



THEORETICAL REFLECTION ABOUT A FUZZY DEFINITION OF THE RURAL

REFLEXIÓN TEÓRICA SOBRE LA DEFINICIÓN DIFUSA DE LO RURAL

Recibido: 12/11/11

Aceptado: 08/12/11

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Abstract: The rurality definition is yet unclear. Pragmatic classifications are currently used for the management of rural and urban differentiation of this one. The aim of this article is to propose a definition of rurality. This one is based on the fuzzy sociological research. Our fuzzy concept of rurality is very important for its application on the management of the technoscientific system, specifically on the management of the rural.

Key-words: Rurality, Fuzzy, Concept, Urban.

Resumen: La definición de la ruralidad no está todavía aclarada. Las clasificaciones pragmáticas son usadas comúnmente para la gestión de la diferenciación de lo rural y lo urbano. La intención de este artículo es proponer una definición de ruralidad. Esta se basará en la investigación sociológica difusa. Nuestro concepto difuso de ruralidad es muy importante para la gestión del sistema tecnocientífico, especialmente en la gestión de lo rural.

Palabras clave: Ruralidad, Difuso, Concepto, Urbano.

Introduction

In order to distinguish what is *urban space* from what is not urban space plays an important role the establishment of a clear distinction between what is *rural space* and what is not rural space. These distinctions have generated a considerable debate inside geography but not that much debate inside the sociology field. All sociological approaches developed since now have shown problems when eventually used. However, we consider that it is possible to show a different sociological approach that could help clarifying the field. The core of the problem might be a non obvious concept of urbanization:

“What makes complex the analysis and the definition of this term is the close connection between urbanization and other processes of change, both in modern and contemporary societies, but also in past times. This connection is such that often the concept of urbanization tends to indicate the overall process to be “identified with all those changes” ” (Germani, 1969: 146).

The concept of urbanization has especially in sociology encompassed the general social political and economical process of Western modernization. This fact contrasts with the usual idea that the high concentration of population in specific geographic areas establishes the differentiation criteria between rural and urban. The transformation produced by the Industrial Revolution social modernization generated a series of theoretical views on society. In fact, the comparison mechanisms with other societies, especially with the most distant or primitive with Western societies, were developed to analyze the new industrial society and discern its peculiarities (Rocher 1979). In this sense, Tönnies coined the conceptual difference between community and society, while Durkheim drew the theoretical distinction between mechanical solidarity and organic solidarity as the basis to understand the different types of societies.

Simultaneously, the debate rural / urban has been conditioned by the assumption that it has been the rural environment which has evolved and generated urban spaces and its culture. However, Manuel Castells points that “what is so-called “urban culture” matches perfectly with a single historical reality: the social organization linked to capitalist industrialization, particularly in its early concurrent phase. Therefore, urban-culture is defined not only as opposed to rural, but specifically by a content on its own” (Castells, 1976: 102; our translation).

I.

Urban space and rural space should not be spaces defined in direct opposition: what is rural is not urban, and what is urban is not rural. If we designate rural areas as a set or a class *A*, then we

would name the urban space as its complement \bar{A} . So then $A \neq \bar{A}$, and the union of both would give us the total space occupied by humans. A conception of this kind, so classic, presents serious problems when approaching greater details. Those problems explain why currently a growing general consensus perceives this traditional conception as not sufficient (Armas Quinta 2009).

However, Farley (Farley et al. 2002) shows that the United States Federal Government has initially defined rural space through what we will call the meta-code rural / urban (using the distinction between rural and urban) or using the meta- code metropolitan / non-metropolitan (employing the distinction between metropolitan and non metropolitan). Farley additionally points that this kind of conceptual delimitation is based on a census data pragmatic approach: in that sense, an urban space would be considered an area with stocks built continuously and a density higher than 50,000 inhabitants; while a rural space would be that with a lower population density. These authors let us know as well that the metropolitan areas are limited to regions spanning the center of the province with one or more central cities and a population density greater than 50,000 inhabitants. Farley (Farley et al. 2002) informs us too that the U.S. Department of Agriculture issued a new definition of what is an urban area and what is a rural area through the RUCA codes, which are Rural Urban Commuting Areas (RUCA). RUCA codes are based on measures of urbanization, population density and daily commuting (Table 1).

Table 1. Rural-Urban Commuting Areas (RUCAs), 2000

1	Metropolitan area core: primary flow within an urbanized area (UA)
1.0	No additional code
1.1	Secondary flow 30% to 50% to a larger UA
2	Metropolitan area high commuting: primary flow 30% or more to a UA
2.0	No additional code
2.1	Secondary flow 30% to 50% to a larger UA
3	Metropolitan area low commuting: primary flow 5% to 30% to a UA
3.0	No additional code
4	Metropolitan area core: primary flow within an Urban Cluster of 10,000 to 49,999 (large UC)
4.0	No additional code
4.1	Secondary flow 30% to 50% to a UA
4.2	Secondary flow 10% to 30% to a UA
5	Metropolitan high commuting: primary flow 30% or more to a large UC
5.0	No additional code
5.1	Secondary flow 30% to 50% to a UA
5.2	Secondary flow 10% to 30% to a UA
6	Metropolitan low commuting: primary flow 10% to 30% to a large UC
6.0	No additional code
6.1	Secondary flow 10% to 30% to a UA

7 Small town core: primary flow within an Urban Cluster of 2,500 to 9,999 (small UC)

- 7.0 No additional code
- 7.1 Secondary flow 30% to 50% to a UA
- 7.2 Secondary flow 30% to 50% to a large UC
- 7.3 Secondary flow 10% to 30% to a UA
- 7.4 Secondary flow 10% to 30% to a large UC

8 Small town high commuting: primary flow 30% or more to a small UC

- 8.0 No additional code
- 8.1 Secondary flow 30% to 50% to a UA
- 8.2 Secondary flow 30% to 50% to a large UC
- 8.3 Secondary flow 10% to 30% to a UA
- 8.4 Secondary flow 10% to 30% to a large UC

9 Small town low commuting: primary flow 10% to 30% to a small UC

- 9.0 No additional code
- 9.1 Secondary flow 10% to 30% to a UA
- 9.2 Secondary flow 10% to 30% to a large UC

10 Rural areas: primary flow to a tract outside a UA or UC

- 10.0 No additional code
- 10.1 Secondary flow 30% to 50% to a UA
- 10.2 Secondary flow 30% to 50% to a large UC
- 10.3 Secondary flow 30% to 50% to a small UC
- 10.4 Secondary flow 10% to 30% to a UA
- 10.5 Secondary flow 10% to 30% to a large UC
- 10.6 Secondary flow 10% to 30% to a small UC

Source: Economic Research Service - United States Department of Agriculture.

If we continue reviewing the conceptual boundaries developed in the United States¹, we could also discover how the concepts of “border”, “distance” and “mixed urban-rural” spaces have been introduced to distinguish between rural and urban areas. In this sense, the Oregon Counties classification system² utilizes the following definitions:

- a) Metropolitan areas: Counties inside metropolitan statistical areas with 1,000 or more inhabitants per square mile.
- b) Mixed urban-rural: new urban areas with a population density between 60 to 99 inhabitants per square mile.
- c) Rural: a population between 10 to 59.9 inhabitants per square mile.
- d) Border: counties with a population among 0.5 to 9.9 inhabitants per square mile.
- e) Distance: counties with less than 0.4 inhabitants per square mile.

¹ We focus here on US developed definitions because these include in our opinion the more complex and down to the detail approaches on the delimitation urban / rural boundaries that have never been implemented.

² *The Association of Maternal Health Programs* (2004).

Crandall and Weber (2005) have developed another categorization scheme which identifies the following categories:

- a) Urban area: an area of 50,000 or more inhabitants and its surrounding areas within 10 miles.
- b) Urban-rural: a community located less than 10 miles away from an urban area but with easy access to health services, paved streets and roads.
- c) Rural: a community located less than 30 miles from an urban community with some commercial activity and reasonable but not immediate access to medical attention.
- d) Isolated Rural: populations located to at least 100 miles from a community of 3,000 inhabitants.
- e) Frontier Rural: a rural area that is located at least 75 miles away from a community of less than 2000 individuals.

These types of approaches are based on the utilization of a relatively continuous conceptualization in which a used gradation based on qualitative and quantitative data is employed (although quantitative information is primarily in use). Hoggart and Paniagua (2002) established in this sense the existence of three types of approaches to our problem: quantitative, qualitative and flow analysis approach.

The first quantitative approach accepts that there are different types of areas according to their socio-spatial distinctiveness: urban, residential, suburban and rural areas. This distinct classification criterion would use statistical data in order to differentiate; and, once an administrative area has been defined, then a homogenous territory has been delimited. Hoggart and Paniagua (2002) pointed also that these statistical basis definitions have applied other types of approaches: an administrative perspective; or an approach taking in account the built area of each county; or the so-called functional regions; or an agriculture-based criterion; or finally, a population density measure. The labor occupation of the population has been employed as well as a specific subgroup within these definitions; consequently, in rural locations agricultural activities would be the major occupation of their inhabitants.

On the other hand, the qualitative definitions are based on the population perceptions and meanings (Hoggart and Paniagua 2002). Socially constructed schemas delimitate what is rural and what is urban. Consequently, the demarcation rural/urban depends on various local elements: the historical context, the regional tradition, the local community values and the existing human relations. Hoggart and Paniagua therefore argue that the urban/rural “representations tend to be geographically distinct, though those representations would not be strictly determined by spatial factors” (2002: 64).

Finally, the third approach mentioned was the flow analyses. The flow approaches focuses on the people relatively normal circulation between rural and urban universes. In this line, sociological analyses have been realized which demonstrates that there is a somehow rural countryside myth, denominated the *rural idyll* by Hoggart and Paniagua (2002). This myth associates rural with whatever is healthy, pure, none altered or contaminated, closer to nature and opposed to urban. Tönnies and Simmel defended similar sociological theories. Tönnies defended that the rural to urban transition meant somehow to break ties with intrinsic primary groups and to move towards typical impersonal relationships of secondary groups. Simmel, on the other hand, spoke of urban individuals subjected to a frenzied stimulation which makes their own environment an increasingly harsh living reality. Both views are not far from this vision of the rural spaces as relatively idyllic, defining then urban areas just as those in contraposition with an ideal bucolic breathing rural space.

II.

Our current society has deeply and quickly changed. If we compare the data provided by two Spanish surveys (*The Social Trends Survey*³ series) conducted in 1999 and 2005, we shall observe those dramatic transformations in our social perceptions and identification elements that best symbolize our present age (Tezanos 2007). In 1999, only 42.2% of the respondents identified mobile phones as our time main symbol compared to the 60.6% proportion in 2005. The Internet was an identifying element in 1999 for 34.1% answerers; and, in 2005, it increased up to 55.1% who considered it as relevant. But in 1999 interesting and revealing changes can be indicated: 27.8% respondents felt that television was an identifying element and 21.3% pointed the car; in contrast, during 2005 inquire, only the 10.6% found television and 10.3% the car as identification modern elements. These data show a transformation of the Spanish society perception of reality: coming from a reminiscent vision of the Industrial Revolution to a proper conception of the current Technological Revolution.

The above data are an example of the changes occurred because of globalization and the shift from modernity to post-modernity⁴. Modernity has the characteristics of a dual society: semi-aristocratic (bourgeois) and semi-democratic at the same time. In fact, Modernity was a period of great hope and but also full of disasters; but, it was multidimensional and complex as well

³ *Encuesta sobre tendencias sociales*: Quoted in Tezanos 2007.

⁴ We cannot enter here the discussion about the existence of a Post-modernity after Modernity; neither the debate about an adequate definition for Post-Modernity. On both debate sites, authors with enough name and prestige state deep thoughts that overtake the interest of this modest article. Here we just adopted a pragmatic perspective in order to improve our comprehension of our topic.

(Roche 2009). On the other hand, Post-modernity, according to Roche, has been marked by a process of decomposition, uncertainty, crisis and subsequent collapse. In Post-modernity, our current period, subjectivism takes an unprecedented importance, as does the fragmentation of the concept of subject and of the world. If we like this with the successive crises and the general uncertainty, we obtain the dilution of the traditional modern certainties; driving postmodern subjects to a growing distancing from reality.

"Since 1970 and especially since 1990, driven by the acceleration of time, a new spirit of capitalism seems to impose itself. It can be characterized by, among others, the following issues: globalization, externalization and extraterritoriality; individualism and competitiveness; virtual, speculative, the connectivity and the net; the flexibility, the lightness, the fluidity, the uprooting, the chance; the chaos, the instability, the nomadism and the mobility; the consumption, and the invisibility "(Roche 2009: 136 ss.)

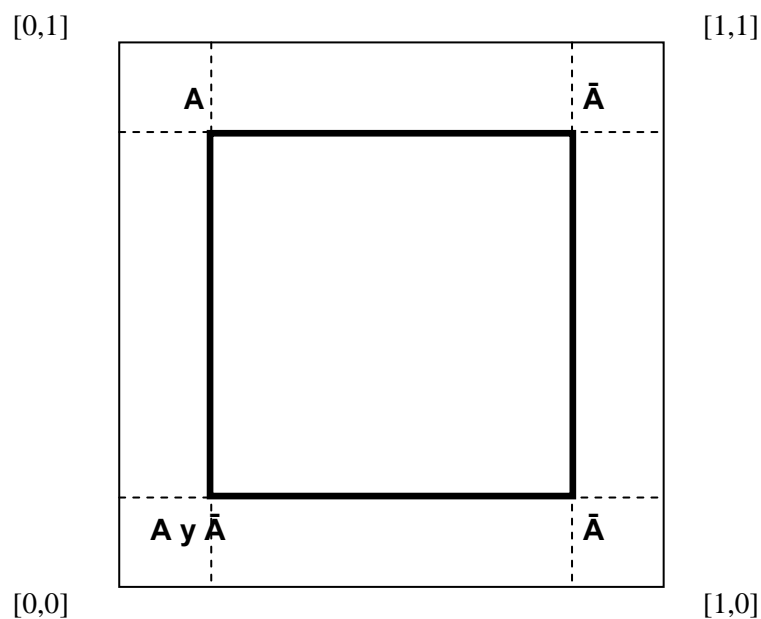
Giddens (2001) defends that in the Postmodernization it has a special relevance the globalization as the process that nullifies the importance of space distance and territorial divisions; producing then a time, distance and space relationships reorganization. Giddens in his book *Runaway world* (2000) basically describes the globalization as a derived side-effect popping up from telecommunications breakthrough in which it has led to a global planetary audience and countless intercommunication global networks.

This globalization has its meeting place in what Echeverría denominated *Telepolis* (1994): the great global city. *Telepolis* would be our third surrounding environment overlapping the other conventionally two. Namely, the first environment E1 would be the rural areas; E2 would designate urban spaces; and E3 would refer to the new social space enabled by the new web technologies (Echeverría 1995, 1999). Javier Echeverría committed here to the opposition among rural and urban, but adding a third superimposed element: E3. The interesting point in Echeverría's proposal (1994, 1995, 1999), besides that he doesn't describe urban/rural as completely exclusive and given that his proposal it is not completely new, lays on that E3 encompasses the other two environments but has quiet specific distinct characteristics: it is distal, reticulated, electronic, digital, representational, temporally plural, trans-territorial, seated in the air, and so on. Echevarria further states that most of the human and social activities can take place in E3 as it is a space that allows the distant actions and interactions using a network (with real or deferred time). Hence, an *information society* overlapping agricultural, urban and industrial societies has been made possible.

E3 requires that the identities and the persons that move through this new society must have the postmodern subject characteristics we have mentioned above. Even more, it reconfigures our view of the other two environments making them not any more E1 and E2, since both now also part of E3, they would be modified by each other inside the same E3. For this reason, globalization obviously re-conduces our discussion on rural / urban differentiation concepts.

At the beginning of this article, we described how the concepts of rural and urban areas were exclusive: $A \cup \bar{A}$ meaning that either is the case of A or is the case of \bar{A} . Thinking in fuzzy concepts (Winter and Kron 2009) could conduct us to a new perspective because this thinking focuses not only on bivalence but also on polyvalence. Winter and Kron (2009) contribute to our debate using a *Taoist tetra-lemma* as opposed to the dyadic Aristotelian world view in which, they defend, our problem resides. They confront the Aristotelian dyadic idea of either A or \bar{A} , with the tetra possibilities showed by the Taoist lemma: A ; A or \bar{A} ; A and \bar{A} ; and \bar{A} . Hence, Winter and Kron developed a fuzzy cube in your article to express this suggestion:

Graphic 1: Fuzzy cube.



Source: Modified after Winter and Kron 2009.

This approach of Fuzzy Sets relates to ordinary human reasoning. In this sense, this approximation assumes the epistemic reference of the fuzzy words: none, few, many, and some... (Given always the case in which the researcher can give a quantitative value to these expressions).

Graphic 2: Fuzzy representation of ordinary reasoning.

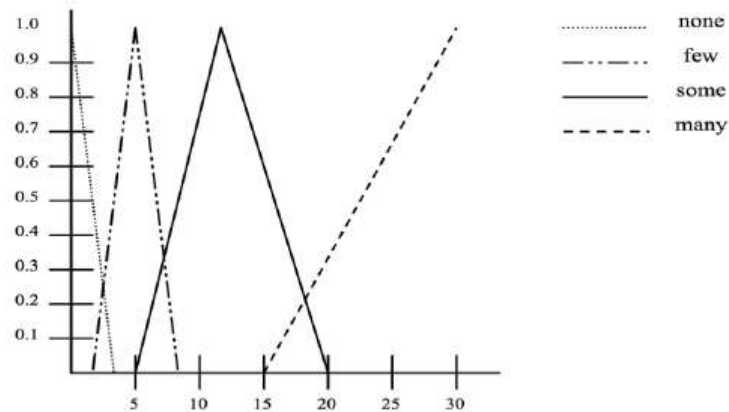


Fig. 1.2. Number of people

Source: Winter and Kron, 2009.

This theoretical configuration does not eliminate objectivity but it takes objectivity within a diffuse context. For this reason, the terms “none”, “few”, “many”, and “some” are labels of fuzzy sets and their membership values take values in the interval [0,1]; which it would allow enough freedom to move within the environment of rural and urban areas without having to establish specific categories that sometimes result quite ineffective. Using this kind of approach, we can establish those fuzzy categories that could best suit us without having to compromise with given miss-concepts. Every feature that we use (for example, population density, mobility, infrastructures, social perception, etc.) would maintain a “bridge with the system through non-linear relationships.

This methodological and epistemological perspective allows the sociologist to build realistic situation models. Avoiding at the same time, the need of pre-established models that not fit each region needs; and enables as well the use of quantitative and qualitative data to implements social specifications of the society in which we are working.

Therefore, the fuzzy model definition of rurality or urbanity we are proposing is based on each regional specific geographic and social characteristics at the same time that takes in account quantitative and qualitative factors; only that now such dual differentiation rural/urban would have an useful pragmatic utilization. We cannot therefore establish a clear and ultimate rural / urban conceptual definition because in our view a re-evaluation of those proposals defended during last years must be token inside a fuzzy perspective.

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