



Firm survival: The role of incubators and business characteristics[☆]



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ABSTRACT

This paper analyzes the impact of business incubators on firm survival. Using a configurational comparative method, namely fuzzy-set qualitative comparative analysis (fsQCA), the article also examines whether degree of business innovation, size, sector, and export activity affects firm survival. Results show that, when combined with other variables (i.e. sector, technology), business size is a sufficient condition for firm survival. Likewise, incubators alone cannot affect survival. A combination between incubators and other factors is necessary to ensure firm survival.

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1. Introduction

Interest in business creation is now more intense than at any point in the last 30 years. Business incubators seek to boost regional development by fostering business and employment creation (Phan, Siegel, & Wright, 2005). The objective of a business incubator is to create and develop companies or accelerate the creation of successful firms (Bruneel, Ratinho, Clarysse, & Groen, 2012).

This study analyzes the efficiency and impact of incubators on the survival rate of firms that employ them. The study also identifies whether other factors such as degree of business innovation, firm size, sector, and export activity affect firm survival.

A configurational comparative method, fsQCA (Ragin, 1987), allows for meeting these objectives. This method enables researchers to overcome a major limitation of traditional probability-based statistics techniques—namely, the need for large samples—without limiting the study to a few cases or case studies. Generalization of conclusions or implications to a larger population is therefore possible using fsQCA.

Following this introduction, Section 2 contains the theoretical framework. Section 3 describes methodology. Section 4 presents the findings. Section 5 offers discussions with limitations and suggestions for future research.

2. Firm survival

Literature analyzing firm survival (Box, 2008; Carr, Haggard, Hmieleski, & Zahra, 2010; Coeurderoy, Cowling, Licht, & Murray, 2012; Colombelli, Krafft, & Quattraro, 2013; Holmes, Hunt, & Stone, 2010), highlights the importance of the following conditions: firm size, sector, export activity, and innovation intensity. The study examines how these variables affect firm survival, and, mainly, explores the influence of incubators on firm survival.

2.1. Business incubators' impact on firm survival

Incubators produce successful firms; these firms can leave the incubator once they are independent and financially viable. At this moment firms graduate from the incubator. The primary objective of incubators—namely, producing successful firms—fits within their general purpose, which is to stimulate innovation and regional development. Therefore, a key function of incubators is to assist future entrepreneurs as they initiate their business activities. This assistance includes providing entrepreneurs with basic infrastructures, financial resources, and different types of services and information necessary for creating start-ups. Incubators act as catalysts for entrepreneurship.

Although the incubators' main objective is simply to create new businesses, literature on this topic emphasizes the success or survival of these firms once they graduate (Schwartz, 2009, 2013). Therefore, firm survival measures incubators' impact on economy. Schwartz (2013) provides a detailed review of research on incubators' impact through 11 studies. Schwartz presents a study of incubators' impact on 371 firms over a 10-year period. Schwartz's contribution provides methodological improvements in terms of group control.

Despite the existence of research on the matter, few studies systematically analyze the effectiveness and impact of incubators on the

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survival of graduate firms (Phan et al., 2005). Hackett and Dilts (2004, 2008) argue that the problem lies in the absence of an adequate theoretical framework for systematically analyzing incubators' impact. These scholars go as far as to call the topic a black box. Others propose performing in-depth analysis on the evolution of incubators' value proposition in terms of the business and innovation they offer. These researchers argue that such studies are necessary to assess incubators' impact on the firms through the start-up process (Bruneel et al., 2012). The proposition to test incubators' impact on firm survival derives from literature being inconclusive:

Proposition 1. *Using an incubator does not ensure firm survival.*

2.2. Technology-based firms and survival

Although entrepreneurship policy seeks to foster business creation, policymakers place special emphasis on technology-based firm creation (Schwartz, 2013). Cockburn and Wagner (2007), and Buddelmeyer, Jensen, and Webster (2009) examine the impact of innovation on business survival. Such studies posit the existence of a positive relation between survival and degree of innovation. Specifically, for technology-based firms, some characteristics constitute a basic element of competitive advantage (Cockburn & Wagner, 2007; Nerkar & Shane, 2003). Technology-based firms are businesses with high growth and survival potential according to their innovative nature (Motohashi, 2005).

Proposition 2. *Technology-based firms have a better survival rate than non-technology-based businesses.*

2.3. The influence of firm size and sector on survival

This research focuses on whether the starting size of a firm's life cycle has any effect on subsequent survival (Agarwal & Audretsch, 2001). Larger start-ups are more likely to grow than firms that start small (Fritsch, Brixey, & Falck, 2006). These findings establish a minimum size below which firms will probably fail. In other words, starting firm size has a positive relation with survival (Audretsch, Houweling, & Thurik, 2000).

Proposition 3. *Firm survival increases in accordance with business size.*

Sector is an explanatory variable of survival likelihood (Dunne, Roberts, & Samuelson, 1989). Firms that begin their activity in growing sectors have themselves greater growth potential, and therefore better chances to survive. Some researchers (Mata, Portugal, & Guimaraes, 1995) argue that new firms find positioning themselves in the market and maintaining that position easier than new businesses in other sectors. The rate of survival relates to sector characteristics, an idea which the following proposition tests.

Proposition 4. *The survival of a firm depends on its sector.*

2.4. The influence of export activity on firm survival

Different papers investigate the link between firm survival and international trade activities (Namini, Facchini, & Lopez, 2013; Wagner, 2013). Substantial differences exist between firms that export and those that do not (Ali, 2010). In light of the pressures and complexities inherent to international competition (Pearce & Robbins, 2008), export firms tend to acquire particular characteristics (greater productivity and efficiency, higher innovation intensity, etc.) that increase their survival potential versus non-export firms (Helpman, 2006; Salomon & Shaver, 2005). Internationalization has a favorable impact on growth and firm survival (Olivares & Suárez, 2007; Sapienza, Autio, George, & Zahra, 2006).

Proposition 5. *Export activity influences firm survival.*

3. Data and method

3.1. Data

A 2009 survey of CEOs and managing directors provides the data. This survey yields a sample of 47 firms. These firms operate within the European Business and Innovation Centre of Elche (Alicante, Spain). All firms are less than a kilometer away from the incubator to ensure the support from the incubator. Of these 47 firms, 30 are still active in 2014, whereas 17 are no longer going concerns. Regarding incubators' services, 26 firms receive support from the incubator, and 21 do not. Finally, in terms of size, the sample comprises firms that are either micro or small (i.e., fewer than 10 and 50 employees respectively). No large or medium-sized enterprises feature in the sample because of the nature of most businesses in the region.

Data are adequate for this research for a number of reasons. Data originate from the autonomous Region of Valencia, located in southeast Spain. In recent years, the economic base of the region has broadened with the addition of new manufacturing activities (Belso Martínez, Molina-Morales, & Mas-Verdu, 2013a). The Region of Valencia therefore represents a suitable context in which to analyze the role of incubators. Some studies seek to demonstrate the importance of promoting business activities in the region (Belso Martínez, Molina-Morales, & Mas-Verdu, 2013b). In collaboration with the Valencian Institute for Small and Medium-sized Enterprise (IMPIVA), this study encouraged the creation of a directory containing firms' details. IMPIVA, a public body pertaining to the regional government, works to promote innovation among SMEs.

3.2. Method

Fields such as organizational change management or HRM employ the configurational comparative method to complete insufficient statistical analyses from prior studies (Fiss, 2007; Greckhamer, 2011; Hsu, Woodside, & Marshall, 2013; Woodside, 2013). Configurational analysis underlines the concept of equifinality, and addresses configurations as varying case types. It refers to scenarios where "a system can reach the same final state, from different initial conditions and by a variety of different [or multiple] paths" (Katz & Kahn, 1978, p. 30). Comparative qualitative analysis (QCA) draws upon the principles of comparison in the study of social phenomena. QCA assumes complex causality and nonlinear relationships. Broadly speaking, a qualitative focus permits the analysis of a small number of cases, whereby this analysis is both intensive and integrative (Ragin, 2008). This study uses a specific type of QCA, namely fsQCA.

QCA works by progressing through several steps. The first step is to construct a truth table. Stage two reduces the number of rows in the truth table. Ragin (2006) recommends a minimum consistency of 0.75. Establishing necessary conditions should highlight cases that lead to the outcome. Conversely, cases where the outcome is not present are irrelevant, and are thus absent when testing propositions. During the third stage of analysis, following a review of the truth table, an algorithm simplifies combinations and minimizes solutions. The researcher must then determine how to handle logical remainders, implementing one of three alternative techniques. Parsimonious solution involves all simplifying assumptions, regardless of whether they include easy or difficult counterfactuals. Intermediate solution involves simplifying assumptions by including easy counterfactuals. Complex solution includes neither easy nor difficult counterfactuals.

The notion of whether causal conditions belong to core or peripheral configurations relates to these parsimonious and intermediate solutions. Core conditions form a part of both parsimonious and intermediate solutions. Parsimonious solutions exclude peripheral conditions, which therefore only appear in the intermediate solution.

Outcome and conditions correspond to the description and codification in Table 1. The outcome (i.e., survival) is a dichotomous variable distinguishing active firms from those that no longer exist.

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