Rurality Index: New Methodological Approach to Regional Development in OTALEX C

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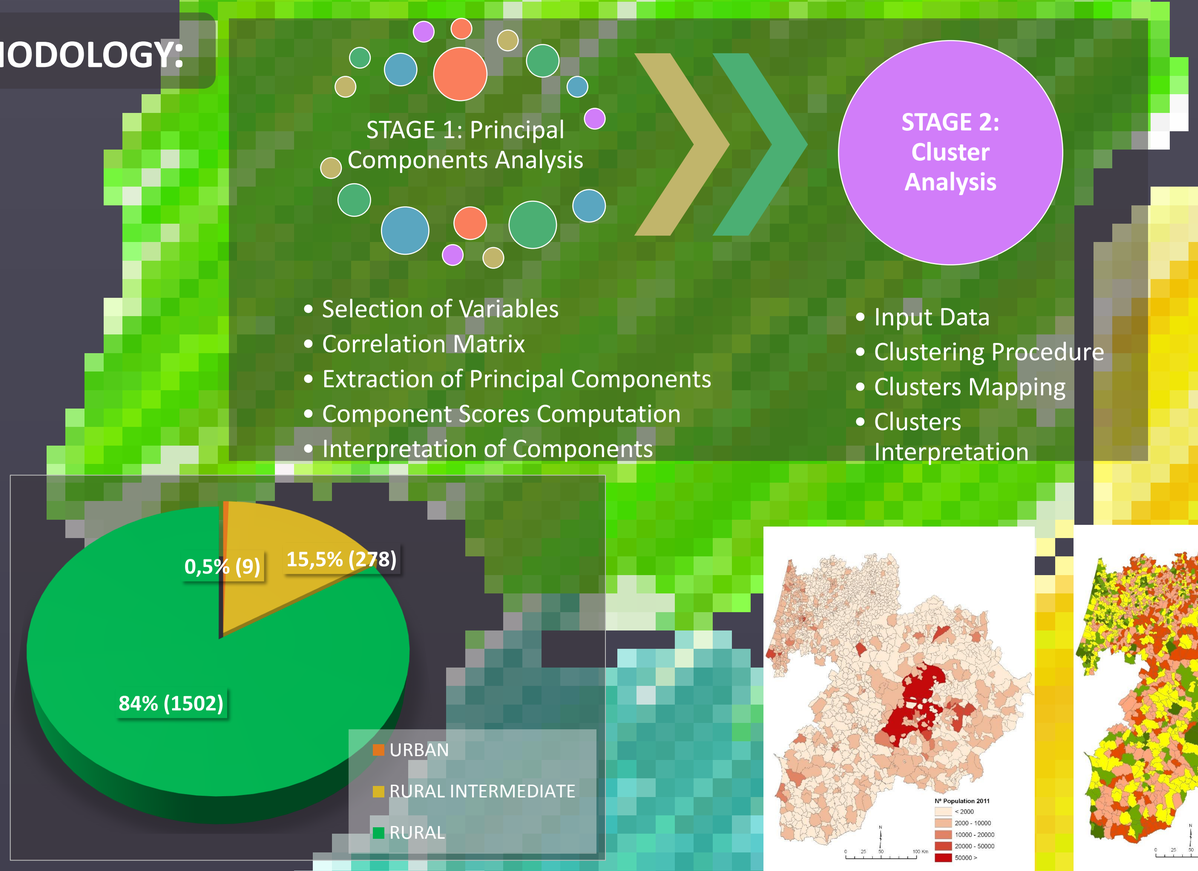
Abstract: Rurality index is one of the most used indicators to territorial characterization. The most common formulation of this index is based in the total population of a region. However the application to local and regional development doesn't fits the needs of detail information, so a group of experts of OTALEX C (Territorial and Environmental Observatory of the cross border regions of Alentejo and Centro – Portugal and Extremadura – Spain) project developed a rurality index adapted to these regions. Supported by a Spatial Data Infrastructure (SDI) (www.ideotalex.eu), and a SIO (Indicator System of OTALEX), this index was formulated including several base indicators as: total population, population density, age index, level of education, activity sectors, unemployed population and buildings.

Introduction: OTALEX C area have 93000km^2 almost 61% of Peninsula Iberia territory. Despite of this great surface, only live less than 3,5 million people, representing an density average of 37 inhab./km^2, far from European average: 116 inhab./km^2 (Flores Guerrero *et al.* 2013). The information used to calculate rurality in this area comes from OTALEX SI (Indicators System).

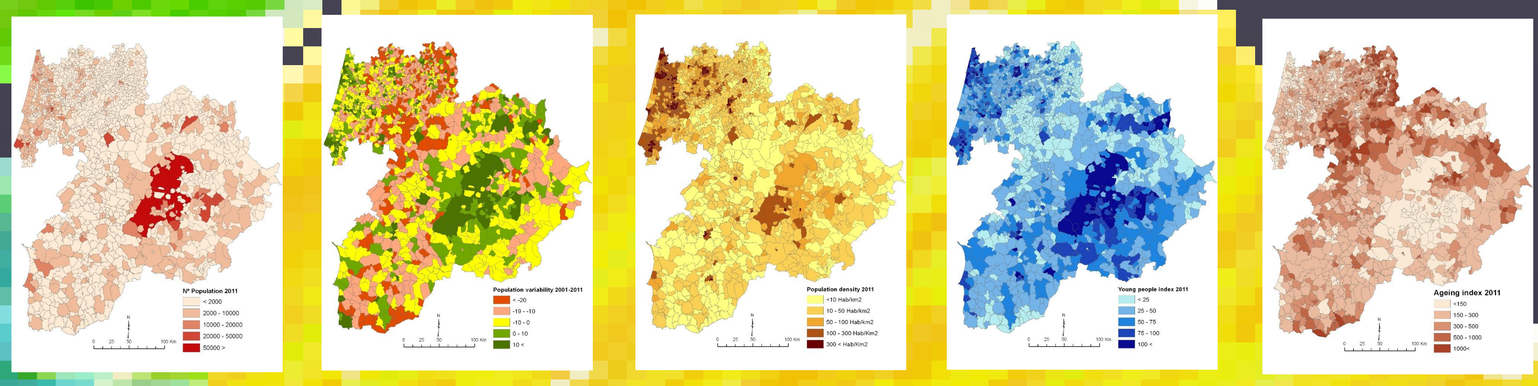
Methodology:



Results and Discussion:

Table 1: Characteristics of rural, intermediate and urban areas (mean values)

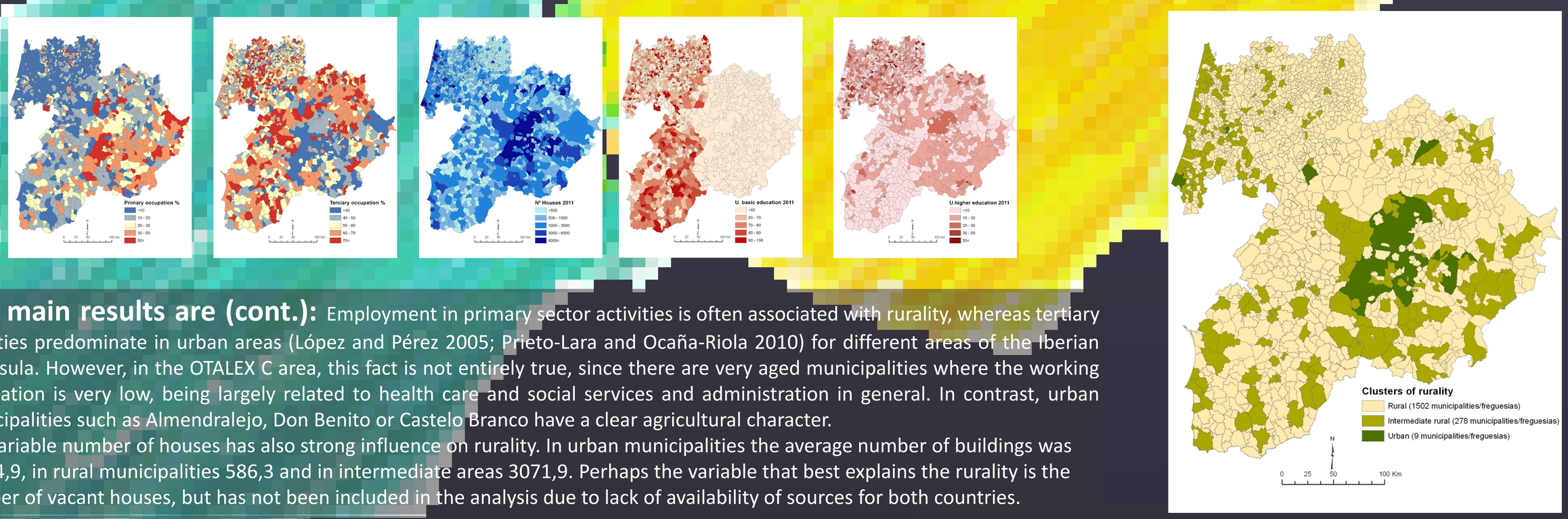
Variable/ Year	RURAL	INTERMEDIATE RURAL	URBAN
POPULATION (2011) (number)	819,2	5768,5	58038,9
POPULATION VARIATION (2001-2011) (%)	-11,6	2,3	13,2
POPULATION DENSITY (2011) (per km^2)	58,3	335,6	349,6
YOUTH INDEX (2011)	37,3	75,3	102,3
AGEING INDEX (2011)	447,7	149,1	103,5
AGRICULTURE SECTOR (2011) (%)	14,5	12,5	30,2
SERVICES SECTOR(2011) (%)	58,3	60,1	48,6
N. HOUSES (2011)	586,3	3071,9	30044,9
UNEMPLOYED WITH BASIC EDUCATION (2011) (%)	55,5	52,7	28,7
UNEMPLOYED WITH HIGHER EDUCATION (2011) (%)	11,5	13,1	13,8



The main results are: OTALEX area is clearly rural: 84% of a total of 1789 municipalities. The first 4 components of PCA explains 72,5% of the variability. The first component includes young and ageing indexes and the population variation (27,9%), the second incudes residents and buildings (with has high correlation), the third includes occupation sectors and the fourth the education level.

Population have a clear influence in the rurality index, with rural municipalities having an average size of 819, 2 inhabitants versus urban with 58,038.9 inhabitants. Thus, larger municipalities have a bigger urban features, so we can refer that this is perhaps the most influence variable for rurality índex calculation in the study area. Population variability also influences rurality. In the last decade (2001-2011) rural municipalities lost 11,6% of its population, while urban gained 13,2%. This shows, as argue Fuguitt (2005), that the population loss is more stronger in rural municipalities. In terms of population density, several authors point to it as a very good indicator to measure rurality, however, the population density is a variable that is directly related to the surface of the administrative unit. The fact that exist in the study area municipalities like Cáceres and Badajoz that are two of the biggest municipalities of Spain is a clear example. So, the influence of this variable is more diffuse on rurality. Rural municipalities have an average of 58.3 inhabitants/ km^2, compared to 349.6/ km^2 in urban areas.

Rural municipalities tend to have older populations than urban, which agrees with Fuguitt (2005). Values of 37,3% of the youth rate in areas classified as rural versus urban 102,3% were obtained. In contrast to the rate of aging in municipalities and rural it was 447,7% versus 103,5% urban.



The main results are (cont.): Employment in primary sector activities is often associated with rurality, whereas tertiary activities predominate in urban areas (López and Pérez 2005; Prieto-Lara and Ocaña-Riola 2010) for different areas of the Iberian Peninsula. However, in the OTALEX C area, this fact is not entirely true, since there are very aged municipalities where the working population is very low, being largely related to health care and social services and administration in general. In contrast, urban municipalities such as Almendralejo, Don Benito or Castelo Branco have a clear agricultural character.

The variable number of houses has also strong influence on rurality. In urban municipalities the average number of buildings was 30044,9, in rural municipalities 586,3 and in intermediate areas 3071,9. Perhaps the variable that best explains the rurality is the number of vacant houses, but has not been included in the analysis due to lack of availability of sources for both countries.

Variables related to the educational level (unemployed with basic education and unemployed with higher education) indicates that rural municipalities classified as unemployed and with low education have a higher representation compared to urban (55,5% vs. 28,7%), as opposed to the unemployed with higher educational levels, in rural municipalities that have a ratio of 11,5% compared to 13,8% in urban areas.

Conclusions: The development of a rurality index for a territory is a complex process and dependent of the selected variables. For this cross border area of two countries and three different regions, the results show a well marked rural territory. To do this type of analysis its necessary to know the reality of the environment and what parameters have influence in it. With this rurality index, we can classify the municipalities by rural, intermediate rural and urban. OTALEX C project aims to contribute to an environmental and socioeconomic characterization to better know the dynamics produced in this extensive increasingly less populated territory.

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