ones.

The tasks of entrepreneurship include taking risks because decisions are made in uncertain situations and without certainty of the future. In fact, entrepreneurship, particularly in its beginning stages, is characterized by enormous uncertainty and a high degree of complexity in task demands (Markman, 2007). ‘Risk-taking’ implies venturing into the unknown, to make use of money and time, and to build a new

business without certainty of the future (Frese, 2009). No individual or business can thrive today without taking risks and adjusting constantly to change and to markets. But if risk-taking is important, particularly in entrepreneurs (Brockhaus, 1980), many people can exhibit some type of risk aversion – fear of failure, fear of conflict, fear of uncertainty, fear of losing control and money, power and status (Petrin and Gannon, 1997). This can be even more dramatic in rural areas, since many of them are characterized by the inappropriate socio-cultural factors of their institutional framework (Vaillant and Lafuente, 2007). Indeed, Petrin and Gannon (1997) suggested that risk aversion may be one of the most vexing problems in rural entrepreneurship.

Based on this, we hypothesize that for newly created ventures:

Hypothesis 1c: Rural entrepreneurs show lower risk-taking behavior than urban ones.

‘Self-confidence’ is defined as people’s beliefs about their capabilities to produce levels that affect their lives (Bandura, 1994). We assume this personal trait is important for people, specifically for founders, because they need to be confident in their capabilities to carry out diverse tasks under uncertain situations (Baum and Locke, 2004). Those who are more confident about their entrepreneurial abilities tend to achieve greater new venture growth (Baum and Locke, 2004).

If this is important in any entrepreneurial action, Bergmann and Baumgartner (2010) suggested that rural entrepreneurs have lower entrepreneurial self-confidence in comparison with urban entrepreneurs. This can be related with the fact that individuals living in rural areas are generally less educated (Fearne et al., 2013) and have more difficulty in accessing specific training and business facilities (McElwee and Smith, 2014). Based on this, we hypothesize that:

Hypothesis 1d: Rural entrepreneurs have lower entrepreneurial self-confidence than urban ones.

To create additional value, entrepreneurs must develop new ideas, spot market opportunities, combine existing ideas or resources, or exhibit certain characteristics (Cromie, 2000). Therefore, ‘innovativeness/creativity’ is required. The entrepreneurial literature suggests, however, that some individuals are more creative than others (Freire-Gibb and Nielsen, 2014). Freire-Gibb and Nielsen (2014) found that creative individuals are more likely to establish a business if they live in an urban area, which could be due

to a more competitive environment in that location. This finding could support arguments that indicate that there is an association between creativity and urban areas in terms of entrepreneurship (Glaeser, 2011). Furthermore, it seems that more competitive environments in urban areas result in more competitive entrepreneurs (Freire-Gibb and Nielsen, 2014). Based on the above arguments, we hypothesize that:

Hypothesis 1e: Rural entrepreneurs are less creative/ innovative than urban ones.

Last but not least, the entrepreneurs' 'desire for autonomy' should be considered. Autonomy implies being free when pursuing opportunities – an autonomous person acts independently in their decisions (Frese, 2009). Entrepreneurs have the desire for freedom to organize their own affairs (Brandstätter, 1997) and prefer to make decisions independently of others, to set their own goals and plans of actions, and to control goal achievement themselves (Baum et al., 2007). Gladwin et al. (1989) studied rural entrepreneurs in North Florida in comparison with non-founders, and found that the challenge and adventure of starting a business, as well as the autonomy provided, was worth the long hours and lack of time and energy for anything else. In turn, Mazzarol (2003) compared urban and rural entrepreneurs in Australia. His research indicates that people in rural communities were more likely to place greater importance on the desire for autonomy and the desire to follow a perceived market opportunity than their counterparts in urban communities. These findings suggest that budding entrepreneurs in rural communities may be more determined than their urban counterparts to achieve independence through self-employment and to accomplish their professional ambitions (Mazzarol, 2003). Based on the above arguments, we hypothesize that:

Hypothesis 1f: Rural entrepreneurs have a higher desire for autonomy than urban ones.

Human capital

Another important factor of entrepreneurial behavior is human capital, in particular, educational background and work experience (Gartner, 2004). Human capital theory predicts that individuals who possess greater levels of knowledge, skills and competencies achieve greater performance outcomes (Martin et al., 2013). The traditional analysis of human capital has mainly focused on the education and experience of individuals (productive skills, capabilities and knowledge, both technical

and managerial), that is, all those aspects that are related to individuals and enhance their entrepreneurial success (Marcati et al., 2008).

It is further argued that education improves entrepreneurial judgment by providing people with abilities, information about business opportunities and an understanding of markets and the entrepreneurial process (Ucbasaran et al., 2009). Eliasson and Westlund (2012), for instance, have demonstrated that in both rural and urban areas, the probability of entry into self-employment increases with the level of education. On the other hand, specific education in areas related to entrepreneurial tasks (e.g., industry and management) is more important for entrepreneurial success than general education (Krueger, 1993; Unger et al., 2011).

Despite the importance of education in the entrepreneurial process, rural ventures seem to have entrepreneurs with poorer formal education (Rijkers et al., 2010). In fact, in rural areas, the level of instruction of rural entrepreneurs is lower than those of their urban counterparts (Fearne et al., 2013). Indeed, the latter often have a degree or higher level (Battisti et al., 2013). Likewise, in relation to knowledge-intensive service activity (KISA) firms, Lafuente et al. (2010) observed that owners of enterprises in urban Catalonia (Spain) appear to be more geared towards university studies than those who started their business in rural areas. This may be due to the proximity between urban enterprises and universities and other training institutions. Based on the above arguments, we hypothesize that:

Hypothesis 1g: Rural entrepreneurs have lower levels of education than urban ones.

In turn, experience may facilitate the recognition of new business opportunities (Baron and Ensley, 2006; Ucbasaran et al., 2009) and the acquisition of entrepreneurial knowledge which increases entrepreneurial performance (Rider et al., 2013). Studies that have explored the relationship between business ownership experience and outcomes often assume that the extent of experience will be associated with higher outcomes (Ucbasaran et al., 2009). Moreover, experience can also facilitate learning by providing feedback about past decisions (Bazerman and Moore, 2012). If most rural areas have not experienced the appropriate and consequent convergence towards the entrepreneurial activity levels found in urban areas (Vaillant and Lafuente, 2007), it is expected that rural entrepreneurs have less experience than urban ones. Gadi et al.

(2014), for instance, found that male rural entrepreneurs tend to have less work experience, capital or information to start a venture than urban ones. Therefore, we hypothesize that:

Hypothesis 1h: Rural entrepreneurs have less work experience than urban ones.

2.3.2. Environmental factors

In addition to the characteristics of people and their human capital, a growing number of academics have shown that the decision to create a new venture and, therefore, to become an entrepreneur, is shaped by external or environmental factors (Kalantaridis, 2006; Vaillant and Lafuente, 2007). Entrepreneurship is a local process in which entrepreneurs take advantage of local information and resources, thus emphasizing the embeddedness of entrepreneurial activities (Schmude et al., 2008) and the idea of entrepreneurship as a socio-spatial phenomenon (Trettin and Welter, 2011).

General environmental conditions discussed in the literature (Gartner, 1985; Gnyawali and Fogel, 1994; Gomezelj and Kusce, 2013; Frese and Gielnik, 2014) include support from family, social capital and networks, favorable government policies, provision of education and training programs, professional business infrastructure, and funding assistance.

The motivation to create a venture and achieve success as an entrepreneur is assumed to be positively related to the presence of entrepreneurs in the family or among friends (Freire-Gibb and Nielsen, 2014). Indeed, some empirical evidence suggests that families play an important role in the venture creation process and thus deserve greater consideration in the entrepreneurship process (Aldrich and Cliff, 2003). For instance, Aldrich and Cliff (2003, p. 573), pointed out the benefit of a ‘family embeddedness perspective’ on new venture creation. The concept is based on the idea that individuals are part of a social structure and, therefore, ‘do not decide to start a business in a vacuum’ (Aldrich and Cliff, 2003, p. 577). Moreover, it has been recognized that an individual tends to become more interested in entrepreneurship if he/she has a background in business ownership, specifically from their parents (Kirkwood, 2012). Having a parent entrepreneur increases the probability of children become entrepreneur (Lindquist et al., 2015). If rural areas lack professional networks and business support

infrastructure, then the support from family members seems to be crucial (Freire-Gibb and Nielsen, 2014). Based on the above arguments, we hypothesize that:

Hypothesis 2a: The influence of family background on venture creation is stronger in rural areas than in urban ones.

Furthermore, scholars have long pointed out the importance of socio-cultural factors in the decision to create new ventures, arguing that entrepreneurship is also embedded in a social context (Aldrich and Zimmer, 1986). Specifically, a social perspective, which assumes that resources are embedded in social relationships, is expected to help entrepreneurship (Zhao et al., 2011). Typically, rural areas are rich in social capital (Fortunato, 2014). Social capital, i.e., the ability of actors to take advantage of social structures, networks, collaborations and ties (Woolcock and Narayan, 2000), is important to overcome some constraints of rural areas. Atterton (2007), for instance, noted that networks help to overcome some of the disadvantages of a peripheral location by often serving as a means to achieve economies of scale (for instance, in accessing distant markets) or as a source of support and information, especially given the absence of more formal structures of information. Moreover, social capital and networks in rural areas involve social trust and sometimes a cultural dimension, reflected in higher levels of engagement in informal, voluntary activities by people in those locations (Mandl et al., 2007). Based on the above arguments, we hypothesize that:

Hypothesis 2b: The influence of social, informal networks on venture creation is stronger in rural areas than in urban ones.

In addition to the factors mentioned previously, policy measures both directly and indirectly affect the development of an entrepreneurial attitude. Entrepreneurs may be discouraged from creating a venture if they have to follow many rules and procedural requirements, if they have to report to many institutions, and if they have to spend more time and money in fulfilling procedural requirements (Young and Welsch, 1993).

Cities are usually provided with better, more modern business infrastructure and have a modern industrial structure. This sustains the argument for designing a special entrepreneurship policy for the countryside (Eliasson and Westlund, 2012). For instance, aware of the problems of rural areas and the need to revitalize them, the European Union (EU) has several policy initiatives at the national and local level that

can foster venture creation and support the financing needs of business start-ups (Olaniyi and Reidolf, 2015). With respect to debt financing, credit guarantee programs aim to facilitate the access of entrepreneurs with viable business projects to bank lending from which they would otherwise be excluded (OECD, 2006). Thus, we hypothesize that:

Hypothesis 2c: The influence of policy measures on venture creation is stronger in rural areas than in urban ones.

As mentioned previously, education and knowledge are also important in the creation of the venture. Often, thanks to their learning over long periods of education, academics possess substantial human capital and generally have access to advanced technologies and innovations, which could provide them with singular qualities for starting new ventures (Wennberg et al., 2012). For this reason, the availability of programs and training courses intended to help potential entrepreneurs identify what is right from them and to assist them in making the required changes is important (Radas and Ljiljana, 2009). One channel to provide these programs and training courses is through universities. The presence of universities for training and research is considered very important to increase the rate of new business creation (Bramwell and Wolfe, 2008). In this regard, Joo (2011) showed that in comparison to urban areas, rural areas do not have many universities. Thus, educational opportunities and the support available to venture creation are fewer in rural areas than in urban ones. Also, Skuras et al. (2005) found that training agencies are mostly located in urban regions, which in turn, raises further obstacles to the entrepreneurial process in rural areas. Therefore, our hypothesis is:

Hypothesis 2d: The influence of universities/training agencies on venture creation is weaker in rural areas than in urban ones.

Like the availability of universities, proximity and access to professional business infrastructure, such as BIs and SPs, also have an influence on venture creation. BIs and SPs are implemented in several countries in order to develop new business and promote economic development (Ratinho and Henriques, 2010). Both structures not only provide the physical space for enterprises (offices, labs), but also emphasize the effective combination of services – consultancy, networking and access to venture capital (Grimaldi and Grandi, 2005; Ratinho and Henriques, 2010). Estimations of business

incubators in Europe and the United States suggest that the large majority of incubated start-ups are active and growing after three years of operation, which is a much higher success rate than that observed in start-ups without assistance (Drucker, 2008). However, similarly to universities, the more prominent, older BIs and SPs (e.g., Tagus Park, Lispolis and Sogist) are located around urban centers, at least, in the Portuguese case. They are also more likely to have centers of knowledge production as well as exhibit higher economic growth (Ratinho and Henriques, 2010). It is therefore reasonable to assume that BIs or SPs located around developed and metropolitan urban centers will have less difficulty in providing the necessary assistance to new venture creation than similar institutions located elsewhere. Thus, our hypothesis is:

Hypothesis 2e: The influence of professional business infrastructure (SPs/BIs) on venture creation is weaker in rural areas than in urban ones.

Last but not least, the availability of funding assistance is also relevant. Often, entrepreneurs require financial assistance for at least one of three purposes: to diversify or spread the start-up risk; to accumulate start-up capital, and to finance growth and expansion (Gnyawali and Fogel, 1994). It includes the availability of various institutional sources for new and growing businesses, such as the banking system, venture capital, angel funding and informal sources of finance, like the ones provided by family and friends (Corno et al., 2014). Often, micro and small enterprises may have difficulties in obtaining financial support, particularly if the entrepreneur does not have an ‘entrepreneurial history’ or some type of business experience. This may be even more difficult in rural areas. In fact, it has been suggested that historically rural areas have lacked sufficient access to finance because the type of ventures that entrepreneurs tend to create are small (Smallbone, 2009). Also, Rijkers et al. (2010) showed that firms in rural areas have less access to credit and finance than urban ones. Therefore, we hypothesize:

Hypothesis 2f: Funding assistance for venture creation is weaker in rural areas than in urban ones.

2.3.3. General characteristics of entrepreneurial ventures

In general terms, it seems that there are several differences between the general characteristics of rural and urban new ventures.

In relation to sector, despite changes in the agricultural sector, farming is still the most predominant use of land in rural areas (Dabson, 2001) and, in some cases, a significant employer, particularly in remote rural zones (Centre for Enterprise and Economic Development Research [CEEDR], 2002). Indeed, ventures in rural areas are likely to be in primary (Battisti et al., 2013; Lee and Cowling, 2014), wholesale and retail sectors (Battisti et al., 2013). The research conducted by Patterson and Anderson (2003) also evidences that the food and beverage sector and the textiles and clothing sector are more important in rural areas than in urban ones. This may be expected since the primary food processors should be located in rural areas close to the supply of raw materials.

Conversely, services, manufacturing firms and engineering are relatively more important in urban areas (Patterson and Anderson, 2003). This may be due to the fact that urban firms serve relatively well-integrated and thicker markets (Rijkers et al., 2010) and are located near universities and other centers, thus strengthening innovation and technology (Ratinho and Henriques, 2010).

Moreover, as argued by some researchers, one of the characteristics of rural industry, at least in remote rural areas, is a relative absence of established small and medium enterprises (SMEs) in more scientific, medium-high technology (North and Smallbone, 1996), and innovative sectors, such as instrumentation, electronic engineering and computer services (Dabson, 2001). Therefore, we hypothesize that:

Hypothesis 3a: Rural ventures are more likely to operate in the primary sector, whereas urban ventures tend to operate mostly in manufacturing and services.

Apart of the differences between sectors in rural and urban areas, enterprises in rural areas tend to be smaller than their urban counterparts (Lowe and Talbot, 2000; Rijkers et al., 2010; Lee and Cowling, 2014), with a higher proportion of micro and single-person businesses (Smallbone, 2009). They are not all micro-enterprises, but they do in fact mostly consist of single owners/managers, lacking formal labor (CEEDR, 2002; Skuras et al., 2005) or employing only one worker (Rijkers et al., 2010). As rural enterprises are smaller than urban ones and have a high proportion of family members, their actions are more likely to be of a private nature, i.e., increased use of personal and family resources (Battisti et al., 2013). Therefore, our hypothesis is:

Hypothesis 3b: Rural ventures are smaller than urban ones.

In relation to labor force characteristics, a commonly held view is that rural enterprises have access to relatively cheap labor compared to urban enterprises (Patterson and Anderson, 2003). On the other hand, urban firms also appear to have less difficulty in attracting professionally qualified staff, as more of their managers are from outside the local area (Patterson and Anderson, 2003). Lyee and Cowling (2015) also observed that rural enterprises have a higher percentage of unskilled labor than urban enterprises. Hence, our next hypothesis is:

Hypothesis 3c: Rural ventures have a more unskilled labor force than urban ones.

2.3.4. Innovation

Entrepreneurship, the ‘art’ of doing creative things for the sake of achieving a competitive advantage, lies at the heart of innovation (Nijkamp, 2009). There is no unified definition of the concept, but there is a consensus that innovation represents something new (Gronhaug and Kaufmann, 1988). Moreover, innovations come in a variety of forms. The Oslo Manual (OECD and Eurostat, 2005, p. 46) defines innovation as the ‘implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method’ at the firm level. Product innovation is the introduction of a good or service that is new or significantly improved with regard to its characteristics or proposed uses (e.g., changes in technical specifications, components and materials of products); process innovation is the implementation of a new or significantly improved production or delivery method, which includes changes in techniques, equipment and/or software (e.g., implementation of new or significantly improved information and communication technology – ICT); marketing innovation is the implementation of a new marketing method, which involves significant changes in product design or packaging, product placement, product promotion or pricing; organizational innovation is the implementation of a new organizational method in the firm’s business practices, which include, for example, new practices to improve learning and knowledge through training programs (OECD and Eurostat, 2005).

Therefore, it is understood that innovation goes far beyond research and development (R&D), including not only changes in the product itself and its design but in a wide range of activities developed by ventures. For instance, in the RuralInov project,

Madureira et al. (2013) showed that in organizations located in rural areas of Portugal, different patterns of innovation are present, highlighting the importance of others categories of innovation (e.g., process, organization and marketing), apart from product innovation.

In relation to product innovation, several studies in the United kingdom (UK) in the 1980s and 1990s indicated that rural SMEs were more innovative than their urban counterparts (Smallbone, 2009). Similarly, a study carried out in the 1990s by Cosh and Hughes (1996) showed that rural enterprises were more likely to have product innovations which were new to the firm and to the industry. Patterson and Anderson (2003) also found that in the 1990s accessible rural firms were shown to be more innovative in terms of new product innovation than their urban counterparts. However, other studies have revealed different trends. For instance, North and Smallbone (2000) found that, in terms of ‘product and service innovation’, rural enterprises did not appear to be more or less innovative than enterprises elsewhere. Moreover, other recent studies have confirmed that as new rural enterprises use less technologies in the product or service than their urban counterparts (Bergmann and Baumgartner, 2010), they are less innovative in terms of product innovation (Battisti et al., 2013). Thus, we hypothesize that:

Hypothesis 4a: Rural ventures lag behind urban ones in product/service innovation.

It seems there are also differences between rural and urban ventures regarding process innovation. For instance, in relation to ICT, rural enterprises were found to be less likely to engage with the internet than urban ones (Smallbone et al., 2002; Galloway and Mochrie, 2005; Smallbone, 2009). Although other studies, such as Deakins et al. (2004), reported an increase in the rural business uptake of ICT and the internet, suggesting a levelling of rural versus urban use (Sanders and Galloway, 2012), Forman et al. (2005) found that urban business use of the internet was more likely to involve innovative technology, while rural businesses were more likely to use traditional internet applications that have become popularized by business use over time.

If rural areas lag behind in terms of communications infrastructure and transport (Smallbone, 2009), we can also expect rural ventures to be weaker in terms of process innovation. Therefore, our next hypothesis is:

Hypothesis 4b: Rural ventures lag behind urban ones in terms of process innovation.

As mentioned previously, rural areas are rich in social capital (Fortunato, 2014). If we also consider that rural ventures are smaller than their urban counterparts (Lowe and Talbot, 2000; Rijkers et al., 2010; Lee and Cowling, 2014), we can expect more personal relationships with employees, customers and even suppliers than ventures located elsewhere, and therefore, have more organizational innovation. In fact, the milieu in rural areas in terms of collaborations and ties creates an enabling culture for organizational innovation (Mas-Verdú et al., 2016) that is not likely to occur in urban areas. This argument is in line with other studies (Dinis, 2006; Pato, 2016), insofar as rural ventures with internal and external networks exhibit organizational innovation, growth and success. For these reasons, our hypothesis is:

Hypothesis 4c: Rural ventures outperform urban ones in terms of organizational innovation.

The success of any innovation, and consequently the competitiveness of ventures, depends to a large extent on its marketing practices (Dinis, 2006). Despite the importance of marketing in entrepreneurial performance (Bygrave and Zacharakis, 2014), there are very few studies which have empirically examined the influence of marketing practices on the performance of new businesses (Jayawarna et al., 2014). Focusing on businesses that have been operating for less than two years, Jayawarna et al. (2014) showed that the adoption of marketing practices contributes significantly to variations in new venture performance, specifically on both turnover and growth. Moreover, these authors concluded that very small entrepreneurial businesses had very little scope for investment in either R&D or advertising. As rural enterprises often are smaller than urban enterprises (Battisti et al., 2013), we can expected ventures in rural areas to lag behind in the use of marketing practices. Indeed, North and Smallbone (2000) ascertained that rural enterprises seem to be less innovative than the urban ones in terms of new marketing methods, and Soltani et al. (2015) found that the performance of rural enterprises in marketing innovation is generally weak. Therefore, our hypothesis is:

Hypothesis 4d: Rural ventures use fewer new marketing innovations than urban ones.

2.3.5. Venture performance

Innovation aims to improve a firm's performance by fostering competitive advantages (or simply maintaining competitiveness) by increasing sales (e.g., increasing product quality, offering new products or opening new markets or groups of customers) or reducing costs (e.g., reducing costs of production, purchasing, distribution or transaction) to improve productivity and efficiency (OECD and Eurostat, 2005). In fact, innovation creates value for new and established ventures, and hence boosts their performance (Rosenbusch et al., 2011).

In relation to market development, North and Smallbone (2000) found that rural SMEs proved to be more active than their urban counterparts in developing new markets. It seems that the distance of rural enterprises from the major population centers leads them to seek new types of markets (North and Smallbone, 1996). In the same line, Patterson and Anderson (2003) concluded that rural firms sell more of their products outside local markets than urban firms. However, Battisti et al. (2013) recently showed that urban enterprises are more likely to sell in new geographic areas, not only to existing customers but also to new types of customers, which emphasizes the power of urban enterprises in terms of market development. Similarly, Rijkers et al. (2010) showed that rural firms almost exclusively sell to local markets and supply goods for local consumers, whereas urban firms cater for larger markets and typically sell to other firms or traders. Therefore, based on these recent arguments, we assume that:

Hypothesis 5a: Rural ventures are less active in developing new markets than urban ones.

In terms of sales turnover, North and Smallbone (1996) found that urban and rural firms have similar behaviors, revealing especially very akin management attitudes to growth in different geographical environments. However, as mentioned earlier, rural ventures are smaller than urban ones and deal with a range of problems/obstacles (e.g., access to finance). Furthermore, if rural firms sell more to local markets (Rijkers et al., 2010) and are less active in developing new markets (Battisti et al., 2013), they also face some difficulties in sales turnover. Therefore, our hypothesis is:

Hypothesis 5b: Rural ventures have lower sales turnover than urban ones.

In terms of profitability, Battisti et al. (2013) did not find differences between enterprises in urban or rural areas. In any case, firms in urban locations could be better positioned (i.e., closer to their markets) to take advantage of changes in market conditions (Glancey, 1998). At the same time, rural ventures are smaller than urban ones and deal with a number of problems/obstacles to foster venture creation. Therefore, our hypothesis is:

Hypothesis 5c: Rural ventures have lower profitability than urban ones.

3. Methodology

3.1. Data gathering procedures

Differences in new rural and urban ventures arise from the influence of the entrepreneurs themselves and the environment (in the first and the second stage of the entrepreneurial process), which gradually become clear in the characteristics and strategies of these newly founded ventures (in the third stage).

To test our conceptual model, we developed a methodological procedure with six interrelated stages (see Figure 3).

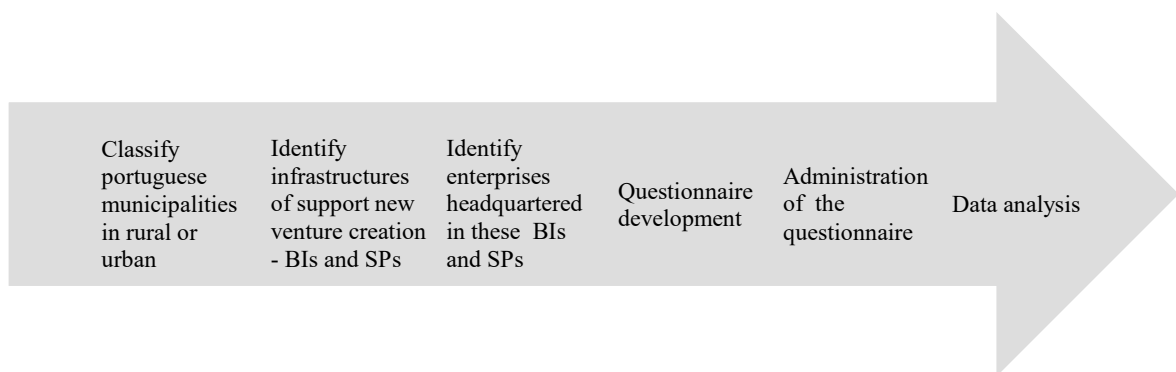


Figure 3: Methodological procedure

In the first stage, we classified all the municipalities of Portugal into urban or rural categories. For this purpose, we adapted the classification of local units provided by the Ministry of Agriculture, Sea, Environment and Spatial Planning (2011) (see Appendix

1, Essay 2). Based on this classification procedure, 209 of the total municipalities (i.e., 75%) in mainland Portugal were classified as ‘rural’ and 69 as ‘urban’.

In the second stage of the process, we built a database of support infrastructures for new venture creation. BIs and SPs were selected for this purpose, because they provide physical space/facilities and a range of services (e.g., consultancy and networking) for new venture creation. Considering that the information on these infrastructures was dispersed, we started with the work of Caetano (2012) and complemented it with information available on the internet. Our purpose was to build a comprehensive database of BIs and SPs located in rural and urban regions (Nomenclature of territorial units for statistics – NUTS III) in mainland Portugal. This database comprises about one hundred BIs and SPs.

The third stage involved gathering general information (such as location, email, and telephone) on individual new ventures headquartered in BIs and SPs. This was a time-consuming and complex task because such information was not often publicly available and/or visible on the organizations’ web page. In any case, after crossing several sources, we collected the contacts of one thousand and four hundred new ventures headquartered in BIs and SPs, of which about 43% are located in rural settings.

In the fourth stage, a questionnaire was developed based on the literature review (see Appendix 3, Essay 2). It included five major sections: i) information about the entrepreneur and his/her human capital, ii) information about the environment/context, iii) general information about the new venture (size, sector and schooling of human resources), iv) venture innovation, and v) venture performance. Moreover, the questionnaire included questions intended to identify rural and urban new ventures and not only ventures located in rural or urban municipalities. Taking into account the objectives of the study, the questionnaire included open (regarding, for instance, products or services that the venture produces), closed and Likert scale questions (ranging from 1 for strongly disagree to 5 for strongly agree).

The next stage involved the application of the questionnaire. The questionnaire was first tested as a pilot survey on five companies, during the third week of March 2016. According the feedback gathered, we corrected the questionnaire and clarified some questions. The next sub-stage (from April to May 2016) involved sending the

questionnaires by email to all (1400) the enterprises in our database, as well as to the BIs and SPs. To increase the response rate, direct contacts by phone were made over those two months, to both new ventures and BIs/SPs managers. We explained the project, its main objectives, raising awareness regarding the importance of filling in the questionnaire; moreover, we asked the BIs/SPs managers to disseminate the questionnaire to the ventures they hosted. The questionnaire was answered by the owner or, in the case of companies by the majority shareholder and/ or the executive associate.

At the end of the gathering process, we obtained 408 complete questionnaires, which represents a response rate of about 30%, a reasonably acceptable response rate for a non-compulsory, online questionnaire (Nulty, 2008). This rate also compares favorably with others, for instance Leskovar-Spacapan and Bastic (2007).

Finally, in the sixth stage a descriptive and inferential analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 22. Since we found that only a very small percentage (3.5%) of new ventures operating in rural municipalities constitute examples of pure ‘rural entrepreneurship’ (Essay 2), in this essay we consider rural ventures those located in rural municipalities (209) and urban ventures those located in the urban ones (69). Apart from this, the analysis was also undertaken using the other classifications: 1) Rural, intermediate and urban municipalities; 2) Rural and urban municipalities, being all the ‘intermediate’ municipalities classified as ‘urban’; and 3) Rural and urban municipalities, being all the intermediate municipalities classified as rural (see Appendix 1, Essay 2).

The differences between rural and urban new ventures were tested using the Kruskal-Wallis test. Regardless of the database used, in general terms, the results obtained did not differ.

3.2. Proxies for the main variables and a brief descriptive analysis

The proxies for the relevant variables were constructed as dummies variables of the original questions in the questionnaire (see Table 1, Appendix 1).

Information on personality traits was gathered using Likert scales related to six entrepreneur traits emphasized in the literature: need for achievement, locus of control, risk-taking, self-confidence, creativity and desire for autonomy. In relation to all these

traits, 75% or more of entrepreneurs claimed to have them. Internal locus of control and desire for autonomy garnered the highest percentage: 93% of the respondents agreed or totally agreed that their success is mainly the result of individual/team work and efforts (internal locus of control) and that they like to determine how tasks are performed (desire for autonomy).

In terms of human capital, particularly education and work experience, the respondents possessed relatively high levels of formal education and/or professional experience. Indeed, 76% of the respondents had completed a tertiary degree and 71% had worked for 6 or more years for a third party.

The majority of the respondents (54%) stated their parents or close relatives were entrepreneurs and a slightly lower percentage (46%) claimed to have received counselling on business creation. However, the perceived importance of other contextual factors, most notably institutional support from entities such as the municipality, central government, EC, universities and training agencies, professional business structures, as well as funding assistance (from banks and other financial organizations), was only modest. Specifically, only 24% of the respondents attributed high importance to support from the European Commission; the corresponding figure for local and central authorities was, respectively, 18% and 14%. Almost one third of the respondents (more exactly, 27%) perceived the support from universities/training agencies and professional business infrastructures as highly important. Bank funding was recognized as highly important for 29% of the entrepreneurs, whereas other sources of funding were only important for 15% of the respondents.

The bulk (70%) of newly created ventures operates in the service sector¹, whereas 24% operate in manufacturing, and only 6% in the primary sector (agriculture, forestry, etc.). For the period 2013-2015, on average, newly created ventures were small: 70% had 4 or less employees but with a highly educated labor force: in 41% of the firms headquartered in BIs/SPs, more than 10% of their workers had attended higher education, a figure well above the Portuguese average (18%) (Gabinete de Estratégia e Estudos [GEE], 2014).

¹ This percentage is similar to the Portuguese overall average, where 73% of total firms operate in services (Instituto Nacional de Estatística [INE], 2016).

According to the respondents, newly created ventures located in BIs/SPs are quite innovative: over three quarters of the firms had performed service (78%) or product (75%) innovation; half of the firms had innovated in terms of methods for product placement or sales channels (50%); slightly more than half had entered new external markets (i.e., exported) (51%), and devised new methods for pricing goods or services (54%).²

Newly created ventures located in BIs/ SPs were also very small in terms of sales and value added: for the period 2013-2015, on average, half of the firms had a sales turnover of more than €50000 and only 24 % of ventures had more than €50000 in value added.

4. Testing the hypotheses put forward

A descriptive and inferential analysis was performed using the Statistical Package for the Social Sciences (SPSS), version 22. The differences between rural and urban new ventures were tested using the Kruskal-Wallis test, a non-parametric method to compare two or more independent samples of equal or different sample sizes. A significant Kruskal-Wallis test (i.e., associated with a $p\text{-value} \leq 0.10$) indicates that at least one sample stochastically dominates one of the other samples, that is, rural and urban new ventures differ.

With regard to the personality traits of individuals across rural and urban municipalities, the large majority of the entrepreneurs claimed to possess the personality traits emphasized in the literature (see Table 2, Appendix 1). However, no differences were found for each personality trait between new venture entrepreneurs located in rural and urban municipalities. Thus, we failed to gather support for Hypothesis 1a to Hypothesis 1f (Rural entrepreneurs show a lower need for achievement; higher internal locus of control; lower risk-taking; lower entrepreneurial self-confidence; are less creative/innovative; have a higher desire for autonomy than urban ones).

² According to the most recent Community Innovation Survey (see Direção Geral de Estatísticas da Educação e Ciência [DGEEC], 2016), 28.3%, 35.2%, 26.1% and 28.8% of the surveyed Portuguese firms claimed to innovate in terms of product or service, process, organizational structure and marketing, respectively.

The lack of statistically significant differences in personality traits between rural and urban entrepreneurs may be due to the fact individuals who opt to locate their venture in BIs and SPs possibly share a common mindset and profile, regardless of where they are located (Phan et al., 2005).

In terms of human capital, although in general terms there were no statistically significant differences between entrepreneurs in rural and urban municipalities, they differed with regard to their professional experience in working for a third party (see Table 2, Appendix 1). Indeed, the percentage of urban entrepreneurs who had ‘work experience for a third party’ was higher than their rural counterparts (76% and 63%, respectively). Thus, Hypothesis 1h, ‘Rural entrepreneurs have less work experience than urban ones’, is partially validated by the data. Such a result can be explained by the fact that the environment in urban locations tends to offer more job opportunities compared to that of rural areas (Smallbone, 2009). Notwithstanding, the interesting result here is that rural and urban entrepreneurs do not seem to differ regarding entrepreneurial experience and/or formal education levels.

Surprisingly, in general terms, we did not find any statistical difference between rural and urban locations in relation to support for venture creation. The evidence collected showed that rural and urban new ventures do not differ in terms of support from family, networks, policy measures (central government or European assistance), universities and training agencies, professional business infrastructures, and funding assistance (see Table 2, Appendix 1). The only significant statistical difference occurred regarding support from municipalities. We found that 25% of the entrepreneurs whose ventures are located in rural BIs/SPs agreed that the influence of the municipality on venture creation is strongly important, whereas in the case of their urban counterparts that percentage is only 15% (see Table 2, Appendix 1).

Indeed, local governments/municipalities aim to foster local economic development through venture creation in their regions (Welter, 2009). It is likely that such endeavors are even more stringent in rural areas where new venture creation is often seen as a tool to overcome the regions’ economic and social difficulties (EC, 2012).

The most important sector of activity is services both in rural and urban municipalities, with 73% and 63% of total respondents in urban and rural locations, respectively,

operating in services. However, in comparative terms, the primary sector is relatively more important in rural municipalities (12%), whereas the most important sector is services in urban ones (73%) (see Table 2, Appendix 1). Therefore, Hypothesis 3a ‘rural new ventures are more likely to operate in the primary sector, whereas urban ventures tend to operate mostly in manufacturing and services’ is partially validated by the data. As mentioned previously, despite changes in the agricultural sector, farming and related activities remain a key sector in many rural economies. In fact, even where there has been a dramatic decline in the rural workforce employed in agriculture, the activity continues to have an important influence on the rural economy (Smallbone, 2009).

In terms of size, as claimed by several authors (e.g., Smallbone, 2009; Rijkers et al., 2010), the data confirmed that ventures in rural areas were smaller than urban ones. For the three years in analysis, 76% of the ventures in rural areas employed up to 4 workers, whereas this percentage was only 67% in urban ones (see Table 2, Appendix 1).

In terms of workers’ education, we also confirmed that rural ventures had a more unskilled labor force than urban ones, and this hypothesis was statistically significant. In fact, in urban municipalities, in 46% of the ventures, more than 10% of workers had attended higher education, whereas in rural areas this percentage was only 32% (see Table 2, Appendix 1). This may reflect a more unskilled labor force in rural areas than in urban ones.

In terms of innovation, a large majority of the entrepreneurs believed their ventures were innovative in terms of product/service, process, organizational structure and marketing (see Table 2, Appendix 1). Indeed, according to the data, with the exception of innovation in design or packaging, distribution and price, more than 60% of the enterprises in rural or urban municipalities can be considered innovative. We argue therefore that despite the importance of an integrated marketing perspective for business success (Bygrave and Zacharakis, 2014), ventures still have a long way to go in these other marketing-mix tools (product, distribution and pricing), regardless of their location in rural or urban areas.

Notwithstanding, it should be noted that in terms of promotion, the data showed that rural ventures were more innovative than urban ones (77% and 66%, respectively), and this difference was statistically significant. It seems that in a context of scarce economic

and human resources, characteristic of rural areas, entrepreneurs are aware that promotion is required to attract clients from external markets (Clarke, 1999; Fyall and Garrod, 2005). Despite this, although the percentage of exports was higher in rural ventures (55%) than in urban ones (50%), the difference was not statistically significant (see Table 2, Appendix 1).

Finally, in terms of sales turnover and profitability (measured here by gross value added), as hypothesized, we found statistically significant differences between rural and urban ventures. In average terms, we confirmed that the majority of rural ventures had a lower sales turnover than the urban ones. Specifically, 55% of the urban ventures had a sales turnover of more than €50000, whereas this percentage decreased to 40% in rural ventures. Similarly, we also confirmed that rural ventures had a lower gross value added than urban ones, and this difference was statistically significant. In fact, the gross value added of urban ventures was more than €50000, whereas in rural ventures this percentage decreased to 14% (see Table 2, Appendix 1). Therefore, the study suggests that rural and urban new ventures differ in terms of performance, specifically, sales turnover and gross value added.

5. Discussion, conclusions and paths for future research

Despite increasing interest in rural entrepreneurship in the scientific community, empirical research in the area is still scarce (Pato and Teixeira, 2016). Often, the few studies in this area are fragmented and focus on one of the stages of the entrepreneurial process. For instance, Freire-Gibb and Nielsen (2014) examined the effect of personality traits, (specifically, creativity) and networks on entrepreneurship within rural and urban areas. In turn, Lee and Cowling (2014) tested whether firms in urban, semirural, and rural areas perceive different obstacles to their success. Bergmann and Baumgartner (2010) used a more integrated perspective and looked into the different phases ('conception', 'realization' and 'operation') of the entrepreneurial process, in order to assess entrepreneurial activities in rural and urban Switzerland. However, they used different databases and a telephone survey in their study.

Drawing on an empirical analysis of ventures located in BIs and SPs across rural and urban contexts, it was possible to compare businesses and ventures with a certain profile, in this case, characterized as technology-based and knowledge-intensive. Accordingly, the model developed constitutes a framework to examine in an integrated manner whether newly created rural and urban ventures differ.

With regard to the personality traits of individuals across rural and urban municipalities, the large majority of the entrepreneurs claimed to possess the personality traits emphasized in the literature, but no differences were found in each personality trait, regardless of their rural or urban locations. Moreover, no difference was found regarding entrepreneurial experience and formal education. Thus, contrarily to the majority of literature, as McElwee and Smith (2014) have suggested, we argue that there is little difference between the rural and non-rural entrepreneur in terms of their personality traits, and that it is exogenous factors (e.g., the characteristics of the venture or environmental factors) that can have an impact on the growth and success of the business.

In fact, the study highlights the importance of municipal policies in the creation of businesses located in rural areas. This suggests that the implementation of political measures should be based on proximity. As rural areas clearly diverge from urban ones with regard to accessibility/demographic density and in the sectoral composition of new and existing industries, local policies can diminish the negative impacts of the former differences with improvements in transportation and communications infrastructure and by securing operation of and access to this infrastructure (Eliasson and Westlund, 2012). Moreover, the sectoral composition of industries in the countryside is a sign that rural areas take advantage of the special and often genuine resources that they have a relative abundance of, which is clearly a factor that local policies should encourage (Eliasson and Westlund, 2012).

In fact, motivated by different problems, rural municipalities have followed strategies, which include establishing an entrepreneurial culture (McElwee, 2008) within the municipality and a position of innovation (Fink et al., 2012), based on the specific needs to each region and their characteristics (Olaniyi and Reidolf, 2015). This can be achieved through the practice of animatorship – the main aim of it is encouraging

people to be entrepreneurial and sponsoring, channeling or promoting their entrepreneurial spirit (McElwee et al., 2018). That is, to inspire the entrepreneurs' imagination and empathy, and encourage them to implement both the implicit and explicit resources of their community (Summatavet and Raudsaar, 2015).

Theory has also suggested that rural enterprises face a range of other barriers in comparison to urban ones, mainly in terms of universities and training agencies, professional business infrastructures, and funding assistance. On the one hand, we found that entrepreneurs have low regard for support from these infrastructures, regardless of whether they are located in rural or urban municipalities. For example, with regards to BIs and SPs, only a small percentage of the ventures considered that the support given was good which, in our opinion, raises some doubts regarding that same support. On the other hand, once again, and in opposition to literature, our data did not confirm that rural areas lag behind urban ones on (all) these matters. Therefore, if rural ventures have different performances and face distinct barriers to success, it may be due to size, sector and other characteristics, but not because they are located in a rural or an urban setting (Lee and Cowling, 2014). In fact, as emphasized previously, the results obtained here confirm that rural and urban ventures differ in terms of sector, size and labor force, and also that the two types of ventures differ in terms of their performance. Rural ventures have lower sales turnover and also lower gross value added than urban ones. Surprisingly, it seems that rural ventures try to strive for better results since, at least in terms of promotion, they are more innovative than urban ones.

Considering, therefore, that new rural and urban ventures are different in a number of aspects, the paper presents some implications. First, from a political point of view, policies must be adapted to the different contexts. Support for entrepreneurship will fail if regional policies do not take into account that the support needs to be tailored to the specific conditions in non-core regions, many of them, rural regions (Baumgartner et al., 2013a). Secondly, in terms of management implications, entrepreneurs in rural areas are not different from those in urban ones (McElwee and Smith, 2014), they have the same capacities as entrepreneurs elsewhere and, for this reason, they do not have to be stereotyped. Moreover, rural entrepreneurs need to recognize that they themselves are agents of change and contribute to the social and environmental well-being of the country (McElwee, 2008).

The study has some limitations, which nevertheless point to challenging avenues for further research. First, other important stakeholders that promote venture creation need to be included, and an additional and more qualitative study is required, followed by a systematic triangulation of findings, which would also have permitted a more in-depth understanding of the results (Pato and Kastenholz, 2017). Therefore, an interesting path for future research would be to extend the study to other parties involved in venture creation, such as institutional parties, and apply triangulation of findings.

Second, the study only includes new knowledge-intensive ventures, that is, those headquartered in BIs and SPs (Pato and Teixeira, 2018). Therefore, the findings cannot be generalized to other new ventures. For this reason, an interesting path for future research would be to extend the study to other ventures not headquartered in BIs and SPs, as mentioned by Pato and Teixeira (2018).

Finally, because there is little empirical evidence regarding the potentially distinct performances of rural and urban new ventures (Lee and Cowling, 2014), it would also be interesting to analyze the performance determinants of ventures to identify the differences in rural and urban new ventures.

Appendix 1: Empirical results

Table 1: Descriptive analysis

	Group of variables	Questions	Variable name	Mean	St. dev.	n
Individuals	Personality Traits	I performed tasks oriented to results	Need for achievement (1=agree/totally agree; 0 otherwise)	0.92	0.277	408
		The success is mainly the result of the work and efforts of the individual/ team	Internal locus of control (1=agree/totally agree; 0 otherwise)	0.93	0.261	408
		In general, I am willing to take risks	Risk taking (1=agree/totally agree; 0 otherwise)	0.75	0.435	408
		In general, when I face difficult tasks I am sure that I will solve them	Self-confidence (1=agree/totally agree; 0 otherwise)	0.86	0.347	408
		I often think of new ideas and ways to solve tasks	Creativity/innovativeness (1=agree/totally agree; 0 otherwise)	0.84	0.371	408
		I like to determine how tasks are performed	Desire of autonomy (1=agree/totally agree; 0 otherwise)	0.93	0.257	408
	Human Capital	Indicate the highest educational level that you have	Level of education (1=With higher education; 0 otherwise)	0.76	0.429	408
		Indicate the years of professional experience as a worker for someone else	Work experience (1=6 or more years; 0 otherwise)	0.71	0.454	408
		Indicate the years of professional experience as entrepreneur	Entrepreneurial experience (1=6 or more years; 0 otherwise)	0.34	0.475	408
Environment	Informal Knowledge	Have you (or did you have) parents or close relatives (grandparents) entrepreneurs?	Family background (1=yes; 0=no)	0.54	0.499	408
		The owners of the company met with other entities (associations, local community, etc.) for the purpose of receiving advice to the beginning of the company activity?	Social and informal networks (1=yes; 0=no)	0.46	0.499	408
	Policy measures	How important was the support (financial and other) of the municipality for venture creation?	Municipality support (1=important/very important; 0 otherwise)	0.18	0.388	408
		How important was the support (financial and other) of the central government for venture creation?	Central government (1=important/very important; 0 otherwise)	0.14	0.352	408
		How important was the support (financial and other) of the central government for venture creation?	European Commission support (1=important/very important; 0 otherwise)	0.24	0.426	408
		How important was the support of universities and training agencies for venture creation?	Universities/training agencies support (1=important/very important; 0 otherwise)	0.27	0.446	408
		How important was the support of professional infrastructure of business for venture creation?	Professional infrastructure of business support (1=important/very important; 0 otherwise)	0.27	0.446	408
	Funding assistance	How important was the support of the banking system for venture creation?	Banking system support (1=important/very important; 0 otherwise)	0.29	0.454	408
		How important were the support of other sources of funding support?	Other sources of funding support (1=important/very important; 0 otherwise)	0.15	0.355	408

Generic characteristics	Sector	Venture economic code	Primary sector (1=primary; 0 otherwise)	0.06	0.240	408	
			Manufacturing (1=manufacturing; 0 otherwise)	0.24	0.429	408	
			Services (1=services; 0 otherwise)	0.70	0.461	408	
	Size	Number of employees 2015	Number of employees (1=1 to 4 employees; 0=5 or more)	0.63	0.482	408	
		Number of employees 2014		0.71	0.454	361	
		Number of employees 2013		0.81	0.390	296	
		Average 2013-2015		0.70	0.454	408	
	Workers' education	Percentage of people with bachelor's, degree or more	Employees with higher education (1=4 or more; 0=otherwise)	0.41	0.492	408	
	Innovation	Product	New or significantly improved goods	Product innovation (1=yes; 0=no)	0.75	0.435	273
			New or significantly improved services	Service innovation (1=yes; 0=no)	0.78	0.415	336
Process		New or significantly methods of manufacturing or producing goods or services	Manufacturing innovation (1=yes; 0=no)	0.68	0.467	281	
		New or significantly improved supporting activities for the process	Supporting activities (1=yes; 0=no)	0.69	0.464	341	
Organizational		New business practices for organizing procedures	New business practises (1=yes; 0=no)	0.60	0.491	370	
		New methods of organizing work responsibilities and decision making	Work responsibilities organization (1=yes; 0=no)	0.64	0.481	361	
		New methods of organizing external relations with other firms or public institutions	External relationships organisation (1=yes; 0=no)	0.74	0.437	378	
Marketing		Significant changes to the aesthetic design or packaging of a good or service	Design or packaging innovation (1=yes; 0=no)	0.57	0.495	298	
		New media or techniques for product promotion	Promotion innovation(1=yes; 0=no)	0.70	0.458	368	
		New methods for product placement or sales channels	Distribution innovation (1=yes; 0=no)	0.50	0.501	328	
		New methods of pricing goods or services	Price innovation (1=yes; 0=no)	0.54	0.499	346	
Performance		Exports	Percentage of products/services exported	Products/services exported	0.51	0.500	408
		Sales turnover	Sales turnover 2015	Sales turnover (1= More than 50.000 € ; 0=otherwise)	0.56	0.497	396
			Sales turnover 2014		0.52	0.500	352
	Sales turnover 2013		0.39		0.488	285	
	Average 2013-2015		0.50		0.501	397	
	Value added	Value added 2015	Value added (1=More than 50.000 €; 0=otherwise)	0.32	0.466	351	
		Value added 2014		0.25	0.436	312	
		Value added 2013		0.20	0.403	251	
		Average 2013-2015		0.24	0.430	352	

Table 2: Inferential analysis

	Group of variables	Hypotheses	n		Mean		p-value	
			Rural	Urban	Rural	Urban		
Individuals	Personality Traits	Hypothesis 1a: Rural entrepreneurs show lower need for achievement than urban ones.	142	266	0.89	0.93	0.234	
		Hypothesis 1b: Rural entrepreneurs show higher internal locus of control than urban ones.	142	266	0.92	0.93	0.824	
		Hypothesis 1c: Rural entrepreneurs show lower risk-taking behavior than urban ones.	142	266	0.74	0.75	0.783	
		Hypothesis 1d: Rural entrepreneurs have lower entrepreneurial self-confidence than urban ones.	142	266	0.87	0.85	0.582	
		Hypothesis 1e: Rural entrepreneurs are less creative/ innovative than urban ones.	142	266	0.93	0.93	0.970	
		Hypothesis 1f: Rural entrepreneurs have higher desire for autonomy than urban ones	142	266	0.83	0.84	0.849	
	Human Capital	Hypothesis 1g: Rural entrepreneurs have lower level of education than urban ones.	142	266	0.74	0.77	0.538	
		Hypothesis 1h: Rural entrepreneurs have less work experience than the urban ones.	Someone else	142	266	0.63	0.76	0.006
			Entrepreneur	142	266	0.37	0.33	0.350
			Mean rank	142	266	0.50	0.54	0.202
Environment	Informal Knowledge	Hypothesis 2a: The influence of family background on venture creation is stronger in rural areas than in urban ones.	142	266	0.49	0.56	0.133	
		Hypothesis 2b: The influence of social, informal, networks on venture creation is stronger in rural areas than in urban ones.	142	266	0.48	0.45	0.593	
	Policy measures	Hypothesis 2c: The influence of policy measures on venture creation is stronger in rural areas than in urban ones.	Municipality	142	266	0.25	0.15	0.008
			Central government	142	266	0.13	0.15	0.454
			European assistance	142	266	0.22	0.25	0.501
			Mean rank	142	266	0.20	0.18	0.360
		Hypothesis 2d: The influence of universities/training agencies on venture creation is weaker in rural areas than in urban ones.	142	266	0.16	0.23	0.109	
	Funding assistance	Hypothesis 2e: The influence of professional infrastructure of business (SPs/BIs) on venture creation is weaker in rural areas than in urban ones.	142	266	0.28	0.27	0.750	
		Hypothesis 2f: Funding assistance for venture creation is weaker in rural areas than in urban ones.	Banks	142	266	0.28	0.29	0.807
			Business angels, venture capital companies	142	266	0.15	0.15	0.972
			Mean rank	142	266	0.21	0.22	0.981

Generic characteristics	Sector	Hypothesis 3a: Rural ventures are more likely to operate in primary sector whereas urban ventures tend to operate mostly in manufacturing and services .	Primary	142	266	0.12	0.03	0.000
			Manufacturing	142	266	0.25	0.24	0.708
			Services	142	266	0.63	0.73	0.026
	Size	Hypothesis 3b: Rural ventures are smaller than the urban ones.	2015	142	266	0.72	0.59	0.011
			2014	125	236	0.77	0.68	0.087
			2013	100	196	0.86	0.79	0.148
			Mean rank	142	266	0.76	0.67	0.046
	Workers' education	Hypothesis 3c: Rural ventures have more unskilled labour force than urban ones.	More than 10% of people with higher education	142	266	0.32	0.46	0.006
Innovation	Product	Hypothesis 4a: Rural ventures lag behind urban ones in product/service innovation.	Product innovation	100	173	0.73	0.76	0.619
			Service innovation	117	219	0.76	0.79	0.538
	Process	Hypothesis 4b: Rural ventures lag behind urban ones in terms of process innovation .	Manuf. innovation	106	175	0.70	0.67	0.608
			Supporting activities	120	221	0.72	0.67	0.419
	Organizational	Hypothesis 4c: Rural ventures outperform urban ones in terms of organizational innovation .	Business practices	127	243	0.62	0.58	0.483
			Work resp. org.	122	239	0.62	0.64	0.690
			Relationships org.	129	249	0.74	0.75	0.824
	Marketing	Hypothesis 4d: Rural ventures use fewer new marketing innovations than urban ones.	Design or pack. innovation	113	185	0.58	0.57	0.780
			Promotion innovation	130	238	0.77	0.66	0.035
			Distribution innovation	118	210	0.46	0.52	0.286
			Pricing innovation	123	223	0.51	0.55	0.483

Performance	Exporting	Hypothesis 5a: Rural ventures are less active in developing new markets than urban ones	Exports	142	266	0.55	0.50	0.308
	Sales turnover	Hypothesis 5b: Rural ventures have lower sales turnover than urban ones.	Sales turnover 2015	138	258	0.46	0.62	0.004
			Sales turnover 2014	122	230	0.42	0.57	0.007
			Sales turnover 2013	97	190	0.36	0.40	0.520
			Average 2013-2015	138	259	0.40	0.55	0.005
	Value added	Hypothesis 5c: Rural ventures have lower profitability than urban ones.	Value added 2015	129	222	0.20	0.30	0.000
			Value added 2014	115	197	0.15	0.31	0.001
			Value added 2013	91	160	0.13	0.24	0.035
			Average 2013-2015	129	223	0.14	0.30	0.001

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ESSAY 4: DETERMINANTS OF PERFORMANCE OF NEW VENTURES LOCATED IN INCUBATORS AND SCIENCE PARKS WITH A FOCUS ON INSTITUTIONAL FACTORS. DO RURAL AND URBAN NEW VENTURES DIFFER?

Determinants of performance of new ventures located in incubators and science parks with a focus on institutional factors. Do rural and urban new ventures differ?

Abstract

Entrepreneurship has become a driver of economic growth. The support provided to venture creation usually takes into account the place where the venture will be located, assuming therefore that geography matters. However, there is little empirical evidence regarding the potentially distinct performance levels of rural and urban new ventures.

The literature suggests that new ventures are sorted geographically according to the relative advantages and constraints of rural and urban locations. Drawing on a logit model of the performance of rural and urban new ventures located in Business Incubators and Science Parks, this study shows that the most relevant institutional factors for new venture performance are financial support and social networks and collaborations. Institutional support from knowledge and technology infrastructures also impacts differently on rural and urban new ventures. In general: 1) other funding organizations (other than banks) appear to positively influence the performance of ventures in rural regions, whereas banks and similar institutions seem to be more important for urban new ventures; 2) obtaining advice on how to start and develop the company's activity and joint activities with other companies/institutions to access new markets impact positively on new venture performance in rural areas, but it is negatively associated with the performance of urban new ventures; and 3) joint activities in research and development with other companies/institutions in the region are of paramount importance for performance in rural areas, whereas BIs and SPs constitute important support mechanisms for urban new ventures.

Keywords: entrepreneurship; determinants of performance; rural; institutional factors

1. Introduction

The importance of entrepreneurship as a driver of economic growth has been widely recognized, namely at the European level (Castaño et al., 2016). The 2003 Green Paper ‘Entrepreneurship in Europe’ and the subsequent ‘Action Plan: The European agenda for Entrepreneurship’, adopted in 2004, have provided the policy framework to promote entrepreneurship in the European Union (EU). Moreover, entrepreneurship is also a key component of the EU’s Europe 2020 strategy for smart, sustainable and inclusive growth (Strano et al., 2012). In this context, support for new venture creation is a key factor on the agenda of many countries (Mole et al., 2011; Rotger et al., 2012).

The support given to venture creation usually takes into account the place where the venture will be located. Indeed, such policies assume that geography matters, and that ventures in rural areas face different barriers to growth and success than their urban counterparts (Hoyos and Green, 2011; North and Smallbone, 2006; Smallbone, 2009; Stathopoulou et al., 2004). Moreover, it has long been recognized that ventures tend to agglomerate geographically (McCann and Folta, 2008). They tend to be located in metropolitan and urban regions where entrepreneurship is higher as a result of urbanization economies, or externalities that arise from the concentration of aggregate economic activity (Freire-Gibb and Nielsen, 2014; McCann and Folta, 2008). Additionally, it is assumed that more diversified cities and urban regions have a higher chance of generating new innovations than less diversified cities or regions, such as the rural ones, because diversity encourages fertilization of ideas across regions (Jacobs, 1969; McCann and Folta, 2008).

The literature suggests that new ventures are sorted geographically according to the relative advantages and constraints of rural and urban locations (Lee and Cowling, 2014; Stathopoulou et al., 2004). However, research has overlooked the determinants of the performance of new ventures located in urban and rural regions. There is little empirical evidence regarding the potentially distinct performance levels of rural and urban new ventures. The aim of this paper is to fill this gap.

We opted to analyze specifically new ventures located in Business Incubators (BIs) and Science Parks (SPs) across rural and urban locations for two main reasons. First, this approach serves to compare businesses characterized by a given common profile, in this case, technology-based and knowledge-intensive. Second, it overcomes a frequent limitation found

in the extant empirical literature: the potential selection bias derived from the use of a small, bounded sample of start-ups from different data sources (Nielsen, 2015).

Methodologically, logistic estimations have been used based on a sample of 408 new ventures. The information is primary, gathered through personal surveys targeted at a population of 1400 new ventures located in rural and urban municipalities of Portugal.

The paper is organized into four sections after the Introduction. Section 2 presents the main hypotheses to be tested. The study design and model specifications are explained in the following section. Section 4 presents and discusses the main results. In the Conclusion, the study's main contributions are summarized, the limitations pointed out, and possible areas for future research put forward.

2. Institutions as a key determinant of the performance of new ventures

2.1. Initial considerations

There is a myriad of factors that potentially affect the performance of new ventures. Pato and Teixeira (2018b) detail the factors the literature most often refers to and explain how they can affect rural and urban new ventures differently.

While the entrepreneurs' resources (e.g., human capital) and business characteristics (e.g., size, sector, innovation strategies) are vital to venture creation and development (Bergmann and Baumgartner, 2010), it has become increasingly more evident that the institutional environment is of paramount importance for new venture performance, both in terms of turnover and gross value added (GVA) or exports (Bruton et al., 2010).

Institutions represent the set of rules that articulate and organize the economic, social and political interactions between individuals and social groups, with consequences for business activity and economic development (Veciana and Urbano, 2008).

As Pato and Teixeira (2018b) and others (McElwee and Smith, 2014) have shown, there is little difference between rural and non-rural enterprises in terms of structure and the characteristics of the individual entrepreneur. Exogenous factors unrelated to the entrepreneur and business, most notably, institutional factors, have stronger and more significant impacts on the differences between rural and urban new venture creation and performance. Indeed,

rurality offers an innovative and entrepreneurial milieu in which enterprises may flourish or become inhibited (Stathopoulou et al., 2004).

Institutional change can influence the existence, identification, and exploitation of business opportunities, thus enabling or hindering venture creation (Smallbone et al., 2010). Indeed, entrepreneurship is a contextual process in which entrepreneurs take advantage of local information and resources. This emphasizes the embeddedness of entrepreneurial activities (Schmude et al., 2008) and the idea of entrepreneurship as a socio-institutional phenomenon (Trettin and Welter, 2011). The critical success factors regarding the institutional business environment in which new ventures operate often include political, economic, socio-cultural and technological factors (Azimzadeh et al., 2013; Dobbs and Hamilton, 2007; Lampadarios et al., 2017).

2.2. Overview of the relevance of institutional factors for new venture performance: main hypotheses to be tested

2.2.1. Political and policy-related factors

Government involvement entails government projects and the information services provided in new venture creation, which are often central to government policy (Wetherly and Otter, 2014). The impact of government policies on the performance of venture creation is well documented and there is general agreement that government policies and actions are key elements in the external conditions in which entrepreneurship develops (Smallbone et al., 2010).

The Global Entrepreneurship Monitor (GEM) project considers government policies and support as highly important determinants that impact on national entrepreneurial activity (Amorós et al., 2013). Enterprise support policies are primarily concerned with supporting the process of starting new business ventures and improving the competitiveness and viability of existing small and medium enterprises (SMEs) with a view to increasing their chances of survival and growth (North and Smallbone, 2006).

Governance dimensions are often distinguished at the European Union (EU), national and regional/local/levels (North and Smallbone, 2006). More generally, the design of policies at the national or regional level should aim to create the right environment to encourage individuals to start up new businesses, either by generating business opportunities, or by guaranteeing the property rights of the start-up activity (Castaño et al., 2016). This includes the role of taxes (Castaño et al., 2016) and the administrative burden, or administrative and

labor regulations, which when excessive are detrimental to entrepreneurship (Stephen et al., 2009).

The EU, through the Europe 2020 strategy for smart, sustainable and inclusive growth, supports the promotion of entrepreneurship and innovation activities in regions. These activities encompass not only investment in research and development (R&D), but also a system approach that exploits complementarities, promises high potential, are new and aimed at experimenting and discovering technological and market opportunities (Olaniyi and Reidolf, 2015). Thus, a wide range of policy schemes at the European level have long been established to alleviate the ventures' financial constraints, such as direct loans, subsidies and loan guarantees, increasing their competitiveness level through the provision of access to capital (EU, 2015; Kraemer-Eis et al., 2016). Therefore, we hypothesize:

Hypothesis 1a: Government support has a positive impact on new venture performance.

Cities are usually provided with better, more modern business infrastructure and have a modern industrial structure (Pato and Teixeira, 2018b). This gives an argument for designing a special entrepreneurship policy for the countryside (Eliasson and Westlund, 2012). In fact, there is a diverse range of complex programs and policies that are, in some way, concerned with encouraging and supporting diverse types of rural enterprises. Some of these are specifically targeted at enterprises in rural areas (e.g., LEADER program) whilst others are national programs (e.g., the Horizon 2020 programs) that include firms in rural areas alongside their counterparts in the rest of the country (North and Smallbone, 2006).

There is an increasing interdependence between these various levels of policy-making (EU, national and regional/local), as the EU has become the major source of funding for national and local policy initiatives in several countries (North and Smallbone, 2006). In fact, relentless pressure to maintain the economic viability of small-scale (capital intensive) agriculture has encouraged diversification to non-farm activities in rural areas (Pato and Teixeira, 2016) and institutional policies able to promote new rural ventures have become crucial (Meccheri and Pelloni, 2006). Therefore, we hypothesize:

Hypothesis 1b: Government support tends to have a greater impact on new rural venture performance than on new urban venture performance.

2.2.2. Economic related-factors

The single most important aspect of the economic institutional environment for start-up and small businesses is access to finance (Calcagnini and Favaretto, 2012). This is due to the fact that venture creation is surrounding by uncertainty and low levels of collateral, making it difficult for lenders to have certainty or waver of the investment in the development of new ventures (De Maeseneire and Claeys, 2012). Indeed financial support, in means of access to capital and credit schemes, is established as one of the most important factors to starting up of new businesses (Dobbs and Hamilton, 2007), being financial constraints a cause of slower growth and poor performance in its development (De Maeseneire and Claeys, 2012). New ventures must repay debt on time, which is difficult for them to do before they start making enough profits (Oranburg, 2016). The most popular financing investors in the context of new technological based ventures include banks, business angels and venture capitalists (Hörisch, 2015). By this, we hypothesise:

Hypothesis 2a: Financial support positively impacts on new venture performance.

In rural areas the access of ventures to capital and guarantee schemes remains very limited (Harpa, 2017; Korsgaard et al., 2015; Smallbone, 2009). Actually, although finance is a commonly reported constraint on small business, wherever they are located, differences in access to finance also result from structural weaknesses in the many of the businesses run by disadvantaged and under-represented groups (Organisation for Economic Co-operation and Development [OECD], 2013), which as the case of many rural entrepreneurs. Also McElwee and Smith (2014) report that in many rural regions of the United Kingdom (UK) owners/managers have difficulties in accessing finance. As we mentioned before, cities are usually provided with better and modern infrastructure of business and have a modern industrial structure (Pato and Teixeira, 2018b). In this line of thought, access to finance in rural areas can overcome many of the obstacles of entrepreneurs. Therefore we hypothesise:

Hypothesis 2b: Financial support tend to impact to a greater extent on new rural venture performance than on new urban venture performance.

2.2.3. Socio-cultural factors

The institutional framework and the associated socio-cultural factors are important determinants of the levels of entrepreneurial activity in a specific time and place (Lafuente et al., 2007). Indeed, businesses are constituted by culture and social relations while human,

social and cultural capital are often antecedents to acquiring financial capital and other resources needed to start a business (Thornton et al., 2011).

Fornahl (2003) proposes that amongst the institutional factors influencing entrepreneurial activity, the role of positive entrepreneurial examples is especially important in a region. The argument is that the ‘development and the related likelihood of discovering entrepreneurial opportunities and increasing the willingness to start a new venture is strongly influenced by positive examples, so-called role-models’ (Fornahl, 2003: 50), particularly in the region and family. Aldrich and Cliff (2003, p. 573) also point out the benefit of a ‘family embeddedness perspective’ on new venture creation. It has been recognized that an individual is more likely to become interested in entrepreneurship if he/she has a background in business ownership, especially from parents (Kirkwood, 2012; Lindquist et al., 2015). Therefore, we hypothesize:

Hypothesis 3a: Support from role models has a positive impact on new venture performance.

Apart from role models, it has been found that entrepreneurs have a wide range of casual contacts (Aldrich and Zimmer, 1986), suggesting that a variety of trusted social linkages is an important prerequisite to start a new venture (Shane and Cable, 2002). Moreover, entrepreneurs must establish social relationships in an opportunity structure, and at some point they are affected by relations with the socializing agents who motivated them to start and develop the venture (Aldrich and Zimmer, 1986).

On the one hand, the above observations emphasize the concept of ‘social capital’, conceptualized as the tangible and intangible resources that enable actors to achieve their goals and that embed actors in the social environment (Portes, 1998). On the other hand, it emphasizes the concept of ‘social networks’, which are defined by a set of linkages between actors and institutions (Brass, 1992), through which they find opportunities to use financial and other types of support to create and develop the business (Burt, 1992).

In these joint efforts, ventures and other parties contribute with complementary capabilities – both intangible assets, such as knowledge, reputation, and brand, and tangible resources, such as human capital, production capabilities and market access – along each stage of the value chain, affecting many aspects of the business model (Dahan et al., 2010). For instance, through high-quality social networks, characterized by a high number and variety of relations, Aggarwal (2006) observes that certain entrepreneurs seem to be in a better position to develop their business environment and raise entrepreneurial resources, such as motivation and ideas, information, capital, and trust in the venture’s success.

Additionally, establishing diverse contacts within and beyond the network boundary by spanning structural holes should diminish the difficulty of attracting skilled human resources and employees and improve the performance of the venture (Arya and Lin, 2007). Collaborations with other stakeholders are also important for the branding activities of new ventures. Indeed, Bresciani and Eppler (2010) suggest that, in order to achieve venture success, new venture founders need to be innovative and creative in brand-building activities. These encompass creating and participating in events, fairs and sponsorship activities, as well as other types of collaborations required to brand the venture (Bresciani and Eppler, 2010). Moreover, collaborations and cooperation with other companies and institutions may also enable new and small ventures to improve their strategic position, reduce transaction costs and access new markets (Islam et al., 2011).

Apart from these collaborations, support (financial or other) from regional institutions is of the utmost importance. In this line of thought, Regional Development Agencies (RDAs) which operate on the regional level would appear to offer significant advantages to policy-makers. They can easily be construed as the ‘manageable’ alternative, avoiding the bewildering maze of local initiatives, but still allowing for flexibility and receptiveness of the specific problems indigenous industries face within the region (Halkier et al., 1998). In Portugal, the five RDAs, called ‘Commissions for Regional Coordinating and Development’ (CCDRs), cover the entire mainland Portuguese territory. At the level of their geographic area, they are charged with executing policies relating to regional and urban development (Ramos, 2009). Therefore, we hypothesize:

Hypothesis 3b: Social networks and collaborations have a positive impact on new venture performance.

In metropolitan and urban areas, entrepreneurship is higher as a result of localization and urbanization effects (Freire-Gibb and Nielsen, 2014). Therefore, rural areas often show few positive entrepreneurial examples or role models of entrepreneurship (Vaillant and Lafuente, 2007). In the absence of role models in rural areas, entrepreneurs may not make the right decisions to improve their business (Harpa, 2017). Therefore, we hypothesize:

Hypothesis 3c: Support from role models tends to have less impact on new rural venture performance than on new urban venture performance.

Nevertheless, as a consequence of a lower population density in rural areas, stronger ties are formed among actors (Freire-Gibb and Nielsen, 2014). This fact increases social capital and

therefore the willingness of people and entrepreneurs in these regions to act collectively (Woolcock and Narayan, 2000). In this regard, Müller (2013) reports that in all three of the rural communities investigated, entrepreneurs were connected to local professional and private partnerships with the community and to other entrepreneurs in the rural areas. Moreover, by forming small, informal business networks they are able to loan, share labor, equipment, and to sell products and/or services together under a single umbrella in order to help each other. It is therefore expectable that other activities, such as attracting human resources and branding, are done together. This occurs because rural communities are characterized by a culture of self-help, relying on and helping oneself and others (Steinerowski and Steinerowska-Streb, 2012). Moreover, it is also expected that entrepreneurs in rural areas engage with other entrepreneurs and entities with the purpose of obtaining advice to start their venture or exchange experiences/advice relevant to the company's ongoing activity. Thus, we hypothesize:

Hypothesis 3d: Social networks with other entrepreneurs/institutions tend to have a greater impact on new rural venture performance than on new urban venture performance.

2.2.4. Technologically-related factors

Investment in innovation and technology is frequently seen as a key to the success of an enterprise (Nacu and Avasilcai, 2014). A variety of institutions has significant impact on the technological features and context of newly created ventures. For instance, universities and other higher education institutions typically build their *raison d'être* on the mission of developing knowledge that can be translated into skills that advance the practice of professionals (Van De Ven, 2006). In fact, universities, responsible for creating and transferring knowledge through both education and collaboration with businesses, are critical for developing the innovation capabilities of new ventures (Roig-Tierno et al., 2016). Therefore, differences in university-firm linkages can explain differences in new venture performance (Roig-Tierno et al., 2016).

Technological infrastructures such as incubators and science parks are popular instruments governments employ to enhance regional and local entrepreneurship and innovation (OECD, 2011; Ratinho and Henriques, 2010). These infrastructures provide not only the physical space for enterprises (offices, labs), but also supply a number of services, namely consultancy, networking, and access to venture capital, which are fundamental for the performance of new technology-based firms (Grimaldi and Grandi, 2005; Ratinho and

Henriques, 2010; Teixeira, 2017). According to the GEM project, another factor affecting SME performance is access to relevant R&D resources (Amorós et al., 2013), in other words, the extent to which R&D is available to newly created ventures (Lampadarios et al., 2017). Firms with better R&D strategies and links to R&D centers may be assumed to develop better levels of experience, skills and knowledge and they may be regarded as ‘hotbeds’ for entrepreneurial spawns (Andersson et al., 2012). Therefore, we hypothesize:

Hypothesis 4a: Institutional support from knowledge and technology infrastructures, such as universities, incubators/science parks and research and development centers, has a positive impact on new venture performance.

In a globalizing world dependent on instant communication and globalizing markets, the remoteness of many rural areas, their isolation from important business support networks and (technological) institutions, continue to be some of the main obstacles to strengthening business in rural areas (Dabson, 2001). Indeed, the most prominent, older universities and training agencies are located in urban areas, at least in the Portuguese case (QS TopUniversities, 2017). On the other hand, scientific research in rural areas has suffered from the constantly declining level of investments in the public and private sector, from the number of highly trained specialists, and the low number of R&D centers of excellence (Harpa, 2017). Harpa (2017) also mentions that, in these areas, there is no infrastructure to support innovative start-ups and some initiatives, such as business incubators, did not have continuity because of poor planning and management. In fact, like universities and training agencies, at least in the Portuguese case, some of the BIs and SPs, especially the most notable and older ones, are located in urban areas or near big cities (Ratinho and Henriques, 2010). Additionally, the use of obsolete technology and equipment drastically reduces productivity in many industries, where access to new and modern technology is limited (Harpa, 2017). For instance, Harpa et al. (2015) reveal that the majority of entrepreneurs in the rural Mures County (Romania) did not collaborate with universities or research institutions in order to develop their business.

Furthermore, apart from the remoteness of many rural areas, they also suffer from a deficit of communication and transport infrastructure, which means businesses are more dependent on external services and markets (Smallbone, 2009). Therefore, we hypothesize:

Hypothesis 4b: Institutional support from knowledge and technology infrastructures, such as universities, incubators/science parks and research and development centers, tends to have less impact on new rural venture performance than on new urban venture performance.

2.2.5. Other control factors affecting new venture performance

The Entrepreneurs' Human Capital

Ventures with higher human capital are potentially more effective, efficient and successful than those with lower human capital (Lampadarios et al., 2017). Previous studies have noted that the education level of the entrepreneur has an effect on the success and performance of the business and it should be considered as a critical factor for them (Giotopoulos et al., 2017). Likewise, prior experience in business is seen as a critical factor in the success of ventures, since it provides learning by providing feedback about past decisions (Bazerman and Moore, 2012), as well as contacts with suppliers, distributors and other stakeholders relevant for new business performance (Dencker and Gruber, 2015).

Business traits

The size and sector of the venture, internationalization, and the human capital of employees are some of the most commonly acknowledged drivers of venture performance (Lampadarios et al., 2017). With regard to firm size, the general viewpoint is that increasing venture size leads to improved organizational learning (Dobbs and Hamilton, 2007), which can have a positive impact on the success of the business (Lampadarios et al., 2017). In turn, firms in new and expanding sectors are expected to outperform those operating in old and declining ones (McDougall et al., 1994). Apart of these, it is also known that international expansion is one of the most important pathways for firm growth (Lu and Beamish, 2001). Internationalization should provide advantages to ventures by enlarging the market for their goods and shifting competitive dynamics (Lee et al., 2012). Furthermore, internationalization opens the opportunity to acquire additional knowledge and experience, which enables ventures to create competitive advantages (Fernández-Olmos et al., 2016). Last but not least, the human capital of employees, defined as the education and training of people (Coff, 2002), is positively related to success (Unger et al., 2011). It is also consensual that the ability of a firm to attract, develop and retain skilled and capable employees has a positive effect on performance (Barringer and Jones, 2004).

Innovation

Innovation plays a key role in the success and performance of the venture, since innovation is a constitutive ingredient of entrepreneurship (Devece et al., 2016). Among the various classifications of innovation, four dimensions are often considered: product/service innovation, process innovation, organizational innovation and marketing innovation.

Product/service innovation involves the introduction of new products or services, including modifications to existing services (Nasution and Mavondo, 2008). Process innovations include those that affect the production or service delivery process (Oly Ndubisi and Iftikhar, 2012). It can involve personal contacts between customers and staff. Organizational innovation refers to new approaches to management and new processes that produce changes in the organization's strategy and administrative procedures (Damanpour and Aravind, 2012). Finally, marketing innovation is likely to increase sales by increasing product consumption and yield additional profit to firms (Johne and Davies, 2000). It is strongly related to changes in product design or packaging, product placement, product promotion or pricing activities (OECD and Eurostat, 2005), along the lines of the four Ps of marketing (Kotler, 1991).

In a nutshell, higher capabilities in product, process, organizational and marketing innovation tend to be associated with increased innovation, production and market performances (Gunday et al., 2011).

3. Methodology

3.1. Data gathering procedures

Our methodological procedure involved six inter-related stages. We began with the classification of Portuguese municipalities into rural or urban, according criteria of the Ministry of Agriculture, Sea, Environment and Spatial Planning (2011). Through this classification procedure, 75% of the total municipalities in mainland Portugal (i.e., 209 municipalities) were classified as 'rural' and 69 as 'urban' (cf. Pato and Teixeira, 2018a). In a second stage of the process, we built a database of support infrastructures for new venture creation. Our choice fell on BIs and SPs, since they also tend to support young technology-based firms to establish and flourish (Ratinho and Henriques, 2010). We updated Caetano's work (2012) through an internet-based search and built a more comprehensive database of BIs

and SPs located in rural and urban regions in Portugal (see Appendix 2, Essay 2). The third stage involved the gathering of relevant information (such as location, email, and telephone) of each individual new ventures headquartered in these BIs and SPs. At the end of this stage, we gathered contacts for one thousand and four hundred new ventures headquartered in BIs and SPs – about 43% of which located in rural settings.

In the fourth stage, and drawing on the literature review, we developed a specific questionnaire. It included five major sections: i) information on the entrepreneur and their human capital, ii) information on the institutional environment/context, iii) general information on the new venture, specifically size, sector and human resources, iv) new venture innovation, and v) new venture performance.

The next stage involved the implementation of the questionnaire. After a pilot test involving five new ventures, we sent the questionnaire by email to 1400 new ventures between April and May 2016. In order to increase the response rate, during those two months, direct contact was made by telephone, to explain the importance of the project to both new venture and BI/SP managers. Moreover, we asked the BI/SP managers for help in disseminating the questionnaire to the new ventures located in their facilities. At the end of the process, we obtained 408 completed questionnaires, which represented a response rate of about 30%, a rather reasonable response rate for a non-compulsory questionnaire, administered on-line (Nulty, 2008), which compares favorably with others (e.g., Eschker et al., 2017).

Finally, in the sixth stage, an econometric analysis was performed.

3.2. Econometric model specification and proxies for the relevant variables

We considered several metrics to proxy performance, including sales, GVA and export dimensions.

Sales turnover and GVA are two of the most often-used indicators to measure financial success in terms of profitability (Teirlinck, 2017). Specifically, the performance variable assumes the value 1 when the new venture presents a turnover or GVA above 50 (or 100) thousand €, and 0 otherwise.

Additionally, export performance has been previously identified as an important characteristic of firms experiencing high growth (Lee et al., 2012). Using this dimension, the performance variable takes the value of 1 when the firm has exports, and 0 otherwise. We also consider

two additional thresholds that reflect export intensity: 1 when the firm exports more than 30% of its products or services, and 0 otherwise; 1 when the firm exports more than 50% of its products or services, and 0 otherwise.

Performance determinants were constructed as dummy variables of the original questions in the questionnaire (see Table 1, Appendix 1).

Given the nature of the dependent variable, the econometric specification chosen is the binary logit regression (Freedman, 2009), which serves to estimate the parameters of the odds of performance (see Equation 1), having as determinants the variables suggested by the literature (see Section 2).

$$\ln\left(\frac{p_i}{1-p_i}\right) = \beta_1 + \beta_2 \text{Institutional context}_i + \beta_3 \text{Entrepreneur's education}_i + \beta_4 \text{New venture traits}_i + \beta_5 \text{Innovation}_i + e_i \quad \text{Equation (1)}$$

where p_i is the probability of new venture i to be a top performer. This variable is coded as 1 when the new venture has a sales turnover/gross value added above 50000 € (or 100000 €) or when it exports (or has an export intensity above 30% or 50%).

The proxies for the variables included in each of the five groups of variables listed in Eq. (1) are described in Table 1 of Appendix 1.

4. Empirical results

4.1. Descriptive results

Table 1 in Appendix 1 show descriptive statistics of newly created ventures located in BIs/SPs. They are very small in terms of sales: in 2015, slightly more than half (56%) had a sales turnover of more than 50000 € and only 38% more than 100000 €. The smallness of the ventures is also evident in terms of GVA: only 32% of the ventures had more than 50000 € in GVA and 15% more than 10000 €. In terms of exports, slightly more than half (51%) had exported, but only 25% of ventures had exported more than 30% of their products/services, while only 20% had exported more than 50% of their products or services.

Environmental factors were grouped using the four categories of variables emphasized in the literature review: policy-related factors, economic-related factors, socio-cultural factors and technologically-related factors. In relation to policy-related factors, information was gathered using Likert scales related to support from the European Commission (EC), central

government and the municipality. Concerning these factors, the perceived importance of the support provided is low and, in all three situations, it is less than 2.20. In terms of economic-related factors, particularly the perceived importance of the support from the banking system and other sources of funding (also measured by Likert scales), the situation is similar, although the perceived importance of support from the banking system is slightly higher (2.43).

With regard to socio-cultural factors, information was gathered using dichotomous variables, in the case of family background and business consultancy to start the business, and Likert scales in all of the other situations – business consultancy for the company’s ongoing activity, joint business actions and support from CCDRs. The majority of the respondents (54%) stated their parents or close relatives were entrepreneurs and a slightly lower percentage (46%) claimed to have received advice on business creation. However, in relation to joint business actions and support from the CCDRs, the mean value is low and less than 2.50. Finally, in terms of the technological environment, specifically support from universities, professional business structures and R&D collaborations, also measured using Likert scales, the perceived importance of the support provided and the involvement with R&D institutions is low – again, less than 2.50 in all three situations.

In terms of human capital, particularly education and work experience, the respondents possessed relatively high levels of formal education and/or professional experience. Indeed, the mean value of formal education is 8.82 (corresponding to a higher education degree) and the mean value of work experience is 3.48 and 2.6, respectively, corresponding to more than six years working for someone else or as an entrepreneur.

In relation to business traits, in 2015, on average, newly created ventures were small. The mean of this variable is 2.6 – which corresponds to a size between 5 and 7 employees. The bulk (70%) of newly created ventures operates in the service sector,¹ whereas 24% operate in manufacturing. In terms of exports/internationalization, the mean is 3.40 – which corresponds to a value between 11% and 20%. Finally, in terms of this construct, between 31% and 40% of the employees have a higher education degree (mean of 4.95), a figure well above the Portuguese average (18%) (Gabinete de Estratégia e Estudos [GEE], 2014).

¹ This percentage is similar to the Portuguese overall average, where 73% of total firms operate in services (Instituto Nacional de Estatística [INE], 2016).

According to the respondents, around half of the newly created ventures located in BIs/SPs are innovative: half of the new ventures had performed product innovation and a slightly higher percentage (64%) service innovation.

In relation to process innovation, the percentage is similar, with 47% of the firms innovating in manufacturing and 58% innovating in support activities. The highest value appears in organizational innovation, in which 69% of the new ventures state they are innovative in organizing external relationships. Finally, the lowest values are found in design or packaging innovation and distribution innovation, where only 42% and 40%, respectively, of the new ventures claim to be innovative. However, if the innovation variables are aggregated into four groups, we find that almost $\frac{3}{4}$ of the new ventures are innovative in all the types of innovation. The highest values occur in organizational (80%) and marketing (78%) innovation.

4.2. Causality results: testing the hypotheses

4.2.1. Diagnostic tests

The Variance Inflation Factor (VIF) test for collinearity provides an index measurement of how the variance of an estimated coefficient is inflated by the presence of multicollinearity (Gujarati, 2004; O'Brien, 2007). Although there is no clear-cut threshold indicative of when multicollinearity levels have become too excessive, some authors contend that a value for the VIF as low as 5 is acceptable and indicates that no problems of multicollinearity are observed (see O'Brien, 2007). The VIF's estimated index values (see Table 1, Appendix 2) indicate the presence of a low collinearity – the mean VIF is 1.99 between the explanatory variables in our model.

Breusch–Pagan tests indicate problems regarding heteroscedasticity. These were fixed by estimating robust standard errors, which provide unbiased standard error estimates under heteroscedasticity (Wooldridge, 2012).

4.2.2. Estimation results

Our dependent variable is new venture performance. This variable was proxied by three indicators: turnover, GVA and export intensity. Thus, we estimate logistic models, in which the dependent variables assume two values, 1 when the performance is above a given threshold, and 0 otherwise. Specifically, and using the three proxies mentioned, we estimate 3 sets of models (see Tables 2...8, Appendix 2): 1) high vs low performers in terms of turnover, with high performers presenting a turnover above 50 (Models A1, Table 2 in Appendix 2) or

100 (Models A2, Table 3 in Appendix 2) thousand Euros;² 2) high vs low performers in terms of GVA, with high performers presenting a value added above 50 (Models B1, Table 4 in Appendix 2) or 100 (Models B2, Table 5 in Appendix 2) thousand Euros; 3) high vs low performers in terms of exports, with high performers being the exporters (Models C1, Table 6 in Appendix 2) or those presenting an export intensity above 30% (Models C2, Table 7 in Appendix 2) or 50% (Models C3, Table 8 in Appendix 2) of their products/services.

For each set of models, we estimate a specification including disaggregated innovation types (Models A/B/C) and another including global innovation (Models A'/B'/C'). All models estimated present a reasonable fit, in which the p-value of the Hosmer and Lemeshow test was above 10% for all but two specifications, meaning that the null hypothesis that the model represents reality well cannot be rejected. Moreover, the percentage of correctly classified observations is in general above 75%.

Considering the full set of responses from 408 new ventures located in Portuguese BIs and SPs, and controlling for factors that are likely to influence firm performance, such as the entrepreneurs' human capital, business traits and the new ventures' innovation capabilities (see Table 1 for an overview), the evidence shows that the most relevant institutional factors for new venture performance are financial support and social networks and collaborations.

Specifically, the importance of government support, namely that related to the EC, is (although weakly, i.e., $p\text{-value} < 0.10$ or 10% significance level) significantly but negatively associated with GVA performance (100 thousand threshold) and export intensity (50% threshold) in the case of central government support. The remaining levels of government support fail to be statistically significant. Thus, Hypothesis 1a ('Government support has a positive impact on new venture performance') is partially contradicted or not validated.

Regarding the importance of support from the banking system for venture creation, a positive and significant relation emerges but only when performance is measured by turnover. When performance is measured by the propensity to export, support from the banking system is (although weakly) negatively related to performance. The same occurs with financial support from other funding organizations when performance is measured by turnover (100 thousand threshold). Therefore, hypothesis 2a ('Financial support has a positive impact on new venture performance') is only partially validated.

² Due to the small number of observations, for rural new ventures, GVA, 100 thousand threshold Model B2' was not estimated and Model B2 was estimated leaving aside the control variables exports, employees' human capital and innovation-related variables.

Embeddedness factors, most notably to have (had) parents or close relatives (grandparents) who are/were entrepreneurs, when significant, influence negatively (at 10% significance) performance measured by export intensity (although only when exports are above 30%).

Table 1: Determinants of the performance of new ventures (logit estimates and robust standard errors), All new ventures

	Hypotheses	Variables	Description	Turnover		GVA		Exports		
				>50 th. Table A2	>100 th Table A3	>50 th. Table A4	>100 th Table A5	Exp vs Non-Exp Table A6	Exp>30% Table A7	Exp>50% Table A8
Policy related factors	Government support [H1a/H1b]	European Commission	European Commission				-/0			
		Central government	Central Government							0/-
		Local government	Local government							
Economic related factors	Financial support [H2a/ H2b]	Banks and similar	Banks and similar	++	++			0/-		
		Other sources of funding	Other funding organizations		-/0					
Embeddedness related factors	Role models [H3a/3c]	Parents/ family	Parents/family						-	
	Social networks and col. [H3b/3d]	The owners of the company met with other entities (assoc., local community) so as to	obtain advice on starting <i>company</i>	--	---	---	--			
			obtain advice on the <i>company's ongoing activity</i>	-						
		Joint activities with other companies/ institutions in the region	to develop the business activity							
			to attract human resources				-			
			To develop branding				+	+++		
		Support CCDRs	to access new markets							
			for venture creation							
Technological related factors	Inst. support from knowledge and technology infrast. [H4a/H4b]	Importance of support (financial and other) from	Universities and other higher education institutions							
			Incubators, science and technology parks							0/+
		Joint activities with	other companies or institutions in the region to develop R&D							

Note: The analysis includes the estimations of aggregate and detailed types of innovation. When results of these two latter specifications are distinct in the columns, both results appear separated by / (aggregate/detailed). Dark grey cells identify the significant estimates which convey similar results when we consider the detailed and aggregate types of innovation (Tables 2 ... 8, Appendix 2). Blank cells or 0: not significant estimates; +++ (++) [+]/--- (--) [-]: positively/negatively significant estimates at 1% (5%) [10%].

Thus, Hypothesis 3a ('Support from role models has a positive impact on new venture performance') is partially contradicted or not validated. Additionally, the distinct types of socio-cultural factors do not influence new venture performance in the same manner. Indeed, the regularity with which company owners met with other entities (associations, local community, etc.) to obtain advice on starting their company (and, to a lesser extent, its

ongoing activity) is associated with lower performance levels (particularly in terms of turnover and GVA). However, the regularity with which new ventures engage in joint activities with other companies/institutions in the region to develop branding is positively and significantly associated with GVA (100 thousand threshold) and export performance (export vs non-export threshold). As such, hypothesis 3b ('Social networks and collaborations have a positive impact on new venture performance') is contradicted in what refers to business consultancy and exchange of experiences and validated regarding joint business actions for branding.

Technologically-related factors only weakly influence (i.e., $p\text{-value} < 0.10$) new venture performance in terms of high export intensity (above the 50% threshold). Indeed, new ventures that attribute higher importance to support (financial and other) from professional business structures, most notably BIs and SPs, tend to be more export-led (exporting more than 50% of their products and/or services). Therefore, Hypothesis 4a ('Institutional support from knowledge and technology infrastructures, such as universities, incubators/science parks and research and development centers, has a positive impact on new venture performance') is weakly supported.

When we compare urban and rural new ventures (see Table 2 for an overview), we find that when performance is measured by export intensity (50% threshold), but not by turnover or GVA, the rural new ventures that present higher performances are those that attribute greater importance to support from the EC. For urban new ventures, this support is negatively and significantly related with performance when it is measured by turnover (50 thousand threshold) and GVA (50 and 100 thousand threshold). The importance of local and central government support does not seem to be relevant for urban new venture performance, whereas local government negatively influences GVA (100 thousand threshold) and export intensity (above the 50% threshold) and positively influences GVA (50 thousand threshold). Consequently, we can conclude that Hypothesis 1b ('Government support tends to have a greater impact on new rural venture performance than on new urban venture performance') is partially validated for support from the EC and partially refuted in the case of support from local and central government.

Although the importance of the support from the banking system for new venture creation emerged only positively and significantly associated with urban new venture performance (in terms of turnover and GVA), the importance of other sources of funding is critical for the export performance of rural new ventures, since it is positively and significantly associated

with this measure (at all levels of export). In this vein, Hypothesis 2b (‘Financial support tends to have a greater impact on new rural venture performance than on new urban venture performance’) is validated in the case of other funding sources, but it is not corroborated in the case of bank funding.

Table 2: Determinants of the performance of new ventures (logit estimates and robust standard errors), Urban (U) vs. Rural (R) new ventures

	Hypotheses	Variables	Description	Turnover				GVA				Exports					
				>50 th. Table A2		>100 th Table A3		>50 th. Table A4		>100 th Table A5		Exp vs Non-Exp Table A6		Exp>30 % Table A7		Exp>50% Table A8	
				U	R	U	R	U	R	U	R	U	R	U	R	U	R
Policy related factors	Govern. support [H1a/H1b]	European Commission	European Commission	-				--	0/---	--							++
		Central government	Central government						0/++								--
		Local government	Local government							-							
Econ. Related factors	Financial support [H2a/ H2b]	Banks and similar	Banks and similar	+++		++		+/0				--					---
		Other sources of funding	Other funding organizations									++		+++		+++	
Embeddedness-related factors	Role models [H3a/3c]	Parents/family	Parents/family				+										
	Social networks and col. [H3b/3d]	The owners of the company met with other entities (associations, local community) for the purpose of	receiving advice at the <i>beginning of the company activity</i>	---		---		---		---		+++					
			receiving advice on the <i>company's ongoing activity</i>				0/---							+++		+	
		Joint activities with other companies/ institutions in the region	to develop business activity		--							--		---		--/0	
			to attract human resources							-							
			to develop branding		-/0			0/+	--	+		++					
			to access new markets									++		+		+/0	
	Support of CCDRs	for venture creation						+/0				0/-					
Technological related factors	Instit. support from knowledge and technology infr. [H4a/H4b]	Importance of support (financial and other) from	Universities and other higher education institutions														
			Incubators, science and technology parks			--						++		+		++	
		Joint activities	with other companies or institutions in the region to develop R&D		+++		+++		++			--				--	

Note: The analysis includes the estimations of aggregate and detailed types of innovation. When results of these two latter specifications are distinct in the columns, both results appear separated by / (aggregate/detailed). Dark grey cells identify the significant estimates which convey similar results when we consider the detailed and aggregate types of innovation (Tables 2 ... 8, Appendix 2). Blank cells or 0: non-significant estimates; +++ (++) [+] / --- (--) [-]: positively/negatively significant estimates at 1% (5%) [10%].

In contrast with the theoretical expectations, when significant, role models seem to matter most for rural new venture performance (in terms of GVA for the 100 thousand threshold) than for urban new ventures. Thus, Hypothesis 3c (Support from role models tends to have less impact on new rural venture performance than on new urban venture performance) is not confirmed.

Social networks, namely meetings between rural new venture owners and other entities (associations, local community, etc.) in order to obtain advice on starting the company and on ongoing business activity emerges as significantly relevant for export performance (but not for turnover or GVA related performance). In the case of urban new ventures, these networks are negatively related with (turnover and GVA) performance. Additionally, engagement in joint activities with other companies/institutions in the region to develop business activity, attract human resources, and to develop branding is negatively related to rural new venture performance (insignificantly related in the case of urban new ventures). In contrast, collaboration with other companies/institutions in the region in order to access new markets is positively and significantly related to the export performance of rural new ventures (for urban new ventures, no significant relation is observed). The importance of CCDR support for venture creation although weak (i.e., $p\text{-value} < 0.10$) is only relevant for the GVA performance of urban new ventures. In short, only when the type of social network and collaboration focuses on meeting with other organizations to obtain advice on company activities or to access new markets, Hypothesis 3d ('Social networks and collaboration with other entrepreneurs/institutions in the region tend to have a greater impact on new rural venture performance than on new urban venture performance') is verified.

Finally, regarding technologically-related factors, we find that for both rural and urban new ventures, support (financial and other) from universities and other higher education institutions does not impact significantly on their performance. In contrast, support from BIs and SPs is relevant for the export performance of urban new ventures (but not for rural new ventures) and the joint R&D activities with other companies or institutions in the region has a significant impact on the (turnover and GVA) performance of rural new ventures (but not on that of urban ones). Summing up, Hypothesis 4b ('Institutional support from knowledge and technology infrastructures, such as other companies, universities, incubators/science parks and research and development centers, tends to have less impact on new rural venture performance than on new urban venture performance') is partially confirmed and partially refuted.

A brief remark on the control variables. Size matters for turnover and GVA performance but not export performance (excluding the case of urban new ventures for which large companies are those that present higher export intensity). New ventures with higher performance in terms of turnover and GVA (particularly at the 100 thousand threshold) tend to operate in the manufacturing industry. The entire set of new ventures that export tends to perform better in terms of turnover and GVA (100 thousand threshold). Rural new ventures that export also tend to perform better in terms of GVA (50 thousand threshold). The human capital of employees is only relevant for rural new venture performance in terms of GVA (50 thousand threshold) and exports. Product innovation emerges as positively and significantly related with the export propensity of (all, urban and rural) new ventures. New ventures (of all types) that have undertaken organizational innovations are better performers in terms of GVA (and turnover, 100 thousand threshold, for rural new ventures). Marketing innovation does not seem to impact on rural new venture performance, but it does matter for urban new venture performance.

4.3. Discussion of results

If some results presented above are in line with the literature, others are not. Firstly, for all new ventures located in Portuguese BIs and SPs, contrary to Hypothesis 1a, the findings of the study do not corroborate the importance of government support. Indeed, as mentioned previously, the importance of government support, namely that related to the EC and central government is significantly but negatively associated with GVA (100 thousand threshold) and export intensity (50% threshold). This seems to suggest that some policies have contributed to hindering or inhibiting new venture performance, at least partially. A deficient legal system (e.g., with implementation gaps and poorly specified regulations) contributes to a high level of uncertainty in the mind of entrepreneurs (Smallbone et al., 2010), without contributing any additional value (Smallbone and Welter, 2001). This is consistent with the recent Portuguese GEM report which points out that the main obstacles to entrepreneurship in the country is the existence of an excessive bureaucracy and tax burden (Instituto Universitário de Lisboa [ISCET-IUL] and Sociedade Portuguesa de Inovação [SPI], 2014).

When we compare urban and rural new ventures, we find that, despite the positive impact of European Policies on the export intensity (50% threshold) of rural ventures in comparison to the urban ones, central and local policies have a negative impact on GVA (100 thousand threshold) and export intensity (50% threshold) in the former, refuting therefore Hypothesis

1b. This may occur because some rural enterprise policies are not targeted at the needs of different regions. National and local policy-makers should consider the differences in the economic, social and institutional conditions of rural regions, if policy is to be effective (North and Smallbone, 2006).

Second, in accordance with H2a, financial support, more precisely, support from the banking system has a significant and positive impact on venture performance, namely in terms of turnover (50 and 100 thousand threshold). This is supported by other empirical evidence (e.g., Becchetti and Trovato, 2002; Mateev and Anastasov, 2010), which shows that firms with higher availability of external finance grow much faster than others.

When we compare rural and urban new ventures, the impact of financial support depends on the type of financial source – banks and similar are more important in urban areas, whereas other funding entities (such as business angels and/or even family and friends) seem to be more important in rural regions. Indeed, Müller and Korsgaard (2018) suggest that in rural areas using the community as a resource and involving the community in the entrepreneurial process is often done to finance (part of) the venture. In turn, banks prefer to finance firms with low-risk projects and collateral (Naudé et al., 2008), such as those located in urban regions.

Third, the results show the role models do not have any significant impact for all new ventures in the study. However, in accordance with Hypothesis 3c, the study reveals the importance of role models for exports (30% threshold) in rural areas. This is in line with Vaillant and Lafuente (2007), who found that the presence of entrepreneurial role models is a prominent explanatory factor favoring entrepreneurial performance in rural regions.

With regard to other measures of embeddedness, specifically social networks and collaborations intended to obtain advice on the company's ongoing activity, these collaborations are associated with lower performances, particularly in terms of turnover and GVA, thus contradicting Hypothesis 3b. Social networks and collaborations can provide opportunities, but also obstacles for any start-up (Baraldi et al., 2018). More precisely, this is because, over time, every (potential) entrepreneur needs to relate with the dynamic parts of networks, as well as with their conservative parts, characterized by inertia (Baraldi et al., 2018). In our study, the connections with the latter (i.e., 'conservative parts of networks') seem to be preponderant. However, at least in what concerns social networks and collaborations for branding, the evidence supports the importance for GVA (100 thousand

threshold) and exports (exports vs non exports). Certainly, brands as relationships with other stakeholders, including customers, suppliers, financiers and associations, go hand in hand (Merrilees, 2007).

The impact of social networks and collaborations presents mixed effects across rural and urban settings. Indeed, looking for advice at the start of a company and to develop ongoing activities has a positive impact in rural areas, at least, in terms of exports (all thresholds). A similar effect occurs with regard to joint activities with other companies/institutions in the region in order to access new markets, emphasizing thus the importance of rural business connections (Eschker et al., 2017). In the case of urban new ventures, the most relevant result is related to the negative impact of ‘obtaining advice to start the company’ on turnover and GVA (all thresholds). Summing up, if social networks and collaborations have a positive impact on new venture performance (mainly in rural areas), they can also have an opposite and negative effect, mainly in urban areas. This can be due to the type of network under consideration (Baraldi et al., 2018). Diáñez-González and Camelo-Ordaz (2018) observe that informal networks (for instance, composed by family and friends) have no effect on entrepreneurial orientation.

Finally, in terms of technologically-related factors, specifically with regard to BIs and SPs, the findings are in line with Hypothesis 4a. When we compare rural and urban new ventures, Hypothesis 4b is partially confirmed in terms of the support given by BIs and SPs in export performance (all thresholds). As stated by Ratinho and Henriques (2010), these types of infrastructures are located in urban areas and near to cities, giving a modest contribution to venture development in rural regions. The surprising positive influence of joint activities with other companies/institutions in R&D in rural areas can highlight the growing interest of rural regions in this matter (OECD, 2006).

5. Conclusions

Entrepreneurship studies tend to emphasize the importance of the location of new ventures, indicating the multifaceted embeddedness of entrepreneurial activities and the fact that entrepreneurship is a socio-spatial phenomenon (Trettin and Welter, 2011).

Drawing on performance logistic model estimations, this paper makes some important contributions to knowledge in the field highlighting the importance of institutional factors for the performance of rural and urban new ventures.

The findings show that the most relevant institutional factors for new venture performance in rural and/or urban settings are financial support, social networks and collaborations and technological support. With regard to financial support, bank funding seems to be more important for new ventures located in urban regions. Often banks want a positive track record and collateral (Corno et al., 2014), which new firms, particularly those in rural areas, generally do not have. Thus, other sources of funding (e.g., business angels and family and friends) emerge as an important alternative in rural settings.

Social networks and collaborations, namely obtaining advice from local institutions and the community to start and develop the company and joint activities with other companies/institutions to access new markets, have a significant impact on the firms' export performance. This confirms that rural entrepreneurs are able to improve venture performance by establishing links and participating in networking activities (Eschker et al., 2017; Müller, 2013). This further emphasizes the idea of rural embeddedness. Indeed, because of fewer potential resource providers in rural settings in comparison to the urban ones, the new venture may be more dependent on engagement in a rural community (Kalantaridis and Bika, 2006; Vestrum and Rasmussen, 2013).

The positive influence of joint activities with other companies/institutions to develop R&D in rural settings underlines the concept of 'innovative milieu' (Camagni, 1995). Therefore, like rural entrepreneurs, rural areas do not have to be stereotypical (Pato & Teixeira, 2018a).

The absent or negative support of national and local policies for venture creation in rural settings might mean that they are still not adjusted to local conditions. Therefore, from a political point of view and for managerial implications, policy tools should be more sensitive and appropriate to the particular conditions of different rural areas (North and Smallbone, 2006). Moreover, rural authorities should follow strategies which include establishing an entrepreneurial culture within the municipality (McElwee, 2008). This involves a growing and effective connection between rural entrepreneurs and a variety of actors from industry, academia and the public and private sectors in order to foster venture performance (Baraldi et al., 2018).

The study has some limitations, most notably the fact that it provides only a picture in time of a set of very specific rural and urban new ventures. Thus, a longitudinal analysis, although challenging and difficult to achieve (given the absence of public data on this matter), would be of extreme usefulness especially when dealing with institutional factors which take time to unfold and impact on firm performance. Additionally, qualitative analyses involving other important stakeholders that promote venture creation (e.g., universities and other higher education institutions, regional associations, BIs and SPs, R&D centers), would enable a triangulation of the findings and a more in-depth understanding of the results (Pato and Kastenholz, 2017).

Appendix 1: Proxies and results of the descriptive analysis

Table 1: Proxies for the relevant variables and descriptive statistics

Group of variables		Questions	Variable name	Mean	St. dev.	n
Performance	Performance	Sales turnover 2015	Sales turnover (1=More than 50.000 €; 0=otherwise)	0.56	0.497	396
			Sales turnover (1=More than 100.000 €; 0=otherwise)	0.38	0.485	396
		Value added 2015	Value added (1=More than 50.000 €; 0=otherwise)	0.32	0.466	351
			Value added (1=More than 100.000 €; 0=otherwise)	0.15	0.353	351
		Exports 2015	Percentage of products/services exported (1=exports; 0=otherwise)	0.51	0.500	408
			Percentage of products/services (1=more than 30% ; 0=otherwise)	0.25	0.434	408
			Percentage of products/services (1=more than 50% ; 0=otherwise)	0.20	0.398	408
			Percentage of products/services (1=more than 50% ; 0=otherwise)	0.20	0.398	408
			Percentage of products/services (1=more than 50% ; 0=otherwise)	0.20	0.398	408
Institutional factors	Policy-related factors	How important was support (financial and other) from the European Commission for venture creation?	European Commission support (1=Not important...5=Quite important)	2.16	1.522	408
		How important was support (financial and other) from the central government for venture creation?	Central government support (1=Not important...5=Quite important)	1.81	1.306	408
		How important was support (financial and other) from the municipality for venture creation?	Municipality support (1=Not important...5=Quite important)	1.96	1.376	408
	Economic-related factors	How important was support from the banking system for venture creation?	Banking system support (1=Not important...5=Quite important)	2.43	1.513	408
		How important was support from other sources of funding?	Other sources of funding support (1=Not important...5=Quite important)	1.83	1.333	408
	Socio-Cultural Factors	Do you have (or did you have) parents or close relatives (grandparents) who are/were entrepreneurs?	Family background (1=yes; 0=no)	0.54	0.499	408
		Did the owners of the company meet with other entities (associations, local community, etc.) to obtain advice on starting the company?	Social and informal networks (1=yes; 0=no)	0.46	0.499	408
		Did the owners of the company meet with other entities (associations, local community, etc.) to obtain advice on the company's ongoing activity?	Social and informal networks (1=Never...4=Frequently)	2.58	0.932	408
		Have you engaged in joint activities with other companies/institutions in the region to develop your business activity?	Collaboration for business environment (1=Nothing...5=Very regularly)	2.19	1.181	408
		Have you engaged in joint activities with other companies/institutions in the region to attract human resources?	Collaboration in human resources attraction (1=Nothing...5=Very regularly)	1.85	1.041	408
		Have you engaged in joint activities with other companies/institutions in the region to develop branding?	Collaboration in branding (1=Nothing...5=Very regularly)	1.98	1.181	408
		Have you engaged in joint activities with other companies/institutions in the region to develop branding?	Collaboration in branding (1=Nothing...5=Very regularly)	1.98	1.181	408

Human capital	Technologically-related factors	Have you engaged in joint activities with other companies/institutions in the region to access new markets?	Collaboration to access new markets (1=Nothing...5=Very regularly)	2.48	1.281	408
		How important was the support of the “CCDR” for venture creation?	CCDR support (1=Not important...5=Quite important)	1.68	1.255	408
		How important was support (financial and other) from universities and/or other higher education institutions?	Universities and/or other higher education institutions support (1=Not important...5=Quite important)	2.12	1.399	408
		How important was support (financial and other) from professional business structures (e.g. incubators, science and technology parks)?	Incubators/Science Parks support (1=Not important...5=Quite important)	2.32	1.538	408
		Have you engaged in joint activities with other companies or institutions in the region to develop R&D?	Collaboration in R&D (1=Nothing...5=Very regularly)	2.41	1.340	408
	Human capital	Indicate the highest educational level that you have achieved	Level of education (1=<4 years...12=PhD)	8.82	2.084	408
		Indicate the years of professional experience as a worker for someone else	Work experience (0=0; 8=>40 years)	3.48	1.564	408
		Indicate the years of professional experience as an entrepreneur	Entrepreneurial experience (0=0; 8=>40 years)	2.60	1.330	408
	Business traits	Size	Number of employees 2015 (1=1; 9=>250)	2.60	1.407	408
		Sector	Classification of economic activities (1=manufacturing; 0=otherwise)	0.24	0.429	408
			Classification of economic activities (1=services; 0 otherwise)	0.70	0.461	408
		Internationalization	Percentage of products/services exported (1=0; 12=100%)	3.40	3.594	408
		Workers' education	Percentage of people with bachelor's degree or higher (1=0; 12=100%)	4.95	4.360	408
			Percentage of people with 9-12 years of schooling (1=0; 12=100%)	3.50	3.644	408
Innovation	Product	New or significantly improved goods	Product innovation (1=yes; 0=no)	0.50	0.501	408
		New or significantly improved services	Service innovation (1=yes; 0=no)	0.64	0.480	408
	Process	New or significantly improved methods of manufacturing or producing goods or services	Manufacturing innovation (1=yes; 0=no)	0.47	0.500	408
		New or significantly improved support activities for the process	Support activities (1=yes; 0=no)	0.58	0.495	408
		New business practices to organize procedures	New business practices (1=yes; 0=no)	0.54	0.499	408
	Organizational	New methods of organizing work responsibilities and decision making	Organization of work responsibilities (1=yes; 0=no)	0.56	0.497	408
		New methods of organizing external relations with other firms or public institutions	Organization of external relationships (1=yes; 0=no)	0.69	0.464	408

Innovation	Marketing	Significant changes to the aesthetic design or packaging of a good or service	Design or packaging innovation (1=yes; 0=no)	0.42	0.494	408
		New media or techniques for product promotion	Promotion innovation (1=yes; 0=no)	0.63	0.483	408
		New methods for product placement or sales channels	Distribution innovation (1=yes; 0=no)	0.40	0.490	408
		New methods of pricing goods or services	Price innovation (1=yes; 0=no)	0.46	0.499	408
	Product	Product innovation	Product innovation (1=yes; 0=no)	0.75	0.432	408
	Process	Process innovation	Manufacturing innovation (1=yes; 0=no)	0.72	0.452	408
	Organizational	Organizational innovation	Organizational innovation (1=yes; 0=no)	0.80	0.401	408
	Marketing	Marketing innovation	Marketing innovation (1=yes; 0=no)	0.78	0.418	408

Appendix 2: Results of the logist model

Table 1: VIF index

Variable	VIF	1/VIF
services_d	5.01	0.199608
indtransfo~d	4.67	0.214071
impapoio~l	3.03	0.329557
impapoio~a	2.87	0.348183
impapoio~c	2.86	0.349768
actconj~d	2.78	0.360126
actcon~c	2.59	0.386060
actconju~l	2.52	0.396308
impapoio~s	2.52	0.397407
impapoio~l	2.45	0.407383
impapoio~o	2.39	0.417618
impapoio~as	2.25	0.445117
impapoio~en~o	1.88	0.532608
actcon~g	1.79	0.559473
inovproc~d	1.76	0.568606
actconj~g	1.74	0.575884
inovor~cas_d	1.73	0.578971
inovorgn~b_d	1.73	0.579624
trocarexpe~a	1.60	0.623780
inovmrk~os_d	1.57	0.636661
inov~nicas_d	1.57	0.638408
inovprodbe~d	1.56	0.641779
inovor~nas_d	1.52	0.659336

inovprodse~d	1.51	0.664050
habilitacoes	1.50	0.666621
inovprocac~d	1.48	0.677709
ino~iticas_d	1.45	0.689730
inovmrkmud~d	1.41	0.708689
peessoas~2015	1.40	0.715694
receberaco~a	1.37	0.730803
percpressde~r	1.35	0.741141
anosexppro~m	1.25	0.797833
anosexppro~o	1.20	0.834772
percpressde~e	1.18	0.844145
familiares~s	1.13	0.884738
percb~rapais	1.13	0.888755
Mean VIF	1.99	

Table 2: Determinants of performance of new ventures (logit estimates and robust standard errors) – dependent variable: new ventures with turnover above 50 thousands euros in 2015 vs the remaining

	Hypotheses	Variables	Description	All new ventures		New ventures located in Urban settings		New ventures located in Rural settings	
				Model A1	Model A1'	Model A1	Model A1'	Model A1	Model A1'
Policy related factors	Government support [H1a/H1b]	European Commission	European Commission	-0.016 (0.022)	-0.015 (0.023)	-0.043* (0.024)	-0.035 (0.026)	-0.009 (0.051)	-0.019 (0.048)
		Central Government	Central Government	-0.007 (0.026)	-0.006 (0.028)	0.013 (0.033)	0.009 (0.032)	0.037 (0.055)	0.049 (0.054)
		Local government	Local government	0.002 (0.024)	-0.002 (0.025)	0.000 (0.037)	-0.014 (0.037)	-0.002 (0.033)	0.000 (0.031)
Economic related factors	Financial support [H2a/ H2b]	Banks and similar	Banks and similar	0.042** (0.018)	0.040** (0.019)	0.064*** (0.02)	0.055** (0.023)	0.042 (0.035)	0.051 (0.034)
		Other funding organizations	Other funding sources	-0.005 (0.023)	-0.007 (0.024)	-0.02 (0.028)	-0.011 (0.028)	0.034 (0.04)	0.027 (0.034)
Embeddedness related factors	Role models [H3a/3c]	Parents/family	Parents/family	-0.009 (0.044)	-0.014 (0.044)	-0.01 (0.05)	-0.026 (0.052)	0.004 (0.081)	0.018 (0.082)
	Social networks and collaborations [H3b/3d]	Exchange of business counseling and experience	Business advices for starting up	-0.122** (0.048)	-0.119*** (0.046)	-0.162*** (0.05)	-0.169*** (0.052)	0.009 (0.096)	0.008 (0.091)
			Business advices for ongoing activities	-0.049* (0.027)	-0.047* (0.027)	-0.037 (0.033)	-0.038 (0.033)	-0.037 (0.054)	-0.041 (0.045)
		Businesses joint actions	Collaboration for the development of business activities	-0.032 (0.027)	-0.026 (0.029)	0.021 (0.031)	0.030 (0.030)	-0.137** (0.06)	-0.106* (0.055)
			Collaboration for HR attraction	0.004 (0.026)	0.007 (0.027)	-0.019 (0.037)	-0.023 (0.038)	-0.004 (0.054)	-0.015 (0.054)
			Collaboration for branding	-0.02 (0.025)	-0.022 (0.024)	-0.023 (0.031)	-0.012 (0.031)	-0.075* (0.045)	-0.064 (0.046)
			Collaboration to access new markets	0.015 (0.027)	0.009 (0.026)	0.039 (0.026)	0.033 (0.029)	-0.053 (0.053)	-0.076 (0.046)
		CCDRN collaboration	Support of regional development agencies	0.021 (0.028)	0.026 (0.028)	0.015 (0.035)	0.018 (0.035)	-0.014 (0.049)	-0.023 (0.042)
Technological related factors	Institutional support from knowledge and technology infrastructures [H4a/H4b]	Universities	Universities and other higher education institutions	-0.003 (0.023)	-0.003 (0.023)	-0.007 (0.027)	0.001 (0.029)	-0.026 (0.04)	-0.017 (0.039)
		Incubators and Science Parks	Incubators and Science and Technological Parks	-0.026 (0.02)	-0.027 (0.021)	0.008 (0.023)	-0.001 (0.026)	-0.052 (0.032)	-0.047 (0.032)
		Companies' R&D	With other companies and institutions in the region	0.032 (0.027)	0.033 (0.026)	-0.018 (0.027)	-0.018 (0.029)	0.1980*** (0.049)	0.1880*** (0.043)
Control variables	Entrepreneur's characteristics	Formal education	Formal education	-0.002 (0.012)	-0.005 (0.013)	0.006 (0.016)	0.003 (0.015)	-0.022 (0.02)	-0.023 (0.019)
		Experience	Working experience	0.016 (0.016)	0.013 (0.015)	0.022 (0.018)	0.014 (0.019)	-0.029 (0.028)	-0.02 (0.025)
			Entrepreneurial experience	-0.003 (0.016)	-0.002 (0.017)	0.008 (0.02)	-0.003 (0.02)	-0.005 (0.03)	-0.003 (0.03)

	Business' characteristics	Size	Number employees 2015	0.1670*** (0.029)	0.1690*** (0.023)	0.1810*** (0.036)	0.1907*** (0.035)	0.1360*** (0.039)	0.1230*** (0.036)	
		Sector (default: services)	Manufacturing	0.1030* (0.054)	0.091* (0.055)	0.089 (0.068)	0.075 (0.068)	0.1170 (0.086)	0.0880 (0.078)	
			Primary	-0.023 (0.112)	-0.027 (0.096)	-0.208 (0.15)	-0.201 (0.148)	0.158 (0.173)	0.029 (0.164)	
		Exports	Percentage of goods/services consumed other countries	0.006 (0.006)	0.007 (0.006)	0.005 (0.008)	0.005 (0.008)	-0.002 (0.011)	-0.002 (0.011)	
		Employees' HC (default: less than 9 years of schooling)	Percentage of individuals employed with bachelors, graduation or more	-0.004 (0.006)	-0.003 (0.005)	-0.003 (0.007)	-0.003 (0.006)	-0.001 (0.013)	-0.002 (0.011)	
			Percentage of individuals employed with 9-12 years of schooling	0.007 (0.006)	0.007 (0.006)	0.002 (0.008)	0.005 (0.007)	0.015 (0.016)	0.021 (0.014)	
	Innovation performance	Product innovation	New or significantly improved goods	-0.009 (0.048)	0.032 (0.034)	0.041 (0.055)	0.069* (0.037)	-0.156* (0.092)	-0.052 (0.057)	
			New or significantly improved services	0.057 (0.051)		0.038 (0.061)		0.082 (0.086)		
		Process innovation	New or significantly improved methods of manufacturing or producing goods or services	0.024 (0.054)	0.011 (0.036)	0.071 (0.063)	0.042 (0.05)	-0.024 (0.095)	-0.026 (0.071)	
			New or significantly improved supporting activities for your processes	0.025 (0.051)		0.069 (0.063)		-0.031 (0.094)		
		Organizational innovation	New business practices for organising procedures	-0.064 (0.056)	0.012 (0.023)	-0.144** (0.065)	-0.024 (0.029)	0.093 (0.089)	0.082** (0.041)	
			New methods of organising work responsibilities and decision making	0.058 (0.050)		0.01 (0.059)		0.119 (0.112)		
			New methods of organising external relations with other firms or public institution	0.031 (0.052)		0.067 (0.062)		-0.019 (0.085)		
		Marketing innovation	Significant changes to the aesthetic design or packaging of a good or service	0.057 (0.049)	0.005 (0.018)	0.061 (0.053)	-0.002 (0.02)	0.034 (0.101)	-0.011 (0.031)	
			New media or techniques for product promotion	0.042 (0.052)		0.133** (0.054)		-0.089 (0.093)		
			New methods for product placement or sales channels	-0.024 (0.052)		-0.096 (0.06)		-0.059 (0.113)		
			New methods of pricing goods or services	-0.046 (0.049)		-0.084 (0.055)		0.075 (0.110)		
		Number of observations			396	396	258	258	138	138
		Top performer new ventures			223	223	159	159	64	64
		Others			173	173	99	99	74	74
	Goodness of fit		Wald chi2 (p-value)	81.99 (0.000)	142.56 (0.000)	83.97 (0.000)	66.83 (0.000)	62.13 (0.004)	59.46 (0.000)	
			Pseudo R2	0.2733	0.2627	0.3729	0.3346	0.3639	0.3333	
			Hosmer-Lemeshow chi2 (p-value)	10.42 (0.4046)	6.29 (0.7899)	5.47 (0.8575)	11.03 (0.3555)	5.40 (0.8626)	10.08 (0.4333)	
			Correctly classified (%)	75.76	75.00	80.62	80.23	77.54	77.54	

Table 3: Determinants of performance of new ventures (logit estimates and robust standard errors) – dependent variable: new ventures with turnover above 100 thousands euros in 2015 vs the remaining

	Hypotheses	Variables	Description	All new ventures		New ventures located in Urban settings		New ventures located in Rural settings	
				Model A2	Model A2'	Model A2	Model A2'	Model A2	Model A2'
Policy related factors	Government support [H1a/H1b]	European Commission	European Commission	-0.020 (0.018)	-0.018 (0.021)	-0.037 (0.024)	-0.038 (0.024)	0.041 (0.04)	0.037 (0.040)
		Central Government	Central Government	-0.020 (0.024)	-0.019 (0.024)	-0.034 (0.029)	-0.029 (0.029)	0.002 (0.045)	0.021 (0.040)
		Local government	Local government	0.006 (0.020)	-0.003 (0.022)	0.012 (0.027)	-0.002 (0.030)	0.022 (0.025)	0.011 (0.018)
Economic related factors	Financial support [H2a/ H2b]	Banks and similar	Banks and similar	0.032** (0.015)	0.03* (0.016)	0.052** (0.021)	0.045** (0.02)	-0.008 (0.033)	-0.005 (0.019)
		Other funding organizations	Other funding sources	-0.036* (0.021)	-0.035 (0.022)	-0.027 (0.029)	-0.015 (0.026)	-0.024 (0.029)	-0.016 (0.028)
Embeddedness related factors	Role models [H3a/3c]	Parents/family	Parents/family	0.032 (0.038)	0.026 (0.039)	-0.029 (0.049)	-0.032 (0.05)	0.156* (0.082)	0.140* (0.082)
	Social networks and collaborations [H3b/3d]	Exchange of business counseling and experience	Business advices for starting up	-0.151*** (0.044)	-0.141*** (0.043)	-0.205*** (0.056)	-0.197*** (0.054)	0.014 (0.09)	0.038 (0.077)
			Business advices for ongoing activities	-0.033 (0.023)	-0.032 (0.024)	-0.007 (0.028)	-0.011 (0.029)	-0.096 (0.059)	-0.094*** (0.031)
		Businesses joint actions	Collaboration for the development of business activities	-0.029 (0.025)	-0.025 (0.026)	-0.049 (0.031)	-0.038 (0.03)	0.025 (0.04)	0.034 (0.031)
			Collaboration for HR attraction	0.012 (0.025)	0.019 (0.024)	0.031 (0.036)	0.032 (0.033)	-0.043 (0.049)	-0.049 (0.044)
			Collaboration for branding	-0.001 (0.021)	-0.004 (0.021)	0.004 (0.028)	0.013 (0.027)	-0.076 (0.056)	-0.056 (0.052)
			Collaboration to access new markets	0.014 (0.027)	0.009 (0.022)	0.035 (0.027)	0.032 (0.027)	-0.057 (0.048)	-0.071 (0.047)
		CCDRN collaboration	Support of regional development agencies	0.026 (0.023)	0.029 (0.024)	0.014 (0.027)	0.013 (0.029)	-0.031 (0.04)	-0.037 (0.039)
Technological related factors	Institutional support from knowledge and technology infrastructures [H4a/H4b]	Universities	Universities and other higher education institutions	0.008 (0.020)	0.007 (0.021)	0.008 (0.025)	0.011 (0.026)	0.016 (0.034)	-0.003 (0.034)
		Incubators and Science Parks	Incubators and Science and Technological Parks	-0.021 (0.016)	-0.021 (0.019)	0.012 (0.021)	0.009 (0.023)	-0.081** (0.035)	-0.069** (0.034)
		Companies' R&D	Companies' R&D	0.033 (0.023)	0.032 (0.022)	0.003 (0.024)	-0.003 (0.024)	0.119*** (0.046)	0.13*** (0.034)
Control variables	Entrepreneur's characteristics	Formal education	Formal education	-0.002 (0.011)	-0.005 (0.011)	0.002 (0.014)	-0.004 (0.014)	-0.009 (0.019)	-0.013 (0.02)
		Experience	Working experience	0.021 (0.013)	0.020 (0.013)	0.024 (0.016)	0.020 (0.016)	0.014 (0.032)	0.012 (0.030)
			Entrepreneurial experience	0.004 (0.015)	0.009 (0.015)	0.013 (0.017)	0.010 (0.019)	0.002 (0.04)	0.010 (0.041)

	Business' characteristics	Size	Number employees 2015	0.171*** (0.02)	0.173*** (0.016)	0.186*** (0.027)	0.197*** (0.026)	0.115*** (0.026)	0.106*** (0.021)	
		Sector (default: services)	Manufacturing	0.128*** (0.044)	0.115*** (0.044)	0.108** (0.054)	0.112** (0.055)	0.151*** (0.059)	0.130* (0.071)	
			Primary	-0.045 (0.092)	-0.057 (0.087)	-0.045 (0.156)	-0.040 (0.145)	-0.104 (0.168)	-0.121 (0.111)	
		Exports	Percentage of goods/services consumed other countries	0.012** (0.005)	0.014*** (0.005)	0.008 (0.006)	0.008 (0.007)	0.012 (0.009)	0.012 (0.011)	
		Employees' HC (default: less than 9 years of schooling)	Percentage of individuals employed with bachelors, graduation or more	-0.004 (0.005)	-0.004 (0.005)	-0.008 (0.007)	-0.008 (0.007)	-0.003 (0.013)	-0.001 (0.013)	
			Percentage of individuals employed with 9-12 years of schooling	0.000 (0.005)	-0.001 (0.005)	-0.005 (0.006)	-0.004 (0.006)	0.006 (0.009)	0.010 (0.008)	
	Innovation performance	Product innovation	New or significantly improved goods	0.016 (0.047)	0.059** (0.03)	0.047 (0.056)	0.067* (0.036)	0.054 (0.081)	0.073 (0.046)	
			New or significantly improved services	0.091** (0.045)		0.041 (0.057)		0.119 (0.073)		
		Process innovation	New or significantly improved methods of manufacturing or producing goods or services	0.000 (0.047)	0.016 (0.031)	0.034 (0.058)	0.036 (0.041)	-0.079 (0.077)	-0.007 (0.058)	
			New or significantly improved supporting activities for your processes	0.063 (0.046)		0.08 (0.06)		0.056 (0.08)		
		Organizational innovation	New business practices for organising procedures	-0.127*** (0.046)	-0.016 (0.02)	-0.183*** (0.055)	-0.055* (0.028)	0.036 (0.074)	0.07** (0.034)	
			New methods of organising work responsibilities and decision making	0.047 (0.046)		0.015 (0.057)		0.125 (0.099)		
			New methods of organising external relations with other firms or public institution	0.025 (0.045)		0.002 (0.065)		0.049 (0.092)		
		Marketing innovation	Significant changes to the aesthetic design or packaging of a good or service	0.048 (0.043)	0.008 (0.015)	0.092* (0.049)	0.019 (0.02)	-0.060 (0.076)	-0.034 (0.027)	
			New media or techniques for product promotion	-0.008 (0.046)		0.06 (0.052)		-0.095** (0.049)		
			New methods for product placement or sales channels	0.019 (0.045)		-0.002 (0.052)		0.038 (0.11)		
			New methods of pricing goods or services	-0.031 (0.042)		-0.053 (0.052)		0.007 (0.143)		
		Number of observations			396	396	258	396	396	138
		Top performer new ventures			223	223	159	149	149	40
		Others			173	173	99	247	247	98
	Goodness of fit	Wald chi2 (p-value)		81.99 (0.000)	142.56 (0.000)	103.73 (0.000)	202.52 (0.000)	69.82 (0.000)	77.65 (0.000)	
		Pseudo R2		0.2733	0.2627	0.4047	0.3861	0.5126	0.4497	
		Hosmer-Lemeshow chi2 (p-value)		10.42 (0.4046)	6.29 (0.7899)	9.48 (0.4868)	8.14 (0.6154)	11.46 (0.3226)	12.53 (0.2509)	
		Correctly classified (%)		75.76	75.00	82.58	80.81	92.03	81.40	

Table 4: Determinants of performance of new ventures (logit estimates and robust standard errors) – dependent variable: new ventures with gross value added above 50 thousands euros in 2015 vs the remaining

	Hypotheses	Variables	Description	All new ventures		New ventures located in Urban settings		New ventures located in Rural settings	
				Model B1	Model B1'	Model B1	Model B1'	Model B1	Model B1'
Policy related factors	Government support [H1a/H1b]	European Commission	European Commission	-0.032 (0.022)	-0.033 (0.025)	-0.061** (0.028)	-0.049* (0.028)	-0.049 (0.04)	-0.088*** (0.033)
		Central Government	Central Government	-0.012 (0.03)	0.002 (0.03)	-0.019 (0.038)	-0.008 (0.039)	0.022 (0.047)	0.081** (0.038)
		Local government	Local government	-0.031 (0.026)	-0.033 (0.026)	-0.061 (0.043)	-0.068 (0.045)	0.004 (0.028)	0.000 (0.026)
Economic factors	Financial support [H2a/ H2b]	Banks and similar	Banks and similar	0.024 (0.019)	0.022 (0.019)	0.053* (0.027)	0.044 (0.028)	-0.032 (0.032)	-0.002 (0.021)
		Other funding organizations	Other funding sources	-0.008 (0.023)	-0.008 (0.024)	-0.018 (0.037)	-0.018 (0.038)	0.022 (0.026)	0.026 (0.024)
Embeddedness related factors	Role models [H3a/3c]	Parents/family	Parents/family	0.074 (0.047)	0.068 (0.045)	0.076 (0.063)	0.056 (0.065)	0.041 (0.089)	0.004 (0.071)
	Social networks and collaborations [H3b/3d]	Exchange of business counseling and experience	Business advices for starting up	-0.148*** (0.051)	-0.132*** (0.05)	-0.171*** (0.063)	-0.157** (0.065)	-0.040 (0.096)	-0.018 (0.08)
			Business advices for ongoing activities	-0.027 (0.028)	-0.035 (0.028)	-0.033 (0.038)	-0.042 (0.038)	-0.062 (0.076)	-0.062 (0.039)
		Businesses joint actions	Collaboration for the development of business activities	-0.01 (0.028)	-0.009 (0.029)	-0.004 (0.044)	-0.006 (0.045)	-0.024 (0.037)	-0.003 (0.035)
			Collaboration for HR attraction	-0.024 (0.028)	-0.016 (0.027)	-0.026 (0.041)	-0.018 (0.041)	-0.040 (0.057)	-0.034 (0.047)
			Collaboration for branding	0.022 (0.023)	0.024 (0.023)	0.048 (0.032)	0.057* (0.031)	-0.104** (0.044)	-0.096*** (0.034)
			Collaboration to access new markets	0.012 (0.027)	0.008 (0.026)	0.023 (0.032)	0.012 (0.033)	0.023 (0.05)	-0.019 (0.04)
		CCDRN collaboration	Support of regional development agencies	0.020 (0.027)	0.015 (0.028)	0.072* (0.041)	0.064 (0.042)	-0.006 (0.05)	-0.032 (0.036)
Technological related factors	Institutional support from knowledge and technology infrastructures [H4a/H4b]	Universities	Universities and other higher education institutions	0.023 (0.025)	0.021 (0.024)	0.018 (0.035)	0.016 (0.036)	0.040 (0.035)	0.017 (0.03)
		Incubators and Science Parks	Incubators and Science and Technological Parks	0.001 (0.021)	0.002 (0.022)	0.022 (0.03)	0.017 (0.032)	-0.024 (0.029)	-0.01 (0.027)
		Companies' R&D	With other companies and institutions in the region	0.025 (0.029)	0.024 (0.027)	-0.003 (0.039)	0.013 (0.04)	0.085** (0.041)	0.097** (0.041)
Control variables	Entrepreneur's characteristics	Formal education	Formal education	-0.011 (0.012)	-0.013 (0.012)	-0.001 (0.017)	-0.009 (0.016)	-0.017 (0.022)	-0.024 (0.02)
		Experience	Working experience	0.012 (0.016)	0.010 (0.016)	0.028 (0.021)	0.027 (0.021)	-0.03 (0.024)	-0.050** (0.02)
			Entrepreneurial experience	-0.005 (0.017)	-0.003 (0.017)	0.004 (0.023)	-0.002 (0.024)	-0.01 (0.025)	-0.018 (0.025)

	Business' characteristics	Size	Number employees 2015	0.107*** (0.018)	0.109*** (0.016)	0.135*** (0.023)	0.131*** (0.023)	0.058** (0.029)	0.057** (0.024)		
		Sector (default: services)	Manufacturing	0.096* (0.052)	0.105** (0.051)	0.107 (0.068)	0.129* (0.071)	0.085 (0.054)	0.065 (0.062)		
			Primary	-0.258** (0.121)	-0.238* (0.129)	-0.076 (0.148)	-0.071 (0.154)				
		Exports	Percentage of goods/services consumed other countries	0.008 (0.006)	0.009 (0.006)	0.003 (0.008)	0.003 (0.008)	0.016 (0.01)	0.019*** (0.007)		
		Employees' HC (default: less than 9 years of schooling)	Percentage of individuals employed with bachelors, graduation or more	0.005 (0.006)	0.004 (0.006)	0.005 (0.008)	0.006 (0.008)	0.003 (0.015)	-0.003 (0.012)		
			Percentage of individuals employed with 9-12 years of schooling	0.004 (0.006)	0.005 (0.006)	-0.001 (0.008)	-0.001 (0.008)	0.017 (0.012)	0.021** (0.01)		
	Innovation performance	Product innovation	New or significantly improved goods	0.008 (0.006)	0.009 (0.006)	0.102 (0.068)	0.041 (0.048)	0.017 (0.012)	0.02 (0.045)		
			New or significantly improved services	0.005 (0.006)	0.004 (0.006)	-0.04 (0.067)		-0.006 (0.096)			
		Process innovation	New or significantly improved methods of manufacturing or producing goods or services	0.004 (0.006)	0.005 (0.006)	-0.019 (0.066)	-0.03 (0.047)	0.082 (0.061)	-0.014 (0.064)		
			New or significantly improved supporting activities for your processes	0.073 (0.052)	0.043 (0.034)	-0.001 (0.076)		-0.069 (0.113)			
		Organizational innovation	New business practices for organising procedures	0.009 (0.053)	-0.032 (0.036)	-0.049 (0.075)	0.04 (0.029)	-0.005 (0.066)	0.065** (0.027)		
			New methods of organising work responsibilities and decision making	-0.035 (0.053)		0.02 (0.068)		0.099 (0.11)			
			New methods of organising external relations with other firms or public institution	-0.023 (0.054)		0.155** (0.079)		0.213** (0.106)			
		Marketing innovation	Significant changes to the aesthetic design or packaging of a good or service	0.003 (0.058)	0.043* (0.023)	-0.011 (0.057)	0.005 (0.024)	-0.103 (0.095)	-0.031 (0.026)		
			New media or techniques for product promotion	0.102* (0.053)		0.151** (0.069)		-0.126 (0.089)			
			New methods for product placement or sales channels	0.020 (0.06)		-0.047 (0.067)		0.03 (0.052)			
			New methods of pricing goods or services	-0.051 (0.048)		-0.054 (0.062)		-0.004 (0.136)			
		Number of observations				351	351	222	222	129	129
		Top performer new ventures				111	111	85	85	26	26
		Others				240	240	137	137	103	103
	Goodness of fit		Wald chi2 (p-value)		92.10 (0.000)	108.49 (0.000)	63.22 (0.000)	63.57 (0.000)	60.06 (0.005)	50.82 (0.005)	
			Pseudo R2		0.2601	0.2477	0.3017	0.2738	0.4325	0.3665	
			Hosmer-Lemeshow chi2 (p-value)		8.51 (0.5795)	8.89 (0.5422)	4.03 (0.9461)	13.18 (0.2138)	14.35 (0.1575)	8.17 (0.6125)	
			Correctly classified (%)		77.21	76.07	78.38	73.87	90.70	86.82	

Table 5: Determinants of performance of new ventures (logit estimates and robust standard errors) – dependent variable: new ventures with gross value added above 100 thousands euros in 2015 vs the remaining

	Hypotheses	Variables	Description	All new ventures		New ventures located in... settings		
						Urban		Rural
				Model B2	Model B2'	Model B2	Model B2'	Model B2
Policy related factors	Government support [H1a/H1b]	European Commission	European Commission	-0.021* (0.013)	-0.026 (0.017)	-0.039** (0.016)	-0.036** (0.015)	0.016 (0.028)
		Central Government	Central Government	0.010 (0.016)	0.011 (0.021)	0.003 (0.023)	0.003 (0.020)	-0.022 (0.039)
		Local government	Local government	-0.013 (0.016)	-0.016 (0.019)	0.031 (0.025)	0.015 (0.026)	-0.022* (0.012)
Economic related factors	Financial support [H2a/ H2b]	Banks and similar	Banks and similar	0.002 (0.012)	0.001 (0.013)	0.013 (0.018)	0.005 (0.018)	-0.014 (0.012)
		Other funding organizations	Other funding sources	-0.005 (0.014)	-0.001 (0.017)	-0.018 (0.023)	-0.008 (0.023)	-0.010 (0.016)
Embeddedness related factors	Role models [H3a/3c]	Parents/family	Parents/family	-0.004 (0.035)	-0.003 (0.032)	-0.038 (0.051)	-0.029 (0.05)	0.030 (0.044)
	Social networks and collaborations [H3b/3d]	Exchange of business counseling and experience	Business advices for starting up	-0.085** (0.038)	-0.074* (0.039)	-0.152*** (0.054)	-0.133*** (0.048)	0.055 (0.058)
			Business advices for ongoing activities	0.006 (0.02)	0.004 (0.021)	0.02 (0.026)	0.011 (0.024)	-0.003 (0.024)
		Businesses joint actions	Collaboration for the development of business activities	-0.012 (0.019)	-0.012 (0.021)	-0.038 (0.03)	-0.025 (0.028)	0.029 (0.024)
			Collaboration for HR attraction	-0.038* (0.021)	-0.035* (0.019)	-0.022 (0.028)	-0.027 (0.029)	-0.076* (0.039)
			Collaboration for branding	0.028* (0.015)	0.027* (0.016)	0.032* (0.018)	0.039** (0.017)	-0.02 (0.019)
			Collaboration to access new markets	-0.003 (0.018)	-0.003 (0.019)	-0.001 (0.026)	-0.005 (0.025)	-0.007 (0.015)
		CCDRN collaboration	Support of regional development agencies	-0.004 (0.018)	-0.002 (0.021)	-0.01 (0.025)	-0.004 (0.025)	-0.019 (0.017)
Technological related factors	Institutional support from knowledge and technology infrastructures [H4a/H4b]	Universities	Universities and other higher education institutions	0.013 (0.012)	0.010 (0.016)	0.003 (0.017)	-0.001 (0.016)	0.028 (0.022)
		Incubators and Science Parks	Incubators and Science and Technological Parks	0.004 (0.012)	0.005 (0.016)	0.009 (0.019)	0.009 (0.017)	0.008 (0.013)
		Companies' R&D	With other companies and institutions in the region	0.012 (0.018)	0.010 (0.019)	0.026 (0.026)	0.022 (0.026)	0.012 (0.016)
Control variables	Entrepreneur's characteristics	Formal education	Formal education	-0.009 (0.009)	-0.009 (0.008)	-0.006 (0.011)	-0.012 (0.011)	-0.031** (0.014)
		Experience	Working experience	0.024* (0.012)	0.023** (0.011)	0.038** (0.018)	0.035** (0.016)	-0.002 (0.011)
			Entrepreneurial experience	-0.007 (0.013)	-0.002 (0.012)	0.029** (0.013)	0.024* (0.013)	-0.042*** (0.014)

	Business' characteristics	Size	Number employees 2015	0.082*** (0.009)	0.077*** (0.009)	0.103*** (0.012)	0.094*** (0.012)	0.072*** (0.015)	
		Sector (default: services)	Manufacturing	0.102*** (0.038)	0.081** (0.034)	0.141*** (0.048)	0.114** (0.047)	0.056* (0.031)	
			Primary	-0.062 (0.065)	-0.062 (0.091)	-0.104 (0.099)	-0.079 (0.092)		
		Exports	Percentage of goods/services consumed other countries	0.010*** (0.004)	0.009** (0.004)	0.009 (0.006)	0.007 (0.005)		
		Employees' HC (default: less than 9 years of schooling)	Percentage of individuals employed with bachelors, graduation or more	-0.001 (0.005)	-0.001 (0.005)	-0.004 (0.006)	-0.003 (0.006)		
			Percentage of individuals employed with 9-12 years of schooling	-0.001 (0.004)	0.000 (0.004)	-0.003 (0.006)	-0.002 (0.005)		
	Innovation performance	Product innovation	New or significantly improved goods	0.024 (0.034)	0.034 (0.023)	0.058 (0.057)	0.039 (0.041)		
			New or significantly improved services	0.061* (0.034)		0.015 (0.048)			
		Process innovation	New or significantly improved methods of manufacturing or producing goods or services	-0.062* (0.033)	-0.004 (0.024)	-0.084 (0.052)	-0.013 (0.041)		
			New or significantly improved supporting activities for your processes	0.041 (0.035)		0.056 (0.055)			
		Organizational innovation	New business practices for organising procedures	0.021 (0.040)	0.032* (0.017)	0.02 (0.06)	0.038* (0.023)		
			New methods of organising work responsibilities and decision making	0.070* (0.037)		0.084 (0.059)			
			New methods of organising external relations with other firms or public institution	-0.013 (0.048)		0.001 (0.057)			
		Marketing innovation	Significant changes to the aesthetic design or packaging of a good or service	0.020 (0.032)	-0.006 (0.012)	0.080* (0.043)	0.002 (0.017)		
			New media or techniques for product promotion	-0.035 (0.035)		0.021 (0.054)			
			New methods for product placement or sales channels	-0.001 (0.033)		-0.023 (0.054)			
			New methods of pricing goods or services	-0.012 (0.036)		-0.059 (0.048)			
		Number of observations			351	396	222	222	129
		Top performer new ventures			51	51	41	41	10
		Others			300	300	181	181	119
	Goodness of fit	Wald chi2 (p-value)		95.39 (0.000)	126.13 (0.000)	78.62 (0.000)	70.62 (0.000)	50.31 (0.000)	
		Pseudo R2		0.4536	0.4335	0.4832	0.4542	0.5561	
		Hosmer-Lemeshow chi2 (p-value)		5.88 (0.8253)	1.95 (0.9967)	3.81 (0.9556)	4.19 (0.9386)	4.21 (0.9375)	
		Correctly classified (%)		91.45	92.02	90.09	89.19	93.80	

Table 6: Determinants of performance of new ventures (logit estimates and robust standard errors) – dependent variable: exporters vs non exporters

	Hypotheses	Variables	Description	All new ventures		New ventures located in Urban settings		New ventures located in Rural settings	
				Model C1	Model C1'	Model C1	Model C1'	Model C1	Model C1'
Policy related factors	Government support [H1a/H1b]	European Commission	European Commission	-0.002 (0.023)	0.002 (0.025)	-0.006 (0.03)	-0.001 (0.029)	0.018 (0.049)	0.014 (0.046)
		Central Government	Central Government	0.014 (0.028)	0.008 (0.030)	0.035 (0.038)	0.028 (0.036)	-0.008 (0.058)	-0.025 (0.057)
		Local government	Local government	0.009 (0.026)	0.012 (0.026)	-0.003 (0.041)	0.007 (0.041)	0.003 (0.035)	0.026 (0.034)
Economic related factors	Financial support [H2a/ H2b]	Banks and similar	Banks and similar	-0.031 (0.021)	-0.033* (0.020)	0.000 (0.026)	-0.002 (0.027)	-0.088** (0.039)	-0.095*** (0.034)
		Other funding organizations	Other funding sources	0.004 (0.024)	0.007 (0.025)	-0.047 (0.033)	-0.047 (0.033)	0.095** (0.045)	0.079* (0.047)
Embeddedness related factors	Role models [H3a/3c]	Parents/family	Parents/family	-0.04 (0.048)	-0.039 (0.048)	0.002 (0.061)	0.009 (0.061)	-0.096 (0.077)	-0.121 (0.076)
	Social networks and collaborations [H3b/3d]	Exchange of business counseling and experience	Business advices for starting up	0.021 (0.052)	0.012 (0.054)	0.017 (0.064)	0.000 (0.063)	0.217*** (0.081)	0.177** (0.078)
			Business advices for ongoing activities	-0.018 (0.03)	-0.019 (0.031)	-0.018 (0.035)	-0.020 (0.036)	-0.010 (0.055)	-0.016 (0.059)
		Businesses joint actions	Collaboration for the development of business activities	-0.029 (0.033)	-0.034 (0.031)	-0.014 (0.041)	-0.028 (0.041)	-0.107** (0.054)	-0.068 (0.048)
			Collaboration for HR attraction	0.033 (0.030)	0.037 (0.029)	0.031 (0.038)	0.041 (0.037)	0.031 (0.060)	0.039 (0.056)
			Collaboration for branding	0.075*** (0.025)	0.079*** (0.026)	0.073** (0.029)	0.075*** (0.029)	0.040 (0.046)	0.031 (0.043)
			Collaboration to access new markets	-0.014 (0.03)	-0.012 (0.029)	-0.037 (0.036)	-0.031 (0.034)	0.101** (0.048)	0.083* (0.047)
		CCDRN collaboration	Support of regional development agencies	-0.033 (0.03)	-0.034 (0.03)	-0.067 (0.041)	-0.071* (0.039)	-0.006 (0.056)	0.008 (0.057)
Technological related factors	Institutional support from knowledge and technology infrastructures [H4a/H4b]	Universities	Universities and other higher education institutions	0.023 (0.023)	0.023 (0.026)	0.017 (0.03)	0.016 (0.030)	-0.013 (0.046)	0.003 (0.043)
		Incubators and Science Parks	Incubators and Science and Technological Parks	0.021 (0.022)	0.021 (0.022)	0.074** (0.03)	0.076** (0.031)	-0.006 (0.044)	-0.028 (0.039)
		Companies' R&D	Companies' R&D	-0.035 (0.029)	-0.035 (0.028)	-0.072** (0.033)	-0.066* (0.034)	0.054 (0.052)	0.036 (0.056)
Control variables	Entrepreneur's characteristics	Formal education	Formal education	0.016 (0.013)	0.017 (0.013)	0.014 (0.016)	0.012 (0.016)	0.018 (0.023)	0.009 (0.023)
		Experience	Working experience	0.020 (0.015)	0.024 (0.016)	0.025 (0.021)	0.037* (0.02)	-0.011 (0.024)	-0.003 (0.023)
			Entrepreneurial experience	0.004 (0.019)	0.003 (0.019)	-0.013 (0.022)	-0.008 (0.023)	0.059** (0.028)	0.051** (0.025)

	Business' characteristics	Size	Number employees 2015	0.014 (0.019)	0.014 (0.019)	0.031 (0.022)	0.025 (0.023)	-0.001 (0.033)	0.018 (0.033)	
		Sector (default: services)	Manufacturing	0.071 (0.059)	0.091 (0.058)	0.098 (0.072)	0.109 (0.073)	0.012 (0.111)	0.023 (0.096)	
			Primary	0.053 (0.104)	0.094 (0.105)	0.075 (0.164)	0.077 (0.161)	-0.014 (0.121)	-0.017 (0.124)	
		Exports	Percentage of goods/services consumed other countries							
		Employees' HC (default: less than 9 years of schooling)	Percentage of individuals employed with bachelors, graduation or more	-0.010 (0.006)	-0.011* (0.006)	-0.005 (0.008)	-0.006 (0.008)	0.004 (0.012)	0.000 (0.011)	
			Percentage of individuals employed with 9-12 years of schooling	0.011 (0.007)	0.011 (0.007)	0.003 (0.008)	0.003 (0.008)	0.049*** (0.014)	0.046*** (0.013)	
	Innovation performance	Product innovation	New or significantly improved goods	0.135** (0.053)	0.055 (0.036)	0.153** (0.065)	0.043 (0.044)	0.189** (0.076)	0.118** (0.053)	
			New or significantly improved services	-0.029 (0.06)		-0.049 (0.077)		0.053 (0.099)		
		Process innovation	New or significantly improved methods of manufacturing or producing goods or services	0.039 (0.057)	0.052 (0.039)	-0.012 (0.069)	0.035 (0.047)	0.087 (0.092)	0.036 (0.059)	
			New or significantly improved supporting activities for your processes	0.039 (0.055)		0.04 (0.066)		-0.02 (0.083)		
		Organizational innovation	New business practices for organising procedures	-0.015 (0.06)	-0.032 (0.025)	0.037 (0.075)	-0.016 (0.032)	-0.109 (0.097)	-0.051 (0.035)	
			New methods of organising work responsibilities and decision making	-0.031 (0.061)		-0.071 (0.074)		0.094 (0.098)		
			New methods of organising external relations with other firms or public institution	-0.014 (0.062)		0.03 (0.076)		-0.135 (0.088)		
		Marketing innovation	Significant changes to the aesthetic design or packaging of a good or service	0.052 (0.055)	0.065*** (0.019)	0.023 (0.069)	0.071*** (0.022)	0.083 (0.083)	0.015 (0.032)	
			New media or techniques for product promotion	0.031 (0.058)		0.03 (0.071)		-0.012 (0.088)		
			New methods for product placement or sales channels	0.108* (0.055)		0.165** (0.066)		-0.138 (0.102)		
			New methods of pricing goods or services	0.06 (0.053)		0.054 (0.063)		0.077 (0.084)		
				Number of observations				408		396
		Top performer new ventures			210	210	132	132	78	78
		Others			198	198	134	134	64	64
	Goodness of fit		Wald chi2 (p-value)	54.34 (0.020)	61.29 (0.000)	45.55 (0.109)	39.62 (0.071)	40.53 (0.2394)	33.61 (0.214)	
			Pseudo R2	0.1172	0.1084	0.1557	0.1378	0.2853	0.2549	
			Hosmer-Lemeshow chi2 (p-value)	10.12 (0.4298)	20.01 (0.0292)	16.07 (0.0975)	5.78 (0.8333)	9.65 (0.4714)	11.89 (0.2928)	
			Correctly classified (%)	68.14	66.67	72.18	69.92	75.35	78.17	

Table 7: Determinants of performance of new ventures (logit estimates and robust standard errors) – dependent variable: exporters intensity above 30% vs the remaining

	Hypotheses	Variables	Description	All new ventures		New ventures located in Urban settings		New ventures located in Rural settings	
				Model C2	Model C2'	Model C2	Model C2'	Model C2	Model C2'
Policy related factors	Government support [H1a/H1b]	European Commission	European Commission	0.026 (0.020)	0.029 (0.021)	0.013 (0.025)	0.018 (0.024)	0.035 (0.033)	0.029 (0.038)
		Central Government	Central Government	-0.034 (0.028)	-0.037 (0.026)	0.003 (0.036)	-0.004 (0.034)	-0.06 (0.052)	-0.067 (0.048)
		Local government	Local government	-0.004 (0.024)	-0.004 (0.023)	0.008 (0.037)	0.010 (0.037)	-0.004 (0.035)	0.001 (0.031)
Economic related factors	Financial support [H2a/ H2b]	Banks and similar	Banks and similar	-0.012 (0.02)	-0.014 (0.019)	-0.003 (0.024)	-0.008 (0.026)	-0.043 (0.03)	-0.045 (0.033)
		Other funding organizations	Other funding sources	0.030 (0.02)	0.031 (0.021)	-0.010 (0.030)	-0.007 (0.028)	0.099*** (0.025)	0.083*** (0.028)
Embeddedness related factors	Role models [H3a/3c]	Parents/family	Parents/family	-0.076* (0.043)	-0.081* (0.043)	-0.034 (0.058)	-0.036 (0.059)	-0.030 (0.075)	-0.083 (0.068)
	Social networks and collaborations [H3b/3d]	Exchange of business counseling and experience	Business advices for starting up	-0.035 (0.045)	-0.035 (0.048)	-0.036 (0.056)	-0.048 (0.056)	0.044 (0.088)	0.047 (0.083)
			Business advices for ongoing activities	0.009 (0.027)	0.006 (0.028)	-0.022 (0.031)	-0.028 (0.032)	0.107** (0.053)	0.088* (0.047)
		Businesses joint actions	Collaboration for the development of business activities	-0.031 (0.026)	-0.034 (0.028)	0.012 (0.033)	0.002 (0.033)	-0.15*** (0.049)	-0.087** (0.039)
			Collaboration for HR attraction	0.013 (0.027)	0.024 (0.026)	0.012 (0.031)	0.021 (0.030)	0.000 (0.046)	0.005 (0.046)
			Collaboration for branding	0.018 (0.023)	0.019 (0.022)	0.025 (0.027)	0.027 (0.028)	0.000 (0.036)	-0.028 (0.036)
			Collaboration to access new markets	0.000 (0.025)	-0.002 (0.025)	-0.015 (0.032)	-0.008 (0.030)	0.108* (0.057)	0.05 (0.045)
		CCDRN collaboration	Support of regional development agencies	-0.003 (0.027)	-0.003 (0.028)	-0.04 (0.037)	-0.038 (0.035)	0.001 (0.041)	0.029 (0.041)
Technological related factors	Institutional support from knowledge and technology infrastructures [H4a/H4b]	Universities	Universities and other higher education institutions	-0.017 (0.025)	-0.018 (0.023)	-0.014 (0.032)	-0.013 (0.032)	-0.018 (0.043)	-0.014 (0.039)
		Incubators and Science Parks	Incubators and Science and Technological Parks	0.030 (0.021)	0.03 (0.02)	0.049* (0.027)	0.047* (0.028)	0.026 (0.037)	0.013 (0.031)
		Companies' R&D	With other companies and institutions in the region	0.000 (0.026)	-0.001 (0.026)	-0.03 (0.032)	-0.024 (0.033)	0.032 (0.051)	0.034 (0.050)
Control variables	Entrepreneur's characteristics	Formal education	Formal education	0.021* (0.013)	0.021* (0.012)	0.017 (0.016)	0.015 (0.016)	0.017 (0.017)	-0.001 (0.018)
		Experience	Working experience	0.032** (0.015)	0.034** (0.014)	0.014 (0.02)	0.021 (0.020)	0.033 (0.023)	0.022 (0.025)
			Entrepreneurial experience	0.003 (0.015)	0.005 (0.017)	0.001 (0.02)	0.004 (0.020)	-0.001 (0.027)	0.020 (0.024)

	Business' characteristics	Size	Number employees 2015	0.014 (0.016)	0.013 (0.016)	0.039** (0.018)	0.031* (0.018)	-0.043 (0.029)	-0.018 (0.028)	
		Sector (default: services)	Manufacturing	0.071 (0.049)	0.074 (0.050)	0.076 (0.06)	0.079 (0.059)	0.043 (0.084)	0.042 (0.085)	
			Primary	-0.032 (0.089)	-0.016 (0.097)	0.163 (0.141)	0.158 (0.135)	-0.174 (0.129)	-0.136 (0.104)	
		Exports	Percentage of goods/services consumed other countries							
		Employees' HC (default: less than 9 years of schooling)	Percentage of individuals employed with bachelors, graduation or more	-0.002 (0.005)	-0.004 (0.005)	-0.005 (0.007)	-0.006 (0.007)	0.014 (0.009)	0.014 (0.009)	
			Percentage of individuals employed with 9-12 years of schooling	0.003 (0.005)	0.003 (0.006)	-0.002 (0.007)	-0.002 (0.007)	0.029*** (0.011)	0.020** (0.009)	
	Innovation performance	Product innovation	New or significantly improved goods	0.060 (0.049)	0.016 (0.033)	0.091 (0.062)	0.013 (0.041)	-0.004 (0.073)	0.037 (0.048)	
			New or significantly improved services	-0.032 (0.053)		-0.047 (0.066)		-0.039 (0.062)		
		Process innovation	New or significantly improved methods of manufacturing or producing goods or services	-0.024 (0.051)	-0.018 (0.035)	-0.039 (0.065)	0.005 (0.043)	0.060 (0.092)	-0.09 (0.058)	
			New or significantly improved supporting activities for your processes	-0.015 (0.05)		0.033 (0.059)		-0.136 (0.085)		
		Organizational innovation	New business practices for organising procedures	-0.111** (0.054)	-0.039* (0.023)	-0.053 (0.073)	-0.059** (0.028)	-0.238** (0.095)	0.023 (0.038)	
			New methods of organising work responsibilities and decision making	0.009 (0.054)		-0.121* (0.066)		0.347*** (0.095)		
			New methods of organising external relations with other firms or public institution	0.008 (0.053)		0.014 (0.066)		-0.033 (0.079)		
		Marketing innovation	Significant changes to the aesthetic design or packaging of a good or service	0.016 (0.050)	0.042** (0.017)	0.006 (0.061)	0.050** (0.021)	0.004 (0.078)	-0.013 (0.030)	
			New media or techniques for product promotion	0.030 (0.055)		0.029 (0.069)		-0.025 (0.100)		
			New methods for product placement or sales channels	0.094* (0.054)		0.130* (0.070)		-0.090 (0.104)		
			New methods of pricing goods or services	0.016 (0.048)		0.024 (0.061)		-0.040 (0.069)		
		Number of observations			408	408	266	266	142	142
		Top performer new ventures			102	102	67	67	35	35
		Others			306	306	199	199	107	107
	Goodness of fit		Wald chi2 (p-value)	40.97 (0.225)	35.86 (0.146)	35.05 (0.466)	27.00 (0.518)	63.26 (0.002)	47.87 (0.011)	
			Pseudo R2	0.0900	0.0782	0.1207	0.1019	0.3714	0.2627	
			Hosmer-Lemeshow chi2 (p-value)	5.14 (0.8813)	6.50 (0.7713)	7.78 (0.6504)	18.33 (0.0497)	8.32 (0.5981)	12.36 (0.2616)	
			Correctly classified (%)	75.25	75.25	76.32	74.44	83.80	82.39	

Table 8: Determinants of performance of new ventures (logit estimates and robust standard errors) – dependent variable: exporters intensity above 50% vs the remaining

	Hypotheses	Variables	Description	All new ventures		New ventures located in Urban settings		New ventures located in Rural settings	
				Model C3	Model C3'	Model C3	Model C3'	Model C3	Model C3'
Policy related factors	Government support [H1a/H1b]	European Commission	European Commission	0.010 (0.017)	0.013 (0.020)	-0.021 (0.025)	-0.016 (0.023)	0.068** (0.031)	0.058* (0.03)
		Central Government	Central Government	-0.043 (0.027)	-0.045* (0.024)	-0.004 (0.036)	-0.013 (0.032)	-0.095** (0.04)	-0.097** (0.039)
		Local government	Local government	-0.010 (0.022)	-0.012 (0.022)	-0.020 (0.035)	-0.018 (0.034)	0.009 (0.027)	0.008 (0.026)
Economic related factors	Financial support [H2a/ H2b]	Banks and similar	Banks and similar	-0.018 (0.019)	-0.020 (0.018)	0.000 (0.024)	-0.007 (0.026)	-0.070*** (0.027)	-0.068* (0.037)
		Other funding organizations	Other funding sources	0.026 (0.019)	0.028 (0.019)	0.001 (0.029)	0.011 (0.027)	0.070*** (0.027)	0.056** (0.025)
Embeddedness related factors	Role models [H3a/3c]	Parents/family	Parents/family	-0.065* (0.04)	-0.069* (0.04)	-0.019 (0.052)	-0.017 (0.053)	-0.019 (0.072)	-0.065 (0.064)
	Social networks and collaborations [H3b/3d]	Exchange of business counseling and experience	Business advices for starting up	-0.019 (0.042)	-0.019 (0.044)	-0.008 (0.051)	-0.024 (0.052)	0.061 (0.077)	0.044 (0.082)
			Business advices for ongoing activities	-0.002 (0.024)	-0.003 (0.026)	-0.029 (0.028)	-0.030 (0.030)	0.102* (0.053)	0.078* (0.04)
		Businesses joint actions	Collaboration for the development of business activities	-0.021 (0.023)	-0.025 (0.026)	0.01 (0.031)	0.001 (0.030)	-0.087** (0.04)	-0.041 (0.032)
			Collaboration for HR attraction	0.013 (0.023)	0.022 (0.024)	-0.003 (0.028)	0.002 (0.027)	0.033 (0.042)	0.034 (0.043)
			Collaboration for branding	0.020 (0.021)	0.020 (0.020)	0.031 (0.026)	0.031 (0.027)	-0.004 (0.033)	-0.024 (0.032)
			Collaboration to access new markets	0.010 (0.023)	0.010 (0.023)	0.006 (0.029)	0.016 (0.027)	0.088* (0.047)	0.048 (0.038)
		CCDR collaboration	Support of regional development agencies	0.022 (0.023)	0.021 (0.026)	0.007 (0.034)	0.006 (0.032)	0.008 (0.035)	0.025 (0.036)
Technological related factors	Institutional support from knowledge and technology infrastructures [H4a/H4b]	Universities	Universities and other higher education institutions	0.000 (0.022)	0.000 (0.021)	0.003 (0.030)	0.007 (0.031)	0.018 (0.035)	0.025 (0.034)
		Incubators and Science Parks	Incubators and Science and Technological Parks	0.032 (0.019)	0.032* (0.018)	0.050** (0.025)	0.048* (0.026)	0.005 (0.023)	0.007 (0.024)
		R&D joint activities	With other companies and institutions in the region	-0.033 (0.024)	-0.034 (0.024)	-0.064** (0.031)	-0.058* (0.033)	-0.014 (0.055)	-0.018 (0.051)
Control variables	Entrepreneur's characteristics	Formal education	Formal education	0.023** (0.011)	0.022** (0.011)	0.018 (0.014)	0.014 (0.014)	0.023 (0.018)	0.009 (0.016)
		Experience	Working experience	0.026** (0.013)	0.028** (0.013)	0.017 (0.018)	0.022 (0.018)	0.020 (0.018)	0.012 (0.022)
			Entrepreneurial experience	0.001 (0.013)	0.004 (0.016)	0.003 (0.016)	0.004 (0.016)	-0.008 (0.036)	0.007 (0.027)

	Business' characteristics	Size	Number employees 2015	0.016 (0.013)	0.015 (0.014)	0.037** (0.015)	0.030** (0.015)	-0.03 (0.027)	-0.007 (0.026)	
		Sector (default: services)	Manufacturing	0.058 (0.045)	0.053 (0.046)	0.046 (0.055)	0.036 (0.055)	0.081 (0.072)	0.077 (0.084)	
			Primary	0.079 (0.077)	0.075 (0.082)	0.269** (0.132)	0.235** (0.119)	-0.132 (0.112)	-0.097 (0.082)	
		Exports	Percentage of goods/services consumed other countries							
		Employees' HC (default: less than 9 years of schooling)	Percentage of individuals employed with bachelors, graduation or more	-0.003 (0.005)	-0.005 (0.005)	-0.007 (0.006)	-0.009 (0.006)	0.014* (0.007)	0.013* (0.007)	
			Percentage of individuals employed with 9-12 years of schooling	0.007 (0.005)	0.007 (0.005)	0.005 (0.006)	0.003 (0.006)	0.028** (0.011)	0.021*** (0.007)	
	Innovation performance	Product innovation	New or significantly improved goods	0.032 (0.045)	0.013 (0.030)	0.051 (0.054)	0.009 (0.035)	-0.023 (0.064)	0.036 (0.044)	
			New or significantly improved services	-0.003 (0.048)		-0.008 (0.058)		0.009 (0.063)		
		Process innovation	New or significantly improved methods of manufacturing or producing goods or services	-0.031 (0.047)	-0.021 (0.032)	-0.049 (0.056)	-0.001 (0.04)	0.076 (0.089)	-0.088 (0.061)	
			New or significantly improved supporting activities for your processes	-0.015 (0.047)		0.031 (0.054)		-0.152* (0.082)		
		Organizational innovation	New business practices for organising procedures	-0.079 (0.052)	-0.019 (0.02)	-0.027 (0.069)	-0.027 (0.024)	-0.205** (0.094)	0.011 (0.037)	
			New methods of organising work responsibilities and decision making	0.004 (0.051)		-0.104* (0.06)		0.263*** (0.091)		
			New methods of organising external relations with other firms or public institution	0.033 (0.049)		0.049 (0.062)		-0.044 (0.072)		
		Marketing innovation	Significant changes to the aesthetic design or packaging of a good or service	-0.008 (0.046)	0.018 (0.016)	-0.01 (0.053)	0.018 (0.021)	-0.027 (0.074)	-0.011 (0.026)	
			New media or techniques for product promotion	-0.011 (0.05)		-0.03 (0.063)		-0.002 (0.100)		
			New methods for product placement or sales channels	0.082 (0.051)		0.133** (0.066)		-0.071 (0.087)		
			New methods of pricing goods or services	-0.003 (0.045)		-0.026 (0.056)		-0.02 (0.074)		
		Number of observations			408	408	266	266	142	142
		Top performer new ventures			80	80	51	51	29	29
		Others			328	328	215	215	113	113
	Goodness of fit		Wald chi2 (p-value)	41.19 (0.218)	35.81 (0.147)	38.78 (0.303)	29.37 (0.3939)	69.21 (0.4058)	48.81 (0.009)	
			Pseudo R2	0.0999	0.0887	0.1354	0.1081	0.0999	0.3019	
			Hosmer-Lemeshow chi2 (p-value)	10.67 (0.3836)	9.39 (0.4959)	10.57 (0.3916)	7.87 (0.6414)	6.89 (0.7361)	11.70 (0.3059)	
			Correctly classified (%)	81.62	81.13	81.20	80.45	87.32	85.92	

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