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TESIS DOCTORAL:

Análisis de los factores de éxito en el proceso de creación de empresas.

Impacto en la supervivencia y en su capacidad de innovación

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Chapter 1: Introduction, Theoretical Framework and Methodology of the thesis

Introduction and goals of the thesis

This thesis is addressed to the study of entrepreneurship. The election of this issue in the management literature is due to two factors. The first one of them is a desire on my part to know what is that leads people to undertake a business, that is, a vocational motivation. The second one is a factor that is related to one of the main concerns of Spanish population, the unemployment (CIS, 2016). In this way, entrepreneurship is a solution to combat unemployment for two reasons: through the undertaking of an activity a person goes into the market place and the second one, the small ventures are one of the main sources of employment (Baptista and Thurik, 2007).

Given the relevance of entrepreneurs, a deeper understanding of the factors that can shape and drive entrepreneurial activity is necessary (Engle, Schlaegel and Dimitriadi, 2011). Accordingly, it is important to know which factors can foster entrepreneurship. Understanding how the environment, the economy and institutions in a given country can affect entrepreneurship is paramount because, according to the literature, entrepreneurial activity can vary significantly across countries and over time (Verheul, Wennekers, Audretsch and Thurik, 2001).

In response to the need for a better understanding of the drivers of entrepreneurship, the first objective of this thesis is to analyse how the environment affects entrepreneurship. After this first aim is addressed, the second objective of this thesis is to identify the characteristics that affect the survival of entrepreneurial ventures. The motivation for setting this second aim stems from the findings of multiple studies, which show that the survival rates of new ventures are higher than those of established ventures (Brüderl and Schussler, 1990). The literature usually focuses on three groups of explanatory factors that affect the survival and success of new ventures: environmental aspects, venture characteristics and entrepreneurial factors (Schutjens and Wever, 2000).

One of the most important issues to determine the success of ventures is the economy—in other words, the effect of the environment. This dissertation therefore explores how changes in a country's economy affect the success of new ventures. Given the turbulence of Western economies in recent years, understanding how variations in GDP and employment can alter the survival of new ventures is important. Nevertheless, the literature fails to deliver a consensus on how a shrinking GDP affects the survival of new ventures (Baptista and Thurik, 2007; Baptista and Torres , 2006; Brünjes and Revilla Díez, 2013). Thus, economic conditions

matter, yet how they matter remains an open question. The evidence points to a positive relationship between entrepreneurship and economic growth. In fact, most of the entrepreneurship literature shows that in periods of economic crisis, new ventures are more likely to fail (Baptista and Thurik, 2007; Baptista and Torres, 2006). Some studies, however, report that the effect of economic crises on the survival of new ventures may be positive rather than negative (Brünjes and Revilla Díez, 2013). Consequently, one of the aims of this thesis is to analyse the survival of new ventures during periods of economic crisis to determine the effect on new venture survival.

In addition to analysing how the economic conditions affect the survival of ventures, this dissertation also presents the factors that influence survival rates depending on whether the new business is a social or business venture. The decision to study this question is justified by the considerable attention that social ventures are receiving from entrepreneurship scholars (Drayton, 2002; Mair and Martí, 2006; Peredo and McLean, 2006; Zahra, Gedajlovic, Neubaum and Shulman, 2009). In fact, the two entrepreneurship journals with the highest impact factors (*Entrepreneurship Theory and Practice* and the *Journal of Business Venturing*) have dedicated special issues to social entrepreneurship. Furthermore, leading universities like Harvard, Duke and Oxford run specific programs on social entrepreneurship (Nicholls, 2010). Following these examples, many other universities around the world have undertaken similar initiatives.

Besides being a key topic in the literature, social entrepreneurship has also been cited as a major contributor to society (Alvord, Brown and Letts, 2002; Drayton, 2002; Mair and Martí, 2006; Peredo and McLean, 2006; Zahra, Gedajlovic, Neubaum and Shulman, 2009). Likewise, in the United Kingdom, data from the Global Entrepreneurship Monitor (GEM) show that 3.2% of people in the working age population are social entrepreneurs (Santos, 2009), however, in USA this percentage rises to 3.9%.

In summary, the two main goals of this thesis are to determine how the environment influences entrepreneurship and to identify the characteristics that affect the survival of new ventures.

Regarding the structure of the dissertation, it is structured as a compendium of articles. Chapters 2, 3 and 4 each correspond to an article that has been published or accepted in journals included in the Journal Citation Reports index. The dissertation starts by presenting research from a macro-level perspective, with environmental analysis, and ends by presenting research from a micro-level perspective, considering venture and entrepreneurial

characteristics. Before each article, a brief abstract explains the main issues discussed in the corresponding chapter.

After the three publications, chapter 5 includes the main findings and conclusions of the studies that compose the thesis. Then, chapter 6 includes the complete reference list. The last part of the thesis, the annexes include a summary of the thesis in Spanish and the original copies of the publications.

Theoretical Framework

Entrepreneurship has been studied extensively. Initially, the entrepreneur was seen as a merchant, whereas more recently, the entrepreneur has come to be seen as an innovator and agent of change (Reynolds, Camp, Bygrave, Autio and Hay, 2001; Schumpeter, 1934; Wennekers and Thurik, 1999). This view of the entrepreneur as an innovator and agent of change is the approach adopted in the current dissertation.

Today, entrepreneurship is becoming increasingly relevant. In fact, the top ten business schools in the world[1] all have entrepreneurship programs, with notable examples being those of Harvard Business School, London Business School and the Wharton School of the University of Pennsylvania. Because of the vast number of entrepreneurship articles published in the academic literature, new entrepreneurship journals have appeared in the Journal Citation Reports index. Examples include *Entrepreneurship and Regional Development*, *Entrepreneurship Theory and Practice* and the *Journal of Business Venturing* among others.

As agents of change, entrepreneurs improve the economy by driving employment and innovation (Carland, Hoy, Boulton and Carland, 1984; Cuervo, Ribeiro and Roig, 2007; Smolarski and Kut, 2011). Public administrations and governments in different countries are therefore striving to promote new ventures by offering advisory services, business incubators and financial support to entrepreneurs (Toledano and Urbano, 2007). In fact, this dissertation directly addresses the latter form of support for entrepreneurship because the samples analysed in two of the studies consist of data on entrepreneurs who applied for grants from the public administration. Therefore, unquestionably, the environment in which new ventures develop their activity is an important field of research.

However, the research in entrepreneurship is not just limited to the moment of the venture foundation; it also covers another moment of the life cycle of new ventures, the first years of existence. Research about it is very clear; the start-ups present greater failure rates than established ventures (Brüderl and Schussler 1990). To explain this phenomenon, several authors resort to the theory of infant industry (Aghion 2011). This theory explains that, among others, one of the main challenges that new ventures have to face is the lack of physical capital (Kerr and Nanda, 2011). That is why, the research about survival rates of entrepreneurship is as important. It is necessary to analyse which factors, in addition to the monetary ones, can affect the success of new ventures.

[1] Global MBA Ranking 2015.

In this way, the research of the factors that affect success of new ventures is related, again, to the support that states and public administration offer to stat-ups.

Moreover, due to the fast growth of the research in social entrepreneurship, this thesis addresses the objective of analysing the success of new business and social ventures. Regarding social ventures, literature emphasizes that it presents more similitudes than differences with traditional ones (Austin et al., 2006). Nevertheless, because of the lack of studies about it, the last study of this thesis dedicates part of the methodology to check that the failure or success causes of both types of entrepreneurship are the same.

Method

Several methods, all quantitative, were used in the studies presented in this dissertation. The nature of the dependent and independent variables indicated which method was most appropriate. For the first study (chapter 2), the sample, variables and procedure differed greatly from the sample, variables and procedure in the other two studies. The variables and procedure in the second (Chapter 3) were similar to those in the third study (Chapter 4) because the samples used in the two studies were also similar.

The decision to use quantitative methods was motivated by the stage of the research – the research presented in this dissertation is in a late stage of development.

1. Information sources and sample

Chapter 2 addresses the first goal of this dissertation, namely to analyse how environment affects entrepreneurship. In the first study (Chapter 2), the data were gathered from several public databases. The sample comprised 68 countries across all five continents. For the dependent variables, data were taken from the Global Entrepreneurship Monitor (GEM) and the Global Innovation Index (GII) website. The GEM data corresponding to the year 2010 were available for 56 countries, whereas the GEM data corresponding to 2009 were available for 68 countries. Data from the GII corresponded to 2011.

The GEM is an institution responsible for collecting data on 'the entrepreneurial behaviour and attitudes of individuals' and 'the national context and how that impacts entrepreneurship' (GEM webpage, 2016). Every year, the GEM conducts two surveys consisting of interviews with residents from a large number of countries. These surveys are the adult population survey and the national expert survey. In the adult population survey, the GEM interviews a national sample of 2,000 people. The data gathered form this survey are used to 'measure the level and nature of entrepreneurial activity around the world' (GEM webpage, 2016). In the national expert survey, the GEM interviews experts to identify the 'conditions that enhance (or hinder) new business creation' (GEM webpage, 2016). The GEM's partners are Babson College, Universidad del Desarrollo, Universiti Tun Abdul Razak, Tecnológico de Monterrey, the International Development Research Centre and the International Council for Small Business.

The GII is co-published by Johnson at Cornell University, INSEAD and the World Intellectual Property Organization (WIPO). The GII measures innovation in different economies around the world. To do so, the GII uses 79 indicators of different innovation-related issues (Dutta, Lanvin

and Wunsch-Vincent, 2015). These issues are divided into two sub-indices: the innovation input sub-index and the innovation output sub-index. The innovation input sub-index has five elements: institutions, human capital and research, infrastructure, market sophistication, and business sophistication. The innovation output sub-index has two elements: knowledge and technology outputs and creative outputs (GII webpage, 2016).

The independent variables were also gathered from online public databases. Two organisations yielded the data on financial institutions: the International Monetary Fund (IMF) and the Institute for Economics and Peace (IEP).

The IMF has 189 member countries. According to the IMF website, the IMF works to 'foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world'. In addition to pursuing its main goals, the IMF produces a database containing a range of indicators for a large number of countries. In the first study, the database provided the data on the unemployment rate and GDP per capita in the 68 countries under study.

The IEP has two main goals. The first is to quantify peace in different countries. To achieve this goal, the IEP uses a set of indicators. The second goal is to verify the effect of peace on the economy. Only the first goal was pertinent to this dissertation. The measure of peace covers 186 countries. This index is developed 'under the guidance of an international panel of experts with data jointly collated and calculated with the Economist Intelligence Unit'. According to the IEP, the index 'measures relative states of peace, investigates potential determinants of peace and creates a framework to track and compare levels of peace over time' (IEP brochure, 2015).

The Index of Economic Freedom (IEF) was used to gather data on formal institutions. This index is produced by the Heritage Foundation and The Wall Street Journal, and it provides data for 186 countries. The measurement of economic freedom consists of ten indicators grouped into four areas: the rule of law, government size, regulatory efficiency and market openness. Using these indicators, the Heritage Foundation and The Wall Street Journal rank 186 countries according to the degree of economic freedom in each country.

Another indicator used in Chapter 2 is national culture. To measure the culture of the countries in the study, data from the Hofstede Centre were used. According to its website, the Hofstede Centre seeks to 'offer high quality education in the field of culture and management based on academic research and practical experience'. As well as pursuing its main goal, the Hofstede Centre performs research and produces a database containing data on the culture of

76 countries. The concept of culture consists of power distance, individualism, masculinity, uncertainty avoidance, long-term orientation and indulgence. In the studies presented in this dissertation, only the first four indicators were considered.

Finally, it was necessary to establish the education level in each country. To gather data on education level, two websites were consulted: the United Nations Development Programme website and the Index Mundi website. The United Nations Development Programme produces the Human Development Index, which is a 'summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living' (United Nations Development Program, 2016). According to the website, the index consists of indicators in three areas: health, education and standard of living. In the studies presented in this dissertation, only the education indicators were considered. The Index Mundi is a data portal (Index Mundi, 2016) that offers statistics on different countries around the world. The portal is divided into topics such as the economy, government, energy, transportation and so forth. This portal was used only to determine the literacy rate in the 68 countries covered by the first study (Chapter 2).

The second and third study tackled the second goal of the dissertation, namely to analyse the characteristics that affect entrepreneurship. The sample for these studies resulted from a collaborative effort with the Management Planning Service at the Valencian Youth Institute (IVAJ). The collaboration with IVAJ focused on evaluating projects presented by entrepreneurs involved in start-ups that were less than one year old. To present a project, at least one entrepreneur had to be aged less than 30, even if partnered with entrepreneurs aged 30 or older. The entrepreneurs were required to present their projects as part of the application for grants from the public administration. To apply for these grants, the entrepreneurs had to provide the IVAJ with relevant information about their businesses. This information included the type of business entity of the venture, information about the owners (education, previous job status, age, etc.), financial data, some aspects of the internal organisation of the venture, the number of employees and so forth. In addition, the entrepreneurs had to provide supporting documents to demonstrate the truthfulness of the data supplied.

Access to this information was granted during collaborations between the University of Valencia and IVAJ. Access was granted subject to two conditions. First, the University of Valencia agreed to provide advice and support to the IVAJ in areas related to the programme. Second, the University of Valencia agreed to assess the ventures and projects that would

benefit from the programme. This agreement lasted several years, and the sample contains ventures from each of these years.

The dependent variable was the survival of the ventures at two points in time. Data for the dependent variable were gathered by monitoring the companies with the help of the databases of the Chambers of Commerce of Alicante, Castellón and Valencia. (These databases yielded all necessary data because all the companies in Studies B and C were from the Autonomous Region of Valencia, which comprises the provinces of Alicante, Castellón and Valencia.)

In the second study (Chapter 3), the sample comprised 3,477 small companies created between the years 2000 and 2005. Only 2,842 companies yielded valid cases; all other cases contained missing values for at least one variable. Of the total sample, 293 ventures were created in 2000, 375 in 2001, 523 in 2002, 588 in 2003, 625 in 2004 and 438 in 2005. The minimum and maximum amounts of start-up capital were 8,497 Euros and 1,203,586 Euros.

In the third study (Chapter 4) the sample comprised 2,179 companies created between 2000 and 2003. Of these companies, 90% were service oriented. In the case of social ventures, 94.2% were service oriented. Of the total sample, 357 ventures were created in 2001, 462 in 2002, 639 in 2003 and 721 in 2004. The mean start-up capital for all companies in the sample was 31,201.29 Euros.

2. Variables

The variables studied in Chapter 2 were taken from the institutions and websites described in Section 1 of this chapter. The first study used 25 variables, 4 of which were dependent and 21 of which were independent. The dependent variables were as follows:

Total early-stage entrepreneurial activity (TEA) indicates the 'percentage of 18–64 population who are either a nascent entrepreneur or owner-manager of a new business' (GEM webpage, 2016).

Improvement-driven opportunity entrepreneurial activity (TEA_Oport) specifies the percentage of entrepreneurs who are driven by the prospect of independence or greater income and who decide to create a business because they have found an opportunity in the marketplace (GEM webpage, 2016).

Necessity-driven entrepreneurial activity (TEA_Nec) specifies the percentage of entrepreneurs who decide to create a venture because they want to avoid unemployment or because they have no other option for work (GEM webpage, 2016).

The **Global Innovation Index** (Global_Inn) measures the level of innovation in the sampled countries. It comprises 79 indicators grouped into seven areas of innovation: institutions, human capital and research, infrastructure, market sophistication, business sophistication, knowledge and technology outputs, and creative outputs.

Each of the 21 independent variables was placed into one of four groups:

The first group captured economic factors. This group comprised three variables:

- **Unemployment rate** is the percentage of people looking for a job but unable to find one.
- **GDP per capita** is the total gross domestic product of the country divided by the population of the country.
- **Income inequality** is a measure of dispersion that represents the distribution of the income in a given country. Although this variable was taken from the Institute for Economics and Peace (because it is used to determine the Global Peace Index), it was developed by the United Nations Development Programme.

The second group of variables covered issues related to formal institutions. This group comprised 10 variables measured on a scale of 0 to 100:

- **Business freedom** covers regulations referring to opening, operating and closing a business. This index is built from the number of procedures, days, cost and minimum capital necessary to start a business; the number of procedures, days and cost to obtain a license; and the years, cost and recovery rate necessary to close a business.
- **Trade freedom** measures the level of tax necessary for imports and exports of goods and services. It consists of two sub-indices: the trade-weighted average tariff rate and the non-tariff barriers.
- **Fiscal freedom** measures the tax burden. It consists of three quantitative factors: the top marginal tax rate on individual income, the top marginal tax rate on corporate income and the total tax burden as a percentage of GDP.
- **Government spending** is the degree of government expenditure as a percentage of GDP.

- **Monetary freedom** measures the degree to which prices are stable in a country. It is based on price controls and the weighted average inflation rate over the last three years.
- **Investment freedom** refers to constraints in the flow of capital. It measures the constraint in the capital of both individuals and organisations and companies.
- **Financial freedom** captures both banking efficiency and the independence of government in the financial sector. The regulation of financial services, the extent of financial and capital market development, and openness to foreign competition are the sub-indices used to build this indicator.
- **Property rights** measures the level of accumulated private goods of the population in a country. Higher scores mean greater security in terms of property rights.
- **Corruption perception** measures the level of corruption in public institutions and governments. Although this index was taken from the Index of Economic Freedom, it is derived from Transparency International's Corruption Perceptions Index. This index is based on a scale of 0 to 10, so to obtain the corruption perception variable, which is measured out of 100, the score for this index was multiplied by 10.
- **Labour freedom** measures the flexibility of the labour market in different countries. This index has six components: the ratio of the minimum wage to the average value added per worker, hindrance to hiring additional workers, rigidity of hours, difficulty of firing redundant employees, legally mandated notice period and mandatory severance pay.

The following group of variables assessed the country's culture. Geert Hofstede is one of the world's most influential scholars of culture (Kirkman, Lowe and Gibson, 2006), so data from the Hofstede Centre were used in the first study. Data were missing for some countries, so only the first four culture dimensions were considered:

- **Power distance index** measures the degree to which a society's inhabitants do not just accept but also expect that power be distributed unequally. This dimension is a measure of acceptance of inequalities.
- **Individualism** represents the level of cohesion within a society. This dimension captures the extent to which a society is characterised by the cohesion of its members.
- **Masculinity** is related to the level of masculine values in a society. It measures the degree to which masculine values dominate feminine values.

- **Uncertainty avoidance index** represents the extent to which members of a society feel uncomfortable with uncertainty and ambiguity.

The last group of variables assessed the level of education in each country. It comprised the following four variables:

- **Total education** represents the mean years of formal schooling received by adults aged over 15.
- **Expected years of education** measures the years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist throughout the child's life.
- **Secondary education** is the percentage of the adult population (25–64 years old) that has completed upper secondary education.
- **Literacy rate** is the percentage of the population (aged 15 and older) able to read and write.

For the second study, the dependent variable was the survival of new ventures on 31 December of the sixth year after creation (t+6). This variable was dichotomous: it took the value 0 if the venture failed and 1 if the venture survived. The sixth year after creation was chosen as the dependent variable because according to GEM criteria, it represents the start of a new period in the firm's life cycle, namely the point at which the venture has established itself (Xavier, Kelley, Kew, Herrington and Vorderwülbecke, 2012).

The third study, in contrast, used two dependent variables: survival of new ventures on 31 December of the third (t+3) and sixth years (t+6) after creation. The dependent variable t+3 was chosen because according to GEM criteria, this period covers two phases of entrepreneurship: nascent entrepreneurship (i.e., from the creation of the business to three months) and new entrepreneurship (i.e., from three months of activity to three and a half years). The GEM uses these two phases to assess Total early-stage Entrepreneurial Activity (TEA), which is the rate of entrepreneurship in a particular country. Studying these two phases was important because it ensured that the study focused only on the characteristics that are most closely related to entrepreneurship (i.e., the firm and the owner) without considering other factors such as the environment.

Both second and third study had the same independent variables:

- **Motivation to start a business** is a dichotomous variable that indicates whether a business was started by an opportunity or a necessity entrepreneur. In Studies B and C, this variable followed the GEM criteria, although it was calculated differently from the way it is calculated by the GEM. The GEM calculates the value of this variable by interviewing entrepreneurs, but in this study, the entrepreneur's previous work situation determined the value of this variable. Thus, if the entrepreneur was unemployed prior to starting the business, he or she was considered a necessity entrepreneur.
- **Kind of venture** is a dichotomous variable that indicates whether the company is a business-oriented venture or a social venture.
- **Degree of social interest** ranges from 0 (purely business venture) to 5 (purely social venture).
- **Education level** is a categorical variable that covers four levels of education of entrepreneurs: primary studies, secondary studies or lower vocational training, higher vocational training or baccalaureate, and university studies.
- **Related education** is a dichotomous variable that indicates whether the entrepreneur has some type of specific business-related education.
- **Related experience** is a dichotomous variable that indicates whether the entrepreneur has at least a year of business-related work experience.
- **Workforce** captures the total number of stable employees, including the entrepreneurs themselves.
- **Start-up capital** is a proxy for the actual start-up capital. In this study, it was measured as the subsidised capital according to the criteria of the IVAJ Management and Planning Service Programme.

In addition to these independent variables, five additional variables appeared in the second study because unlike in the third one, the environment was also considered as a determinant:

- **GDP variation rate** is the average GDP variation over the period running from the date the venture began its activity to 31 December of the sixth year, when survival was checked.
- **Unemployment rate** is the average rate of unemployment over the period running from when the venture began its activity to 31 December of the sixth year.

- **Urban/Non-urban venture** is a dichotomous variable: it took the value 1 if the firm was based at a site with a population of 10,000 or less and 0 if the population was greater than 10,000.
- **Sector** is a dichotomous variable that indicated whether the company was a service or manufacturing firm.
- **Subsector** is a categorical variable based on the two-digit CNAE-93 classification. This variable has eight groups, each one encompassing distinct yet related sectors.

3. Procedure

The aim of the first study was to determine the extent to which a country's economic and institutional context can affect that country's entrepreneurial activity and innovation. Accordingly, countries were grouped together based on the similarity of their economic and institutional context. Differences as regards entrepreneurial activity and innovation were then analysed.

First, a cluster analysis was applied to the countries in the sample. Cluster analysis was used for two reasons: it allows for the identification of groups with maximum internal homogeneity, and it enables the identification of maximum heterogeneity between different groups. Following the cluster analysis, the correlations between variables were analysed. This analysis revealed numerous significant correlations. Next, principle components analysis with orthogonal varimax rotation was carried out to eliminate the problem of significant correlations between variables and reduce the number of variables.

Experts such as Hair et al. (2001), Ketchen and Shook (1996), Milligan (1980) and Punj and Stewart (1983) recommend the use of two-stage cluster analysis. This advice was followed to classify the countries in the sample. The principle components yielded by the factor solution were analysed using an agglomerative hierarchical procedure. The Ward method using squared Euclidean distances was applied to establish a suitable number of clusters. The centroids obtained in the first stage were then introduced as initial centroids in the analysis of non-hierarchical K-means clusters, which provided the solution that was adopted for the subsequent analysis.

The solutions from both procedures were compared to check for discrepancies and to confirm that the group structure was consistent. Two-step clustering was also used to identify the optimal number of groups using the AIC criteria. The results of this analysis were discarded,

however, because they showed that the quality of clusters obtained using this method was poor.

Following the cluster analyses, ANOVA analysis was applied to determine the extent to which the groups differed from one another. The ANOVA analysis highlighted the variables for which the groups differed significantly. Later, post hoc tests were applied to determine which groups were different. Levene's test verified that the variables met with the assumption of homogeneity of variance.

The F-test and the Tukey test were also used for the variables that met with the assumption of homogeneity of variances. If the assumption was not confirmed, results obtained using the Brown-Forsythe statistic for post hoc comparisons, as recommended by Hair et al. (2001) and Pardo and Ruiz (2002). The same procedure was subsequently followed to analyse the differences between groups in terms of entrepreneurial activity and innovation.

In the second and third studies, the dependent variables were survival at t+3 and t+6. The analysis used in these studies was based on the nature of these variables. Bivariate and multivariate analysis techniques identified the characteristics of surviving firms at different points in the economic cycle. The Mann-Whitney test for two independent samples and the Kruskal-Wallis test for more than two independent samples determined whether an ordinal parameter differed in two or more independent samples. Pearson's chi-squared test measured the strength of association between two categorical variables, as long as the expected frequency was greater than 5. For the dichotomous variables, Fisher's exact test was used.

To conduct the multivariate analysis, binary logistic regression models were used. As mentioned earlier, binary logistic regression was suitable because of the nature of the dependent variable. In addition, binary logistic regression was chosen because the relationship between the dependent and independent variables might be non-linear.

These logit models can be used to calculate the probability of not surviving as a function of the independent variables. In logistic models, odds are expressed as an exponential function of the independent variables:

$$\frac{p}{1-p} = e^{\beta_0+\beta_1 X_1+\beta_2 X_2+.....+\beta n Xn}$$

where p is the probability of not surviving, X_i (i=1, 2,…, n) are independent variables (unemployment, start-up capital, relevant experience, etc.) and β_i are regression coefficients used for estimation.

A step-by-step conditioned entry model was used. The entry p value was 0.05, and the exit p value was 0.1 for all variables. For categorical variables, a reference category was established. The presence or absence of other categories was then compared with this reference category.

Two measures were used to check the goodness of fit: two times the natural log-likelihood function (-2LL) and Nagelkerke's R^2 coefficient. The model's calibration was tested using the Hosmer–Lemeshow test.

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Chapter 2: Institutional and economic drivers of entrepreneurship: An international perspective

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Institutional and economic drivers of entrepreneurship: An international perspective

Abstract

Entrepreneurial activity varies significantly across countries and over time. The economic and institutional context is a determining factor that can drive and lend shape to entrepreneurial activity. The search for a deeper understanding of the role of this factor constitutes a promising and important research stream. A thorough review of the specialist literature identifies groups of countries with similar economic and institutional environments. Subsequent analysis highlights differences in entrepreneurial activity and innovation outcomes between these homogeneous groups. Results indicate significant differences, not only in entrepreneurial activity, but also in the type of entrepreneurship and innovation results. These findings mark a relevant step forward in the identification of different environment types, and the effects of environment on entrepreneurial activity and innovation results.

1. Introduction

Research into entrepreneurship dates back to 1755, when Cantillon introduced the term entrepreneur in his Essai sur la nature du commerce en général. The study of entrepreneurship is receiving increasing attention from researchers and policymakers because of the general view that entrepreneurship is essential to countries economic growth and development, driving employment and innovation (Cuervo, Ribeiro and Roig, 2007; Pinillos and Reyes, 2011; Reynolds, Camp, Bygrave, Autio and Hay, 2001; Schumpeter, 1934; Wennekers and Thurik, 1999).

Entrepreneurship scholars seem to agree that the level of entrepreneurial activity varies significantly across countries and over time (Verheul, Wennekers, Audretsch and Thurik, 2002). Due to the great importance of entrepreneurship, the quest for a deeper understanding of

the factors that drive and shape entrepreneurial activity constitutes an important and productive stream of research (Engle, Schlaegel and Dimitriadi, 2011).

Following this line of thought, the environment in which new ventures emerge is an important field of research, not only because environmental variables open up opportunities to exploit market inefficiencies as the economic approach highlights – but also because different environments can be more or less favorable to the success of new ventures (Stevenson and Jarillo, 1990). Consequently, studying the role of environmental determinants of entrepreneurial activity is critical.

Unquestionably, economic factors matter. For example, the contributions of the Global Entrepreneurship Monitor (GEM) in this area show that entrepreneurship activity is normally more prevalent in countries with greater income inequality. GEMs results also reveal that in developing countries, necessity entrepreneurship has a more pivotal function in the economy than opportunity entrepreneurship, apparently because finding paid work is more difficult than in other economic settings (Reynolds et al., 2001). Clearly, however, economic factors are not the only drivers of entrepreneurial activity. In fact, countries with similar economic conditions can have quite different rates of entrepreneurship (Van Stel, Storey and Thurik, 2007).

Currently, institutional factors are receiving a great deal of attention in the subject specific literature. As Jackson and Deeg (2008, p.540) state, “institutions matter, but how they matter remains a hotly contested question.” Institutions differ significantly across countries,

causing differences in the patterns of economic behavior and innovation results. North (1990) highlights that formal and informal institutions can promote or damage the entrepreneurial rate of a society, and affect the sustainability of new ventures. Institutions shape entrepreneurial activity via the reduction of uncertainty, establishing a structure that can limit the set of choices of individuals (Díaz-Casero, Urbano-Pulido and Hernández-Mogollón, 2005; North, 1993). Different countries distinct institutional frameworks thus affect entrepreneurial activity differently, as the results of Stephen, Urbano, and Van Hemmen (2005) show.

Studies that analyze a sample of countries with different environmental conditions in an attempt to gain a better understanding of the role that economic, and formal and informal institutional factors play as drivers of entrepreneurial activity are scarce. Therefore, using a sample of 62 countries, this study aims to identify a typology of environments, with the ultimate goal of advancing knowledge of how environmental conditions affect the level of entrepreneurial activity, the kind of entrepreneurial activity, and the innovation performance of countries.

The remainder of the paper has the following structure. Section 2 analyzes the economic and institutional factors as determinants of entrepreneurial activity. Section 3 describes the methodology and Section 4 presents the results. These two sections identify groups of countries with similar economic and institutional environmental conditions and examine differences in entrepreneurial activity and innovation between these homogenous groups. Finally, Section 5 addresses the conclusions, implications, and limitations of the research.

2. Economic and institutional drivers of entrepreneurship

2.1. Economic drivers of entrepreneurship

The contributions of the GEMto the field of Economics highlight the generally higher rate of entrepreneurship in countries whose economic development is relatively low, and greater income inequality prevails (Kelley, Bosma and Amorós, 2010; Reynolds et al., 2001). Although least developed countries might be expected to provide more opportunities for potential entrepreneurs (Smallbone and Welter, 2006), other explanations seem to be more accurate. In this respect, GEM results show that, in developing countries, necessity entrepreneurship has a stronger function in the economy than opportunity entrepreneurship. This situation may owe to difficulties in finding paid work in developing countries, with people tending to undertake business ventures in order to avoid unemployment (Reynolds et al., 2001). Conversely, an abundance of job opportunities and a high degree of social security are factors that increase

the opportunity costs of entrepreneurship for individuals in developed countries (Bosma and Schutjens, 2011). Baptista and Thurik (2007), Baptista and Torres (2006), and Thurik, Carree, Van Stel, and Audretsch (2008) point out that the relationship between unemployment and entrepreneurial activity is more complex. On the one hand, higher unemployment may lead to more entrepreneurial activity. On the other hand, low rates of start-up companies may also have an association with low economic growth rates, which correlate to higher levels of unemployment. In any case, as previous discussion intimates, necessity entrepreneurship seems to be more prevalent than opportunity entrepreneurship in countries with low levels of development, growth and employment, and higher inequality.

2.2. Institutional drivers of entrepreneurship

A common perception of institutions is that they define the rules of the game that shape the economic behavior of a society (Baumol, 1990). The structure of institutions will influence and may help explain differences in entrepreneurial activity between countries. According to North (1992) and Redding (2005), institutions fall into two broad categories: formal and informal. Formal institutions consist of statute law, common law, and regulations. Informal institutions, which Scott (2001) divides into socially driven normative and cognitive pillars of institutionalization, consist of, “conventions, norms of behavior, and selfimposed rules of behavior” (North, 1992, p. 4).

2.2.1. Formal institutions: the regulatory pillar of institutionalization

Economic rules, “establish the hierarchical structure of governments, their basic structure of decision” (Díaz-Casero et al., 2005, p. 213). Formal institutions generally address property rights protection regimes, and the constituents of this body of regulation that receive the most citations are rules of law, political and economic freedom, and corruption (El Harbi and Anderson, 2010).

Van Stel et al. (2007) explain that, through institutions, governments can spur on entrepreneurship by cheaply enabling the constitution and functioning of new ventures, and by minimizing the number of formalities that entrepreneurs have to followto undertake an activity. In this sense, Stephen et al. (2005) point out that the institutions that affect entrepreneurial activity the most are bureaucratic formalities. Furthermore, a government can foster entrepreneurial activity of a country by rewarding entrepreneurs. These rewards can take the form of the following types of aids: advisory services, business incubators, and financial support (Toledano-Garrido and Urbano-Pulido, 2007). Institutions appear to have

direct and indirect effects on entrepreneurship, and these effects may vary depending on a number of conditions such as economic development, the level of unemployment, the type of entrepreneurship measured, and so on. For instance, looking at the impact of tax levels on entrepreneurship, high tax rates reduce the financial returns for entrepreneurs, which may have a negative effect on entrepreneurial activity. On the other hand, self-employment may offer greater opportunities to avoid tax liabilities. As Verheul et al. (2002) state, the case of social security is similar, increasing the cost of entrepreneurship while at the same time exerting a potentially positive effect on entrepreneurial activity by creating a safety net in case of business failure.

Finally, Estrin, Aidis and Mickiewicz (2007) claim that countries with strong formal institutions, that is with tight protection of property rights or high levels of economic freedom, show better results in terms of opportunity entrepreneurship and innovation.

2.2.2. Culture: the normative pillar of institutionalization

A fundamental part of societies, informal institutions work to provide cues to shape behavior (El Harbi and Anderson, 2010), and do not represent codified or implicit attitudes. They develop informally over time, and are the embodiment of cultural norms, belief systems, practices, and customs (Hofstede, 1990).

An extensive body of literature links national culture, entrepreneurship, and innovativeness (Shane, 1992; Thomas and Mueller, 2000; Van de Ven, 1993). Culture receives scholars attention not only because of the restrictions this factor imposes on entrepreneurs, but also because of its role as an enhancer of business opportunities (Aldrich and Fiol, 1994). Hofstede defines culture, “in the anthropological sense of broad patterns of thinking, feeling, and acting” (Hofstede, 1990, p. 5). The first models include four dimensions of national culture: power distance, individualism, masculinity, and uncertainty avoidance. (The two additional measures appearing in later models are outside the scope of this study due to a lack of data and theoretical background.)

Owing to the high correlation between the entrepreneurial traits of independence, individual achievement and tolerance for ambiguity and uncertainty, and Hofstedes measures of individualism and uncertainty avoidance, much research focuses on the individualism and uncertainty avoidance dimensions of national culture. The literature shows some consensus on the idea that entrepreneurial activity may share a positive relation with individualism and have a positive link to uncertainty avoidance.

In individualistic cultures, people put their own interests before group interests (Thornton, Ribeiro-Soriano and Urbano-Pulido, 2011). Given that the need for individual achievement characterizes entrepreneurs (Shane, Locke and Collins, 2003), the expectation is that individualistic cultures tend to be more entrepreneurial.

Uncertainty avoidance has a relation with norms, values, and beliefs regarding tolerance for ambiguity and risk. According to Shane et al. (2003), when entrepreneurs embark on an economic activity, certain characteristics of their own personality guide them. Two of the most important of these characteristics are risk-taking and tolerance for ambiguity. Thus, the higher the uncertainty avoidance index, the lower the risk-taking propensity of individuals.

Research analyzing the relationship between power distance, masculinity, and entrepreneurial activity is scarce. Nevertheless, if power distance represents the extent to which the less powerful members of organizations and other institutions accept and expect that the spread of power is uneven (Hofstede, 1990), when power distance is high, nations ought to be more entrepreneurial, because inhabitants seek greater independence. In other words, the pressure that individuals in such nations experience leads them to seek other ways of obtaining economic gains.

With regard to masculinity, references to its relationship with entrepreneurship are virtually non-existent. Nevertheless, a review of Hofstedes typically masculine values (advancement in a company, earnings, freedom, supervising others, responsibility, creativeness, and training) and feminine ones (social aspects of the job, working conditions, relationship with superiors, variety, having a friendly atmosphere, and cooperation) reveals that masculine societies tend to be more entrepreneurial. Typically masculine values have a higher degree of similitude or relationship with some of the most important characteristics that the literature uncovers in entrepreneurs. Ardichvili and Gasparishvili (2003) find that the most masculine values of a country are more common in managers than in entrepreneurs.

2.2.3. Education: the cognitive pillar of institutionalization

As Spencer and Gómez (2004, p. 1100) point out, “the cognitive dimension of institutional profile reflects the knowledge and skills possessed by people in a country, as well as the frameworks they use to categorize and evaluate information.” Authors recognize education as a crucial institution for the economic development of a country (North, 1990).

Several studies show a positive relationship between education and the performance of new businesses (Brüderl, Preisendörfer and Ziegler, 1992; Klepper and Simons, 2000; Mitchell, 1989; Schiller and Crewson, 1997). Many studies demonstrate that education helps identify opportunities in the marketplace, especially education in entrepreneurship (De Clercq and Arenius, 2006; Levie and Autio, 2008; Shane, 2000).

Levie and Autio (2008) also indicate that education has a cultural effect on students' attitudes and behavior. In this case, education acts as a cultural factor that drives entrepreneurial activity because, when individuals have a higher level of education, they place greater trust in their abilities and skills to undertake an economic activity; in other words, they become more self-confident (De Clercq and Arenius, 2006).

Kirzner (1973) highlights that the discovery of opportunities depends, to some extent, on the asymmetry of available information. The fact that information does not have a homogeneous distribution for every member of a society means that members with better information about market opportunities decide to start up an economic activity.

2.3. Hypothesis summary

From the above arguments, a general hypothesis emerges. Namely, economic and institutional environments have the capacity to foster or inhibit not only entrepreneurial activity, but also the kind of entrepreneurial activity and innovation results arising from this activity. As multiple interrelations exist between the constructs in the model, establishing the effect of separate constructs is difficult. Nevertheless, the discussion below sets out to make inroads in this direction.

The analysis of economic factors leads to positing, first, that low numbers of start-up companies relate to economic environments with low GDP per capita and economic growth, and high unemployment and income inequality (hypothesis 1). Second, necessity entrepreneurship is more prevalent in countries with the above economic environment traits, while opportunity entrepreneurship is more prevalent in countries with high GDP per capita and economic growth, and low unemployment and income inequality (hypothesis 2).

With regard to institutional factors, taking an overall measure of formal institutions as the degree of economic freedom of a country, as the specialist literature recommends, a high level of economic freedom relates to higher levels of opportunity entrepreneurship (hypothesis 3). If economic conditions are similar, countries with higher degrees of economic freedom are

more entrepreneurial. In other circumstances the influence of economic factors is prevalent (hypothesis 4).

The influence of cultural factors is much more difficult to predict. Nevertheless, countries with higher levels of individualism, power distance and masculinity, and higher levels of uncertainty avoidance are likely to be more entrepreneurial (hypothesis 5). With regard to the relationship between cultural factors and the kind of entrepreneurship, any hypothesis can find a good grounding in the theory. Clearly, efforts in education have significant effects on entrepreneurial activity. High levels of education have a relationship with high levels of opportunity entrepreneurship (hypothesis 6).

If economic conditions are similar, countries with higher degrees of economic freedom are more entrepreneurial. In other circumstances, the influence of economic factors is prevalent (hypothesis 7).

Finally, given the specific characteristics of necessity and opportunity entrepreneurship, the last hypothesis posits that the higher the opportunity entrepreneurship rate, the better the innovation results of a country (hypothesis 8).

3. Methodology

3.1. Sample and information sources

The sample consists of 68 countries across all five continents. Various databases provide the data to determine the values for the institutional environment of the countries under study (see Tables 1 and 2). The GEMprovides 2010 data for 56 countries and 2009 data for a further 12 countries. Data from the Global Innovation Index are from2011. The CIA World Factbook (Montenegro), the African Development Bank (Angola), and the National Household Survey (Uganda) complement data on unemployment from the International Monetary Fund. Data is

unavailable for 2010 in all cases. The GINI index on income inequality in Hong Kong comes from the UNDP (UN), and, for Tonga, data comes from the OECD. In the case of national culture, as information is unavailable for some countries, data from other nations offers a proxy according to geographical proximity, and ethnic, religious, political and cultural similarities, according to the opinions of experts.

3.2. Variables and procedure

The objective of this research is to determine the extent to which the economic and institutional contexts of a given country can affect its entrepreneurial activity and innovation. Therefore, the 68 countries under study form groups (see Table 3) according to the results of a cluster analysis in two stages. Four groups of variables characterize economic and institutional

contexts and identify the groups of countries (see Table 2). After identifying and validating the groups, the next step is to analyze the inter-group differences with regard to entrepreneurial activity (TEA), entrepreneurial activity by opportunity (TEA-Oport), entrepreneurial activity by necessity (TEA-Nec), and innovation (Global-Inn).

As the existence of multicollinearity or interdependence between variables can greatly affect the results of cluster analysis, analysis of the variables under study is necessary. This analysis reveals a considerable number of significant correlations (30 correlations greater than 0.6,

all of which are significant to a level of 0.01). A principal component analysis with an orthogonal varimax rotation eliminates this problem and reduces the number of variables. Six principal components emerge for analysis instead of the original 21 variables.

Classification of the countries in the sample takes place using cluster analysis in two stages. The first step is to analyze, using an agglomerative hierarchical procedure, the principal components from the factor solution. The form of analysis in this case is via the Ward method, using squared Euclidean distances to establish a suitable number of conglomerates. In the second part of the process, the centroids from the first stage act as initial centroids in the analysis of non-hierarchical K-means clusters, which provides the final solution. Comparing the solutions from the agglomerative hierarchical and the non-hierarchical K-means clusters reveals whether any considerable discrepancies exist between the two solutions or whether the group structures are consistent. Two stage clustering using the AIC criteria offers an alternative method to identify the optimum number of groups. This study ignores these results, however, as they indicate that the quality of clusters from this method is deficient.

Table 1. Dependent variables used in the study

ENTREPRENEURSHIP AND INNOVATION		
TEA	Total early-stage entrepreneurial activity (TEA)	Global Entrepreneurship Monitor 2010
TEA_Oport	Improvement-driven opportunity entrepreneurial activity	
TEA_Nec	Necessity-Driven Entrepreneurial Activity	
Global_Inn.	Global innovation index: This index relies on two sub-indices, the innovation input sub-index and the innovation output sub-index,	INSEAD and partners including WIPO

Table 2. Independent variables used in the study

ECONOMIC FACTORS	
Unemployment rate	International Monetary Fund
GDP per capita	
Income Inequality	Institute for Economics & Peace
FORMAL INSTITUTIONS	
Business Freedom	Index of Economic Freedom from Heritage Foundation & The Wall Street Journal
Trade Freedom	
Fiscal Freedom	
Government Spending	
Monetary Freedom	
Investment Freedom	
Financial Freedom	
Property Rights	
Corruption Perception	
Labor Freedom	
CULTURE	
Power Distance Index	http://geert-hofstede.com/
Individualism	
Masculinity	
Uncertainty Avoidance Index	
EDUCATION	
Total Education	Human Development Index from United Nations Development Programme
Expected years of education	
Secondary Education	
Alphabetization rate	Index Mundi

The method for identifying to what extent the groups differ from one to another is ANOVA, which indicates the variables where the groups significantly differ in terms of the original 21 variables. Post hoc tests determine exactly which groups are different. Levene's test verifies that the variables comply with the assumption of the homogeneity of variances. The F-test and post hoc Tukey tests offer methods that allow for comparisons between each pair of possible groups for the variables that comply with the assumption of the homogeneity of variances.

When the assumption of the homogeneity of variances does not hold, the Brown–Forsythe statistic replaces the F-test and the Games–Howell test for post hoc comparisons (Hair, Anderson, Tatham and Black, 2001; Pardo and Ruiz, 2002, among others). The same procedure later analyzes the differences between groups with regard to entrepreneurial activity and innovation.

4. Results

With regard to the factor analysis prior to the application of the cluster analysis, the methodology requires the application of the KMO measurement of sample adequacy and Bartlett's sphericity test. The KMO measurement is 0.84 (considerably higher than 0.6), and the results of the Bartlett test reject the null hypothesis that the correlations matrix is an identity matrix. Furthermore, the results show that significance is 0.000. In terms of the measures of the sample adequacy of each variable on the main diagonal of the anti-image correlation matrix, the majority of values are over 0.8, and only the values for the variables ofunemployment, masculinity, and uncertainty avoidance are marginally under 0.6.

Taking into account the eigenvalues, the extraction values of the original variables and the form of the sediment graph, the results point to the choice of six factors, or principal components, which explain 80.09% of the total variance. These factors feed into the cluster analysis for the identification of groups of homogeneous countries in terms of the characteristics of their economic and institutional contexts. A solution of three groups arises from the cluster analysis, and the differences with the initial solution using the Ward method and that coming from the K-means are not significant, a result which serves as a measure of robustness. Table 3 shows the composition of the three groups, taking the solution from the K-means algorithm as a reference by introducing the initial centroids that the Ward solution yields.

Table 3. Composition of identified groups

GROUP 1 (39)				**GROUP 2 (13)**		**GROUP 3 (16)**	
Angola	Costa Rica	Malaysia	Tonga	Australia	Norway	Belgium	Japan
Arab Emirates	Dominican Rep.	Morocco	Trinidad Tobago	Denmark	Sweden	Bosnia	Macedonia
Arabia Saudi	Ecuador	Mexico	Tunisia	Finland	Switzerland	Croatia	Monten.
Algeria	Egypt	Pakistan	Turkey	Iceland	United Kingdom	France	Portugal
Argentina	Ghana	Panama	Uganda	Ireland	United States	Germ.	Rumania
Bolivia	Guatemala	Peru	Uruguay	Israel	Hong Kong	Greece	Slovenia
Brazil	Iran	Russia	Venezuela	Netherl.		Hung.	Spain
Chile	Jamaica	Syria	Yemen			Italia	Serbia
China	Jordan	South Africa	Zambia				
Colombia	Latvia	South Korea					

The results in Table 4 offer valuable information for characterizing the three groups, as well as for evaluating the extent to which the groups vary between one another; not in the factors in the cluster analysis, but rather in the original variables. The results of the F-test and the Tukey test for the variables that comply with the homogeneity of variance assumption, and the Brown–Forsythe and Games–Howell tests for those that do not, show that significant differences (a level of 0.01) exist between groups for all the variables except for unemployment – for which the differences are not significant at a level of 0.05 – and the variable labor freedom—for which the differences are not significant.

Nonetheless, this finding is insufficient to justify that all groups are comparatively different. After characterizing the groups, analysis of the extent to which the rates of entrepreneurial activity and innovation results vary is necessary for drawing subsequent conclusions concerning the effect that differences may have on variables in terms of the economic and institutional contexts of these countries.

Table 4. Mean and significant differences in categorization variables

Variable	**Variance Homogeneity**		**ANOVA: F Test or Brown-Forsythe**		**Post hoc: Tukey Test or Games-Howell**			**Mean**	
	YH Sig.	**NH Sig.**	**F Sig.**	**B-F Sig.**	**Between groups**	**Tukey Sig.**	**GH Sig.**	**Group**	**Value**
Unemployment	.057		**.017**		1 - 2	.232		1	10.15
					1 - 3	.148		2	6.77

					2 - 3	**.013**		3	13.76
GDP_Cap	.050		**.000**		1 - 2	**.000**		1	10.86
					1 - 3	**.000**		2	39.83
					2 - 3	**.000**		3	22.90
Income_Ineq	.	002		**.000**	1 - 2		**.000**	1	44.08
					1 - 3		**.000**	2	32.37
					2 - 3		.976	3	32.80
Busin_freedom	.230		**.000**		1 - 2	**.000**		1	66.60
					1 - 3	**.016**		2	89.41
					2 - 3	**.003**		3	75.72
Trade_freedom		.000		**.000**	1 - 2		**.000**	1	73.44
					1 - 3		**.000**	2	88.22
					2 - 3		**.011**	3	75.72
Fiscal_freedom		.004		**.000**	1 - 2		**.003**	1	79.90
					1 - 3		**.021**	2	61.36
					2 - 3		.420	3	68.55
Govern_spend		.033		**.000**	1 - 2		**.001**	1	75.39
					1 - 3		**.000**	2	48.47
					2 - 3		.709	3	43.10
Monet_freedom		.043		**.000**	1 - 2		**.000**	1	69.89
					1 - 3		**.000**	2	78.61
					2 - 3		.605	3	77.01
Invest_freedom		.019		**.000**	1 - 2		**.000**	1	48.46
					1 - 3		**.000**	2	81.92
					2 - 3		**.003**	3	66.88
Finan_freedom		.018		**.000**	1 - 2		**.000**	1	46.67
					1 - 3		**.001**	2	77.69
					2 - 3		**.000**	3	60.00
Property_rights		.001		**.000**	1 - 2		**.000**	1	38.72
					1 - 3		**.015**	2	88.08
					2 - 3		**.000**	3	57.19
Corrup_Percep		.047		**.000**	1 - 2		**.000**	1	36.00
					1 - 3		**.003**	2	83.08
					2 - 3		**.000**	3	53.19
Labor_freedom	.428		.054		1 - 2	.055		1	59.98
					1 - 3	.998		2	71.87
					2 - 3	.103		3	59.66
PDI_Hofst		.012		**.000**	1 - 2		**.000**	1	67.64
					1 - 3		.944	2	33.54
					2 - 3		**.000**	3	69.75
IDV_Hofst	.690		**.000**		1 - 2	**.000**		1	31.62

					1 - 3	**.000**		2	70.23
					2 - 3	.060		3	55.19
MAS_Hofst		.000		**.003**	1 - 2		.361	1	49.77
					1 - 3		**.018**	2	39.08
					2 - 3		**.008**	3	72.56
UAI_Hofst	.662		**.000**		1 - 2	**.003**		1	67.74
					1 - 3	.163		2	46.08
					2 - 3	**.000**		3	78.56
Educ_Total		.024		**.000**	1 - 2		**.000**	1	7.59
					1 - 3		**.000**	2	11.08
					2 - 3		**.046**	3	10.03
Educ_Expected	.058		**.000**		1 - 2	**.000**		1	12.29
					1 - 3	**.000**		2	16.66
					2 - 3	.127		3	15.07
Educ_Second.	.135		**.000**		1 - 2	**.000**		1	52.68
					1 - 3	**.000**		2	78.93
					2 - 3	.963		3	77.15
Educ_Alfabet.		.000		**.000**	1 - 2		**.000**	1	83.16
					1 - 3		**.000**	2	98.58
					2 - 3		.478	3	97.83

As Table 5 shows, the three groups differ significantly with regard to performance in terms of both innovation and entrepreneurial activity. Again considering the results of the F and Tukey tests for the variables that comply with the assumption of homogeneity of variance, and the Brown–Forsythe and Games–Howell tests for those that do not, significant differences emerge at the 0.01 level in all the variables. Nevertheless, significant differences are absent between some of the groups in each of the variables. On the topic of innovation, all of the differences between groups are significant, with group 2 being the most innovative. The highest rates of entrepreneurial activity occur in group 1, with groups 2 and 3 yielding similar scores at a much lower level than group 1. For opportunity-driven entrepreneurial activity, the best results appear in group 2, whereas no significant difference between groups 1 and 3 is observable. Groups 1 and 3 have the highest levels of necessity-driven entrepreneurship, and levels in group 2 are significantly lower. To sum up, group 3 has a relatively low rate of entrepreneurial activity, although the large number of opportunity-driven entrepreneurs and the small number of necessity-driven ones is noteworthy. Also, in terms of innovation, this group has an intermediate level of performance in comparison with the other groups. Group 2 has a similar level of entrepreneurial activity to group 3, with a higher number of opportunity driven entrepreneurs, a smaller proportion of necessity entrepreneurs, and a higher level of

performance in terms of innovation. Lastly, group 1 presents the highest levels of entrepreneurial activity, with proportions of opportunity and necessity entrepreneurs which are similar to those of group 3, and with worse results in terms of innovation.

Table 5. Mean and significant differences in innovation and entrepreneurship

Variable	Variance Homogeneity		ANOVA: F Test or Brown-Forsythe		Post hoc: Tukey Test or Games-Howell			Mean	
	YH Sig.	NH Sig.	F Sig.	B-F Sig.	Between groups	Tukey Sig.	GH Sig.	Group	Value
GII		.048		**.000**	1 - 2		**.000**	1	32.83
					1 - 3		**.001**	2	56.44
					2 - 3		**.000**	3	42.21
TEA.		.000		**.000**	1 - 2		**.000**	1	15.81
					1 - 3		**.001**	2	6.20
					2 - 3		.825	3	5.66
TEA oport.	.626		**.002**		1 - 2	**.001**		1	42.90
					1 - 3	.786		2	56.54
					2 - 3	**.030**		3	45.19
TEA nec.	.500		**.002**		1 - 2	**.001**		1	30.03
					1 - 3	.963		2	17.23
					2 - 3	**.012**		3	29.19

Summarizing, evidence supports the general hypothesis, because the different environmental types differ in their level of entrepreneurial activity, rate of opportunity- and necessity-driven entrepreneurship, and innovation results. With regard to the specific hypotheses of this paper, some evidence supports hypotheses 1, 2, 3, 6, and 8. Results fail to provide clear support for hypothesis 5, and no suitable test is capable of verifying hypotheses 4 and 7 because of the specific characteristics of the homogenous groups of countries.

5. Conclusions

The interpretation of the results is somewhat complex, due to obvious interrelations between the variables. Nonetheless, several interesting conclusions emerge. With regard to the relationship between the economic environment and the level of entrepreneurship, results agree with previous research and give support to the hypotheses in Section 2. Entrepreneurial activity is significantly greater in countries with lower levels of development, greater income inequality and considerable levels of unemployment. Necessity-driven entrepreneurship plays a more relevant role in these countries and innovation results are weaker, as Kelley et al. (2010) and Reynolds et al. (2001) previously demonstrate. Conversely, in more developed

countries (i.e., with relatively low income inequality and low unemployment), rates of entrepreneurial activity are significantly lower, necessity-driven entrepreneurship is less prevalent, and innovation results substantially improve. Results match those from research that points out that innovation results improve in contexts with a clear predominance of opportunity-driven entrepreneurs (Kelley et al., 2010; Reynolds et al., 2001).

When interpreting these results, however, an essential prerequisite is to examine the conditions of the institutional environment of each country. Supporting the study's main hypothesis, the best results in terms of opportunity entrepreneurship and innovation correspond to the group of countries with higher levels of economic freedom or, as per Estrin et al. (2007), with strong formal institutions. Such a context entails: a high level of protection of property rights; the best results in terms of the perception of corruption; a legislation that provides for more agile procedures for starting a business, with relatively flexible job markets, and relatively low and stable levels of inflation; and an openness to international tradewith scarce intervention in the financial system. These environments are thus contexts that are more suitable for business and international trade growth. In summary, these countries foster environments with institutions that create a regulatory environment that is generally favorable to the exploitation of business opportunities.

Regarding informal institutions, the human capital of a country seems to play an important role in discovering and taking advantage of good business opportunities. A clear correlation appears to exist between this factor and the best results in terms of innovation. Consequently,

governments should continue to support training and education as a fundamental element of economic and social development.

Lastly, in relation to culture, clearly establishing the influence of this factor on entrepreneurial activity and innovation is difficult. Notably, the highest overall levels of entrepreneurship are in group 2; a group that shows high power distance, a fairly high level of uncertainty avoidance,

and the lowest level of individualism. These results contradict previous research in relation to the role of uncertainty avoidance (Ardichvili and Gasparishvili, 2003; Wennekers, Thurik, Van Stel and Noorderhaven, 2007) and individualism (Shane et al., 2003; Thornton et al., 2011). Nevertheless, this study shows that high levels of individualism and low levels of uncertainty avoidance prevail in the group of countries with a greater opportunity–necessity balance among entrepreneurs and the best innovation results, a result that is consistent with previous

literature. In any case, the results do not show a clear relation between culture and entrepreneurship, especially when considering masculinity and power distance.

One of the most important implications of this research is that policymakers must adapt their entrepreneurship policy to prevailing national circumstances. The same policies in countries or regions with varying economic and institutional contexts can lead to extremely different outcomes. Hence, studying entrepreneurship and innovation and its relationshipwith economic and institutional factors is extremely important because of its fundamental role for governments wishing to deploy the correct policies and achieve better living conditions and economic growth.

This study does have some limitations. Future research should not only broaden the sample of countries, but also improve some construct measures such as innovation, measuring basic and applied innovation results, as Broberg, McKelvie, Short, Ketchen and Wan (2013) recommend.

More sophisticated analysis techniques could better analyze the relationships between the constructs. A structural equation model such as partial least squares may provide a good method, given that this technique has fairly low sample requirements. Longitudinal studies are also necessary to make progress in this research stream.

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Chapter 3: Influence of economic crisis on new SME survival: reality or fiction?

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Influence of economic crisis on new SME survival: reality or fiction?

Abstract

The aim of this research was to analyse the survival of new ventures during periods of economic crisis. The article compares survival probability during growth and crisis periods. An empirical study was used to analyse new venture survival probability. Results show that new firms have a greater likelihood of surviving during crisis periods than they do during growth periods. An additional aim of the study was to analyse the survival probability of opportunity and necessity entrepreneurs during crisis periods. Results show that gaps in survival likelihood between opportunity and necessity entrepreneurship are bigger during times of crisis than they are during growth periods.

1. Introduction

The main reason to study entrepreneurship is to explore its relationship with economic growth, development, employment and innovation (Carland et al., 1984; Cuervo, Ribeiro, and Roig, 2007; Reynolds et al., 2001; Sautet, 2011; Schumpeter, 1934; Smolarski and Kut, 2011). Driven by this general purpose, entrepreneurship scholars have broadly focused on two main issues: identifying factors that foster new firm creation (Schutjens and Wever, 2000) and discovering factors considered critical for start-up survival and success (Brüderl and Schussler, 1990). Research into what happens during the years directly after firm creation has been especially intensive.

Notable research on the factors that foster new firm creation includes the study by Lasch, Robert and Le Roy (2013), who identify several factors that promote firm creation. The most relevant factors include the growth of market demand, the presence of large firms, knowledge spillovers from universities and geographical proximity to other new ventures.

Regarding factors considered critical for start-up survival and success, the literature contains discussions centred on three groups of explanatory variables: psychological and non-psychological entrepreneurial attributes, new firm characteristics and environmental factors (Schutjens and Wever, 2000). This study focuses predominantly on environmental variables. Specifically, the main goal of our study was to analyse the effects of changes in the economic cycle on new firm survival. Additionally, our analysis accounted for entrepreneurs' motivation (opportunity vs. necessity), and other specific characteristics of entrepreneurs and firms.

Economic conditions clearly matter, but how they matter remains a hotly contested question. Ample evidence supports a positive relationship between entrepreneurial activity, economic growth and employment, although knowledge about this linkage is far from complete. Intuitively, a reverse causation should also exist, and exploration of this relationship constitutes the aim of this article. Most of the literature suggests that crises will negatively affect the survival of new ventures (Baptista and Thurik, 2007; Baptista and Torres, 2006), but some authors have argued that the effect may be positive rather than negative (Brünjes and Revilla Diez, 2013).

Through an ongoing collaboration between the Valencian Youth Institute and the University of Valencia, we accessed relevant information for a sample of 3477 new firms (2842 valid cases) founded between 2000 and 2005. Using these data, we studied whether changes in economic context in the Autonomous Region of Valencia affected the survival of new ventures, and if so,

whether these changes affected opportunity and necessity entrepreneurship differently. We used bivariate analysis techniques and multivariate logistic models to test our hypotheses. Use of these methods was justified by the dichotomous nature of our dependent variable. Contrary to intuition or common sense, our empirical results show that new firm survival probability was actually higher during crisis periods, whereas growth rates declined and unemployment rates rose rapidly. These results were analysed in terms of individuals' opportunity costs depending on feasibility of alternatives to self-employment. Our results also show that the survival rate of opportunity entrepreneurship was always bigger than that of necessity entrepreneurship and that the profile of firms with better survival probabilities varied across different economic contexts.

In Section 2, we discuss the relationships between entrepreneurs, economic growth and employment. Section 3 presents analysis of changes in Spain's economy as a result of the financial crisis. Sections 4 and 5 describe our research method and results. Section 6 then discusses our main conclusions and sets forth limitations of the study and future research proposals.

2. Entrepreneurship, economic growth and employment

The discovery of key factors in new firm survival has been the subject of extensive discussion

in recent decades. This interest is, at least partially, due to empirical evidence that new companies have higher failure rates than consolidated firms (Brüderl and Schussler, 1990; García and Caneda, 2008; Guzmán-Cuevas, Cáceres-Carrasco and Ribeiro Soriano, 2009; Simón-Moya, Revuelto-Taboada and Ribeiro-Soriano, 2012). Stinchcombe (1965) coined the term liability of newness to describe this phenomenon. Later, Brüderl and Schussler (1990) proposed liability of adolescence as an alternative term, upon observing that failure rates were low immediately after firm creation but later began to rise.

The recent socio-economic situation in Western countries presents a compelling reason to analyse the effects of changes in the economic cycle on entrepreneurial activity and on new firm survival. An unprecedented financial crisis (Naudé, 2011) hit the business world in 2008, causing recession in many countries and sending major stock indexes into a downward spiral.

Considerable evidence shows a positive relationship between entrepreneurial activity, economic growth and employment, but knowledge on these relationships is far from complete. Intuitively, a reverse causation should also exist. As Stevenson and Jarillo (1990)

reported, environment is important for two reasons. First, because different environments affect new venture success, and second, because environmental variables create opportunities to exploit market inefficiencies, as the economic approach has shown.

Keasy and Watson (1999) highlighted how economic growth determines new firm success. High economic growth creates opportunities for new firm creation and increases employment opportunities. Nevertheless, an abundance of job opportunities and/or a high degree of social security increases opportunity costs of entrepreneurship (Bosma and Schutjens, 2011; Stuetzer et al., 2014). Conversely, economic crises, associated with fewer employment opportunities, may push people into entrepreneurship. In such scenarios, opportunity costs of entrepreneurship are lower and may even become negligible. Fritsch, Brixy, and Falck (2006) reported that changes in economic conditions can alter new firm survival rates positively or negatively. Moreover, entrepreneurship can be an effective response to crises and environmental changes (Feldman, Francis and Bercovitz, 2005).

Okamuro, Van Stel and Verheul (2010) showed that economic growth is usually accompanied by an increase in wages, better employment opportunities and/or an improved social security system. An abundance of job opportunities and/or a high degree of social security increases opportunity costs2 of self-employment and has a negative effect on entrepreneurial activity (Bosma and Schutjens, 2011). Nevertheless, economic development may also have a positive effect on entrepreneurship because economic growth tends to produce an increase in consumer demand for new products and services, which creates new business opportunities (Baptista and Thurik, 2007; Baptista and Torres, 2006; Thurik et al., 2008).

Conversely, periods of economic crisis are associated with fewer market opportunities, a downturn in product and service demand, and scarcer employment opportunities. This situation may push people towards entrepreneurship as an alternative to hired work (Brünjes and Revilla Diez, 2013). A lack of paid job alternatives that could give people access to necessary family income lowers opportunity costs of starting a new venture.

Considerations are similar when entrepreneurs have already started their businesses. As already observed, the opportunity cost of self-employment or of starting a venture is greater when economic growth is strong and there are greater chances of finding paid work. When entrepreneurs have already started a venture in periods of crisis, opportunity costs of continuing with the venture, even if it is performing poorly, are lower. This is because paid work is much scarcer, so entrepreneurs prefer to continue with their businesses. Following this

argumentation, in periods of economic growth and therefore low unemployment rates, if entrepreneurial activity does not yield optimum results, the opportunity cost of leaving the business is low. This is because low rates of unemployment make finding a paid job more probable.

In short, although firm survival is usually considered a measure of business success (Cooper, Javier Gimeno-Gascon and Woo, 1994; Haber and Reichel, 2005; Van de Ven, Hudson and Schroeder, 1984), this is in fact not so. Particularly during a period of crisis, survival is a poor measure of success. Many firms continue to operate despite being unprofitable because entrepreneurs have no alternative. Furthermore, in many cases, these businesses are forced to reduce their staff, and entrepreneurs may even suffer situations of self-exploitation.

In the light of the literature review, we expect the shortage of job opportunities and the poorer social security conditions resulting from crises to cause a higher survival rate of new ventures created by individuals seeking self-employment. In addition, we expect this effect to be stronger than the effect of the decreasing demand for new products and services that causes new ventures to fail in periods of crisis. Consequently, we formulate the following hypothesis:

Hypothesis 1: In periods of economic crisis, new firm survival will be higher than in periods of economic prosperity.

Despite slight differences between authors' proposals, two basic types of entrepreneurs exist: opportunity and necessity, in Global Entrepreneurship Monitor (GEM) terms, or push and pull, to use the terminology of Amit and Muller (1995) or Qian, Haynes and Riggle (2010). Opportunity entrepreneurs start businesses because they discover a market opportunity that they deem profitable (Shane and Venkataraman, 2000). This type of entrepreneur is driven by the search for independence, autonomy and the vocation of starting a business, a phenomenon known as entrepreneurial motivation (Shane, Locke and Collins, 2003). Necessity entrepreneurs may not be interested per se in creating a business; instead, they are motivated by the absence of employment opportunities, which is seldom conducive to innovation (El Harbi and Anderson, 2010; Reynolds et al., 2001). Although necessity and opportunity entrepreneurship are contrary concepts, studies have shown that these two types of motivations can coexist. In fact, such coexistence is a common phenomenon. For instance, Solymossy (1997) showed that coexistence occurs in more than 20% of cases because opportunity motivations (e.g. market opportunities or the desire for independence) usually

occur at the same time as necessity motivations (e.g. social recognition or unemployment) (Giacomin et al., 2011).

The notion of push and pull entrepreneurship has clear parallels with the concept of necessity and opportunity entrepreneurship. Push entrepreneurs 'are those whose dissatisfaction with their current position, for reasons unrelated to their entrepreneurial characteristics, pushes them to start a new venture', whereas pull entrepreneurs 'are lured by their new venture idea and initiate venture activity because of the attractiveness of the business idea and its personal implications' (Amit and Muller, 1995: 65). Qian, Haynes and Riggle (2010) pointed out that pull entrepreneurship typically occurs in regions with strong business dynamism. On the contrary, push entrepreneurship tends to prevail in depressed regions characterized by a scarcity of firms.

Results from the GEM have shown that in developing countries, necessity entrepreneurship is a stronger force for the economy than opportunity entrepreneurship. This apparently owes to a lack of paid work in these countries, which makes it common for people to undertake business ventures to avoid unemployment (Reynolds et al., 2001). In contrast, in developed countries, entrepreneurial activity rates tend to be lower, but the role of opportunity entrepreneurs is stronger. Necessity entrepreneurs exert greater influence in developing economies. These cross-sectional results are very similar to those we would expect to find when comparing entrepreneurial activity at different moments (prosperity and crisis) in a single country, specifically if that country is Western.

In this vein, Boyd's (2000) research is particularly interesting. He analysed entrepreneurship from the perspective of the disadvantage theory of entrepreneurship (Boyd, 1999; Light, 1979). This theory posits that social groups with higher degrees of social exclusion and scarcer resources exhibit higher rates of entrepreneurial activity due to 'blocked opportunity in the labor market' (Boyd, 1999: 217). The author named this kind of entrepreneurship survivalist entrepreneurship (Boyd, 2000: 647). It is characterized by low initial investment in businesses operating in industries with low barriers to entry. His article analysed the entrepreneurial behaviour of Afro-American women during the Great Depression. He showed that they were overrepresented, specifically in two particular sectors: boarding houses and lodging housekeeping, and hairdressing and beauty culture.

Global level GEM data have generally shown that the ratio of necessity to opportunity entrepreneurship grows in crisis periods and that, conversely, this ratio decreases in periods of

economic growth. Over the last ten years, the lowest levels of necessity entrepreneurship activity in Spain emerged in the period 2003–2006. During this period, Spain enjoyed a GDP growth rate of more than 3% and moderate unemployment of around 10%. Conversely, the highest rates of necessity entrepreneurship were between 2010 and 2011. This period was instead characterized by a stagnant economy and more than 25% unemployment. Therefore, the ratio of necessity to opportunity entrepreneurship is seemingly lower in periods of prosperity than it is in periods of crisis.

The literature suggests that opportunity entrepreneurs perform better than necessity entrepreneurs do and that their firms survive longer than those of necessity entrepreneurs (Headd, 2003; Ho and Wong, 2007; Van Praag, 2003; Reynolds et al., 2001). Innovativeness and commitment seem to be important factors in explaining these results (Andersén, 2011; El Harbi and Anderson, 2010). When a necessity entrepreneur finds another job, he or she will commonly liquidate the firm. Conversely, an opportunity entrepreneur will continue running the firm as long as it stays afloat and will try to discover and exploit new business opportunities. In addition, because opportunity entrepreneurs are more innovative, they are able to offer differentiated products and services and develop more efficient processes (Andersén, 2011). This makes them more competitive, profitable and sustainable than necessity entrepreneurs.

There is ample evidence that other entrepreneurial characteristics (i.e. education and experience) and attributes of new ventures (i.e. start-up capital and number of employees) are positively related to survival and long-term success (Ebben and Johnson, 2005; Geroski, 2005; Haber and Reichel, 2005; Van Praag, 2003; Ribeiro-Soriano and Castrogiovanni, 2012; Simón-Moya, Revuelto-Taboada and Ribeiro-Soriano, 2012; West and Noel, 2009). Necessity ventures tend to be undertaken by people in unemployment or paid workers in precarious employment. These individuals are often urgently seeking income, and their investment capability is low. Hence, new firms driven by necessity are typically smaller in terms of both investment and staff. Necessity entrepreneurs also tend to have lower educational attainment than opportunity entrepreneurs (Kelley, Bosma and Amorós, 2010; Kelley, Slavica and Herrington 2011). In summary, the characteristics of necessity entrepreneurs seem to reduce their likelihood of survival. Furthermore, these characteristics may explain, at least partially, differences in survival rates between necessity and opportunity entrepreneurship. Nonetheless, given that lower educational attainment means a lower probability of finding paid work, the opportunity cost of starting and maintaining a new venture will be lower for

necessity entrepreneurs. Furthermore, just as crisis drives people with little interest in starting a business (i.e. with little entrepreneurial motivation) to do so, it also forces them to persist with their ventures due to a lack of viable or attractive alternatives. This should improve necessity entrepreneurship survival (Naudé and McGee, 2009). Opportunity or vocational entrepreneurs, as remarked above, are usually reluctant to let their business fail, regardless of the economic situation. They are likely to have better employment alternatives than necessity entrepreneurs even during crises. Nevertheless, we expect crises to force opportunity entrepreneurs, who lose paid job opportunities during crises, to act as necessity entrepreneurs (Ribeiro-Soriano and Urbano, 2010). Hence, the survival rate gap between the two kinds of entrepreneurship should narrow during periods of crisis.

Hypothesis 2: The difference between survival rates of firms created by opportunity and necessity entrepreneurs decreases during periods of economic crisis.

3. A brief review of changes in Spain's economy following the onset of the financial crisis

In July 2007, the International Monetary Fund (IMF) published its second World Economic Outlook entitled, The global economy continues to grow strongly. According to the report, the global economy was set to grow at 5.2% in 2008. For Spain, the forecast for 2008 was for 3.4% economic growth. Shortly afterwards, in January 2008, the IMF started reducing its economic growth expectations and entitled its subsequent report, Financial turbulence clouds growth prospects. This report predicted that 2008 global economic growth would be one percentage point lower than its previous prediction. The IMF attributed this to a moderation in global economic expansion as a 'response to continuing financial turbulence' (IMF, 2008: 1).

In Spain, this shift in the economic cycle led to GDP growth in Q4 2013 of just 0.2% more than in Q3 2013 and 0.2% less than in Q4 2012 (INE, 2014). As of 2014, unemployment had already exceeded 25%, and there were almost two million Spanish families in which all family members were unemployed. Comparing employment in Q4 2007 and Q4 2013 reveals that more than 3.5 million people lost their jobs, which equates to a job destruction rate of more than 18% in six years (EPA, 2012). Furthermore, income distribution was affected, with the GINI coefficient increasing from 30.7% in 2004 to 34.7% in 2013 (Global Peace Index, 2014).

To address this situation, families sought ways to combat unemployment. Evidence lies in the number of self-employed workers registered in Spain. This figure increased in Q3 2012 by more than 65,000 people (Romero, 2012). Likewise, the percentage of surviving firms with zero employees grew from 48.0% of total firm survival to 52.8% (Laborda, 2012). The Spanish

economy therefore seemed to be exerting an influence on entrepreneurship and new firms' survival prospects.

In addition, one of the direct consequences of this crisis was the drying up of credit from the banking system due to the increase in customer defaults. For example, in 2012, one of Spain's biggest banks, Santander, cut its quantity of borrowed assets by almost 8% with respect to the previous year (Ercoreca, 2012). One way of adapting to the changes brought about by the recession was the discovery of opportunities that, as well as being profitable, required relatively low levels of investment and displayed an efficient use of assets. The lack of credit has aggravated difficulties for entrepreneurs, as reflected by the theory of infant industry (Aghion, 2011; Greenwald and Stiglitz, 2006), which explains that one of the main disadvantages for new entrants is a lack of physical capital (Kerr and Nanda, 2011).

In 2013, most people in Spain (54.3% of the population) reported that entrepreneurship was a viable way of attaining a high standard of living. This percentage, however, is lower in 2013 than in previous years. Therefore, people view entrepreneurship as a less attractive career prospect once they have entered paid employment (GEM 2013). This shift in perception may owe to economic uncertainty. In the first quarter of 2014, Spain's unemployment rate was 25.93%. Unemployment has since dropped, yet the unemployment rate in 2015 still exceeds 22%, and all family members of 1,793,600 Spanish families remain unemployed (El Mundo, 2015). Accordingly, 29.2% of the Spanish population is at risk of poverty and social exclusion (El País, 2015). We can therefore assume that these high rates of economic insecurity are causing a lack of funds to start businesses and a distrust of others when doing so.

Table 1. Sample Characterization

		Start-up capital (euros)		Sector		Urban/Non-urban (%)			Motivation (%)		
Year	**Ventures created (%)**	**Minimum**	**Maximum**	**Manufacturer**	**Services**	**Fewer than 2,000 Inhabitants**	**Between 2,000 and 10,000 Inhabitants**	**More than 10,000 Inhabitants**	**Necessity**	**Opportunity**	**Missing Values**
2000	10.3	111	970,429	13.17	86.83	2.24	7.00	90.76	62.23	31.09	1.68
2001	13.2	98	506,652	19.31	80.69	2.39	11.50	86.12	41.43	47.50	11.06
2002	18.4	344	436,632	15.18	84.82	2.66	10.80	86.54	49.61	39.12	11.27
2003	20.7	111	450,028	18.86	81.14	2.36	10.54	87.10	50.20	34.40	10.40
2004	22.00	176	577,721	16.38	83.62	3.77	10.66	85.57	52.41	46.94	0.65
2005	15.4	8,497	1,203,586	19.29	80.71	3.39	12.86	83.75	52.32	45.36	2.32

	Education (%)					Related education (%)			
Year	**Primary**	**Secondary + Vocational Training I**	**Vocational Training II + Upper secondary education**	**University studies**	**Missing values**	**Related education**	**Semi-related education**	**Non-related education**	**Missing values**
2000	6.72	12.60	17.65	42.02	21.01	65.27	0.00	33.33	1.40
2001	7.16	16.49	24.08	36.23	16.05	50.98	10.19	29.07	9.76
2002	14.71	14.55	25.04	32.86	12.83	48.67	8.61	35.05	7.67
2003	17.34	11.23	23.30	37.03	11.10	55.48	1.95	27.46	15.12
2004	19.38	12.48	22.76	36.41	8.97	56.05	1.95	28.87	13.13
2005	19.29	15.18	25.36	33.93	6.25	48.57	1.96	40.00	9.46

4. Data and method

Collaboration with the Management Programme and Planning Service from the Valencian Youth Institute (IVAJ) yielded data for 3,477 small companies created between 2000 and 2005 in the Autonomous Region of Valencia. Only 2842 were valid cases, all other cases contained missing values for at least one variable. All companies were created by young entrepreneurs under 30 years old, or under 30 but partnered with entrepreneurs aged 30 or more. All entrepreneurs had applied for assistance from the Public Aid Programme run by the Valencian Youth Institute (IVAJ). This programme offered training, consulting and financial support not exceeding 18,000 Euros. The homogeneity in the sample will undoubtedly have caused biases that should be accounted for.

To participate in the programme, entrepreneurs (self-employees in most cases) had to be involved in a start-up that was less than one year old, had to present a business plan and could not have been beneficiaries of the same programme in previous years. They had to provide relevant information about their businesses (legal form, owners, financial data, some aspects of internal organization, number of employees, social outreach activities, etc.) and their previous employment status, experience, educational attainment and so forth. Wherever possible, they also had to provide supporting documents to demonstrate the truthfulness of the data supplied. If any serious fault in an entrepreneur's application was detected, he or she was excluded from the programme and accordingly from our sample. This was a rigorous data checking process, so if we failed to find any source to corroborate the data provided by the entrepreneur, we excluded the case from our database. Entrepreneurs also committed to providing information about their businesses in the five years subsequent to their acceptance on the aid programme.

We were given access to this information under an agreement between the University of Valencia and IVAJ. Under the agreement, University faculty provided advice and support to IVAJ in areas related to the Aid Programme. They also assessed ventures and identified the projects that should benefit from the programme. Most firms received much less than 18,000 Euros, and many did not receive any financial support. For most entrepreneurs, the financial support was symbolic because the amount they received was so small.

Table 1 shows ventures created per year, minimum and maximum capital invested by entrepreneurs when starting the venture, the percentage of manufacturer and service ventures, the percentage of ventures created in urban and non-urban areas, the percentage of

ventures created by necessity and opportunity entrepreneurs, the entrepreneurs' educational background and the entrepreneurs' related education and experience. Table 1 also shows the missing values for the last three variables.

4.1. Method

We analysed the effect of economic context on new firm survival and compared profiles of surviving firms at different points in the economic cycle. To do so, we performed a range of analyses. The nature of the dependent variable (survival after t + 6) called for use of the Mann–Whitney U-test for two independent samples, the Kruskal–Wallis test for more than two independent samples, Pearson's X2 test and multivariate logistic models. The significance level for all analyses was 5% ($\alpha = 0.05$). Bivariate and multivariate analysis techniques allowed us to identify characteristics that determined the profile of surviving firms at different points in the economic cycle. Mann–Whitney U-test and Kruskal–Wallis test evaluated whether a parameter's (ordinal) distribution differed in two or more independent samples. Pearson's X^2 test measured strength of association between two categorical variables, provided that expected frequency was greater than five. For dichotomous variables, we used Fisher's exact test.

We used binary logistic regression models to conduct the aforementioned multivariate analysis. Binary logistic regression models are multivariate models that estimate the association between two variables whilst acknowledging that other factors may modify this relationship. These logit models express the probability of not surviving as a function of several independent variables. We opted for this kind of analysis because of the nature of our variables. Proportional hazard models, and specifically the Cox model, need data about the exact time elapsed between the birth and failure of the firm. We did not know the exact date of the firms' closure, so we were unable to use proportional hazard models. Nevertheless, the Chambers of Commerce of Valencia, Alicante, and Castellon provided information about survival as of 31 December of the third and sixth years. We were thus limited to using a dichotomous variable, the kind of dependent variables used in logit models. Additional reasons for choosing the logit model were that relationships between dependent and independent variables could be non-linear, and our independent variables were all categorical. Therefore, the model that best suited our data was the logit model.

Logistic models express odds5 as an exponential function of independent variables:

$$\frac{p}{1-p} = e^{\beta_0+\beta_1 X_1+\beta_2 X_2+.....+\beta n Xn}$$

where p is the probability of not surviving, Xi (i = 1, 2, …, n) are independent variables (unemployment, start-up capital, relevant experience, etc.) and βi are regression coefficients used for estimation in analysis. This equation may also be written as follows:

$$\frac{p}{1-p} = e^{\beta_0} e^{\beta_1 X_1} e^{\beta_2 X_2} \ldots e^{\beta_n X_n}$$

A unit increase of factor Xi multiplies odds by eβi. The significant influence of a factor is thus measured in terms of variation in non-survival odds.

The entry model of variables was step-by-step conditioned, with an entry p-value of 0.05 and an exit p-value of 0.1 for all variables. Categorical variables with k levels were transformed into k − 1 dichotomous variables. In other words, one category was taken as a reference with which the presence or absence of other categories could be compared. For the logit model, we used two measures of goodness of fit: the statistic equal to minus twice the natural log-likelihood function (−2LL),6 and Nagelkerke's R2 coefficient.7 Likewise, the Hosmer and Lemeshow test was used to test the model's calibration, namely the degree to which probabilities yielded by the model conform to reality.

4.2. Variables

The dependent variable was survival on 31 December of the firm's sixth year after creation. This variable was dichotomous. It indicated whether the firm had survived at time t0 + 6. We chose this moment because it is when the venture becomes an Established Business, according to GEM criteria. To obtain data for this variable, we checked whether the venture was alive after six years according to information provided by the Chambers of Commerce of Valencia, Castellon, and Alicante where the start-ups were located. The six-year mark represents the start of a new period in the firm's life cycle; a period during which the venture is considered consolidated (Xavier et al. 2012).

GDP variation rates and unemployment rates of the Autonomous Region of Valencia in the three years before t0 + 6 were used prior to any other analyses to identify three groups of surviving firms whose profiles could later be compared. Information about the exact date of firm failure was unavailable, so indicators of previous unemployment rate and GDP variation rate had to be approximated. We calculated the economic crisis variables (GDP and

unemployment) as the average over the period running from when ventures began to operate to 31 December of the sixth year, when survival was checked.

The first period comprised ventures created in 2000, 2001 and 2002. Survival of these firms was tested during a period of economic growth and moderate declining unemployment (2006–2008). The second period comprised ventures created in 2003. These firms were initially active during a growth period, but their survival was assessed during a period of transition from economic growth to crisis (2009). The third period comprised firms created in 2004 and 2005. The survival of these firms was verified in 2010 and 2011, when the crisis in Spain was at its height.

Second, GDP variation rates and unemployment rates of the Autonomous Region of Valencia were used to create two new variables introduced as independent variables in our logit analysis. Specifically, these variables were average unemployment (UnempAv) and average GDP variation (GDPVAv) in the Autonomous Region of Valencia in the two last years before t0 + 3 and t0 + 6, depending on whether firms had survived at t0 + 3. GDP variation and unemployment rate reflect the status of the economic crisis because they are two of the main indicators of a country's economic development, and their growth or decline is related to periods of prosperity or crisis (Kaminsky, Lizondo and Reinhart, 1998).

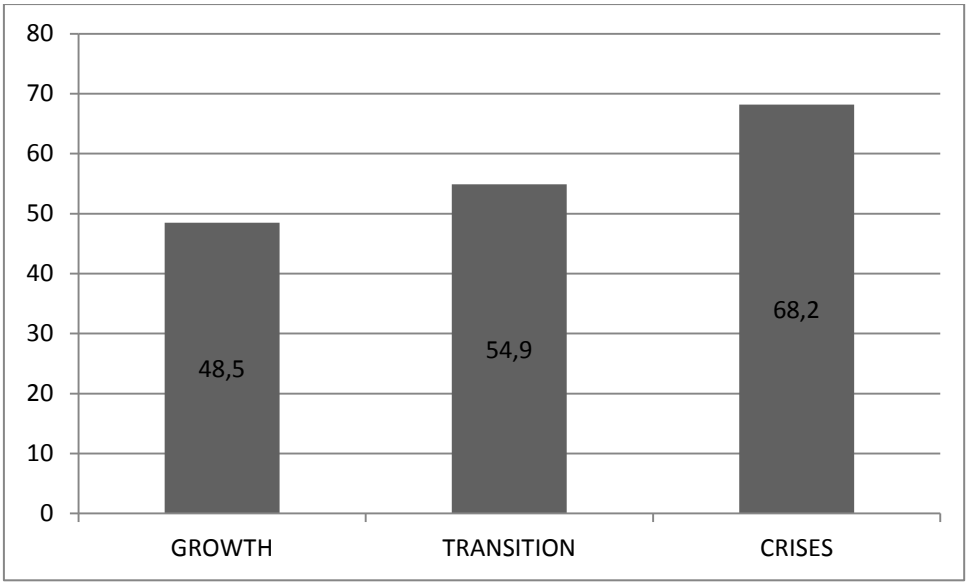
Motivation to start a business (Motiv): dichotomous variable indicating whether a business was started by opportunity or necessity entrepreneurship. The entrepreneur's previous work situation was considered for classification purposes. Our classification was based on objective data. This differs from the GEM procedure, which involves an interview with entrepreneurs, who answer the following question: 'Are you involved (in an entrepreneurial activity) to take advantage of a business opportunity or because you have no better choices for work?' Hence, the GEM bases its research on necessity and opportunity entrepreneurs on the entrepreneur's employment status before undertaking an entrepreneurial venture. We therefore consider our variable a good proxy. Our method had a limitation insofar as we did not allow for simultaneous opportunity/necessity motivation. Data on this question can only be obtained through subjective responses from entrepreneurs.

Other independent variables relating to entrepreneurial attributes, firm characteristics and environmental factors were included in the logit model. Ample empirical evidence supports a significant relationship between these variables and firm survival:

Table 2. Characterization of Periods of Economic Cycle

		Period		
		Growth	**Transition**	**Crisis**
Average GDP CV variation rate	Mean	7.71	5.62	1.22
	Standard error	.41	1.15	3.89
Average unemployment CV rate	Mean	9.42	10.24	16.59
	Standard error	.96	.35	5.08

Figure 1. Percentage of surviving firms by period of economic cycle



• Educational attainment (Educ): categorical variable with four levels of educational attainment: primary, secondary + vocational training I, vocational training II + upper secondary education and university studies.

• Relevant vocational training (Reduc): dichotomous variable that indicated whether entrepreneurs had some type of specific training or education relevant to the business.

• Relevant experience (Rexp): dichotomous variable that indicated whether entrepreneurs had at least one year of work experience relevant to the business.

• Kind of venture (Kvent): dichotomous variable that indicated whether the company was business-oriented or a social venture.8

• Degree of social interest (Dsoc): variable ranging from 0 (purely business venture) to 5 (purely social venture).

• Workforce (Worf): number of stable employees, including business owners.

• Start-up capital (Sucap): a proxy of start-up capital, this variable captured eligible capital according to criteria from the Management Programme and Planning Service at IVAJ.

• Urban/Non-urban venture (Urban): a dichotomous variable with two possible values: 1 for firms at sites with 10,000 inhabitants or fewer; 0 when population was higher than 10,000.

• Sector (Sector): dichotomous variable that indicated whether the company was a service (0) or a manufacturing firm (1).

• Subsector (Subsector): categorical variable based on two-digit CNAE-93 classification.

This variable had eight categories that grouped distinct but related sectors.

Table 3. Results of Final Step Logit Model at t_0 + 6 with all Variables

Step 8	***Number of cases***	***B***	***S.E.***	***Wald***	***d.f.***	***Sig.***	***Exp(β)***	***C.I.* 95% for *Exp(β)***	
								Lower	**Upper**
Primary education (ref.)	260			12.583	3	0.006			
Secondary education	242	-0.212	0.161	1.171	1	0.190	0.809	0.590	1.110
Upper secondary education	486	-0.490	0.143	11.680	1	0.001	0.612	0.462	0.811
University studies	790	-0.374	0.152	6.075	1	0.014	0.688	0.511	0.926
Related training (Yes)	1186	-0.528	0.110	23.037	1	0.000	0.590	0.476	0.732
Related experience (Yes)	609	-0.298	0.102	8.529	1	0.003	0.743	0.608	0.907
Sector (services)	1596	0.271	0.128	4.507	1	0.034	1.312	1.021	1.685
Motivation (necessity)	936	0.435	0.094	21.381	1	0.000	1.546	1.285	1.859
Staff	--	-0.256	0.041	39.808	1	0.000	0.774	0.715	0.838
Start-up capital	--	-0.004	0.001	12.403	1	0.000	0.996	0.993	0.998
Unemployment average	--	-0.248	0.013	333.475	1	0.000	0.780	0.760	0.801
Constant	--	3.520	0.249	199.620	1	0.000	33.786		

Values assigned to relevant education, relevant experience and type of activity were set by expert evaluators in IVAJ programmes, based on information included in project portfolios. To mitigate risk and improve the reliability of evaluations, we randomly selected a sample of firms that had been evaluated annually by an expert committee. Any discrepancies that emerged

were analysed to resolve such issues and to unify criteria used in the evaluation. Remaining variables were objective. They came from entrepreneurs, IVAJ and the Chambers of Commerce.

5. Results

5.1. Economic environment and likelihood of new firm survival

We classified economic periods into three categories according to GDP variation and unemployment rate. We used the same independent variables for each period. We labelled these periods as growth, transition and crisis. Table 2 shows the thresholds used to characterize these periods and the number of firms considered in each period.

Contrary to intuition or common sense, empirical results show that probability of firm survival for our sample was higher during crisis, when growth rates declined and unemployment rates rose rapidly (p-value of Kruskal–Wallis test < 0.05). Results in Figure 1 imply that the percentage of surviving firms at t0 + 6 followed an upward trend, thus corroborating hypothesis 1.

Economic situation was thus a key risk factor in firm survival. Specifically, a worse economic situation meant a higher survival probability. Because GDP variation rate and unemployment rate were highly correlated (Spearman's Rho = −0.842), we included only one of these binary variables as an independent variable in our logit models. This avoided multicollinearity problems. We used only the variable UnemAv. We chose this variable because it was directly related to the concept of opportunity costs of starting and maintaining a business. Table 3 summarizes results from the final multivariate logit analysis.

Table 4. Summary of bivariate analysis results comparing opportunity versus necessity entrepreneurs

Opportunity vs. necessity survival	**Higher value**	**Overall p-value**	**Growth p-value**	**Crisis p-value**
Survival at t0+6 overall	Opportunity	**0.000**	**0.000**	**0.000**
Opportunity vs. necessity profiles	**Higher value**	**Overall p-value**	**Growth p-value**	**Crisis p-value**
Sector (Service)	Necessity	**0.035**	**0.000**	0.351
Non-urban/urban (Non-urban)	Necessity	**0.015**	**0.035**	**0.002**
Entrepreneur educational attainment (Primary)	Opportunity	**0.000**	**0.002**	**0.003**
Relevant training	Opportunity	**0.000**	**0.007**	0.056
Relevant experience	Opportunity	**0.000**	**0.000**	**0.001**
Business/social	---	0.134	0.942	0.157
Workforce	Opportunity	**0.000**	**0.004**	**0.047**

Capital	Opportunity	**0.000**	**0.000**	**0.000**

Table 5. Results of Final Step Logit Model at t0 + 6 in Growth and Crisis Periods

Growth period (Step 6)	***Number of cases***	***B***	***S.E.***	***Wald***	***d.f.***	***Sig.***	***Exp(β)***	***C.I.* 95% for *Exp(β)***	
								Lower	**Upper**
Primary education (ref.)	45			15.465	3	0.001			
Secondary education	89	-0.492	0.253	3.781	1	0.052	0.612	0.373	1.004
Upper secondary education	182	-0.903	0.238	14.359	1	0.000	0.405	0.254	0.647
University studies	281	-0.650	0.265	5.993	1	0.014	0.522	0.310	0.879
Related training (Yes)	425	-0.384	0.170	5.139	1	0.023	0.681	0.488	0.949
Related experience (Yes)	502	-0.485	0.144	11.297	1	0.001	0.616	0.464	0.817
Sector (services)	561	0.401	0.188	4.552	1	0.033	1.493	1.033	2.159
Motivation (necessity)	936	0.297	0.134	4.918	1	0.027	1.346	1.035	1.750
Workforce	--	-0.216	0.054	16.199	1	0.000	0.805	0.725	0.895
Constant	--	1.116	0.283	15.499	1	0.000	3.051		
Crises period (Step 5)	***Number of cases***	***B***	***S.E.***	***Wald***	***d.f.***	***Sig.***	***Exp(β)***	***C.I.* 95% for *Exp(β)***	
								Lower	**Upper**
Related training (Yes)	514	-0.543	0.144	14.159	1	0.000	0.581	0.438	0.771
Related experience (Yes)	619	-0.356	0.152	5.501	1	0.019	0.701	0.520	0.943
Motivation (necessity)	427	0.478	0.152	9.936	1	0.002	1.614	1.198	2.173
Staff	--	-0.272	0.079	11.710	1	0.001	0.762	0.652	0.890
Start-up capital	--	-0.010	-0.002	19.446	1	0.000	0.990	0.985	0.994
Constant	--	0.251	0.231	1.189	1	0.276	1.286		

The value for −2LL was 3329.97 for the first step and 3077.36 for the final step. In other words, its value decreased with the inclusion of additional variables in the model. The significance for the Hosmer–Lemeshow test was 0.083 (>0.05). This result offers no evidence to reject the null hypothesis that the model is correct. Nagelkerke's R^2 was 0.324, so the model explained only 32.4% of the variance. Thus, the model was appropriate and had significant explanatory capacity, although there were other factors not included in the model that determine the probability a business will close (hence the high value of the constant term). The model had an acceptable level of sensitivity and specificity (around 70%). It therefore adequately predicted firm survival and non-survival.

The logit model at t0 + 6 included unemployment, sector, workforce, start-up capital, educational attainment, relevant training, relevant experience and motivation. A second logit model, which included all these variables except UnempAv, had an explanatory capacity of just 12%. This second model yielded no relevant changes in significance, sign or Exp(β) of any variables, except educational attainment, which ceased to be significant. The introduction of UnempAv therefore almost tripled the model's explanatory capacity compared to a model without this variable. The variables urban/non-urban location and business/social firm were omitted from all models because they did not have significant relationships with probability of failure at t0 + 6. In summary, results in Table 3 show that the risk of failure fell 22% for each 1% increase in unemployment. This shows a link between high unemployment and a decrease

in opportunity costs of continuing with the venture in times of crisis. Thus, all results lend support to hypothesis 1.

Results also reveal that firm size was an important factor in survival probability. Risk of failure dropped 22.6% for each extra employee, and it fell 0.4% for each increase of 1,000 Euros in start-up capital. Motivation also affected survival. Indeed, risk of failure increased 55% when the entrepreneur's motivation was necessity rather than opportunity. Finally, entrepreneurs' background exerted an influence on survival probability. Risk of failure dropped by 25.7% when entrepreneurs had relevant experience. It also fell by 41% when they had relevant training or education. Compared to the reference category (primary education), upper secondary education caused the probability of failure to drop by 39%. Having university studies reduced this probability by 31%. In general, the profile with greatest risk of firm failure after six years was an entrepreneur with primary education, without specific training or relevant experience, motivated by necessity, and a firm pertaining to the service sector, with scarce start-up capital, and a small number of employees in a favourable macroeconomic context. A better economic situation meant a higher probability of failure.

5.2. Opportunity and necessity entrepreneurship

Results from Pearson's X^2 test imply that survival probabilities of opportunity entrepreneurship were significantly higher than the survival likelihood for firms created by necessity entrepreneurs. This result holds in general and in periods of growth and crisis (p-value = 0.000) and therefore does not support hypothesis 2 (see Table 4).

When profiles of opportunity-driven and necessity-driven ventures were compared, significant differences arose in most variables (see Table 4). These significant differences were observed in overall analysis and when the growth and crisis periods were analysed separately. In short, bivariate analysis showed that opportunity entrepreneurs had higher educational attainment, a greater level of specific training and greater relevant experience (p-values > 0.05). Opportunity entrepreneurs were located more frequently in urban areas and showed a greater tendency to start industrial businesses. In the case of relevant training and sector, differences between both types of entrepreneurs were significant overall but not during crises. Nevertheless, these differences must be interpreted with caution when they are very small (e.g. non-urban/urban), because with big samples, any small difference can be significant.

Table 5 shows that in growth periods, necessity entrepreneurship ventures ran a 34% greater risk of failure than opportunity-driven firms did (Exp(B) = 1.346). In periods of crisis, however,

the Exp(B) for necessity-driven ventures was 1.614. Hence, risk of failure increased by more than 61%, so likelihood of failure under different economic conditions almost doubled. The risk of failure of necessity entrepreneurs with regard to opportunity entrepreneurs increased during the period of crisis.

Mann–Whitney U-test showed that opportunity firms were bigger, in terms of both human resources and start-up capital (p-value < 0.05). Both variables were positively related to survival, so these findings explain, at least partially, why results fail to support hypothesis 2. As observed in Tables 3 and 5, in general, firm size positively influenced survival probability. Relevant training and relevant experience were also positively related to survival and were greater in the case of opportunity entrepreneurs.

6. Conclusions, limitations and future research

Ample evidence supports the pivotal role of entrepreneurial activity in job creation and economic growth. Research has also found that small- and medium-sized enterprises are an essential element of any country's employment (Ribeiro Soriano and Roig Dobon, 2009). Nevertheless, scholars have posited reverse causation, asserting that economic growth and unemployment, two highly interlinked factors, may be key environmental factors of new firm survival.

Researchers have agreed that opportunity-driven new ventures survive longer and perform better than their necessity-driven counterparts do. There is evidence that opportunity entrepreneurs are not only more committed to their businesses but also more innovative and, in general, have better education and experience. Most necessity entrepreneurs launch their businesses whilst in unemployment or precarious employment, so their firms tend to be smaller in terms of staff and start-up capital. Upon analysing surviving firms, our results generally support these propositions in both growth and crisis periods. The accepted view is that changes in economic conditions can modify patterns of new firm creation and their survival probabilities either positively or negatively. GEM results have shown that the ratio of opportunity to necessity entrepreneurship decreases in periods of crisis and high or rising unemployment. Conversely, this ratio increases during periods of growth and moderate or decreasing unemployment.

In this study, we analysed the effect of the recent financial crisis (2008 onwards) on firm survival. Despite the general worsening of market conditions, we expected to observe that the lack of alternatives to self-employment would have raised the survival rate for new firms

because this lack of alternatives tends to minimize opportunity costs (H1). Results show that economic growth and unemployment were the key factors in explaining non-survival probabilities. The introduction of a variable that operationalized the economic cycle almost tripled the model's explanatory capacity. Consistent with our first hypothesis, new firm survival probability was significantly higher in the crisis period than in the growth period. With regard to profiles of surviving firms at different stages in the economic cycle, no trait seemed to typify firms in any period. We observed slight differences, albeit nothing determinant. Finally, advantages of small firms (i.e. close supervision, less bureaucracy, close contact with customers, flexibility, etc.) doubtlessly determine firms' survival capability in adverse environments.

In this vein, common sense would imply that ventures are generally more likely to survive in periods of economic prosperity and more likely to fail in times of crisis. The entrepreneurship literature, however, shows that such a cause and effect relationship does not always hold. We hypothesized that the lack of job opportunities and social security benefits makes the opportunity cost of continuing with the venture lower than in times of economic prosperity. Hence, new ventures are more likely to survive in times of crisis. Results from statistical analysis support this hypothesis, so a decrease in the opportunity cost of continuing with ventures leads to new venture survival. This finding has further implications. Although many authors consider new venture survival a measure of success (Cooper, Javier Gimeno-Gascon, and Woo 1994; Haber and Reichel 2005; Van de Ven, Hudson, and Schroeder 1984), new venture success cannot be measured by survival rate. Survival rates may simply reflect a lack of job opportunities rather than the success of the new venture.

Contrary to hypothesis 2, comparing survival rates of opportunity and necessity entrepreneurial ventures showed that survival probability was significantly higher for opportunity ventures in general, in times of growth, and during crisis periods. Although we hypothesized that higher opportunity costs for opportunity entrepreneurs – who are more likely to find paid employment – could reduce differences with necessity entrepreneurs in terms of survival rate, results fail to support this hypothesis. Results nonetheless confirm that opportunity entrepreneurs had better profiles in terms of variables positively related to survival like higher educational attainment, more relevant experience and greater initial human and capital resources. These preferable initial conditions and greater commitment and innovativeness amongst opportunity entrepreneurs could explain our results. Alternatively, deterioration of the economic environment may also have converted opportunity

entrepreneurs into necessity entrepreneurs, trapped in the businesses they started and facing a lack of alternatives in paid work. In some cases, this lack of alternatives leads entrepreneurs into situations of self-exploitation.

This study had two main limitations. First, the sample was highly homogeneous and contained some biases owing to the data source, as mentioned earlier. Most ventures were examples of young self-employed entrepreneurs who had invested little capital and had small staff. It would be of interest to repeat the study with a more heterogeneous sample that included a greater number of large-scale ventures and other entrepreneurial profiles. The second major limitation owed to our decision not to consider simultaneous opportunity/necessity motivation, which we could have determined only whether we had used a subjective response from entrepreneurs. Finally, the sample was restricted to a single Spanish region, so repeating the study in another location may yield interesting results.

We deduce that ventures' greater survival likelihood in times of crisis owes to the lower opportunity cost of continuing with the venture. It would therefore be interesting to further analyse the conditions that enable ventures to survive and the way they affect unemployment during crises. Our findings highlight other issues for future research. It would be interesting to explore significant differences in the profiles of entrepreneurs and new firms created at different stages in the economic cycle. Moreover, it is highly likely that (a) different environments, start-up profiles and entrepreneurial characteristics are linked to firm failure and that (b) the causes of failure differ considerably from the causes of firm survival because of causal asymmetry (Ragin 2008). We therefore propose the analysis of firm survival using fuzzy-set Qualitative Comparative Analysis, which scholars such as Fiss (2011) and Woodside (2012) have shown to be equally conclusive for small and large samples.

7. Contribution of the study

This study's main contribution relates to opportunity cost. Results about total survival in times of crises and growth can be explained by opportunity cost theory. Durable ventures are expected to be more common during growth periods because the aggregate demand of goods and services is higher. Our findings, however, show that this is not always the case, at least for small ventures created by self-employed individuals in regions where the unemployment rate is above the EU. More ventures survive during crises because of the opportunity cost. The opportunity cost of abandoning a venture during growth periods is smaller than during crises because of the abundance of employment. If the entrepreneur abandons the venture during a

growth period, he or she is likely to find another job. Because of a lack of data, we cannot confirm whether opportunity cost affects firm creation, although we can confirm that it positively affects the survival of new ventures.

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Chapter 4: Are success and survival factors the same for social and business ventures?

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Are success and survival factors the same for social and business ventures?

Abstract

Despite the growing interest in social entrepreneurship, there exist gaps in research that compares traditional business-oriented entrepreneurship with the social kind. This study attempts to fill the gap by answering the following questions: Are there significant differences between the survival chances of business and social ventures? and Do the traits of the entrepreneur and the firm play the same role as success factors for both types of venture? Hypotheses are tested using data collected from 2,179 firms. The results show that significant differences exist between social and business-oriented entrepreneurship in the form and intensity of the independent variables related to survival.

1. Introduction

Though not as well known, another kind of entrepreneurship exists which differs from traditional forms of venturing. The primary goal of this type of entrepreneurship is not the creation of economic value, which is at the heart of business-oriented entrepreneurship, but sustainable social value creation (Guzmán and Trujillo, 2008). This kind of entrepreneurship, which basically focuses on the services sector (Juliá, 2011), has been called ''social'' and includes a variety of realities which make it difficult to reach a consensus on an overall definition or on its exact content and features. Despite these limitations, it is undeniable that this phenomenon has gained growing importance in recent years.

Weitzman et al. (2002) point out that this kind of value creation already involved 4.4% of U.S. organizations by 1998, generated more than $443 billion, and in 10 years (from 1987 to 1997) doubled the growth rate reached by business-oriented entrepreneurship. Santos (2009) makes the point that, according to the database of the Global Entrepreneurship Monitor (GEM), in the United Kingdom, 3.2% of people in the working age population are social entrepreneurs. What is more interesting, according to the GEM (2009) database, the rate of social entrepreneurship (% of the working age population involved in some kind of social venture) ranges from 5.4% in Denmark to 0.12% in Guatemala, and is more prevalent in developed countries.

Social entrepreneurship also has profound implications in the economy because it is often the seed of development of new industries; it allows the validation of new business models, and dedicates resources to neglected social problems (Santos, 2009). As Harding (2004) points out, and according to the 2003 study of the Observatory of Global Entrepreneurship in the United Kingdom, ''social entrepreneurs are disproportionately effective in the creation of jobs''.

Even in academic institutions, social entrepreneurship has become a topic of growing interest. As an example, the two journals with the highest impact factor in the field of entrepreneurship—Entrepreneurship: Theory and Practice and Journal of Business Venturing—have dedicated special issues to social entrepreneurship. In addition, leading universities such as Harvard, Duke and Oxford currently have programs on social entrepreneurship (Nicholls, 2010). In 1993, Harvard Business School was the first university to introduce a Social Enterprise Initiative. Later, in 2002, Duke University created the Center for the Advancement of Social Entrepreneurship (CASE). Finally, the Skoll Centre for Social Entrepreneurship was established by Oxford University in 2003. Since then, many other universities have undertaken similar

initiatives around the world. Social entrepreneurship has been recognized as a significant contributor to society (Alvord et al., 2002; Dees, 1998; Drayton, 2002; Mair and Marti, 2006; Peredo and McLean, 2006; Zahra et al., 2009), which can help cater for the needs that have been neglected by the state and the market (Leadbater, 1997; Bornstein and Davis, 2010).

Despite the growing interest in social entrepreneurship, many gaps remain that have not been adequately examined. Indeed, Nicholls (2010) considers social entrepreneurship to be at a pre-paradigmatic stage in which most studies are theoretical or based on qualitative analysis. In this regard, Harris et al. (2009) posited the unsatisfactory comparison between social and traditional ventures. In addition, Haugh (2007) and Zahra et al. (2009) highlight the importance of studying the success and failure factors of social ventures. The aim of this article is firstly to carry out a comparative analysis of social and traditional entrepreneurship (Bourne 2011; Hormiga et al., 2011; Mainardes et al., 2011; Yang and Li, 2011). Along the lines of the studies by Haugh (2007) and Zahra et al. (2009), this article investigates whether the existing relation between some of the key success factors that have been more widely examined in the literature and survival are similar in both cases. More precisely, it analyzes certain success factors related to the characteristics of the entrepreneur (education, experience and motivation to start a venture) and two variables related to resource availability (workforce and start-up capital). All these factors have been identified in business entrepreneurship literature as key factors for survival.

In the following section, we review relevant literature on business and social ventures, and attempt to identify differences and similarities between both types of venture. Section 3 analyzes survival rate differences between business and social ventures, and the nature of the relationship between the different success factors considered in this study and the survival rate of both kinds of firm. The next two sections are devoted to explaining the research methodology and the results obtained from a sample of 2,179 firms created between 2000 and 2003 by young entrepreneurs in the Spanish Autonomous Region of Valencia. The final discussion section presents the main conclusions derived from the results obtained and states the limitations of the study and future research proposals.

2. Business-oriented ventures versus social ventures

There is no widely accepted definition of social entrepreneurship (Light, 2006). However, perhaps the most widely cited definition of this phenomenon has been provided by the GEM (Bosma and Levie, 2009). Its definition of social entrepreneurship is based on three main

features: ‘‘1) prominence of social (or environmental) goals with respect to economic goals; 2) reliance on an earned income strategy and its contribution with regard to total revenue of the organization; and 3) the presence of innovation’’ (p. 48).

Although it is clear that social entrepreneurship and business entrepreneurship are different, they also have some similar features. Actually, the literature finds more similarities than differences between the two types of entrepreneur (Massetti, 2008). For example, Massetti (2008) finds that both are ‘‘passionate, driven individuals, who believe that their ideas will make the world a better place’’ (p. 4). Other features they share, according to the opinion of different authors, are: ambition, impetus and initiative, (Leadbater, 1997; Catford, 1998; Thompson et al., 2000), talent and temperament (Bolton and Thompson, 2000), and technique (Thompson et al., 2000). The two concepts also coincide insofar as any kind of entrepreneur is moved to start a business by his or her social network and an entrepreneurial culture (Herrera, 2009).

Innovation has also been considered to be an important feature for both business oriented (Roberts and Woods, 2005; Lee and Lim, 2009) and social entrepreneurs (Austin et al., 2006). According to the GEM definition, innovation should be present in social ventures, although the type of innovation can vary substantially from one case to the next. According to Alvord et al. (2002), social entrepreneurs are innovative in three different ways: building local capacity, attacking a specific need, and promoting movements that generate alliances to fight against the abuse of elites and/or institutions.

Important differences do indeed exist between the two types of entrepreneurship. We have found that there are two main threads on this question in the analytical literature. The first of these focuses on the characteristics of the entrepreneur (Drayton, 2002; Roberts and Woods, 2005) and the other examines entrepreneurial characteristics (Ligane and Olsen, 2004). In general, the related literature takes the view that the main difference is in the nature of the mission that motivates entrepreneurs (Mort et al., 2003). In business-oriented entrepreneurship, the main goal is the creation of wealth (Shane and Venkataraman, 2000; Roberts and Woods, 2005), that is, the creation of an economic value, whilst in a social enterprise, the creation of wealth does not make sense without the creation of social value (Zadek and Thake, 1997; Austin et al., 2006; Guzmán and Trujillo, 2008). Other authors on the topic do not address social values but it is present in their definitions expressions such as ‘‘social change’’ (Roberts and Woods, 2005: 45).

The study by Austin et al. (2006) also examines the aspects in which social entrepreneur is different from the traditional concept and identifies four major areas:

- Market failure: One of the most studied features in the literature on entrepreneurship is the ability to find market opportunities (Rodríguez and Prieto, 2009; Arroyo et al., 2010). Market failure will create different opportunities according to the kind of entrepreneurship. In fact, a threat for a business entrepreneur could be an opportunity for a social one. Market failure provides an opportunity for the creation of new business when there is an unsatisfied demand that is susceptible to profitable exploitation which has not been previously detected. In the case of the social entrepreneur, it constitutes an opportunity in situations where there are people who cannot access certain goods and services due to insufficient income or any other cause of social exclusion (Dees, 1998; Steinberg, 2006; Massetti, 2008).

- Mission: In the case of business entrepreneurship, the mission is based on aspects related to competitiveness, economic value creation, and long-term profitability (for instance, being a leader in the market). In other words, a business venture will have a market orientation, and although it may create social value via corporate social responsibility, it will be oriented towards improving its performance (Cambra et al., 2010). On the other hand, the mission of a social entrepreneur will focus on solving a social problem (for instance, helping to reduce the number of families living under the poverty line in a particular population). In this case, profitability does not constitute an end in itself, but rather a means of achieving sustainability and a way of attaining a higher goal.
- Resource mobilization: In terms of financial resources, a business entrepreneur has resources which come from the sale of goods or services that are offered to the market and, generally, they have easier access to credit facilities. In the case of a social entrepreneur, financial resources come, in many cases, from donations or grants. With regard to human resources, a social entrepreneur is not usually able to pay a competitive salary to people who are working in those organizations, especially the most valuable ones (Almond and Kendall 2000; Steinberg 2006). In fact, the study by Ruhm and Borkoski (2003), carried out in the US, shows that workers in social enterprises earn, on average, 264 dollars less per month than those in business-oriented firms. Therefore, the social entrepreneur depends even

more on non-monetary compensations derived from the work involved to attract, retain and motivate the organization's human resources.

- Performance measurement: For a business-oriented entrepreneur, performance measurement is essentially quantitative and uses economic and financial indicators. On the other hand, for a social entrepreneur, performance measurement is supported by qualitative indicators of social change and, due to the fact that the measurement of results on the basis of qualitative indicators is more difficult, the measurement of the results of social ventures is also more complex.

In addition to the differences mentioned above, the for-profit or not-for-profit nature of social entrepreneurship has been a hotly debated issue. Some authors believe that profit is incompatible with social entrepreneurship because the scope of social enterprises is based upon non-profit organizations (Lohman, 1989, 1992; Reis, 1999; Thompson, 2002; Harding, 2004). Another group of authors believe that social value creation may not be incompatible with profit (Arthur et al., 2010). In this sense, Austin et al. (2006) express the view that social entrepreneurship can be conducted in the non-profit sector, in privately owned companies or in the public sector. Dorado (2006) and Drayton (2002) claim that both kinds of entrepreneurship look for returns and can achieve economic profit/financial gain. In this sense, according to Van Slyke and Newman (2006), the literature on the subject has numerous examples of ventures oriented towards a social value creation which have financial gains.

Santos (2009) believes what is really relevant and characteristic of a social entrepreneur is his or her predominant focus on value creation in all its forms, as opposed to the emphasis for a business-oriented entrepreneur, which lies in profit making. Massetti (2008) states that social businesses can have economic gains, but the difference between social ventures and traditional ones is in the use of profits. While in a traditional business, the profits are used to enrich entrepreneurs, in social ventures, profits are used to support social causes. The author interprets this difference as a degree of intent, and describes a continuum in which, on one extreme, lay the enterprises that have a market-oriented mission and on the other, the companies that have a socially based mission. Therefore, hybrid ventures that combine social and profit ends are feasible.

3. Conceptual framework

A valid indicator to verify whether social ventures are as sustainable as business oriented ventures is the rate of firm survival. In fact, literature on the subject considers the rate of survival as one of the more relevant measurements to determine the success of a firm (Van de Ven et al., 1984; Brüderl and Schussler, 1990; Cooper et al., 1994; Barney, 1997; Haber and Reichel, 2005).

Although different proposals exist as to the period of greatest risk of failure, as can be derived from the hypotheses contrasted in Stinchcombe (1965) and Brüderl and Schussler (1990), there is no doubt that younger firms have higher closure ratios in their first years of existence. There are four main reasons for the greater risk of failure that young firms face. Firstly, because they depend on new roles and tasks that have to be learned at a cost. Secondly, because sometimes roles have to be developed, and this may be in conflict with constraints on resources or creativity. Thirdly, because social interactions in a new organization resemble those between strangers, and a common normative basis or informal information structure may be lacking. And finally, because stable links to clients, supporters, or customers are not yet established when an organization begins its activity (Singh et al., 1986; Brüderl and Schussler, 1990).

With regard to empirical evidence, many studies that have examined the behavior of young firms have proven that the closure ratio is fairly high during the first few years of existence. For example, Phillips and Kirchhoff (1989), using Dun&Bradstreet data, found that 76% of new firms were still open after 2 years, 47% after 4 years and 38% after 6 years. Headd (2003), using the BITS database, found that 66% of new firms were still in existence after 2 years, 49.6% after 4 years, and 39.5% after 6 years. In France, official data reports firm mortality at about 50%in the first 5 years of existence (Letowski, 2004). American data shows that about 56% of firms cease activity after 4 years (Knaup, 2005). The OECD declares that only between 40 and 50% of new firms survive after 7 years of existence (Cotis, 2007), whilst in Spain, firm survival after 4 years is around 53% (García and Caneda, 2008). These studies show fairly similar numbers of survival rates in business-oriented entrepreneurship.

In recent decades, a great deal of debate has surrounded the factors considered to be critical for firm survival and the success of newly created firms (Van der Werf and Brush, 1989; Brüderl et al., 1992). Literature typically takes into account three groups of explanatory variables; those relating to the characteristics of the entrepreneur, those relating to the

characteristics of the newly founded firm, and those external factors embracing the geographical and industrial environment in which entrepreneurial phenomena occur (Schutjens and Wever, 2000). However, all this literature has focused on the study of business ventures, but what happens with social entrepreneurship survival rates? Are they similar to business survival rates? Do they share the same key success factors as business-oriented entrepreneurship?

The following subsections will attempt to shed some light on these questions. We firstly analyze whether there are differences in the chances of survival between social and business-oriented ventures. We then go on to determine whether there are differences in the role that some of the more widely studied entrepreneurial and venture characteristics play as success factors. We analyze the influence of education, experience, motivation to start up a business, number of employees and start-up capital.

3.1. A comparison of social and business ventures survival rates

With regard to social ventures survival rates, there are different arguments in favour of and against a higher/lower survival rate in relation to business ventures. Austin et al. (2006), after pointing out that ‘‘human and financial resource mobilization will be a prevailing difference and will lead to fundamentally different approaches in managing financial and human resources’’ (p. 3), highlight the greater difficulty that social ventures find in mobilizing resources. As we previously established, a business entrepreneur can obtain resources directly from the market through the sale of goods and services and has easier access to the capital market, whereas a social entrepreneur depends more on donations and subsidies. In addition, according to the authors, a social venture will have certain restrictions in distributing surplus cash. For this reason, the finances of a social venture could be an obstacle to compensating its employees in a competitive way, reducing its chances of attracting, retaining and motivating talent. Accordingly, the greater difficulties social ventures encounter in obtaining financial resources and employing qualified staff reduces their survival probabilities. We thus formulate the following hypothesis:

Hypothesis 1A: Social ventures have lower survival rates than business-oriented ventures.

According to Santos (2009), the lesser emphasis on the appropriation of economic value could encourage social ventures to continue its activities as long as the business generates enough money for survival, whereas a business-oriented venture will liquidate its activity at the moment that owners consider that they do not receive an adequate level of returns from the

activity. This hypothesis is supported by Boschee (1995) who states that if a social venture is the only provider of particular goods or services, the organization will continue working without profits. Conversely, the objective of a business-oriented venture is to generate profits, so continuing the activity does not make sense if it is not profitable, even if the firm is the only provider of particular goods or services. Therefore, it is safe to say that social ventures will have a stronger motivation to continue a business than business-oriented ventures. Consequently, we present this alternative hypothesis:

Hypothesis 1B: Social ventures have greater survival rates than business-oriented ventures.

3.2. Education, experience and motivation to start a business as success factors for social and business ventures

Much of the success of a new company is determined by the founder's characteristics (Korunka et al., 2010). According to related literature and empirical studies, three of the most important characteristics of an entrepreneur which can have a positive relationship with the probability of firm success are education, experience and motivation to start the venture (Evans and Leighton, 1989; Mitchell, 1989; Brüderl et al., 1992; Gimeno et al., 1997; Klepper, 2002; Klepper and Simons, 2000; Van Praag, 2003; Agarwal et al., 2004; Alstete, 2008). As mentioned previously, due to the fact that the qualities that characterize both types of entrepreneur are similar and they identify opportunities and face similar challenges, using the entrepreneur's talent for problem-solving in a similar way (Sullivan, 2007; Massetti, 2008; Simms, 2009), we hypothesize that these factors are related in the same way to the probability of survival in both cases.

With regard to education, there are different trends as to how an entrepreneur's educational background is able to help the enterprise survive. Honig (1998) and West and Noel (2009) suggest that knowledge improves management ability in developing a business, and Castrogiovanni (1996) considers that knowledge is able to help the owner assess opportunities, as well as to utilize resources more efficiently, whilst Haber and Reichel (2005) state that knowledge can help acquire and transform know-how. In fact, most of the studies conducted in the literature show a positive relationship between education and survival (Headd, 2003; Van Praag, 2003).

Thus, what kind of education is necessary to increase survival? According to the classical economist Jean Baptiste Say (1803, quoted in Van Praag 2003), an entrepreneur needs ''judgement, perseverance, and a knowledge of the world as well as of business'' (p. 330).

Therefore, it can be said that two kinds of knowledge are necessary for expecting high survival rates: specific knowledge received through education and which is related to the activity in which the firm operates, for example, an entrepreneur who has studied computer engineering and starts up a firm devoted to developing web pages; and general knowledge received through education that is not directly related to the development of the activity in which the firm is involved.

This begs the question: Is one type of knowledge more important than another? According to Ribeiro and Castrogiovanni (2012), specific knowledge focuses on technologies, processes or relevant products of a sector. For Haber and Reichel (2005), specific knowledge can improve the performance of a business because of the improvement in managerial capacity, which can help to develop a better business or business plan. Furthermore, according to Castrogiovanni (1996), specific knowledge will help an entrepreneur better detect customer needs, and to use resources more efficiently, reducing costs to below those of their competitors. Therefore, specific education appears to have a greater impact than a general education on the chances of success of a new venture. Thus, assuming that the success factors are the same in social ventures as in traditional ones (Dorado, 2006; Massetti, 2008; Cáceres et al., 2011; Cavalcante et al., 2011; Goktan and Miles, 2011; Hotho and Champion, 2011; Huarng and Yu, 2011; Naranjo-Valencia et al., 2011), our hypotheses are as follows:

Hypothesis 2A: There is a positive relationship between the specific education of a business owner and survival rates in social ventures, as in the case of traditional ventures.

Hypothesis 2B: There is a positive relationship between the general education of business owners and survival rates in social ventures, as in the case of traditional ventures.

Hypothesis 2C: The relationship between education and survival rates is stronger in the case of specific education than in the case of general education.

With regard to previous experience, according to Ribeiro and Castrogiovanni (2012), experience allows for a greater identification, exploitation and acquisition of resources. Sheperd (1999) shows that survival is higher in companies whose management team has experience in the same industry. Authors like Brüderl et al. (1992), Cooper et al. (1994), Luk (1996) or Reuber and Fisher (1999) state that related previous experience (in self-employment in the same industry or occupation) affects the chances of success of business ventures, although this is not entirely true for some authors. Van Praag (2003), for example, shows that the owner's experience as an entrepreneur does not have any significant effect on business

success. On the contrary, the owner's experience in the same industry has a positive correlation with business success. Hence, if we assume that, in this case, social ventures function in the same way as traditional ones, our hypothesis is as follows:

Hypothesis 3: There is a positive relationship between the specific experience of business owners and survival rates in social ventures, as there is in the case of traditional ventures.

In terms of the motivation for starting a new venture, the literature distinguishes between opportunity entrepreneurs, driven by the search for independence, autonomy and the vocation of starting up their own business, and necessity entrepreneurs, who may not be interested in the business in itself, but who begin the activity as a means of avoiding unemployment (Reynolds et al. 2001). The results obtained by Headd (2003) indicate that the survival rates of firms created by opportunity entrepreneurs are higher than for cases of firms that were started for other reasons. This coincides with the GEM data that show that this type of entrepreneur enjoys higher rates of survival (Reynolds et al., 2001). According to the ideas of Headd (2003) and Van Praag (2003), this situation is due to the fact that, when a necessity entrepreneur finds another job, he or she will commonly liquidate the firm, whilst an opportunity entrepreneur will keep the concern going as long as it says afloat. Another of the reasons that help to explain the higher survival rates is offered by Ho and Wong (2007), who claim that opportunity entrepreneurs are more innovative and, therefore, their survival rates can be expected to be higher by starting up a business that offers something different or manufactures products more efficiently.

It should be pointed out, though, that the distinction between opportunity and necessity entrepreneurs can be, to a certain extent, affected by the very nature of social entrepreneurship. In this case, the main objective is the creation of social value, above and beyond the entrepreneurs own needs, and thus the previous employment situation of this type of entrepreneur may be of less consequence. From one perspective, creating a social enterprise to cater for one's own employment needs might seem contradictory, although this possibility cannot be excluded ex ante. We therefore propose the following hypothesis:

Hypothesis 4: The chance of survival, both of social firms and those that are purely business-oriented, is greater if the motivation for venture creation is opportunity rather than necessity.

3.3. Workforce and start-up capital as success factor for social and business ventures

A second group of explanatory variables that are commonly analyzed as success factors in business ventures is related to the characteristics of the organization or business. Two of the most widely studied aspects that have been shown to have a more stable pattern of a positive and significant relation with the success of new ventures, apart from the age of the organization, is the number of employees (Dunne and Hughes, 1994; Argawal and Audretsch, 2001; López-García and Puente, 2006) and financial start-up capital (Brüderl et al., 1992; Cooper et al., 1994; Schutjens and Wever, 2000; Headd, 2003).

Several authors, who have used these variables as proxies of the firm's resource endowment, propose the hypothesis of ''liability of size'' or ''liability of smallness'', which has generally been empirically contrasted (Brüderl and Schussler, 1990; Singh et al., 1986). The extent to which firms have a larger amount of resources affects their chances of survival during the initial period of existence. Moreover, it allows them the time required to identify and develop adequate organizational routines, learn to collaborate with the various internal and external stakeholders, gain legitimacy and develop the necessary knowledge and capabilities for creating competitive advantages. It should, however, be highlighted that social businesses normally encounter even more difficulties in mobilizing both human and financial resources than business-oriented ones (Almond and Kendall, 2000; Austin et al., 2006; Steinberg, 2006). Consequently, we can suggest the following hypotheses:

Hypothesis 5: The chance of survival, both of social firms and those that are purely business-oriented, is greater if they have a larger number of employees.

Hypothesis 6: The chance of survival, both of social firms and those that are purely business-oriented, is greater if they have a larger amount of start-up capital.

4 Methodology

4.1 Sample characteristics

Via collaboration with the Program Management and Planning Service of the Valencia Institute of Youth (IVAJ), data were obtained from 2,1791 companies, created between 2000 and 2003, of which 227 engaged in activities of social interest. Ninety percent of these companies were service-oriented and, specifically in the case of social ventures, this percentage rose to 94.2%; this data reinforces the statement by Juliá (2011) that the social economy is more prevalent in the services sector.

The collaboration with IVAJ focused on the evaluation of projects presented by entrepreneurs connected to enterprises of less than a year old (start-ups) which had attempted to obtain a grant. The information used was obtained from the project portfolio presented to obtain the grant, from the annual portfolio of execution of the Aid Program to the enterprises created by young entrepreneurs, and from the monitoring of the companies created by means of the databases of the Chambers of Commerce from Alicante, Castellón and Valencia. Table 1 shows the number of companies that requested a grant, the number of companies evaluated and the number of rejected ones. This study is based solely on the evaluated companies, as information on the rejected ones is very limited.

Table 1. Evolution of the number of companies in the period 2001-2008

Companies	2001(2000)	2002(2001)	2003(2002)	2004(2003)	2004(2003)
Applicants	464	617	785	967	2833
Accepted (evaluated)	357(52)	462(49)	639(76)	721(50)	2,179
Rejected (non evaluated)	107	155	146	246	654
Workforce mean (standard deviation)	2.49(7.606)	2.02(1.450)	1.93(1.505)	1.93(1.691)	2.04
Start-up capital proxy mean (standard deviation)	33,450.55 (63,215.55)	30,477.49 (42,093.24)	30,624.42 (43,760.41)	31,061.49 (41,706.58)	31,201.29 (46,534.78)

4.2. Variables used in the study

4.2.1. Dependent variables

Survival by December the 31st at the third and sixth year mark from the date of constitution of the company, were taken as dependent variables. These two variables are dichotomous and indicate whether the company survived or not at t+3 and t+6.

4.2.2. Independent variables

- Kind of venture: a dichotomous variable that indicates whether the company is a business-oriented or a social venture.

- Education level: a categorical variable that includes four levels of education: primary, secondary + vocational training I, vocational training II + baccalaureate and university studies.
- Related vocational training: a dichotomous variable that indicates whether the entrepreneur has some type of specific education related to the business.
- Related experience: a dichotomous variable that indicates whether the entrepreneur has at least a year of work experience related to the business.
- Motivation to start a business: a dichotomous variable that indicates whether a business started out based on opportunity or necessity. The previous work situation of the entrepreneur was taken into account for classification purposes.
- Workforce: the total number of stable employees, including entrepreneurs.
- Start-up capital: proxy of start-up capital—subsidized capital according to the criteria of Program Management and Planning Service from the Valencia Youth Institute (IVAJ).

To better assess the nature and intensity of the relationships between the independent variables and firm survival, two variables were included as control variables. We controlled for start-up year of the activity to account for potential differences in survival caused by industrial or economic factors. Lastly, although the sample is made up of a large majority of service firms, it contained a small percentage of industrial companies and thus the sector variable was included to control for the effect their presence might have on the overall results.

It is important to point out that the values assigned to the activity, variables of social interest, related education, and related experience were established by the expert evaluators of the IVAJ program, taking into account the information included in the project portfolios. To avoid possible biases on the part of the evaluator and increase the reliability of the assessments, a small sample of firms was selected that was successively assessed by a number of different evaluators. They went on to analyze the discrepancies found for each year, resolved any outstanding issues and unified the criteria to be used for the assessment. The remaining variables are objective ones obtained from the entrepreneurs themselves and the Chambers of Commerce of Alicante, Castellón and Valencia.

4.3. Methodology

Due to the nature of the dependent variables (survival at t + 3 and t + 6), we opted to use Pearson's X^2 test, Mann–Whitney's test for two independent samples, and a multivariate

logistic model or logit model. The level of significance used in all of the analyses was 5% (= 0.05).

The bivariate analysis techniques allow for the identification of the variables that individually have explanatory capacity in relation to firm survival. Consequently, Pearson's X^2 test is applied as a test of association or dependence of the survival of the business at the 3- and 6-year mark with other categorical variables, whenever the expected frequency of the cells in the contingency table is higher than five cases. In other cases, and, for dichotomous variables, Fisher's exact test was applied. Mann–Whitney's test for two independent samples was used to contrast whether or not the distribution of a parameter, is the same in two independent samples. For example, it has been used to test whether there is a relationship between the chances of firm survival and their degree of social interest.

In order to complete the previous bivariate analysis, a logistic regression model was estimated to gauge the relationship or association between two variables, taking into account the fact that other factors may exist that may modify this relationship. This logit model expresses the probability of not surviving as a function of a number of independent variables. The logistic model expresses the odds as an exponential function of two independent variables:

$$\frac{p}{1-p} = e^{\beta_0+\beta_1 X_1+\beta_2 X_2+.....+\beta n Xn}$$

where p is the probability of not surviving and Xi (i = 1, 2, …, n) are the independent variables (education, experience, etc.). The βi are the regression coefficients used to estimate in the analysis. An equivalent way of writing the equation is:

$$\frac{p}{1-p} = e^{\beta_0} e^{\beta_1 X_1} e^{\beta_2 X_2} \ldots e^{\beta_n X_n}$$

In this way, it is easy to see that the unit increase of a factor Xi, multiplies the odds by the value $e^{\beta i}$, therefore, the significant influence of a factor is measured in terms of variation produced in the odds of non-survival. The entry model of variables was conditional on a step by step basis, with a p value of entry of 0.05 and an exit p value of 0.1 for the variables. Different measures of goodness of fit have been used: the statistical minus twice the Naperian logarithm of the verisimilitude (-2LL), and the R^2 Nagelkerke coefficient. We also applied the Hosmer and Lemeshow test to contrast the calibration of the model, that is, the degree to which prognosticated probability conforms to reality.

5. Results

5.1. Sample characteristics

As noted, of the 2,175 companies analyzed, 227 have some degree of social interest (by this we mean that some are purely social ventures while other are mixed, in the sense described by Massetti (2008)), although only 52 of them can be considered exclusively social ventures. 16.4% of the enterprises were created in the year 2000, 21.2% in 2001, 29.4% in 2002 and 33.1% in 2003. The test sample is made up of small enterprises, with a workforce which ranges from between 1 and 142 employees (entrepreneurs included), with an average of 2.04 employees. Eligible capital (proxy for invested capital) ranges between €1,000 and €970,000, with an average of €31,204. As previously mentioned, 90% of these firms are service oriented and, in the case of social ventures, this percentage rises to 94.2%.

5.2. Survival according to the type of venture

As seen in Table 2, 72% of the total companies survive the 3-year mark, whereas at the 6-year mark this percentage falls to 52%. The survival rate of business companies is slightly higher at 3 years (72.2 vs. 68.7%) whereas at the 6-year mark, it is the reverse—more firms of social interest survive (55.1 vs. 52.1%). However, the results of Pearson's X^2 test indicate that these differences are not significant either at the 3-year mark (p value = 0.266), or at the 6-year mark (p value =0.345).

Table 2. Survival according to the type of venture

	Total		**Business venture**		**Social venture**	
	Count	%	Count	%	Count	%
Survival at 3-year mark						
Total	2,175	100	1,948	100	227	100
Do not survive in t+3	612	28.1	541	27.8	71	31.3
Survive in t+3	1,563	71.9	1,407	72.2	156	68.7
Survival at 6-year mark						
Total	2,175	100	1,948	100	227	100
Do not survive in t+3	1,042	47.9	940	48.3	102	44.9
Do not survive in t+6	1,133	52.1	1,008	51.7	125	55.1

When we take into account the degree of a firm's social interest, there does not seem to be a clear relationship between this factor and the chances of survival. The results of Mann–Whitney's test indicate that significant differences do not exist in survival according to the degree of social interest either at the 3-year mark (p value = 0.375), or at the 6-year mark (p value = 0.241). Therefore, hypotheses 1A and 1B were not supported because there are no significant differences in the probability of survival with regard to the type of venture.

5.3. Success factors and survival probability of business and social ventures

The influence of success factors has been analyzed by two logistic regressions, one of them for survival at t+3 and the other for survival at t+6. These logit models express the probability that a venture will fail when considering certain factors. Table 3 shows how the explanatory capacity of the different models varies according to the factor introduced, but the explanatory capacity of the initial model is always improved. The most efficient models are:

- For business-oriented firms, at t+3, composed of education (level of education), experience, start-up capital and personnel. At t+6, it is made up of education (specific

education), experience, motivation to start a business, start-up capital and personnel. In this case the model with the sector control variable is also included.

• For social ventures, at t+3, it is composed of education (level of education), start-up capital and personnel. At t+6, only start-up capital and personnel appear in the model.

The fact that the year of creation of the venture is not a significant factor is not a surprise because the analyzed period has been one of considerable stability, economic growth, and low unemployment rates. It must be emphasized that, even though the p values of the Hosmer–Lemeshow's contrasts (greater than 0.05 for all of the models) allow us to accept the null hypothesis that the models are adequate, values as low as those of Nagelkerke's R^2 which appear in Table 3, can only indicate that there are other determinant factors that have not been introduced into the models, such as the strategy adopted by the entrepreneurs or the possession of intangible assets such as relational capital.

Table 3. Evolution of the model's explanatory capacity introducing the different success factors

	Nagelkerke R^2	
	At 3 years of survival	At 6 years of survival
Business ventures		
Model with education and experience	0.031	0.051
Model with education and experience + sector	-	0.062
Model with education and experience + motivation	0.040	0.071
Model with education and experience + capital	0.048	0.075
Model with education and experience + workforce	0.074	0.107
Model with education and experience + motivation + capital + workforce	0.081 (excluding motivation)	0.130 (plus sector)
Ventures of social interest		
Model with education and experience	Model does not converge	Model does not converge
Model with education and experience + capital	0.130	0.061
Model with education and experience + workforce	0.143	0.082
Model with education and experience + capital + workforce	0.185	0.122

Table 4 shows, in the case of business-oriented ventures, the variables that were significant, as well as the order of entry in the t+3 scenario. The results indicate that the risk of non-survival is reduced by: 57.9% among entrepreneurs with university studies in comparison with those with primary-level studies (Exp(β) = 0.421); 28.7% among entrepreneurs that have related experience as opposed to those that do not possess experience (Exp(β) = 0.713); 0.6% per

€1,000 increase in subsidized capital (Exp(β) = 0.994); and 29.2% increase per worker employed (Exp(β) = 0.708).

Table 5 shows the same results for business-oriented firms at t+6. In this case, the results indicate that the risk of non-survival at the 6-year mark are reduced by: 48.6% among entrepreneurs that have related experience as opposed to those that do not possess experience (Exp(β) = 0.514); 31.2% amongst opportunity entrepreneurs compared to necessity entrepreneurs (Exp(β) = 0.682); 0.4% per €1,000 increase in capital (Exp(β) = 0.996); and 27.5% increase per worker employed (Exp(β) = 0.725). It should be noted that the control variable related to sector is introduced into the model in this case and indicates that manufacturing firms have a higher chance of survival than service firms. A relevant factor to bear in mind is that manufacturing firms, which make up a small percentage of our sample, generally have more staff and a larger amount of start-up capital.

Table 4. Last step results of logit model in t+3 for business entrepreneurs

	β	E. T.	Wald	df	Sig.	Exp(β)	I.C. 95.0% for Exp(β)	
							Inferior	Superior
Step 4(4)								
Primary school			14.834	3	0.002			
Secondary school + vocational training	-0.866	0.233	13.789	1	**0.000**	**0.421**	0.266	0.664
Baccalaureate + vocational training II	-0.171	0.188	0.823	1	0.364	0.843	0.583	1.219
University studies	-0.314	0.175	3.223	1	0.073	0.731	0.519	1.029
Experience	-0.338	0.138	6.017	1	**0.014**	**0.713**	0.544	0.934
Capital	-0.006	0.002	6.697	1	**0.010**	**0.994**	0.990	0.999
Workforce	-0.345	0.068	25.831	1	**0.000**	**0.708**	0.620	0.809
Constant	0.388	0.193	3.068	1	0.080	1.402		

Table 5. Last step results of logit model in t+6 for business entrepreneurs

	β	E. T	Wald	df	Sig.	Exp(β)	I.C. 95.0% for Exp(β)	
							Inferior	Superior
Step 5(5)								
Related education	-0.666	0.125	28.250	1	**0.000**	**0.514**	0.402	0.657
Sector	0.549	0.226	5.896	1	**0.015**	**0.577**	0.371	0.900
Capital	0.004	0.002	5.945	1	**0.015**	**0.996**	0.992	0.999
Workforce	0.321	0.057	32.288	1	**0.000**	**0.725**	0.649	0.810
Motivation	0.382	0.125	9.307	1	**0.002**	**0.682**	0.534	0.872
Constant	1.250	0.143	76.050	1	**0.000**	**3.491**		

In the case of social ventures, as previously explained, and without taking into account the number of employees and start-up capital, only the level of education is significant and even then exclusively in the model for t +3. This result is of special interest, because the specialized literature highlights the difficulties that these ventures encounter when attempting to mobilize financial and human resources as one of their greatest handicaps, so the sizable influence of these variables in their survival probability could be giving other variables a secondary role, such as those analyzed (education, experience and motivation). Tables 6 and 7 show the results obtained at t+3 and t+6.

Table 6. Last step results of logit model in t+3 for social entrepreneurs

	β	E.T.	Wald	df	Sig.	Exp(β)	I.C. 95.0% for Exp(β)	
							Inferior	Superior
Step 3(3)								
Primary school			4.655	3	0.198			
Secondary school + vocational training I	-21.900	13,545.304	0.000	1	0.999	0.000	0.000	
Baccalaureate + vocational training II	-0.763	1.011	0.570	1	0.450	0.466	0.064	3.382
University studies	-1.458	0.964	2.291	1	0.130	0.233	0.035	1.538
Capital	-0.016	0.007	4.698	1	**0.030**	**0.985**	0.971	0.999
Workforce	-0.313	0.141	4.912	1	**0.027**	**0.731**	0.555	0.964
Constant	1.595	1.015	2.470	1	0.116	4.929		

Table 7. Last step results of logit model in t+6 for social entrepreneurs

	β	E.T.	Wald	df	Sig.	Exp(β)	I.C. 95.0% for Exp(β)	
							Inferior	Superior
Step 2(2)								
Capital	-0.011	0.005	4.554	1	0.033	0.989	0.979	0.999
Workforce	-0.315	0.119	7.024	1	0.008	0.730	0.578	0.921
Constant	0.872	0.314	7.711	1	0.005	2.392		

Logistic regressions were also carried out with only the variables related to education, experience and the motivation for starting a business on the one hand and with the variables, number of employees and start-up capital on the other. In the first case, the variables were only significant for business-oriented firms, and in the case of education, the pattern was the same; the level of education was significant at t+3, though not specific education, whilst at t+6 the reverse was true. In the second case, the variables were always significant for both types of firm and at both moments in time.

In short, the results obtained both with the overall model and with the partial ones were not consistent with hypotheses 2A and 2B, 3 and 4, as education, experience and the motivation to

start a business were only significant, and even then not conclusively, in the case of business ventures. With regard to hypothesis 2C, we cannot establish which of the two education variables has a greater relationship with survival, because the results in t+3 and t+6 diverge in the case of business ventures. It would be necessary to analyze in greater depth the interdependence between these and other variables to establish the effects of education with greater clarity. However, the results are consistent with hypotheses 5 and 6, as the relation between the availability of human and financial resources during the start-up period were always significant in both types of firm (Table 8).

Table 8. Summary of results

	Business ventures	Social ventures
H1A: Social ventures have lower survival rates than business-oriented ventures	Not supported	
H1B: Social ventures have greater survival rates than business-oriented ventures	Not supported	
H2A: There is a positive relationship between the specific education of a business owner and survival rates in SV, as in the case of BV	Supported	Not supported
H2B: There is a positive relationship between the general education of business owners and survival rates in SV, as in the case of BV	Supported	Not supported
H2C: The relationship between education and survival rates is stronger in the case of specific education than in the case of general education	Supported	Not supported
H3: There is a positive relationship between the specific experience of business owners and survival rates in CV, as there in the case of BV	Supported	Not supported
H4: The chances of survival, both of SV and those that are purely BV, is greater if the motivation for venture creation is opportunity rather than necessity	Supported	Not supported
H5: The chances of survival, both of social firms and those that are purely BV, is greater if they have a larger number of employees	Supported	Supported
H6: The chance of survival, both of social firms and those that are purely BV, is greater if they have a larger amount of start-up capital	Supported	Supported

6. Conclusions

Social entrepreneurship constitutes a phenomenon of growing relevance both in the economic and academic scope that presents differences but also has relevant similarities with business-oriented entrepreneurship. Both phenomena fundamentally differ in their mission, in the kind of opportunities that instigate the beginning of the activity, in the degree of difficulty they face in mobilizing resources, and in the way venture performance is measured (Austin et al. 2006). With regard to the similarities, both types of entrepreneurship constitute innovative activities that identify opportunities in similar ways and face similar challenges. Furthermore, the characteristics of both types of entrepreneur usually connected to the firm's success appear to be very similar.

Despite growing interest in the academic study of social entrepreneurship, it is still necessary to go into even greater depth in terms of a comparative analysis of social and business-oriented entrepreneurship, among other issues, and to analyze whether there are similar success and failure factors for the two types. Consequently, this research has analyzed the differences in the levels of survival of both kinds of entrepreneurship, as well as to what degree different success factors related to entrepreneur and venture characteristics (education level, related education, related experience and motivation to start a business in the first case, and workforce and start-up capital in the second) are significantly related to service and business venture survival.

In light of the results obtained, we conclude, firstly, that venture survival does not seem to depend on its nature, business or social elements, due to the fact that differences in survival probability between the two types of venture are not significant. This is an especially relevant outcome, bearing in mind the important social function that service ventures can play and it may help to justify the promotion of and investment in such ventures.

Secondly, the results of the multivariate models that relate the analyzed success factors to venture survival reveal that capital and workforce are relevant factors in the survival of any kind of venture and at any point, in the sense that, when these factors are high, the risk of failure is low. More specifically, in the case of business ventures at the 3-year mark, in general, having university studies, related experience, and capital and a large workforce reduces the venture's likelihood of failure. At the 6-year mark, in general, having a related education, being an opportunity entrepreneur, and having large capital and a sizable workforce reduces the probability of venture failure.

With regard to the role of education level and related or specific education, a more in-depth analysis is required because, as we have already mentioned in the analysis of the results, it cannot be established which of the two education variables has a greater influence on survival, due to the fact that the results in t+3 and t+6 diverge. It is also notable that the level of education that most reduces the chances of business failure is the second stage considered (secondary school + vocational training I). A possible explanation for this phenomenon may be derived from the fact that they have less options for working outside of their own business due to their low level of education. Lastly, the importance of the motivation for starting up a business appears to increase in importance over time, as this aspect is only significant at t+6.

In the case of social ventures, the entrepreneur's education and experience are not significantly related to venture survival, with the exception of education level at t+3. This is a somewhat surprising finding that may derive from the limitations of the test sample, or be masked by the significant influence that other variables exert. The greater difficulties encountered by social ventures when they need to mobilize financial and human resources seems to constitute the only real determinant factor of their survival probabilities.

From the analysis of the results derived from the calculation of the failure probabilities, an interesting conclusion can be drawn: education, experience, and entrepreneur motivation, capital and workforce of the venture are not definitive factors for the failure of a business at the 3-year mark. However, after 3 years, these factors, although they are insufficient in explaining the causes of failure, gain explanatory capacity. Generally, education and experience, together with the greater availability of resources are factors that favour firm survival with the passage of time.

We can conclude that the results obtained highlight possible differences in the factors that significantly reduce the failure probabilities of business-oriented and social ventures. Hence, this empirical study firstly reinforces the idea that the field of study of social entrepreneurship is still in need of greater theoretical development (Massetti, 2008; Nicholls, 2010), and secondly, that it is necessary to consider social entrepreneurship as a field of study in its own right (Dees, 1998; Alvord et al., 2002; Drayton, 2002), as the applicable theory from other fields of study such as business oriented entrepreneurship does not satisfactorily explain the success factors involved in the survival rates of social ventures.

However, we consider it necessary to replicate these studies in other geographical arenas, eliminating the bias of the entrepreneur's age, increasing the dispersion in the size of the

companies examined, and slightly increasing the sample of social ventures. In the same way, if the size of the test sample makes it possible, it would be convenient to take into account the degree of munificence, dynamism and complexity of the industry in which each venture competes. Ultimately, because of the low explanatory capacity of the analyzed models, it would be interesting to analyze the effect of other explanatory variables such as the company's strategy, the ownership of relevant intangible assets, etc.

In this respect, the field of study of entrepreneurship is turning increasingly to motivational factors to explain the reasons that lead an entrepreneur to start a business, and to understand the factors that make them successful (Shane and Venkataraman, 2000; Shane et al., 2003). Hence, if we extend this argument to the study of social ventures, it would be advisable to include ''social motivation'' (Vesterlund, 2006; Grant, 2008) as an explanatory variable. This ''prosocial motivation'' in the words of Grant (2008), does not only affect the firm's mission, but can also have positive effects on productivity, performance and persistence in developing activities (Grant, 2008). As a result, if, as this research indicates, social ventures survive in much the way that business-oriented ones do, at least a partial explanation may lie in the fact that, in social firms, workers are more motivated than in purely business-oriented ones.

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Chapter 5: Results, main findings and conclusions of the thesis

Results

This section addresses the aims of this dissertation – presented in the introduction – in three subsections. The first subsection addresses the first goal, namely to analyse how environment influences entrepreneurship. The second and third subsections address the second goal, namely to examine the characteristics that affect the survival of new ventures. The response to the second goal is therefore split into two subsections. The first subsection corresponds to the second study and the study of how economic crises affect the survival of new ventures, and the second subsection corresponds to the third study and the study of how entrepreneurial motivation affects the survival rates of new ventures.

The factor analysis carried out before applying the cluster analysis, the results for the KMO measurement of sample adequacy and Bartlett's sphericity test all showed that the factor model was suitable to explain the data. Six factors were selected based on the Eigenvalues, the extraction values of the original variables and the form of the sediment graph. These six factors, which explained 80.093% of the total variance, were used in the cluster analysis to identify homogeneous groups of countries.

The cluster analysis yielded a solution of three groups that was adopted for subsequent analysis. Post hoc tests were applied to determine which groups differed from one another. All groups differed in eight of the variables. Out of the 63 differences between pairs of possible groups, 47 were significant (40 at a significance level of 0.01 and 7 at a significance level of 0.05). Groups 1 and 2 differed significantly in 18 of the 21 variables, and Groups 1 and 3 differed significantly in 17 of the 21 variables. The groups that differed the least were groups 2 and 3, which were only significantly different in 12 of the 21 variables. The results were highly satisfactory. Broadly speaking, the groups can be characterised as follows:

- Group 1 had moderate levels of unemployment, a lower than average GDP per capita and the highest levels of income inequality, albeit still moderate. In short, the countries in Group 1 were underdeveloped with high levels of socio-economic inequality and unemployment.
- Group 2 had the lowest levels of unemployment, by far the highest GDP per capita and low levels of income inequality (similar to those of group 3). These countries had the highest level of development, low socio-economic inequality and low unemployment.
- Group 3 had some significant differences with respect to Group 2, but also certain parallels. Group 3 had the highest levels of unemployment, a moderate level of GDP

per capita and low levels of income inequality (similar to those of Group 2). These countries were well developed, and they had low socio-economic inequality and high unemployment.

After characterising the groups, the next step was to analyse the extent to which entrepreneurship rates and innovation results varied.

The three groups differed significantly in terms of innovation. Countries in Group 3 were the most innovative, followed by countries in Group 2 and then countries in Group 1. The group with the highest entrepreneurship rates was Group 1. Entrepreneurship rates were similar in Groups 2 and 3. The highest scores for opportunity-driven entrepreneurship were in counties in Group 3, and there were no significant differences between Groups 1 and 3. Finally, Groups 1 and 3 had the highest levels of necessity-driven entrepreneurship. Levels of necessity-driven entrepreneurship in Group 2 were significantly lower.

To assess the effect of economic crises on new firm survival, economic periods were classified into three categories according to GDP variation and unemployment rate. These categories were growth, transition and crisis. The analysis showed that new ventures were more likely to survive in periods of crisis than in periods of growth. The variables used to define an economic crisis were GDP variation rate and unemployment rate. These variables were highly correlated, so unemployment rate alone was considered, thereby avoiding multicollinearity problems. Accordingly, the logit model at time t+6 had eight variables that were found to be significant: unemployment rate, sector, workforce, start-up capital, educational attainment, relevant training, relevant experience and motivation. When all these variables were considered together, the model had an explanatory capacity of 32.4% (Nagelkerke's $R^2 = 0.324$).

In addition to this first model, a second model was tested. The second model contained all of the aforementioned variables, except unemployment rate. In the second model, there were no relevant changes in the significance of any variable, except educational attainment, which ceased to be significant. Notably, however, the explanatory capacity of the model was only 12%. Thus, the inclusion of the unemployment rate variable almost tripled the model's explanatory capacity.

In addition to assessing the effect of economic crises on new firm survival, the second study also verified whether the gap between the survival rates of necessity and opportunity ventures is wider (or narrower) in periods of crisis than in other periods. The analysis showed that the survival likelihood of opportunity entrepreneurship was higher than that of necessity

entrepreneurship in general. During periods of growth, necessity ventures were 34% more likely to fail than opportunity ventures were. During periods of crisis, however, the likelihood that a necessity venture would fail was 61% higher than it was during periods of growth. Therefore, during periods of crisis, the likelihood of failure for a necessity venture increased with respect to the likelihood of failure for an opportunity venture. Hence, the gap between the survival rates of opportunity and necessity ventures did in fact widen during periods of crisis.

One explanation for these findings is that opportunity entrepreneurs had higher educational attainment, greater job-specific training and greater relevant experience. Furthermore, a higher proportion of opportunity ventures were located in urban areas, and the entrepreneurs behind these ventures had a greater tendency to start industrial businesses. Results also show that opportunity firms were bigger, another factor that is positively related to survival.

Of the 2,175 ventures in the sample, 227 had some degree of social interest. Results show that at t+3, business ventures had higher survival rates than social ventures and that at t+6, social ventures had higher survival rates than business ventures. Nevertheless, these differences were non-significant. Therefore, the analysis failed to show a clear relationship between degree of social interest and the survival of new ventures.

Results show that the likelihood of survival for business ventures at t+3 was high amongst entrepreneurs with secondary studies. Surprisingly, when taking primary studies as the reference category, secondary studies was the only educational category with an effect on survival rates. Neither university studies, the baccalaureate nor higher vocational training ensured better survival rates for new ventures. Survival rates were also higher amongst entrepreneurs with relevant experience, a finding that is consistent with the literature. In addition, the larger ventures in terms of start-up capital and employees had a greater likelihood of surviving. Accordingly, these two control variables affected the survival rates of new ventures. The explanatory capacity for this model was 8.1%, according to Nagelkerke's R^2.

At t+6, the logit analysis showed that relevant experience and the motivation to start a venture (opportunity) were significant variables linked to higher rates of survival for new ventures. The models at t+3 and t+6 both showed that education was important. Unlike in the t+3 model, however, in the t+6 model, it was the kind of education and training rather than the educational level that was important. Whereas in the t+3 model, secondary education was significant for determining survival rates, in the t+6 model, having business-related training

proved significant. Besides the differences between the two models in terms of education, the t+3 model did not include the variable that captured the motivation to start a business. In the t+6 model, ventures driven by opportunity motivation had higher survival rates than those driven by necessity motivation. As at t+3, the size of the venture at t+6 was also important for survival. The t+6 model also included the sector control variable, which showed that manufacturing firms had a greater likelihood of survival than service firms did. The explanatory capacity of the t+6 model, which included the variables for business-related training, relevant experience, the motivation to start the venture, the size of the venture and the sector, was 13%.

For social ventures, the logit models revealed that only the two variables related to the size of the ventures (i.e., initial capital and workforce) affected survival rates. Seemingly, therefore, the variables that affected the survival of business ventures differed from those that affected the survival of social ventures. These findings imply that, contrary to the study's hypotheses, the factors linked to higher survival rates amongst business ventures differ from those linked to higher survival rates amongst social ventures. Finally, the explanatory capacity was 18% for the t+3 model and 12% for the t+6 model. The explanatory capacities of the models in this study were low, implying that additional variables should be added to the models to determine the factors that affect the survival of new ventures.

Main findings and conclusions

As stated in the introduction, this dissertation has two main aims. The first aim is to study how a country's environment affects entrepreneurship and innovation, and the second aim is to determine which entrepreneurship factors affect the survival of new ventures. Two types of environmental factors are discussed in this dissertation: economic drivers and institutional drivers.

According to the literature, two economic drivers are responsible for the higher rates of entrepreneurship found in developing countries. The first of these drivers is unemployment, which tends to be higher in developing countries than in developed countries. Unemployment drives entrepreneurship because people without work undertake business ventures as a means of earning a living (Kelley, Bosma and Amorós, 2010). The second driver relates to the high social security standards and the ample job opportunities available in developed countries. These two features of developed economies push up the opportunity cost of starting a venture (Bosma and Schutjens, 2011), thereby discouraging entrepreneurship. Interestingly, however, while entrepreneurship is more common in developing countries, most entrepreneurship in these countries is motivated by necessity (Reynolds, Camp, Bygrave, Autio and Hay, 2001).

The other kinds of environmental factors discussed in this dissertation are institutional drivers of entrepreneurship. Institutions belong to one of two groups: formal institutions or informal institutions (North, 1992; Redding, 2005). Formal institutions comprise laws and regulations, whereas informal institutions are made up of culture and education (Scott, 2001).

Formal institutions constitute the regulatory pillar of institutionalisation. Through formal institutions, governments can foster entrepreneurship by reducing the administrative burden faced by an entrepreneur when starting a venture (Van Stel, Storey and Thurik, 2007). In addition, taxes, which are also set by governments, affect entrepreneurship. High tax rates reduce entrepreneurs' financial returns, which may negatively affect entrepreneurial activity. Estrin, Aidis and Mickiewicz (2007), however, argue that countries with strong formal institutions achieve better performance in terms of opportunity and innovation.

The normative pillar of institutionalisation refers to culture. Culture receives scholars' attention not only because of the way it restricts entrepreneurship, but also because of the way it enhances business opportunities (Aldrich and Fiol, 1994). Hofstede (1990: 5) defines culture 'in the anthropological sense of broad patterns of thinking, feeling and acting'. Because

of Hofstede's influential position within the academic field of culture, in this dissertation, we adopted Hofstede's early models, which encompass the concepts of power distance, individualism, masculinity and uncertainty avoidance. The literature shows some consensus that entrepreneurial activity has a positive relationship with individualism and uncertainty avoidance (Shane, Locke and Collins, 2003; Thornton, Ribeiro-Soriano and Urbano-Pulido, 2011). In contrast, research into the relationships among power distance, masculinity and entrepreneurial activity is scarce. Nevertheless, if power distance represents the extent to which weaker members of organisations and other institutions accept and expect an uneven spread of power (Hofstede, 1990), when power distance is high, nations ought to be more entrepreneurial because their inhabitants seek greater independence. Finally, although the literature contains practically no references to masculinity's relationship with entrepreneurship, a review of Hofstede's masculine and feminine values reveals that masculine societies tend to be more entrepreneurial.

The other informal institution discussed in this dissertation is education, or the cognitive pillar of institutionalisation. Education drives entrepreneurship because the most well-educated people place greater trust in their abilities and skills to undertake a business venture (De Clerq and Arenius, 2006). This effect arises because education helps people identify opportunities in the marketplace (Levie and Autio, 2008).

This dissertation also discusses the effects of entrepreneurship on innovation performance, with several authors (e.g., Kelley et al., 2010; Reynolds et al., 2001) pointing out that innovation improves in contexts where opportunity-driven entrepreneurship is the predominant form of entrepreneurship. A review of the literature on environmental factors and the creation of new ventures reveals that there are three distinct groups of countries in the sample used for the three studies presented in this dissertation. According to the literature, entrepreneurship is significantly greater in countries with low development, high income inequality and high unemployment. Yet in these countries, necessity-driven entrepreneurship is more common than opportunity-driven entrepreneurship, so innovation results are weaker. Conversely, in developed countries, entrepreneurship rates are lower, but necessity-driven entrepreneurship is less prevalent, and innovation results are better. In terms of formal institutions, the empirical results presented in this dissertation show that higher rates of opportunity entrepreneurship and innovation are associated with countries with higher levels of economic freedom (i.e., with strong formal institutions). In terms of education, the studies presented in this dissertation show that a country's human capital is related to

discovering and capitalising on good business opportunities. In turn, education is correlated to the country's degree of innovation. Lastly, in relation to culture, the results presented herein show that the highest overall entrepreneurship rates occur in countries with high power distance, high uncertainty avoidance and low individualism. Interestingly, these findings contradict previous research into the role of uncertainty avoidance and individualism (Ardichvili and Gasparishvili, 2003; Shane, Locke and Collins, 2003).

The second aim of this dissertation is to determine the factors that affect the survival of new ventures. This is an important task because new companies have higher failure rates than established firms do (Brüderl and Schussler, 1990). To achieve this aim, the dissertation covers diverse factors that affect the survival of new ventures. These factors can be categorised as entrepreneurial and venture characteristics in one group and environmental factors in the other.

In the second study, the survival of new ventures was measured before and during an economic crisis. The main objective of this study was to analyse how the survival of new ventures at these two times differed. The literature discusses new venture creation during economic growth, when an abundance of job opportunities and/or a high degree of social security raises the opportunity cost of entrepreneurship (Bosma and Schutjens, 2011). Conversely, during economic crises, a lack of employment opportunities may force people into an entrepreneurial undertaking. In this dissertation, economic crises are assumed to have a similar effect even if the entrepreneur has already started his or her venture. During a period of growth, if the venture performs poorly, the opportunity cost of abandoning the venture is lower than it would be during a crisis. Once again, this low opportunity cost is due to the ample job opportunities available during periods of growth. Entrepreneurs may abandon their ventures if they find paid work. Conversely, during periods of crisis, paid work is scarcer, so entrepreneurs are more likely to persist with their businesses. Hence, the first hypothesis of the second study was that in periods of crisis, the survival rate of new ventures is higher than in periods of economic prosperity.

The second study also explored the differences between necessity and opportunity entrepreneurship. This study compared the behaviour of entrepreneurs motivated by opportunity with those motivated by necessity both before and during the economic crisis. The literature suggests that opportunity entrepreneurs perform better than necessity entrepreneurs do and that their firms survive longer. In addition, necessity entrepreneurs who find paid work will generally abandon their ventures. Conversely, an opportunity entrepreneur

will run the firm as long as it remains profitable and will continue to seek out and exploit new business opportunities. Nevertheless, there is evidence that other entrepreneurial characteristics and attributes of new ventures have positive associations with survival and long-term success. Some such characteristics are the size of the venture, the presence of innovation and the high level of education of the entrepreneur. Notably, however, all these factors are linked to opportunity entrepreneurship.

Accordingly, the second hypothesis of the second study postulated that the gap between necessity entrepreneurship and opportunity entrepreneurship narrows in periods of crisis. Necessity entrepreneurs usually have lower levels of education, which hinders their chances of finding paid work. The opportunity cost of maintaining a new venture is therefore lower for necessity entrepreneurs. Although this last hypothesis is supported by the data examined in the second study, the results imply that opportunity entrepreneurs have higher levels of education than necessity entrepreneurs do, so the gap between necessity and opportunity entrepreneurship actually increases in periods of crisis. Therefore, this higher level of human capital—in terms of education and experience in the same sector—helps us understand the results of the second study.

Results support the first hypothesis of this study, namely that new ventures are more likely to survive in periods of crisis than in periods of growth. Accordingly, a decrease in the opportunity cost of continuing with a venture leads to the survival of new ventures. In short, although firm survival is usually considered a measure of business success, this is in fact not the case. Survival is a poor measure of success, especially during periods of crisis. Many firms continue to operate despite being unprofitable because the firms' owners have no alternative. Moreover, in many cases, these businesses must actually let employees go, and entrepreneurs may even be forced into situations of self-exploitation.

The third study addressed the second goal of this dissertation, namely to determine which factors influence the survival of new ventures. In the third study, we did not consider the environment but instead examined two kinds of ventures: business-oriented ventures and social ventures. This study shows that survival can be used a measure of the success of new ventures, contradicting the findings of the second study. The third study was conducted after the second one, however, hence the inconsistencies in their findings.

The first objective of the third study was to identify the type of venture—business oriented or social—with the greatest likelihood of survival. Therefore, the third study was designed to test

two competing hypotheses. The first hypothesis was that social ventures have lower survival rates than business-oriented ventures. This hypothesis is supported by Austin et al. (2006: 3), who argue that 'human and financial resource mobilisation will be a prevailing difference and will lead to fundamentally different approaches in managing financial and human resources'. Hence, social ventures seemingly have greater difficulties in mobilising resources. Business-oriented entrepreneurs can obtain resources directly from the market by selling goods and services and can access capital markets more easily than social entrepreneurs can. Social entrepreneurs, in contrast, have a greater dependency on donations and subsidies. It is this greater difficulty in obtaining financial resources that reduces social ventures' chances of survival. The second hypothesis postulated the converse to the first hypothesis, namely that social ventures have greater survival rates than business-oriented ventures. This hypothesis is supported by Santos (2009), who argues that less emphasis on the appropriation of economic value may encourage social ventures to continue as long as they generate enough money for survival, whereas business-oriented ventures will close as soon as the owners decide they receive inadequate returns from the business. Note that in the second hypothesis, the survival of new ventures is not related to success. The second hypothesis is the only hypothesis in this study where survival is not a measure of success. A social venture may survive without being successful because if it is the only provider of a particular good or service, it will continue operating even if it fails to make a profit (Boschee, 1995).

After examining the likelihood of survival of business-oriented and social ventures, the third study then examined the likelihood of survival of both types of ventures, taking into account certain influencing factors. These factors are the entrepreneur's education, experience and motivation to start the venture (Alstete, 2008; Evans and Leighton, 1989). The qualities that characterise business-oriented and social entrepreneurs are similar. Furthermore, both must identify opportunities and overcome similar challenges using their problem-solving skills in similar ways. Accordingly, the hypotheses in the third study were developed to determine whether these entrepreneurial factors relate to survival likelihood in the same way for both business-oriented and social ventures.

In terms of education, two kinds of knowledge are expected to be necessary for high survival rates: general knowledge, from education and training that is non-related to the venture's sector; and specific knowledge, from education and training that is related to venture's sector. General knowledge helps the entrepreneur assess opportunities and use resources efficiently (Castrogiovanni, 1996). Furthermore, it helps the entrepreneur acquire and transform know-

how (Haber and Reichel, 2005). Specific knowledge, in contrast, is related to the use of technologies, processes or products within a sector. Hence, specific knowledge boosts the performance of a business because it improves managerial capacity (Haber and Reichel, 2005). A review of the literature on knowledge and the success of ventures reveals that both general and specific knowledge are related to the survival of new business-oriented and social ventures, with a stronger relationship in the case of specific knowledge.

Regarding experience, the third study examines just one type of experience, namely experience related to the venture's core business activity. Ribeiro and Castrogiovanni (2012) report that experience allows for better identification, exploitation and acquisition of resources. In addition, several studies show that in established firms, survival is more likely when the management team has experience in the same industry. Van Praag (2003) reports some particularly surprising findings, which show that the owner's experience as an entrepreneur has no significant effect on business success. On the contrary, however, experience in the same industry has a positive correlation with business success. Hence, the hypotheses in the third study were designed to test whether there is a positive relationship between survival likelihood and relevant experience in both business and social ventures.

In terms of the motivation to start a venture, in the third study, as in the first and second one, the GEM definition of opportunity and necessity entrepreneurship was used. The literature shows that opportunity entrepreneurs have higher survival rates than necessity entrepreneurs do. When a necessity entrepreneur finds another job, he or she generally closes the venture (Headd, 2003; Van Praag, 2003). Another reason for higher survival rates is that opportunity entrepreneurs are more innovative than necessity entrepreneurs (Ho and Wong, 2007). Accordingly, the last hypothesis in the third study was designed to test whether the survival likelihood of social and business ventures is greater if the motivation for venture creation is based on opportunity rather than necessity. At this point, we should note that creating a social enterprise to cater for one's own employment needs is in some sense contradictory, although this possibility (i.e., social ventures motivated by necessity) cannot be excluded *ex ante*.

Results show that venture survival seems not to depend on the nature of the venture (i.e., business vs. social) because differences between the survival probabilities of each type of venture were non-significant. When other factors were taken into account, however, the conclusions were quite different. Only the variables related to the size of the ventures (i.e., initial capital and workforce) were associated with survival in both social and business ventures. When variables related to the characteristics of the entrepreneur were taken into

account, the entrepreneur's education, experience and motivation to start a venture were found to affect the survival of business ventures, but not social ventures. The two factors that affected both business and social ventures affected survival in the same way: the greater the size of the venture (i.e., initial capital and workforce), the greater the likelihood of survival.

For entrepreneurs with business ventures that continued operating after three years, having university studies, related experience, capital and a large workforce reduced the venture's likelihood of failure. After six years, having related education, being an opportunity entrepreneur, and having considerable initial capital and a large workforce reduced the probability of failure.

Thus, the main conclusion of the third study is that the factors that significantly reduce the likelihood of failure of business-oriented ventures may differ from the factors that significantly reduce the likelihood of failure of social ventures. This conclusion implies that further research into social entrepreneurship is required, but that this research should be conducted separately from research into business entrepreneurship, at least when studying survival and success factors.

The main findings of Studies A, B and C lead the following conclusions:

- Economic factors exert an influence at two moments of a venture's life cycle: the moment when the venture is created and after the early years of the venture's life.
- The culture of a country, the level of education of its citizens and its formal institutions affect not only the entrepreneurship rate, but also the kind of entrepreneurship and the innovation rate.
- The opportunity cost of continuing with the venture is lower during periods of crisis than it is in periods of growth.
- The survival rate of ventures is a poor measure of success.
- The survival rates of business and social ventures are the same.
- Certain characteristics of the entrepreneur (i.e., education, experience and motivation to start the venture) affect the survival rate of business ventures yet do not affect the survival rate of social ventures.

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Chapter 6: General references of the thesis

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Annexes

Annex 1: Resumen de la tesis en español

Introducción

El emprendimiento ha sido ampliamente estudiado. Al principio, el emprendedor fue tratado por la literatura como comerciante (Cantillon, 1755), actualmente el emprendedor se percibe desde la literatura como un agente innovador y de cambio (Reynolds, Camp, Bygrave, Autio y Hay, 2001; Schumpeter, 1934; Wennekers y Thurik, 1999). Esta perspectiva del emprendedor es la que se ha tenido en cuenta en esta tesis.

En este momento, el emprendimiento es un fenómeno que está adquiriendo cada vez más relevancia en la literatura. De hecho, las diez más importantes escuelas de negocio en el mundo[2] tienen un programa específico para el emprendimiento, las más importantes se encuentran en la *Harvard Business School*, la *London Business School* y *Wharton*, en la Universidad de Pensilvania. Debido al aumento de artículos dedicados al emprendimiento que se han escrito en los últimos años, han aparecido nuevas revistas indexadas en el *Journal Citation Reports* como *Entrepreneurship and Regional Development*, *Entrepreneurship Theory and Practice* y *Journal of Business Venturing* entre otros.

Como agente de cambio, está demostrado que los emprendedores tienen la capacidad de mejorar la situación económica de un país ya que conducen al aumento del empleo y la innovación (Carland, Hoy, Boulton y Carland, 1984; Cuervo, Ribeiro y Roig , 2007; Smolarski y Kut, 2011). Por ello, las administraciones públicas y los gobiernos nacionales están haciendo grandes esfuerzos en la promoción de nuevas empresas a través de servicios de asesoramiento, incubadoras de negocios así como soporte financiero (Toledano y Urbano, 2007). Por lo tanto, debido a la relevancia del emprendedor como agente de cambio se hace necesario el entendimiento de los factores que alteran y llevan a que una sociedad sea más emprendedora (Engle, Schlaegel y Dimitriadi, 2011).

Teniendo en cuenta este punto de vista, es importante conocer los factores que promueven al emprendimiento. Es decir, cómo el entorno, la economía de un país y las instituciones que lo conforman afectan al emprendimiento ya que, según la literatura, la actividad del emprendimiento varía según el país y a lo largo del tiempo (Verheul, Wennekers, Audretsch y Thurik, 2001).

Por ello, el primer objetivo de esta tesis es analizar cómo el entorno influye en el emprendimiento. Después de ello, una vez cumplido este objetivo, el segundo es el análisis de las características que afectan a su supervivencia. Este objetivo viene motivado por el hecho

[2] Global MBA Ranking 2015.

de que la investigación sobre creación de empresas pone de relieve que las tasas de supervivencia de las nuevas empresas suelen ser mayores que las de las empresas ya consolidadas (Brüderl y Schussler, 1990).

Respecto a los factores que influyen en la supervivencia y el éxito de las nuevas empresas, la literatura normalmente se centra en tres grupos de variables explicativas: los aspectos medioambientales, las características de la empresa y las del emprendedor (Schutjens y Wever, 2000).

En referencia al efecto del entorno en el emprendimiento, uno de los aspectos más importantes para determinar el éxito de una empresa es la economía del país. Así, la tesis está encaminada a establecer cómo los cambios en la economía de un país influyen en el éxito o fracaso de las nuevas empresas. Además, teniendo en cuenta la turbulencia de la economía en los países occidentales en los últimos años, el entendimiento de cómo las variaciones del PIB y el empleo pueden alterar la supervivencia de las empresas cobra especial relevancia. Cabe destacar que la literatura no ha alcanzado todavía un consenso sobre los efectos del descenso del PIB en la supervivencia de las *start-ups* (Baptista y Thurik, 2007; Baptista y Torres , 2006; Brünjes y Revilla Díez, 2013). Aun así, lo que sí se puede extraer de los estudios sobre emprendimiento es que las condiciones económicas tienen una importancia en la supervivencia de las nuevas empresas. Siguiendo esta línea, la evidencia empírica muestra una relación entre el emprendimiento y el crecimiento económico. De hecho, la mayoría de la literatura que se ha escrito sobre emprendimiento aboga por el hecho de que en periodos de crisis las empresas de nueva creación tienen más probabilidades de fracaso (Baptista y Thurik, 2007; Baptista y Torres , 2006). Sin embargo, hay una parte de la literatura que argumenta que el efecto de las crisis económicas en la supervivencia de las nuevas empresas es más positivo que negativo (Brünjes y Revilla Díez, 2013), si bien, en esta línea de pensamiento no se puede asociar directamente la supervivencia y el éxito de las empresas de nueva creación. Como consecuencia de todo ello, uno de los objetivos de esta tesis doctoral es el análisis de la supervivencia de las nuevas empresas en periodos de crisis económica.

Además de analizar las probabilidades de supervivencia de las empresas de nuevas creación teniendo en cuenta las condiciones económicas, esta tesis está encaminada a determinar los factores que influyen en las tasas de supervivencia de las nuevas empresas haciendo una distinción entre empresas sociales y empresas de negocios. Esta elección viene motivada por el hecho de que las empresas sociales están ganando gran interés en la literatura sobre emprendimiento (Drayton, 2002; Mair y Martí, 2006; Peredo y McLean, 2006; Zahra,

Gedajlovic, Neubaum y Shulman, 2009). De hecho, dos de las revistas más importantes en el área de emprendimiento –*Entrepreneurship: Theory and Practice* y *Journal of Business Venturing*- ya han dedicado números especiales al tema del emprendimiento social. Asimismo, universidades de especial impacto a nivel internacional como *Harvard*, *Duke* y *Oxford* poseen programas sobre emprendimiento social (Nicholls, 2010). Es más, después de la creación de estas iniciativas, otras universidades han decidido seguir con la puesta en marcha de similares programas.

Además de la importancia del emprendimiento social en la literatura, este es un fenómeno que ha sido reconocido como especial contribuidor a las distintas sociedades (Alvord, Brown y Letts, 2002; Drayton, 2002; Mair y Martí, 2006; Peredo y McLean, 2006; Zahra, Gedajlovic, Neubaum y Shulman, 2009). Además, según el *Global Entrepreneurship Monitor* (GEM), en el Reino Unido, el 3,2% de las personas en edad de trabajar son emprendedores sociales (Santos , 2009), porcentaje que en Estados Unidos asciende al 3,9% (GEM, 2015).

Por lo tanto, como se ha comentado, los dos principales objetivos de las tesis son: determinar cóm el enterno influye en el emprendimiento y por otro lado, qué características afectan a la supervivencia de las empresas de nueva creación.

Metodología

En esta tesis han sido utilizadas diversas técnicas estadísticas. Para determinar el método a utilizar se ha tenido en cuenta la naturaleza de las variables dependientes. Para el primer estudio (Capítulo 2), la muestra, variables y procedimiento difiere significativamente de la muestra, variables y procedimiento de los otros dos estudios. Las variables y el procedimiento del segundo estudio (capítulo 3) son similares a los del tercero (Capítulo 4) ya que las muestras utilizadas en estos dos estudios son similares.

La decisión de utilizar métodos cuantitativos ha venido motivada por el estado de la investigación científica –la investigación presentada en esta disertación se encuentra en una etapa tardía de su desarrollo-.

1. Fuentes de información y muestras

El primer estudio trata el primer objetivo de la tesis, analizar cómo el entorno afecta al emprendimiento. En esta publicación (capítulo 2), los datos de la muestra se han extraído de distintas bases de datos públicas. La muestra comprende 68 países de los 5 continentes. Para las variables dependientes, los datos se han conseguido a través de las páginas web del *Global Entrepreneurship Monitor* (GEM) y del *Global Innovation Index* (GII). Los datos del GEM correspondientes al año 2010 han estado disponibles para 56 países, mientras que los correspondientes a 2009 han estado disponibles para 68 países. Los datos del GII corresponden al año 2011.

El GEM es una institución que se encarga de la recolección de datos sobre "el comportamiento emprendedor y las actitudes de los individuos" y "el contexto nacional y cómo este impacta sobre el emprendimiento" (GEM, 2016). Cada año, el GEM lleva a cabo dos tipos de encuestas que consisten en entrevistas con personas residentes de un número determinado de países. Estas entrevistas son la "entrevista a la población adulta" y la "entrevista nacional de expertos". En la "entrevista a la población adulta", el GEM entrevista a una muestra de 2000 personas. Los datos recogidos de este cuestionario se utilizan para "medir el nivel y naturaleza de la actividad emprendedora al rededor del mundo" (GEM, 2016). En la "entrevista nacional de expertos", el GEM pregunta a expertos en la materia sobre la identificación de las "condiciones que promueven (u obstaculizan) la creación de nuevos negocios" (GEM, 2016). Los principales promotores de GEM son *Babson College*, Universidad del Desarrollo, *Univeriti Tun Abdul Razak*, Tecnológico de Monterrey, *International Development Research Centre* e *International Council for Small Business*.

El GII se publica en coautoría por Johnson en la *Cornell University*, INSEAD y *the World Intellectual Property Organization* (WIPO). El GII mide la innovación en diferentes economías al rededor del mundo. Para ello, el GII utiliza 79 indicadores relacionados con cuestiones sobre innovación (Duta, Lanvin y Wunsch-Vincent, 2015). Estas cuestiones se dividen en 2 subíndices: el de la innovación como *input* y el de la innovación como *output*. El subíndice de la innovación como *input* contiene 5 elementos: instituciones, capital humano e investigación, infraestructura, sofisticación del mercado y sofisticación del negocio. El subíndice de la innovación como *output* presenta 2 elementos: conocimiento y *outputs* tecnológicos y creativos (GII, 2016).

Las variables independientes han sido extraídas también de bases de datos públicas. En este caso se ha recurrido a dos instituciones financieras para la recolección de datos: el Fondo Monetario Internacional (IMF) y el Instituto para la Economía y la Paz (IEP).

El IMF contiene 189 países miembros. Según la página web de la institución, el IMF tiene como objetivo la "promoción de la cooperación global monetaria, la estabilidad financiera, la facilitación del comercio internacional, la promoción del empleo y del crecimiento económico sostenible y la reducción de la pobreza en el mundo". Además de perseguir la consecución de estos objetivos, el IMF produce una base de datos que contiene una serie de indicadores para un amplio número de países. En el primer estudio, la base de datos provee datos sobre la tasa de desempleo y el PIB per cápita en los 68 países del estudio.

El IEP, por su parte, contempla 2 objetivos principales. El primero es cuantificar el nivel de paz en los diferentes países. Para conseguirlo el IEP utiliza una serie de indicadores. El segundo objetivo es verificar el efecto de la paz en la economía. No obstante, se han utilizado solamente los indicadores vinculados al primero de estos objetivos. La medida de la paz cubre 186 países. El índice se desarrolla "bajo la guía de un panel internacional de expertos con datos conjuntamente recopilados y calculados con la *Economist Intelligence Unit*". Según el IEP, el índice "mide estados relativos de paz, investiga determinantes potenciales de paz y crea un marco para rastrear y comparar niveles de paz a través del tiempo" (IEP, 2016).

El índice de libertad económica (IEF) se ha utilizado para recopilar datos sobre las instituciones formales. Este índice está creado por la *Heritage Foundation* y el *Wall Street Journal*, y provee datos para los 186 países. La medida de la libertad económica consiste en 10 indicadores agrupados en 4 áreas: la regla de la ley, el tamaño del gobierno, la eficiencia reguladora y la apertura del mercado.

Otro indicador utilizado en el capítulo 2 es la cultura nacional. Para medir la cultura del país han sido utilizados los datos disponibles en el *Hofstede Centre*. Según el sitio web, el *Hofstede Centre* busca "ofrecer una alta calidad en el campo de la cultura y el *management* basado en la investigación académica y la experiencia práctica". Además, entre sus principales objetivos también está la realización de investigación y producción de una base que contiene datos sobre la cultura de los 76 países. El concepto de cultura incluye seis indicadores: la distancia al poder, el individualismo, la masculinidad, la aversión a la incertidumbre, la orientación al largo plazo y la indulgencia. En el estudio de esta tesis, solo se han estudiado los cuatro primeros, que son los indicadores más antiguos, con el fin de no perder los datos de algunos de los países.

Finalmente, ha sido necesario también establecer el nivel de educación de cada país. Para reunir los datos sobre el nivel de educación se han consultado dos sitios web: el *United Nations Development Programme* y el *Index Mundi*. El *United Nations Development Programme* produce el índice de desarrollo humano, el cual es una "medida resumen del promedio en la consecución de dimensiones clave para el desarrollo humano: una vida larga y sana, nivel de expertos en los distintos campos y tener un estándar de vida decente" (*United Nations Development Programme*, 2016). Según la página web, el índice contempla tres áreas: salud, educación y estándar de vida. En los estudios presentados en esta tesis solo se han considerado los indicadores relativos a la educación. Por otro lado, el Index Mundi es un portal de datos (Index Mundi, 2016) que ofrece estadística sobre diferentes países alrededor del mundo. El portal está dividido en materias como economía, gobierno, energía, transporte, etc. Este portal ha sido utilizado para determinar la tasa de alfabetización en los 68 países cubiertos en este estudio.

El segundo y tercer estudio cubren el segundo objetivo de la tesis, analizar las características que afectan a la supervivencia del emprendimiento. La muestra para estos estudios surge como resultado de una colaboración con el Servicio de Gestión y Planificación del Instituto Valenciano de la Juventud (IVAJ). La colaboración con el IVAJ se ha focalizado en evaluar los proyectos presentados por emprendedores menores de 30 años, incluso si participan en el emprendimiento mayores de esta edad. Se requirió a los emprendedores la presentación de proyectos como parte de la solicitud para conseguir una serie de ayudas de la administración pública. Para solicitar estas ayudas, los emprendedores han tenido que facilitar al IVAJ información relativa al negocio fundado. Esta información ha incluido la entidad del negocio, información sobre los propietarios (educación, situación laboral previa, edad, etc.), datos

financieros, algunos aspectos sobre la organización interna de la empresa, el número de empleados, etc. Además, los emprendedores también tuvieron que facilitar al IVAJ los documentos que demuestran la veracidad de los datos anteriores.

El acceso a la información ha sido garantizado durante las colaboraciones entre la Universidad de Valencia y el IVAJ. Este acceso ha estado sujeto a dos condiciones. La primera de ellas es que la Universidad de Valencia durante el convenio de colaboración ha debido facilitar apoyo y consejo al IVAJ en áreas relacionadas con el programa que se estaba evaluando. La segunda es que parte del personal del departamento de Dirección de Empresas de la Universidad de Valencia ha debido evaluar las empresas y proyectos presentados con el fin de otorgar las ayudas del programa del IVAJ destinado a jóvenes emprendedores. Este acuerdo de colaboración ha durado ocho cursos y la muestra de los dos trabajos es el resultado de este acuerdo.

La variable dependiente ha sido la supervivencia de las empresas en dos momentos del tiempo. Los datos de la variable dependiente han sido reunidos a través del control de las empresas con la ayuda de las bases de datos de las Cámaras de Comercio de Alicante, Castellón y Valencia.

En el segundo estudio (capítulo 3), la muestra se compone de 3477 nuevas empresas creadas entre 2000 y 2005. Solo 2842 empresas han sido casos válidos; los demás casos contienen valores perdidos para al menos una de las variables independientes, por lo que no han sido tenidos en cuenta. Del total de la muestra, 293 empresas fueron creadas en el año 2000, 375 en el 2001, 523 en el 2002, 588 en el 2003, 625 en el 2004 y 438 en el 2005.

En el tercer estudio (capítulo 4), la muestra ha sido compuesta por 2179 empresas creadas entre 2000 y 2003. De estas empresas, el 90% corresponden al sector servicios. En el caso de empresas sociales, el 94,2% son empresas del tercer sector. Del total de la empresa, 357 empresas fueron creadas en 2001, 462 en 2002, 639 en 2003 y 721 en 2004.

2. Variables

Las variables del estudio comprendido en el capítulo 2 han sido recogidas de las instituciones y páginas web descritas anteriormente. Se han utilizado 25 variables, 4 de las cuales han sido dependientes y 21 independientes. Las dependientes son las siguientes:

Actividad emprendedora en la primera etapa (TEA): indica el "porcentaje de 18 a 64 años de edad que son emprendedores recientes o dueños de negocios nuevos" (GEM, 2016).

Actividad del emprendimiento por oportunidad (TEA_Oport): especifica el porcentaje de emprendedores que crean una empresa motivados por la búsqueda de independencia o mayores ingresos y que deciden crear el negocio porque han encontrado una oportunidad en el mercado (GEM, 2016).

Actividad de emprendimiento por necesidad (TEA_Nec): es el porcentaje de emprendedores que decide crear un negocio con el fin de evitar el desempleo ya que no tiene opción de trabajo por cuenta ajena (GEM, 2016).

Índice de Innovación Global (Global_INN): mide el nivel de innovación en una muestra de países. Contempla 709 indicadores agrupados en siete áreas de innovación: instituciones, capital humano e investigación, infraestructura, sofisticación del mercado, sofisticación de los negocios, conocimiento y *outputs* tecnológicos y *outputs* creativos.

Las 21 variables independientes se han estructurado en 4 grupos:

El pimer grupo es el referente a los factores económicos. Este grupo contiene 3 variables:

- Tasa de desempleo: porcentaje de personas en situación de búsqueda de empleo que aún no han encontrado uno.
- PIB per cápita: producto interior bruto de un país dividido por el total de la población de este país.
- Desigualdad de ingresos: medida de dispersión que representa la distribución de los ingresos en un país dado. Aunque esta variable se facilita por el Instituto de Economía y Paz (ya que se utiliza para determinar el Índice de Paz Global), se ha desarrollado por el Programa de Desarrollo de las Naciones Unidas.

El segundo grupo de variables se relaciona con las instituciones formales. Este grupo comprende 10 variables medidas en una escala de 0 a 100:

- Libertad de negocio: cubre las regulaciones que se refieren a la apertura, funcionamiento o cierre del negocio. Este índice se construye teniendo en cuenta el número de procedimientos, días, coste y capital mínimo necesario para la constitución de un negocio; el número de procedimiento, días y coste de obtener una licencia de actividad; y los años y costes para el cierre de un negocio.

- Libertad de comercio: mide el nivel de carga tributaria necesarios para la importación y exportación de bienes y servicios. Consiste en dos subíndices: el promedio arancelario ponderado por el comercio y las barreras no arancelarias.
- Libertad fiscal: calcula la carga fiscal. Consiste en tres factores cuantitativos: el máximo impuesto marginal sobre el ingreso individual, el máximo impuesto marginal sobre los ingresos corporativos y el total de carga fiscal como porcentaje del PIB.
- Derechos de propiedad: mide el nivel de bienes privados acumulados de la población en un país. Las puntuaciones más altas son sinónimo de mayor seguridad en términos de derechos de propiedad.
- Percepción de la corrupción: calcula el nivel de corrupción en las instituciones públicas y los gobiernos. Aunque este índice se ha recopilado del índice de Libertad Económica, se deriva del índice de Transparencia Internacional y Percepción de la Corrupción. Este índice está basado en una escala de 0 a 10, por lo tanto para obtener la variable de percepción de la corrupción, la cual se mide sobre 100, la puntación de este índice se ha multiplicado por 10.
- Libertad laboral: mide la flexibilidad del mercado de trabajo en los diferentes países. Este índice contiene 6 componentes: el ratio entre el salario mínimo y el promedio del valor añadido a cada trabajador, obstaculización para contratar a nuevo personal, rigidez de horario y dificultad en el despido de trabajadores.

El siguiente grupo de variables evaluadas forman parte de la cultura nacional de los países. Geert Hofstede es uno de los autores más influyentes en temas culturales (Kirkman, Lowe y Gibson, 2006), por lo tanto los datos utilizados en este estudio han sido los del Centro Hofstede. Sin embargo, no todos los datos han estado disponibles para todos los países, por ello solo se han utilizado las cuatro primeras dimensiones:

- Distancia al poder: mide el grado en el que la sociedad no aceptan, pero sí que esperan que el poder está distribuido de manera desigual. Esta dimensión es una medida de aceptación de la desigualdad.
- Individualismo: representa el nivel de cohesión dentro de una sociedad. Esta dimensión captura el punto hasta el que una sociedad se caracteriza por la cohesión de sus miembros.
- Masculinidad: se relaciona con el nivel de valores masculinos en una sociedad. Mide el grado en el que los valores masculinos predominan sobre los femeninos.

- Aversión a la incertidumbre: representa el punto hasta el cual los miembros de una sociedad se sienten incómodos con la incertidumbre y la ambigüedad.

El último grupo de variables evalúa el nivel educacional en cada país. Comprende las siguientes cuatro variables:

- Educación total: representa la media de años de escolarización formal recibida por los adultos mayores de 15 años.
- Años de formación esperados: mide los años de escolarización que un/a niño/a que entra a la escuela con la edad idónea debe recibir si prevalecen los patrones.
- Educación secundaria: es el porcentaje de población adulta (25-64 años) que ha completado la educación secundaria.
- Tasa de alfabetización: es el porcentaje de población (de 15 años o más) capaz de leer y escribir.

Para el segundo estudio, la variable dependiente ha sido la supervivencia de las nuevas empresas a 31 de diciembre del sexto año desde la creación del negocio (t+6). Esta variable es dicotómica: toma el valor de 0 si la empresa ha fracasado o de 1 si la empresa ha conseguido sobrevivir. Para este estudio se ha tenido en cuenta el sexto año desde la creación del negocio porque según los criterios del GEM representa el inicio de un nuevo periodo en el ciclo de vida de la empresa, el punto en el que una empresa pasa de ser nueva a estar establecida (Xavier, Kelley, Kew, Herrington y Vorderwülbecke, 2012).

El tercer estudio utiliza dos variables dependientes: la supervivencia de nuevas empresas a 31 de diciembre del tercer año desde la creación del negocio (t+3) y a 31 de diciembre del sexto año (t+6). La variable dependiente t+3 se ha utilizado porque de acuerdo con el GEM, este periodo cubre aproximadamente dos fases del emprendimiento: el reciente (es decir, los primero tres meses de vida del negocio) y el nuevo emprendimiento (es decir, desde los tres primeros meses de vida hasta los tres años y medio). El GEM utiliza estas dos fases para calcular la Tasa de emprendimiento en la primera etapa (TEA), que es la tasa de emprendimiento de un país dado. El estudio de estas dos fases ha sido importante porque ello asegura que el estudio se focaliza solo en las características más relacionadas con el emprendimiento (es decir, la empresa y el empresario) sin considerar otros factores como el entorno.

Tanto el segundo como el tercer estudio tienen las mismas variables independientes:

- Motivación para emprender: es una variable dicotómica que indica si el negocio se ha emprendido por oportunidad o por necesidad. En los estudios B y C, esta variable sigue el criterio del GEM, aunque ha sido calculada de manera distinta. El GEM calcula el valor de esta variable mediante la entrevista a los emprendedores, sin embargo en el presente estudio se ha tenido en cuenta para al cálculo la situación previa a la fundación del negocio del emprendedor. Por lo tanto, si el emprendedor estaba desempleado anteriormente a la constitución, se le ha considerado emprendedor por necesidad.
- Tipo de empresa: es una variable dicotómica que indica si la empresa es tradicional o de negocios o si el social.
- Grado de interés social: oscila entre el 0 (puramente empresa de negocios) y el 5 (puramente empresa social).
- Nivel de formación: es una variable categórica que cubre 4 nieveles de formación en los emprendedores: estudios primarios, estudios secundarios o grado medio, grado superior o bachillerato y estudios universitarios.
- Formación relacionada: es una variable dicotómica que indica si el emprendedor tiene algún tipo de formación que esté relacionada con el negocio que funda.
- Experiencia relacionada: es una variable dicotómica que indica si el emprendedor tiene al menos un año de experiencia relacionada con el negocio que se funda.
- Número de empleados: captura el número total de empleados estables, incluyendo a los propios emprendedores.
- Capital inicial: es una variable *proxy* del capital con el que se funda la empresa. En este estudio se ha calculado como el capital subvencionable según los criterios del IVAJ.

Además de estas variables independientes, en el segundo estudio aparecen otras 5 variables adicionales, ya que el entorno también ha sido considerado en este trabajo:

- Variación del PIB: es el promedio de la variación del PIB a través del periodo desde la fecha en la que la empresa empieza su actividad hasta el 31 de diciembre del sexto año, que es cuando la supervivencia de la empresa ha sido comprobada.
- Tasa de desempleo: es el promedio de desempleo en el periodo desde la creación de la empresa hasta el 31 de diciembre del sexto año.

- Empresa urbana/no urbana: es una variable dicotómica, toma el valor 1 si la empresa está situada en un área con menos de 10.000 y 0 si la población es mayor a 10.000 habitantes.
- Sector: es una variable dicotómica que indica si la empresa se dedica al sector servicios o al industrial.
- Subsector: es una variable categórica basada en los dos primeros dígitos del CNAE-93. Esta variable contiene 8 grupos, cada uno de ellos contempla sectores relacionados.

3. Procedimiento

La motivación del primer estudio ha sido determinar el punto hasta el cual la economía de un país y el contexto institucional afectan a la actividad emprendedora del mismo y a la innovación. De acuerdo a ello, los países se han agrupado sobre la base de la similaridad de su contexto económico e institucional. Después, las diferencias en la actividad emprendedora y la innovación han sido analizadas.

Primero se ha aplicado un análisis clúster a la muestra. Se ha utilizado este tipo de análisis por dos razones: permite la identificación de grupos con máximo nivel de homogeneidad interna y habilita la identificación del máximo nivel de heterogeneidad entre grupos. A través de este análisis se han estudiado las correlaciones entre variables. Ello ha revelado diversas correlaciones significativas. Después se ha llevado a cabo el análisis de componentes principales con la rotación varimax ortogonal con el fin de eliminar el problema de las correlaciones significativas entre variables y reducir el número de variables.

Algunos expertos como Hair et al. (2001), Ketchen y Shook (1996), Milligan (1980) y Punj y Stewart (1983) recomiendan el uso del análisis clúster bietápico. En este estudio se ha seguido este consejo para clasificar los países de la muestra. Los principales componentes producidos por la solución factorial han sido analizados utilizando un procedimiento jerárquico. El método Ward que utiliza las distancias euclídeas al cuadrado se ha aplicado para establecer el número de clústers apropiado. Los centroides obtenidos en el primer paso han sido introducidos como centroides iniciales en el análisis de los clústers no jerárquicos utilizando el método de las k-medias, lo cual provee la solución que ha sido adoptada en el análisis siguiente.

Las soluciones de los dos procedimientos han sido comparadas para comprobar las discrepancias y confirmar que la estructura del grupo es consistente. El clúster bietápico ha

sido además utilizado para identificar el número óptimo de grupos utilizando el criterio AIC. Sin embargo, los resultados de este análisis han sido descartados porque muestran que la calidad de los clústers utilizando este método es pobre.

Después del análisis clúster, se ha aplicado un ANOVA para determinar el punto hasta el cual los grupos difieren los unos de los otros. El ANOVA ha destacado que diversas variables difieren significativamente entre los grupos. Después se han aplicado tests post hoc para determinar qué grupos eran diferentes entre sí. El test de Levene ha verificado que las variables cumplen con la asunción de la homogeneidad de varianzas.

El test F y el Tukey también se han utilizado para las variables que no han cumplido con la asunción de la homogeneidad de varianzas. Si la asunción no ha sido confirmada, se han utilizado los resultados obtenidos con el estadístico Brown-Forsythe para las comparaciones post-hoc, siguiendo las recomendaciones de Hair et al. (2001) y Pardo y Ruiz (2002). El mismo procedimiento se ha seguido para el análisis de las diferencias entre grupos en términos de actividad emprendedora e innovación.

Las variables dependientes para los otros dos estudios han sido la supervivencia en t+3 y t+6. El análisis utilizado para estos estudios ha sido escogido debido a la naturaleza de las variables. El test de Mann-Whitney para dos muestras independientes y el test de Kruskal-Wallis para más de dos muestras independientes han determinado si un parámetro ordinal difiere en los o más muestras independientes. El Chi cuadrado de Pearson se ha encargado de la medición de la fortaleza de la asociación entre dos variables categóricas, siempre que la frecuencia esperada haya sido mayor a 5. Para las variables dicotómicas se ha utilizado el test de Fisher.

Para llevar a cabo el análisis multivariante se han utilizado modelos de regresión logística binaria. Como ya se ha mencionado, la regresión logística binaria ha sido apropiada por la naturaleza de la variable dependiente. Además, la regresión logística binaria ha sido elegida porque la relación entre las variables independientes y dependientes no debe ser lineal.

Estos modelos logit pueden ser utilizados para calcular la probabilidad de no supervivencia como función de las variables independientes. En los modelos logísticos el odds se expresa como una función exponencial de las variables independientes:

$$\frac{p}{1-p} = e^{\beta_0+\beta_1 X_1+\beta_2 X_2+.....+\beta n Xn}$$

Donde *p* es la probabilidad de no sobrevivir, X_i (i=1, 2,…, n) son variables independientes (desempleo, capital inicial, experiencia relevante, etc.) y β_i son coeficientes de regresión utilizados para la estimación.

Un modelo por pasos condicional hacia delante ha sido el utilizado. El valor de entrada *p* ha sido 0,05 y el *p* valor de salida ha sido de 0,1 para todas las variables. Para las variables categóricas se ha establecido una categoría de referencia. La presencia o ausencia de otras categorías ha sido comparada con la categoría de referencia.

Además, también han sido utilizadas dos medidas para la comprobación de la bondad del ajuste: dos veces la función del logaritmo neperiano (-2LL) y el R^2 de Nagelkerke. La calibración del modelo ha sido testada utilizando en test Hosmer-Lemeshow.

Resultados

Respecto a los resultados del primer estudio, el análisis factorial llevado a cabo antes de aplicar el análisis clúster, los resultados de la medida del KMO de la adecuación de la muestra y el test de esfericidad de Barlett han mostrado que el análisis factorial ha sido el idóneo para explicar los datos. Seis factores han sido seleccionados con la base de los Eigenvalues, los valores de extracción de las variables originales y la forma del gráfico de sedimentación. Los seis factores, que explican el 80,093% del total de la varianza han sido utilizados en el análisis clúster para identificar grupos homogéneos de países.

El análisis clúster ha producido una solución de tres grupos que ha sido la adoptada para el análisis siguiente, el test ANOVA. El ANOVA se ha utilizado para determinar las diferencias entre las variables de los distintos grupos. Los test post hoc han sido aplicados para determinar qué grupos difieren uno del otro. Todos los grupos difieren en 8 valores. De las 63 diferencias identificadas entre los pares posibles de los grupos, 47 han sido significativas (40 a un nivel de significatividad del 0,01 y 7 a un nivel de 0,05). Los grupos 1 y 2 difieren significativamente en 18 de las 21 variables, y los grupos 1 y 3 difieren significativamente en 17 de las 21 variables. Los grupos que difieren menos son el 2 y el 3, que solo tienen 12 diferencias significativas en las 21 variables. Los resultados han sido satisfactorios. De manera abreviada, los resultados han sido los siguientes:

- El grupo 1 tiene niveles de desempleo moderados, un bajo nivel de PIB per capita y los más altos niveles de desigualdad de ingresos. En decir, el grupo 1 contiene países en vías de desarrollo con altos niveles de desigualdad socioeconómica y desempleo.
- El grupo 2 tiene los más bajos niveles de desempleo, el PIB per cápita con diferencia más alto de los tres grupos y bajos niveles de desigualdad (similares a los del grupo 3). Estos países tienen un alto nivel de desarrollo, baja desigualdad socioeconómica y bajo nivel de desempleo.
- El grupo 3 tiene algunas diferencias significativas con respecto al grupo 2, pero también ciertos paralelismos. El grupo 3 tiene altos niveles de desempleo, un nivel moderado de PIB per cápita y bajos niveles de desigualdad de ingresos (similares a los del grupo 2). Estos países son desarrollados y tienen bajo nivel de desigualdad socioeconómica y alto desempleo.

Después de caracterizar los grupos, el próximo paso ha sido analizar hasta qué punto las tasas de emprendimiento y de innovación varían.

Los tres grupos difieren significativamente en términos de innovación. Los países del grupo 3 han sido los más innovadores, seguidos de los países del grupo 2 y después los países del grupo 1. El grupo con más altas tasas de emprendimiento ha sido el 1. Las tasas de emprendimiento son similares en los grupos 2 y 3. Las puntuaciones más altas de emprendimiento por oportunidad han sido las de los países del grupo 3, y no ha habido diferencias significativas entre los grupo 1 y 3. Finalmente, los grupos 1 y 3 tienen altos niveles de emprendimiento por necesidad. Los niveles de emprendimiento por necesidad en el grupo 2 han sido significativamente menores. Por lo tanto, los resultados se ajustan a la literatura, ya que los resultados respecto a la innovación mejoran en los contextos con un claro predominio del emprendimiento por oportunidad.

Respecto al segundo estudio, para evaluar el efecto de las crisis económicas en la supervivencia de las empresas de nueva creación, los periodos económicos han sido clasificados en tres categorías de acuerdo a la variación del PIB y la tasa de desempleo. Estas variables han estado altamente correlacionadas, por lo tanto, solo la tasa de desempleo se ha considerado con el fin de evitar problemas de multicolinearidad. Estas categorías han sido calificadas como de crecimiento, transición y crisis. Esta división se ha llevado a cabo con el fin de determinar la fase en la que las empresas se han desarrollado. El análisis ha mostrado que las nuevas empresas sobreviven más en periodos de crisis que en periodos de crecimiento. De esta manera, el modelo logit en t+6 ha mostrado 8 variables significativas: la tasa de desempleo, el sector, la plantilla, el capital inicial, el nivel de formación, la formación relacionada la experiencia relacionada y la motivación para emprender. Cuando todas estas variables han sido consideradas conjuntamente el modelo ha adquirido una capacidad explicativa del 32,4% (R^2 de Nagelkerke =0,324).

Además del primer modelo, también se ha llevado a cabo un segundo. El segundo modelo ha contenido todas las variables mencionadas, excepto el desempleo. En el segundo modelo, no ha habido cambios relevantes en la significatividad de algunas de las variables, excepto para el nivel de formación, que ha dejado de ser una variable significativa. Sin embargo, la capacidad explicativa del modelo ha sido solo del 12% en este caso. Por lo tanto, la inclusión del desempleo como variable casi triplica la capacidad explicativa del modelo.

En este sentido, lo que muestran los resultados es que las empresas de nueva creación muestran mayores tasas de supervivencia en los periodos de crisis económica que durante los periodos de crecimiento, lo cual indica que el coste de oportunidad de seguir con la empresa desciende en periodos de crisis.

Asimismo, para evaluar el efecto de las crisis económicas en la supervivencia de las empresas de nueva creación, el segundo estudio ha verificado si el gap entre las tasas de supervivencia en los emprendedores por oportunidad y necesidad es más amplio (o menos) en los periodos de crisis que en otros periodos. El análisis ha mostrado que la probabilidad de sobrevivir de los emprendedores por oportunidad es más alta que para los emprendedores por necesidad en general. Durante los periodos de crecimiento, las empresas creadas por necesidad tienen 34% más de probabilidades de fracasar que las empresas creadas por oportunidad. Durante los periodos de crisis, sin embargo, la probabilidad de que una empresa por necesidad fracase es un 61% más alta que en periodos de crecimiento. Por lo tanto, durante los periodos de crisis, la probabilidad de fracaso de las empresas por necesidad se incrementa con respecto a la probabilidad de fracaso de las empresas por oportunidad. De esta forma, el gap entre las tasas de supervivencia de las empresas por oportunidad y necesidad aumenta durante los periodos de crisis.

En el tercer estudio, de las 2175 empresas de la muestra, 227 tienen algún grado de interés social. Los resultados muestran que en t+3 las empresas de negocios tienen más altas tasas de supervivencia y en t+6 viceversa. No obstante, las diferencias no son significativas.

Los resultados también muestran que la probabilidad de supervivencia de las empresas de negocios en t+3 ha sido significativamente más alta en los emprendedores con estudios secundarios. Sorprendentemente, cuando se toman los estudios primarios como categoría de referencia, los estudios secundarios son los únicos que tienen algún efecto en la supervivencia. Ni los estudios universitarios ni el bachiller o el grado medio o superior aseguran tasas más altas de supervivencia. Además, las tasas de supervivencia también han sido más altas entre los emprendedores con experiencia relacionada, lo cual es coincidente con la literatura. Asimismo, el tamaño de la empresa en términos de capital inicial y empleados también tiene un efecto en la supervivencia.

En t+6, en el caso de las empresas de negocios, el tipo de formación (relacionada o no), el sector y la motivación han resultado ser variables significativas para la determinación de la supervivencia. Asimismo, también el tamaño de la empresa ha sido relevante a la hora de establecer la supervivencia de la empresa.

En el caso de las empresas sociales, los modelos logit han revelado que solo las dos variables relacionadas con el tamaño de las empresas (es decir, el capital inicial y la plantilla) afectan a la supervivencia de la empresa. De manera similar, las variables que afectan a la supervivencia de

las empresas de negocios difieren de las que afectan a las empresas sociales. Estos hallazgos implican que, contrariamente al estudio de las hipótesis, los factores ligados a las mayores tasas de supervivencia de las empresas de negocios no tienen por qué estar ligados a las empresas sociales.

Conclusiones

Como se ha comentado en la introducción de la tesis, esta persigue dos objetivos principales. El primero de ellos es analizar cómo el entorno de un país afecta al emprendimiento y la innovación, el segundo objetivo es determinar qué factores del emprendimiento afectan a la supervivencia de las empresas de nueva creación. Sobre ello, han sido seleccionados dos tipos de factores que conforman el entorno: los económicos y los institucionales.

Según la literatura, en los países en vías de desarrollo hay dos factores que son especialmente responsables de las altas tasas de emprendimiento. El primero de ellos es el desempleo, que tiende a ser mayor en los países en vías de desarrollo que en los desarrollados. El desempleo causa altas tasas de emprendimiento porque los individuos que no trabajan por cuenta ajena tienden a emprender como medio para la obtención de ingresos (Kelley, Bosma y Amorós, 2010). El segundo factor se relaciona con los altos estándares de seguridad social y las altas probabilidades de oportunidades de trabajo por cuenta ajena de los países desarrollados. Estos dos factores de las economías desarrolladas llevan a que el coste de oportunidad de emprender ascienda (Bosma y Schutjens, 2011), haciendo que baje la tasa de emprendimiento. Sin embargo, a pesar de que el emprendimiento es más común en los países en desarrollo, este es un emprendimiento motivado por la necesidad (Reynolds, Camp, Bygrave, Autio y Hay, 2001).

Los otros tipos de factores medioambientales discutidos en la tesis están relacionados con las instituciones. Las instituciones pueden pertenecer a dos grupos mayoritarios: instituciones formales o informales (North, 1992; Redding, 2005). Las formales comprenden las leyes y regulaciones, las informales están compuestas por la cultura y la educación (Scott, 2001).

Las instituciones formales constituyen el pilar regulatorio de la institucionalización. A través de ellas, los gobiernos pueden promover el emprendimiento mediante la bajada de trámites administrativos (Van Stel, Storey y Thurik, 2007). Además, las tasas, que son también impuestas por los gobiernos, también afectan al emprendimiento. Estrin, Aidis y Mickiewicz (2007), sin embargo, argumentan que los países con instituciones formales más fuertes alcanzan mejor performance en términos de oportunidad e innovación.

El pilar normativo de la institucionalización se refiere a la cultura. La cultura recibe atención por parte de la academia no solo por la manera en la que restringe el emprendimiento, sino trambién porque puede hacer que se incrementen las oportunidades de negocio (Aldrich y Fiol, 1994). Hofstede (1990: 5) define la cultura " en el sentido antropológico de amplios

patrones de pensamiento, sentimiento y acción". A causa de su posición de influencia para la academia, en esta tesis se utilizan los primeros modelos del autor, los cuales incluyen los conceptos de distancia al poder, individualismo, masculinidad y aversión al riesgo. La literatura muestra consenso en el hecho de que la actividad emprendedora tiene una relación positiva con el individualismo y la aversión al riesgo (Shane, Locke y Collins, 2003; Thornton, Ribeiro-Soriano y Urbano-Pulido, 2011). Por el contrario, la investigación sobre la relación entre la distancia al poder, la masculinidad y la actividad emprendedora es escasa. No obstante, si la distancia al poder representa el punto en el que los miembros más débiles de las organizaciones aceptan y esperan una distribución del poder desigual (Hofstede, 1990), cuando el índice de distancia al poder sea alto, los países deben ser más emprendedores por el hecho de que sus habitantes busquen una mayor independencia. Finalmente, aunque la literatura contiene escasas referencias a la relación entre masculinidad y emprendimiento, la investigación sobre los valores masculinos y femeninos en las sociedades muestra una predominancia de los valores masculinos en las sociedades más emprendedoras.

El resto de instituciones informales que contemplan la educación o pilar cognitivo de la institucionalización. La educación conduce a altas tasas de emprendimiento debido a que las personas con mayor nivel de formación suelen tener mayor confianza en sus habilidades para emprender una actividad económica (De Clerq y Arenius, 2006). Este efecto surge porque la educación ayuda a los individuos a identificar mejor las oportunidades de mercado (Levie y Autio, 2008).

Esta tesis también discute el efecto del emprendimiento en la innovación, con diversos autores (e.g., Kelley et al., 2010; Reynolds et al., 2001) aportando por el hecho de que la innovación mejora en contextos donde el emprendimiento por oportunidad es la forma predominante de emprender. Según la literatura, el emprendimiento es significativamente mayor en países con bajo desarrollo económico, altas tasas de desigualdad y de desempleo. Aun así, en estos países el emprendimiento por necesidad es el más común, por lo que los resultados de innovación son más débiles.

Contrariamente, en los países desarrollados, las tasas de emprendimiento son menores, pero el emprendimiento por necesidad prevalece menos y la innovación presenta mejores resultados. En términos de instituciones formales, los resultados empíricos presentados muestran mayores tasas de emprendimiento por oportunidad e innovación asociados con países con altos niveles de libertad económica (i. e. con instituciones formales fuertes). En términos de educación, los estudios revelan que el capital humano de un país se relaciona con

el descubrimiento y la capitalización de las nuevas oportunidades de negocio. En este sentido, la educación está correlacionada con el grado de innovación de un país. Por último, en relación a la cultura, los resultados muestran que las altas tasas de emprendimiento se suceden en países con alta distancia al poder, alta aversión al riesgo y bajo individualismo. Estos resultados contradicen en cierto modo la investigación previa sobre el rol de la aversión al riesgo y el individualismo (Ardichvili y Gasparishvili, 2003; Shane, Locke y Collins, 2003).

En segundo objetivo de la tesis es determinar los factores que afectan a la supervivencia de las nuevas empresas. Esta es una tarea importante debido a que las nuevas empresas presentan altas tasas de fracaso (Brüderl y Schussler, 1990). Para llegar a cumplir el objetivo, la tesis tiene en cuenta diversos factores que afectan a la supervivencia de las nuevas empresas. Estos factores se pueden categorizar en factores relativos al emprendedor/a y la empresa en un grupo y factores del entorno en otro.

En el segundo estudio, la supervivencia de las nuevas empresas ha sido comprobada antes y después de la crisis económica. El objetivo principal en este estudio es analizar cómo la supervivencia de las nuevas empresas difiere según la estabilidad económica del país. La literatura argumenta que la creación de nuevas empresas durante un periodo económico de crecimiento, con abundancia de oportunidades laborales y/o alta cobertura social, aumenta el coste de oportunidad de crear una empresa (Bosma y Schutjens, 2011). Por el contrario, durante las crisis económicas, la falta de oportunidades laborales fuerza a los individuos a emprender. En esta tesis, se asume que las crisis económicas tienen efectos similares cuando el individuo ya ha emprendido. Durante los periodos de crecimiento, si la empresa no obtiene buenos resultados el coste de oportunidad de abandonar el negocio es menor que en los periodos de crisis. Una vez más, el bajo coste de oportunidad se debe a la amplitud de oportunidades laborales durante los periodos de crecimiento. Los emprendedores abandonan las empresas si encuentran un trabajo por cuenta ajena. De modo contrario, durante los periodos de crisis el trabajo por cuenta ajena es escaso, por lo que los emprendedores suelen resistir y mantener a flote el negocio.

El segundo estudio también explora las diferencias entre el emprendimiento por necesidad y por oportunidad. Este estudio compara el comportamiento de emprendedores motivados por la oportunidad y por la necesidad en ambos periodos, antes y después de la crisis económica. La literatura sugiere que los emprendedores por oportunidad obtienen mejores resultados que los emprendedores por necesidad, en este sentido, los primeros muestran mayores tasas de supervivencia. Además, los emprendedores por necesidad que encuentran un trabajo por

cuenta ajena normalmente abandonan antes sus empresas. Por el contrario, los emprendedores por necesidad normalmente continúan con el negocio si este aun muestra algún grado de rentabilidad. No obstante, hay evidencia de que otras características del emprendedor y de la empresa también se asocian positivamente con la supervivencia y el éxito a largo plazo. Algunas de ellas son el tamaño del negocio, la presencia de innovación y el alto nivel de formación del emprendedor. Factores todos ellos que, normalmente, se asocian al emprendimiento por oportunidad.

Los resultados muestran sobre la primera hipótesis de este estudio que las nuevas empresas sobreviven más en periodos de crisis. El descenso del coste de oportunidad de continuar con la empresa lleva a mayores tasas de supervivencia. Por lo tanto, aunque la supervivencia de las empresas se tiende a tomar como medida de éxito, esta tesis demuestra que no siempre es así.

El tercer estudio también persigue cumplir el segundo objetivo de la tesis, determinar qué factores influyen en la supervivencia de las nuevas empresas. En este estudio no se han considerado factores relativos al entorno pero sí se han examinado dos tipos de empresas: las sociales y las tradicionales o de negocios.

La primera motivación del tercer estudio es identificar el tipo de empresa –social o de negocios- con mayores probabilidades de supervivencia. Por lo que este estudio ha sido diseñado para testar dos hipótesis contrapuestas. La primera de ellas es que las empresas sociales presentan menores tasas de supervivencia que las empresas de negocios. Esta hipótesis se soporta en Austin et al. (2006:3), quienes argumentan que “la movilización de los recursos humanos y financieros es una diferencia importante entre las empresas sociales y de negocios”. Las empresas sociales, según los autores, presentan mayores dificultades a la hora de movilizar los recursos. Las empresas de negocios pueden obtener los recursos directamente del mercado mediante la venta de bienes o servicios y pueden acceder a mercados de capital más fácilmente que las empresas sociales. Los emprendedores sociales, por el contrario, tienen una mayor dependencia de las donaciones y los subsidios. Es esta mayor dificultad en la movilización de los recursos lo que reduce las oportunidades de supervivencia de las empresas sociales. La segunda hipótesis postula lo contrario, que las empresas sociales presentan mayores tasas de supervivencia que las empresas de negocios. Esta hipótesis, soportada por Santos (2009), se basa en que el menor énfasis en la apropiación del valor económico de las empresas sociales las empuja a subsistir en mayor grado que las empresas de negocios. Por lo tanto, es de destacar que en cada una de las hipótesis la supervivencia de las empresas

representa hechos totalmente distintos, en una de ellas representa el éxito de la empresa y en la otra la subsistencia.

Después de examinar la probabilidad de supervivencia de las empresas de negocios y las sociales, el tercer estudio examina la supervivencia de los dos tipos de empresas teniendo en cuenta ciertos factores que influyen en la misma. Estos factores son la formación del emprendedor, su experiencia y motivación para emprender (Alstete, 2008; Evans y Leighton, 1989). Las cualidades que caracterizan a las empresas de negocios y sociales son similares. Además, en los dos casos se deben identificar oportunidades y hacer frente a retos similares usando habilidades de resolución de problemas. Por ello, las hipótesis de este último estudio fueron desarrolladas para determinar si los factores relacionados con las empresas de negocios también lo están con las empresas sociales.

En términos de formación existen dos tipos de conocimiento necesario para las altas tasas de supervivencia: el conocimiento general, derivado de la formación no relacionada con la actividad de la empresa; y el conocimiento específico, derivado de la educación relacionada con el sector en el que desarrolla su actividad la empresa. El conocimiento general ayuda al emprendedor a calificar las oportunidades y a usar los recursos de manera eficiente (Castrogiovanni, 1996). Además, facilita la adquisición y conocimiento del *know-how* (Haber y Reichel, 2005). El conocimiento específico, por el contrario, se relaciona con el uso de las tecnologías, los procesos y productos dentro de un sector. Por lo tanto, el conocimiento específico aumenta el performance de una empresa mediante la mejora de la capacidad de gestión (Haber y Reichel, 2005). En este sentido, la literatura revela que tanto el conocimiento específico y como el general se relaciona con las empresas de negocios y sociales.

Respecto a la experiencia, el estudio examina solo un tipo de experiencia, aquella que está relacionada con la actividad principal de la empresa. Ribeiro y Castrogiovanni (2012) argumentan que la experiencia permite una mejor identificación, explotación y adquisición de los recursos. Además, determinados estudios muestran que en las empresas establecidas la supervivencia es más alta cuando el *management team* tiene experiencia en la misma industria.

Los resultados muestran que la supervivencia parece no depender de la naturaleza de la empresa (negocios o social) porque las tasas de supervivencia fueron similares en ambos tipos de empresas. Cuando otros factores son tenidos en cuenta, sin embargo, las conclusiones son distintas. Solo las variables relacionadas con el tamaño de la empresa se asocian a los dos tipos

de emprendimientos, social y de negocios. Cuando las variables relacionadas con el emprendedor han sido tenidas en cuenta, se ha comprobado que estas tienen una influencia sobre la supervivencia de las empresas de negocios pero no en la de las empresas sociales.

Por lo tanto, la mayor conclusión del último estudio es que los factores que reducen significativamente la probabilidad de fracaso de las empresas de negocios difieren respecto a los factores que reducen las tasas de fracaso en las empresas sociales. Esta conclusión implica que se debe seguir investigando en los factores que influyen en el éxito o fracaso de las empresas sociales.

Respecto al conjunto de los tres trabajos, las principales conclusiones han sido las siguientes:

- Los factores económicos ejercen una influencia en dos momentos del ciclo de vida de la empresa: el momento de su constitución y después de los primeros años de vida de la misma.
- La cultura de un país, el nivel de educación de la población y las instituciones formales afectan no solo a las tasas de emprendimiento, sino también al tipo de emprendimiento y a la innovación.
- El coste de oportunidad de continuar con la empresa es menor durante los periodos de crisis que durante los periodos de crecimiento económico.
- La tasa de supervivencia de las empresas no es una buena medida para determinar el éxito de las mismas.
- La tasa de supervivencia de las empresas de negocios y de las sociales es similar.
- Ciertas características del emprendedor afectan a la supervivencia de las empresas de negocios, pero no a la de las empresas sociales.

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Annex 2: Original copies of the publications presented at the thesis

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Institutional and economic drivers of entrepreneurship: An international perspective

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ABSTRACT

Entrepreneurial activity varies significantly across countries and over time. The economic and institutional context is a determining factor that can drive and lend shape to entrepreneurial activity. The search for a deeper understanding of the role of this factor constitutes a promising and important research stream. A thorough review of the specialist literature identifies groups of countries with similar economic and institutional environments. Subsequent analysis highlights differences in entrepreneurial activity and innovation outcomes between these homogeneous groups. Results indicate significant differences, not only in entrepreneurial activity, but also in the type of entrepreneurship and innovation results. These findings mark a relevant step forward in the identification of different environment types, and the effects of environment on entrepreneurial activity and innovation results.

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1. Introduction

Research into entrepreneurship dates back to 1755, when Cantillon introduced the term entrepreneur in his *Essai sur la nature du commerce en général*. The study of entrepreneurship is receiving increasing attention from researchers and policymakers because of the general view that entrepreneurship is essential to countries economic growth and development, driving employment and innovation (Cuervo, Ribeiro, & Roig, 2007; Pinillos & Reyes, 2011; Reynolds, Camp, Bygrave, Autio, & Hay, 2001; Schumpeter, 1934; Wennekers & Thurik, 1999).

Entrepreneurship scholars seem to agree that the level of entrepreneurial activity varies significantly across countries and over time (Verheul, Wennekers, Audretsch, & Thurik, 2002). Due to the great importance of entrepreneurship, the quest for a deeper understanding of the factors that drive and shape entrepreneurial activity constitutes an important and productive stream of research (Engle, Schlaegel, & Dimitriadi, 2011).

Following this line of thought, the environment in which new ventures emerge is an important field of research, not only because environmental variables open up opportunities to exploit market inefficiencies as the economic approach highlights – but also because different environments can be more or less favorable to the success of new ventures (Stevenson & Jarillo, 1990). Consequently, studying the role of environmental determinants of entrepreneurial activity is critical.

Unquestionably, economic factors matter. For example, the contributions of the Global Entrepreneurship Monitor (GEM) in this area show that entrepreneurship activity is normally more prevalent in countries with greater income inequality. GEMs results also reveal that in developing countries, necessity entrepreneurship has a more pivotal function in the economy than opportunity entrepreneurship, apparently because finding paid work is more difficult than in other economic settings (Reynolds et al., 2001). Clearly, however, economic factors are not the only drivers of entrepreneurial activity. In fact, countries with similar economic conditions can have quite different rates of entrepreneurship (Van Stel, Storey, & Thurik, 2007).

Currently, institutional factors are receiving a great deal of attention in the subject specific literature. As Jackson and Deeg (2008, p.540) state, "institutions matter, but how they matter remains a hotly contested question." Institutions differ significantly across countries, causing differences in the patterns of economic behavior and innovation results. North (1990) highlights that formal and informal institutions can promote or damage the entrepreneurial rate of a society, and affect the sustainability of new ventures. Institutions shape entrepreneurial activity via the reduction of uncertainty, establishing a structure that can limit the set of choices of individuals (Díaz-Casero, Urbano-Pulido, & Hernández-Mogollón, 2005; North, 1993). Different countries distinct institutional frameworks thus affect entrepreneurial activity differently, as the results of Stephen, Urbano, and Van Hemmen (2005) show.

Studies that analyze a sample of countries with different environmental conditions in an attempt to gain a better understanding of the role that economic, and formal and informal institutional factors play as drivers of entrepreneurial activity are scarce. Therefore, using a sample of 62 countries, this study aims to identify a typology of environments, with the ultimate goal of advancing knowledge of how environmental conditions affect the level of entrepreneurial activity, the kind of entrepreneurial activity, and the innovation performance of countries.

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The remainder of the paper has the following structure. Section 2 analyzes the economic and institutional factors as determinants of entrepreneurial activity. Section 3 describes the methodology and Section 4 presents the results. These two sections identify groups of countries with similar economic and institutional environmental conditions and examine differences in entrepreneurial activity and innovation between these homogenous groups. Finally, Section 5 addresses the conclusions, implications, and limitations of the research.

2. Economic and institutional drivers of entrepreneurship

2.1. Economic drivers of entrepreneurship

The contributions of the GEM to the field of Economics highlight the generally higher rate of entrepreneurship in countries whose economic development is relatively low, and greater income inequality prevails (Kelley, Bosma, & Amorós, 2010; Reynolds et al., 2001). Although least developed countries might be expected to provide more opportunities for potential entrepreneurs (Smallbone & Welter, 2006), other explanations seem to be more accurate. In this respect, GEM results show that, in developing countries, necessity entrepreneurship has a stronger function in the economy than opportunity entrepreneurship. This situation may owe to difficulties in finding paid work in developing countries, with people tending to undertake business ventures in order to avoid unemployment (Reynolds et al., 2001). Conversely, an abundance of job opportunities and a high degree of social security are factors that increase the opportunity costs of entrepreneurship for individuals in developed countries (Bosma & Schutjens, 2011). Baptista and Thurik (2007), Baptista and Torres (2006), and Thurik, Carree, Van Stel, and Audretsch (2008) point out that the relationship between unemployment and entrepreneurial activity is more complex. On the one hand, higher unemployment may lead to more entrepreneurial activity. On the other hand, low rates of start-up companies may also have an association with low economic growth rates, which correlate to higher levels of unemployment. In any case, as previous discussion intimates, necessity entrepreneurship seems to be more prevalent than opportunity entrepreneurship in countries with low levels of development, growth and employment, and higher inequality.

2.2. Institutional drivers of entrepreneurship

A common perception of institutions is that they define the rules of the game that shape the economic behavior of a society (Baumol, 1990). The structure of institutions will influence and may help explain differences in entrepreneurial activity between countries. According to North (1992) and Redding (2005), institutions fall into two broad categories: formal and informal. Formal institutions consist of statute law, common law, and regulations. Informal institutions, which Scott (2001) divides into socially driven normative and cognitive pillars of institutionalization, consist of, "conventions, norms of behavior, and self-imposed rules of behavior" (North, 1992, p. 4).

2.2.1. Formal institutions: the regulatory pillar of institutionalization

Economic rules, "establish the hierarchical structure of governments, their basic structure of decision" (Díaz-Casero et al., 2005, p. 213). Formal institutions generally address property rights protection regimes, and the constituents of this body of regulation that receive the most citations are rules of law, political and economic freedom, and corruption (El Harbi & Anderson, 2010).

Van Stel et al. (2007) explain that, through institutions, governments can spur on entrepreneurship by cheaply enabling the constitution and functioning of new ventures, and by minimizing the number of formalities that entrepreneurs have to follow to undertake an activity. In this sense, Stephen et al. (2005) point out that the institutions that affect entrepreneurial activity the most are bureaucratic formalities. Furthermore, a government can foster entrepreneurial activity of a country by rewarding entrepreneurs. These rewards can take the form of the following types of aids: advisory services, business incubators, and financial support (Toledano-Garrido & Urbano-Pulido, 2007).

Institutions appear to have direct and indirect effects on entrepreneurship, and these effects may vary depending on a number of conditions such as economic development, the level of unemployment, the type of entrepreneurship measured, and so on. For instance, looking at the impact of tax levels on entrepreneurship, high tax rates reduce the financial returns for entrepreneurs, which may have a negative effect on entrepreneurial activity. On the other hand, self-employment may offer greater opportunities to avoid tax liabilities. As Verheul et al. (2002) state, the case of social security is similar, increasing the cost of entrepreneurship while at the same time exerting a potentially positive effect on entrepreneurial activity by creating a safety net in case of business failure.

Finally, Estrin, Aidis, and Mickiewicz (2007) claim that countries with strong formal institutions, that is with tight protection of property rights or high levels of economic freedom, show better results in terms of opportunity entrepreneurship and innovation.

2.2.2. Culture: the normative pillar of institutionalization

A fundamental part of societies, informal institutions work to provide cues to shape behavior (El Harbi & Anderson, 2010), and do not represent codified or implicit attitudes. They develop informally over time, and are the embodiment of cultural norms, belief systems, practices, and customs (Hofstede, 1990).

An extensive body of literature links national culture, entrepreneurship, and innovativeness (Shane, 1992; Thomas & Mueller, 2000; Van de Ven, 1993). Culture receives scholars attention not only because of the restrictions this factor imposes on entrepreneurs, but also because of its role as an enhancer of business opportunities (Aldrich & Fiol, 1994). Hofstede defines culture, "in the anthropological sense of broad patterns of thinking, feeling, and acting" (Hofstede, 1990, p. 5). The first models include four dimensions of national culture: power distance, individualism, masculinity, and uncertainty avoidance. (The two additional measures appearing in later models are outside the scope of this study due to a lack of data and theoretical background.)

Owing to the high correlation between the entrepreneurial traits of independence, individual achievement and tolerance for ambiguity and uncertainty, and Hofstedes measures of individualism and uncertainty avoidance, much research focuses on the individualism and uncertainty avoidance dimensions of national culture. The literature shows some consensus on the idea that entrepreneurial activity may share a positive relation with individualism and have a positive link to uncertainty avoidance.

In individualistic cultures, people put their own interests before group interests (Thornton, Ribeiro-Soriano, & Urbano-Pulido, 2011). Given that the need for individual achievement characterizes entrepreneurs (Shane, Locke, & Collins, 2003), the expectation is that individualistic cultures tend to be more entrepreneurial.

Uncertainty avoidance has a relation with norms, values, and beliefs regarding tolerance for ambiguity and risk. According to Shane et al. (2003), when entrepreneurs embark on an economic activity, certain characteristics of their own personality guide them. Two of the most important of these characteristics are risk-taking and tolerance for ambiguity. Thus, the higher the uncertainty avoidance index, the lower the risk-taking propensity of individuals.

Research analyzing the relationship between power distance, masculinity, and entrepreneurial activity is scarce. Nevertheless, if power distance represents the extent to which the less powerful members of organizations and other institutions accept and expect that the spread of power is uneven (Hofstede, 1990), when power distance is high, nations ought to be more entrepreneurial, because inhabitants seek greater independence. In other words, the pressure that individuals in such nations experience leads them to seek other ways of obtaining economic gains.

With regard to masculinity, references to its relationship with entrepreneurship are virtually non-existent. Nevertheless, a review of Hofstedes typically masculine values (advancement in a company, earnings, freedom, supervising others, responsibility, creativeness, and training) and feminine ones (social aspects of the job, working conditions, relationship with superiors, variety, having a friendly atmosphere, and cooperation) reveals that masculine societies tend to be more entrepreneurial. Typically masculine values have a higher degree of similitude or relationship with some of the most important characteristics that the literature uncovers in entrepreneurs. Ardichvili and Gasparishvili (2003) find that the most masculine values of a country are more common in managers than in entrepreneurs.

2.2.3. Education: the cognitive pillar of institutionalization

As Spencer and Gómez (2004, p. 1100) point out, "the cognitive dimension of institutional profile reflects the knowledge and skills possessed by people in a country, as well as the frameworks they use to categorize and evaluate information." Authors recognize education as a crucial institution for the economic development of a country (North, 1990).

Several studies show a positive relationship between education and the performance of new businesses (Brüderl, Preisendörfer, & Ziegler, 1992; Klepper & Simons, 2000; Mitchell, 1989; Schiller & Crewson, 1997). Many studies demonstrate that education helps identify opportunities in the marketplace, especially education in entrepreneurship (De Clercq & Arenius, 2006; Levie & Autio, 2008; Shane, 2000).

Levie and Autio (2008) also indicate that education has a cultural effect on students' attitudes and behavior. In this case, education acts as a cultural factor that drives entrepreneurial activity because, when individuals have a higher level of education, they place greater trust in their abilities and skills to undertake an economic activity; in other words, they become more self-confident (De Clercq & Arenius, 2006).

Kirzner (1973) highlights that the discovery of opportunities depends, to some extent, on the asymmetry of available information. The fact that information does not have a homogeneous distribution for every member of a society means that members with better information about market opportunities decide to start up an economic activity.

2.3. Hypothesis summary

From the above arguments, a general hypothesis emerges. Namely, economic and institutional environments have the capacity to foster or inhibit not only entrepreneurial activity, but also the kind of entrepreneurial activity and innovation results arising from this activity. As multiple interrelations exist between the constructs in the model, establishing the effect of separate constructs is difficult. Nevertheless, the discussion below sets out to make inroads in this direction.

The analysis of economic factors leads to positing, first, that low numbers of start-up companies relate to economic environments with low GDP per capita and economic growth, and high unemployment and income inequality (hypothesis 1). Second, necessity entrepreneurship is more prevalent in countries with the above economic environment traits, while opportunity entrepreneurship is more prevalent in countries with high GDP per capita and economic growth, and low unemployment and income inequality (hypothesis 2).

With regard to institutional factors, taking an overall measure of formal institutions as the degree of economic freedom of a country, as the specialist literature recommends, a high level of economic freedom relates to higher levels of opportunity entrepreneurship (hypothesis 3). If economic conditions are similar, countries with higher degrees of economic freedom are more entrepreneurial. In other circumstances the influence of economic factors is prevalent (hypothesis 4).

The influence of cultural factors is much more difficult to predict. Nevertheless, countries with higher levels of individualism, power distance and masculinity, and higher levels of uncertainty avoidance are likely to be more entrepreneurial (hypothesis 5). With regard to the relationship between cultural factors and the kind of entrepreneurship, any hypothesis can find a good grounding in the theory. Clearly, efforts in education have significant effects on entrepreneurial activity. High levels of education have a relationship with high levels of opportunity entrepreneurship (hypothesis 6).

If economic conditions are similar, countries with higher degrees of economic freedom are more entrepreneurial. In other circumstances, the influence of economic factors is prevalent (hypothesis 7).

Finally, given the specific characteristics of necessity and opportunity entrepreneurship, the last hypothesis posits that the higher the opportunity entrepreneurship rate, the better the innovation results of a country (hypothesis 8).

3. Methodology

3.1. Sample and information sources

The sample consists of 68 countries across all five continents. Various databases provide the data to determine the values for the institutional environment of the countries under study (see Tables 1 and 2). The GEM provides 2010 data for 56 countries and 2009 data for a further 12 countries. Data from the Global Innovation Index are from 2011. The CIA World Factbook (Montenegro), the African Development Bank (Angola), and the National Household Survey (Uganda) complement data on unemployment from the International Monetary Fund. Data is unavailable for 2010 in all cases. The GINI index on income inequality in Hong Kong comes from the UNDP (UN), and, for Tonga, data comes from the OECD. In the case of national culture, as information is unavailable for some countries, data from other nations offers a proxy according to geographical proximity, and ethnic, religious, political and cultural similarities, according to the opinions of experts.

3.2. Variables and procedure

The objective of this research is to determine the extent to which the economic and institutional contexts of a given country can affect its entrepreneurial activity and innovation. Therefore, the 68 countries under study form groups (see Table 3) according to the results of a cluster analysis in two stages. Four groups of variables characterize economic and institutional contexts and identify the groups of countries (see Table 2). After identifying and validating the groups, the next step is to analyze the inter-group differences with regard to entrepreneurial activity (TEA), entrepreneurial activity by opportunity (TEA-Oport), entrepreneurial activity by necessity (TEA-Nec), and innovation (Global-Inn).

As the existence of multicollinearity or interdependence between variables can greatly affect the results of cluster analysis, analysis of the variables under study is necessary. This analysis reveals a considerable number of significant correlations (30 correlations greater than 0.6, all of which are significant to a level of 0.01). A principal component analysis with an orthogonal varimax rotation eliminates this problem and reduces the number of variables. Six principal components emerge for analysis instead of the original 21 variables.

Classification of the countries in the sample takes place using cluster analysis in two stages. The first step is to analyze, using an agglomerative

Table 1
Dependent variables under study.

Entrepreneurship and innovation		
TEA	Total early-stage entrepreneurial activity (TEA)	Global Entrepreneurship Monitor, 2010
TEA_Oport	Improvement-driven opportunity entrepreneurial activity	
TEA_Nec	Necessity-driven entrepreneurial activity	
Global_Inn.	Global innovation index: This index relies on two sub-indices, the innovation input sub-index and the innovation output sub-index,	INSEAD and partners including WIPO

Table 2
Independent variables under study.

Economic factors	
Unemployment rate	International Monetary Fund
GDP per capita	
Income Inequality	Institute for Economics and Peace
Formal institutions	
Business freedom	Index of Economic Freedom from Heritage Foundation and The Wall Street Journal
Trade freedom	
Fiscal freedom	
Government spending	
Monetary freedom	
Investment freedom	
Financial freedom	
Property rights	
Corruption perception	
Labor freedom	
Culture	
Power distance index	http://geert-hofstede.com/
Individualism	
Masculinity	
Uncertainty avoidance index	
Education	
Total education	Human Development Index from United Nations Development Program
Expected years of education	
Secondary education	
Alphabetization rate	Index Mundi

hierarchical procedure, the principal components from the factor solution. The form of analysis in this case is via the Ward method, using squared Euclidean distances to establish a suitable number of conglomerates. In the second part of the process, the centroids from the first stage act as initial centroids in the analysis of non-hierarchical K-means clusters, which provides the final solution. Comparing the solutions from the agglomerative hierarchical and the non-hierarchical K-means clusters reveals whether any considerable discrepancies exist between the two solutions or whether the group structures are consistent. Two-stage clustering using the AIC criteria offers an alternative method to identify the optimum number of groups. This study ignores these results, however, as they indicate that the quality of clusters from this method is deficient.

The method for identifying to what extent the groups differ from one to another is ANOVA, which indicates the variables where the groups significantly differ in terms of the original 21 variables. Post hoc tests determine exactly which groups are different. Levene's test verifies that the variables comply with the assumption of the homogeneity of variances. The F-test and post hoc Tukey tests offer methods that allow for comparisons between each pair of possible groups for the variables that comply with the assumption of the homogeneity of variances. When the assumption of the homogeneity of variances does not hold, the Brown–Forsythe statistic replaces the F-test and the Games–Howell test for post hoc comparisons (Hair, Anderson, Tatham, & Black, 2001; Pardo & Ruiz, 2002, among others). The same procedure later analyzes the differences between groups with regard to entrepreneurial activity and innovation.

4. Results

With regard to the factor analysis prior to the application of the cluster analysis, the methodology requires the application of the KMO measurement of sample adequacy and Bartlett's sphericity test. The KMO measurement is 0.84 (considerably higher than 0.6), and the results of the Bartlett test reject the null hypothesis that the correlations matrix is an identity matrix. Furthermore, the results show that significance is 0.000. In terms of the measures of the sample adequacy of each variable on the main diagonal of the anti-image correlation matrix, the majority of values are over 0.8, and only the values for the variables of unemployment, masculinity, and uncertainty avoidance are marginally under 0.6.

Taking into account the eigenvalues, the extraction values of the original variables and the form of the sediment graph, the results point to the choice of six factors, or principal components, which explain 80.09% of the total variance. These factors feed into the cluster analysis for the identification of groups of homogeneous countries in terms of the characteristics of their economic and institutional contexts. A solution of three groups arises from the cluster analysis, and the differences with the initial solution using the Ward method and that coming from the K-means are not significant, a result which serves as a measure of robustness. Table 3 shows the composition of the three groups, taking the solution from the K-means algorithm as a reference by introducing the initial centroids that the Ward solution yields.

The results in Table 4 offer valuable information for characterizing the three groups, as well as for evaluating the extent to which the groups vary between one another; not in the factors in the cluster analysis, but rather in the original variables. The results of the F-test and the Tukey test for the variables that comply with the homogeneity of variance assumption, and the Brown–Forsythe and Games–Howell tests for those that do not, show that significant differences (a level of 0.01) exist between groups for all the variables except for unemployment – for which the differences are not significant at a level of 0.05 – and the variable labor freedom—for which the differences are not significant. Nonetheless, this finding is insufficient to justify that all groups are comparatively different.

After characterizing the groups, analysis of the extent to which the rates of entrepreneurial activity and innovation results vary is necessary for drawing subsequent conclusions concerning the effect that differences may have on variables in terms of the economic and institutional contexts of these countries.

As Table 5 shows, the three groups differ significantly with regard to performance in terms of both innovation and entrepreneurial activity. Again considering the results of the F and Tukey tests for the variables that comply with the assumption of homogeneity of variance, and the Brown–Forsythe and Games–Howell tests for those that do not,

Table 3
Composition of country groups.

GROUP 1 (39)				GROUP 2 (13)		GROUP 3 (16)	
Angola	Costa Rica	Malaysia	Tonga	Australia	Norway	Belgium	Japan
Arab Emirates	Dominican Rep.	Morocco	Trinidad Tobago	Denmark	Sweden	Bosnia	Macedonia
Arabia Saudi	Ecuador	Mexico	Tunisia	Finland	Switzerland	Croatia	Monten.
Algeria	Egypt	Pakistan	Turkey	Iceland	United Kingdom	France	Portugal
Argentina	Ghana	Panama	Uganda	Ireland	United States	Germ.	Romania
Bolivia	Guatemala	Peru	Uruguay	Israel	Hong Kong	Greece	Slovenia
Brazil	Iran	Russia	Venezuela	Netherl.		Hung.	Spain
Chile	Jamaica	Syria	Yemen			Italia	Serbia
China	Jordan	South Africa	Zambia				
Colombia	Latvia	South Korea					

Table 4
Mean and significant differences in categorization variables.

Variable	Variance homogeneity		ANOVA: F test or Brown–Forsythe		Post hoc: Tukey test or Games–Howell			Mean	
	YH Sig.	NH Sig.	F Sig.	B–F Sig.	Between groups	Tukey Sig.	GH Sig.	Group	Value
Unemployment	.05		**.02**		1–2	.23		1	10.15
					1–3	.15		2	6.77
					2–3	**.01**		3	13.76
GDP_Cap	.05		**.00**		1–2	**.00**		1	10.86
					1–3	**.00**		2	39.83
					2–3	**.00**		3	22.90
Income_Ineq		.00		**.00**	1–2		**.00**	1	44.08
					1–3		**.00**	2	32.37
					2–3		.98	3	32.80
Busin_freedom	.23		**.00**		1–2	**.00**		1	66.60
					1–3	**.02**		2	89.41
					2–3	**.00**		3	75.72
Trade_freedom		.00		**.00**	1–2		**.00**	1	73.44
					1–3		**.00**	2	88.22
					2–3		**.01**	3	75.72
Fiscal_freedom		.00		**.00**	1–2		**.00**	1	79.90
					1–3		**.02**	2	61.36
					2–3		.42	3	68.55
Govern_spend		.03		**.00**	1–2		**.00**	1	75.39
					1–3		**.00**	2	48.47
					2–3		.71	3	43.10
Monet_freedom		.04		**.00**	1–2		**.00**	1	69.89
					1–3		**.00**	2	78.61
					2–3		.60	3	77.01
Invest_freedom		.02		**.00**	1–2		**.00**	1	48.46
					1–3		**.00**	2	81.92
					2–3		**.00**	3	66.88
Finan_freedom		.02		**.00**	1–2		**.00**	1	46.67
					1–3		**.00**	2	77.69
					2–3		**.00**	3	60.00
Property_rights		.00		**.00**	1–2		**.00**	1	38.72
					1–3		**.01**	2	88.08
					2–3		**.00**	3	57.19
Corrup_Percep		.05		**.00**	1–2		**.00**	1	36.00
					1–3		**.00**	2	83.08
					2–3		**.00**	3	53.19
Labor_freedom	.43		.05		1–2	.05		1	59.98
					1–3	.99		2	71.87
					2–3	.10		3	59.66
PDI_Hofst		.01		**.00**	1–2		**.00**	1	67.64
					1–3		.94	2	33.54
					2–3		**.00**	3	69.75
IDV_Hofst	.69		**.00**		1–2	**.00**		1	31.62
					1–3	**.00**		2	70.23
					2–3	.06		3	55.19
MAS_Hofst		.00		**.00**	1–2		.36	1	49.77
					1–3		**.02**	2	39.08
					2–3		**.01**	3	72.56
UAI_Hofst	.66		**.00**		1–2	**.00**		1	67.74
					1–3	.16		2	46.08
					2–3	**.00**		3	78.56
Educ_Total		.02		**.00**	1–2		**.00**	1	7.59
					1–3		**.00**	2	11.08
					2–3		**.05**	3	10.03
Educ_Expected	.06		**.00**		1–2	**.00**		1	12.29
					1–3	**.00**		2	16.66
					2–3	.13		3	15.07
Educ_Second.	.13		**.00**		1–2	**.00**		1	52.68
					1–3	**.00**		2	78.93
					2–3	.97		3	77.15
Educ_Alfabet.		.00		**.00**	1–2		**.00**	1	83.16
					1–3		**.00**	2	98.58
					2–3		.48	3	97.83

Bold data indicate significance at level 0.05.

significant differences emerge at the 0.01 level in all the variables. Nevertheless, significant differences are absent between some of the groups in each of the variables. On the topic of innovation, all of the differences between groups are significant, with group 2 being the most innovative. The highest rates of entrepreneurial activity occur in group 1, with groups 2 and 3 yielding similar scores at a much lower level than group 1. For opportunity-driven entrepreneurial activity, the best results appear in group 2, whereas no significant difference between groups 1 and 3 is observable. Groups 1 and 3 have the highest levels of necessity-driven entrepreneurship, and levels in group 2 are significantly lower.

To sum up, group 3 has a relatively low rate of entrepreneurial activity, although the large number of opportunity-driven entrepreneurs and

Table 5
Mean and significant differences in innovation and entrepreneurship.

Variable	Variance homogeneity		ANOVA: F test or Brown–Forsythe		Post hoc: Tukey test or Games–Howell			Mean	
	YH Sig.	NH Sig.	F Sig.	B–F Sig.	Between groups	Tukey Sig.	GH Sig.	Group	Value
GII		.05		**.00**	1–2		**.00**	1	32.83
					1–3		**.00**	2	56.44
					2–3		**.00**	3	42.21
TEA.		.00		**.00**	1–2		**.00**	1	15.81
					1–3		**.00**	2	6.20
					2–3		.82	3	5.66
TEA Oport.	.63		**.00**		1–2	**.00**		1	42.90
					1–3	.79		2	56.54
					2–3	**.03**		3	45.19
TEA Nec.	.50		**.00**		1–2	**.00**		1	30.03
					1–3	.96		2	17.23
					2–3	**.01**		3	29.19

Bold data indicate significance at level 0.05.

the small number of necessity-driven ones is noteworthy. Also, in terms of innovation, this group has an intermediate level of performance in comparison with the other groups. Group 2 has a similar level of entrepreneurial activity to group 3, with a higher number of opportunity-driven entrepreneurs, a smaller proportion of necessity entrepreneurs, and a higher level of performance in terms of innovation. Lastly, group 1 presents the highest levels of entrepreneurial activity, with proportions of opportunity and necessity entrepreneurs which are similar to those of group 3, and with worse results in terms of innovation.

Summarizing, evidence supports the general hypothesis, because the different environmental types differ in their level of entrepreneurial activity, rate of opportunity- and necessity-driven entrepreneurship, and innovation results. With regard to the specific hypotheses of this paper, some evidence supports hypotheses 1, 2, 3, 6, and 8. Results fail to provide clear support for hypothesis 5, and no suitable test is capable of verifying hypotheses 4 and 7 because of the specific characteristics of the homogenous groups of countries.

5. Conclusions

The interpretation of the results is somewhat complex, due to obvious interrelations between the variables. Nonetheless, several interesting conclusions emerge. With regard to the relationship between the economic environment and the level of entrepreneurship, results agree with previous research and give support to the hypotheses in Section 2. Entrepreneurial activity is significantly greater in countries with lower levels of development, greater income inequality and considerable levels of unemployment. Necessity-driven entrepreneurship plays a more relevant role in these countries and innovation results are weaker, as Kelley et al. (2010) and Reynolds et al. (2001) previously demonstrate. Conversely, in more developed countries (i.e., with relatively low income inequality and low unemployment), rates of entrepreneurial activity are significantly lower, necessity-driven entrepreneurship is less prevalent, and innovation results substantially improve. Results match those from research that points out that innovation results improve in contexts with a clear predominance of opportunity-driven entrepreneurs (Kelley et al., 2010; Reynolds et al., 2001).

When interpreting these results, however, an essential prerequisite is to examine the conditions of the institutional environment of each country. Supporting the study's main hypothesis, the best results in terms of opportunity entrepreneurship and innovation correspond to the group of countries with higher levels of economic freedom or, as per Estrin et al. (2007), with strong formal institutions. Such a context entails: a high level of protection of property rights; the best results in terms of the perception of corruption; a legislation that provides for more agile procedures for starting a business, with relatively flexible job markets, and relatively low and stable levels of inflation; and an openness to international trade with scarce intervention in the financial system. These environments are thus contexts that are more suitable for business and international trade growth. In summary, these countries foster environments with institutions that create a regulatory environment that is generally favorable to the exploitation of business opportunities.

Regarding informal institutions, the human capital of a country seems to play an important role in discovering and taking advantage of good business opportunities. A clear correlation appears to exist between this factor and the best results in terms of innovation. Consequently, governments should continue to support training and education as a fundamental element of economic and social development.

Lastly, in relation to culture, clearly establishing the influence of this factor on entrepreneurial activity and innovation is difficult. Notably, the highest overall levels of entrepreneurship are in group 2; a group that shows high power distance, a fairly high level of uncertainty avoidance, and the lowest level of individualism. These results contradict previous research in relation to the role of uncertainty avoidance (Ardichvili & Gasparishvili, 2003; Wennekers, Thurik, Van Stel, & Noorderhaven, 2007) and individualism (Shane et al., 2003; Thornton et al., 2011). Nevertheless, this study shows that high levels of individualism and low levels of uncertainty avoidance prevail in the group of countries with a greater opportunity–necessity balance among entrepreneurs and the best innovation results, a result that is consistent with previous literature. In any case, the results do not show a clear relation between culture and entrepreneurship, especially when considering masculinity and power distance.

One of the most important implications of this research is that policymakers must adapt their entrepreneurship policy to prevailing national circumstances. The same policies in countries or regions with varying economic and institutional contexts can lead to extremely different outcomes. Hence, studying entrepreneurship and innovation and its relationship with economic and institutional factors is extremely important because of its fundamental role for governments wishing to deploy the correct policies and achieve better living conditions and economic growth.

This study does have some limitations. Future research should not only broaden the sample of countries, but also improve some construct measures such as innovation, measuring basic and applied innovation results, as Broberg, McKelvie, Short, Ketchen, and Wan (2013) recommend. More sophisticated analysis techniques could better analyze the relationships between the constructs. A structural equation model such as partial least squares may provide a good method, given that this technique has fairly low sample requirements. Longitudinal studies are also necessary to make progress in this research stream.

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Influence of economic crisis on new SME survival: reality or fiction?

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ABSTRACT

The aim of this research was to analyse the survival of new ventures during periods of economic crisis. The article compares survival probability during growth and crisis periods. An empirical study was used to analyse new venture survival probability. Results show that new firms have a greater likelihood of surviving during crisis periods than they do during growth periods. An additional aim of the study was to analyse the survival probability of opportunity and necessity entrepreneurs during crisis periods. Results show that gaps in survival likelihood between opportunity and necessity entrepreneurship are bigger during times of crisis than they are during growth periods.

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New ventures; opportunity and necessity entrepreneurship; economic context; employment; firm survival; opportunity costs

1. Introduction

The main reason to study entrepreneurship is to explore its relationship with economic growth, development, employment and innovation (Carland et al. 1984; Cuervo, Ribeiro, and Roig 2007; Reynolds et al. 2001; Sautet 2011; Schumpeter 1934; Smolarski and Kut 2011). Driven by this general purpose, entrepreneurship scholars have broadly focused on two main issues: identifying factors that foster new firm creation (Schutjens and Wever 2000) and discovering factors considered critical for start-up survival and success (Brüderl and Schussler 1990). Research into what happens during the years directly after firm creation has been especially intensive.

Notable research on the factors that foster new firm creation includes the study by Lasch, Robert, and Le Roy (2013), who identify several factors that promote firm creation. The most relevant factors include the growth of market demand, the presence of large firms, knowledge spillovers from universities and geographical proximity to other new ventures.

Regarding factors considered critical for start-up survival and success, the literature contains discussions centred on three groups of explanatory variables: psychological and non-psychological entrepreneurial attributes, new firm characteristics and environmental factors (Schutjens and Wever 2000). This study focuses predominantly on environmental variables. Specifically, the main goal of our study was to analyse the effects of changes in the economic cycle on new firm survival. Additionally, our analysis accounted for entrepreneurs'

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motivation (opportunity vs. necessity), and other specific characteristics of entrepreneurs and firms.

Economic conditions clearly matter, but how they matter remains a hotly contested question. Ample evidence supports a positive relationship between entrepreneurial activity, economic growth and employment, although knowledge about this linkage is far from complete. Intuitively, a reverse causation should also exist, and exploration of this relationship constitutes the aim of this article. Most of the literature suggests that crises will negatively affect the survival of new ventures (Baptista and Thurik 2007; Baptista and Torres 2006), but some authors have argued that the effect may be positive rather than negative (Brünjes and Revilla Diez 2013).

Through an ongoing collaboration between the Valencian Youth Institute and the University of Valencia, we accessed relevant information for a sample of 3477 new firms (2842 valid cases) founded between 2000 and 2005. Using these data, we studied whether changes in economic context in the Autonomous Region of Valencia affected the survival of new ventures, and if so, whether these changes affected opportunity and necessity entrepreneurship differently. We used bivariate analysis techniques and multivariate logistic models to test our hypotheses. Use of these methods was justified by the dichotomous nature of our dependent variable. Contrary to intuition or common sense, our empirical results show that new firm survival probability was actually higher during crisis periods, whereas growth rates declined and unemployment rates rose rapidly. These results were analysed in terms of individuals' opportunity costs depending on feasibility of alternatives to self-employment. Our results also show that the survival rate of opportunity entrepreneurship was always bigger than that of necessity entrepreneurship and that the profile of firms with better survival probabilities varied across different economic contexts.

In Section 2, we discuss the relationships between entrepreneurs, economic growth and employment. Section 3 presents analysis of changes in Spain's economy as a result of the financial crisis. Sections 4 and 5 describe our research method and results. Section 6 then discusses our main conclusions and sets forth limitations of the study and future research proposals.

2. Entrepreneurship, economic growth and employment

The discovery of key factors in new firm survival has been the subject of extensive discussion in recent decades. This interest is, at least partially, due to empirical evidence that new companies have higher failure rates than consolidated firms (Brüderl and Schussler 1990; García and Caneda 2008; Guzmán-Cuevas, Cáceres-Carrasco, and Ribeiro Soriano 2009; Simón-Moya, Revuelto-Taboada, and Ribeiro-Soriano 2012). Stinchcombe (1965) coined the term *liability of newness* to describe this phenomenon. Later, Brüderl and Schussler (1990) proposed *liability of adolescence* as an alternative term, upon observing that failure rates were low immediately after firm creation but later began to rise.

The recent socio-economic situation in Western countries presents a compelling reason to analyse the effects of changes in the economic cycle on entrepreneurial activity and on new firm survival. An unprecedented financial crisis (Naudé 2011) hit the business world in 2008,[1] causing recession in many countries and sending major stock indexes into a downward spiral.

Considerable evidence shows a positive relationship between entrepreneurial activity, economic growth and employment, but knowledge on these relationships is far from

complete. Intuitively, a reverse causation should also exist. As Stevenson and Jarillo (1990) reported, environment is important for two reasons. First, because different environments affect new venture success, and second, because environmental variables create opportunities to exploit market inefficiencies, as the economic approach has shown.

Keasy and Watson (1999) highlighted how economic growth determines new firm success. High economic growth creates opportunities for new firm creation and increases employment opportunities. Nevertheless, an abundance of job opportunities and/or a high degree of social security increases opportunity costs of entrepreneurship (Bosma and Schutjens 2011; Stuetzer et al. 2014). Conversely, economic crises, associated with fewer employment opportunities, may push people into entrepreneurship. In such scenarios, opportunity costs of entrepreneurship are lower and may even become negligible. Fritsch, Brixy, and Falck (2006) reported that changes in economic conditions can alter new firm survival rates positively or negatively. Moreover, entrepreneurship can be an effective response to crises and environmental changes (Feldman, Francis, and Bercovitz 2005).

Okamuro, Van Stel, and Verheul (2010) showed that economic growth is usually accompanied by an increase in wages, better employment opportunities and/or an improved social security system. An abundance of job opportunities and/or a high degree of social security increases opportunity costs[2] of self-employment and has a negative effect on entrepreneurial activity (Bosma and Schutjens 2011). Nevertheless, economic development may also have a positive effect on entrepreneurship because economic growth tends to produce an increase in consumer demand for new products and services, which creates new business opportunities (Baptista and Thurik 2007; Baptista and Torres 2006; Thurik et al. 2008).

Conversely, periods of economic crisis are associated with fewer market opportunities, a downturn in product and service demand, and scarcer employment opportunities. This situation may push people towards entrepreneurship as an alternative to hired work (Brünjes and Revilla Diez 2013). A lack of paid job alternatives that could give people access to necessary family income lowers opportunity costs of starting a new venture.

Considerations are similar when entrepreneurs have already started their businesses. As already observed, the opportunity cost of self-employment or of starting a venture is greater when economic growth is strong and there are greater chances of finding paid work. When entrepreneurs have already started a venture in periods of crisis, opportunity costs of continuing with the venture, even if it is performing poorly, are lower. This is because paid work is much scarcer, so entrepreneurs prefer to continue with their businesses. Following this argumentation, in periods of economic growth and therefore low unemployment rates, if entrepreneurial activity does not yield optimum results, the opportunity cost of *leaving* the business is low. This is because low rates of unemployment make finding a paid job more probable.

In short, although firm survival is usually considered a measure of business success (Cooper, Javier Gimeno-Gascon, and Woo 1994; Haber and Reichel 2005; Van de Ven, Hudson, and Schroeder 1984), this is in fact not so. Particularly during a period of crisis, survival is a poor measure of success. Many firms continue to operate despite being unprofitable because entrepreneurs have no alternative. Furthermore, in many cases, these businesses are forced to reduce their staff, and entrepreneurs may even suffer situations of self-exploitation.

In the light of the literature review, we expect the shortage of job opportunities and the poorer social security conditions resulting from crises to cause a higher survival rate of new ventures created by individuals seeking self-employment. In addition, we expect this effect

to be stronger than the effect of the decreasing demand for new products and services that causes new ventures to fail in periods of crisis. Consequently, we formulate the following hypothesis:

> Hypothesis 1: In periods of economic crisis, new firm survival will be higher than in periods of economic prosperity.

Despite slight differences between authors' proposals, two basic types of entrepreneurs exist: opportunity and necessity, in Global Entrepreneurship Monitor (GEM) terms, or push and pull, to use the terminology of Amit and Muller (1995) or Qian, Haynes, and Riggle (2010). Opportunity entrepreneurs start businesses because they discover a market opportunity that they deem profitable (Shane and Venkataraman 2000). This type of entrepreneur is driven by the search for independence, autonomy and the vocation of starting a business, a phenomenon known as *entrepreneurial motivation* (Shane, Locke, and Collins 2003). Necessity entrepreneurs may not be interested per se in creating a business; instead, they are motivated by the absence of employment opportunities, which is seldom conducive to innovation (El Harbi and Anderson 2010; Reynolds et al. 2001). Although necessity and opportunity entrepreneurship are contrary concepts, studies have shown that these two types of motivations can coexist. In fact, such coexistence is a common phenomenon. For instance, Solymossy (1997) showed that coexistence occurs in more than 20% of cases because opportunity motivations (e.g. market opportunities or the desire for independence) usually occur at the same time as necessity motivations (e.g. social recognition or unemployment) (Giacomin et al. 2011).

The notion of push and pull entrepreneurship has clear parallels with the concept of necessity and opportunity entrepreneurship. Push entrepreneurs 'are those whose dissatisfaction with their current position, for reasons unrelated to their entrepreneurial characteristics, pushes them to start a new venture', whereas pull entrepreneurs 'are lured by their new venture idea and initiate venture activity because of the attractiveness of the business idea and its personal implications' (Amit and Muller 1995, 65). Qian, Haynes, and Riggle (2010) pointed out that pull entrepreneurship typically occurs in regions with strong business dynamism. On the contrary, push entrepreneurship tends to prevail in depressed regions characterized by a scarcity of firms.

Results from the GEM have shown that in developing countries, necessity entrepreneurship is a stronger force for the economy than opportunity entrepreneurship. This apparently owes to a lack of paid work in these countries, which makes it common for people to undertake business ventures to avoid unemployment (Reynolds et al. 2001). In contrast, in developed countries, entrepreneurial activity rates tend to be lower, but the role of opportunity entrepreneurs is stronger. Necessity entrepreneurs exert greater influence in developing economies. These cross-sectional results are very similar to those we would expect to find when comparing entrepreneurial activity at different moments (prosperity and crisis) in a single country, specifically if that country is Western.

In this vein, Boyd's (2000) research is particularly interesting. He analysed entrepreneurship from the perspective of the *disadvantage theory of entrepreneurship* (Boyd 1999; Light 1979). This theory posits that social groups with higher degrees of social exclusion and scarcer resources exhibit higher rates of entrepreneurial activity due to 'blocked opportunity in the labor market' (Boyd 1999, 217). The author named this kind of entrepreneurship *survivalist entrepreneurship* (Boyd 2000, 647). It is characterized by low initial investment in businesses operating in industries with low barriers to entry. His article analysed the entrepreneurial

behaviour of Afro-American women during the Great Depression. He showed that they were overrepresented, specifically in two particular sectors: boarding houses and lodging housekeeping, and hairdressing and beauty culture.

Global level GEM data have generally shown that the ratio of necessity to opportunity entrepreneurship grows in crisis periods and that, conversely, this ratio decreases in periods of economic growth. Over the last ten years, the lowest levels of necessity entrepreneurship activity in Spain emerged in the period 2003–2006. During this period, Spain enjoyed a GDP growth rate of more than 3% and moderate unemployment of around 10%. Conversely, the highest rates of necessity entrepreneurship were between 2010 and 2011. This period was instead characterized by a stagnant economy and more than 25% unemployment. Therefore, the ratio of necessity to opportunity entrepreneurship is seemingly lower in periods of prosperity than it is in periods of crisis.

The literature suggests that opportunity entrepreneurs perform better than necessity entrepreneurs do and that their firms survive longer than those of necessity entrepreneurs (Headd 2003; Ho and Wong 2007; Van Praag 2003; Reynolds et al. 2001). Innovativeness and commitment seem to be important factors in explaining these results (Andersén 2011; El Harbi and Anderson 2010). When a necessity entrepreneur finds another job, he or she will commonly liquidate the firm. Conversely, an opportunity entrepreneur will continue running the firm as long as it stays afloat and will try to discover and exploit new business opportunities. In addition, because opportunity entrepreneurs are more innovative, they are able to offer differentiated products and services and develop more efficient processes (Andersén 2011). This makes them more competitive, profitable and sustainable than necessity entrepreneurs.

There is ample evidence that other entrepreneurial characteristics (i.e. education and experience) and attributes of new ventures (i.e. start-up capital and number of employees) are positively related to survival and long-term success (Ebben and Johnson 2005; Geroski 2005; Haber and Reichel 2005; van Praag 2003; Ribeiro-Soriano and Castrogiovanni 2012; Simón-Moya, Revuelto-Taboada, and Ribeiro-Soriano 2012; West and Noel 2009). Necessity ventures tend to be undertaken by people in unemployment or paid workers in precarious employment. These individuals are often urgently seeking income, and their investment capability is low. Hence, new firms driven by necessity are typically smaller in terms of both investment and staff. Necessity entrepreneurs also tend to have lower educational attainment than opportunity entrepreneurs (Kelley, Bosma, and Amorós 2010; Kelley, Slavica, and Herrington 2011). In summary, the characteristics of necessity entrepreneurs seem to reduce their likelihood of survival. Furthermore, these characteristics may explain, at least partially, differences in survival rates between necessity and opportunity entrepreneurship.

Nonetheless, given that lower educational attainment means a lower probability of finding paid work,[3] the opportunity cost of starting and maintaining a new venture will be lower for necessity entrepreneurs. Furthermore, just as crisis drives people with little interest in starting a business (i.e. with little *entrepreneurial motivation*) to do so, it also forces them to persist with their ventures due to a lack of viable or attractive alternatives. This should improve necessity entrepreneurship survival (Naudé and McGee 2009). Opportunity or vocational entrepreneurs, as remarked above, are usually reluctant to let their business fail, regardless of the economic situation. They are likely to have better employment alternatives than necessity entrepreneurs even during crises. Nevertheless, we expect crises to force opportunity entrepreneurs, who lose paid job opportunities during crises, to act as necessity

entrepreneurs (Ribeiro-Soriano and Urbano 2010). Hence, the survival rate gap between the two kinds of entrepreneurship should narrow during periods of crisis.

Hypothesis 2: The difference between survival rates of firms created by opportunity and necessity entrepreneurs decreases during periods of economic crisis.

3. A brief review of changes in Spain's economy following the onset of the financial crisis

In July 2007, the International Monetary Fund (IMF) published its second World Economic Outlook entitled, *The global economy continues to grow strongly*. According to the report, the global economy was set to grow at 5.2% in 2008. For Spain, the forecast for 2008 was for 3.4% economic growth. Shortly afterwards, in January 2008, the IMF started reducing its economic growth expectations and entitled its subsequent report, *Financial turbulence clouds growth prospects*. This report predicted that 2008 global economic growth would be one percentage point lower than its previous prediction. The IMF attributed this to a moderation in global economic expansion as a 'response to continuing financial turbulence' (IMF 2008, 1).

In Spain, this shift in the economic cycle led to GDP growth in Q4 2013 of just 0.2% more than in Q3 2013 and 0.2% less than in Q4 2012 (INE 2014). As of 2014, unemployment had already exceeded 25%, and there were almost two million Spanish families in which all family members were unemployed. Comparing employment in Q4 2007 and Q4 2013 reveals that more than 3.5 million people lost their jobs, which equates to a job destruction rate of more than 18% in six years (EPA 2012). Furthermore, income distribution was affected, with the GINI[4] coefficient increasing from 30.7% in 2004 to 34.7% in 2013 (Global Peace Index 2014).

To address this situation, families sought ways to combat unemployment. Evidence lies in the number of self-employed workers registered in Spain. This figure increased in Q3 2012 by more than 65,000 people (Romero 2012). Likewise, the percentage of surviving firms with zero employees grew from 48.0% of total firm survival to 52.8% (Laborda 2012). The Spanish economy therefore seemed to be exerting an influence on entrepreneurship and new firms' survival prospects.

In addition, one of the direct consequences of this crisis was the drying up of credit from the banking system due to the increase in customer defaults. For example, in 2012, one of Spain's biggest banks, Santander, cut its quantity of borrowed assets by almost 8% with respect to the previous year (Ercoreca 2012). One way of adapting to the changes brought about by the recession was the discovery of opportunities that, as well as being profitable, required relatively low levels of investment and displayed an efficient use of assets. The lack of credit has aggravated difficulties for entrepreneurs, as reflected by the theory of infant industry (Aghion 2011; Greenwald and Stiglitz 2006), which explains that one of the main disadvantages for new entrants is a lack of physical capital (Kerr and Nanda 2011).

In 2013, most people in Spain (54.3% of the population) reported that entrepreneurship was a viable way of attaining a high standard of living. This percentage, however, is lower in 2013 than in previous years. Therefore, people view entrepreneurship as a less attractive career prospect once they have entered paid employment (GEM 2013). This shift in perception may owe to economic uncertainty. In the first quarter of 2014, Spain's unemployment rate was 25.93%. Unemployment has since dropped, yet the unemployment rate in 2015 still exceeds 22%, and all family members of 1,793,600 Spanish families remain unemployed (El Mundo 2015). Accordingly, 29.2% of the Spanish population is at risk of poverty and social

Table 1. Sample characterization.

			Start-up capital (Euros)		Sector		Urban/non-urban (%)		Motivation (%)		
	Year	Ventures created (%)	Min	Max	Manufacturer	Services	Fewer than 10,000 inhab.	More than 10,000 inhab.	Necessity	Opportunity	Missing values
Growth	2000	10.3	111	970,429	13.17	86.83	9.24	90.76	62.23	31.09	1.68
	2001	13.2	98	506,652	19.31	80.69	13.89	86.12	41.43	47.50	11.06
	2002	18.4	344	436,632	15.18	84.82	13.46	86.54	49.61	39.12	11.27
Transition	2003	20.7	111	450,028	18.86	81.14	10.90	87.10	50.20	34.40	10.40
Crisis	2004	22.00	176	577,721	16.38	83.62	14.43	85.57	52.41	46.94	0.65
	2005	15.4	8,497	1,203,586	19.29	80.71	16.25	83.75	52.32	45.36	2.32

		Education (%)					Relevant education (%)			Relevant experience (%)		
	Year	Primary	Secondary + vocational training I	Vocational training II + upper sec. education	University studies	Missing values	Relevant education	Non-relevant education	Missing values	Relevant experience	Non-relevant experience	Missing values
Growth	2000	6.72	12.60	17.65	42.02	21.01	65.27	33.33	1.40	59.10	40.90	0.00
	2001	7.16	16.49	24.08	36.23	16.05	50.98	39.26	9.76	78.86	11.11	0.43
	2002	14.71	14.55	25.04	32.86	12.83	48.67	43.66	7.67	73.70	21.13	5.16
Transition	2003	17.34	11.23	23.30	37.03	11.10	55.48	29.41	15.12	67.68	22.74	9.57
Crisis	2004	19.38	12.48	22.76	36.41	8.97	56.05	29.82	13.13	65.27	26.63	8.09
	2005	19.29	15.18	25.36	33.93	6.25	48.57	41.96	9.46	68.79	28.04	3.18

exclusion (El País 2015). We can therefore assume that these high rates of economic insecurity are causing a lack of funds to start businesses and a distrust of others when doing so.

4. Data and method

Collaboration with the Management Programme and Planning Service from the Valencian Youth Institute (IVAJ) yielded data for 3,477 small companies created between 2000 and 2005 in the Autonomous Region of Valencia. Only 2842 were valid cases, all other cases contained missing values for at least one variable. All companies were created by young entrepreneurs under 30 years old, or under 30 but partnered with entrepreneurs aged 30 or more. All entrepreneurs had applied for assistance from the Public Aid Programme run by the Valencian Youth Institute (IVAJ). This programme offered training, consulting and financial support not exceeding 18,000 Euros. The homogeneity in the sample will undoubtedly have caused biases that should be accounted for.

To participate in the programme, entrepreneurs (self-employees in most cases) had to be involved in a start-up that was less than one year old, had to present a business plan and could not have been beneficiaries of the same programme in previous years. They had to provide relevant information about their businesses (legal form, owners, financial data, some aspects of internal organization, number of employees, social outreach activities, etc.) and their previous employment status, experience, educational attainment and so forth. Wherever possible, they also had to provide supporting documents to demonstrate the truthfulness of the data supplied. If any serious fault in an entrepreneur's application was detected, he or she was excluded from the programme and accordingly from our sample. This was a rigorous data checking process, so if we failed to find any source to corroborate the data provided by the entrepreneur, we excluded the case from our database. Entrepreneurs also committed to providing information about their businesses in the five years subsequent to their acceptance on the aid programme.

We were given access to this information under an agreement between the University of Valencia and IVAJ. Under the agreement, University faculty provided advice and support to IVAJ in areas related to the Aid Programme. They also assessed ventures and identified the projects that should benefit from the programme. Most firms received much less than 18,000 Euros, and many did not receive any financial support. For most entrepreneurs, the financial support was symbolic because the amount they received was so small.

Table 1 shows ventures created per year, minimum and maximum capital invested by entrepreneurs when starting the venture, the percentage of manufacturer and service ventures, the percentage of ventures created in urban and non-urban areas, the percentage of ventures created by necessity and opportunity entrepreneurs, the entrepreneurs' educational background and the entrepreneurs' related education and experience. Table 1 also shows the missing values for the last three variables.

4.1. Method

We analysed the effect of economic context on new firm survival and compared profiles of surviving firms at different points in the economic cycle. To do so, we performed a range of analyses. The nature of the dependent variable (survival after $t + 6$) called for use of the Mann–Whitney U-test for two independent samples, the *Kruskal–Wallis* test for more than

two independent samples, *Pearson's* X^2 test and multivariate logistic models. The significance level for all analyses was 5% ($\alpha = 0.05$). Bivariate and multivariate analysis techniques allowed us to identify characteristics that determined the profile of surviving firms at different points in the economic cycle. *Mann–Whitney* U-test and *Kruskal–Wallis* test evaluated whether a parameter's (ordinal) distribution differed in two or more independent samples. *Pearson's* X^2 test measured strength of association between two categorical variables, provided that expected frequency was greater than five. For dichotomous variables, we used *Fisher's exact test*.

We used binary logistic regression models to conduct the aforementioned multivariate analysis. Binary logistic regression models are multivariate models that estimate the association between two variables whilst acknowledging that other factors may modify this relationship. These logit models express the probability of not surviving as a function of several independent variables. We opted for this kind of analysis because of the nature of our variables. Proportional hazard models, and specifically the Cox model, need data about the exact time elapsed between the birth and failure of the firm. We did not know the exact date of the firms' closure, so we were unable to use proportional hazard models. Nevertheless, the Chambers of Commerce of Valencia, Alicante, and Castellon provided information about survival as of 31 December of the third and sixth years. We were thus limited to using a dichotomous variable, the kind of dependent variables used in logit models. Additional reasons for choosing the logit model were that relationships between dependent and independent variables could be non-linear, and our independent variables were all categorical. Therefore, the model that best suited our data was the logit model.

Logistic models express odds[5] as an exponential function of independent variables:

$$\frac{p}{1-p} = e^{\beta_0+\beta_1 X_1+\beta_2 X_2+\ldots+\beta nXn}$$

where p is the probability of not surviving, X_i ($i = 1, 2, \ldots, n$) are independent variables (unemployment, start-up capital, relevant experience, etc.) and β_i are regression coefficients used for estimation in analysis. This equation may also be written as follows:

$$\frac{p}{1-p} = e^{\beta_0} e^{\beta_1 X_1} e^{\beta_2 X_2} \ldots\ e^{\beta nXn}$$

A unit increase of factor X_i multiplies odds by $e^{\beta i}$. The significant influence of a factor is thus measured in terms of variation in non-survival odds.

The entry model of variables was step-by-step conditioned, with an entry p-value of 0.05 and an exit p-value of 0.1 for all variables. Categorical variables with k levels were transformed into $k-1$ dichotomous variables. In other words, one category was taken as a reference with which the presence or absence of other categories could be compared. For the logit model, we used two measures of goodness of fit: the statistic equal to minus twice the natural log-likelihood function (–2LL),[6] and *Nagelkerke's* R^2 coefficient.[7] Likewise, the *Hosmer and Lemeshow* test was used to test the model's calibration, namely the degree to which probabilities yielded by the model conform to reality.

4.2. Variables

The dependent variable was survival on 31 December of the firm's sixth year after creation. This variable was dichotomous. It indicated whether the firm had survived at time $t_0 + 6$. We chose this moment because it is when the venture becomes an *Established Business*, according to GEM criteria. To obtain data for this variable, we checked whether the venture was alive after six years according to information provided by the Chambers of Commerce of Valencia, Castellon, and Alicante where the start-ups were located. The six-year mark represents the start of a new period in the firm's life cycle; a period during which the venture is considered consolidated (Xavier et al. 2012).

GDP variation rates and unemployment rates of the Autonomous Region of Valencia in the three years before $t_0 + 6$ were used prior to any other analyses to identify three groups of surviving firms whose profiles could later be compared. Information about the exact date of firm failure was unavailable, so indicators of previous unemployment rate and GDP variation rate had to be approximated. We calculated the economic crisis variables (GDP and unemployment) as the average over the period running from when ventures began to operate to 31 December of the sixth year, when survival was checked.

The first period comprised ventures created in 2000, 2001 and 2002. Survival of these firms was tested during a period of economic growth and moderate declining unemployment (2006–2008). The second period comprised ventures created in 2003. These firms were initially active during a growth period, but their survival was assessed during a period of transition from economic growth to crisis (2009). The third period comprised firms created in 2004 and 2005. The survival of these firms was verified in 2010 and 2011, when the crisis in Spain was at its height.

Second, GDP variation rates and unemployment rates of the Autonomous Region of Valencia were used to create two new variables introduced as independent variables in our logit analysis. Specifically, these variables were average unemployment (UnempAv) and average GDP variation (GDPVAv) in the Autonomous Region of Valencia in the two last years before $t_0 + 3$ and $t_0 + 6$, depending on whether firms had survived at $t_0 + 3$. GDP variation and unemployment rate reflect the status of the economic crisis because they are two of the main indicators of a country's economic development, and their growth or decline is related to periods of prosperity or crisis (Kaminsky, Lizondo, and Reinhart 1998).

Motivation to start a business (Motiv): dichotomous variable indicating whether a business was started by opportunity or necessity entrepreneurship. The entrepreneur's previous work situation was considered for classification purposes. Our classification was based on objective data. This differs from the GEM procedure, which involves an interview with entrepreneurs, who answer the following question: 'Are you involved (in an entrepreneurial activity) to take advantage of a business opportunity or because you have no better choices for work?' Hence, the GEM bases its research on necessity and opportunity entrepreneurs on the entrepreneur's employment status before undertaking an entrepreneurial venture. We therefore consider our variable a good proxy. Our method had a limitation insofar as we did not allow for simultaneous opportunity/necessity motivation. Data on this question can only be obtained through subjective responses from entrepreneurs.

Other independent variables relating to entrepreneurial attributes, firm characteristics and environmental factors were included in the logit model. Ample empirical evidence supports a significant relationship between these variables and firm survival:

Table 2. Characterization of periods of economic cycle.

		Period		
		Growth	Transition	Crisis
Average GDP CV variation rate	Mean	7.71	5.62	1.22
	Standard error	0.41	1.15	3.89
Average unemployment CV rate	Mean	9.42	10.24	16.59
	Standard error	0.96	0.35	5.08
Total firms in the sample		1139	602	1101
Surviving firms at t_0+6		563	332	764
Not surviving firms at t_0+6		576	270	337

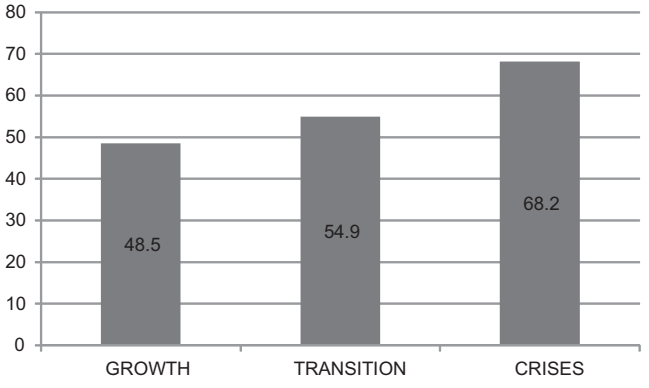

Figure 1. Percentage of surviving firms by period of economic cycle.

- Educational attainment (Educ): categorical variable with four levels of educational attainment: primary, secondary + vocational training I, vocational training II + upper secondary education and university studies.
- Relevant vocational training (Reduc): dichotomous variable that indicated whether entrepreneurs had some type of specific training or education relevant to the business.
- Relevant experience (Rexp): dichotomous variable that indicated whether entrepreneurs had at least one year of work experience relevant to the business.
- Kind of venture (Kvent): dichotomous variable that indicated whether the company was business-oriented or a social venture.[8]
- Degree of social interest (Dsoc): variable ranging from 0 (*purely business venture*) to 5 (*purely social venture*).
- Workforce (Worf): number of stable employees, including business owners.
- Start-up capital (Sucap): a proxy of start-up capital, this variable captured eligible capital according to criteria from the Management Programme and Planning Service at IVAJ.
- Urban/Non-urban venture (Urban): a dichotomous variable with two possible values: 1 for firms at sites with 10,000 inhabitants or fewer; 0 when population was higher than 10,000.
- Sector (Sector): dichotomous variable that indicated whether the company was a service (0) or a manufacturing firm (1).
- Subsector (Subsector): categorical variable based on two-digit CNAE-93 classification. This variable had eight categories that grouped distinct but related sectors.

Table 3. Results of final step logit model at $t_0 + 6$ with all variables.

							C.I. 95% for *Exp(β)*	
Step 8	*B*	*S.E.*	*Wald*	*d.f.*	*Sig.*	*Exp(β)*	Lower	Upper
Primary education (Ref.)			12.583	3	0.006			
Secondary education	−0.212	0.161	1.171	1	0.190	0.809	0.590	1.110
Upper secondary education	−0.490	0.143	11.680	1	0.001	0.612	0.462	0.811
University studies	−0.374	0.152	6.075	1	0.014	0.688	0.511	0.926
Relevant training (Yes)	−0.528	0.110	23.037	1	0.000	0.590	0.476	0.732
Relevant experience (Yes)	−0.298	0.102	8.529	1	0.003	0.743	0.608	0.907
Sector (services)	0.271	0.128	4.507	1	0.034	1.312	1.021	1.685
Motivation (necessity)	0.435	0.094	21.381	1	0.000	1.546	1.285	1.859
Workforce	−0.256	0.041	39.808	1	0.000	0.774	0.715	0.838
Start-up capital	−0.004	0.001	12.403	1	0.000	0.996	0.993	0.998
Unemployment average	−0.248	0.013	333.475	1	0.000	0.780	0.760	0.801
Constant	3.520	0.249	199.620	1	0.000	33.786		

(a) 2842 valid cases.
(b) Log likelihood (−2LL) = 3077.36 at final step.
(c) Significance for the *Hosmer–Lemeshow* test = 0.083 (>0.05).
(d) Nagelkerke's R^2 = 0.324.

Values assigned to relevant education, relevant experience and type of activity were set by expert evaluators in IVAJ programmes, based on information included in project portfolios. To mitigate risk and improve the reliability of evaluations, we randomly selected a sample of firms that had been evaluated annually by an expert committee. Any discrepancies that emerged were analysed to resolve such issues and to unify criteria used in the evaluation. Remaining variables were objective. They came from entrepreneurs, IVAJ and the Chambers of Commerce.

5. Results

5.1. Economic environment and likelihood of new firm survival

We classified economic periods into three categories according to GDP variation and unemployment rate. We used the same independent variables for each period. We labelled these periods as growth, transition and crisis. Table 2 shows the thresholds used to characterize these periods and the number of firms considered in each period.

Contrary to intuition or common sense, empirical results show that probability of firm survival for our sample was higher during crisis, when growth rates declined and unemployment rates rose rapidly (*p*-value of *Kruskal–Wallis test* < 0.05). Results in Figure 1 imply that the percentage of surviving firms at $t_0 + 6$ followed an upward trend, thus corroborating hypothesis 1.

Economic situation was thus a key risk factor in firm survival. Specifically, a worse economic situation meant a higher survival probability. Because GDP variation rate and unemployment rate were highly correlated (*Spearman's Rho* = −0.842), we included only one of these binary variables as an independent variable in our logit models. This avoided multicollinearity problems. We used only the variable UnemAv. We chose this variable because it was directly related to the concept of opportunity costs of starting and maintaining a business. Table 3 summarizes results from the final multivariate logit analysis.

Table 4. Summary of bivariate analysis results comparing opportunity vs. necessity entrepreneurs.

Opportunity vs. necessity survival	Higher value	Overall p-value	Growth p-value	Crisis p-value
Survival at t_0+6 overall	Opportunity	**0.000**	**0.000**	**0.000**
Opportunity vs. necessity profiles	Higher value	Overall p-value	Growth p-value	Crisis p-value
Sector (Service)	Necessity	**0.035**	**0.000**	0.351
Non-urban/urban (Non-urban)	Necessity	**0.015**	**0.035**	**0.002**
Entrepreneur educational attainment (Primary)	Opportunity	**0.000**	**0.002**	**0.003**
Relevant training	Opportunity	**0.000**	**0.007**	0.056
Relevant experience	Opportunity	**0.000**	**0.000**	**0.001**
Business/social	–	0.134	0.942	0.157
Workforce	Opportunity	**0.000**	**0.004**	**0.047**
Capital	Opportunity	**0.000**	**0.000**	**0.000**

Notes:
The values in bold are < 0.05.
(a) 2842 valid cases when overall periods are considered: 1139 in growth period and 1101 in crisis period.
(b) Pearson's chi-square test or Fisher's exact test was performed except in the case of continuous variables Workforce and Capital where Kruskal–Wallis test was performed.

Table 5. Results of final step logit model at t_0+6 in growth and crisis periods.

							C.I. 95% for *Exp(β)*	
	B	*S.E.*	*Wald*	*d.f.*	*Sig.*	*Exp(β)*	Lower	Upper
Growth period (Step 6)[a]								
Primary education (ref.)			15.465	3	0.001			
Secondary education	−0.492	0.253	3.781	1	0.052	0.612	0.373	1.004
Upper secondary education	−0.903	0.238	14.359	1	0.000	0.405	0.254	0.647
University studies	−0.650	0.265	5.993	1	0.014	0.522	0.310	0.879
Relevant training (Yes)	−0.384	0.170	5.139	1	0.023	0.681	0.488	0.949
Relevant experience (Yes)	−0.485	0.144	11.297	1	0.001	0.616	0.464	0.817
Sector (services)	0.401	0.188	4.552	1	0.033	1.493	1.033	2.159
Motivation (necessity)	0.297	0.134	4.918	1	0.027	1.346	1.035	1.750
Workforce	−0.216	0.054	16.199	1	0.000	0.805	0.725	0.895
Constant	1.116	0.283	15.499	1	0.000	3.051		
Crises period (Step 5)[b]								
Relevant training (Yes)	−0.543	0.144	14.159	1	0.000	0.581	0.438	0.771
Relevant experience (Yes)	−0.356	0.152	5.501	1	0.019	0.701	0.520	0.943
Motivation (necessity)	0.478	0.152	9.936	1	0.002	1.614	1.198	2.173
Workforce	−0.272	0.079	11.710	1	0.001	0.762	0.652	0.890
Start-up capital	−0.010	−0.002	19.446	1	0.000	0.990	0.985	0.994
Constant	0.251	0.231	1.189	1	0.276	1.286		

[a]1139 valid cases, log likelihood (−2LL) = 1466.43 at final step. Hosmer–Lemeshow test = 0.094 (>0.05), Nagelkerke's R^2: 0.125.
[b]1101 valid cases, log likelihood (−2LL) = 1246.03 at final step, Hosmer–Lemeshow test = 0.095 (>0.05), Nagelkerke's R^2: 0.135.

The value for −2LL was 3329.97 for the first step and 3077.36 for the final step. In other words, its value decreased with the inclusion of additional variables in the model. The significance for the *Hosmer–Lemeshow* test was 0.083 (>0.05). This result offers no evidence to reject the null hypothesis that the model is correct. *Nagelkerke's* R^2 was 0.324, so the model explained only 32.4% of the variance. Thus, the model was appropriate and had significant explanatory capacity, although there were other factors not included in the model that determine the probability a business will close (hence the high value of the constant term). The model had an acceptable level of sensitivity and specificity (around 70%). It therefore adequately predicted firm survival and non-survival.

The logit model at $t_0 + 6$ included unemployment, sector, workforce, start-up capital, educational attainment, relevant training, relevant experience and motivation. A second logit model, which included all these variables except UnempAv, had an explanatory capacity of just 12%. This second model yielded no relevant changes in significance, sign or *Exp(β)* of any variables, except educational attainment, which ceased to be significant. The introduction of UnempAv therefore almost tripled the model's explanatory capacity compared to a model without this variable. The variables *urban/non-urban location* and *business/social firm* were omitted from all models because they did not have significant relationships with probability of failure at $t_0 + 6$. In summary, results in Table 3 show that the risk of failure fell 22% for each 1% increase in unemployment. This shows a link between high unemployment and a decrease in opportunity costs of continuing with the venture in times of crisis. Thus, all results lend support to hypothesis 1.

Results also reveal that firm size was an important factor in survival probability. Risk of failure dropped 22.6% for each extra employee, and it fell 0.4% for each increase of 1,000 Euros in start-up capital. Motivation also affected survival. Indeed, risk of failure increased 55% when the entrepreneur's motivation was necessity rather than opportunity. Finally, entrepreneurs' background exerted an influence on survival probability. Risk of failure dropped by 25.7% when entrepreneurs had relevant experience. It also fell by 41% when they had relevant training or education. Compared to the reference category (primary education), upper secondary education caused the probability of failure to drop by 39%. Having university studies reduced this probability by 31%. In general, the profile with greatest risk of firm failure after six years was an entrepreneur with primary education, without specific training or relevant experience, motivated by necessity, and a firm pertaining to the service sector, with scarce start-up capital, and a small number of employees in a favourable macroeconomic context. A better economic situation meant a higher probability of failure.

5.2. Opportunity and necessity entrepreneurship

Results from *Pearson's* X^2 test imply that survival probabilities of opportunity entrepreneurship were significantly higher than the survival likelihood for firms created by necessity entrepreneurs. This result holds in general and in periods of growth and crisis (p-value = 0.000) and therefore does not support hypothesis 2 (see Table 4).

When profiles of opportunity-driven and necessity-driven ventures were compared, significant differences arose in most variables (see Table 4). These significant differences were observed in overall analysis and when the growth and crisis periods were analysed separately. In short, bivariate analysis showed that opportunity entrepreneurs had higher educational attainment, a greater level of specific training and greater relevant experience (p-values > 0.05). Opportunity entrepreneurs were located more frequently in urban areas and showed a greater tendency to start industrial businesses. In the case of relevant training and sector, differences between both types of entrepreneurs were significant overall but not during crises. Nevertheless, these differences must be interpreted with caution when they are very small (e.g. non-urban/urban), because with big samples, any small difference can be significant.

Table 5 shows that in growth periods, necessity entrepreneurship ventures ran a 34% greater risk of failure than opportunity-driven firms did (*Exp(B)* = 1.346). In periods of crisis, however, the *Exp(B)* for necessity-driven ventures was 1.614. Hence, risk of failure increased

by more than 61%, so likelihood of failure under different economic conditions almost doubled. The risk of failure of necessity entrepreneurs with regard to opportunity entrepreneurs increased during the period of crisis.

Mann–Whitney U-test showed that opportunity firms were bigger, in terms of both human resources and start-up capital (p-value < 0.05). Both variables were positively related to survival, so these findings explain, at least partially, why results fail to support hypothesis 2. As observed in Tables 3 and 5, in general, firm size positively influenced survival probability. Relevant training and relevant experience were also positively related to survival and were greater in the case of opportunity entrepreneurs.

6. Conclusions, limitations and future research

Ample evidence supports the pivotal role of entrepreneurial activity in job creation and economic growth. Research has also found that small- and medium-sized enterprises are an essential element of any country's employment (Ribeiro Soriano and Roig Dobon 2009). Nevertheless, scholars have posited reverse causation, asserting that economic growth and unemployment, two highly interlinked factors, may be key environmental factors of new firm survival.

Researchers have agreed that opportunity-driven new ventures survive longer and perform better than their necessity-driven counterparts do. There is evidence that opportunity entrepreneurs are not only more committed to their businesses but also more innovative and, in general, have better education and experience. Most necessity entrepreneurs launch their businesses whilst in unemployment or precarious employment, so their firms tend to be smaller in terms of staff and start-up capital. Upon analysing surviving firms, our results generally support these propositions in both growth and crisis periods. The accepted view is that changes in economic conditions can modify patterns of new firm creation and their survival probabilities either positively or negatively. GEM results have shown that the ratio of opportunity to necessity entrepreneurship decreases in periods of crisis and high or rising unemployment. Conversely, this ratio increases during periods of growth and moderate or decreasing unemployment.

In this study, we analysed the effect of the recent financial crisis (2008 onwards) on firm survival. Despite the general worsening of market conditions, we expected to observe that the lack of alternatives to self-employment would have raised the survival rate for new firms because this lack of alternatives tends to minimize opportunity costs (H1). Results show that economic growth and unemployment were the key factors in explaining non-survival probabilities. The introduction of a variable that operationalized the economic cycle almost tripled the model's explanatory capacity. Consistent with our first hypothesis, new firm survival probability was significantly higher in the crisis period than in the growth period. With regard to profiles of surviving firms at different stages in the economic cycle, no trait seemed to typify firms in any period. We observed slight differences, albeit nothing determinant. Finally, advantages of small firms (i.e. close supervision, less bureaucracy, close contact with customers, flexibility, etc.) doubtlessly determine firms' survival capability in adverse environments.

In this vein, common sense would imply that ventures are generally more likely to survive in periods of economic prosperity and more likely to fail in times of crisis. The entrepreneurship literature, however, shows that such a cause and effect relationship

does not always hold. We hypothesized that the lack of job opportunities and social security benefits makes the opportunity cost of continuing with the venture lower than in times of economic prosperity. Hence, new ventures are more likely to survive in times of crisis. Results from statistical analysis support this hypothesis, so a decrease in the opportunity cost of continuing with ventures leads to new venture survival. This finding has further implications. Although many authors consider new venture survival a measure of success (Cooper, Javier Gimeno-Gascon, and Woo 1994; Haber and Reichel 2005; Van de Ven, Hudson, and Schroeder 1984), new venture success cannot be measured by survival rate. Survival rates may simply reflect a lack of job opportunities rather than the success of the new venture.

Contrary to hypothesis 2, comparing survival rates of opportunity and necessity entrepreneurial ventures showed that survival probability was significantly higher for opportunity ventures in general, in times of growth, and during crisis periods. Although we hypothesized that higher opportunity costs for opportunity entrepreneurs – who are more likely to find paid employment – could reduce differences with necessity entrepreneurs in terms of survival rate, results fail to support this hypothesis. Results nonetheless confirm that opportunity entrepreneurs had better profiles in terms of variables positively related to survival like higher educational attainment, more relevant experience and greater initial human and capital resources. These preferable initial conditions and greater commitment and innovativeness amongst opportunity entrepreneurs could explain our results. Alternatively, deterioration of the economic environment may also have converted opportunity entrepreneurs into necessity entrepreneurs, trapped in the businesses they started and facing a lack of alternatives in paid work. In some cases, this lack of alternatives leads entrepreneurs into situations of self-exploitation.

This study had two main limitations. First, the sample was highly homogeneous and contained some biases owing to the data source, as mentioned earlier. Most ventures were examples of young self-employed entrepreneurs who had invested little capital and had small staff. It would be of interest to repeat the study with a more heterogeneous sample that included a greater number of large-scale ventures and other entrepreneurial profiles. The second major limitation owed to our decision not to consider simultaneous opportunity/necessity motivation, which we could have determined only whether we had used a subjective response from entrepreneurs. Finally, the sample was restricted to a single Spanish region, so repeating the study in another location may yield interesting results.

We deduce that ventures' greater survival likelihood in times of crisis owes to the lower opportunity cost of continuing with the venture. It would therefore be interesting to further analyse the conditions that enable ventures to survive and the way they affect unemployment during crises. Our findings highlight other issues for future research. It would be interesting to explore significant differences in the profiles of entrepreneurs and new firms created at different stages in the economic cycle. Moreover, it is highly likely that (a) different environments, start-up profiles and entrepreneurial characteristics are linked to firm failure and that (b) the causes of failure differ considerably from the causes of firm survival because of causal asymmetry (Ragin 2008). We therefore propose the analysis of firm survival using fuzzy-set Qualitative Comparative Analysis, which scholars such as Fiss (2011) and Woodside (2012) have shown to be equally conclusive for small and large samples.

7. Contribution of the study

This study's main contribution relates to opportunity cost. Results about total survival in times of crises and growth can be explained by opportunity cost theory. Durable ventures are expected to be more common during growth periods because the aggregate demand of goods and services is higher. Our findings, however, show that this is not always the case, at least for small ventures created by self-employed individuals in regions where the unemployment rate is above the EU. More ventures survive during crises because of the opportunity cost. The opportunity cost of abandoning a venture during growth periods is smaller than during crises because of the abundance of employment. If the entrepreneur abandons the venture during a growth period, he or she is likely to find another job. Because of a lack of data, we cannot confirm whether opportunity cost affects firm creation, although we can confirm that it positively affects the survival of new ventures.

Notes

1. The year in which Lehman Brothers filed for bankruptcy (Naudé 2011) and that the GDP of some Western countries, including Spain, grew at two percentage points less than the growth rate forecast by the IMF (2009, 2007).
2. Opportunity costs are the 'value of the benefits sacrificed' (Mankiw and Taylor 2011) to start a business.
3. Data from the Spanish Employment Population Survey (EPA) for Q3 2012 showed that unemployment rate was inversely proportional to educational attainment. The unemployment rate was 56.96% for people without literacy skills and just 5.39% for people with PhDs.
4. The GINI coefficient measures income inequality, with a score of 100 indicating perfect inequality and a score of 0 indicating perfect equality.
5. The odds ratio is the ratio between probability of not surviving and probability of surviving.
6. A lower −2LL value means a better the goodness of fit. In each step of the logit model specification, −2LL value must decrease.
7. Nagelkerke's R^2 coefficient shows the ratio of variance explained by the model. Its value ranges from 0 to 1.
8. According to the IVAJ criteria, a social venture is a firm dedicated to activities that promote equal opportunities (integration), environmental improvement, technological innovation, organizational innovation and education and training for integration or entrepreneurial cooperation.

Disclosure statement

No potential conflict of interest was reported by the authors.

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EMPIRICAL ARTICLE

Are success and survival factors the same for social and business ventures?

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Abstract Despite the growing interest in social entrepreneurship, there exist gaps in research that compares traditional business-oriented entrepreneurship with the social kind. This study attempts to fill the gap by answering the following questions: Are there significant differences between the survival chances of business and social ventures? and Do the traits of the entrepreneur and the firm play the same role as success factors for both types of venture? Hypotheses are tested using data collected from 2,179 firms. The results show that significant differences exist between social and business-oriented entrepreneurship in the form and intensity of the independent variables related to survival.

Keywords Social ventures · Business ventures · Survival · Service industries

1 Introduction

Though not as well known, another kind of entrepreneurship exists which differs from traditional forms of venturing. The primary goal of this type of entrepreneurship is not the creation of economic value, which is at the heart of business-oriented entrepreneurship, but sustainable social value creation (Guzmán and Trujillo 2008). This kind of entrepreneurship, which basically focuses on the services sector (Juliá 2011), has been called "social" and includes a variety of realities which make it

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difficult to reach a consensus on an overall definition or on its exact content and features. Despite these limitations, it is undeniable that this phenomenon has gained growing importance in recent years.

Weitzman et al. (2002) point out that this kind of value creation already involved 4.4% of U.S. organizations by 1998, generated more than $443 billion, and in 10 years (from 1987 to 1997) doubled the growth rate reached by business-oriented entrepreneurship. Santos (2009) makes the point that, according to the database of the Global Entrepreneurship Monitor (GEM), in the United Kingdom, 3.2% of people in the working age population are social entrepreneurs. What is more interesting, according to the GEM (2009) database, the rate of social entrepreneurship (% of the working age population involved in some kind of social venture) ranges from 5.4% in Denmark to 0.12% in Guatemala, and is more prevalent in developed countries.

Social entrepreneurship also has profound implications in the economy because it is often the seed of development of new industries; it allows the validation of new business models, and dedicates resources to neglected social problems (Santos 2009). As Harding (2004) points out, and according to the 2003 study of the Observatory of Global Entrepreneurship in the United Kingdom, "social entrepreneurs are disproportionately effective in the creation of jobs".

Even in academic institutions, social entrepreneurship has become a topic of growing interest. As an example, the two journals with the highest impact factor in the field of entrepreneurship—Entrepreneurship: Theory and Practice and Journal of Business Venturing—have dedicated special issues to social entrepreneurship. In addition, leading universities such as Harvard, Duke and Oxford currently have programs on social entrepreneurship (Nicholls 2010). In 1993, Harvard Business School was the first university to introduce a Social Enterprise Initiative. Later, in 2002, Duke University created the Center for the Advancement of Social Entrepreneurship (CASE). Finally, the Skoll Centre for Social Entrepreneurship was established by Oxford University in 2003. Since then, many other universities have undertaken similar initiatives around the world. Social entrepreneurship has been recognized as a significant contributor to society (Alvord et al. 2002; Dees 1998; Drayton 2002; Mair and Martí 2006; Peredo and McLean 2006; Zahra et al. 2009), which can help cater for the needs that have been neglected by the state and the market (Leadbater 1997; Bornstein and Davis 2010).

Despite the growing interest in social entrepreneurship, many gaps remain that have not been adequately examined. Indeed, Nicholls (2010) considers social entrepreneurship to be at a pre-paradigmatic stage in which most studies are theoretical or based on qualitative analysis. In this regard, Harris et al. (2009) posited the unsatisfactory comparison between social and traditional ventures. In addition, Haugh (2007) and Zahra et al. (2009) highlight the importance of studying the success and failure factors of social ventures.

The aim of this article is firstly to carry out a comparative analysis of social and traditional entrepreneurship (Bourne 2011; Hormiga et al. 2011; Mainardes et al. 2011; Yang and Li 2011). Along the lines of the studies by Haugh (2007) and Zahra et al. (2009), this article investigates whether the existing relation between some of the key success factors that have been more widely examined in the literature and

survival are similar in both cases. More precisely, it analyzes certain success factors related to the characteristics of the entrepreneur (education, experience and motivation to start a venture) and two variables related to resource availability (workforce and start-up capital). All these factors have been identified in business entrepreneurship literature as key factors for survival.

In the following section, we review relevant literature on business and social ventures, and attempt to identify differences and similarities between both types of venture. Section 3 analyzes survival rate differences between business and social ventures, and the nature of the relationship between the different success factors considered in this study and the survival rate of both kinds of firm. The next two sections are devoted to explaining the research methodology and the results obtained from a sample of 2,179 firms created between 2000 and 2003 by young entrepreneurs in the Spanish Autonomous Region of Valencia. The final discussion section presents the main conclusions derived from the results obtained and states the limitations of the study and future research proposals.

2 Business-oriented ventures versus social ventures

There is no widely accepted definition of social entrepreneurship (Light 2006). However, perhaps the most widely cited definition of this phenomenon has been provided by the GEM (Bosma and Levie 2009). Its definition of social entrepreneurship is based on three main features: "1) prominence of social (or environmental) goals with respect to economic goals; 2) reliance on an earned income strategy and its contribution with regard to total revenue of the organization; and 3) the presence of innovation" (p. 48).

Although it is clear that social entrepreneurship and business entrepreneurship are different, they also have some similar features. Actually, the literature finds more similarities than differences between the two types of entrepreneur (Massetti 2008). For example, Massetti (2008) finds that both are "passionate, driven individuals, who believe that their ideas will make the world a better place" (p. 4). Other features they share, according to the opinion of different authors, are: ambition, impetus and initiative, (Leadbater 1997; Catford 1998; Thompson et al. 2000), talent and temperament (Bolton and Thompson 2000), and technique (Thompson et al. 2000). The two concepts also coincide insofar as any kind of entrepreneur is moved to start a business by his or her social network and an entrepreneurial culture (Herrera 2009).

Innovation has also been considered to be an important feature for both business-oriented (Roberts and Woods 2005; Lee and Lim 2009) and social entrepreneurs (Austin et al. 2006). According to the GEM definition, innovation should be present in social ventures, although the type of innovation can vary substantially from one case to the next. According to Alvord et al. (2002), social entrepreneurs are innovative in three different ways: building local capacity, attacking a specific need, and promoting movements that generate alliances to fight against the abuse of elites and/or institutions.

Important differences do indeed exist between the two types of entrepreneurship. We have found that there are two main threads on this question in the analytical literature. The first of these focuses on the characteristics of the entrepreneur (Drayton 2002; Roberts and Woods 2005) and the other examines entrepreneurial characteristics (Ligane and Olsen 2004). In general, the related literature takes the view that the main difference is in the nature of the mission that motivates entrepreneurs (Mort et al. 2003). In business-oriented entrepreneurship, the main goal is the creation of wealth (Shane and Venkataraman 2000; Roberts and Woods 2005), that is, the creation of an economic value, whilst in a social enterprise, the creation of wealth does not make sense without the creation of social value (Zadek and Thake 1997; Austin et al. 2006; Guzmán and Trujillo 2008). Other authors on the topic do not address social values but it is present in their definitions expressions such as "social change" (Roberts and Woods 2005, p. 45).

The study by Austin et al. (2006) also examines the aspects in which social entrepreneur is different from the traditional concept and identifies four major areas:

- Market failure: One of the most studied features in the literature on entrepreneurship is the ability to find market opportunities (Rodríguez and Prieto 2009; Arroyo et al. 2010). Market failure will create different opportunities according to the kind of entrepreneurship. In fact, a threat for a business entrepreneur could be an opportunity for a social one. Market failure provides an opportunity for the creation of new business when there is an unsatisfied demand that is susceptible to profitable exploitation which has not been previously detected. In the case of the social entrepreneur, it constitutes an opportunity in situations where there are people who cannot access certain goods and services due to insufficient income or any other cause of social exclusion (Dees 1998; Steinberg 2006; Massetti 2008).
- Mission: In the case of business entrepreneurship, the mission is based on aspects related to competitiveness, economic value creation, and long-term profitability (for instance, being a leader in the market). In other words, a business venture will have a market orientation, and although it may create social value via corporate social responsibility, it will be oriented towards improving its performance (Cambra et al. 2010). On the other hand, the mission of a social entrepreneur will focus on solving a social problem (for instance, helping to reduce the number of families living under the poverty line in a particular population). In this case, profitability does not constitute an end in itself, but rather a means of achieving sustainability and a way of attaining a higher goal.
- Resource mobilization: In terms of financial resources, a business entrepreneur has resources which come from the sale of goods or services that are offered to the market and, generally, they have easier access to credit facilities. In the case of a social entrepreneur, financial resources come, in many cases, from donations or grants. With regard to human resources, a social entrepreneur is not usually able to pay a competitive salary to people who are working in those organizations, especially the most valuable ones (Almond and Kendall 2000; Steinberg 2006). In fact, the study by Ruhm and Borkoski (2003), carried out in

the US, shows that workers in social enterprises earn, on average, 264 dollars less per month than those in business-oriented firms. Therefore, the social entrepreneur depends even more on non-monetary compensations derived from the work involved to attract, retain and motivate the organization's human resources.

- Performance measurement: For a business-oriented entrepreneur, performance measurement is essentially quantitative and uses economic and financial indicators. On the other hand, for a social entrepreneur, performance measurement is supported by qualitative indicators of social change and, due to the fact that the measurement of results on the basis of qualitative indicators is more difficult, the measurement of the results of social ventures is also more complex.

In addition to the differences mentioned above, the for-profit or not-for-profit nature of social entrepreneurship has been a hotly debated issue. Some authors believe that profit is incompatible with social entrepreneurship because the scope of social enterprises is based upon non-profit organizations (Lohman 1989, 1992; Reis 1999; Thompson 2002; Harding 2004). Another group of authors believe that social value creation may not be incompatible with profit (Arthur et al. 2010). In this sense, Austin et al. (2006) express the view that social entrepreneurship can be conducted in the non-profit sector, in privately owned companies or in the public sector. Dorado (2006) and Drayton (2002) claim that both kinds of entrepreneurship look for returns and can achieve economic profit/financial gain. In this sense, according to Van Slyke and Newman (2006), the literature on the subject has numerous examples of ventures oriented towards a social value creation which have financial gains.

Santos (2009) believes what is really relevant and characteristic of a social entrepreneur is his or her predominant focus on value creation in all its forms, as opposed to the emphasis for a business-oriented entrepreneur, which lies in profit making. Massetti (2008) states that social businesses can have economic gains, but the difference between social ventures and traditional ones is in the use of profits. While in a traditional business, the profits are used to enrich entrepreneurs, in social ventures, profits are used to support social causes. The author interprets this difference as a degree of intent, and describes a continuum in which, on one extreme, lay the enterprises that have a market-oriented mission and on the other, the companies that have a socially based mission. Therefore, hybrid ventures that combine social and profit ends are feasible.

3 Conceptual framework

A valid indicator to verify whether social ventures are as sustainable as business-oriented ventures is the rate of firm survival. In fact, literature on the subject considers the rate of survival as one of the more relevant measurements to determine the success of a firm (Van de Ven et al. 1984; Brüderl and Schussler 1990; Cooper et al. 1994; Barney 1997; Haber and Reichel 2005).

Although different proposals exist as to the period of greatest risk of failure, as can be derived from the hypotheses contrasted in Stinchcombe (1965) and Brüderl and Schussler (1990), there is no doubt that younger firms have higher closure ratios in their first years of existence. There are four main reasons for the greater risk of failure that young firms face. Firstly, because they depend on new roles and tasks that have to be learned at a cost. Secondly, because sometimes roles have to be developed, and this may be in conflict with constraints on resources or creativity. Thirdly, because social interactions in a new organization resemble those between strangers, and a common normative basis or informal information structure may be lacking. And finally, because stable links to clients, supporters, or customers are not yet established when an organization begins its activity (Singh et al. 1986; Brüderl and Schussler 1990).

With regard to empirical evidence, many studies that have examined the behaviour of young firms have proven that the closure ratio is fairly high during the first few years of existence. For example, Phillips and Kirchhoff (1989), using Dun & Bradstreet data, found that 76% of new firms were still open after 2 years, 47% after 4 years and 38% after 6 years. Headd (2003), using the BITS database, found that 66% of new firms were still in existence after 2 years, 49.6% after 4 years, and 39.5% after 6 years. In France, official data reports firm mortality at about 50% in the first 5 years of existence (Letowski 2004). American data shows that about 56% of firms cease activity after 4 years (Knaup 2005). The OECD declares that only between 40 and 50% of new firms survive after 7 years of existence (Cotis 2007), whilst in Spain, firm survival after 4 years is around 53% (García and Caneda 2008). These studies show fairly similar numbers of survival rates in business-oriented entrepreneurship.

In recent decades, a great deal of debate has surrounded the factors considered to be critical for firm survival and the success of newly created firms (Van der Werf and Brush 1989; Brüderl et al. 1992). Literature typically takes into account three groups of explanatory variables; those relating to the characteristics of the entrepreneur, those relating to the characteristics of the newly founded firm, and those external factors embracing the geographical and industrial environment in which entrepreneurial phenomena occur (Schutjens and Wever 2000). However, all this literature has focused on the study of business ventures, but what happens with social entrepreneurship survival rates? Are they similar to business survival rates? Do they share the same key success factors as business-oriented entrepreneurship?

The following subsections will attempt to shed some light on these questions. We firstly analyze whether there are differences in the chances of survival between social and business-oriented ventures. We then go on to determine whether there are differences in the role that some of the more widely studied entrepreneurial and venture characteristics play as success factors. We analyze the influence of education, experience, motivation to start up a business, number of employees and start-up capital.

3.1 A comparison of social and business ventures survival rates

With regard to social ventures survival rates, there are different arguments in favour of and against a higher/lower survival rate in relation to business ventures. Austin et al. (2006), after pointing out that "human and financial resource mobilization will be a prevailing difference and will lead to fundamentally different approaches in

managing financial and human resources" (p. 3), highlight the greater difficulty that social ventures find in mobilizing resources. As we previously established, a business entrepreneur can obtain resources directly from the market through the sale of goods and services and has easier access to the capital market, whereas a social entrepreneur depends more on donations and subsidies. In addition, according to the authors, a social venture will have certain restrictions in distributing surplus cash. For this reason, the finances of a social venture could be an obstacle to compensating its employees in a competitive way, reducing its chances of attracting, retaining and motivating talent. Accordingly, the greater difficulties social ventures encounter in obtaining financial resources and employing qualified staff reduces their survival probabilities. We thus formulate the following hypothesis:

Hypothesis 1A Social ventures have lower survival rates than business-oriented ventures.

According to Santos (2009), the lesser emphasis on the appropriation of economic value could encourage social ventures to continue its activities as long as the business generates enough money for survival, whereas a business-oriented venture will liquidate its activity at the moment that owners consider that they do not receive an adequate level of returns from the activity. This hypothesis is supported by Boschee (1995) who states that if a social venture is the only provider of particular goods or services, the organization will continue working without profits. Conversely, the objective of a business-oriented venture is to generate profits, so continuing the activity does not make sense if it is not profitable, even if the firm is the only provider of particular goods or services. Therefore, it is safe to say that social ventures will have a stronger motivation to continue a business than business-oriented ventures. Consequently, we present this alternative hypothesis:

Hypothesis 1B Social ventures have greater survival rates than business-oriented ventures.

3.2 Education, experience and motivation to start a business as success factors for social and business ventures

Much of the success of a new company is determined by the founder's characteristics (Korunka et al. 2010). According to related literature and empirical studies, three of the most important characteristics of an entrepreneur which can have a positive relationship with the probability of firm success are education, experience and motivation to start the venture (Evans and Leighton 1989; Mitchell 1989; Brüderl et al. 1992; Gimeno et al. 1997; Klepper 2002; Klepper and Simons 2000; Van Praag 2003; Agarwal et al. 2004; Alstete 2008). As mentioned previously, due to the fact that the qualities that characterize both types of entrepreneur are similar and they identify opportunities and face similar challenges, using the entrepreneur's talent for problem-solving in a similar way (Sullivan 2007; Massetti 2008; Simms 2009), we hypothesize that these factors are related in the same way to the probability of survival in both cases.

With regard to education, there are different trends as to how an entrepreneur's educational background is able to help the enterprise survive. Honig (1998) and West and Noel (2009) suggest that knowledge improves management ability in developing a business, and Castrogiovanni (1996) considers that knowledge is able to help the owner assess opportunities, as well as to utilize resources more efficiently, whilst Haber and Reichel (2005) state that knowledge can help acquire and transform know-how. In fact, most of the studies conducted in the literature show a positive relationship between education and survival (Headd 2003; Van Praag 2003).

Thus, what kind of education is necessary to increase survival? According to the classical economist Jean Baptiste Say (1803, quoted in Van Praag 2003), an entrepreneur needs "judgement, perseverance, and a knowledge of the world as well as of business" (p. 330). Therefore, it can be said that two kinds of knowledge are necessary for expecting high survival rates: specific knowledge received through education and which is related to the activity in which the firm operates, for example, an entrepreneur who has studied computer engineering and starts up a firm devoted to developing web pages; and general knowledge received through education that is not directly related to the development of the activity in which the firm is involved.

This begs the question: Is one type of knowledge more important than another? According to Ribeiro and Castrogiovanni (2012), specific knowledge focuses on technologies, processes or relevant products of a sector. For Haber and Reichel (2005), specific knowledge can improve the performance of a business because of the improvement in managerial capacity, which can help to develop a better business or business plan. Furthermore, according to Castrogiovanni (1996), specific knowledge will help an entrepreneur better detect customer needs, and to use resources more efficiently, reducing costs to below those of their competitors. Therefore, specific education appears to have a greater impact than a general education on the chances of success of a new venture. Thus, assuming that the success factors are the same in social ventures as in traditional ones (Dorado 2006; Massetti 2008; Cáceres et al. 2011; Cavalcante et al. 2011; Goktan and Miles 2011; Hotho and Champion 2011; Huarng and Yu 2011; Naranjo-Valencia et al. 2011), our hypotheses are as follows:

Hypothesis 2A There is a positive relationship between the specific education of a business owner and survival rates in social ventures, as in the case of traditional ventures.

Hypothesis 2B There is a positive relationship between the general education of business owners and survival rates in social ventures, as in the case of traditional ventures.

Hypothesis 2C The relationship between education and survival rates is stronger in the case of specific education than in the case of general education.

With regard to previous experience, according to Ribeiro and Castrogiovanni (2012), experience allows for a greater identification, exploitation and acquisition of resources. Sheperd (1999) shows that survival is higher in companies whose management team has experience in the same industry. Authors like Brüderl et al.

(1992), Cooper et al. (1994), Luk (1996) or Reuber and Fisher (1999) state that related previous experience (in self-employment in the same industry or occupation) affects the chances of success of business ventures, although this is not entirely true for some authors. Van Praag (2003), for example, shows that the owner's experience as an entrepreneur does not have any significant effect on business success. On the contrary, the owner's experience in the same industry has a positive correlation with business success. Hence, if we assume that, in this case, social ventures function in the same way as traditional ones, our hypothesis is as follows:

Hypothesis 3 There is a positive relationship between the specific experience of business owners and survival rates in social ventures, as there is in the case of traditional ventures.

In terms of the motivation for starting a new venture, the literature distinguishes between opportunity entrepreneurs, driven by the search for independence, autonomy and the vocation of starting up their own business, and necessity entrepreneurs, who may not be interested in the business in itself, but who begin the activity as a means of avoiding unemployment (Reynolds et al. 2001). The results obtained by Headd (2003) indicate that the survival rates of firms created by opportunity entrepreneurs are higher than for cases of firms that were started for other reasons. This coincides with the GEM data that show that this type of entrepreneur enjoys higher rates of survival (Reynolds et al. 2001). According to the ideas of Headd (2003) and Van Praag (2003), this situation is due to the fact that, when a necessity entrepreneur finds another job, he or she will commonly liquidate the firm, whilst an opportunity entrepreneur will keep the concern going as long as it says afloat. Another of the reasons that help to explain the higher survival rates is offered by Ho and Wong (2007), who claim that opportunity entrepreneurs are more innovative and, therefore, their survival rates can be expected to be higher by starting up a business that offers something different or manufactures products more efficiently.

It should be pointed out, though, that the distinction between opportunity and necessity entrepreneurs can be, to a certain extent, affected by the very nature of social entrepreneurship. In this case, the main objective is the creation of social value, above and beyond the entrepreneurs own needs, and thus the previous employment situation of this type of entrepreneur may be of less consequence. From one perspective, creating a social enterprise to cater for one's own employment needs might seem contradictory, although this possibility cannot be excluded *ex ante*. We therefore propose the following hypothesis:

Hypothesis 4 The chance of survival, both of social firms and those that are purely business-oriented, is greater if the motivation for venture creation is opportunity rather than necessity.

3.3 Workforce and start-up capital as success factor for social and business ventures

A second group of explanatory variables that are commonly analyzed as success factors in business ventures is related to the characteristics of the organization or

business. Two of the most widely studied aspects that have been shown to have a more stable pattern of a positive and significant relation with the success of new ventures, apart from the age of the organization, is the number of employees (Dunne and Hughes 1994; Argawal and Audretsch 2001; López-García and Puente 2006) and financial start-up capital (Brüderl et al. 1992; Cooper et al. 1994; Schutjens and Wever 2000; Headd 2003).

Several authors, who have used these variables as proxies of the firm's resource endowment, propose the hypothesis of "liability of size" or "liability of smallness", which has generally been empirically contrasted (Brüderl and Schussler 1990; Singh et al. 1986). The extent to which firms have a larger amount of resources affects their chances of survival during the initial period of existence. Moreover, it allows them the time required to identify and develop adequate organizational routines, learn to collaborate with the various internal and external stakeholders, gain legitimacy and develop the necessary knowledge and capabilities for creating competitive advantages. It should, however, be highlighted that social businesses normally encounter even more difficulties in mobilizing both human and financial resources than business-oriented ones (Almond and Kendall 2000; Austin et al. 2006; Steinberg 2006). Consequently, we can suggest the following hypotheses:

Hypothesis 5 The chance of survival, both of social firms and those that are purely business-oriented, is greater if they have a larger number of employees.

Hypothesis 6 The chance of survival, both of social firms and those that are purely business-oriented, is greater if they have a larger amount of start-up capital.

4 Methodology

4.1 Sample characteristics

Via collaboration with the Program Management and Planning Service of the Valencia Institute of Youth (IVAJ), data were obtained from 2,179[1] companies, created between 2000 and 2003, of which 227 engaged in activities of social interest.[2] Ninety percent of these companies were service-oriented and, specifically in the case of social ventures, this percentage rose to 94.2%; this data reinforces the statement by Juliá (2011) that the social economy is more prevalent in the services sector.

The collaboration with IVAJ focused on the evaluation of projects presented by entrepreneurs connected to enterprises of less than a year old (start-ups) which had attempted to obtain a grant. The information used was obtained from the project portfolio presented to obtain the grant, from the annual portfolio of execution of the Aid Program to the enterprises created by young entrepreneurs, and from the

[1] In the end, four business ventures were eliminated because of missing data.

[2] According to the criteria of the IVAJ, a social venture is a company dedicated to activities that promote equal opportunities (integration), environmental improvement, technological innovation, organizational innovation, education and training for the integration or entrepreneurial cooperation.

Table 1 Evolution of the number of companies in the period 2001–2008

Companies	2001 (2000)	2002 (2001)	2003 (2002)	2004 (2003)	Total
Applicants	464	617	785	967	2833
Accepted (evaluated)	357 (52)	462 (49)	639 (76)	721 (50)	2,179 (227)
Rejected (non evaluated)	107	155	146	246	654
Workforce mean (standard deviation)	2.49 (7.606)	2.02 (1.450)	1.93 (1.505)	1.93 (1.691)	2.04 (3.422)
Start-up capital proxy mean (standard deviation)	33,450.43 (63,215.55)	30,477.49 (42,093.24)	30,624.42 (43,760.41)	31,061.49 (41,706.58)	31,201.29 (46,534.78)

Source: Elaborated from the information generated in the evaluation process

Note: Companies are identified by the year in which aid is awarded and, in parentheses, the year of foundation. Under accepted companies, the number of companies with activities of social interest is shown in parentheses

monitoring of the companies created by means of the databases of the Chambers of Commerce from Alicante, Castellón and Valencia. Table 1 shows the number of companies that requested a grant, the number of companies evaluated and the number of rejected ones. This study is based solely on the evaluated companies, as information on the rejected ones is very limited.

4.2 Variables used in the study

4.2.1 Dependent variables

Survival by December the 31st at the third and sixth year mark from the date of constitution of the company, were taken as dependent variables. These two variables are dichotomous and indicate whether the company survived or not at $t + 3$ and $t + 6$.

4.2.2 Independent variables

(1) Kind of venture: a dichotomous variable that indicates whether the company is a business-oriented or a social venture.
(2) Education level: a categorical variable that includes four levels of education: primary, secondary + vocational training I, vocational training II + baccalaureate and university studies.
(3) Related vocational training: a dichotomous variable that indicates whether the entrepreneur has some type of specific education related to the business.
(4) Related experience: a dichotomous variable that indicates whether the entrepreneur has at least a year of work experience related to the business.

(5) Motivation to start a business: a dichotomous variable that indicates whether a business started out based on opportunity or necessity. The previous work situation of the entrepreneur was taken into account for classification purposes.
(6) Workforce: the total number of stable employees, including entrepreneurs.
(7) Start-up capital: proxy of start-up capital—subsidized capital according to the criteria of Program Management and Planning Service from the Valencia Youth Institute (IVAJ).

To better assess the nature and intensity of the relationships between the independent variables and firm survival, two variables were included as control variables. We controlled for start-up year of the activity to account for potential differences in survival caused by industrial or economic factors. Lastly, although the sample is made up of a large majority of service firms, it contained a small percentage of industrial companies and thus the sector variable was included to control for the effect their presence might have on the overall results.

It is important to point out that the values assigned to the activity, variables of social interest, related education, and related experience were established by the expert evaluators of the IVAJ program, taking into account the information included in the project portfolios. To avoid possible biases on the part of the evaluator and increase the reliability of the assessments, a small sample of firms was selected that was successively assessed by a number of different evaluators. They went on to analyze the discrepancies found for each year, resolved any outstanding issues and unified the criteria to be used for the assessment. The remaining variables are objective ones obtained from the entrepreneurs themselves and the Chambers of Commerce of Alicante, Castellón and Valencia.

4.3 Methodology

Due to the nature of the dependent variables (survival at $t + 3$ and $t + 6$), we opted to use Pearson's χ^2 test, Mann–Whitney's test for two independent samples, and a multivariate logistic model or logit model. The level of significance used in all of the analyses was 5% ($= 0.05$).

The bivariate analysis techniques allow for the identification of the variables that individually have explanatory capacity in relation to firm survival. Consequently, Pearson's χ^2 test is applied as a test of association or dependence of the survival of the business at the 3- and 6-year mark with other categorical variables, whenever the expected frequency of the cells in the contingency table is higher than five cases. In other cases, and, for dichotomous variables, Fisher's exact test was applied. Mann–Whitney's test for two independent samples was used to contrast whether or not the distribution of a parameter, is the same in two independent samples. For example, it has been used to test whether there is a relationship between the chances of firm survival and their degree of social interest.

In order to complete the previous bivariate analysis, a logistic regression model was estimated to gauge the relationship or association between two variables, taking into account the fact that other factors may exist that may modify this relationship. This logit model expresses the probability of not surviving as a function of a number

of independent variables. The logistic model expresses the odds[3] as an exponential function of two independent variables:

$$\frac{p}{1-p} = e^{\beta_0+\beta_1 X_1+\beta_2 X_2}$$

where p is the probability of not surviving and X_i ($i = 1, 2, \ldots, n$) are the independent variables (education, experience, etc.). The β_i are the regression coefficients used to estimate in the analysis. An equivalent way of writing the equation is:

$$\frac{p}{1-p} = e^{\beta_0} e^{\beta_1 X_1} e^{\beta_2 X_2}$$

In this way, it is easy to see that the unit increase of a factor X_i, multiplies the odds by the value e^{β_i}, therefore, the significant influence of a factor is measured in terms of variation produced in the odds of non-survival. The entry model of variables was conditional on a step by step basis, with a p value of entry of 0.05 and an exit p value of 0.1 for the variables. Different measures of goodness of fit have been used: the statistical minus twice the Naperian logarithm of the verisimilitude (-2LL), and the R^2 Nagelkerke coefficient. We also applied the Hosmer and Lemeshow test to contrast the calibration of the model, that is, the degree to which prognosticated probability conforms to reality.

5 Results

5.1 Sample characteristics

As noted, of the 2,175 companies analyzed, 227 have some degree of social interest (by this we mean that some are purely social ventures while other are mixed, in the sense described by Massetti (2008)), although only 52 of them can be considered exclusively social ventures. 16.4% of the enterprises were created in the year 2000, 21.2% in 2001, 29.4% in 2002 and 33.1% in 2003. The test sample is made up of small enterprises, with a workforce which ranges from between 1 and 142 employees (entrepreneurs included), with an average of 2.04 employees. Eligible capital (proxy for invested capital) ranges between €1,000 and €970,000, with an average of €31,204. As previously mentioned, 90% of these firms are service-oriented and, in the case of social ventures, this percentage rises to 94.2%.

5.2 Survival according to the type of venture

As seen in Table 2, 72% of the total companies survive the 3-year mark, whereas at the 6-year mark this percentage falls to 52%. The survival rate of business companies is slightly higher at 3 years (72.2 vs. 68.7%) whereas at the 6-year mark, it is the reverse—more firms of social interest survive (55.1 vs. 52.1%). However, the results of Pearson's χ^2 test indicate that these differences are not significant

[3] The odds ratio is the ratio between the probability of not surviving and the probability of surviving.

Table 2 Survival according to the type of venture

	Total		Business venture		Social venture	
	Count	%	Count	%	Count	%
Survival at 3-year mark						
Total	2,175	100.0	1,948	100.0	227	100.0
Do not survive in $t + 3$	612	28.1	541	27.8	71	31.3
Survive in $t + 3$	1,563	71.9	1,407	72.2	156	68.7
Survival at 6-year mark						
Total	2,175	100.0	1,948	100.0	227	100.0
Do not survive in $t + 6$	1,042	47.9	940	48.3	102	44.9
Survive in $t + 6$	1,133	52.1	1,008	51.7	125	55.1

either at the 3-year mark (p value = 0.266), or at the 6-year mark (p value = 0.345).

When we take into account the degree of a firm's social interest, there does not seem to be a clear relationship between this factor and the chances of survival. The results of Mann–Whitney's test indicate that significant differences do not exist in survival according to the degree of social interest either at the 3-year mark (p value = 0.375), or at the 6-year mark (p value = 0.241). Therefore, hypotheses 1A and 1B were not supported because there are no significant differences in the probability of survival with regard to the type of venture.

5.3 Success factors and survival probability of business and social ventures

The influence of success factors has been analyzed by two logistic regressions, one of them for survival at $t + 3$ and the other for survival at $t + 6$. These logit models express the probability that a venture will fail when considering certain factors. Table 3 shows how the explanatory capacity of the different models varies according to the factor introduced, but the explanatory capacity of the initial model is always improved. The most efficient models are:

- For business-oriented firms, at $t + 3$, composed of education (level of education), experience, start-up capital and personnel. At $t + 6$, it is made up of education (specific education), experience, motivation to start a business, start-up capital and personnel. In this case the model with the sector control variable is also included.
- For social ventures, at $t + 3$, it is composed of education (level of education), start-up capital and personnel. At $t + 6$, only start-up capital and personnel appear in the model.

The fact that the year of creation of the venture is not a significant factor is not a surprise because the analyzed period has been one of considerable stability, economic growth, and low unemployment rates. It must be emphasized that, even though the p values of the Hosmer–Lemeshow's contrasts (greater than 0.05 for all

Table 3 Evolution of the model's explanatory capacity introducing the different success factors

	Nagelkerke R^2	
	At 3 years of survival	At 6 years of survival
Business ventures		
Model with education and experience	0.031	0.051
Model with education and experience + sector	–	0.062
Model with education and experience + motivation	0.040	0.071
Model with education and experience + capital	0.048	0.075
Model with education and experience + workforce	0.074	0.107
Model with education and experience + motivation + capital + workforce	0.081 (excluding motivation)	0.130 (plus Sector)
Ventures of social interest		
Model with education and experience	Model does not converge	Model does not converge
Model with education and experience + capital	0.130	0.061
Model with education and experience + workforce	0.143	0.082
Model with education and experience + capital + workforce	0.185	0.122

of the models) allow us to accept the null hypothesis that the models are adequate, values as low as those of Nagelkerke's R^2 which appear in Table 3, can only indicate that there are other determinant factors that have not been introduced into the models, such as the strategy adopted by the entrepreneurs or the possession of intangible assets such as relational capital.

Table 4 shows, in the case of business-oriented ventures, the variables that were significant, as well as the order of entry in the $t + 3$ scenario. The results indicate that the risk of non-survival is reduced by: 57.9% among entrepreneurs with university studies in comparison with those with primary-level studies ($\text{Exp}(\beta) = 0.421$); 28.7% among entrepreneurs that have related experience as opposed to those that do not possess experience ($\text{Exp}(\beta) = 0.713$); 0.6% per €1,000 increase in subsidized capital ($\text{Exp}(\beta) = 0.994$); and 29.2% increase per worker employed ($\text{Exp}(\beta) = 0.708$).

Table 5 shows the same results for business-oriented firms at $t + 6$. In this case, the results indicate that the risk of non-survival at the 6-year mark are reduced by: 48.6% among entrepreneurs that have related experience as opposed to those that do not possess experience ($\text{Exp}(\beta) = 0.514$); 31.2% amongst opportunity entrepreneurs compared to necessity entrepreneurs ($\text{Exp}(\beta) = 0.682$); 0.4% per €1,000 increase in capital ($\text{Exp}(\beta) = 0.996$); and 27.5% increase per worker employed ($\text{Exp}(\beta) = 0.725$). It should be noted that the control variable related to sector is introduced into the model in this case and indicates that manufacturing firms have a higher chance of survival than service firms. A relevant factor to bear in mind is that manufacturing firms, which make up a small percentage of our sample, generally have more staff and a larger amount of start-up capital.

Table 4 Last step results of logit model in $t + 3$ for business entrepreneurs

	β	E.T.	Wald	gl	Sig.	Exp(β)	I.C. 95.0% para Exp(β)	
							Inferior	Superior
Step 4(4)								
Primary School			14.834	3	0.002			
Secondary School + vocational training I	−0.866	0.233	13.789	1	**0.000**	**0.421**	0.266	0.664
Baccalaureate + Vocational training II	−0.171	0.188	0.823	1	0.364	0.843	0.583	1.219
University Studies	−0.314	0.175	3.223	1	0.073	0.731	0.519	1.029
Experience	−0.338	0.138	6.017	1	**0.014**	**0.713**	0.544	0.934
Capital	−0.006	0.002	6.697	1	**0.010**	**0.994**	0.990	0.999
Workforce	−0.345	0.068	25.831	1	**0.000**	**0.708**	0.620	0.809
Constant	0.338	0.193	3.068	1	0.080	1.402		

Figures in bold indicate significance at level 0.05

1. Variable(s) introduced in step 1: Workforce
2. Variable(s) introduced in step 2: Education level
3. Variable(s) introduced in step 3: Start-up capital
4. Variable(s) introduced in step 4: Experience

Table 5 Last step results of logit model in $t + 6$ for business entrepreneurs

	β	E.T.	Wald	gl	Sig.	Exp(β)	I.C. 95.0% para Exp(β)	
							Inferior	Superior
Step 5(5)								
Related education	−0.666	0.125	28.250	1	**0.000**	**0.514**	0.402	0.657
Sector	−0.549	0.226	5.896	1	**0.015**	**0.577**	0.371	0.900
Capital	−0.004	0.002	5.945	1	**0.015**	**0.996**	0.992	0.999
Workforce	−0.321	0.057	32.288	1	**0.000**	**0.725**	0.649	0.810
Motivation	−0.382	0.125	9.307	1	**0.002**	**0.682**	0.534	0.872
Constant	1.250	0.143	76.050	1	**0.000**	**3.491**		

Figures in bold indicate significance at level 0.05

1. Variable(s) introduced in step 1: Workforce
2. Variable(s) introduced in step 2: Specific education
3. Variable(s) introduced in step 3: Entrepreneur motivation
4. Variable(s) introduced in step 3: Start-up capital
5. Variable(s) introduced in step 4: Experience

In the case of social ventures, as previously explained, and without taking into account the number of employees and start-up capital, only the level of education is significant and even then exclusively in the model for $t + 3$. This result is of special interest, because the specialized literature highlights the difficulties that these ventures encounter when attempting to mobilize financial and human resources as

Table 6 Last step results of logit model in $t + 3$ for social entrepreneurs

	β	E.T.	Wald	gl	Sig.	Exp(β)	I.C. 95.0% para Exp(β)	
							Inferior	Superior
Step 3(3)								
Primary School			4.665	3	0.198			
Secondary School + vocational training I	−21.900	13,545.304	0.000	1	0.999	0.000	0.000	
Baccalaureate + Vocational training II	−0.763	1.011	0.570	1	0.450	0.466	0.064	3.382
University Studies	−1.458	0.964	2.291	1	0.130	0.233	0.035	1.538
Capital	−0.016	0.007	4.698	1	**0.030**	**0.985**	0.971	0.999
Workforce	−0.313	0.141	4.912	1	**0.027**	**0.731**	0.555	0.964
Constant	1.595	1.015	2.470	1	.116	4.929		

Figures in bold indicate significance at level 0.05

1. Variable(s) introduced in step 1: Start-up capital

2. Variable(s) introduced in step 2: Education level

3. Variable(s) introduced in step 3: Workforce

Table 7 Last step results of logit model in $t + 6$ for social entrepreneurs

	β	E.T.	Wald	gl	Sig.	Exp(β)	I.C. 95.0% para Exp(β)	
							Inferior	Superior
Step 2(2)								
Capital	−0.011	0.005	4.554	1	**0.033**	**0.989**	0.979	0.999
Workforce	−0.315	0.119	7.024	1	**0.008**	**0.730**	0.578	0.921
Constant	0.872	0.314	7.711	1	**0.005**	**2.392**		

Figures in bold indicate significance at level 0.05

1. Variable(s) introduced in step 1: Start-up capital

2. Variable(s) introduced in step 3: Workforce

one of their greatest handicaps, so the sizable influence of these variables in their survival probability could be giving other variables a secondary role, such as those analyzed (education, experience and motivation). Tables 6 and 7 show the results obtained at $t + 3$ and $t + 6$.

Logistic regressions were also carried out with only the variables related to education, experience and the motivation for starting a business on the one hand and with the variables, number of employees and start-up capital on the other. In the first case, the variables were only significant for business-oriented firms, and in the case of education, the pattern was the same; the level of education was significant at $t + 3$, though not specific education, whilst at $t + 6$ the reverse was true. In the second case, the variables were always significant for both types of firm and at both moments in time.

In short, the results obtained both with the overall model and with the partial ones were not consistent with hypotheses 2A and 2B, 3 and 4, as education, experience

Table 8 Summary of results

	Business Ventures	Social Ventures
H1A: Social ventures have lower survival rates than business-oriented ventures	Not supported	
H1B: Social ventures have greater survival rates than business-oriented ventures	Not supported	
H2A: There is a positive relationship between the specific education of a business owner and survival rates in SV, as in the case of BOV	Supported	Not supported
H2B: There is a positive relationship between the general education of business owners and survival rates in SV, as in the case of BOV	Supported	Not supported
H2C: The relationship between education and survival rates is stronger in the case of specific education than in the case of general education	Supported	Not supported
H3: There is a positive relationship between the specific experience of business owners and survival rates in SV, as there is in the case of BOV	Supported	Not supported
H4: The chances of survival, both of SV and those that are purely BOV, is greater if the motivation for venture creation is opportunity rather than necessity	Supported	Not supported
H5: The chances of survival, both of social firms and those that are purely BOV, is greater if they have a larger number of employees	Supported	Supported
H6: The chance of survival, both of social firms and those that are purely BOV, is greater if they have a larger amount of start-up capital	Supported	Supported

and the motivation to start a business were only significant, and even then not conclusively, in the case of business ventures. With regard to hypothesis 2C, we cannot establish which of the two education variables has a greater relationship with survival, because the results in $t + 3$ and $t + 6$ diverge in the case of business ventures. It would be necessary to analyze in greater depth the interdependence between these and other variables to establish the effects of education with greater clarity. However, the results are consistent with hypotheses 5 and 6, as the relation between the availability of human and financial resources during the start-up period were always significant in both types of firm (Table 8).

6 Conclusions

Social entrepreneurship constitutes a phenomenon of growing relevance both in the economic and academic scope that presents differences but also has relevant similarities with business-oriented entrepreneurship. Both phenomena fundamentally differ in their mission, in the kind of opportunities that instigate the beginning of the activity, in the degree of difficulty they face in mobilizing resources, and in the way venture performance is measured (Austin et al. 2006). With regard to the similarities, both types of entrepreneurship constitute innovative activities that identify opportunities in similar ways and face similar challenges. Furthermore, the

characteristics of both types of entrepreneur usually connected to the firm's success appear to be very similar.

Despite growing interest in the academic study of social entrepreneurship, it is still necessary to go into even greater depth in terms of a comparative analysis of social and business-oriented entrepreneurship, among other issues, and to analyze whether there are similar success and failure factors for the two types. Consequently, this research has analyzed the differences in the levels of survival of both kinds of entrepreneurship, as well as to what degree different success factors related to entrepreneur and venture characteristics (education level, related education, related experience and motivation to start a business in the first case, and workforce and start-up capital in the second) are significantly related to service and business venture survival.

In light of the results obtained, we conclude, firstly, that venture survival does not seem to depend on its nature, business or social elements, due to the fact that differences in survival probability between the two types of venture are not significant. This is an especially relevant outcome, bearing in mind the important social function that service ventures can play and it may help to justify the promotion of and investment in such ventures.

Secondly, the results of the multivariate models that relate the analyzed success factors to venture survival reveal that capital and workforce are relevant factors in the survival of any kind of venture and at any point, in the sense that, when these factors are high, the risk of failure is low. More specifically, in the case of business ventures at the 3-year mark, in general, having university studies, related experience, and capital and a large workforce reduces the venture's likelihood of failure. At the 6-year mark, in general, having a related education, being an opportunity entrepreneur, and having large capital and a sizable workforce reduces the probability of venture failure.

With regard to the role of education level and related or specific education, a more in-depth analysis is required because, as we have already mentioned in the analysis of the results, it cannot be established which of the two education variables has a greater influence on survival, due to the fact that the results in $t + 3$ and $t + 6$ diverge. It is also notable that the level of education that most reduces the chances of business failure is the second stage considered (secondary school + vocational training I). A possible explanation for this phenomenon may be derived from the fact that they have less options for working outside of their own business due to their low level of education. Lastly, the importance of the motivation for starting up a business appears to increase in importance over time, as this aspect is only significant at $t + 6$.

In the case of social ventures, the entrepreneur's education and experience are not significantly related to venture survival, with the exception of education level at $t + 3$. This is a somewhat surprising finding that may derive from the limitations of the test sample, or be masked by the significant influence that other variables exert. The greater difficulties encountered by social ventures when they need to mobilize financial and human resources seems to constitute the only real determinant factor of their survival probabilities.

From the analysis of the results derived from the calculation of the failure probabilities, an interesting conclusion can be drawn: education, experience, and entrepreneur motivation, capital and workforce of the venture are not definitive factors for the failure of a business at the 3-year mark. However, after 3 years, these factors, although they are insufficient in explaining the causes of failure, gain explanatory capacity. Generally, education and experience, together with the greater availability of resources are factors that favour firm survival with the passage of time.

We can conclude that the results obtained highlight possible differences in the factors that significantly reduce the failure probabilities of business-oriented and social ventures. Hence, this empirical study firstly reinforces the idea that the field of study of social entrepreneurship is still in need of greater theoretical development (Massetti 2008; Nicholls 2010), and secondly, that it is necessary to consider social entrepreneurship as a field of study in its own right (Dees 1998; Alvord et al. 2002; Drayton 2002), as the applicable theory from other fields of study such as business-oriented entrepreneurship does not satisfactorily explain the success factors involved in the survival rates of social ventures.

However, we consider it necessary to replicate these studies in other geographical arenas, eliminating the bias of the entrepreneur's age, increasing the dispersion in the size of the companies examined, and slightly increasing the sample of social ventures. In the same way, if the size of the test sample makes it possible, it would be convenient to take into account the degree of munificence, dynamism and complexity of the industry in which each venture competes. Ultimately, because of the low explanatory capacity of the analyzed models, it would be interesting to analyze the effect of other explanatory variables such as the company's strategy, the ownership of relevant intangible assets, etc.

In this respect, the field of study of entrepreneurship is turning increasingly to motivational factors to explain the reasons that lead an entrepreneur to start a business, and to understand the factors that make them successful (Shane and Venkataraman 2000; Shane et al. 2003). Hence, if we extend this argument to the study of social ventures, it would be advisable to include "social motivation" (Vesterlund 2006; Grant 2008) as an explanatory variable. This "prosocial motivation" in the words of Grant (2008), does not only affect the firm's mission, but can also have positive effects on productivity, performance and persistence in developing activities (Grant 2008). As a result, if, as this research indicates, social ventures survive in much the way that business-oriented ones do, at least a partial explanation may lie in the fact that, in social firms, workers are more motivated than in purely business-oriented ones.

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