

The location of creative clusters in non-metropolitan areas: a methodological proposition

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Abstract

This article studies creative clusters outside metropolitan areas in Spain. Both the notion of cluster and that of creative activity tend to be associated by mainstream research with urban settings; thus, situating them in non-metropolitan or rural localities has required us to adapt the usual methodology to the scale and idiosyncrasies of a rural setting. Based on this new focus, we have been able to identify 761 municipalities that could host creative clusters within an initial area of study of 7,367 non-metropolitan municipalities with fewer than 50,000 inhabitants. This methodology also has allowed us to measure intensity, internal composition, and localization, so that those of a more mature or advanced character, having a greater level of specialization and diversity, predominate in places close to metropolitan areas and the Mediterranean axis, whereas in inner Spain, they are found in a lower proportion and in a more scattered and discontinuous manner. Activities belonging to the Functional Creations sector prevail over those from Communication and Patrimony in the configuration of the clusters, although there are differences in relative specialization according to their mature or advanced level. In addition, some of the most significant indicators of rural dynamism – population growth, human capital, unemployment, and economic activity – show much better behaviour in municipalities with creative clusters.

Keywords: Creative Clusters, Rural Economies, Spain

1. Introduction¹

This article examines the localisation of clusters of creative firms in rural municipalities. Among the activities considered as *creative* are advertising, architecture, the art and antiques market, crafts, design, designer fashion, film, interactive leisure software, music, the performing arts, publishing, software, and television and radio (UNCTAD, 2010). Boix *et al.* (2014) have recently discussed the academic interest in such activities, which has led to multiple publications in which high potential is attributed to creative activities in the creation of employment, diffusion of knowledge, and promotion of rural development. Therefore, the European Union holds that creative activities can promote the smart, sustainable, and inclusive growth of a territory at all scales and recommends reinforcing its potential to promote development and beneficial effects on the economy (European Commission, 2012). Indeed, recent research shows that the existence of a creative economy in rural areas is one of the determinants of smart rural growth (Naldi *et al.*, 2015; Jakob and Van Heur, 2015).

In the entirety of investigation conducted on the subject of creative activities, limited research has been performed in rural areas (Bell and Jayne, 2010), although the presence of creative activities in such spaces is not insignificant or inconsequential. A total of 24% of employment in cultural and creative activities in the European Union corresponds to sparsely populated areas (White, 2010); in Spain, where the empirical analysis for this study has been performed, rural areas account for 10.37% of the employment in creative activities (Méndez *et al.*, 2012). Moreover, research conducted in the United States and Canada has illustrated

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the contribution of creative activities to rural development through the creation of high-quality firms and employment (McGranahan and Wojan, 2007a; 2007b). These data are encouraging when considering that creative employment in rural European regions grew by 10.7% between 2001 and 2008, which was 2.9% greater than in urban regions (Russo and Quaglieri, 2011).

The article aims to improve the systematic geographical knowledge of creative activities in non-metropolitan areas and proposes a specific methodology for the location of possible firm clusters in rural municipalities. The authors share the hypothesis that large cities do not have a monopoly on creativity (De Propris *et al.*, 2009) and that there are significant concentrations, or clusters, of creative activities in rural municipalities that confer competitive advantages on their hosts because of their link with specific local advantages (Western Development Commission, 2009). The developed methodology includes the following requirements: 1) identifying significant concentrations of creative activities in small locations; 2) detecting the functional characteristics of such concentrations that can be attributed to a cluster; 3) allowing the capture of different ways how these functional characteristics are combined and modulating their intensities; 4) classifying the studied municipalities according to their possibility of hosting these clusters; and 5) handling easily available data that can be adjusted for use in various contexts and on various scales.

Applying the methodology to 7,367 Spanish non-metropolitan municipalities of less than 50,000 inhabitants has allowed the following questions to be answered: Are creative activities relevant in Spanish rural areas? What possible creative clusters exist, what are they like, and where are they found? And what socioeconomic dynamics distinguish municipalities with possible creative clusters? The first two questions focus on describing the spatial and functional context of creative activities and their clusters in rural areas, whereas with the third, we expect to identify possible differences between municipalities with and

without creative clusters. This stage of our research refers only to a subset of our database of 7,367 municipalities, consisting of the 2,498 with more than 1,000 inhabitants.² Among the results obtained, we can highlight the identification of 761 non-metropolitan municipalities with the potential to host clusters of creative firms. In addition, with regard to the third question, the analysis conducted expresses a positive relationship between municipalities with creative clusters and demographic growth, economic dynamism, and human capital. In our opinion, this result supports the opportunity for the practical implementation of policies that promote these activities as tools for development and, simultaneously, ratifies the methodological improvement realized in our proposal in relation to the detection of creative clusters in rural areas.

We believe that this study delves deeper into new aspects of creative activities and the rural setting. First, we contribute unpublished aspects of the geography of creative activities in the rural areas of Spain, which, due to the low level of spatial detail in the majority of studies, typically remain hidden in maps representing urban clusters. In addition, the scale of the analysis allows for a detailed coverage of the totality of the Spanish rural space in a field of study in which case studies predominate. Third, it applies a concept such as that of the *cluster*, fundamentally associated with urban phenomena, to non-metropolitan space. Thus, working on *rural* clusters allows us to test for the possible presence of economies of agglomeration, their scale, and, definitively, which basic characteristics define non-metropolitan municipalities capable of hosting clusters and whether they resemble urban clusters (Naldi *et al.*, 2015).

² Only thus were we able to use the variables gathered in the Statistical Yearbook of Spain, specifically, the index of economic activity and the unemployment rate, defined in Footnote 5.

The remaining sections of this article are structured as follows: Section 2 specifies the theoretical aspects; Section 3 explains the data and methodology used; Section 4 describes and comments on the results from the location analyses and characteristics of the municipalities hosting potential firm clusters; Section 5 explores the demographic and socioeconomic dynamics of these municipalities; and the conclusion assesses the results and proposes future lines of research.

2. The location of creative clusters in non-metropolitan areas: theoretical considerations and justification in terms of rural development

Following the line of research consolidated in prior publications (among the most recent, see Boix *et al.*, 2014; Bertacchini and Borrione, 2013), the definition and typology of creative activities adopted in this research are those proposed some years ago by the United Nations Conference on Trade and Development (UNCTAD). Thus, in this article, creative activities are those involved in the “creation, production and distribution of goods and services that use creativity and intellectual capital as primary inputs; constitute a set of knowledge-based activities, focused on but not limited to the arts, potentially generating revenue from trade and intellectual property rights; comprise tangible products and intangible intellectual or artistic services with creative content, economic value and market objectives; [and] stand at the crossroads of the artisan, services and industrial sectors” (UNCTAD, 2010: 8).

Table 1 shows that the range of activities involved is broad, ranging from those rooted in traditional culture to those that other classification systems would include among knowledge-intensive business services (KIBS) or knowledge-intensive services activities (KISA). The intrinsic diversity of creative activities has led to analyses focused on subsectors or specific categories.

Table 1. Creative activities according to activity type

ACTIVITY TYPES (1)	NACE Rev. 2 Code Definition
HERITAGE	91. Libraries, archives, museums and other cultural activities
ARTS	90. Creative, arts and entertainment activities
COMMUNICATION	18. Printing and reproduction of recorded media
	58. Publishing activities
	59. Motion picture, video and television programme production, sound recording and music publishing activities
	60. Programming and broadcasting activities
FUNCTIONAL CREATIONS	74. Other professional, scientific and technical activities (2)
	71. Architectural and engineering activities; technical testing and analysis
	73. Advertising and market research
	70. Activities of head offices; management consultancy activities (3)
	62. Computer programming, consultancy and related activities

(1) UNCTAD (2010). (2) This group includes *specialised design activities, translation and interpretation activities, and photographic activities*. (3) This group includes *Public relations and communications*.

With respect to non-metropolitan localisation, studies in creative subsectors examine the specific dynamics of certain activities that produce mobile goods as opposed to others associated with immobile goods of a heritage type whose distribution depends on the occurrence of specific local legacies, which may lead to spatial selectiveness (Méndez *et al.*, 2012). A greater presence of arts and heritage related activities in small locations is evident (Bertacchini and Borrione, 2013), but the potential of small municipalities to attract activities included in the functional creation sector is evident as well (Cooke and Lazzeretti, 2008; Bell and Jayne, 2010; Mateos-García *et al.*, 2014; Vallance, 2014). In this respect a wide bibliography on knowledge-intensive service activities (KISA) describes how improvements in information and communication technologies have favoured localisation, independent of their distance to markets, thus providing options for rural areas. Indeed, Lafuente *et al.* (2010)

find that the search for a specific lifestyle and quality of life determines the influx of these activities in rural areas, leading them to make recommendations to rural policy makers to increase their appeal to promote the arrival of this type of entrepreneur. However, proximity to large metropolitan areas continues to be a weighty factor in the localization of freelancers and small creative firms, who prefer to be located in rural municipalities situated in geographical proximity to areas where larger markets are present (De Propris *et al.*, 2009).

Nevertheless, the focus of this study is on identifying possible co-location situations, i.e., the local coincidence of creative activities pertaining to one or more types of those included in the table 1. This last goal stems from our principal objective, which is to detect municipalities whose creative activities constitute *clusters*, that is, geographical concentrations of firms with shared capacities and strategies and the potential for synergy with similar sectors (Porter, 1998)

The relation between creative firms clusters and local development has already been addressed in rural contexts and produced results that are generally affirmative but with certain nuances (Boix and Lazeretti, 2012; Capone, 2008; McGranahan and Wojan, 2007a; 2007b; Polèse, 2012). This assumption that firm clusters provide the basis for regional economic growth (Spencer *et al.*, 2010; Titze *et al.*, 2014) is derived from two properties that have been extensively described in the literature: 1) cooperative relationships and competition between the firms, organisations, institutions or agents that compose the clusters (Porter, 1998; 2003; Navarro-Arancegui, 2003); and 2) the generation and diffusion of innovation and knowledge caused by the proximity among its members (Rodríguez-Pose and Comptour, 2012). Thus, there has been a proliferation of cluster policies focused on nurturing and/or supporting co-operative relationships among business groups on a regional scale (Aranguren *et al.*, 2014; Magro and Wilson, 2013). In addition to these policies are those that have been implemented in the European Union to specifically support rural creative

economies and, in this manner, progress toward the objectives of smart development (Naldi *et al.*, 2015).

To apply the concept of cluster to small locations in rural areas where firms may also be few and very small – such is the case in this research – three cluster properties are significant because of their further effects on the business sphere and, by extension, on local development: 1) the generation of location economies, as described by Marshall; 2) the existence of Jacobian economies, typically associated with an internal diversification of economic activity, because they facilitate knowledge exchange and the appearance and diffusion of social and economic innovations (Rivera *et al.*, 2014; Sánchez Moral *et al.*, 2014; Van Der Panne, 2004) ; and 3) the potential of each firm in the cluster to benefit “as if it had greater scale or as if it had joined with others formally” (Porter, 1998: 81).

In summary, in our review of the literature, we have found three characteristics – specialisation, diversification and firms concentration size– suitable for identifying potential clusters of creative firms in rural areas, as explained in the following methodological section.

3. Proposed methodology: Data and application criteria

3.1. Data

In this study, we work with statistics for employment and firms at the municipal scale provided by the Social Security Treasury (2012). This source is increasingly relevant in the analysis of the labour market and in tracking the economic climate in the rural setting in Spain, unlike other important sources, such as the Population Census of 2011, the methodological changes of which make it impossible to obtain detailed socioeconomic information for small municipalities. For our analysis, we extract data for employment and municipal enterprises that correspond to the headings of the Statistical Classification of Economic Activities in the European Community (NACE Rev. 2) that fit the UNCTAD

definitions for creative activities (Table 1). The activities are described at the 2-digit level codes or activity grouping because the data source only provides the required data on these characteristics.

In the analysis of location of creative activities in the non-metropolitan areas of Spain, the chosen municipalities are those with fewer than 50,000 inhabitants that are not included in officially established metropolitan areas (Ministerio de Formento, 2006). This criterion is a rigorous classification that allows us to delimit our area of study, resolve the always problematic distinction between urban and rural areas, and, in this manner, cover areas excluded in prior studies on the geography of creative activities in Spain. The unit of analysis, the municipality (NUTS 5/LAU 2), is suitable because it provides a level of detail that is essential for detecting local firm concentrations in very low-density spaces in terms of population and sparse settlements, such as those in the inner Spain.³ This level of detail is lost when more aggregate approaches such as commuting areas or local labour markets are used. Furthermore, by working at this scale, one minimizes the risk of the *ecological fallacy*, which is difficult to avoid.

3.2. Criteria and indicators of creative firms clustering

One of the methods most commonly used to empirically identify creative clusters at the scale and the level of resolution of our investigation is obtaining indices of relative concentration, such as the location quotient (LQ). Its application in various contexts has allowed the detection of specialized *pockets* of creative activities in non-metropolitan areas

³ The Spanish population density is 96 inhabitants per km², which, for instance, is 2.3 times lower than in Italy; in the interior regions (with the exception of Madrid and a few other urban areas), it is below 15 inhabitants per km².

(De Propris *et al.*, 2009; Lazzeretti *et al.*, 2008; 2012; Polèse, 2012). However, this method does not include information of two other significant characteristics of clusters in this research such as the absolute size (mass) of the activity –related to its ability to boost economies of scale– or diversification, that is, the simultaneous presence of activities from various creative sectors. Moreover, in being applied to a single variable, such as firms or employment, the quotient does not allow eliminating the biases stemming from its unidimensionality. Thus, it may happen that a relative concentration of employment may be due to a single large firm that absorbs a large part of the work and human capital factors but does not generate intercompany or sectorial externalities. In turn, a relatively high concentration of firms may be due to the existence in the municipality of micro-firms including freelancers, whose effective significance is low in terms of employment.

The methodology that we propose makes it possible to address the aforementioned gaps and identify as possible creative clusters the rural municipalities that have the properties of critical size, specialization, and business diversification noted above. To that end, we combine two indicators: the Horizontal Location Quotient (HLQ) and the Theil Index. The HLQ is a good clustering indicator for small localities because it identifies the specialization of creative activities and includes information related to the absolute size of the industry in that locality (Fingleton *et al.*, 2004). Conceptually close to the aforementioned localization quotient (LQ), the HLQ is defined as the number of companies or jobs of a local activity that exceed the expected number. This expected number is equal to the number of employments or firms in the activity that would exist if its relative significance were the same as in the national economy, thus producing a LQ equal to 1.⁴ When HLQ values are positive, they

⁴ We recall that the *HLQ* measure is calculated for firms by first obtaining the *LQ* expressed as $LQ = (F_{ij} / F_j) / (F_i / F)$, with *LQ* being the location quotient of activity *i* in municipality *j*; F_{ij} are the firms from activity *i* in

indicate the presence of clusters, increasing the intensity of the clustering in parallel to the increase of the index value. HLQ values depend on the size of the activity. Nevertheless to minimize the risk that in the clusters detected the generation of economies of scale for the reasons discussed above may not be viable, in this study, we simultaneously apply the HLQ to firm and also to employment data (v. 3.3).

To detect sectorial diversification, due to the presence of municipalities with more than 1 type of creative firm included in Table 1, Theil's coefficient has been applied. This measure is an indicator of the degree of inequality in the allocation of the total mass of the variable, firms in this case, among the creative sectors examined in the study.⁵ The coefficient has a value of 0 when diversification is at its maximum level and 1 in the opposite case.⁶

3.3. Applying criteria to the identification of municipalities with potential creative clusters

The criteria established are applied in two stages. In the first, we calculate the HLQ with data on employment (*e*) and also with data on firms (*f*) to obtain municipalities meeting the critical size criteria because $HLQ_e > 0$ and $HLQ_f > 0$. In a second stage, we verify to

municipality *j*; F_j , are all the firms of *j*; F_i , are the firms from the activity *i* in the entire study area; and F is the total number of firms in the study area. Then, F_{ij} is replaced by F'_{ij} to obtain $LQ = (F'_{ij} / E_j) / (E_i / E) = 1$, with F'_{ij} being the number of firms necessary for $LQ = 1$, given the other values. Finally HLQ is obtained by calculating $HLQ = F_{ij} - F'_{ij}$. With the variable for employments, the process is the same (Fingleton *et al.*, 2004).

⁵ The Theil's coefficient expression for firms data is the following: $Th_i = 1 - (\sum z_{si} * \log(1 / z_i) / \log k)$, where Th_i is Theil's coefficient for municipality *i*; z_{si} denotes the number of firms in each of the activity sectors in the municipality *i*; and k is the number of activity sectors considered (in this case, 3).

⁶ As an alternative to the Theil index, we tested the Herfindahl index and obtained very similar results because the coefficient of correlation between both sets of values is very high: 0.986.

what degree the creative firms in the municipalities with $HLQ_e > 0$ and $HLQ_f > 0$ fulfil the specialization and intersectorial diversification criteria. In the application of the provided indicators – HQL_f and Theil index–, this study distances itself from other studies, such as those cited above, in which the cluster condition is contemplated in dichotomous terms as either occurring or not occurring according to full compliance or noncompliance with one requirement. Reality is typically more nuanced, especially in rural or non-metropolitan areas, and for this reason, cluster conditions can manifest with various intensities and even with different maturity levels. Thus, in this research, it is admitted that the specialization and diversification criteria may be met with different degrees of success and that, in each of the study municipalities, less compliance with a criterion may be compensated for by greater compliance with another criterion. This approach allows us to capture and grade inter-municipal differences in terms of their potential to host creative clusters.

The applied procedure is simple and consists of re-expressing the values of the diversification and specialisation indicators at an ordinal scale with the three categories of low, medium, and high, using as threshold values those that favour a proportionate distribution of cases among all of the combinations of possible variables. A two-way table is used to classify the municipalities into three categories according to the lower, medium, or higher nature of their values for both indicators. Based on possible situations resulting from combining the two criteria, a final classification is established with five levels of rural municipalities according to their potential to host creative clusters (see later Table 4).

It is worth adding that this methodology can sort according to the risk of “statistical noise” or the inclusion of small locations where the presence of creative firms may be a random result. As illustrated in detail below, the proportion of municipalities that have the potential to host a creative firm cluster is low.

The final stage of the analysis is conducted to answer our third question and to detect possible traits differentiating between municipalities with and without potential creative clusters. To that end, we compare the behaviour of the municipalities in relation to some key variables and their possible contrasts depending on the *clusterization* level: I, II, III, IV, V, or none (“Cat_none”). As we have advanced in the introduction, the data at this stage of the research refer only to the subset of our database of 7,367 municipalities, consisting of the 2,498 with more than 1,000 inhabitants. Our understanding is that this is a large enough sample to enable us to form some preliminary conclusions. The variables selected for comparison are socio-economic: population growth in the period 2001-2011, the index of economic activity, the unemployment rate, and the proportion of the population with a university-level education.⁷ The population variation between 2001 and 2011 is a good indicator to explore because of the critical demographic situation of a high number of rural municipalities, such that significant variation in their population may indicate creative clusters’ specific associations with employment or other aspects of local development. The three remaining indicators are based on abundant empirical evidence associating the presence

⁷ The variable *index of economic activity* is obtained according to the tax on all business activities except agricultural activities. The index value indicates the participation (per 100,000) corresponding to each municipality over a national base of 100,000 units on July 1, 2012. The variable *unemployment rate* collects the number of firings recorded at the State Public Service of Employment (formerly the INEM) in each municipality on July 1, 2012, relativized by the potentially active population (15 to 64 years of age), referring to the Standard of January 1, 2012 (Recorded unemployed / Population 15 to 64) * 100. In turn, *College completion rate* refers to people with a university-level education, i.e., who have completed a diploma course, architecture or technical engineering course, university 3- or 4-year degree course, official Master's degree, medical specialisation course, or doctorate in 2011.

of creative industries with economic wealth and the development of human capital (Grodach *et al.*, 2014; Lafuente *et al.*, 2010; Murphy *et al.*, 2014).

4. Results: The creative clusters in the non-metropolitan areas of Spain

4.1. Relevance of creative activities

The study area includes 7,367 municipalities and represents 90.8% of the total number of Spanish municipalities, which are home to 32.2% of the population and 90.7% of the country's area. The importance of creative activities in the area under study can be deduced from the data presented in Tables 2 and 3 and Figure 1.

Table 2. The importance of creative activities in rural areas in 2012

Areas in comparison	Creative activities (total)				Creative activities (main categories) (2)					
					Heritage & Arts (3)		Communication		Functional Creations	
	Employments		Firms		Empl.	Firms	Empl.	Firms	Empl.	Firms
	Number	% (1)	Number	% (1)						
Study area	86,081	2.10	11,469	2.03	10.27	10.94	23.60	23.05	66.12	66.01
Spain	892,869	5.47	72,483	3.65	4.75	7.01	22.27	20.97	72.98	71.97

(1) Employments and firms in creative activities / total employments and firms * 100.

(2) Employments and firms from the category / employments and firms in creative activities * 100.

Source: Social Security Treasury (2012).

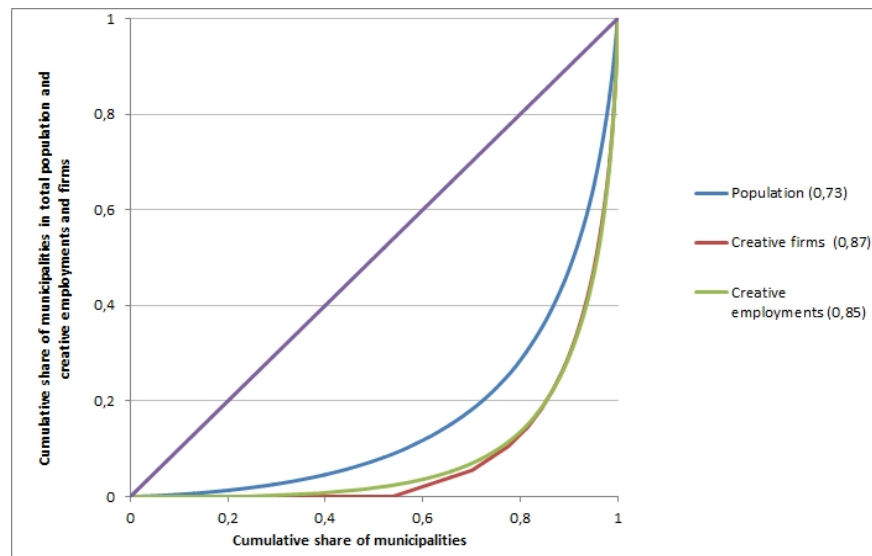
(3) Arts and Heritage categories have been added because these activities have a similar nature and are underrepresented in the source data.

At first glance, it would seem that the non-metropolitan areas have only a small proportion of the creative firms and jobs in Spain and that their relative importance in the rural economies themselves is less decisive because their share with respect to the total is less than the national average. It is important to add that the size of the firms, the average number of jobs, is smaller. However, the area studied is so extensive and heterogeneous that if we

introduce categories such as sector of activity, demographic size, or localization into the analysis, then new arguments appear that enrich the panorama presented.

First, it must be observed that creative activities show an elevated spatial concentration in the area of study. The Gini coefficient presents values of 0.87 and 0.85 for jobs and firms, respectively (Figure 1).

Figure 1. Spatial concentration of creative firms and employments



Source: *INE* –Statistics National Institute– Population census (2011); Social Security Treasury (2012); authors' research.

Only 3,817 municipalities, representing 51.7% of the total, have employed individuals in creative activity. In these, the presence of firms is even more selective, given that only 1,965 municipalities, representing 26.7% of the total, have firms engaged in creative activities. This result is related to the fact that two-thirds of the municipalities included in the study area contain fewer than 1,000 inhabitants (Table 3). These small-holding communities are the result of sustained population loss affecting Spanish rural areas, especially those from the interior; such loss has been occurring throughout most of the 20th century, and these units have not yet recovered (Zúñiga *et al.*, 2012). This notable and widespread economic, social,

and cultural gap does not support the appearance of entrepreneurs who promote this type of innovative company or who contract qualified human capital (Malecki, 2003)

Table 3 describes some significant characteristics in relation to population size and specific activities of the municipalities with creative firms.

Table 3. Distributions of firms in creative activities by size of the municipalities included in the study area

Population (pop)	Municipalities		Creative firms (total)		Creative firms (number by categories) (2)		
	Total	% (1)	Total	% (1)	H & A	C	FC
pop < 1,000	4,856	65.92	466	4.06	117	59	290
1,000 < pop < 5,000	1,740	23.62	2,112	18.42	297	395	1,420
5,000 < pop < 10,000	412	5.59	1,976	17.23	226	469	1,281
10.000 < pop < 50,000	359	4.87	6,913	60.29	538	1,784	4,591

(1) Total / study area * 100. (2) H & A: Heritage and Arts; C: Communication; FC: Functional creations.
Source: *INE* –Statistics National Institute– Population Census (2011); Social Security Treasury (2012); authors' research.

The data presented show that, in principle, with greater population, the percentage of creative firms is much larger. Small cities with more than 10,000 residents have advantages in attracting this type of activity that are very similar to those recognized by the literature for any other industry, with ample labour markets, possibilities of generating links with suppliers and clients, and larger local demand for goods and services. Although smaller municipalities are less likely to achieve a critical mass of creative activities, nevertheless the relationship is not linear, and the difference between municipalities of 1,000 to 5,000 residents and municipalities of 5,000 to 10,000 residents does not follow this rule: there is no proportionality, and the former accumulate more companies. In addition to population, it would be interesting to study the function that they fulfil within their area of influence, as in depopulated zones localities that are not very large perform spatial organizing tasks that would correspond to higher ranking cities (Woods, 2004: 5).

Depending on the size of the municipality, the composition of creative activities changes, in addition to their profile. In municipalities with fewer than 1,000 residents, the subsector of Heritage and Arts includes a quarter of this type of firms, whereas those belonging to the sector of Communication are little more than 10%. This proportion is inverted with localities with more than 10,000 residents, where the number of firms dedicated to Heritage and Arts does not reach 8% but those in communication are greater than 25%. The profile of the smaller municipalities coincides with the results obtained by Polèse (2012) and Bertacchini and Borrione (2013) for Canada and Italy, respectively, because the activities related to the arts tend to concentrate (Italy) or increase their presence (Canada) in smaller rural areas. However, in Spain, the set of creative activities related to Arts and Heritage barely exceeds 10% of the total firms and employment. This result is not unrelated to the fact that NACE Rev. 2 is deficient in measuring artisan activities at any scale. Therefore, future research should complement these data with other sources.

4.2. The potential creative clusters in rural areas: Identification, characterization, and localization

Once we evaluated the importance of creative activities, it was interesting to us to know in what types of municipalities there can be creative clusters and where they are found. To that end, we applied the indicators of critical size, specialization, and intersectorial diversification to the creative employments and firms of the municipalities studied. With regard to the first, we found 761 municipalities in which we obtained a $HLQ > 0$ by calculating by both firms and employment, representing 10.3% of the total, a proportion

similar to that obtained in studies conducted in the United Kingdom regarding various creative sectors at a comparable scale and level of resolution (De Propris *et al.*, 2009).⁸

When we evaluate the characteristics of these 761 municipalities with regard to the specialisation and diversification indicators (Table 4), we observe that municipalities with lower specialization and diversification are the most numerous, owing to the clear domination of activities consistent with functional creation in comparison to those of patrimony and communications. Indeed, the municipalities significantly decrease in number (169 localities with a Theil Index below 0.35 in comparison with 352 greater than 0.65) as the level of diversity among creative activities increases. The specialization indicator, HLQ_f , defines some subsets that are almost symmetrical with respect to their extremes.

Table 4. Levels of potential *clustering* in rural municipalities according to the specialisation and diversification of their creative firms

Criteria and levels	Diversification			Total municipalities
	L (0.65> Theil< 1)	M (0.35 < Theil < 0.65)	H (Theil < 0.35)	
L (0<HLQ _f <1)	271 (I)	55 (II)	11 (III)	337
M (1<HLQ _f <2)	53 (II)	68 (III)	15 (IV)	136
H (HLQ _f >2)*	28 (III)	117 (IV)	143 (V)	288
Total municipalities	352	240	169	761

L, M, A: Diversification and specialisation of creative firms at a low (L), medium (M) or high (H) levels, respectively.

(I) to (V): Resulting levels of clustering potential.

* The highest HLQ_f value is 76

The combination of both indicators provides a more accurate picture of clustering development in the areas studied, giving five potential clustering levels, with I being the lowest and V the highest. Their characteristics are described in Table 5.

⁸ The study referred to analysed the distribution of companies from various creative sectors among 7,913 MSOAS (middle layer super output areas), that is, territorial demarcations that contain between 5,000 and 15,000 residents.

Table 5. Characteristics of the potential creative clusters in the Spanish rural areas

Potential clustering levels	Municip. (number)	Population (average)	Size distribution (1)				Profile (2)			Location (possible spillover effects) (3)
			A	B	C	D	A. and H.	Com.	FC	
I	271	999	190	75	5	1	28	11	61	19
II	108	2,958	21	70	12	5	16	17	67	30
III	107	4,367	23	54	23	7	09	20	71	27
IV	132	11,174	7	41	34	50	06	22	72	35
V	143	15,596		24	33	86	12	27	61	42

(1) Number of municipalities in each of the following categories: A (population < 1,000); B (1,000 < population < 5,000); C (5,000 < population < 10,000); D (population < 10,000 population < 50,000).

(2) Percentage of creative firms in each of the following categories: A. and H. = Arts and Heritage; Com. = Communication; FC = Functional Creations.

(3) Percentage of municipalities hosting potential clusters in the provinces of Vizcaya (Bilbao), Guipuzcoa (St. Sebastian), Madrid, Barcelona, Valencia, Alicante, and Seville.

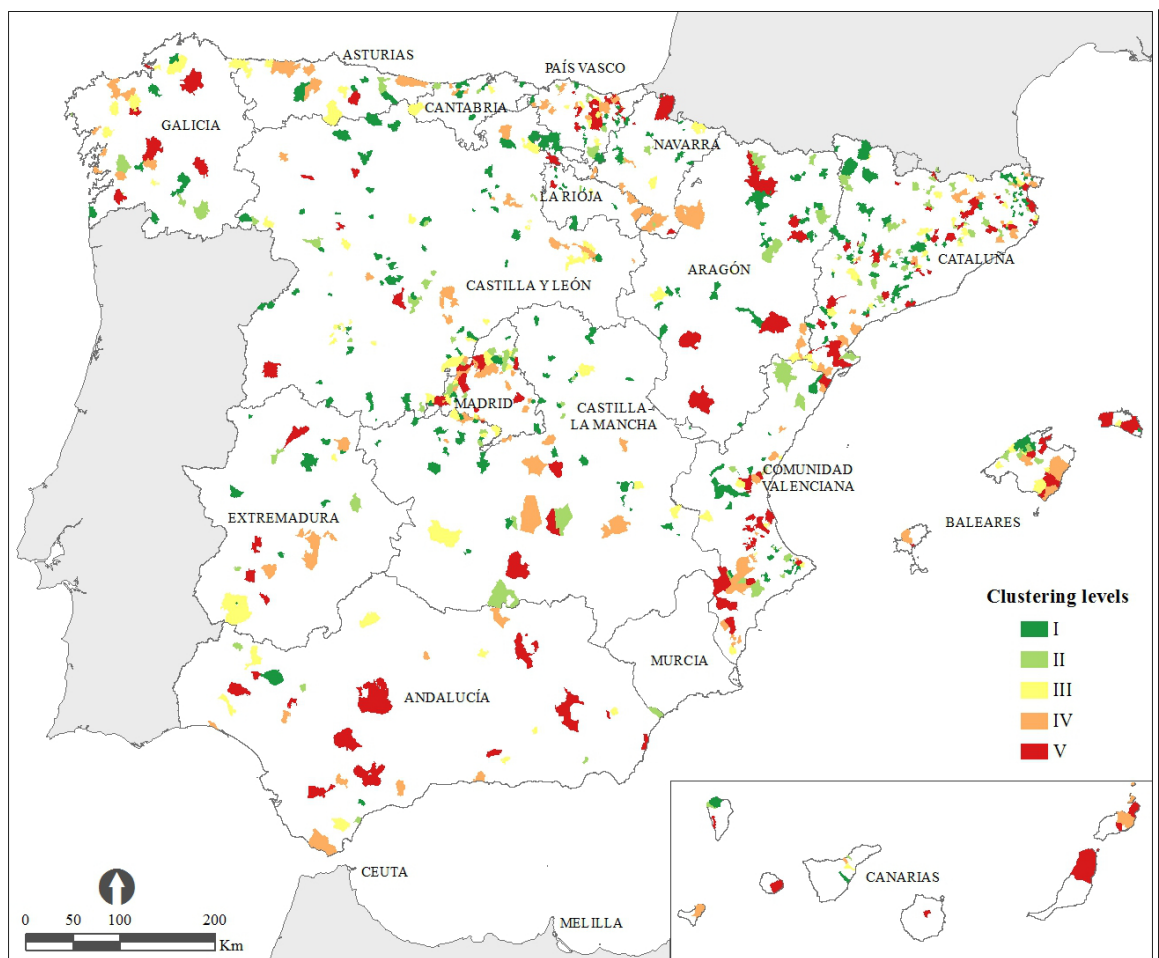
Source: *INE* –Statistics National Institute– Population Census (2011); Social Security Treasury (2012); authors' research.

The potential type I clusters, with a low level of diversification and specialisation, are the most numerous and mainly correspond to very small municipalities with fewer than 1,000 residents; thus, their average population is the lowest. It is interesting to note that although the average population increases with the level of clusterization, demographic size is not automatically associated with set levels of specialisation or diversification of creative firms. Small municipalities are included in types II, III, and even IV, which indicates that, despite these municipalities' small size, for this type of activity, they manage to generate a sufficient critical mass and demonstrate a medium-high level of specialisation and diversification in their creative firms. With regard to predominant activities, we should note that the subsector of Communications is a good indicator of the maturity and intensity of the cluster because its relative and absolute importance increases in the higher ranked municipalities.

The localisation of the clusters in the territory also contributes some interpretive keys. The map in Figure 2 clearly reflects that one part of the municipalities that we have identified as clusters form *creative belts* around nearby metropolitan areas: Madrid, Barcelona (in Catalonia), Valencia and Alicante (in the Valencian Community), Seville (Andalusia), and

Bilbao and San Sebastian (in the Basque Country). Except for the capital, Madrid, all of these are located in coastal provinces, mostly Mediterranean. The data from Table 5 show that although we find clusters at all levels in their areas of influence, the most numerous are those of greatest intensity, that is, type V. This result confirms the expectations offered above regarding the existence of both demand phenomena (for a larger market) and supply phenomena (spill-overs) from metropolitan areas to relatively nearby rural municipalities. Proximity and accessibility are determinants and point to the complementarity between the rural and the metropolitan.

Figure 2. Spatial distribution of non-metropolitan municipalities with the potential to host creative clusters



Source: Social Security Treasury (2012); authors' research.

Regardless, there are also creative clusters in the rural areas of the interior, although without spatial continuity and with less intensity than those found in metropolitan areas. Some correspond to types IV and V and coincide with localities that serve as the county seat. However, the majority of the potential clusters are types I and II, that is, small municipalities that have managed to exploit local amenities or to develop specialized links with urban demand or supply for creative activities.

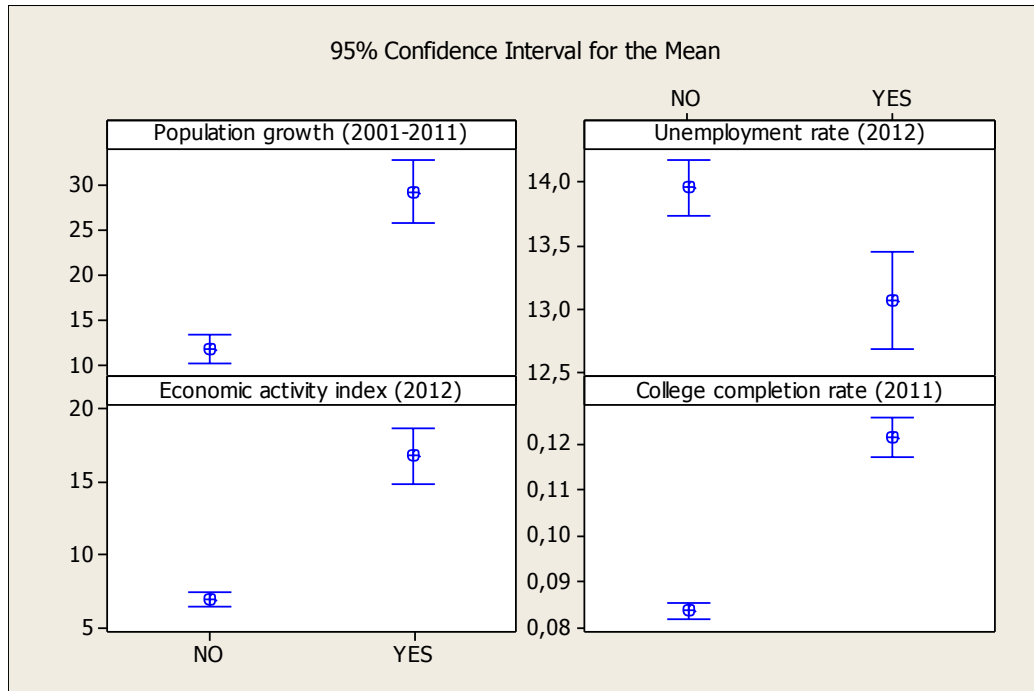
5. Distinctive socioeconomic dynamics of creative clusters and interest in rural development

That creativity is a substantive differentiating factor for the competitiveness of cities is an argument that has entered the mainstream of Regional Economics over the last decade. However, as stated at the beginning of this study, in the non-metropolitan or rural setting, its role is more open to argument, in both the theoretical and the applied areas. On the other hand, the greater part of the Spanish rural setting is undergoing a serious and historic decline economically, socially, and demographically (López Trigal *et al.*, 2009). Thus, if creative activities can be shown to be associated with a differentiated and positive dynamic in the rural municipalities that host them, not only would it be a relevant analytic contribution but it would also enrich the debate regarding new policies for rural development in Spain, which, until recently, have been excessively tied to agrarian activities (González Regidor, 2008).

According to Figure 3, in terms of demographic dynamism, human capital, the labour market, and economic activity, the rural localities that host possible creative clusters (“Yes” category) present some very different characteristics from those that do not (“No” category). We observe that the former have much better values in the selected indicators. The mean deviation of the values in the “YES” category is high, but the p-value (0.00) of the

comparison between means confirms that the difference between both groups of municipalities is significant.

Figure 3. Socio-economic contrasts between the municipalities hosting a potential creative cluster (“YES”) and those that do not (“NO”)



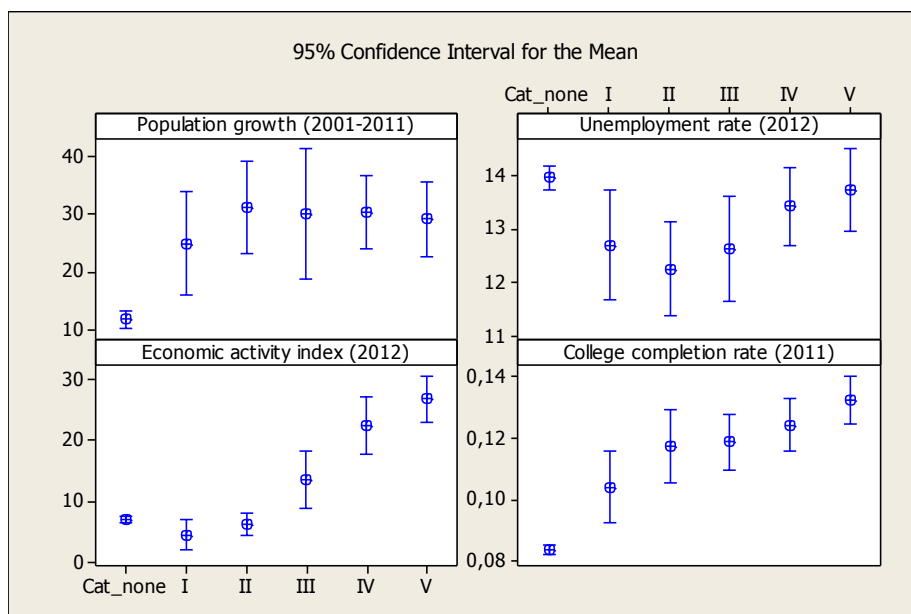
Sources: *INE* –Statistics National Institute– Population Census (2001; 2011); *La Caixa* (2012): *Anuario Económico*

The existence or nonexistence of a potential cluster introduces a contrast in the demographic behaviour of the municipalities in the period 2001-2011. Although they all grow, the pace at which the “creatives” grow is much higher than those that are not, and they are also considerably above the national average (14.6%). Contrasts in terms of human capital, measured as the college completion rate, lead to similar conclusions. We see that the proportion of college-educated populations in municipalities with creative clusters is higher than in those without. The index of economic activity, which describes the economic size of a municipality, and the unemployment rate also show an average better value in the municipalities of the “Yes” category. Again, the p-value (0.00) confirms that there is a

significant difference between means in the comparison, despite the high standard deviation of the respective means.

A more detailed analysis reveals interesting contrasts, depending on the level of the *clusterization* of the municipalities (Figure 4). The results indicate a progression in average population growth with the clustering level, although, in this case, the differences between cluster levels are less pronounced and the behaviour of the municipalities of types I and II, the smallest, is closer to that of the higher levels. This seems to us to be an interesting result because although many variables influence the demographic evolution of a locality, the marked contrast between the category *none* and the rest shows that creative activities are an element that is present in the dynamization of the rural setting. In a country such as Spain, in which large parts of the interior show extremely low demographic indicators for firms and population, finding that creativity is present when both improve helps justify their support as a key element in rural development strategies.

Figure 4. Socio-economic contrasts between municipalities according to the level of the potential clusters they host



Sources: INE –Statistics National Institute– Population Census (2001; 2011); La Caixa (2012): *Anuario Económico*

Thus with respect to human capital, there is a direct relationship with the level of *clusterization*: the qualification of the human capital clearly increases with the clustering level of the municipality. The index of economic activity also shows a positive relationship with the degree of *clusterization*, although only when beginning with level III will values surpass the average for municipalities without a cluster. This fact contributes an interesting piece of evidence that creative clusters can exist in small municipalities that lack the advantages –centrality, market area– expected in the municipalities of higher categories.

Unemployment shows a slightly better behaviour in localities with creative clusters, although one should bear in mind that the Great Recession of 2007, systematic in nature, especially impacted Spain to the point that it showed rates of unemployment among the highest of the Organisation for Economic Co-operation and Development (OECD) countries, generalized through all sectors, territories, and collectives. In the face of such a depressing climate, creative activities – which are very dependent on internal demand – do not seem to have had sufficient traction to reverse such a robust trend and municipalities hosting clusters show almost similar unemployment, being even higher in categories IV and V.

To summarize, municipalities with potential creative clusters are distinguished by having notably better performance in terms of economics, demographics, labour, and availability of human capital than those that lack these clusters, which makes them more competitive and a point of reference for inspiring the politics of rural development and territorial cohesion.

6. Conclusions

This study investigates creative activities in the non-metropolitan area of Spain and the possible existence of clusters. We agree with Bell and Jayne (2010) that this subject requires “...theoretical and methodological understanding that are responsive for the

particular characteristics of the creative countryside” (Bell and Jayne, *op.cit* : 209). Thus, we have adapted the usual methodology, redefining some of the canonical indicators of identification and characterization – size, specialisation, and diversification – in a coherent combination that has allowed us to filter, from the 7,367 municipalities that constitute the broad zone of the study, a subset of 761 that fulfil the requirements. Based on the methodology selected, we have been able to define a five-level scale of municipal *clusterization* that allow us to describe the level of maturity and to better specify the role of the creative cluster in the territory. Thus, owing to this methodological proposal, we have been able to address some of the questions that inspired our study, which, in previous investigations, have not been attended to or only in a very incomplete manner.

First, we study the relevance of creative activities in the Spanish rural setting, which, to date, had not been done in a specific way. Although the proportion of municipalities with creative companies or employment is relatively low and those that can host creative clusters are little more than one-tenth, this nevertheless supposes an elevated number, and its weight in the group is equivalent to that of some Western countries that are leaders in this type of activity.

Within the three subsectors of creative activities, those known as functional creations predominate in almost every type of municipality, regardless of population size and level of clusterization. However, the subsectors of Patrimony and Heritage are more important in municipalities at an initial level, I and II, and are less important in the more consolidated municipalities, III, IV, and V, whereas creative activities of Communication have the opposite trajectory. We confirm the robustness of functional creations activities, which is reasonably because of their universal character as advanced services to all types of industries, in addition to families and end users. We also note the great potential of activities closer to tradition and cultural patrimony, which, in more rural localities and smaller localities, are an

important source of entrepreneurship and employment and still have the ability to promote greater development and agglomerations or clusters at a higher level, given that they only predominate in municipalities of type I.

Maps, figures, and tables define an unbalanced and very concentrated localization within a territory as heterogeneous as is the case with Spain. Based on this study, one may deduce the influence of the great metropolitan areas, whose proximity generates positive effects, such as possible markets, and as providers of specific factors. In these types of activities as well, one can appreciate the *Mediterraneanization* that the Spanish economy has been undergoing for some time and the void in the interior, an area in which clusters scarcely have (geographic) continuity and appear as islands in the midst of broad areas where there is not (or barely is) creative activity.

In the contrast between municipalities without creative clusters and those with, one observes that the most representative variables for rural dynamism, such as increases in population, human capital, the economic activity index, and employment, show better performance the greater the level of the cluster, although, in some intervals, the relationship is nuanced. Regardless, these results, as noted by McGranahan *et al.* (2010) and Naldi *et al.* (2015), show the importance for public administrations and civil society of betting on smart growth, based on creativity and innovation, contextualized according to place and potential, linked to urban areas. Thus, it is necessary for rural development policies to incorporate creative activities as a strategic axis, similar to how they have been including bottom-up strategies for some time, growth based on local factors, or the importance of amenities as a pull factor.

To summarize, we have shown that it is possible for relevant creative clusters to appear in all types of non-metropolitan areas and that they can act as development elements of the area. We believe that despite the limitations of this study, we have managed to make

progress along some lines that were left pending in the study of creative activities outside metropolitan settings. Thus, we present a specific methodological adaptation that helps detect idiosyncratic elements in the rural economy and in the phenomenon of clusters, allowing for verification of their existence, their degree, and their intensity, in addition to showing their differing compositions by sector. We have contributed evidence of the existence of creative clusters in Spain outside conventional metropolitan spaces, that is, in spaces where a definition tightly linked to questions of size and agglomeration would not fit as well. Furthermore, we have shown that the level of development of municipalities, according to certain relevant territorial indicators, is much better than that of the non-specialized municipalities. For these reasons we believe that creative activities can promote beneficial effects on the economy and so they constitute an object to bet on in the politics of rural development.

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