



## Self-employment and innovation. Exploring the determinants of innovative behavior in small businesses

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### ABSTRACT

This paper explores the determinants of innovation in small businesses from a survey of more than 700 self-employed workers in Andalusia (Spain). Self-employed people running businesses with and without employees were included in the study and two types of innovation – product and process innovation – were differentiated.

The theoretical framework adopted distinguishes between three levels of factors affecting the innovative activities of the self-employed: (1) the personal characteristics of the self-employed – such as their motivations and their educational and professional background. (2) The organization characteristics – such as the sector, the number of employees, the dependence on suppliers or clients and the management styles. (3) The characteristics of the external environment.

Education appears as a key factor whose impact on innovation comes through two main sources: its effect on self-employed motivations and its influence on the management style of small businesses. Also previous experience as an employee and the comparative level of income in the area where the business is located are shown to be influential factors explaining innovation. Though firm size favors innovation, it does not play a determining role. Furthermore, results show significant differences between the factors explaining product and process innovation. The determinants for innovation in small businesses also vary substantially across sectors.

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### 1. Introduction

In recent decades the self-employed component of the national labor-force has been gaining relevance in many developed economies and notable public efforts have been made to support entrepreneurship and innovation in small and medium-sized enterprises (SMEs). Nevertheless, relevant gaps in knowledge still exist regarding the factors boosting innovation in small businesses and, consequently, regarding the most effective strategy to efficiently support this type of firms in their attempts at innovation. The aim of this work is to shed some additional light on these key issues.

This paper studies the determinant of innovation in small businesses from the perspective of self-employment and doing so represents an unusual approach. The concept of ‘self-employment’ – despite the habitual use of this term – is rather elusive due to its mixed nature. On the one hand, it can be defined as the residual and heterogeneous category made up of paid employees not remunerated by a wage (Carrasco, 1999). On the other hand,

self-employed people can be seemed as entrepreneurs who start up and/or run self-owned businesses. However, not all the self-employed are necessarily entrepreneurs (Robinson and Sexton, 1994), given that in many cases they run businesses that they did not found and carry out a conservative and unadventurous management. It is also convenient to distinguish between the category of self-employed people and business owners. The difference lies in the fact that business owners are not necessarily involved in the day-to-day operations of their company, since they can opt for hiring a professional manager and have other sources of income, such as paid-employees in other companies. So, from this perspective, all the self-employed people – even in the case of mere professionals without employees – are conceptually business owners, whereas business owners do not necessarily have to be self-employed workers.

Moreover, the self-employed can run businesses with or without employees. In the first case, the resulting businesses are in the great majority small businesses, though there could be the case of medium or large companies owned and managed by self-employed people. In addition, not all the small businesses are necessarily led by self-employed people. On the contrary, small firms are in some cases part of large corporations or are headed by managers working as paid-employees.

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All these conceptual considerations are frequently neglected in research about SMEs and, specifically, about small businesses. This literature generally assumes the hypothesis that the SME's organization, management and performance are significantly influenced by the personal characteristics of the entrepreneur (in many cases not clearly defining what is exactly meant by entrepreneur). However, research in this field is very often based on surveys carried out among managers or business owners. This design of the empirical work could lead to some bias, in line with the considerations previously presented.

This paper exclusively focuses on small businesses driven by the self-employed, hence many of those problems can be avoided. Throughout this article, self-employment is considered to be the category made up of people who draw their income from self-owned small businesses (with or without employees) that they operate personally. Therefore, under this definition the self-employed assume a triple role in their businesses: they are workers, managers and business owners.

This conceptual delimitation is consistent with the empirical definition employed in the second part of the paper. Self-employed people will be identified then based on the Social Security Administration regulation. According to the Spanish Social Security regulation, a self-employed status is applicable to the "individuals who carry out, on a regular basis, personally, directly, by themselves and outside the scope of another person's management and organization, an economic or professional activity for profit, giving or not employment to other workers." (Spanish Institute of Social Security, 2007). In this respect, the paper explores the determinants of innovation in small businesses – differentiating between product and process innovation – from a survey of about 750 self-employed workers in Andalusia, a region in the south of Spain.

The paper is organized as follows. The second section reviews the literature about innovation in small businesses and presents the analytical framework adopted in this work to study the determinants of innovation activities by self-employed people. This theoretical framework gathers the main aspects influencing innovation activities in small businesses, distinguishing between three levels of factors: the personal characteristics of the self-employed people, the characteristics of their organizations and the characteristics of the external environment. The third section is devoted to the empirical analysis. The determinants of the innovative activities of the self-employed in the sample are investigated by means of estimating several logistic regressions. The last section puts forward the main conclusions and discusses some relevant policy implications.

## 2. Literature review and conceptual framework

A wide range of literature exists dealing with the factors which condition firm innovation and, in particular, innovation in small businesses. From these works it is possible to identify three levels of key factors influencing innovation in small businesses: the personal characteristics of the self-employed individual, the characteristics of the organization and, lastly, the characteristics of the external environment. As shown in Fig. 1, these three levels of factors are not independent, but interrelated dimensions. On the one hand, the personal characteristics of the self-employed have a direct and crucial influence on the small businesses' organization and management. On the other hand, the external environment influences the individual characteristics of the self-employed within an area and the organization and management of their businesses.

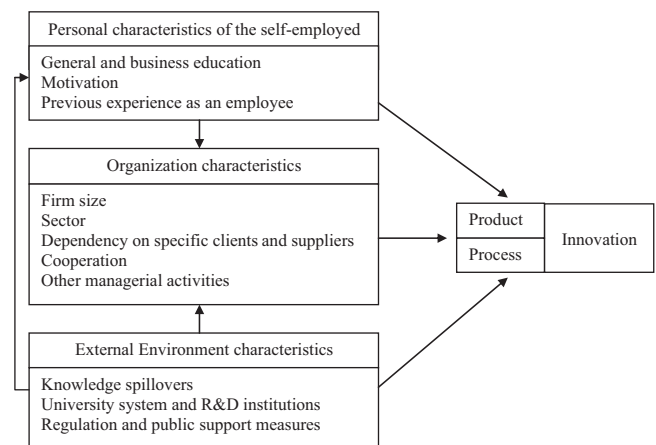


Fig. 1. Factors influencing innovation in SMEs.

### 2.1. Personal characteristics

The activity and characteristics of small businesses, especially in the stage of their creation and the early phases of their development, are directly linked to the characteristics of the entrepreneur. Therefore, when studying the SMEs' innovative behavior, it is essential to consider the repercussions of certain personal characteristics of the self-employed.

In this respect, education has been pointed out as a key aspect for the economic success of the self-employed (Robinson and Sexton, 1994; Kangasharju and Pekkala, 2002). Since knowledge is a fundamental factor in the innovation and assimilation of new technologies (Von Hippel, 1988; Hoffman et al., 1998), individual training plays an important role contributing to the internal learning and the generation of new ideas within the business (Damanpour, 1991; Nonaka and Takeuchi, 1995; Galende and De la Fuente, 2003). The educational background of the managers, business owners and entrepreneurs has been found to be an important factor explaining innovation in small businesses (Koellinger, 2008). Self-employed people with stronger educational backgrounds can carry out a more professional and efficient management and organization of their businesses and, in this way, can be more successful implementing innovations. However, not all the studies reach this conclusion. For instance, Keizer et al. (2002) did not find a significant effect of the managers' or business owners' education on innovation in a study of SMEs in the mechanical and electrical engineering sector in The Netherlands.

Previous experience is another conditioning factor in self-employment (Robinson and Sexton, 1994), which can significantly influence innovation in small businesses and start-ups. Innovation, as the result of a process of knowledge accumulation, benefits from previous experience in a particular field (Koellinger, 2008). A large part of the relevant knowledge for innovation is of a tacit and unspoken nature, and derives from experience (Arora and Gambardella, 1994). This non-codified and eminently practical knowledge (know-how) is especially important within the process of organizational learning (Dosi, 1988), the development phase of the innovation process (OECD, 2002), and the process of incremental innovation (Abernathy and Clark, 1985; Malerba and Orsenigo, 1995), particularly once the technology used is in a mature and standardized phase.

Furthermore, the motivation and personal attitude of the self-employed in carrying out their business activity has been considered as an influential factor on innovation and other energizing initiatives of SMEs. Innovation requires motivated individuals. Among the obstacles to a business' innovative behavior, the individual's aversion to new technologies and learning, their hostility to

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