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Lagging rural areas: detection, diagnosis and planning development

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Abstract— The overall objective of the present paper is to identify and analyse the territorial factors that influence the economy and demography of rural areas in Catalonia. The paper begins with a definition of the different rural typologies, and then proposes an innovative methodology combining tools from different disciplines, such as economics, statistics, geography and sociology. The methodology is applied to the 946 municipalities existing in Catalonia today, which visually results in a map of the region.

The map obtained allows us to identify rural spaces throughout the territory – including metropolitan and peri-urban rural areas. The next step has been the analysis of the indicators of their socio-economic development contexts in order to identify their similarities and differences in terms of socioeconomic and territorial characteristics. As a result of applying this methodology, we can deepen our understanding of the factors behind lagging agricultural activity in rural spaces, as well as make progress in the identification of sustainable policies aimed at preventing the environmental, sociological and cultural losses linked to the abandonment of rural activities.

Keywords— Rural space, rural development, lagging rural economy.

I. INTRODUCTION

Rural regions are far from sharing the same characteristics throughout the territory. On the contrary, it is a well-observed fact that there exists a great diversity within rural areas, which has led to several classifications of rural areas by different bodies over the years. For administrative purposes, rural areas are commonly categorized using single variable analysis, usually based on population densities (OECD 1994 [1], EUROSTAT 1997 [2]). However, recent studies (INSEE 2000 [3], INRA-

ENESAD 2002 [4], ESPON 2006 [5]) have revealed that the inter-relationships and interdependence among urban centers and the rural hinterland are increasing, making distinctions between the two much harder to formulate.

New attempts to establish a clear rural/non-rural division have appeared, with the recent addition of the concept of rural-urban continuum (HALL, P. 2005 [6]). It is clear that nowadays “urban” and “rural” areas are not distinct and separate entities with completely different outlooks, lifestyles and populations. Easier commuting across longer distances has resulted in the expansion of the influence of major urban areas, enabling individuals to live in rural regions whilst working in cities, as well as attracting permanent investment and labour force to rural areas.

However, we can find lagging rural areas not only in remote counties but also in what may be considered metropolitan regions. In such cases, agriculture and forestry are no longer able to deal with the economic needs of the population and in most cases urban expansion is not possible. The proximity to a city may even be a major lagging factor. The purpose of this paper is to find a new methodology in order to analyse the causes and find the socio-economic reasons related to the sustainable development in rural areas.

II. METHODOLOGY

Commuting flows can provide a good understanding of the degree to which a place is urban or rural. Commuting refers to the flow of people going every day from one place (secondary pole) to another (main pole), in order to work or study, or because of commercial reasons. Commuting in Catalonia has been subject of many studies as the referents Artís, M., Romaní, J. y Suriñach, J. [7] , Boix, R [8], Feria, J. M. [9].

At a practical level, commuting is used as an urbanity index; statistics on work-related commuting flows have been used since 1997 in France [10], the UK [11], Canada [12], and the USA [13], to determine the scope of rural spaces, city-regions and metropolitan areas.

For the extent and purposes of this paper, we have considered “rural” all the land which is currently not urbanized, that is, those areas that are not considered apt to be built on by the local administration. It is thus possible to define three different typologies of rural land, depending on their predominant environmental characteristics: metropolitan rural areas, peri-urban rural areas and remote rural areas. To determine which areas are metropolitan and which ones are peri-urban this paper uses an innovative, multidisciplinary approach, which has been inspired by the statistical systems focusing on residence-work commutes mentioned above, as well as the commercial attraction formulas researched by Reilly [14] and Huff [15].

The first methodological step was the mapping of metropolitan and peri-urban zones using the statistical methodology followed by the France INSEE (Official Statistics French Institute) [10], which is based on the statistic data available regarding work-residence commutes.

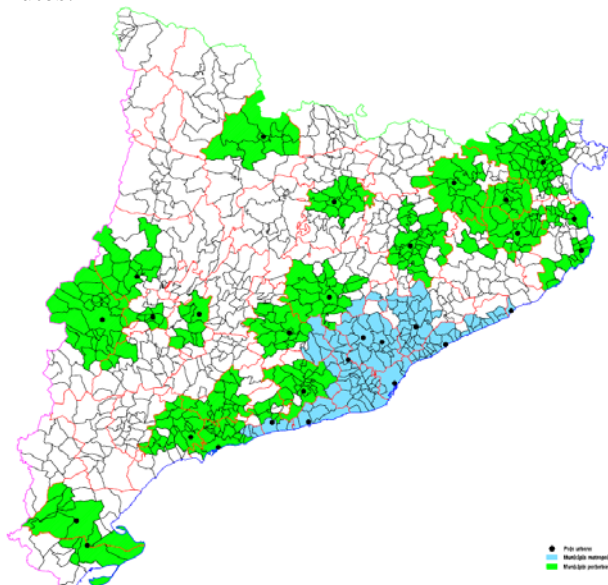


Fig. 1 Map based in work-residence commutes

Commuting behaviour provides an important indicator of the links that exist between areas. A strong commuting flow from accessible rural areas to an urban centre indicates an urban preponderance, even in small municipalities with a low population density.

The second step was to determine the commercial attraction poles and areas, using the models defined by Reilly and Huff. The access to shops also determines a flow, and hence urban preponderance. The Reilly formula establishes a maximum distance radius, measured in kilometers of road, from the pole city to the edge of its commercial area. The Huff model states the probability for a hypothetical consumer located in X to shop in Y, using as variables the distance and surfaces of commercial equipments in the different attraction centers studied.

In the current study, the Huff model was used to determine the poles of attraction, whereas the original Reilly formula was replaced by the distance equivalent to a 35-minute road journey. Following this methodology, the places located less than a 35-minute road journey from a commercial pole were considered inside the pole attraction area. The spaces located more than 35 minutes road distance from a commercial pole were considered remote rural.

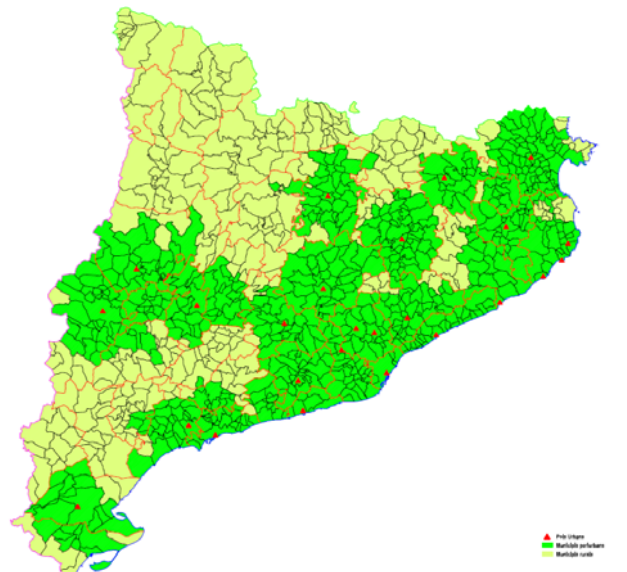


Fig. 2 Map based in commercial attraction

As a result of applying the above methodology to the region of Catalonia, in North-eastern Spain, two different maps of the same area were obtained.

The step that followed was the fusion of both maps, which resulted in a final depiction of poles throughout Catalonia, both work and commercial ones, and their areas of influence.

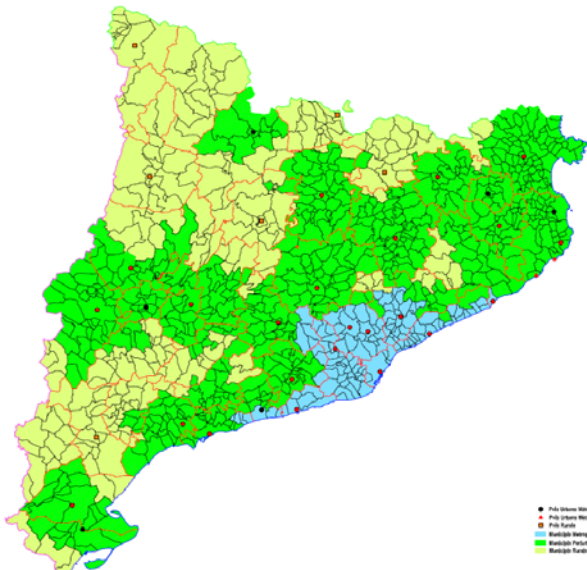


Fig. 3 Final map: remote, peri-urban and metropolitan spaces in Catalonia

Often, for statistical purposes, an area with a population density over 500 inhabitants/km² is considered metropolitan. Rural areas enclosed in a peri-urban commuting space with a population density superior to 500 inhabitants/km² enter the rural-metropolitan typology class. In the case of Catalonia, after applying the described methodology to the whole region, the only metropolitan space obtained was Barcelona and its surrounding commuting area (see fig 3). Rural areas enclosed in a peri-urban space with a population density inferior to 500 inhabitants/km² enter the second typology class, known as peri-urban rural areas. Rural areas out of any peri-urban space, as defined, enter the third typology class, known as remote rural areas.

The proposed methodology is particularly useful in regions where the commuting processes are becoming increasingly important, and may help to understand the rural–urban links and influences that flow with daily movements across the geographic space.

III. DIAGNOSIS OF LAGGING SITUATIONS

The research work that followed was the compilation of different indicators of all municipalities in Catalonia (a total of 946), in order to identify the variables associated with lagging situations throughout the territory. Municipalities showing either an aging population (more than 25% over the age of 65), population growth 1/3 or less lower than the Catalonia average, a clear loss of population, or more than a 25% of its population over 65 years age, were considered lagging rural regions (see Fig. 4).

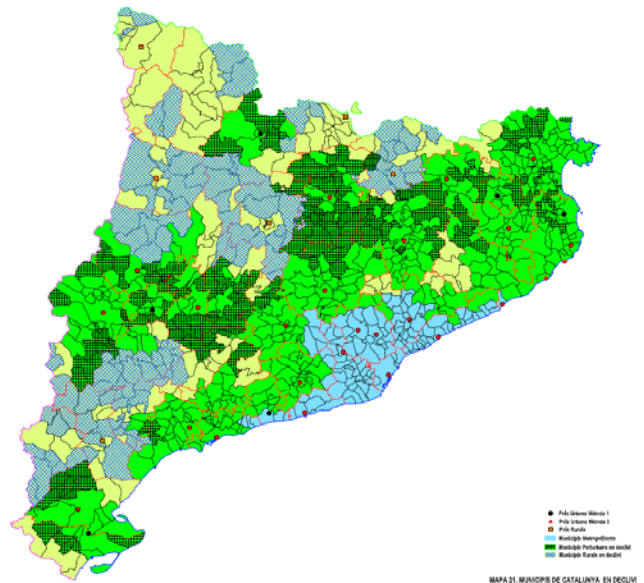


Fig. 4 Lagging rural municipalities in remote and peri-urban spaces

The indicators studied included the population increase/decrease in the last 10 years, the male/female population ratio, the population age distribution, the presence of immigrants, the family income levels, the existence of European Union Natura 2000 spaces and the mountain/plain classification of the municipality.

The mountain classification, the existence of Natura 2000 spaces, or the presence of immigrants were identified as not having any relation whatsoever with lagging or development situations. The factors more clearly related to the lagging situation were deficits in services (cultural, medical, and educational) and the time needed to access to the commercial and work poles.

The data obtained, however, has helped us to identify that lagging situations have different causes and different dynamics in metropolitan, peri-urban or remote rural areas, and therefore may require different approaches, policies and governmental actions to overcome their realities.

In metropolitan areas, the limited rural soil is usually linked to the Natura 2000 network, the existence of a protected area (such as a riverside), or the impossibility of building on the land because of geological reasons. Agricultural activity in such spaces has many limitations and is not sufficiently rewarding, which often leads to the neglect and degradation of rural spaces. The general economy of the area may be thriving, but the land use is unsustainable and requires special protection and specific policies, given that if it is abandoned to economic flows it will no longer produce the intangible, non-monetary revenue that it yields today: landscape, ecological diversity and cultural tradition.

In rural peri-urban areas, agriculture and forestry no longer constitute the backbone of rural economies, due to the commuting phenomenon and the loss of income derived from agricultural activities.

As it has been reported by Cavailhes, J., Wavresky P. [16], in peri-urban municipalities where the demographic indicators are positive, we observed the same kind of rural land problems as in metropolitan areas, with the added difficulty of having to compete against growing urban activities for the use of the land and workforce.

On top of the above, there are municipalities with a high rate of population loss (young people in particular), which results in the ageing of the

population left behind. Such municipalities form a clear ring around the emergent medium urban poles (15.000 to 30.000 inhabitants). Policies here should entice young people to work in agriculture, reinforce the market value of agricultural products and improve the social perception of the role of farmers in the community, in order to prevent the negative environmental consequences of land neglect.

In lagging remote rural areas the problems are more intense, and the facts more paradoxical indeed.

There are municipalities with a population density beneath the 3 inhabitants/km² that are losing population. In such situations, clear and energetic actions are needed in order to reverse the trend. Many of these remote municipalities, classified as mountain or depopulating areas, have been receiving subsidies from the European Union Common Agriculture Policies since 1986; such support has proved to be a failure and needs to be changed.

On the other hand, some municipalities have successfully overcome their lagging situation and are now found amongst the ones with the highest per capita income in Catalonia. As Maigrot, J.L. [17] has observed in France, when analysing the reasons why some remote rural municipalities are so successful it has been found that such areas have become tourist sites and show a strong presence of holiday homes. In a few ones the economic growth has been fuelled by the valorisation of local wines (such as Priorat), and above all a successful promotional strategy.

IV. CONCLUSIONS

The present paper attempts to establish a diagnosis on the development or lagging situations of different rural areas in Catalonia. To reach such diagnosis we followed an innovative methodology based on a multidisciplinary approach that uses a myriad of concepts and formulas, including market studies and commuting journey times, in order to find out the extension of urban influence throughout the territory. The resulting map of Catalonia effectively dividing metropolitan, peri-urban and remote rural spaces, constitutes a framework for the analysis of the

dynamics of lagging situations in all municipalities in the region.

We considered all rural spaces enclosed in metropolitan areas (that is, with a population density over 500 inhabitants/km²) as lagging rural areas, due to the strong competition they face from their urban neighbours and its associated pressures, which may derive in the abandonment and degradation of the land. On the other hand, most rural spaces located in peri-urban areas with population densities under 500 inhabitants /km² clearly fall in one of these two situations:

- In dynamic municipalities where agriculture has been replaced by industries and services as the backbone of the economy, rural land presents the same problems as those detected in metropolitan spaces.
- In municipalities located more than a 20 minutes car journey from the closest medium urban pole (15.000 to 30.000 inhabitants), the population is decreasing and aging rapidly. Strong action involving specific governance and policies is needed to reverse the trend.

In rural remote spaces, lagging situations are very common, but it is possible to find a number of groups of municipalities with a healthy economy, in spite of their remoteness and the fact that they are predominantly rural. Such cases must be studied further in order to identify the reasons behind their success and ideally export their model to lagging areas.

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