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QUALITY OF LIFE IN CITIES OF GALICIA: AN EMPIRICAL APPLICATION

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I. INTRODUCTION

The object of investigation of this work consists of comparing the quality of life of the seven most important cities of Galicia and its urban areas. We do two comparative analyses: the first one uses as spatial unit the municipality and the second one includes the metropolitan areas, by means of a ranking city with major quality of life. The methodology used is the Urban Quality of Life Index (Leva, 2007) and the sources the information has been extracted are: National Institute of Statistics (INE, 2004), Department of Economy and Estate (2004), Socioeconomic Atlas of Galicia (2005), Ministerio del Interior (2004), ESPON (2009) and Urban Audit.

II. THEORETICAL FRAME

The study of the concept quality of life has experienced, as all the theoretical components, an evolution throughout the time. The main precedents in the study of the quality of life we might place between the 20s and 40s, in United States with the research of social indicators. (Ogburn, 1933).

The analysis of the studies realized on quality of life shackler meets an element: the definitions of the quality of life differ some of others (Rupprecht, 1993). There does not exist general unanimity regarding the definition of the quality of life (Lotscher, 1985) because it is a question of a very general and abstract concept that can be defined and to measure up of different ways, using objective and subjective indicators, attending to individual or collective living conditions, to material or not material values...

An interesting definition is Diener (2006); *«The quality of life is the satisfaction that there receives an individual of his physical and human environment, with a special emphasis in the external componentes, in contrast with the objective well-being»*.

III. METHODOLOGY

The quantitative tool that we use to measure the quality of life of the Galician cities is Urban Quality of Life Index, created for UNRISD and taken again by the research group Habitat Metropolis. (Leva, 2007)

For the construction of Urban Quality of Life Index (UQLI) we use the system of points of correspondence (MacGranahan, 1972) applying mathematical developments to normalize the indicators depending on his positive or negative value: (Morris, 1979)

a) Positive indicators: major value of the indicator means a better situation

$$ind_x = \frac{x - Min_x}{Max_x - Min_x} \cdot 100$$

b) Negative indicators: major value of the indicator means a worse situation

$$ind_x = \frac{Max_x - x}{Max_x - Min_x} \cdot 100$$

Where ind_x is any of the selected indicators, MIN_x and MAX_x are the minimum and possible maximum respectively that can reach the selected indicator and 100 is the maximum possible value to reach in the new scale. Our study establishes this maximum and minimum between the information gathered from the most wide study realized for the European cities

With this transformation there is constructed $UQLI_{lim}$ which more important characteristic is that all the indicators have the same importance:

$$ICVU_{lin} = \sum_{i=1}^{n} ind_i = \sum_{ind_1}^{ind_n} ind_1 + ind_2 + ind_3 + ind_n$$

With the utilization of this method there is obtained an UQLI that has at the maximum possible n · 100 points (n is the quantity of evaluated indicators). It is possible to apply here also the method of points of correspondence of the following form:

$$ICVU = \frac{ICVU_{lin} - Min_x}{Max_x - Min_x} \cdot 100$$

Where the value Min_x will be equivalent to 0 and the value Max_x will be the total $UQLI_{lim}$ calculated with the joint information of 7 Galician cities, which will be 100, this value will be the reference to comparative individual of the cities. Thus the UQLI presents values above and below 100, corresponding a major quality of life to the values most raised over the average certain value.

The system for select quality of life indicators that we have used is based on a previous study of 128 European cities for which selected 58 indicators related to 9 dimensions defined

for the analysis of the quality of life. The above mentioned indicators were selected from the study of the existing literature on the topic.

With this information an UQLI was calculated by a multiple weighting, valuing both the indicators and the studied dimensions. The weighting was realized from a survey of valuation to a group of 10 multidisciplinary experts of different academic areas related to the study of the quality of life (economists, geographers, sociologists and psychologists). They valued every indicator between 0 and 5 points and from the results the value was obtained ponderal of every indicator.

Later a robust correlation was realized between the index and each of the variables applied in his calculation under the following parameters: α=0,05 and ß[1]=0,2. Of the table of correlation realized only eight indicators offered a significant level of correlation. These were grouped in five categories:

- Atractividad: 3 indicators (% of persons of the EU on the total: 0,56; % of persons of countries with a high IDH: 0,47; and % of persons of countries with an average or low IDH: 0,52)
- Accessibility: 2 indicators (Accessibility by road: 0,54; and accessibility by train: 0,53).
- Economic Development: an indicator (GDP per capita: 0,60)
- Public expenditure (Public expenditure for inhabitant: 0,49)
- Civil Security (Number of crimes registered by thousand inhabitants: 0,40).

Of these eight indicators we selected one of every category; in case of the atractividad and the accessibility, there were chosen the indicators that they presented major degree of correlation with the index.

IV. RESULTS OF THE INVESTIGATION: THE APPLICATION TO THE URBAN GALICIAN SYSTEM

In Galicia one million and a half inhabitants live in seven principal urban areas, though with an unequal distribution. (Precedo, Míguez, y Fernández, 2008)

The urban areas used in this study have been taken of previous studies (Precedo y Míguez, 2008) and they were defined depending on the continuous urban one by the central city or strong economic entails, stopping out to the municipalities, which in spite of forming a part of his area of influence, were more rural and to suppose a continuity of the urban plot. Seven definite areas are: Corunna, Ferrol, Santiago, Lugo, Ourense, Pontevedra and Vigo. The selected municipalities can be seen in the following table.

1 ß: García Pérez, A. (2006).

Table 1
MUNICIPALITIES OF THE URBAN AREAS

Central city	A Coruña	Ferrol	Santiago	Lugo	Ourense	Pontevedra	Vigo
Periphery	Abegondo	Ares	Ames	Outeiro de Rey	Amoeiro	Marín	Baiona
	Arteixo	Fene	Teo	Rábade	Barbadás	Poio	Fornelos de Montes
	Bergondo	Mugardos	Brión		Coles	Pontecaldelas	Gondomar
	Cambre	Narón			Pereiro de Aguiar		Mos
	Carral	Neda			San Cibrao das Viñas		Nigrán
	Culleredo	Valdoviño			Toén		Pazos de Borbén
	Oleiros						Porriño, O
	Sada						Redondela
							Salceda de Caselas
							Soutomaior

From the indicators before mentioned, and taking as a reference the absolute value of seven cities (total seven cities =100) there has been obtained the Synthetic Urban Quality of Life Index:

Table 2
UQLI

	Central municipality	Urban periphery	Urban area
Coruña, A	102,79	98,63	101,52
Ferrol	94,41	102,51	99,11
Santiago de Compostela	103,96	93,40	100,76
Lugo	97,09	98,13	97,83
Ourense	99,42	103,29	100,85
Pontevedra	97,32	92,27	96,16
Vigo	100,11	101,23	100,86

V. FINAL REMARKS

This work studied the identity of the main cities of Galicia according to the quality of life indicators as objective measure of the urban offer, applying the model gathers better the holistic character of the concept, Urban Quality of Live Index (Leva, 2007).

The conclusions for the seven Urban Areas are the following ones:

a) The are two metropolitan areas Corunna and Vigo. The first one corresponds to the urban area of major quality of life of Galicia, even if there exist questions of internal inequality. Second, Vigo, presents a more homogeneous standard of living in the whole urban area since the difference between the central city and his periphery is of 1,12, but they are positioned thirdly separately.

b) Orense is in the third position. Central municipality has a quality of life below the average of the rest of cities, but on having had a very dynamic periphery, there raises the level of the set of the Urban Area.

c) Santiago de Compostela, is the one that presents major contrasts, for the high value of the UQLI of the central municipality, the major one of those of the Galician cities, in contraposition with the low values of his periphery.

d) On the other hand, in case of Ferrol, where it is the own central city that makes get down his urban area to the antepenultimate place in the ranking of Galicia.

e) The case of Lugo, it has a few very homogeneous levels between his central municipality and its periphery, but in both cases below the average of the Galician cities. The main problems that still it is in a transition of rural company to urban.

f) In case of Pontevedra, there exists a progressive loss of economic and social range in the central city and this, joined the ruralidad of his periphery, does that it occupies the last position in the ranking of quality of life in Galicia.

After the summary of the differences in quality of life in the Galician cities, we don´t want to end without indicating three aspects that we have detected for the set of the urban system:

a) The correlation between the value population and the synthetic index, states that there exists a moderate correlation (0,44) in case of the central municipalities, this is a product of the position that occupies in the index Santiago. If we move the correlation to the analysis of the peripheries the correlation is very slightly significant (0,17) to bear it in mind. It is not the case of the set of the Urban Areas where the relation size and quality of life is clearer with one significant correlación (0,59). According to this it might affirm that in case of Galicia a positive correlation exists between the UQLI and the demographic size of the Urban Areas.
b) Another interesting relation that is observed is the existing one between the UQLI and the GDP, (central municipality: 0,95; periphery: 0,91; metropolitan area: 0,82). The result is clear: a strong correlation exists between both variables, which, for the Galician case, demonstrates that they are the most competitive cities of the community those that offer a major offer of urban quality of life.
c) Another fact that it is necessary to state, is that not only the central municipalities are capable of offering a good offer of urban quality of life, some peripheries also have it thanks to the residential and economic functions.

In synthesis, there is a relation between five urban attributes. The economic development is the necessary engine from which a major quality of life is generated, both for the demand of the citizens (with major purchasing power) and for the income in taxes, which return the citizens, since this income allows to increase the public expenditure in infrastructures and endowments. Likewise to major economic level and major urban offer, the cities are more attractive for qualified residents proceeding from other countries. In consequence the socioeconomic development, urban quality, atractividad, they are interrelated factors. More random they are the indicators of civil safety and of accessibility, since this one depends much on the geographical situation of the cities in relation with the central node of reference. The perifericidad continues being, because of it, the determining one for the urban development.

Though this work centred his object of investigation on the empirical study of the quality of life of the main cities in Galicia, the result can be interpreted as that the quality of the urban offer is a factor of positioning that, besides his strategic value as factor of competitiveness, constitutes a comparative advantage for the intermediate cities.