



Spillovers & Entrepreneurship: Pueden ser separados?"

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Resumen:

This paper analyzes the spatial nature of entrepreneurship at NUTSIII. Lately, academic studies are including the relation between incipient entrepreneurs and geography. In some cases, this relation is considered as unidirectional insofar as the decision to become an entrepreneur can be highly influenced by geographical location. Beyond the cultural and social boundaries that affect the entrepreneur as an individual (Thurik et al 2002), there are spatial characteristics which provide advantages of location for some industries (Desrochers 1998 and 2001). While several studies highlight the role of location and geography as aspects that have an impact on entrepreneurial activity, the externalities generated by such aspects are not considered in empirical work (Holcombe

2007). The starting point is to check how avoiding considering location can have an effect on the results of entrepreneurship.

Key words: Entrepreneurship, Spatial Sur Model, Panel Data, geography of entrepreneurship

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1. Introduction:

Literature concerning entrepreneurship's determinants has focused on the analysis of individual factors affecting this decision. There is a line of work related to the spatial clustering of innovation which has tried to explain the regional advantages in terms of positive externalities regarding location or the feedback provided by some initial shock, although not many essays study the regional characteristics that may encourage the birth of entrepreneurship (Xue & Klein, 2009). However, although some papers accept the relevance of environment in the entrepreneurial process, they tended to ignore the adaptation of the models applied to the reality each location faces (Audretsch, Thurik et al 2002; Urbano et al 2011). Entrepreneurship varies significantly across regions (Bosma et al 2008) and such differences are stable in time (Grilo and Thurik, 2005; Mueller et al. 2008). Some other papers (Blanchflower and Meyer 1994, Blanchflower 2000, Audretsch, Thurik et al 2002) support the thesis that the effects of the main entrepreneurship factors differ across locations.

Although some papers consider factors depending on geographical location and its relation to entrepreneurship, only a few recent studies have made an attempt to explain the impact geography has on entrepreneurial activities. Two areas can be outlined when considering geographical aspects in entrepreneurial activities and, in particular, the effect neighbors have on location:

- 1) On one hand, there are factors which are stable in time and have an effect on the entrepreneurial activity in a certain region (Desrochers 1998, Andersson 2005), such as the role of its institutions (Manolova et al, 2008; Casper 2007), local culture (Heinemann and Brettel 2009; Saxenian 1996 , Florida 2002, Grupta et al 2009; Thurik and Dejardin 2011), social capital (Davidsson and Honig, 2003) or the region's degree of development (Wennekers, Uhlaner and Thurik 2002). Such aspects would relate to the process of accumulation of resources in a region, so geographical proximity can explain different rates due to social capital (De Dominicis, Florax&De Groot 2013).
- 2) On the other hand, being located in a certain place comprises access to a set of externalities which can favor entrepreneurial activity such as knowledge sharing (Acs et al 2009), access to resources that exist in the neighboring regions

(Pijnenburg and Kholodilin 2011) or even the existence of economic environments favouring entrepreneurial activity (Holcombe 2007). The effects are more intense on neighbors (Audretsch and Keilbach 2007) and proximity is necessary to access spillovers (Audretsch and Feldman, 1996; Audretsch and Lehmann 2006).

Despite the relevance of location as a conditioning element for entrepreneurship, early studies are more numerous in the analysis of location as far as its contribution to aspects such as culture and the role of institutions (Thurik et al 2002). However, even when potential externalities are detected, not many papers analyze them on a regional scale (Audretsch and Keilbach 2007; Acs et al 2009).

The objective of this paper is to study the issue the disregard of location can have on the analysis of entrepreneurial activity. Starting with a model containing its main determinants, the main deficiencies in the model are outlined, so the sources of explanation for the irregularities found are identified. The process shows the need to consider the existence of spatial interactions for the correct interpretation of the results obtained.

2. Literature Review

Factors leading to the decision of starting an entrepreneurial activity can be classified according to the following categories:

2.1 Individual factors

The decision of starting an entrepreneurial activity is a personal one and as such it may be conditioned by membership to networks, access to specific knowledge or informal support where there are network relations established, knowledge about market and informal support (Stam 2007, Parwada 2008; Dahl and Sorenson 2009; Sorenson and Audia 2000). It is also related to perception (Arenius and Minniti 2005).

2.2. Regional environment

Regional characteristics may provide a set of advantages as far as the location for some sectors is concerned (Desrochers 1998 and 2001). These advantages can increase the rate of new business in a territory, due to its higher potential profits. The existence of clusters and the effects of knowledge spillover are particularly relevant, as suggested by

the Theory of Knowledge Spillover Effects by (Acs et al 2009), as knowledge spillover increases technological opportunities for start-ups, and as a consequence, this spillover process has a positive effect on entrepreneurship rates. Similarly, Audretsch and Feldman (Audretsch and Feldman 1996) also find a positive relation between clustering and innovation.

The benefits of location lie on its importance in the set-up process due to different levels of opportunities conditioned by neighboring resources (Acs et al 2009 ; Varga 1998; Holcombe 2007). Along this line, spatial proximity allows business to take advantage of the effects of knowledge spillover (Audretsch and Keilbach 2007).

As entrepreneurship is influenced by the regional characteristics that generate spillovers within a region, such as macroeconomic conditions, cultural aspects or institutions (Thurik et al 2002), it is affected by these aspects and as such by its physical location (Audretsch and Keilbach 2007). Underlining this distribution, some authors argue that the economic development of a region offers different kinds of opportunities (Audretsch, Keilbach and Lehmann 2006), where larger markets imply a high level of entrepreneurial opportunities. According to Andersson 2005, profit opportunities are not equally discoverable in all locations, which points to the importance of the spatial location of entrepreneurs. Behind this assertion is the interest of entrepreneurs in indirect knowledge, ie, the capability to find anyone or anything with the demanded knowledge (Loasby 1999) as opposed to direct knowledge, which refers to their own knowledge. One way to allow this knowledge to flow is through direct relations, such as face to face contact (Desrochers 1998) and hence spatial proximity to knowledge resources is indispensable.

2.3 Regional spillovers

Although the two first aspects mentioned in the introduction to this paper have been studied, there is a third issue that is yet to be addressed by research and will define the objective of this paper, and that is the existence of spatial interactions on a regional level.

Studies such as Pijnenburg and Kholodilin's (Pijnenburg and Kholodilin 2011) find on one hand that -considering 337 districts in Germany- spillover effects of knowledge are bound to each one of them in this specific national context. They conclude this effect does not cross territorial boundaries and therefore the existence of knowledge spillover

effects across regions are, when present, weak. However, they find a negative relation between the human capital of neighboring regions and the economic performance of a region; while effects of human capital are positive in their own region. They conclude brain drain is behind this effect and consequently spillovers have a direct effect on entrepreneurial activity.

Regarding the United States of America, Sutter (Sutter 2010) finds that the results of knowledge spillover effects in terms of start-ups are higher than pure knowledge creation, and hence spatial location has effects on the dynamics of entrepreneurship. For the Spanish case, García, Crespo and Cuadrado (García et al 2011) find different business behaviours across territories at Nuts I level and, at the same time, they identify different levels of entrepreneurship across Spanish regions, concluding that one previous step relies on the quantitative and qualitative increase of entrepreneurship dynamics as a way of promoting the capacity for innovation.

As shown above, the influence of location in entrepreneurial activity can be summarized in two different ways. On one hand, as location determines economic and cultural boundaries, it affects the configuration of entrepreneurial dynamics on the population inside the territory, generating differences in capital composition and values of entrepreneurship. On the other hand, geographic location is determined by the neighboring regions, and hence opportunities to take advantages of spillover effects, which previous studies relate to knowledge transmission or market size, among others.

The importance of identifying and measuring these spatial effects, particularly the potential existence of externalities, is crucial for policymakers. Support by an entrepreneurial capital is highly localized and bound by spatial conditions (Audretsch and Keilbach 2007). As this is the first study at this level for Spain, it will open new ways to understand and measure entrepreneurial dynamics throughout the Spanish territory.

However, some studies highlight the role of location and geography as aspects influencing entrepreneurial activity, the existence of externalities and its impact on the main determining factors of entrepreneurship have not been analyzed (Holcombe 2007).

This paper is a contribution to show the impact of externalities over the main determinants of entrepreneurship on a regional level.

3. Entrepreneurship Measures

In this paper we define the entrepreneur as any owner of a venture, both business or social, according to the data provided by the Global Entrepreneurship Monitor (GEM).

The Global Entrepreneurship Monitor (GEM) project is an annual survey with information about aspirations, attitudes and other aspects related to entrepreneurial activity. For Spain, the data available cover more than 20,000 surveys per year from 2005 to 2011 on a nuts II level.

Following the aforementioned project, we define entrepreneurship as any activity of setting-up an initiative:

Total Early-Stage Entrepreneurial Activity Percentage of 18-64 population who is currently an owner-manager of a business younger than 42 months.

3.1. Explanatory variables (xit)

Entrepreneurship is a multidimensional concept, and its definition depends on the field of research (Verheul et al 2002) and the aim of the study. Some factors contribute to generate a higher rate of entrepreneurial activity while the existence of barriers holds back this activity. In this sense, as the effects of the main factors of entrepreneurial process vary across locations, entrepreneurial intensity is not constant. Please refer to Audretsch and Keilbach (Audretsch and Keilbach 2007) for German counties, Reynolds (Reynolds 1994) for the United States, Johnson and Parker (Johnson and Parker 1996) for the United Kingdom or García (García et al 2010) for Spain. The analysis of entrepreneurship requires therefore the measurement of a wide range of variables at different levels to understand its main factors.

This paper stems from the consideration of a rate of entrepreneurship model on a regional level that is able to identify the main macroeconomic determinants identified in the existing literature. Such factors can be classified as:

3.1.1. Individual Factors

The intensity of entrepreneurial activity depends on a wide range of factors, such as gender, age, human capital, attitudes or risk tolerance (Stewart and Roth 2001; Verheul

and Thurik 2001, Lindeman et al.1995). This paper considers three of them, identified as gender, age and Perceived Skills.

3.1.2. Regional Environment

There is a set of factors creating a more favorable environment for entrepreneurship on a regional scale. Setting up a business involves social and economic aspects that influence the individual decision to become an entrepreneur (Reynolds 1991). In line with this point of view, some studies (Aldrich and Zimmer 1986, 1987) note social contacts as one factor for entrepreneurship, while others (Busenitz et al. 2000) focus on fear to fail as a social value which affects the decision to become an entrepreneur. Apart from these elements, some characteristics with stability on time, such as culture, also show an impact on entrepreneurial activity (Engelen, Heinemann and Brettel 2009). Some authors point this as the most relevant factor because it is a sign of how important innovation is on a social level (Shapiro and Sokol 1982), while others prefer to highlight institutions and its articulating role as the most important factors (Manolova et al, 2008).

We divide social context related to entrepreneurship into two variables: rurality and self-employment.

3.1.3 Circumstantial Effects

Not every explanatory factor regarding the rate of entrepreneurship is based on structural elements. In particular, the existence of different motivations to set up an entrepreneurial activity, such as need or opportunity, shows that the same factor may have different effects throughout time (Audretsch, Carree and Thurik 2001).

3.1.4 Externalities

Apart from the aspects already mentioned, there are some others that can have an impact on entrepreneurial activity and that stem from the existence of externalities on a regional level, specially externalities concerning knowledge, which may come from various sources, such as trade or workforce (Acs et al 2009). Likewise, access to specific resources present in the neighboring regions is also a factor on how attractive a given region may be (Pijnenburg and Kholodilin 2011). Impact is more intense for neighbors (Audretsch and Keilbach 2007), as it decreases in direct proportion to distance (Audretsch and Feldman, 1996; Audretsch et al 2006).

In order to consider the potential existence of externalities, this paper is based on a model that collects the existence of interactions among Spanish regions.

Data Set

Age structure and the percentage of women in working age are census data available in the Council's Register. Data about the percentage of small business are available in the Central Business Directory while unemployment rates are available in the Economic Active Population Survey. All data used were therefore obtained from NSI (National Statistics Institute) of Spain:

Table 1: Explanatory variables

<i>Determinants</i> <i>(Variables)</i>	<i>Measure</i> <i>(%)</i>	<i>Literature</i> <i>(Authors and Year)</i>
Demographic characteristics		
Age	Population between 25 – 44 years over working-age population	Global Entrepreneurship Monitor, 2011; Reynolds and White 1997; Delmar and Davidsson 2000
Gender	Population of women in working-age	Langowitz and Minniti 2005, 2007; Verheul et al 2006, Mueller and Conway Dato-On 2008, 2011; Zhao et al., 2005
Perceived Skills/Education	Population that claims to have the knowledge and abilities to start up an initiative	Wolters 2000; Ihrig et al 2006; Kizner 1973, 1979; Doh & Acs, 2010; Weber and Milliman, 1997; Begley y Boyd, 1987; Palich and Bagby 1995; Global Entrepreneur Monitor 2011b
Social Context		
Rural	Population living in a rural context (less than 5,000 inhabitants)	Stathopoulou et al (2004); Figueroa-Armijos et al (2012)
Self-Employment / Entrepreneurial Values	Self-Employed Population in working-age	Wennekers, Noorderhaven, Hofstede and Thurik, 2001; McClelland 1961; O.Siqueira 2007
Industrial Structure and Market		
Unemployment	Unemployment Rates	Audretschand Thurik 2001
Structure	Business with five or less employees	Jovanovic, 1993; Porter 2008;

4. The empirical model:

The empirical model explains the entrepreneurial rate of each local unit with independent variables shown in section 3. Model estimates are based on the following expression:

$$\text{Entrepreneurship Rate}_{it} = X_{it}\beta_{it} + \varepsilon_{it} \quad E(\varepsilon_{it}) = 0 \quad E(\varepsilon_{it}, \varepsilon_{js}) \neq 0$$

where

$$i, j = 1, 2, \dots, 50$$

$$t, s = 2006, 2007, \dots, 2011$$

This model includes all potential spatio-temporal influences and heterogeneity kinds. Due to the absence of degrees of freedom, this model cannot be estimated, so we need to allow for some restrictions.

We use the model from the estimation of a pool model. In order to respect the heterogeneity of the various regions, we use a model of random effects, although the LM test advises against including this kind of effects. As an alternative, we analyze a model of fixed effects, showing a F-test annulling parameters and the need to include transversal effects. However, the Woolridge test proves the existence of a problem of auto-correlation between models with panel data, which is corrected by estimating an auto-regressive model of panel data and fixed effects.

The fact that there is a problem of auto-correlation shows that there are factors that have not been taken into consideration in the estimate, and, thus, there are elements that are not provided in the model, although they also have an impact on entrepreneurial activities.

In order to evaluate if the problem of auto-correlation is due to a regional effect, we provide an analysis of the spatial distribution of errors.

Table 2: Model Comparison

<i>Dependent Variable: Total Early-Stage Entrepreneurship</i>					
Independent variables:	Pool by OLS	Random Effects	Fixed Effects	Random Effects AR(1)	Fixed Effects AR(1)
Age	15.54***	15.79***	16.86***	16.59***	19.23***
Gender	-13.36	-12.53	140.20	-13.54	239.72*
Suskill	5.42*	4.81	2.04	3.90*	2.42
Rural	0.93	1.01	3.16	1.31	5.09
Sfl-Employment	21.46***	21.64***	22.32***	22.13***	16.72***
Unemployment	3.08	3.35	4.26	4.43	16.23*
Structure	9.76	11.57	63.22*	13.86	196.59**
year 2007	0.49	0.48	0.35	0.48	2.96***
year 2008	-0.35	-0.36	-0.38	-0.39	2.35***
year 2009	-0.62	-0.60	-0.48	-0.60	1.61***
year 2010	-1.08*	-1.07*	-1.01	-1.10*	1.11**
year 2011	-1.95***	-1.98***	-2.03**	-2.11***	0.00
constant	1.73	1.31	-79.44	1.58	-145.31***
rho_ar	-	-	-	0.21	0.21
sigma_u / sigma_e / rho		0.44 / 1.78 / 0.59	1.56 / 1.78 / 0.43	- / 1.79 / -	2.36 / 1.73 / 0.65
Obs (Grupos)	300	300 (50)	300 (50)	300 (50)	300 (50)
R2	0.48	0.5004/0.5067/0.47	0.3027/0.5138/0.01	0.4992/0.5079	0.1672 / 0.5182 /
Overall/Within/Between		48	87	/0.4992	0.0118
Breusch – Pagan	22.96***	-	-	-	-
Wald test			9,290.62***	-	-
Corr (u_i, Xb)	-	(0 is assumed)	-0.4184	(0 is assumed)	-0.7505
F test (all param)	23.97***	-	20.96***	256.95***	18.48***
LM test () (Efectos Aleatorios)	-	1.42	-	-	-
F test (Efectos Fijos)		-	1.34*	-	0.93
Hausman ()			6.82		8.21
Wooldridge test (autocorr)		-	8.52***		
Bhargava et al (Durbin Watson)			-	1.60	
Baltagi-Wu LBI				2.15	

In order to evaluate the spatial distribution of errors, first, we must define a matrix showing the interactions among the units subject to analysis, ie, among the different regions. Therefore, a spatial weight matrix $W=\{w_{ij}\}$ has been determined as an inverse squared distance d_{ij} between the province i,j centroids as follows:

$$w_{ij} = \frac{1}{d_{ik}^2} \quad ; \quad w_{ij}^* = \frac{w_{ij}}{\sum_{k \in N_i} w_{ij}}$$

where N_i is the set of provinces which are neighbors to the i -th one. This is a row-standardized matrix (W^*), which is the one that is going to be used in the other spatial models and tests. Therefore the influence that a province j exerts on another province depends inversely on the relative distance between them. To consider spatial distribution we compute the Moran test.

Moran test results show that the assumption of a random distribution for the entrepreneurial rates across the Spanish provinces for an early stage and we only can reject this assumption for 2009 and 2010. Results show that there is a problem of spatial auto-correlation and therefore if we do not consider spatial interactions, results might induce to error. Therefore, the results obtained with the Moran test provide evidence of the existence of a process of spatial interaction that must be considered in the analysis of entrepreneurship on a regional level.

Table 3: Moran's I test; results for 999 random permutations

Early Stage	2006	2007	2008	2009	2010	2011
Value	-0.0011	0.0143	-0.0273	0.2271	0.1008	-0.0141
Prob	0.279	0.194	0.479	0.001	0.016	0.427

As a way of analyzing the effect of spatial interactions as one of the determinant factors for entrepreneurial activity on a regional level we start from the most generic model collecting spatial effects. We, therefore, used a SSUR model (Spatial Seemingly Unrelated Regression). In comparison to SUR (Seemingly Unrelated Regression) classic models, where a temporal homogeneity is predominant, the SSUR spatial model provides transversal homogeneity. This means it can vary throughout time, so it needs a

higher number of cross-section units for time periods. This particular feature allows us to identify which factors have an effect on the externalities present in the data.

Under this restriction, SSUR expression remains:

$$\text{Entrepreneurship Rate}_{it} = X_{it}\beta_t + s_{it} \quad E(s_{it}) = 0 \quad E(s_{it}, s_{js}) = \sigma_{ts}$$

This model can be estimated if $N > T$. Estimation is done simultaneously for all time periods. To estimate parameters, equations are stacked for each time period as shown below:

$$\begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_t \end{bmatrix} = \begin{bmatrix} X_1 & 0 & \dots & 0 \\ 0 & X_2 & \dots & 0 \\ \vdots & \vdots & X_{\dots} & \vdots \\ 0 & 0 & \dots & X_t \end{bmatrix} \begin{bmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_t \end{bmatrix} + \begin{bmatrix} s_1 \\ s_2 \\ \vdots \\ s_t \end{bmatrix}$$

Where Y is a $NT \times 1$ vector, X is $NT \times T$ block diagonal matrix, where each X_t is a $N \times K$ matrix of explanatory variables in period T , N is the number of spatial units and K is number of explanatory variables, that can be different across time periods.

Error terms are time correlated. This yields an overall error variance matrix Ω $NT \times NT$

$$\Omega = \Sigma \otimes I$$

Where Σ is a $T \times T$ matrix whose elements are σ_{ts} and \otimes is Kronecker product

This way, the structure of the matrix of error variances and covariance allows a more flexible way of collecting the process of interaction among the spatial units considered, and the results are consistent with the existence of spatial interactions among the units subject to analysis.

Empirical Results of the SUR Model

Considering a SSUR model on potential entrepreneurship, the spatial dependence problem is solved, as it is not necessary to consider spatial lags or a spatial structure as errors according to LM tests. As we have shown above, homogeneity problems persist, and different parameters need to be estimated in time periods.

Self-employment is a parameter present in all considered periods with a positive effect. Some reasons which explain this effect are knowledge transmission, through both established networks of entrepreneurs (family, professional and social networks) and

spillover effects from established ventures, offering information about market conditions. Self-employment and a young population have a positive effect and they are statistically significant every year. Instead, gender has a negative impact, which seems to be in line with previous studies showing less willingness of women towards entrepreneurship.

It seems industrial structure does not have a clear effect on the first step to set up a business, while rurality has a double effect, closely related to unemployment. In this sense, if a higher percentage of population living in a rural area had a negative effect, after the economic crisis impact noticed in 2010 and 2011, both rurality and unemployment change their trend to show a positive effect. This change is commented in conclusions.

Homogeneity tests show that null hypothesis of constant betas must be rejected, and pool estimation is therefore rejected. According to the LM test, no signal of spatial autocorrelation was founded, and spatial dependence is correctly considered through a covariance matrix, and it is not necessary to estimate it under a spatial lag or a spatial error model.

Table 4: Spatial Sur Model for Early Entrepreneurship

	<i>Early (spatial SUR model, ML estimation)</i>					
YEAR	2006	2007	2008	2009	2010	2011
Constant	43.616*	10.265	-25.135	-19.943	42.489*	26.528
Age	7.579	5.845*	10.761**	7.372	1.246	7.625
Rural	-2.421	-1.057	-2.947**	-2.725*	2.428*	7.032***
Gender	-64.861**	-7.382	22.971	9.753	-57.918***	-47.475
Skills	6.590	13.373***	6.909	13.529***	9.918***	1.955
Structure	-21.744	-14.206	9.590	10.043	-23.045	-5.077
Unempl.	6.829	1.572	-8.022	-0.250	10.151**	10.968*
Self-empl.	55.561***	28.741***	31.165***	13.413**	34.332***	-5.159
LIK			-573.292			
ps-R2			0.643			
Homogen.			146.018***			

LM-ERR	3.455
LM-LAG	5.219

5. Conclusions.

The results obtained highlight the importance of including the existence of externalities in the models used. If not considered, the coefficients are significantly affected, as proved when a SSUR model was used. If included, however, it is possible to obtain a more robust thesis reflecting the existence of structural changes.

In the current crisis context, entrepreneurial activity is suffering a structural change in its main determinants. This change is not the same for all stages, being the first step, the desire to set up a business, the first one to be affected by this new economic context. In line with previous studies (Blanchflower et al 2010), our results show that considering women display less willingness towards entrepreneurship, a higher rate of women in the population has a negative effect on entrepreneurial rates. On the other hand, our results about the effects of young population on entrepreneurship are consistent with the higher rate of entrepreneurship based on this age range, due to a higher desire of people in this age range to become entrepreneurs (Grilo and Irigoyen 2006). Self-confidence in knowledge and abilities increases entrepreneurial rates.

As Grilo and Irigoyen (Grilo and Irigoyen 2006) have shown, aspects such as administrative complexities are an obstacle which reduces entrepreneurship desires. In a crisis context, public efforts to reduce public debt are sending a message concerning the expectation of the population and this has an impact on their behavior and desires. In 2008, during the early stage of the economic crisis, some potential entrepreneurs may have reconsidered their expectations, waiting for a context with low uncertainty, or changing their desire to become entrepreneurs and adopting an attitude of seeking for a job instead. There is a substantial structural change in 2009. Apart from individual innovators, governments should consider the industrial structure of their own economies.

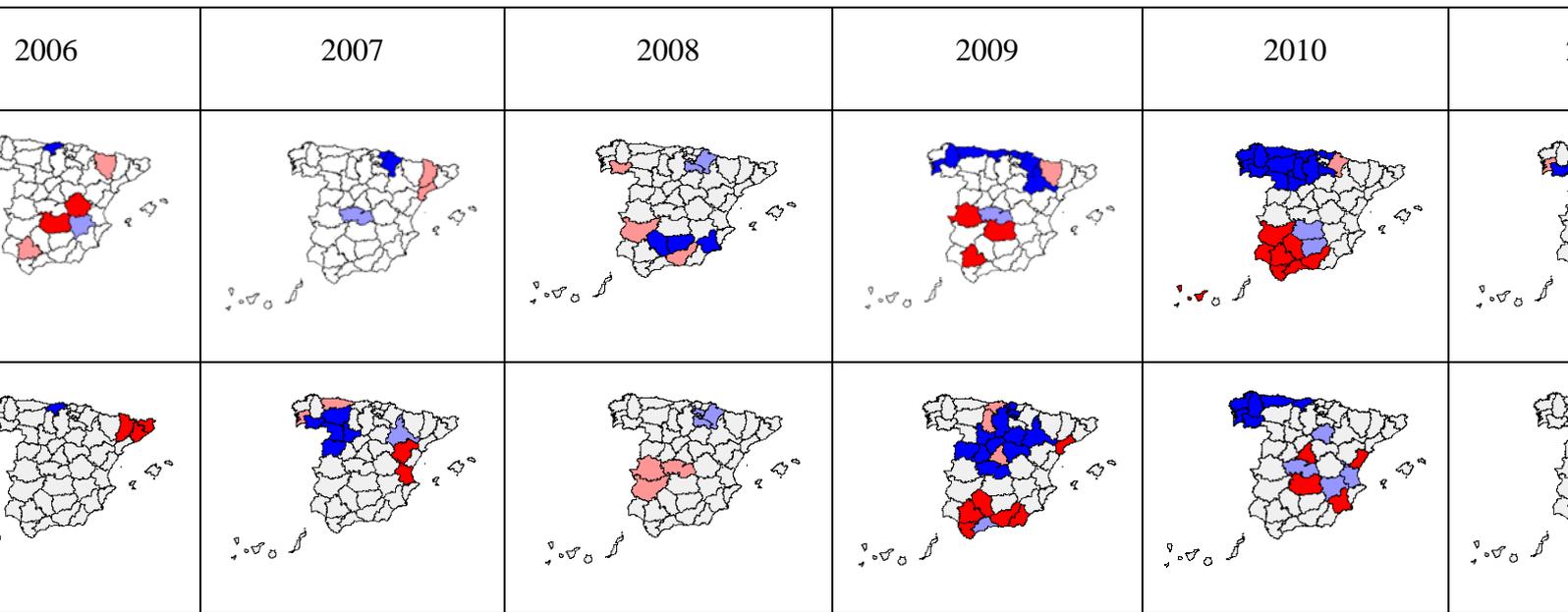
The effect change on entrepreneurship in regards to unemployment and rurality proves there is a new context. The higher rate of entrepreneurship motivated by need generates

the appearance of new kind of business which are created not as an opportunity but as a means of subsistence. This kind of entrepreneurship seems to be related to rurality in a new disturbingly way. While in urban regions there are more opportunities to find a job and therefore the decision of become an entrepreneur has other more convenient alternatives for population, in rural regions the lower level of opportunities give no chance to some entrepreneurs, who need to find another way to subsist. As social benefits can solve the situation for a limited time period, a lag of the effect in the early stages as opposed to the potential one may be due to the fact that social benefits came to an end approximately one year after the crisis began.

New kinds of business motivated by need and not profit-orientated can affect the mid and long term of economic growth, so a future field of research will be the study of effects of the economic crisis on economy growth stemming from this new kind of business.

Appendix:

Table 5: Local Moran Index. 2006 - 2011



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