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Regional differences in the influence of Role-Models: Comparing the Entrepreneurial Process of Rural Catalonia

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Abstract

The paper examines the impact of entrepreneurial Role-Models upon the entrepreneurial process in rural areas with strong entrepreneurial history versus those that are not necessarily characterised by such a tradition. To attain this objective, we adopt a socio-cultural institutional approach to entrepreneurship. We carry out a Rare Events logit model using a robust Spanish dataset from 2003. The main contribution of the study indicates that the difference between entrepreneurial activity levels in rural Spain is in large part explained by the presence of entrepreneurial Role-Models favouring entrepreneurial activity in rural Catalonia, an area with strong entrepreneurial tradition.

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1. Problem Statement

Contrary to the configurations found in the rest of Spain and in most of Europe (REGIDOR, 2000; TÖDTLING and WANZENBÖCK, 2003; WAGNER and STERNBERG 2004), many parts of rural Catalonia benefit from better economic performance than do urban areas of Catalonia. The average per capita income in many parts of rural Catalonia is higher than that found in its main urban areas[1]. More importantly for the purpose of this study, in Catalonia, entrepreneurial activity levels in rural areas more than triple those found in urban areas. Entrepreneurial activity in rural Catalonia is also significantly greater than levels found in rural areas of the rest of Spain[2].

The findings in rural Catalonia support the links identified in the entrepreneurship literature between entrepreneurial activity and economic growth (STOREY, 1994; WENNEKERS and THURIK, 1999). Catalonia's rural counties experiencing greatest entrepreneurial activity benefit from highest disposable family incomes per capita, and they also show the most dynamic economies[3].

Entrepreneurship is no longer an abstract concept. It has now become a common objective that has entered the agendas of most policy makers of all administrative echelons, up to the most remote rural localities. There is increasing demand and interest in placing 'Entrepreneurship' (new business formation) as a key element within the development and revitalisation process of lagging European areas. This preoccupation has made its way to the public departments responsible for rural development (ROSELL et al., 2001). The entrepreneurial spirit, enterprise creation, and modernisation and expansion of existing businesses have become key topics within rural development

policy, which has changed from a sector specific to a territorial approach (BRYDEN and HART, 2004). This has mostly developed from an endogenous shift in perspectives towards rural development resulting from the realisation that important relocalisation of businesses and industry towards rural areas could hardly be achieved (BECATTINI et al., 2002). Employment and entrepreneurial development in rural areas must fundamentally come as a result of the initiatives of the local inhabitants (ROSELL and VILADOMIU, 2001).

Emphasis on entrepreneurship as a possible tool for rural development efforts is the result of a recent transformation in the nature, content, and administration of rural policies in many EU and OECD countries in what has been called the New Rural Paradigm (OECD, 2006). This transition has largely been triggered by the realisation that agriculture, which was previously the main focus of rural policy, is loosing its relative economic and social significance. Rural areas are now believed to have an '*increasingly important environmental and recreational function to fulfil'* (EUROPEAN COMMISSION, 1997b: 8). More specifically, the measures addressing new business formation assistance in rural areas are found in the European Commission document (1997b) and implemented under the article 33 of the Council Regulation (EC) No 1257/1999 of May 17, 1999, on support for rural development from the European Agricultural Guidance and Guarantee Fund.

The diversification of the productive base of rural areas has therefore become one of the best-established objectives of rural development policy in Europe (EUROPEAN COMMISSION, 1997a). Through diversification, it is primarily aimed to maximise local natural, cultural, and human resource utilisation with rural population outflow

prevention through employment and income generation being a subsequent objective. As a consequence, special attention is placed on the determinant factors in the creation and development of alternative activities to agriculture, together with the maintenance, modernisation, and growth of these alternative activities (FRANCES, 2002). It is in this environment that the role of the entrepreneur gains a particular relevance, since the farmer is called upon to become an entrepreneur by widening the farm's activities (on and off the farm): "from the agrarian farm to the rural enterprise" (EUROPEAN COMMISSION, 1997b: 8).

But just as the European Union is finally beginning to pay more attention to rural development beyond simple agricultural support, and just as the opinion is beginning to install itself that business creation and development may be the best strategy for rural development, new reports from different international sources are now questioning the benefits of entrepreneurship support for the economic development of rural areas. The 2002 Global Entrepreneurship Monitor (GEM) report for the USA (NECK et al. 2003) concluded that entrepreneurship was mainly an urban phenomenon, where the highest entrepreneurial density is to be found. The authors of the report concluded that 'entrepreneurship in rural areas may not be the best mechanism for economic growth' (NECK et al. 2003: 31). In a scenario where politicians and policy makers need to see quick and positive results to public investments, such doubt, coupled with the generally slow, gradual, and often intangible benefits of entrepreneurship support policy, may just be enough to break the momentum that rural entrepreneurship support had gathered.

Classical and contemporary economic thinking has consistently portrayed urban agglomerations as the preferred setting for conducting business. It has been argued that

urban centres offer greater division of labour (SMITH, 1776), larger ('pooled') labour market supply (MARSHALL, 1920), greater provision of non-traded inputs (MARSHALL, 1920), easier and cheaper access to markets (HOOVER, 1948), greater availability of complimentary services (MYDRAL, 1957), better infrastructures (JACOBS, 1969), and greater volumes of demand (KRUGMAN, 1981, 1991). However, improvements in transport infrastructure, communication, and information technologies have brought about an important reduction in the physical and psychic distance separating rural and urban areas. Although much of the formal institutional and infrastructural disadvantages in Europe have been alleviated, most rural areas have not experienced the appropriate and consequent convergence towards the entrepreneurial activity levels found in urban areas. Evidence is beginning to mount which would indicate that many rural areas are 'entrepreneurial laggards' not just because of their physical disadvantages, but also because of the inappropriate socio-cultural traits of their informal institutional framework making them non-conducive for effective entrepreneurial activity (FORNAHL, 2003).

A recent study (OECD 2003) of the influence of entrepreneurship over local economic development conducted by Alister Nolan for the OECD involving 30 countries concluded that stimulating entrepreneurship can provide an alternative to paying unemployment insurance in rural areas, but that the direct employment and growth effects in these areas are modest and often favour specific segments of the population. According to the study, there are many obstacles that hinder entrepreneurship in rural areas, influencing both the extent and form of entrepreneurial activity and its prospects for survival. The study concludes that informal institutional factors, such-as the lack of positive entrepreneurial examples (Role-Models) and limited networks are some of the

most important barriers that restrain rural entrepreneurship (OECD 2003). In the absence of entrepreneurial Role-Models, economic agents are not as propelled to take the different decisions needed to become an entrepreneur.

This view, however, which would tend to dilute the impact of entrepreneurship in rural areas, does not appear to be consistent with the experience of rural Catalonia.

Would it then be that, contrary to the conclusions of the OECD mentioned above, rural Catalonia benefits from an institutional framework which includes entrepreneurial Role-Models that other laggard regions lack? Could it be that entrepreneurial Role-Models affect entrepreneurial activity in rural Catalonia in ways that differ from other rural areas? Can Role-Models be behind the exceptional entrepreneurial performance of rural Catalonia?

Thus, the main objective of this research is to follow-up on the determination and comparison of the levels of entrepreneurial activity in rural Catalonia versus that of rural areas for the rest of Spain. We want to determine whether entrepreneurial Role-Models have the same impact, across regions, upon the different stages of the entrepreneurial process. Consequently, we aim to evaluate the specific influence that entrepreneurial Role-Models are having upon the superior entrepreneurial activity levels found in rural Catalonia.

The main contribution of the study indicates that there is a significant difference between entrepreneurial activity levels in rural Catalonia, an area characterised by a strong industrial tradition. We report that the distinctions in the case of rural Catalonia

are mainly due to the presence of informal institutional factors, emphasising the impact of positive entrepreneurial examples (Role-Model effect) upon entrepreneurial decision process.

The paper is organised as follows. Section 2 presents the theoretical framework and the literature review. Data and research methodology are introduced in section 3. A discussion of the results is offered in section 4 and; final conclusions are displayed in section 5.

2. Theoretical Framework and Literature Review

2.1 Institutional approach to entrepreneurship research

A growing number of academics are demonstrating that a theoretical framework based on a socio-cultural and institutional approach may be more appropriate for the study of entrepreneurship and SMEs than conventional economic and psychological approaches (GRANOVETTOR, 1985; NORTH, 1990; GNYAWALI and FOGEL, 1994; MAILLAT, 1996; URBANO and VECIANA, 2001; UHLANER and THURIK 2004). The main hard-core common to the theories falling under this approach is the basic belief that the decision to create a new enterprise, and therefore to become an entrepreneur, is conditioned by external or environmental factors. In other words, the institutional framework and its socio-cultural factors are important determinants of the levels of entrepreneurial activity in a specific time and place.

Examples of theories that adopt a socio-cultural or institutional approach have been compiled and described in VECIANA (1999). In the mentioned article, the theories under this and the other main approaches used for the study of entrepreneurship are

described in much greater length. We will therefore not venture into this task within this paper.

Of the theories within the socio-cultural or institutional approach, the Institutional Economic Theory, developed mainly by DOUGLASS NORTH (1990), is one of the most general, which encloses most of the specificities of the other theories falling under the same approach. Together with the theoretical amplitude that the institutional economic theory offers, the historical perspective and institutional embeddedness argument which it offers are especially ideal for the objective laid out for this study, and was therefore used as the theoretical backbone guiding our research.

Institutional economic theory develops a very wide concept of 'institution'. NORTH (1990: 3) proposes that 'institutions are the rules of the game in a society, or more formally, institutions are the constraints that shape human interaction'. Institutions can be either formal - such as political rules, economic rules and contracts - or informal - such as codes of conduct, attitudes, values, norms of behaviour, and conventions, or rather the culture of a determined society. Since the main function of institutions in a society is to reduce uncertainty by establishing a stable structure for human interaction, NORTH attempts to explain how institutions and institutional framework affect economic and social development.

According to NORTH (1995), formal institutions are subordinate to informal ones in the sense that they are the deliberate means used to structure the interactions of a society in line with the norms and cultural guidelines that make up its informal institutions. Policy making that attempts to change the formal institutions of society will therefore have

little success if it does not first adjust the informal institutions in a compatible way. The difficulties rise from the fact that, whereas a governing body can influence the evolution of a society's formal institutions in a rather direct way, informal institutions are much less tangible and usually fall outside the direct influence of public policy. They can be moulded, but tend to resist change and take time to evolve towards new social norms.

This institutional evolution is especially important for the purpose of this study since one of the main distinctions between rural Catalonia and rural areas of the rest of Spain lies in the industrial history and entrepreneurial tradition of rural Catalonia, shared by very few other rural areas of Spain. NORTH (1981, 1990) explains using an institutional approach how there can exist 'radically differential' performance of economies over long periods of time, due to the interactions between institutions and organisations (economic, political, or social) that shape the direction of institutional change.

Institutions determine the opportunities of society and in response organisations are created to take advantage of these opportunities. As the organisations evolve, they alter the institutions. The resultant path of institutional change, according to this author, can, on the one hand, lead to a stagnant situation where institutions come to serve the sole purpose and interests of maintaining existing organisations, or on the other hand, can lead to a 'lock-in that comes from the symbiotic relationship between institutions and evolving organisations as a consequence of the incentive structure provided by those institutions and the dynamic feedback process by which human beings perceive and react to changes in the opportunity set' (NORTH, 1990: 7).

NORTH followed-up his path dependency argument by describing the embedded character of informal institutions as a result of their cultural content. PILON and DE BRESSON (2003) recently reinforced a similar argument in their study of innovative districts identifying local cultural 'anchoring' based on cultural similarities, cultural cohesiveness, and historical particularism and heritage making certain geographical areas more conducive to innovative entrepreneurial activity. Leaving the innovative character of entrepreneurship aside, the same argument holds within the theoretical framework established within the institutional economic theory.

Following SHAPERO (1971), VECIANA (1980), and SHAPERO and SOKOL (1982), who remarked the importance of positive examples over the decision to become an entrepreneur, FORNAHL (2003) proposed that amongst the institutional factors influencing entrepreneurial activity, the role of positive entrepreneurial examples is especially important in a rural (regional) context. The presence of entrepreneurial Role-Models, be it in a rural or urban setting, strongly influences the cognitive representation of economic agents and strongly influences their behaviour through the different decisions needed to become an entrepreneur (KRUEGER, 1993). The argument is that the 'development and the related likelihood of discovering entrepreneurial opportunities and increasing the willingness to start a new firm is strongly influenced by positive examples, so-called Role-Models' (FORNAHL, 2003: 50). These positive examples have two main effects, first, it may make it easier to discover and act upon entrepreneurial opportunities if other similar and successful business opportunities, identified by others, can serve as references. Second, entrepreneurial example leads to a (re-) allocation of cognitive attention to certain opportunities or business conceptions affecting the direction of the active search, and perception, of opportunities as well as

the confidence in ones own entrepreneurial possibilities. A positive example leads to an increase in the likelihood that other agents also become entrepreneurs (SPEIZER, 1981), since the internal reaction of an individual influenced by a role-model is that "if she/he can, why can't I?" (VECIANA, 1980).

Thus, the higher the number of entrepreneurs, the higher the likelihood that other agents, within a socially tight context, will change their propensity towards an entrepreneurial career (GIBSON, 2004). Once a critical mass is overcome, the local institutional framework evolves to include a new social cognitive perception that is more fertile for entrepreneurial activity. Regions therefore differ in their entrepreneurial propensity, according to FORNAHL (2003), because of 'small historical singularities' that lead to a situation in which regions develop different common cognitive perceptions, influencing the diffusion of new positive examples (Role-Models). As a consequence, the acceptance of entrepreneurial activity within the region becomes socially embedded. The promotion of an entrepreneurial culture and positive attitudes towards entrepreneurship can be encouraged by "providing role-models through the 'showcasing' of success stories" (EUROPEAN COMMISSION, 2003: 21).

FORNAHL (2003) went on to develop a theoretical model of the entrepreneurial process in a regional context based on the assumption that the entrepreneurial event is more than just a one-off decision, but rather is the result of 'a development process along different stages that are all important to explain entrepreneurial activities and their change over time' (FORNAHL, 2003: 48).

Many different versions of the entrepreneurial process can be found in the literature and these models have been developed from many different perspectives and applied to many different contexts. Not only do the different stages of the process differ from one author to another, but the objectives of the entrepreneurial process analysis also vary. Whereas the entrepreneurial process has been used in research to expose the critical points and key success factors of the business creation process (BRUYAT and JULIEN, 2001), others have used it to illustrate the different activities and functions that must be carried out at every step of the process (HISRICH et al., 2005). Recently the entrepreneurial process has been used to identify the different factors influencing decision-making throughout the process (FAYOLLE, 2004) as well as the success of entrepreneurs with their new business venture (GREENE and STOREY, 2004).

BYGRAVE (1995) developed an entrepreneurial process model with the aim to determine the critical factors that give birth to new enterprises. The entrepreneurial process is placed at the centre of a framework composed of personal, sociological, and environmental factors that influence the different steps of the entrepreneurial process and consequently the creation of new enterprises. Nevertheless, the importance of informal institutional factors stands-out, especially in the earlier stages of the process.

One of the most consistent factors included within BYGRAVE's entrepreneurial process model is the presence of entrepreneurial Role-Models because, according to this model, they play an important part in facilitating opportunity detection and business idea generation within the Innovation stage of the model. Role-Models also can act as a stimulus within the Triggering Event stage. Finally, the presence of positive entrepreneurial examples, according to BYGRAVE (1995) is very important during the

Implementation stage since 'knowing successful entrepreneurs makes the act of becoming one yourself seem much more credible'. Someone who is in close contact with an entrepreneurial Role-Model is more likely to develop the desire and confidence to create their own business.

A model applying a socio-institutional approach, and more specifically the institutional economic theory developed by NORTH (1990), to the entrepreneurial process has been developed by AHMADI (2003) in his study of immigrant entrepreneurship in Sweden. This simplistic model illustrates how the entrepreneurial process is influenced by both formal (regulative) and informal (cognitive/cultural) institutions throughout all stages of the process. The influence, according to this author, between institutions and process are bi-directional, in the sense that at the same time as the process is guided by the institutional environment, the process can modify the framework's institutions.

In order to carry out the empirical analysis included in this study, a new model has been constructed by placing the entrepreneurial process model developed for rural areas by FORNAHL (2003) within an institutional framework, as was done by AHMADI (2003). In order to better adjust to the objectives of this study, we will specifically limit our institutional framework to the influence over the business creation process of entrepreneurial Role-Models, (BYGRAVE, 1995; FORNAHL, 2003).

The entrepreneurial process, according to this stage model, recognises that agents differ in their knowledge and capabilities, their personal characteristics, their access to information and/or their cognitive representation (FORNAHL, 2003).

--- Insert Figure 1 approximately here ---

The model starts by recognising that not all individuals have intentions of becoming entrepreneurs and only a fraction of economic agents intend to become entrepreneurs in the short to medium term. The main difference between economic agents and those with entrepreneurial intentions is that those from the latter group are actively searching for entrepreneurial opportunities.

The decision to actively act upon an identified entrepreneurial opportunity marks the second stage of the entrepreneurial process. At this stage agents undertake specific activities aimed at establishing their own business. Access to this stage is not limited only to those with entrepreneurial intention, as many economic agents who may not have had any particular entrepreneurial intention may be forced into entrepreneurial activity because of the lack of labour market alternatives, equivalent to the 'push theory' of entrepreneurship (AMIT and MULLER, 1994). Another reason why entrepreneurial activity is not exclusive to those who are deliberately searching for opportunities is that often these opportunities can emerge and offer themselves to those economic agents who previously had not contemplated an entrepreneurial career (SHANE, 2000).

The third and final stage occurs when the actual business is founded and the agents take the jump and become active entrepreneurs. The entrepreneurial stage model considers several important factors explaining the development of the entrepreneur across the different stages until the entrepreneurial event actually occurs, but mostly contemplates socio-institutional factors and their effect upon individuals throughout the process.

Although there are many elements influencing the development of agents across the different stages of the entrepreneurial process, in a rural context with a tight social construct, positive entrepreneurial examples, Role-Models, act as an important stimulus leading agents through the different stages of the process. Consequently, Role-Models influence the cognitive perception of agents and leads to an imitative learning process that can influence the pass-over into each new stage of the model (FORNAHL, 2003).

The first decision influenced by Role-Models within the entrepreneurial process is that represented by block '***A***' in Figure 1, which indicates a greater likeliness of economic agents to adopt entrepreneurial intentions when they have close personal knowledge of individuals who have recently become entrepreneurs. The presence of an entrepreneurial Role-Model, either in their family or in their direct social environment, can lead an economic agent to contemplate such a career alternative and help change their cognitive attention towards the search for possible entrepreneurial opportunities (SHANE, 2000). This leads to formulate the first hypothesis:

***H*$_1$**: If a rural agent personally knows a recent entrepreneur, he/she will be more likely to have entrepreneurial intentions.

The second step is initiated when an entrepreneurial opportunity is found. As previously mentioned, entrepreneurial opportunities are not exclusive to those agents with entrepreneurial intention, therefore this step can originate either from the group with entrepreneurial intention or from the remaining economic agents in general. The stage, represented by block '***B***' in Figure 1, is initiated when the agent becomes actively involved in entrepreneurial activities aimed at exploiting this opportunity by

establishing a business. Entrepreneurial Role-Models again play a key role in this stage as it helps agents focus the attention of agents towards specific opportunities brought to the surface by the Role-Model's activities, as well as it helps modify the cognitive perceptions of the agents in a way that can favour the agent's decision to actively undertake entrepreneurial activities aimed at establishing their own business (VENKATARAMAN, 2004). From this argument comes the second hypothesis:

H₂: If a rural agent personally knows a recent entrepreneur, he/she will be more likely to engage in entrepreneurial activities aimed at creating a business.

Finally, the decision to actually establish a new business, where the agent takes the jump and becomes a new entrepreneur, represented by block '***C***' in Figure 1, is again largely influenced by entrepreneurial Role-Models. According to FORNAHL (2003:51) 'the cognitive representation and the comparison with other existing entrepreneurs influence the evaluation of the founding option'. The final decision to actually start-up a new business is not always based on the objective results of market tests and feasibility studies, (when these exist), but rather is most often based on the subjective evaluation of the founding decision against other alternative career and life options (GIBSON, 2004). 'Positive entrepreneurial examples can lead to a bias in the evaluation and to an increase in the likelihood of starting up a firm' (FORNAHL, 2003: 51). Consequently, the third hypothesis emerges:

H₃: If a rural agent personally knows a recent entrepreneur, he/she will be more likely to start-up a business.

Therefore, rural areas may differ in the functioning of the described process in the way that historical singularities can lead to a situation where a particular region accumulates a critical mass of entrepreneurial Role-Models that can modify the informal, and consequently the formal institutional framework allowing entrepreneurial activity to have greater affect upon economic development.

We will apply this model to the rural Spanish context to test whether the influence of entrepreneurial Role-Models across the different stages of the entrepreneurial process affects economic agents of rural Catalonia in ways that differ from agents from rural areas of the rest of Spain.

2.2 Distinctiveness of Catalan institutional framework

The decision to concentrate our analysis and contrast the rural areas of the Spanish autonomous community of Catalonia against rural areas in the rest of Spain has been based on several indications that rural Catalonia has a particular institutional framework, different from those found elsewhere in Spain. First, Catalonia has been historically the focus of industrialisation in Spain because of its diversified and strongly open industry (COSTA-I-FONT and TREMOSA-I-BALCELLS, 2003). Second, Catalonia has a distinct history that has placed it upon a different institutional evolutionary path than the rest of Spain. This distinctiveness is commonly recognised and was institutionalised within the Catalan Statutes of Autonomy (SPANISH CODE OF INTERNATIONAL LAW, 1979).

Although the Catalan government has been the main responsible of the industrial policies through its Ministry of Industry, Catalonia has claimed higher political self-

government to reinforce its industrial policies. In fact, this has been recently attained within the reforms to the Catalan Statutes of Autonomy. In fact, the first article of Catalonia's proposed Statute of Autonomy, which was backed by 90% of the Catalan parliament, states that 'Catalonia is a nation exercising self-government through its own institutions' (PARLAMENT DE CATALUNYA, 2005). The preamble to the mentioned document highlights the specificity of Catalonia's institutional history. Furthermore, AHEDO (2006) and BUESA et al. (2006) consider the Catalan distinctiveness to evaluate the industrial development and innovation capacity in Spain.

NORTH and THOMAS (1973) recognised that 'history matters' in economic growth, mainly because of the path dependence of institutions. The distinctive history of Catalonia, as compared to the rest of Spain, has set it upon its own particular institutional evolution, which may influence the propensity of Catalans towards entrepreneurial activity in different ways than what can be found in the rest of Spain.

Related to, and consequent, of Catalonia's particular historical evolution is Catalonia's proper cultural specificity. Apart from the clear cultural difference of rural Catalonia coming from the distinct Catalan language, commonly used by over 50% of the Catalan population, spoken by some 74% and understood by over 95% of Catalans, Catalonia is characterised by differential cultural traits (BUSQUETS I DURAN 2001). The value scale of Catalans differs from that found in the rest of Spain. The results of a recent study reported in BUSQUETS I DURAN (2001) determining the values considered as important to instil in children showed how the most important value for Catalans is independence, whereas, to the contrary, it is obedience in the rest of Spain. Other important values for Catalans are predisposition toward working hard, and a sense of

economics and saving, which is not the case in the rest of Spain. Contrary to Catalonia, religious values and faith stand out as important in the rest of Spain. The same study also reported differences in the religious, leisure and social practices of Catalans as compared to the rest of Spaniards.

The distinctive cultural heritage of Catalonia, as compared to the rest of Spain, translates to a different informal institutional construct, which may influence the propensity of Catalans towards entrepreneurial activity in different ways than what can be found in the rest of Spain. In fact, business creation in rural Catalonia is more dynamic than its urban counterpart. Table 1 shows how the growth in the number of enterprises over the five-year period from 1996 to 2001 has been far greater in rural Catalonia (25.7%) than it has in urban areas of Catalonia (10.4%).

--- Insert Table 1 approximately here ---

An analysis of the most recent census results (2001) show that whereas the proportion of the Catalan population living in rural municipalities was of 11.9%, these same rural areas accounted for 12.9% of Catalan enterprises. As a result, we find that enterprise density is greater in rural areas than it is in urban areas of Catalonia (7.5 as compared to 6.7 enterprises per 100 inhabitants, respectively). More importantly, when we analyse the recent evolution in the number of enterprises, we clearly see how rural areas have been more dynamic when it comes to entrepreneurial activity than have been urban areas of Catalonia.

Finally, the entrepreneurial character and propensity of rural Catalonia clearly contrasts with that found in rural areas in the rest of Spain. According to the results of the GEM entrepreneurship observatory (VECIANA, et al., 2004), the proportion of the adult population of rural Catalonia involved in entrepreneurial activities in 2003 stood at 11.44%, more than three times superior than the proportion found in rural areas of the rest of Spain (3.43%). Whereas rural Catalonia is more entrepreneurial than its urban counterpart (3.83% of the adult population of urban Catalonia), rural areas in the rest of Spain have an entrepreneurial activity level that is inferior to that registered for urban areas (4.30%).

3. Data and Methodology

3.1 Data selection

The data used to carry out this study come from the Catalan Global Entrepreneurship Monitor (GEM) for the year 2003. The GEM project began in 1998 as a joint initiative of the London Business School and the Babson College to create an international entrepreneurship research network. Today, more than 40 different countries have taken part in the research initiative, making it a world reference for research into the entrepreneurship phenomenon and a highly valued source of information for professionals and policy makers in each of the participating countries.

A recent article by REYNOLDS et al. (2005) offers a comprehensive description of the GEM project and its methodology. Concerning empirical applications that use GEM data, WENNEKERS and THURIK (1999), STERNBERG and WENNEKERS (2005), and WONG, et al. (2005) evaluate the relationship between entrepreneurship and economic growth. From a micro perspective, STERNBERG and LITZENBERGER

(2004), WAGNER (2004), and WAGNER and STERNBERG (2004) study entrepreneurship, its determinants, and the policies that enhance this behaviour.

The sample used for this study was built based on a multiple stage sampling method. The Kayser criterion (KAYSER, 1990) was used to identify rural and urban areas. This criterion is based on demographic figures and it considers as rural those municipalities that have a population of less than 5000 inhabitants. Using the Bellview Fusion computer assisted telephone interview (CATI) system, the survey was conducted by a leading professional market investigation and public opinion service firm selected and monitored directly by the International GEM Consortium. First, a random selection of municipalities was collected according to the mentioned population quotas. In a second stage, telephone numbers corresponding to the different municipalities were randomly obtained from the annually updated 'España Office v5.2' fixed and mobile telephone database. Finally, persons between the ages of 18 and 65 (inclusively) were randomly selected by the mentioned software.

The original database used to reach the aim of this research contained 1243 observations from rural areas in Spain, including 292 (23.49%) and 951 (76.51%) from Catalonia and the rest of Spain, respectively. However, in the interest of following a rigorous methodology, only individuals for whom a complete dataset of the independent variables can be constructed are included. Thus, data availability limits the rural sample to 843 observations, 201 (23.84%) from Catalonia and 642 (76.16%) from the rest of Spain.

3.2 Determinant factors

Entrepreneurial Intention measured within the GEM framework is determined by the declaration of intention by the respondents of the study's adult population survey. All respondents declaring their intent to create their own business over the next three years are included within our dependent variable. The level of entrepreneurial intention of rural Catalonia is higher than that of rural areas of the rest of Spain, but this difference is not statistically significant. The proportion of agents with entrepreneurial intention in rural Catalonia stands at 5%, as compared to a proportion of 3.3% for rural areas of the rest of Spain (Table 2).

The GEM study distinguishes between two types of entrepreneurial activity, pre and post start-up entrepreneurial activity. The dependent variable used to test our second hypothesis is based on the proportion of respondents who are involved in pre start-up activities. A person is said to be involved in pre start-up activities if he/she has undertaken over the previous 12 months any concrete efforts, (such as the development of a business plan, the search for finance, the establishment of a team of founding partners, etc.) aimed at starting a business without receiving any pecuniary reward for doing so. From Table 2 we observe that the level of pre start-up entrepreneurial activity in rural Catalonia (6.97%) is significantly higher than that of rural areas of the rest of Spain (2.65%).

The variable used to test our third hypothesis identifies the respondents who are involved in post start-up entrepreneurial activities. A person is considered to be involved in post start-up entrepreneurial activities if he/she is owner or co-owner of a business that has been paying salaries for a period of no more than 42 months. The level

of post start-up entrepreneurial activity in rural Catalonia (4.98%) is significantly higher than that of rural areas of the rest of Spain (0.9%) (Table 2).

--- Insert Table 2 approximately here ---

To determine the entrepreneur's profile we consider a set of independent variables commonly found in models trying to explain entrepreneurial activity (JOHANSSON, 2000; UUSTITALO, 2001; DOUGLAS and SHEPARD, 2002; and WAGNER, 2004).

First we consider the individual's gender. Gender is an important factor explaining the different propensity levels of individuals towards entrepreneurial activity. Gender distribution of entrepreneurship also determines the character and societal impact of the resulting entrepreneurship (OECD, 2004). Depending on the gender system of an economy, women entrepreneurial activity levels are usually lower than men's and, at the same time, women's entrepreneurship tends to have a different industrial configuration than men's entrepreneurship (CARTER et al., 2001). Women also start and manage firms in different ways and for different motivations than do men (BRUSH, 1992). Women often have access to "fewer resources, less knowledge and have in many countries a lower societal position than men" (OECD, 2004: 30), nevertheless, women's entrepreneurship has been recognised during the last decade as an important untapped source of economic growth (OECD, 2004). Thus, in our models we introduce a dummy variable for gender, taking a value of one if the individual is a man, and zero otherwise. As it can be seen in Table 2, there is a statistically significant difference in the proportion of men in rural Catalonia as compared to those from rural areas of the rest of Spain.

The second factor considered is the individual's age. According to SINGH and VERMA (2001) the decision to become an entrepreneur is affected by different factors along an individual's life cycle. Labour economists, using income-leisure choice models, have usually attributed the choice of leisure to older workers (SINGH and DENOBLE, 2003). This would indicate a gradual decline in the propensity of individuals towards entrepreneurial activity as they become older. This decline usually starts past a climax point around the late thirties, at which point most entrepreneurs enter into entrepreneurship following a period of labour activity (KATZ, 1994). The link between age and entrepreneurial activity is double sided, whereas older individuals usually have greater tangible and intangible resources essential for successful business creation, younger individuals often have the greater drive and the needed ambition to persevere through the entrepreneurial process. Therefore, we introduce individual's age, expressed in years, as well as its quadratic term, aiming to determine both the relation between age and the entrepreneurial process, and to test whether or not there is an inflexion point beyond which the probability to be involved in the different stages of the entrepreneurial process changes (non linear relationships).

It is widely recognised that education influences people's attitudes towards starting their own business (DONKELS, 1991; KRUEGER and BRAZEAL, 1994). Individuals with lower education levels may see in entrepreneurship an opportunity to advance, economically and socially, beyond the constraints imposed by their formal education (DONKELS, 1991). However, individuals with lower formal education may have a narrower scope of entrepreneurial opportunities available to them (KRUEGER, 1993). As for individuals with higher educational attainments, on the one hand, they tend to have greater technical and managerial skills that open up a larger array of possible

entrepreneurial opportunities (KRUEGER, 1993). On the other hand, greater formal education levels have also been associated with greater employment opportunities, leading to a higher opportunity cost of entrepreneurial activity (JOHANSSON, 2000). Regarding the variable definition, formal education is considered using dummy variables distinguishing people who finish secondary and those who did not, as well as people with university studies.

Furthermore, we consider the self-confidence in one's own entrepreneurial skills as a dummy variable, taking a value of one if the person makes a positive assessment of his/her entrepreneurial skills, and zero otherwise. Several studies have recently used this variable in substitution, or together with, formal business training. These studies have found that entrepreneurial self-confidence explains an important part of the decision to become an entrepreneur (KRUEGER and BRAZEAL 1994, ARENIUS and MINNITI 2004, KÖLLINGER et al. 2004, LEE et al. 2004). Respondents from rural areas of Catalonia demonstrate a statistically significant greater proportion of entrepreneurial self-confidence than what is found with respondents from rural areas of the rest of Spain (Table 2).

In addition, a second set of two dummy variables associated with the informal institutional framework of an area has been added. The informal institutional variables used are: 1) the belief in the existence of a social stigma over entrepreneurial failure; and, 2) the presence of entrepreneurial Role-Models, who have created new businesses over the past two years, within one's personal social circle.

The social stigma associated with business failure is an informal institutional factor that can act as an important obstacle to entrepreneurial activity (SIMON et al., 1999). We have therefore added this variable to our model to see if the perception of social fear of failure acts as an obstacle to entrepreneurial activity and whether this obstacle is uniform across the analysed territories.

The Role-Model effect is a sociological phenomenon that has been widely studied (SHAPIRO et al., 1978; GIBSON, 2004) and has been applied to entrepreneurship as an informal institutional factor that can act as stimuli to entrepreneurial activity (SCHEIN, 1978; VENKATARAMAN, 2004). It should be mentioned that whereas most of the literature on Role-Models considers that the positive effects of the phenomenon come from multiple and cumulated contacts with positive entrepreneurial examples, our analysis will limit itself to the personal knowledge of at least one recent entrepreneur. The effect of the presence of a personal acquaintance that has successfully created a business over the past two years should act as stimuli along the different steps of the entrepreneurial process. Our model will try to determine if this is so and whether the effect is equal amongst the different territories being analysed.

A significantly greater proportion of rural Catalan respondents have entrepreneurial Role-Models within their personal social circles. To the contrary, no significant difference is found between rural Catalonia and rural areas of the rest of Spain in what relates to the perception of the existence of a social stigma towards business failure (Table 2).

3.3 Method

To become an entrepreneur can be understood as a positive decision in a binary choice model. Thus, to identify the differentiating characteristics that affect the likelihood to become an entrepreneur in Catalonia and in the rest of Spain, one can perform a logit regression model estimated by maximum likelihood method expressed as follows (GREENE 2003),

$$\hat{p}_i(Y = 1, \text{Entrepreneurial decision process}) = \frac{e^{\hat{b}_0 + \sum \hat{b}_n x_{ni}}}{1 + e^{\hat{b}_0 + \sum \hat{b}_n x_{ni}}} = \mathrm{L}(b'x) \qquad [1]$$

After a logarithmic transformation, equation [1] can be expressed as a linear function of the odds to become an entrepreneur $\hat{W}_i = \frac{\hat{p}_i}{1 - \hat{p}_i}$. The resulting expression follows:

$$\ln \hat{W}_i = \hat{b}_0 + \sum_{n=1}^{N} \hat{b}_n x_{ni} + e_i \qquad [2]$$

where,

$\hat{b}_0 =$ constant term

$\hat{b}_n =$ vector of parameters to be estimated for the *nth* independent variables.

$x_{ni} =$ vector of observed value for the *nth* independent variables and the *ith* cases.

$e_i =$ logistic distributed error term for the *ith* cases.

Nevertheless, as shown in Table 2 for the total sample, the individuals that express intention of creating their own business over the next three years, as well as those involved in pre start-up activities is only 3.68%. Also, only 1.90% of all persons considered in the total sample are involved in post start-up entrepreneurial activities.

Consequently, the fact that a person is involved in one of the different stages of the entrepreneurial process can be considered as a rare event[4].

Therefore, the application of traditional logit models in samples where the binary dependent variable has much fewer ones (positive response) than zeros (no response) may lead to biased results due to the underestimation of the parameter estimates. Recently, KING and ZENG (2001a, and 2001b) developed a method for computing estimates in logit models that correct for the presence of rare events or small samples. This procedure, labelled rare events logit model, is based on the standard logit model, as presented in [1] and [2], but it uses an estimator that generates a lower root mean square error for coefficients.

Considering the characteristics of the three dependent variables used in this study, we make use of the rare events logit model with clustered observations for estimating the parameter estimates. To test whether the presence of entrepreneurial Role-Models have an influence upon the different decisions of the entrepreneurial process we carry out the following model:

$$\begin{aligned} Entrepreneurial\ decision\ process_i = {} & \hat{b}_0 + \hat{b}_1 Control\ Variables_i + \hat{b}_2 Social\ Fear_i \\ & + \hat{b}_3 Social\ Fear_i' \ Catalonia + \hat{b}_4 Role\ Model_i \\ & + \hat{b}_5 Role\ Model_i' \ Catalonia + e_i \end{aligned} \quad [3]$$

Control variables correspond to the entrepreneur's profile, i.e., gender, age, education, and the self-confidence in entrepreneurial skills. The variable Catalonia takes a value of one if the respondent resides in rural Catalonia, and zero otherwise. Further empirical

evidence on the impact of the informal institutional framework upon entrepreneurial activities using rare events logit models can be found in WAGNER (2004).

Parameters estimated from the rare events logit model only indicate the direction of the effect of each explanatory variable on the response probability. To obtain a better understanding of the results, we also calculate the first difference, which is the change in the probability as a function of a specific change in a variable holding the rest of variables constant at their means. First differences for the variables related to the informal institutional factors are estimated as $\hat{\gamma}_x = \Pr\left(Y=1 \middle| X=1\right) - \Pr\left(Y=1 \middle| X=0\right)$. In accordance with our framework, we will accept the hypothesis linked to each of our dependent variables if $\hat{b}_5 > 0$ and demonstrates acceptable levels of statistical significance.

Finally, we also calculate the proportion of correctly classified (predicted) observations. This is done for the full sample as well as for those observations that have positively embarked in the considered steps of the entrepreneurial process (adopter) and those that have not (non-adopters).

4. Empirical Findings

This section presents the results of the rare events logit models. The first set of three columns considers entrepreneurial intention as dependent variable. The second set considers pre start-up entrepreneurial activity as dependent variable. Finally, the last set presents the results for the rare events logit models when post start-up entrepreneurial activity is the dependent variable. The first model in every set does not take into consideration the individual's geographical origin in the analysis. Model two adds into

the analysis a dummy variable that distinguishes those respondents residing in Catalonia. Finally, specification three considers the joint impact of Catalonia and the informal institutional factors (social fear of failure and the presence of entrepreneurial Role-Models) upon the different dependent variables considered in the analysis of the entrepreneurial process. Models 2 and 3 allow for assessing whether pre start-up and post start-up entrepreneurial activities increase when considering the fact of residing in rural Catalonia, as well as when this distinctiveness is considered within the informal institutional factors.

When analysing the results for entrepreneurial intention, the included variables for the individual's educational level have a negative impact on the decision to become an entrepreneur, and this effect is statistically significant in the case of primary studies (Table 3). Because the omitted variable is university studies, the evidence indicates that individuals with higher levels of education are more likely to show entrepreneurial intention (DONKELS, 1991; KRUEGER and BRAZEAL, 1994). Also, we see that the presence of Role-Models and self-confidence in entrepreneurial skills exert a positive and statistically significant impact upon individual's entrepreneurial intentions. From Table 4 we observe that, holding other variables constant at their means, the positive perception about entrepreneurial skills increases the probability of entrepreneurial intentions by $2.728\%\left(\hat{\gamma}_5 = 2.728\%\right)$. In the case of the Role-Model, we know that $\hat{\gamma}_8 = 3.413\%$, i.e., holding the rest of variables constant, the presence of a Role-Model increases the probability of entrepreneurial intention by 3.413%. This is consistent with previous studies having use similar variables (ARENIUS and MINNITI, 2004; KÖLLINGER et al., 2004; LEE et al., 2004; WAGNER, 2004).

--- Insert Table 3 approximately here ---

The second column of the series that uses entrepreneurial intention as dependent variable reveals that residing in rural Catalonia does not yield any statistically significant influence over their entrepreneurial intention. From the third model it can be observed that the personnel knowledge of recent entrepreneurs has a positive and statistically significant influence upon entrepreneurial intention. The result for the first difference shows that this impact is equally strong in both Spanish and Catalan rural areas. Thus, holding the rest of variables constant, the knowledge of a recent entrepreneur increases the probability for entrepreneurial intention by $3.122\%\left(\hat{\gamma}_8 = 0.03122\right)$. We therefore confirm **H_1** for the entire sample under analysis, including the Catalan observations.

--- Insert Table 4 approximately here ---

As for the findings for pre start-up entrepreneurial activity, it can be seen in the first model that the only significant factor that positively affects the decision to be involved in pre start-up entrepreneurial activity in rural areas of Spain is entrepreneurial self-confidence. From model 1 in Table 4 we observe that, holding the rest of variables constant, the presence of entrepreneurial self-confidence increases the probability of being involved in pre start-up activities by $6.771\%\left(\hat{\gamma}_5 = 0.06771\right)$.

Nevertheless, the third column of this series indicates that, the influence of personnel knowledge of Role-Models upon the decision to be involved in pre start-up entrepreneurial activities is relatively greater for individuals residing in rural Catalonia

as compared to those living in rural areas of the rest of Spain (Table 3). Empirical findings indicate that holding other variables constant $\hat{\gamma}_9 = 0.04163$, meaning that the probability of being involved in pre start up entrepreneurial activities increases by 4.163% for individuals residing in Catalonia who know a recent entrepreneur (Table 4). Consequently, we confirm **H_2** in the case of Catalonia, and reject this same hypothesis in the case of rural areas in the rest of Spain.

The third series of columns in Table 3 uses post start-up entrepreneurial activity as dependent variable. The results indicate that young individuals are more likely to be involved in post start-up entrepreneurial activities. However, and in accordance with KATZ (1994) the parameter estimates for both age and the squared term for age indicate that the relationship between age and post start-up entrepreneurial activities is inversed U-shaped. Given the results we can assert that age exerts a positive and statistically significant effect upon post start-up entrepreneurial activities up to the threshold of 37 years old. For people over 37 years old the probability to be involved in post start-up entrepreneurial activities decreases respect to age, and this result is also statistically significant (Table 3).

From column 2 it can be observed that residing in rural Catalonia exerts a statistically significant influence over the decision to participate in post start-up entrepreneurial activities. This shows that there is a geographical distinctiveness of rural Catalonia over post start-up entrepreneurial activity. The results emerging from Table 4 indicates that, holding the rest of variables constant, the probability of getting involved in post start-up entrepreneurial activity increases by 0.544% when the respondents live in rural Catalonia as compared to those living in rural areas of the rest of Spain.

Finally, from the third column of this set it is possible to observe that the influence of the personnel knowledge of recent entrepreneurs upon the decision to be involved in post start-up entrepreneurial activities is relatively greater for individuals residing in rural Catalonia as compared to those living in rural areas of the rest of Spain (Table 3). The result for the first difference shows that $\hat{\gamma}_9 = 0.01181$. This indicates that, holding the rest of variables constant, residing in rural Catalonia and knowing a recent entrepreneur increases the probability to be involved in post start up entrepreneurial activities by 1.181% (Table 4). We therefore confirm **H_3** in the case of Catalonia, whereas we reject this same hypothesis in the case of rural areas in the rest of Spain.

5. Concluding remarks

Albeit the upward trend researching entrepreneurship, little is known of the factors that influence the decisions included in the entrepreneurial process in rural areas. Using a sample for the year 2003 of 843 Spanish individuals, 201 and 642 from rural Catalonia and rural areas in the rest of Spain, respectively; we performed a rare events logit model with clustered observations in order to identify the influence of entrepreneurial Role-Models upon the different stages in the entrepreneurial process.

The main contribution of this paper indicates that there is a significant difference in the influence of entrepreneurial Role-Models upon the different decisions of the entrepreneurial process in rural Catalonia as compared to rural areas of the rest of Spain. The results from our first hypothesis indicate that entrepreneurial Role-Models have a significant positive effect upon entrepreneurial intentions (the first phase of the entrepreneurial process) of rural individuals throughout Spain. To the contrary, in the case of our second and third hypotheses measuring the influence of Role Models over

'pre' and 'post' start-up entrepreneurial activities (second and third phases of the entrepreneurial process), we found that the personnel knowledge of recent entrepreneurs only has a statistically significant positive influence over rural Catalans. Another important finding is that self-confidence in entrepreneurial skills appears as a statistically significant factor influencing all stages of the entrepreneurial process.

The academic implications of these findings lay mostly in the strong support in favour of a greater use of an institutional approach to the study of entrepreneurship, especially in what concerns differences in entrepreneurial activity levels across regions. From this research it can be concluded that informal institutions are the underlying backbone to entrepreneurial decision-making. Even in areas bounded by relatively homogeneous formal institutions and policy, entrepreneurial activity is often unevenly distributed as a consequence of varying informal institutional structures, mostly linked to historical events that set different areas upon distinct institutional evolutionary paths. This paper gives empirical support to a growing number of theoretical works that lay the basis for a similar premise. Regions with different informal institutional frameworks will react differently to identical formal institutions and policies.

This brings about important implications of the findings of this paper for policy-makers. Basically, the conclusions of the study lends to recommend that entrepreneurship support policy at local level must first establish the necessary informal institutional foundation within a community before attempting to apply formal institutional measures for the promotion of entrepreneurial activity. Formal support may be vain in the presence of an inappropriate informal institutional framework.

The results of the study specifically highlight the importance of entrepreneurial Role-Models in an individual's personal social circle as a positive stimulus explaining uneven entrepreneurial activity levels across different geographical areas. This would tend to imply that entrepreneurship support policy should lay the grounds for a greater social interaction on the part of existing entrepreneurs, promoting networking possibilities with potential entrepreneurs, glorifying the role of the entrepreneur in the community, as well as socially celebrating the entrepreneurial successes of existing entrepreneurs. The local administrations must magnify the visibility of positive entrepreneurial examples within their communities. Entrepreneurial Role-Models can help instil the appropriate entrepreneurial atmosphere within a community's informal institutional framework that will then permit formal entrepreneurship support policy to have a much more potent impact upon local entrepreneurial activity levels.

For the entrepreneur, the implications of the study indicate that in all institutional frameworks, entrepreneurial self-confidence is a driving force leading individuals through the different stages of the entrepreneurial process. Entrepreneurial self-confidence is a natural consequence of prolonged exposure to positive entrepreneurial examples. An individual with entrepreneurial ambitions can gain the necessary confidence in his/her own entrepreneurial skills by being in close personal contact with individuals who have themselves successfully established their own businesses.

As with any cross-sectional study, the limitations of this paper lies in both the absence of a longitudinal analysis that could have given a greater evolutionary perspective to the study, and in the lack of sample diversity, limiting the analysis to only two geographically bounded samples. A greater number of informal institutional variables,

as well as the introduction of certain formal institutional variables could have complimented our analysis of entrepreneurial Role-Models. As a consequence, further research should not only attempt to replicate a similar analysis in a different geographic and territorial context, but should also attempt to enrich the institutional content of the model as well as its longitudinal/historical perspective.

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Endnotes:

[1] Over half of Catalonia's rural counties benefit from a disposable family income per capita figure that surpasses that found in the Barcelonès (IDESCAT, RBFD figures for 2000).

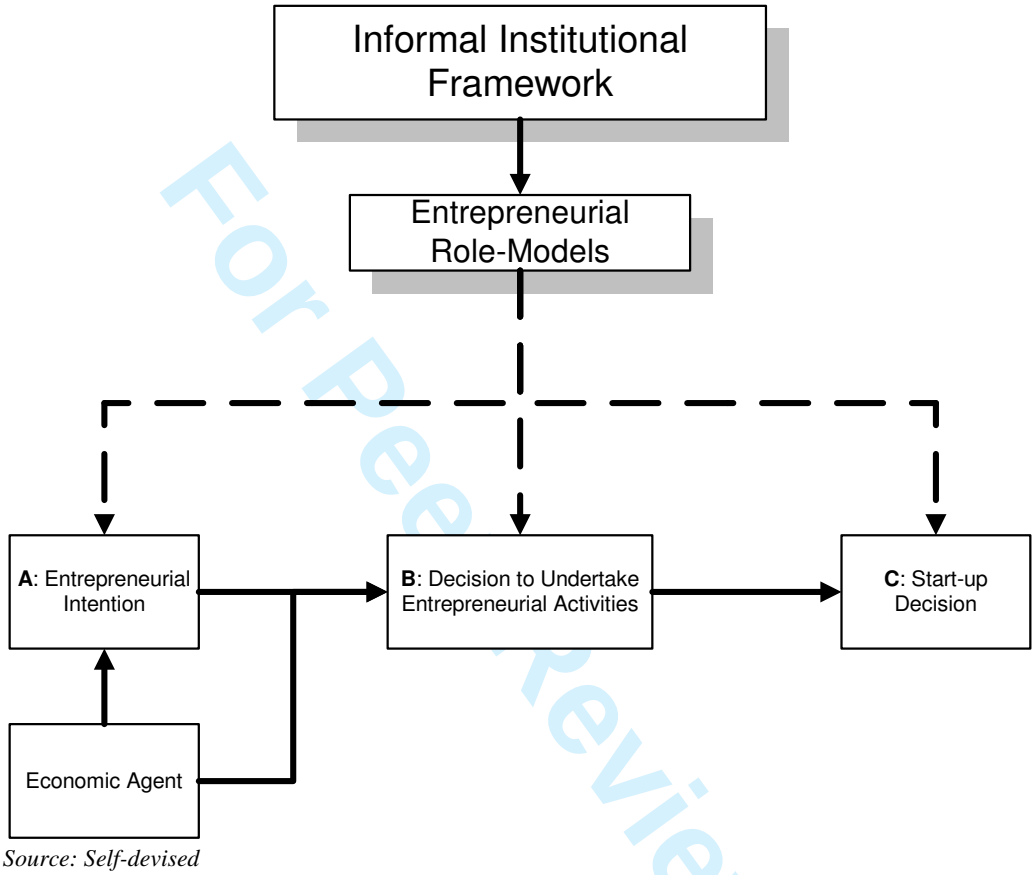
[2] Based on results from the GEM-Catalunya entrepreneurship observatory for the year 2003 for rural and urban municipalities using the Kayser criterion for determining rurality.

[3] Based on latest GDP figures for Catalonia measured at county level, IDESCAT.

[4] We gratefully acknowledge one of the anonymous referees for remarking the importance on the use of a more accurate estimation method when in the data set the proportion of events can be considered as rare.

APPENDIX: List of Figures and Tables

Figure 1: Stage model of entrepreneurial process



Source: Self-devised

Table 1. Evolution in the number of enterprises in Catalonia (1996 – 2001)

	Enterprise density 2001 [(a)]	**Net growth [(b)] 1996 – 2001**	**Growth rate [(c)] 1996 – 2001**
Catalonia	6.8%	47305	12.3%
Urban Areas	6.7%	35440	10.4%
Rural Areas	7.5%	11865	25.7%

(a) Enterprise density is the ratio of total enterprises to total population. (b) Difference between the number of enterprises in 2001 and 1996. (c) Net increase in the number of enterprises from 1996 to 2001 over the number of enterprises 2001. Rurality measured according to the Kayser criterion at municipality level, (Kayser, 1990).
Source: self-devised from Catalan Statistics Institute (IDESCAT).

Table 2. Descriptive statistics of selected variables

Variables	Rural Catalonia	Rural areas of the rest of Spain	Full sample	Kruskal Wallis chi-test (medians)
Rural Catalonia	1.0000	0.0000	0.2384 (0.4264)	n.a.
Entrepreneurial intention	0.0498 (0.2180)	0.0327 (0.1780)	0.0368 (0.1883)	1.253
Pre start-up entrepreneurial activity	0.0697 (0.2552)	0.0265 (0.1607)	0.0368 (0.1883)	8.046 (***)
Post start-up entrepreneurial activity	0.0498 (0.2180)	0.0093 (0.0963)	0.0190 (0.1365)	13.407 (***)
Gender (1 for men, 0 otherwise)	0.8905 (0.3130)	0.4595 (0.4987)	0.5623 (0.4964)	115.421 (***)
Age (years)	42.2935 (12.9745)	41.7570 (12.6952)	41.8849 (12.7566)	0.387
Primary studies	0.3980 (0.4907)	0.3988 (0.4900)	0.3986 (0.4899)	0.000
Secondary studies	0.3831 (0.4874)	0.3769 (0.4850)	0.3784 (0.4853)	0.025
University studies	0.1990 (0.4002)	0.1636 (0.3702)	0.1720 (0.3776)	1.349
Self – confidence in entrepreneurial skills	0.5473 (0.4990)	0.3972 (0.4897)	0.4330 (0.4958)	14.025 (***)
Social fear for entrepreneurial failure	0.3483 (0.4776)	0.3988 (0.4900)	0.3867 (0.4873)	1.644
Personnel knowledge of recent entrepreneur	0.3682 (0.4835)	0.2944 (0.4561)	0.3120 (0.4636)	3.876 (**)
Number of observations	201	642	843	

Values in brackets represent the standard deviation. n.a. = non-applicable.
*; **; *** = Significant at the 0.10, 0.05, and 0.01 level, respectively (two-tailed).

Table 3. Rare Events Logit Results: Impact of Role-Model on entrepreneurial process in rural areas

	Entrepreneurial intention			Pre start-up entrepreneurial activity			Post start-up entrepreneurial activity		
Independent Variables	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Rural Catalonia (1 if positive, 0 otherwise)		0.2860 (0.4103)			0.5438 (0.4101)			1.4448 (**) (0.6748)	
Gender (1 for man, 0 otherwise)	-0.0546 (0.3797)	-0.1542 (0.3880)	-0.1330 (0.4009)	0.5253 (0.3969)	0.3018 (0.4401)	0.2627 (0.4225)	0.7518 (0.6597)	0.1612 (0.7284)	0.3713 (0.7098)
Age (years)	-0.1090 (0.0871)	-0.1116 (0.0872)	-0.1109 (0.0896)	0.1293 (0.1196)	0.1227 (0.1226)	0.1275 (0.1273)	0.6815 (***) (0.2028)	0.8333 (***) (0.2611)	0.8337 (***) (0.2635)
Age squared (years)	0.0012 (0.0010)	0.0012 (0.0010)	0.0012 (0.0011)	-0.0016 (0.0015)	-0.0015 (0.0015)	-0.0016 (0.0015)	-0.0092 (***) (0.0028)	-0.0113 (***) (0.0036)	-0.0112 (***) (0.0035)
Primary studies	-0.9805 (*) (0.5070)	-0.9870 (*) (0.5068)	-0.9952 (*) (0.5099)	-0.3449 (0.4709)	-0.3435 (0.4637)	-0.4325 (0.4695)	1.6436 (1.1549)	1.8131 (1.2480)	1.6587 (1.2648)
Secondary studies	-0.3924 (0.4356)	-0.3963 (0.4381)	-0.3908 (0.4363)	-0.3007 (0.4964)	-0.3149 (0.5052)	-0.2876 (0.5041)	1.0336 (1.1067)	1.1694 (1.1767)	1.2175 (1.1689)
Self-confidence in entrepreneurial skills	0.9941 (**) (0.4357)	0.9676 (**) (0.4427)	0.9755 (**) (0.4590)	2.6063 (***) (0.7354)	2.5416 (***) (0.7266)	2.6001 (***) (0.7471)	2.2324 (**) (1.0309)	2.0413 (**) (1.0286)	2.1383 (**) (1.0576)
Social fear for entrepreneurial failure	-0.6382 (0.4441)	-0.6369 (0.4430)	-0.5878 (0.5379)	0.0967 (0.3991)	0.0834 (0.3974)	0.3493 (0.4841)	-0.6904 (0.6844)	-0.6361 (0.6887)	-0.2575 (0.8687)
Catalonia ´ Social fear for entrepreneurial failure			0.0328 (0.9452)			-0.4704 (0.7559)			-0.5123 (1.6078)
Personnel knowledge of recent entrepreneur	1.0759 (***) (0.3785)	1.0592 (***) (0.3761)	0.9775 (**) (0.4235)	0.4338 (0.3820)	0.3955 (0.3706)	-0.1712 (0.5103)	1.0734 (*) (0.5757)	0.9385 (0.5940)	0.2766 (0.7593)
Catalonia ´ Personnel knowledge of recent entrepreneur			0.3463 (0.5276)			1.3364 (**) (0.6311)			1.6772 (*) (0.9299)
Intercept	-1.2547 (1.6681)	-1.1881 (1.6611)	-1.1516 (1.6572)	-7.6737 (***) (2.7128)	-7.4967 (***) (2.7636)	-7.4535 (***) (2.8434)	-18.9746 (***) (4.0457)	-21.7516 (***) (5.2866)	-21.4740 (***) (5.3816)
Pseudos R^2	0.1207	0.1222	0.1221	0.1640	0.1706	0.1840	0.2905	0.3337	0.3256
Log Likelihood	-116.7783	-116.5861	-116.5982	-111.0343	-110.1541	-108.3771	-56.2443	-52.8237	-53.4629
LR (chi2)	24.66 (***)	25.83 (***)	26.67 (***)	26.91 (***)	28.23 (***)	33.59 (***)	46.90 (***)	52.06 (***)	46.03 (***)
Correctly predicted (Adopters)	0.6774	0.6774	0.6774	0.8367	0.8710	0.9032	0.8750	0.9375	0.8750
Correctly predicted (Non-adopters)	0.7094	0.7229	0.7278	0.6170	0.6281	0.6355	0.8041	0.8198	0.8210
Correctly predicted (Full Sample)	0.7082	0.7212	0.7260	0.6251	0.6370	0.6453	0.8055	0.8221	0.8221
Number of cases	843	843	843	843	843	843	843	843	843

Robust standard errors are presented in brackets. Catalonian sample size = 201. Rest of Spain sample size = 642. *, **, *** = Significant at the 0.10, 0.05, and 0.01 level, respectively.

Table 4. Rare Events Logit Model: First differences in the probability to be involved in the Entrepreneurial Process

		Entrepreneurial intention			Pre start-up entrepreneurial activity			Post start-up entrepreneurial activity		
Symbol	**Independent Variables**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
$\hat{\gamma}_1$	Rural Catalonia (1 if positive, 0 otherwise)		0.00867			0.01049			0.00544	
$\hat{\gamma}_2$	Gender (1 for man, 0 otherwise)	-0.00155	-0.00389	-0.00247	0.00845	0.00500	0.00500	0.00236	0.00025	0.00096
$\hat{\gamma}_3$	Primary studies	-0.02297	-0.02290	-0.02463	-0.00516	-0.00602	-0.00733	0.00736	0.00590	0.00630
$\hat{\gamma}_4$	Secondary studies	-0.00861	-0.00911	-0.00981	-0.00474	-0.00498	-0.00501	0.00395	0.00328	0.00410
$\hat{\gamma}_5$	Self-confidence in entrepreneurial skills	0.02728	0.02681	0.02802	0.06771	0.06588	0.06669	0.01141	0.00739	0.00899
$\hat{\gamma}_6$	Social fear for entrepreneurial failure	-0.01564	-0.01546	-0.01511	0.00148	0.00154	0.00569	-0.00226	-0.00124	-0.00064
$\hat{\gamma}_7$	Catalonia ´ Social fear for entrepreneurial failure			0.00138			-0.00562			-0.00089
$\hat{\gamma}_8$	Personnel knowledge of recent entrepreneur	0.03413	0.03362	0.03122	0.00793	0.00669	-0.00242	0.00464	0.00274	0.00063
$\hat{\gamma}_9$	Catalonia ´ Personnel knowledge of recent entrepreneur			0.01191			0.04163			0.01181
	Number of cases	843	843	843	843	843	843	843	843	843

(a) The first difference represents the change in the probability as a result of a discrete change from zero to one in the independent variable, i.e. $\hat{\gamma}_x = \Pr\left(Y=1\middle|X=1\right) - \Pr\left(Y=1\middle|X=0\right)$.

Catalonian sample size = 201. Rest of Spain sample size = 642.

Regional differences in the influence of Role-Models: Comparing the Entrepreneurial Process of Rural Catalonia

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Abstract

El documento examina el impacto que tiene la presencia de recientes y exitosos emprendedores (Role-Model) sobre el proceso emprendedor en áreas rurales con una fuerte tradición emprendedora respecto de aquellas áreas rurales que no muestran dicha característica. Para alcanzar este objetivo se adopta un enfoque institucional y socio cultural hacia la creación de empresas, y se utiliza un modelo logit ajustado para eventos extraños sobre una base de datos española para el año 2003. La principal contribución del trabajo indica que la diferencia entre los niveles de actividad emprendedora en la España rural es en gran medida explicada por la presencia de modelos emprendedores que favorecen la actividad emprendedora en áreas rurales como Cataluña, una región que cuenta con una alta tradición emprendedora.

JEL classification: M13, B52, R58.

Keywords: Rural entrepreneurship, informal institutional factors, Role Model.

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