

# Researching the entrepreneurial behaviour of new and existing ventures in European agriculture

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Document Version:  
Accepted author manuscript

Published in:  
Small Business Economics

DOI:  
<https://doi.org/10.1007/s11187-017-9837-y>

Citation for published version (APA):  
Pindado, E., & Sánchez, M. (2017). Researching the entrepreneurial behaviour of new and existing ventures in European agriculture. *Small Business Economics*, 49(2), 421-444.

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## **Researching the entrepreneurial behaviour of new and existing ventures in European agriculture.**

### **ABSTRACT**

This study analyzes differences existing between new and established agri-entrepreneurs as well as differences in relation to their counterparts in non-agricultural ventures. This study uses the resource-based view and institutional economics as conceptual frameworks and focuses on the analysis of the resources and capabilities, entrepreneurial orientation (risk-taking, proactiveness and innovativeness) and legitimation affecting the entrepreneurial process. The literature points out that the specific characteristics of the sector (strong family links and institutional support) can condition the entrepreneurship process. Thus, hypotheses are developed to test these relationships. We use random effects models to test our hypotheses with the Global Entrepreneurship Monitor (GEM) for 20 European countries. Results show that agri-entrepreneurs have weaker entrepreneurial capabilities than other sectors. However, new entrants into the agricultural sector are not less entrepreneurial in relation to other sectors. On the other hand, established agri-entrepreneurs are less proactive than other sectors. Results suggest that new entrants into agriculture are more entrepreneurially oriented than established ones. Our study contributes to the entrepreneurship literature by contextualizing the entrepreneurship process and providing valuable insights for policy-makers to enhance farmers' entrepreneurial skills and entrepreneurial orientation.

**Keywords:** agricultural entrepreneurship; family business; entrepreneurial orientation; resource-based view; GEM, legitimation.

**JEL:** M13 - Q18 - Q13 - L26

## **Researching the entrepreneurial behaviour of new and existing ventures in European agriculture.**

### **1. Introduction**

The agricultural sector in Europe has suffered economic and productive restructuring in recent years, primarily as a result of the liberalization of agricultural trade and the reforms in the Common Agricultural Policy (CAP) which have led to a more market-oriented agriculture (Giannakis and Bruggeman, 2015a; Lobley and Potter, 2004). These changes together with greater market volatility and expensive external inputs have increased competitive pressures on farmers (the so-called squeeze on agriculture), forcing them to increase their entrepreneurial orientation and entrepreneurial skills in order to remain competitive, or otherwise leave the sector (Knudson et al., 2004; Phillipson et al., 2004; Van der Ploeg and Roep, 2003; Vesala and Vesala, 2010). The impact of these pressures is reflected in the declining number of farms, the change in their average size and the increasing age of farmers in the EU over the last decade (European Commission, 2013). However, despite these structural changes and problems of generational renovation, the sector has survived and this survival is a result of the role that CAP policies have played as well as its entrepreneurship and entrepreneurial capacity (Alsos et al., 2011; Breustedt and Glauben, 2007).

The definition of agricultural entrepreneurship has been a subject of debate among scholars (Lans et al., 2013; McElwee, 2005, 2008; Vik and McElwee, 2011). Several authors have related the concept of agricultural entrepreneurship to the development of non-agricultural business by established farmers (Seuneke et al., 2013). Other authors have pointed out that agricultural activity also provides entrepreneurial opportunities such as development of new products (e.g. organic farming and functional foods) and innovations in business processes, distribution, and marketing (EIP-AGRI, 2016; Hulsink, 2005; Vik and McElwee, 2011).

Both views deal with the concept of entrepreneurship, which can be defined as a process through which individuals take advantage of positive market opportunities to create and expand new business firms (Gries and Naudé, 2011). This process includes at least two notions, an occupational one and a behavioural one, the former corresponding to “*owning and managing a business on one’s own account and risk*”, while the latter corresponds to “*entrepreneurial behaviour in the sense of seizing an economic opportunity*” (Sternberg and Wennekers, 2005).

In line with this, this study is focused on agricultural economic activity and sees the occupational view as an output of the behavioural one (Wennekers and Thurik, 1999). This allows us to analyse the entrepreneurial behaviour of those individuals who have decided to start a new agricultural firm (new agri-entrepreneurs) as well as the entrepreneurial behaviour of those who are active as owner-managers of agricultural businesses older than 42 months (established agri-entrepreneurs). This view is consistent with previous studies indicating that farmers can be characterized as entrepreneurs and profit-maximizing decision makers and, therefore their entrepreneurship can be analysed by methods used in non-agricultural sectors (Boussard, 1991; Carter and Rosa, 1998; McElwee, 2006; Phillipson et al., 2004).

Regarding the characteristics of these agricultural business owners, it is important to highlight that new entrants into agriculture are supported by the CAP policies designed to help young farmers set up their activities, since the CAP reform of 1992 (Zagata and Sutherland, 2015). On the other hand, the entrepreneurial behaviour of established agricultural ventures is encouraged

by European policies fostering diversification through the creation of non-agricultural businesses since the reform of structural funds in 1988 (Fuller, 1990; Morgan et al., 2010). These policies are related to rural development and a need for young people to settle in rural areas (Marsden and Sonnino, 2008). Thus, researchers and policy-makers believe that acquiring better knowledge of entrepreneurship in the agricultural sector could be a fundamental tool for contributing to the vitality and competitiveness of the sector and of rural areas (EIP-AGRI, 2016).

Additionally, the European agricultural sector is characterized by small-family enterprises where management and control are not separated; the need for independence and succession drive economic objectives and are inscribed within the powerful ideology of tradition which may determine their entrepreneurial behaviour (Alsos et al., 2014; Gasson and Errington, 1993; Jervell, 2011). Likewise, agri-entrepreneurship involves specific engagement with the rural-natural environment, which makes agri-entrepreneurs face particular challenges such as lower levels of human and financial capital, relatively small markets and weak communications, in addition to the universal liability of newness and smallness (Korsgaard et al., 2015). Consequently, the agricultural sector provides an interesting context to examine central issues in entrepreneurship research such as how rural and family embeddedness determine new venture creation and survival (Jervell, 2011; Korsgaard et al., 2015). Moreover, specific characteristics of this sector such as the inherent uncertainty of biological processes, structural change, a heavily regulatory environment, mature markets, and start-up subsidies make it an interesting sector to study the resource configuration of new entrants into the sector as well as the resource restructuring of established farmers in order to survive in turbulent environments (Alsos et al., 2011; Deakins et al., 2016; Grande et al., 2011).

Therefore, the objective of this paper is to describe agri-entrepreneurs (defined here as individuals owning and managing an agricultural business) within two lines of analysis. The first focus is on identifying the internal and external factors affecting entry into agricultural business and the characteristics of these business owners/managers once they are established in the activity, compared to non-agricultural ventures. The second line of analysis focuses on the differences across these agri-entrepreneurs from the moment they begin their activities until they manage to survive in the market. Our research uses the resource-based view (RBV) to address internal factors, the entrepreneurial orientation (EO) perspective to address strategic behaviour, and institutional economics (IE) to address external factors as theoretical frameworks. The data used is a sample of 47,111 active entrepreneurs in 20 EU countries obtained from the Global Entrepreneurship Monitor (GEM) for the years 2003-2010.

Our study contributes to the entrepreneurship literature in different ways. First, we highlight the importance of studying an industry-specific context to analyze the entrepreneurship process, and how it is strengthened or constrained by the entrepreneur's internal and external contexts. Thus, this study attempts to answer calls for the need to contextualize the entrepreneurial process to better understand new venture creation and survival (Autio et al., 2014; Welter, 2011). Furthermore, this study aims to assess how RBV and IE can inform the entrepreneurial process for micro-sized family firms within rural and heavily regulated environments. Furthermore, it contributes to the emerging agricultural entrepreneurship literature using an integrative framework adapted from the entrepreneurship literature. Our results contribute to the debate on how the latest institutional changes have increased the EO of European farmers. Finally, our findings can provide useful insights for policy-makers to develop policies aimed at encouraging agricultural entrepreneurship.

This article is organized as follows: It starts by examining the literature on agricultural entrepreneurship. The next section describes the theoretical framework and conceptual model for the current work. The Database and Methodology section details the variables employed and the econometric model used. The empirical results obtained are subsequently discussed. The final section draws conclusions and suggests future research.

## **2. Background and Theoretical Framework**

### **2.1 Agricultural Entrepreneurship**

Entrepreneurship is regarded as one of the main mechanisms of economic development through employment, innovation and welfare effects (Acs et al., 2008). Further, entrepreneurship is associated with adaption to changes in the economic system through the following mechanisms: the creation of new businesses, the refocusing of existing ones and the reorientation of national institutions (Reynolds et al., 2004). In this regard, the existing literature has already pointed out the influence of entrepreneurs' characteristics as well as the external context on "entry" behaviours (start-up and exploitation of entrepreneurial opportunities, and "post-entry" behaviours) and the goals and objectives of those behaviours (Autio et al., 2014). Consequently, understanding the influence of entrepreneurs' internal and external contexts on entrepreneurial processes has become a core issue for entrepreneurship research (Stenholm et al., 2013; Welter, 2011). Thus, bearing in mind the importance of contextualizing the entrepreneurial process, we will attempt to summarize some relevant features of agricultural entrepreneurship.

A review of the existing literature reveals that the agricultural sector has been somewhat overlooked in general entrepreneurship research (Alsos et al., 2011). However, as previously pointed out here, the latest CAP reforms have promoted a more market-oriented agriculture and farmers have to enhance their entrepreneurial behaviour (Van der Ploeg and Roep, 2003; Vesala and Vesala, 2010). Nonetheless, the agricultural sector has specific environmental and economic features that cannot be ignored as they distinguish its entrepreneurship from that of other economic activities.

Agricultural activity is dependent of land as a production factor, and consequently this activity has more impact on the environment than other sectors (Britz et al., 2012). Likewise, agriculture is based on biological processes with high spatial and temporal variability (Trnka et al., 2011). As a result of that, unexpected changes in weather conditions cause high variability in producer and consumer prices and decrease their economic welfare, making it necessary to implement hedging policies to mitigate this effect (Apergis and Rezitis, 2003). Moreover, the function of agriculture is not only the production of food, it has also shaped landscapes, preserved biodiversity and created a cultural heritage over centuries (Daugstad et al., 2006). Thus, the recognition of the multiple crucial functions of agriculture has translated into a high level of policy involvement (Darnhofer et al., 2015; Potter and Tilzey, 2005). In this regard, European agricultural policies have changed since their implementation in 1962, shifting from a policy focused on commodity production to one more focused on environmental and social sustainability (Darnhofer et al., 2015). These different policies have led European agriculture to be characterized by a fragmented structure in which small-scale farms –generally supported by the public goods that they offer– coexist with export oriented large farms encouraged by past policies such as price support, border tariffs and export subsidies (Bailey et al., 2016, Potter and Tilzey, 2005; Shucksmith and Rønningen, 2011). Furthermore, there is a wide heterogeneity in farms across countries and regions due to differences in natural and infrastructural location factors as well as different management models (Britz et al., 2012).

Regarding the entrepreneurial behaviour of this sector, one of the characteristics of agri-entrepreneurship is family embeddedness: the identification of new business opportunities and the development of new ventures are “inextricably linked” to family roles and relationships (Aldrich and Cliff, 2003). Consequently, part of the literature has been devoted to family succession. Indeed, succession represents a critical point in agricultural firms when new entrants decide to adopt new approaches (e.g. organic production or new production processes), or, conversely, they decide to abandon this economic activity (Sutherland et al., 2012). The success of these new entrants is directly related to farm profitability, and the literature has shown that non-economic values influence this succession (Calus et al., 2008; Inwood et al., 2013; Inwood and Sharp, 2012). These new entrants or successors perceive themselves as entrepreneurs and are more entrepreneurship-oriented than their predecessors given that they have experienced multifunctional agricultural policies as opposed to productivist policies (Vesala and Vesala, 2010; Zagata and Sutherland, 2015). Nevertheless, a successor can also choose to continue the existing farming business without making any changes, especially if they have been trained by their predecessors and this production style satisfies their economic and social aspirations (Perks and Medway, 2012; Sutherland et al., 2012).

However, it is important to stress that entering into business is not necessarily synonymous with family succession (Blanc and Perrier-Cornet, 1993). The literature proposes that a series of factors influence entry into agriculture. In general, studies have found that the factors that contribute to starting an entrepreneurial activity are profit expectation, risk-related aspects, human and social capital, and psychological and demographic characteristics (Santarelli and Vivarelli, 2007). The characteristics and perceptions of agri-entrepreneurs are distinct due to the context in which their activities take place. There are differences between rural and urban entrepreneurship as a result of different access to resources, local culture, proximity to markets and types of customers and services (Korsgaard et al., 2015). Moreover, new entrants into agriculture can pursue specific values such as a farm lifestyle or sustainable agriculture (EIP-AGRI, 2016). Even so, the motivations to start a new agricultural venture can be to maximize returns and exploit an opportunity (Alsos et al., 2003). Finally, the institutional framework and macroeconomic environment can determine individual motivations and preference for entrepreneurial activity (Stuetzer et al., 2014). In this regard, agriculture in the EU is supported through the CAP, which assists farming financially in return for its social and environmental utility and fosters agri-entrepreneurship through various measures such as support for the initial costs of setting up a business (Zagata and Sutherland, 2015).

Much of the literature has focused on diversification and corporate entrepreneurship aimed at generating more income, motivated by fluctuations in market prices and the desire to take advantage of new opportunities (Alsos et al., 2003; Barbieri and Mahoney, 2009; Grande, 2011; Hansson et al., 2013). For established agri-ventures, starting new ventures can be relatively easy as a result of the physical assets i.e. machinery, land and facilities available to them, which can also improve the profitability of these new ventures when they carry out farming activity. However, when the new ventures have no connection with farming activity, lack of entrepreneurial resources (i.e. knowledge of marketing, distribution and sales) can hinder the success of this diversification (Alsos and Carter, 2006). Consequently, part of the literature has been concerned with the entrepreneurial skills necessary to start these new activities (De Wolf et al., 2007; Morgan et al., 2010; Seuneke et al., 2013). In this regard, previous research shows that established agri-entrepreneurs may not have enough entrepreneurial skills, network capabilities or market knowledge to support the new venture creation and development (Alsos and Carter,

2006; McElwee, 2008). This fact is related to the characteristics of the rural workforce, which has lower levels of skill and education (North and Smallbone, 2006).

Nevertheless, they are likely to learn and integrate external knowledge and resources (Grande, 2011). Previous studies highlight the importance of the learning process underlying the development of these skills, especially the need to develop an entrepreneurial identity in farmers to operate beyond the agricultural domain, and the need to open-up family farms through external labour and social networks (Seuneke et al., 2013).

Therefore, in the light of the evidence above, this study recognizes that the industry context determines previous resources and the “entry” behaviour of new agri-entrepreneurs as well as the “post-entry” behaviour of established agri-entrepreneurs in order to respond to the changing environment and survive into the market. In this sense, understanding how agri-entrepreneurs respond to the latest industry and institutional shift from production-oriented to market-oriented agriculture can provide considerable insights into entrepreneurial processes in agricultural firms, and on the extent to which they differ from other business.

## **2.2 Theoretical framework**

Entrepreneurship is a process which takes place and has effects at different social levels simultaneously. It is the individual who takes the initiative to engage in entrepreneurship and this takes place within an organizational and external context (Cuervo et al., 2007). Furthermore, one of the differences across entrepreneurs is the fact that not all of them succeed and continue over time (Aldrich and Martinez, 2001). Hence, the entrepreneurial process is selective and encounters different challenges and barriers depending on the stage it goes through (Brixy et al., 2012). Each stage of the entrepreneurial process is characterized by different challenges, opportunities, resources and needs, and organizational approaches (Robichaud et al., 2007).

Therefore, research into the entrepreneurial process needs to analyze its different stages and levels in order to contextualize it and integrate existing frameworks and theories (Welter, 2011; Zahra et al., 2014). In recent years research on the entrepreneurial process has increased based on the resource-based view (RBV) and institutional economics (IE) combined in the analysis of the internal and external factors which influence entrepreneurial activity (Urbano and Turro, 2013).

The RBV defines a business as a bundle of resources and capabilities. These tangible and intangible assets which are valuable, rare and unique, together with an appropriate firm's organization (VRIO framework) are a source of sustainable competitive advantage and of the success or survival of entrepreneurial activity (Barney et al., 2001; Wiklund and Shepherd, 2003). Organizational and strategic processes allow for the restructuration and manipulation of resources into value-added strategies (Eisenhardt and Martin, 2000). Indeed, organizational orientations have been identified as key drivers of competitive advantage as these orientations are deeply integrated within firms and are difficult for competitors to emulate (Zhou et al., 2008). In terms of the different orientations which firms can adopt, Entrepreneurial Orientation (EO) has emerged as a core concept of entrepreneurship research and refers to firms' efforts to discover and exploit new opportunities (Wiklund and Shepherd, 2005). Lumpkin and Dess (1996) defined the Entrepreneurial Orientation as “*the processes, practices, and decision-making activities that lead to new entry*”. Despite the variety of ways to measure the EO, research consensus backs the view that EO comprises risk-taking, proactiveness and innovativeness (Wiklund and Shepherd, 2005). Furthermore, this EO can be seen as a proxy of entrepreneurial quality and, hence, as an important element for firm growth and success (Davidsson, 1991). The literature on the study of

entrepreneurship has used RBV to understand the process of starting a business and the EO of those entrepreneurs (Cassia and Minola, 2012; Urbano et al., 2013). Likewise, researchers have proposed integrative frameworks encompassing the RBV and the EO perspective to explain firm success and the growth of new ventures (Grande et. al, 2011; Wiklund et al., 2009).

However, despite the fact that RBV has been widely used to address internal factors, the literature highlights the importance of context on the form and patterns of entrepreneurial processes within a specific nation (Stenholm et al., 2013). Therefore, Institutional Theory (North, 1990), creates a more robust conceptual framework for understanding the effects of the environment on entrepreneurship. It allows for differentiating formal factors (political, legal and economic and contractual rules) from informal ones (norms of behaviour and conduct in daily relations). From the point of view of entrepreneurship, institutions represent the set of rules that articulate and organize the economy and have consequences for new venture creation and success (Bruton et al., 2010).

Therefore, based on the aforementioned theoretical frameworks (RBV and IE), this study analyzes the resources and capabilities and entrepreneurship (risk-taking, proactiveness and innovativeness) of new and established agricultural entrepreneurs in relation to other sectors (see Figure 1) and the effects of institutions on them. Furthermore, we analyze differences across agricultural entrepreneurs. The rationale for the inclusion of each explanatory variable in the model will now be laid out.

\* Insert Figure 1 over here

### ***2.2.1 Resource-Based View and Entrepreneurial Orientation***

#### **Entrepreneurial skills as capabilities**

Confidence in entrepreneurial skills is related to entrepreneurial behaviour and hence to the decision to start a new business (Arenius and Minniti, 2005). Furthermore, the literature claims that individuals who possess the skills necessary for the management and setting up of a company have a greater chance of success (Terjesen and Szerb, 2008). As pointed out above, the literature on agricultural ventures highlights the diverse profiles and entrepreneurship skills within the farming sector (Deakins et al., 2016; McElwee, 2006). On the one hand, farmers may lack the necessary entrepreneurship skills as a result of a marked strategic orientation to compete in terms of cost, which is in turn a result of previous production-oriented policies and the heavy regulation of this sector (McElwee and Bosworth, 2010; Pyysiäinen et al., 2006; Seuneke et al., 2013). On the other hand, other studies reflect that agri-entrepreneurs actually do possess entrepreneurial skills, especially those involved in diversification activities (Morgan et al., 2010; Vesala et al., 2007). Furthermore, family farms can have a positive effect on entrepreneurial skills as a farm's resources can be used in innovative activities motivated by pull factors like the need of economic freedom (McElwee, 2008). Thus, we propose the following hypotheses:

Hypothesis 1a: Agri-entrepreneurs (new entrants and established) are likely to have less entrepreneurial skills than other sectors.

Hypothesis 1b: New agri-entrepreneurs are likely to have greater entrepreneurial skills than established agri-entrepreneurs.

#### **Personal networks as capabilities**



Personal networks are informal or formal means used by entrepreneurs to access resources, information and social support for the creation, survival and growth of a new company (Baron and Markman, 2003; Liao and Welsch, 2005). The rural context can restrict entrepreneurs' access to established networks due to strict social norms and the necessity to adhere to strong local values (Jack and Anderson, 2002). In particular, new entrants into agriculture may find it difficult to integrate themselves in traditional agricultural knowledge systems and established supply channels (EIP-AGRI, 2016). However, the family business literature has emphasized how these established businesses amass social capital based on long-term social relationships as a result of their long-time horizons (Le Breton-Miller et al., 2015). Therefore, the hypotheses to be tested are the following:

Hypothesis 2a: Agri-entrepreneurs (new entrants and established) are more likely to have less social capital (personal networks) than other sectors.

Hypothesis 2b: New agri-entrepreneurs are more likely to have less social capital (personal networks) than established agri-entrepreneurs.

### **Proactiveness as a sub-dimension of entrepreneurial orientation**

Proactiveness reflects an entrepreneur's ability to discover and exploit market opportunities (Stevenson and Jarillo, 1990). This proactive behaviour is related to obtaining competitive advantages and firms' success in turbulent environments as it involves adopting a position of a continuing search of business opportunities and getting ahead of environment changes (Wang, 2008). However, a regulated industry context can result in a less proactive attitude given that farmers are less exposed to market changes and less used to handling changes in business concept when compared to other sectors (Green et al., 2008). Nevertheless, although farms operate within a heavily regulated environment, the latest institutional changes encourage the development of new ventures both for new entrants and established agricultural firms (Grande et al., 2011). Still, the literature points out that previous productivist policies still carry weight and established farmers remain less productive (Vesala and Vesala, 2010). The foregoing arguments lead to the following hypotheses:

Hypothesis 3a: Agri-entrepreneurs (new entrants and established) are more likely to be less proactive than other sectors.

Hypothesis 3b: New agri-entrepreneurs are more likely to be more proactive than established agri-entrepreneurs.

### **Entrepreneurial Risk as a sub-dimension of entrepreneurial orientation**

Risk-taking is defined as entrepreneurs' willingness to make risky resource commitments to achieve specific objectives (Miller, 1983). Entrepreneurs have been described as "risk takers" and fear of failure has a negative influence on the decision to start a business (Arenius and Minniti, 2005). However, firms operate in complex and unpredictable contexts and thus it is necessary to explore, assess and manage risks in order to reduce potential losses (Brustbauer, 2014). In this regard, studies examining risk-taking and business success show a curvilinear relationship; it enhances performance at the early stages of entrepreneurship and damages it in subsequent phases (Tang et al., 2008). The literature also shows how the specific industry context determines this relationship; risk assumption can be a key factor to survive in dynamic environments where

customers' preferences and technology change rapidly, whereas in static environments firms may benefit from more conservative, risk-averse strategies (Rauch et al., 2009; Wiklund and Shepherd, 2005). Furthermore, agri-entrepreneurs face considerable uncertainty due to unstable agricultural markets and unpredictable weather conditions which directly affect their incomes and, therefore they have been described as "risk-averse" (Chavas and Holt, 1996). Likewise, agri-entrepreneurs' family roots can turn them more risk-averse than other type of entrepreneurs as a consequence of their change resistance and their fear of losing their family wealth (Naldi et al., 2007). We suggest the following hypotheses to sum up the foregoing arguments:

Hypothesis 4a: Agri-entrepreneurs (new entrants and established) are more likely to be more risk-averse than other sectors.

Hypothesis 4b: New agri-entrepreneurs are likely to be more prone to taking risks than established agri-entrepreneurs.

### **Innovativeness as a sub-dimension of entrepreneurial orientation**

Innovativeness refers to an entrepreneur's propensity to develop new ideas, find new market opportunities and engage in creative processes that generate product, market, or technological innovations (Lumpkin and Dess, 1996). As is widely recognized, the ability to innovate increases the growth prospects of a company and its chances of survival (Audretsch, 1991; Terjesen and Szerb, 2008), this increase being more likely in new and small businesses (Cefis and Marsili, 2006). As we have noted before, industry characteristics determine the propensity of entrepreneurs to engage in innovative activities (Covin and Slevin, 1989; Wiklund and Shepherd, 2005). In this sense, within the agricultural sector, a heavily regulated environment can discourage innovation based entrepreneurial efforts (Grande et al., 2011). Likewise, subsidy policies can lead to misreading the level of innovativeness of new entrants (Shane, 2009). Furthermore, the family embeddedness of agri-entrepreneurship can affect innovativeness, although the literature is not conclusive in this regard (Le Breton-Miller et al., 2015). Some studies have shown that family firms are less innovative than their counterparts (Bock, 2012), while other studies point out that the family can foster intergenerational innovative entrepreneurship (Discua Cruz et al., 2013). Accordingly, we propose the following hypotheses:

Hypothesis 5a: Agri-entrepreneurs (new entrants and established) are more likely to be less innovative than other sectors.

Hypothesis 5b: New agri-entrepreneurs are likely to be more prone to innovate than established agri-entrepreneurs.

### **2.2.2 Institutional economics**

#### **Perception of social legitimacy**

Socio-political and cognitive legitimacy corresponds to the regulations, standards, and expectations created by governments and organizations, an acknowledgment that the new company is a good citizen, and norms and values of a society (Zimmerman and Zeitz, 2002). Indeed, the survival capacity of enterprises depends on their ability to establish cognitive and socio-political legitimacy (Bruton et al., 2010; Zimmerman and Zeitz, 2002). The latest CAP reforms have attempted to legitimize the idea of entrepreneurship amongst farmers, but, as previous studies have shown, most farmers still see their activity as product-oriented and are far from considering themselves entrepreneurs. Hence, they lack the identity that would legitimate

entrepreneurial activity (Burton and Wilson, 2006). However, it is also true that there is an emerging entrepreneurial identity amongst farmers (Vesala et al., 2007; Vesala and Vesala, 2010). Thus, the hypotheses to be tested are the following:

Hypothesis 6a: Agri-entrepreneurs (new entrants and established) are likely to perceive less entrepreneurial legitimacy than other sectors.

Hypothesis 6b: New agri-entrepreneurs are likely to perceive higher entrepreneurial legitimacy than established agri-entrepreneurs.

### **3. Database and Methodology**

This study uses the database created by the Global Entrepreneurship Monitor (GEM), which is a relevant source of information for studying entrepreneurial behaviour and activity at the international level (Álvarez et al., 2014). To test our hypotheses, we employ a subsample of the GEM adult population surveys from 2003 to 2010, which contains data on the entrepreneurial attitudes, activity and aspirations of 47,111 individuals in 20 European countries from the total GEM sample<sup>1</sup>. GEM data are based on interviews conducted with adults (18-64 years old) from representative samples of at least 2,000 individuals per country.

The main objective of these surveys is to create a representative sample of population in each country and to identify the percentage of individuals who own and manage a business or are in the process of starting one. If either or both of these conditions are met, respondents are asked follow-up questions that allow for the creation of a profile of these individuals and their business (Koellinger et al., 2007). Follow-up questions are related to the age of their business and whether the venture has paid salaries or wages in the last 42 months. The responses to these questions are used to identify the people involved in entrepreneurial activity within each country, and classify them as follows (see Reynolds, 2005): (a) new (or early-stage) entrepreneurs are those who are owner-managers of new business less than 42 months old; and (b) established entrepreneurs, those who are currently an owner-manager of an established business and have paid salaries or wages for more than 42 months.

Therefore, GEM adopts the occupational view of entrepreneurship (Sternberg and Wennekers, 2005). However, it captures specific variables that allow for the analysis of the entrepreneurial behaviour of new and established business owners (Bosma and Schutjens, 2011; Koellinger et al., 2007; Muñoz-Bullón et al., 2015). Furthermore, GEM classifies entrepreneurs by industry according to the International Standard Industry Classification (ISIC), which allows for the identification of those entrepreneurs who own an agricultural business. From the total sample, we have identified a subsample of 800 new (early-stage) agri-entrepreneurs and 2,045 established agri-entrepreneurs.

#### **Description of variables**

*Dependent variables.* “New agri-entrepreneur” is a binary variable indicating whether individuals are currently owning-managing a young agricultural business less than 42 months old. “Established agri-entrepreneur” is a binary variable indicating whether individuals have survived

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<sup>1</sup> Belgium, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, The Netherlands, Portugal, Spain, Sweden, United Kingdom, Croatia, Slovenia, Greece, Austria, Latvia, Czech Republic and Romania.

more than 42 months in the market owning-managing an agricultural business. For more details on the variables used, see Table 1.

*Independent variables.* As noted previously, this study integrates two levels of analysis (internal and external), and pays special attention to the entrepreneurial orientation of agri-entrepreneurs. Therefore, to test our hypotheses related to an entrepreneur's capabilities we use entrepreneurial skills and the entrepreneur's networking capability. We use the individual's self-assessed entrepreneurial skills as an indicator of the level of their entrepreneurial skills (Gist, 1987; Urbano et al., 2013). These variables have been used to explain entry into entrepreneurship and the success of these ventures (Arenius and Minniti, 2005; Brixy et al., 2012; Estrin et al., 2013). To test our hypotheses related to the EO, we use a series of variables which capture three different components of EO and can explain more than the aggregate index within a specific context (Miller, 2011). Then, regarding entrepreneurs' proactiveness, we use opportunity scanning and export behaviour, which reflect their proactive attitude towards searching for opportunities inside and outside their environment (Muñoz-Bullón et al., 2015). Next, we use perceived fear of failure to measure entrepreneurial risk-willingness (Arenius and Minniti, 2005). We use product and process innovations to test entrepreneurs' innovativeness (Muñoz-Bullón et al., 2015). In order to test the effect of the institutional context, we use legitimacy of the entrepreneurial activity (Liñán et al., 2011).

*Individual control variables.* Previous research suggests that socio-demographic factors influence the decision to start entrepreneurial activity and the survival of the new venture (Arenius and Minniti, 2005; Davidsson and Honig, 2003). Thus, we have included control variables for age, gender, household income, education and previous entrepreneurial experience. Age is negatively related to the probability of becoming an entrepreneur, and it is expected to be positively related to survival (Brixy and Hessels, 2010). In general, authors believe that women continue to be disadvantaged in terms of starting entrepreneurial activity. However, the analysis of firm success shows that activities run by women have no greater probability of failure (Kalleberg and Leicht, 1991). In terms of household income, low income levels enhance the probability of becoming an entrepreneur and high levels reduce financial barriers and increase the probability of becoming an entrepreneur (Arenius and Minniti, 2005). Individuals with higher education are better able to perceive opportunities for profitable business and also have greater ability to successfully exploit it (Hormiga et al., 2011). Likewise, knowledge acquired in previous entrepreneurial experience enhances the probability of becoming an entrepreneur and furthermore allows entrepreneurs to avoid costly mistakes, thus giving them an advantage and the opportunity to better exploit business opportunities (Davidsson and Honig, 2003; McKelvie and Wiklund, 2010).

*Country control variables.* In part of the literature the recent economic crisis is negatively correlated with the decision to start an entrepreneurial activity (Nabi and Liñán, 2013). However, the agricultural sector is seen as acting as a support network in times of economic difficulty (European Commission, 2013). Therefore, this study will analyze potential effects of the crisis and so has taken the year 2008 as a benchmark (Peris-Ortiz et al., 2014).

\*Insert Table 1 over here

### **Econometric Model**

Since our dataset has a nested structure (individuals are nested within years, which in turn are nested within countries), observations within each group are often more similar (correlated) than observations between groups (Faraway, 2004). Thus, analyses that assume independence of

observations may lead to biased results due to an underestimation of standard errors given their non-normal distribution (Hofmann et al., 2000).

Therefore, we apply random effects logit models to address the issue of the unobserved heterogeneity of our pooled cross-sectional dataset (Rabe-Hesketh et al., 2005). Specifically, we use random intercept logit models with random intercept terms for country and country-year, which represents the extent to which the outcome varies between each group due to specific country context and specific country-year characteristics.

A three-step testing strategy was used. First, a precondition for running a random intercept model is that there is significant variance across groups for the dependent variable (Bliese, 2000). Hence, we performed an LR test (likelihood ratio approach) for each dependent variable with a significant effect being found with country and country-year effects. Second, we performed regression analyses to study the resources, capabilities, entrepreneurial orientation and legitimation affecting new agricultural entrants and established agri-business owners as compared to non-agricultural ones. Third, we selected only the subsample of agricultural ventures (both new entrants and established) and performed the regression analysis with the intention of analysing the differences among them. The correlation matrix can be found in the Appendix (Table A1). The correlations between the explanatory variables do not show high values, thus initially ruling out multicollinearity problems. A multicollinearity test (VIF) was carried out and the results rule out any problems in this regard in the database.

#### **4. Results**

We used R software to develop a Random Intercept Models to analyze agricultural entrepreneurs and the differences between them (Table 2). A series of variables related to resources and capabilities, EO, and institutions were used as fixed effects. Intercepts for the country and country-year were used as random effects to take account of differences in samples collected in different countries across different years (Estrin et al., 2013).

In Table 2, Model 1 analyzes the differences between new agri-entrepreneurs and their counterparts (non-agricultural new ventures) and Model 2 presents the differences between agri-entrepreneurs and their counterparts for the established stage. Finally, Model 3 shows the results for the agri-entrepreneurs in the sample. The models are statistically significant and the pseudo  $R^2$  shows that the models have an acceptable fit.

The econometric model used allows for an analysis of the heterogeneity of the entrepreneurial process across different countries and years, which is a result of the cultural, institutional and economic environment in each case (Bergmann and Stephan, 2013). To reflect this heterogeneity across countries, Figure 2 shows the differences between countries in terms of probability of becoming a new agri-entrepreneur compared to non-agricultural new ventures with 95% confidence intervals. There is no consistent pattern across countries, which shows the complex and multidimensional nature of the entrepreneurial process (Gartner, 1985).

\* Insert Figure 2 over here

The intra-class correlation (ICC) indicated that 6.7% of the total variance in the agri-entrepreneurship in the early stage (with respect to non-agricultural new ventures) can be attributed to countries' characteristics, and 6.1% to specific country-year conditions. The ICC values for established agricultural ventures (with respect to non-agricultural established ones)

indicate that 15.9% and 4.8% of the total variance can be attributed to country and country-year conditions respectively. Finally, the ICC values for the subset of agricultural entrepreneurs indicate that specific country attributes account for the 13.2% of the explained variance, whereas specific country-year conditions account for the 3.7%. These values are close to the normal range (5–20%) indicated by Bliese (2000) for grouped data of this nature. These findings seem to suggest that European countries were relatively similar at the early stage of agri-entrepreneurship with respect to non-agricultural entrepreneurs, whereas there were more differences across countries in terms of established entrepreneurs.

\* Insert Table 2 over here

According to Model 1, estimations show that seeing oneself as having the entrepreneurial skills necessary to start a business has a significant and negative effect on agricultural entry, which supports H1a. These results support previous research and show that new agri-entrepreneurs lack the necessary skills to start entrepreneurial activity when compared to other sectors as a consequence of previous strong productivist policies (McElwee and Bosworth, 2010; Pyysiäinen et al., 2006; Seuneke et al., 2013). Regarding social capabilities (knowing other entrepreneurs), they have a negative effect, thus providing support for H2a. Agricultural entrepreneurs do not seem to create networks at their initial stage as do entrepreneurs in other sectors. This result is in line with other studies which have shown that new entrants have difficulties in establishing relationships with other economic actors (EIP-AGRI, 2016).

With regard to the variables measuring the EO of these agri-entrepreneurs in the early stage, we find that they do not show a significant decrease in EO in relation to other sectors. Specifically, the two variables measuring the proactivity of individuals who start agricultural activity, – opportunity scanning and export behaviour– are not significant, therefore H3a, which proposes that agri-entrepreneurs are less proactive when compared to other sectors, is not supported. This result is not consistent with previous studies which indicate that agri-entrepreneurs keep themselves apart from the market as a consequence of it being heavily regulated and of initial subsidies (Green et al., 2008). Hypothesis H4a proposed that agri-entrepreneurs are more risk-averse than other sectors. This hypothesis is not supported in Model 1 as the variable capturing agri-entrepreneurs' risk-taking behaviour is not significant in this early stage. This contrasts with other studies which have defined these new agricultural entrepreneurs as risk-averse (Ferguson and Olofsson, 2011).

Regarding the innovativeness of new agri-entrepreneurs, we found conflicting results. Product innovativeness has a negative and significant effect, thus H5a is partially supported. On the other hand, adoption of the latest technology is not significant, so the results do not support the view that new agri-entrepreneurs have less innovation capabilities in process innovation than other sectors. These results probably indicate the weight of former production-oriented policies, which favour the adoption of technological innovation to compete in costs (McElwee and Bosworth, 2010). Finally, the legitimacy perceived by agri-entrepreneurs (H6a) is not significant at the initial stage of the entrepreneurial process.

Model 2 analyses established agri-entrepreneurs in relation to non-agricultural established entrepreneurs. Model 2 presents the same characteristics as those found for the new agri-entrepreneurs: poor entrepreneurial skills and social capabilities, and thus supports H1a and H2a. This reflects the “lower” entrepreneurial capabilities of agricultural business owners (Alsos and Carter, 2006; McElwee, 2008; Pyysiäinen et al., 2006). To better understand these characteristics

Figure 3 and 4, respectively, show the marginal effects of these entrepreneurial capabilities on the probability of becoming a new or established agri-entrepreneur as compared to non-agricultural ones and with 95% confidence intervals. Both figures indicate that likelihood of becoming an agricultural entrepreneur decreases for those individuals who have these entrepreneurial capabilities. We can observe how this effect is even greater in established entrepreneurs, especially in the case of entrepreneurial skills, whose marginal effect falls from 13.2% for individuals who reported low entrepreneurial skills to 8% for individuals with higher entrepreneurial skills.

\* Insert Figure 3 over here

\* Insert Figure 4 over here

Furthermore, established agri-entrepreneurs seem to be less EO than other sectors. Regarding proactiveness, opportunity scanning has a significant and negative effect, which partially supports H3a, whereas results were non-significant for export proactiveness. Despite the well-known multiple activities of this sector and the necessity to increase income through non-farming activities, established agri-entrepreneurs do not seem to be proactive in searching business opportunities in the area where they live. Regarding risk-taking behaviour, it is not significant and the directionality, as hypothesised, is positive. However, H4a is not supported. Therefore, we cannot confirm that agricultural entrepreneurs at the established stage are more risk-averse than those in other sectors (Chavas and Holt, 1996; Naldi et al., 2007). In terms of the innovativeness of established agri-entrepreneurs compared to non-agricultural ones, we find that at the early stage product innovativeness has a negative and significant effect, which partially supports H5a. These findings reinforce the effect of previous productivist policies, which encouraged scale economies and cost-competition through process innovation (McElwee and Bosworth, 2010). Institutional factors play a different role in established agri-entrepreneurs. In particular, the social legitimacy of entrepreneurship is positively related to being an established agri-entrepreneur, which leads to the rejecting of the hypothesis that agri-entrepreneurs have less legitimacy in terms of entrepreneurial activity (H6). This result contrasts with previous studies showing farmers' low legitimacy as entrepreneurs (Burton and Wilson, 2006).

The results presented in the Model 3 –differences across agri-entrepreneurs – shows that self-confidence in entrepreneurial skills is not significant. Thus, we did not find evidence to support the hypothesis that new entrants into agriculture have greater entrepreneurial skills than established ones (H1b). This result is consistent with studies revealing the heterogeneity of entrepreneurial skills across farmers, even as the latest CAP reforms and market liberalization are expected to develop new entrant farmers' entrepreneurial skills (Deakins et al., 2016; Morgan et al., 2010; Vesala and Vesala, 2010). Personal networks have a non-significant impact on being an established agri-entrepreneur. Therefore, we cannot conclude that new entrepreneurs have less social capital than established ones (H2b). This result contrasts with the literature that emphasizes how the strong values of rural communities may hinder the establishment of social ties for new agro-entrepreneurs (EIP-AGRI, 2016; Jack and Anderson, 2002). Regarding the EO variables, the results show that new entrepreneurs have greater proactiveness and innovativeness than established ones. H3b proposed that new agri-entrepreneurs are more proactive than established ones. In this regard, opportunity scanning and export proactiveness have a negative and significant effect on established agri-entrepreneurs, which gives support to H3b. These findings are consistent with the fact that new entrants in agriculture tend to be more likely to identify business opportunities (EIP-AGRI, 2016). Likewise, despite the fact that –a priori– established agri-

entrepreneurs would be more export oriented as a consequence of past policies encouraging large-scale farming and export subsidies, new entrants exhibit greater export proactiveness, which reflects their propensity to be involved in value-added farming (Bailey et al., 2016; Sutherland et al., 2015). By contrast, H4b (new agri-entrepreneurs are more risk-taking) is not supported as the variable measuring entrepreneurs' risk-taking behaviour is not significant.

In terms of product innovativeness, it is statistically significant and negatively related to the established stages of the process. This partially supports H5b. This result suggests that despite the fact that agri-entrepreneurs have less product innovativeness than other sectors, new entrants into agriculture have greater product innovativeness than established agri-entrepreneurs. On the other hand, there are no significant differences in process innovation capabilities. As to the legitimacy of entrepreneurial activity, H6b, which proposes that new entrants have greater entrepreneurial legitimacy than established agri-entrepreneurs, is not supported. This result contrasts with the idea that new entrants into agriculture have been influenced by the new policies and thus have assumed their role as entrepreneurs (Vesala and Vesala, 2010; Zagata and Sutherland, 2015).

Finally, in terms of age, gender and household income i.e. the control variables which capture socio-demographic factors, they were all significant in Model 1 and Model 2. Age is positively related to agricultural entrepreneurship and this result highlights the "*young farmer problem*" in European agriculture (Zagata and Sutherland, 2015). Figure 5 shows the marginal effect of age on likelihood of becoming a new agri-entrepreneur reflecting the fact that individuals aged above the mean are more likely to start agricultural ventures, and that this probability increases with age. Male gender is positively related to the probability of becoming an agri-entrepreneur, which shows how women continue to have difficulties in taking over entrepreneurial activity (Arenius and Minniti, 2005). The results show a negative relationship between household income and the probability of becoming an agri-entrepreneur. Furthermore, the results show that the quality of human capital (education and previous entrepreneurial experience) has a negative effect on the decision to become an agricultural entrepreneur, indicating that individuals with greater knowledge, which means more human capital, prefer to start businesses in other sectors with higher profits (Hormiga et al., 2011). The low income obtained by farmers has been one of the main reasons for pluriactivity in the sector (Barbieri and Mahoney, 2009). Thus we would expect individuals who start agricultural activity to have other sources of income and higher entrepreneurial experiences as a resource, but this previous entrepreneurial experience has a negative effect on agri-entrepreneurship compared to other sectors.

\* Insert Figure 5 over here

Regarding the environmental control variables, the economic crisis has a positive but not significant effect on being a new agri-entrepreneur. Thus, we do not find support for the assumption that high rates of unemployment in other sectors push entrants into the agricultural sector (European Commission, 2013). Nonetheless, the environmental control in an economic crisis has a positive and significant effect on established agri-entrepreneurs (Model 2), which supports the view that agricultural entrepreneurship has shown greater business and employment resilience than other sectors in the crisis. This result confirms and expands previous national studies that have shown that agricultural employment is more resistant during recessionary shocks (Giannakis and Bruggeman, 2015b). On the other hand, results from the subsample of agricultural entrepreneurs suggest that new entrants have faced barriers to market entry.

## 5. Conclusions



The latest CAP reforms and reorientation towards more market-oriented agriculture have highlighted the role of farmers as entrepreneurs (Vesala and Vesala, 2010). The agricultural entrepreneurship literature offers a number of important insights which may be too specific (case or country specific) for a general study of the agricultural entrepreneurial process showing different results about the entrepreneurial orientation and skills of these farmers. Therefore, in order to find out whether or not there is a tendency towards a more entrepreneurial agriculture, this study aimed to analyze the resources and capabilities, entrepreneurial orientation, as well as the institutional factors which influence the starting of a new venture in the agricultural sector and how these factors influence agri-entrepreneurs once they are established, compared with non-agricultural entrepreneurs. We also analyzed the differences between new and established agri-entrepreneurs in order to study their entrepreneurial behaviour as they attempt survive in the market. We used GEM data for 20 European countries, which allowed us to analyse agricultural entrepreneurs (defined as owner-managers of agricultural businesses that they established) from an international perspective and capture the heterogeneity of the process between countries with common agricultural institutions.

The results show that new agri-entrepreneurs are characterized by fewer resources and capabilities than other entrepreneurs. Specifically, they have lower entrepreneurial skills and lower social capabilities than other economic activities. However, new agri-entrepreneurs did not seem to have less entrepreneurial orientation than other sectors, though they do show less product innovativeness than other sectors, as a consequence of the previous product oriented policies which have encouraged process innovativeness to improve productivity through cost-cutting. Established agri-entrepreneurs show the same weakness at the early-stage; poor entrepreneurial skills and social capabilities. Furthermore, they have less entrepreneurial orientation than non-agricultural established entrepreneurs, which reveals the strong influence of previous product-oriented policies. In this regard, they seem to be less proactive than other sectors. The strong family embeddedness of agricultural holdings and industry characteristics (mature markets and subsidies) may determine this conservative behaviour. On the other hand, this sector shows a greater legitimation of the entrepreneurial activity. By contrast, when we examine the differences across agri-entrepreneurs, the results show that new entrants have greater proactiveness and product innovativeness, which suggests that new entrants tend to be more entrepreneurship-oriented. This seems to suggest that the liberalization of the sector encourages entrepreneurship among new farmers.

Another interesting result of this study is that it offers empirical evidence on the fact that agricultural entrepreneurship has shown greater employment resilience than other sectors in the recent economic crisis. However, this recession has negatively affected the entry into agricultural activity. Finally, the analysis points out the homogeneity of new agri-entrepreneurs across Europe when they start the activity.

The contributions of this study are both theoretical and practical. First, the study contributes to the agricultural entrepreneurship literature in a number of ways. It advances the application of general entrepreneurship research in the analysis of agriculture studying the capabilities and entrepreneurial behaviour of these entrepreneurs. Furthermore, this work contributes to the improvement of knowledge about agricultural entrepreneurship using an international perspective. From a practical point of view, public policies should deal with the lack of entrepreneurial capabilities in agri-entrepreneurship and work on the greater entrepreneurial social legitimacy perceived. Since entrepreneurial capabilities can be learned through education and training (Kuratko, 2005), there is a need, first of all, to better understand how farmers acquire

these capabilities in order to design or improve specific educational and training programs for new entrants and established agricultural business owners addressing their own characteristics and the specificities of the sector (Seuneke et al., 2013). Furthermore, and in view of the fact that the main political instrument to promote an entrepreneurial culture (which includes entrepreneurship education) among rural European areas are the Rural Development Programs<sup>2</sup> (CAP Pillar II), there is a need to evaluate the effectiveness of their measures in supporting teaching and learning entrepreneurial capabilities among farmers (North and Smallbone, 2006). These measures should complement the direction established by CAP Pillar I policies (e.g. lower market support) towards a more entrepreneurial agriculture. The specific measures to support new entrants<sup>3</sup> (i.e. direct payment scheme for young farmers from Pillar I, and business start-up aid for young farmers from Pillar II) do not seem to have decreased their entrepreneurial orientation despite the negative effects associated with this kind of subsidies (Shane, 2009). Therefore, public policies should continue to support new entrants given their capacity to boost the agricultural sector. Overall, agricultural policies need to provide farmers not only with resources to cope with the liberalization of the sector and its specific disadvantages, but also with ways to acquire the necessary tools (capabilities) to become competent agri-entrepreneurs and contribute to the development and continuity of European agriculture.

This research has some limitations that could provide indications for future lines of research. It will be necessary to produce complex databases that permit the collecting of internal and external variables of the same entrepreneur over time. The GEM data allows us to capture the entrepreneurial process from an international perspective, but future research will have to include different national regions, different agricultural productions, and more family level variables. A more in-depth study of agri-entrepreneurs' resources and capabilities with more accurate proxy variables is also needed. As previously described, the strong regulatory environment of the sector affects the skills and strategies of economic actors. Therefore future research should take into account indicators of start-up subsidies, among other support measures.

### **Acknowledgments.**

The authors are grateful to the anonymous reviewers for their valuable comments. The authors also acknowledge the financial support from Project AGL2012-39793-C03-01 and AGL2015-65897-C3-1 (Spanish Ministry of Economy and Competitiveness); co-financed by FEDER.

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<sup>2</sup> See Articles 14 and 15 of Regulation (EU) No 1305/2013 of 17 December 2013.

<sup>3</sup> See Articles 50 and 51 of Regulation (EU) No 1307/2013 of 17 December 2013, and Article 19 of Regulation (EU) No 1305/2013 of 17 December 2013.

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**Table 1. Definition and descriptive statics of the variables.**

Variable	Description	Values	Entrepreneurial Process			
			Early Stg. (All Sectors)		Established Stg. (All Sectors)	
			Mean	S.D.	Mean	S.D.
<b>Independent variables</b>						
<i>Resource-Based view</i>						
Entrepreneurial Skills	Variable indicating whether the respondent believes he or she “Has the knowledge, skills and experience required to start a business.”	1. Yes 0. No	0.883	0.322	0.865	0.341
Personal Networks	Variable indicating whether the respondent knows someone who has started a business in the last two years.	1. Yes 0. No	0.615	0.487	0.505	0.500
<i>Entrepreneurial Orientation</i>						
Proactiveness: Opportunity scanning	Variable indicating whether the respondent believes, “In the next six months there will be good opportunities for starting a business in the area in which I live.”	1. Yes 0. No	0.448	0.497	0.315	0.464
Proactiveness: Export behaviour	Variable indicating whether the respondent believes that over 25% of his/her customers will be from abroad.	1. Yes 0. No	0.457	0.498	0.030	0.171
Entrepreneurial Risk	Variable indicating whether the respondent believes that fear of failure prevents him/her from starting a new business.	1. Yes 0. No	0.255	0.436	0.281	0.449
Product Innovativeness	Variable indicating whether the respondent believes that his/her clients (some or all) believe his/her product to be new.	1. Yes 0. No	0.436	0.496	0.296	0.457
Process Innovativeness	Variable indicating whether the respondent believes that the technologies used to obtain his/her products became available in the last 12 months.	1. Yes 0. No	0.090	0.286	0.058	0.235
<i>Institutional Economics</i>						
Legitimation	Variable indicating whether the respondent believes that in his/her country most people believe that entrepreneurship is a good career option.	1. Yes 0. No	0.550	0.497	0.548	0.498
<i>Control Variables</i>						
Age	Age of respondents measured in years		31.851	13.212	36.802	12.785
Gender	Gender of respondents	0. Female 1. Male	0.621	0.485	0.648	0.478
Household income	Household income	1. Lowest 33% 2. Middle 33% 3. Upper 33%	2.202	0.784	2.312	0.767
Education	Variable indicating whether individual has Graduate experience	1. Yes 0. No	0.224	0.417	0.181	0.385
Entrepreneurial Experience	Variable indicating whether individual has experienced a business failure in the last 12 months.	1. Yes 0. No	0.056	0.231	0.035	0.183
Crisis	Variable indicating whether the survey falls within the crisis period starting in 2008	1. Yes 0. No	0.455	0.498	0.540	0.498
<i>Dependent Variables</i>						
Early Stage Agro-entrepreneur	Variable equal to 1 if individual is at an early stage of agricultural activity (belonging to group A, agriculture, forestry and fishing according to ISIC. Rev. 4) and 0 if the entrepreneurial activity is different to agriculture.	1. Yes 0. No	0.051	0.219		
Established Agro-entrepreneur	Variable equal to 1 if individual is at an established business owner stage of agricultural activity (belonging to group A, agriculture, forestry and fishing according to ISIC. Rev. 4) and 0 if the entrepreneurial activity is different to agriculture.	1. Yes 0. No			0.110	0.312
Number observations used in estimations			16180		18654	

Source: GEM 2003-2010; statistics are based on observations used in random intercept models.

**Table 2. Random Intercept Models for agricultural entrepreneurs.**

	Model 1			Model 2			Model 3		
	Estimate	(S.E.)	<i>p</i>	Estimate	(S.E.)	<i>p</i>	Estimate	(S.E.)	<i>p</i>
<i>Fixed Parts</i>									
(Intercept)	-1.861	(0.201)	<0.001 ***	-1.237	(0.223)	<0.001 ***	1.142	(0.266)	<0.001 ***
<i>Resource-Based View</i>									
<i>Capabilities</i>									
Entrepreneurial Skills	-0.295	(0.104)	0.004 ***	-0.566	(0.063)	<0.001 ***	-0.154	(0.138)	0.264
Personal Networks	-0.315	(0.077)	<0.001 ***	-0.192	(0.052)	<0.001 ***	-0.098	(0.108)	0.361
<i>Entrepreneurial Orientation</i>									
Proactiveness: Opportunity scanning	-0.110	(0.078)	0.162	-0.112	(0.058)	0.055 *	-0.263	(0.115)	0.022 **
Proactiveness: Export Behaviour	-0.082	(0.078)	0.291	0.145	(0.177)	0.414	-3.348	(0.186)	<0.001 ***
Entrepreneurial Risk: Fear to Failure	0.074	(0.083)	0.374	0.069	(0.055)	0.215	-0.082	(0.115)	0.477
Product Innovativeness	-0.618	(0.081)	<0.001 ***	-0.700	(0.065)	<0.001 ***	-0.225	(0.127)	0.076 *
Process Innovativeness	-0.138	(0.141)	0.328	-0.156	(0.118)	0.189	0.001	(0.233)	0.998
<i>Institutional Theory</i>									
Legitimation	-0.060	(0.075)	0.421	0.092	(0.051)	0.069 *	0.064	(0.105)	0.542
<i>Control at individual level</i>									
Age	0.332	(0.049)	<0.001 ***	0.228	(0.036)	<0.001 ***	0.503	(0.074)	<0.001 ***
Gender (Male)	0.279	(0.078)	<0.001 ***	0.120	(0.052)	0.022 **	0.051	(0.110)	0.644
<i>Household income</i>									
Middle 33 percentile	-0.364	(0.091)	<0.001 ***	-0.240	(0.065)	<0.001 ***	0.161	(0.126)	0.200
Upper 33 percentile	-0.729	(0.096)	<0.001 ***	-0.704	(0.066)	<0.001 ***	0.418	(0.135)	0.002 ***
Education	-0.363	(0.103)	<0.001 ***	-0.737	(0.087)	<0.001 ***	-0.345	(0.161)	0.033 **
Entrepreneurial experience	-0.688	(0.214)	<0.001 ***	-0.331	(0.159)	0.037 **	0.317	(0.333)	0.340
<i>Control Environment</i>									
Crisis	0.233	(0.154)	0.132	0.257	(0.134)	0.055 *	0.544	(0.175)	0.002 ***
<i>Random Parts</i>									
$N_{\text{ysurv:country}}$	88			88			87		
$N_{\text{country}}$	20			20			20		
$ICC_{\text{ysurv:country}}$	0.061			0.048			0.037		
$ICC_{\text{country}}$	0.067			0.159			0.132		
Observations	16,180			18,654			2,845		
-2 Log-Likelihood	6,061.302			11,580.411			2,505.760		
Pseudo R <sup>2</sup>	0.2128			0.2676			0.4055		

Note:

Level of significance: '\*\*\*' 1% '\*\*' 5% '\*' 10%.

Continuous variables are standardised.

1. R-squared values according to Nakagawa and Schielzeth (2013).

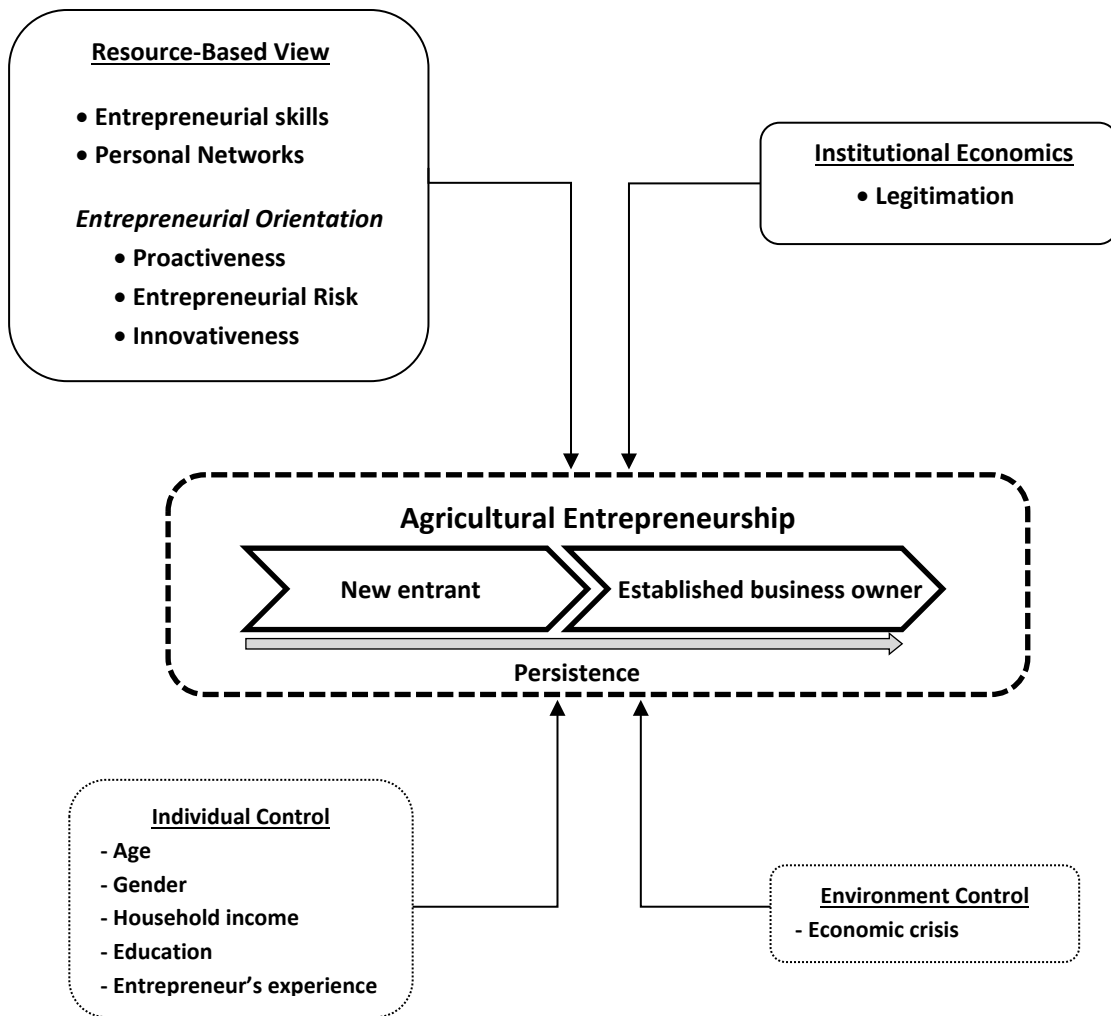
APPENDIX

**Table A1. Correlation matrix.**

V1. Early Stage Agro-entrepreneur	V1	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Entrepreneurial Skills	-0.034***													
2. Personal Networks	-0.047***	0.092***												
3. Proactiveness: Opportunity scanning	-0.031***	0.090***	0.149***											
4. Proactiveness: Export Behaviour	-0.024**	0.021**	0.088***	0.058***										
5. Entrepreneurial Risk: Fear to Failure	0.022**	-0.139***	-0.035***	-0.094***	-0.019*									
6. Product Innovativeness	-0.064***	0.023**	0.060***	0.063***	0.119***	-0.010								
7. Process Innovativeness	-0.010	-0.017*	0.041***	0.036***	0.060***	-0.009	0.076***							
8. Legitimation	-0.005	0.012	0.020*	0.066***	0.006	0.034***	-0.013	0.025**						
9. Age	0.052***	0.031***	-0.087***	-0.010	-0.031***	-0.015	-0.007	-0.042***	-0.051***					
10. Gender	0.018*	0.053***	0.073***	0.036***	0.040***	-0.062***	-0.019*	0.011	0.015	-0.016*				
11. Household income	-0.071***	0.074***	0.085***	0.035***	0.046***	-0.069***	-0.022**	-0.018*	-0.019*	-0.018*	0.089***			
12. Education	-0.034***	0.024**	0.068***	0.054***	0.042***	-0.016*	0.083***	0.000	-0.047***	0.022**	-0.027***	0.081***		
13. Entrepreneurial experience	-0.027***	0.022**	0.041***	0.023**	0.059***	-0.001	0.018*	0.026***	0.001	0.006	0.053***	0.016*	-0.003	
14. Crisis	0.012	-0.016*	-0.027***	-0.091***	-0.014	0.026**	-0.001	0.012	-0.006	-0.345***	0.015	0.106***	-0.153***	0.021**
V2. Established Agro-entrepreneur	V2	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Entrepreneurial Skills	-0.096***													
2. Personal Networks	-0.052***	0.114***												
3. Proactiveness: Opportunity scanning	-0.030***	0.083***	0.178***											
4. Proactiveness: Export Behaviour	-0.022**	0.038***	0.080***	0.072***										
5. Entrepreneurial Risk: Fear to Failure	0.030***	-0.144***	-0.074***	-0.113***	-0.018*									
6. Product Innovativeness	-0.098***	0.042***	0.079***	0.058***	0.162***	-0.027***								
7. Process Innovativeness	-0.011	0.002	0.034***	0.009	0.069***	0.012	0.087***							
8. Legitimation	0.007	0.019**	0.015*	0.057***	-0.010	0.019**	0.020**	0.018*						
9. Age	0.068***	-0.007	-0.078***	0.023**	-0.036***	-0.049***	-0.060***	-0.040***	-0.019*					
10. Gender	0.008	0.090***	0.074***	0.047***	0.014	-0.052***	0.003	0.003	-0.001	0.018*				
11. Household income	-0.105***	0.088***	0.082***	0.053***	0.015*	-0.089***	-0.001	-0.008	-0.030***	-0.023**	0.079***			
12. Education	-0.086***	0.050***	0.090***	0.085***	0.050***	-0.051***	0.094***	0.005	-0.041***	-0.004	-0.012	0.118***		
13. Entrepreneurial experience	-0.022**	0.022**	0.061***	0.038***	0.083***	0.011	0.047***	0.016*	-0.008	-0.031***	0.037***	0.004	0.018*	
14. Crisis	0.036***	-0.035***	-0.042***	-0.155***	-0.027***	0.095***	-0.023**	0.015*	-0.023**	-0.263***	0.011	0.072***	-0.183***	0.010

Source: GEM 2003-2010. Continuous variables are standardised. The correlation matrix is based on observations used in estimation.

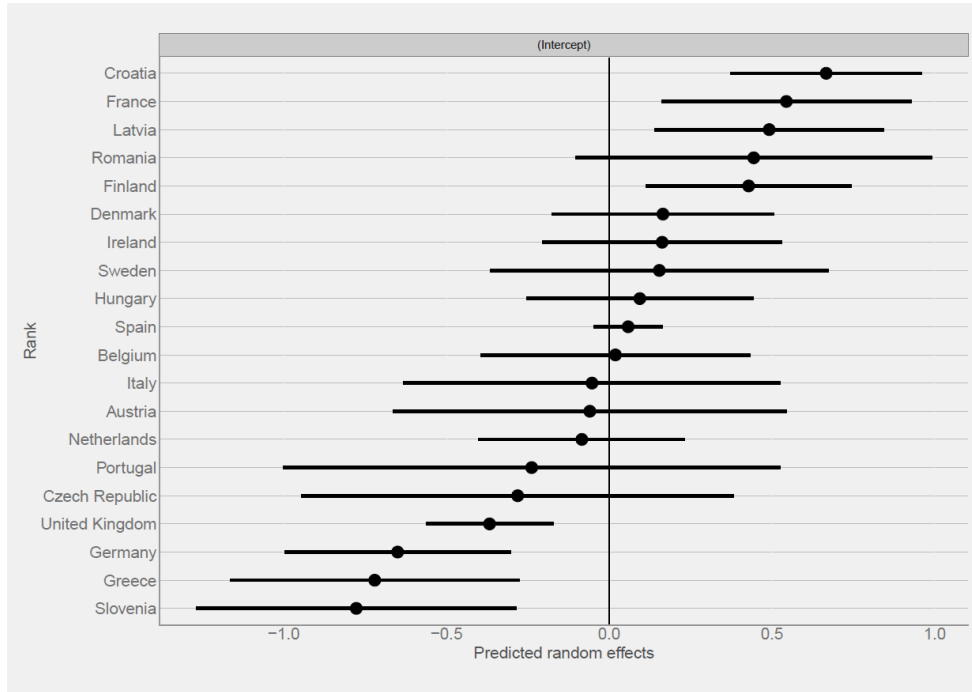
Figure 1. Research model.



Source: Authors.

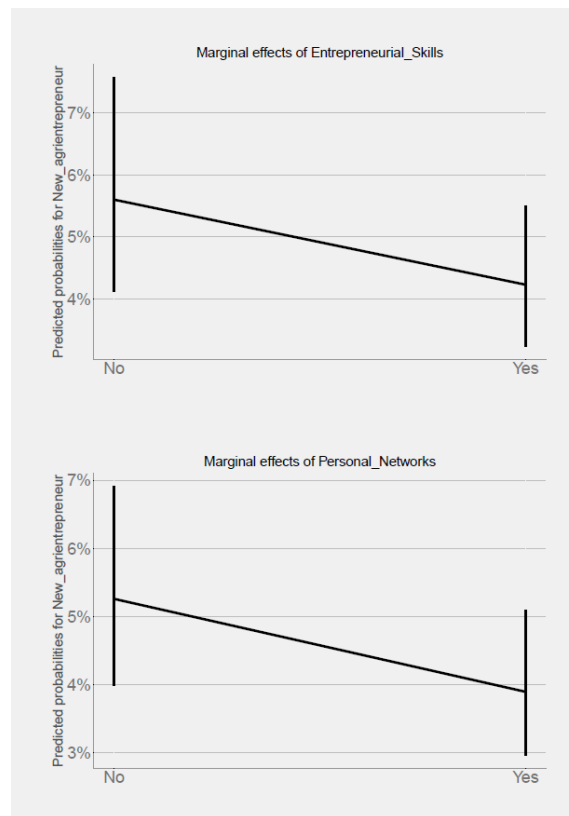


Figure 2. Country effects for new agri-entrepreneurs (compared to non-agricultural new entrepreneurs).



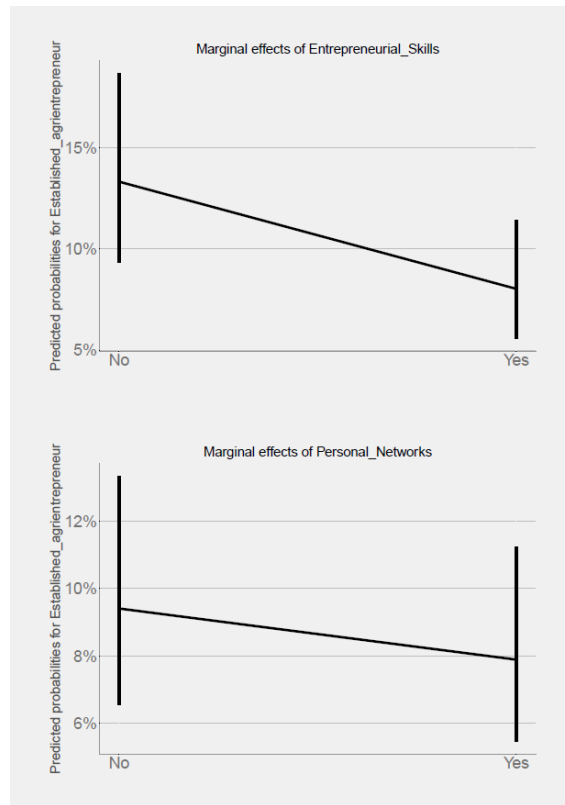
Source: Country effects (residuals) ranked, estimated from a random-intercept model that includes only country effects. GEM database 2003-2010.

**Figure 3. Marginal effects of entrepreneurial capabilities on new agri-entrepreneurs.**



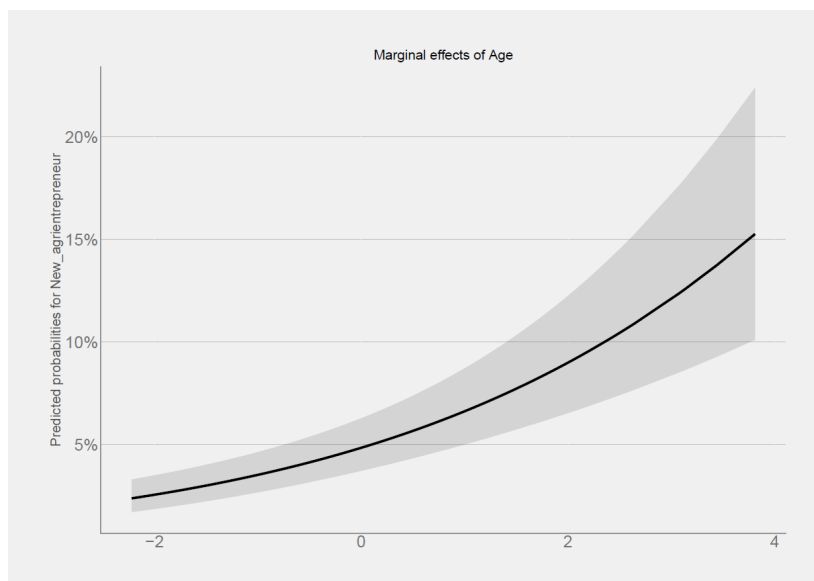
Source: The figure is based on Model 1 in Table 2, and presents the values of for entrepreneurial skills and personal networks variables, indicating the change in the average expected probability that the new entrepreneur is within the agricultural sector.

**Figure 4. Marginal effects of entrepreneurial capabilities on established agri-entrepreneurs.**



Source: The figure is based on Model 2 in Table 2, and presents the values of for entrepreneurial skills and personal networks variables, indicating the change in the average expected probability that the established entrepreneur is within the agricultural sector.

**Figure 5. Marginal effect of age on new agri-entrepreneurs.**



Source: The figure is based on Model 1 in Table 2, and presents the values of for the variable age (standardized), indicating the change in the average expected probability that the new entrepreneur is within the agricultural sector.