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ASSESSING GEO-DEMOGRAPHIC DYSFUNCTIONALITIES WITHIN THE URBAN-RURAL INTERFACE. CASE STUDY: THE CITIES OF BOTOȘANI COUNTY

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Abstract: The main objective of this study does not focus on analyzing exhaustively the urban – rural relations, but it is trying to emphasize both a theoretical interpretation and the applicability of the concept of rural – urban interface by pointing out the ways of determining the dysfunctionalities in the evolution and population structure of an administratively defined area. In order to point out these dysfunctionalities, analyses were performed at Botoșani county level, considering all the geodemographic indicators regarding the population dynamics, natural and migratory balance, and population structure. The study is based on data provided by population censuses and the statistical records of the basic territorial administrative units (communes and towns), for the period 1990-2008. Out of these indicators only those significant for the characterization of the human potential of the urban-rural interface and for an assessment of the polarization capacity of the seven cities in the county were selected: the size of the territorial administrative unit in 2008, the population dynamics during 1990 and2008, and the human potential standardized index. The results showed differences between the complexes(interfaces) urban-rural from the western part of the county (Botoșani, Dorohoi and Bucecea) and the Eastern one (Darabani, Săveni, Ștefănești and Flămânzi), which should promote the concept of treating the two areas (urban and rural) as a whole through the implementation of programs / projects of cooperation between local governments and various internal and external partners, the main objective being diminishing the differences (not only the demographic ones) between the two parts of the county.

Key words: Geo-demographic dysfunctionalities, Urban-rural interface, Botoșani County, Romania.

Introduction

In the planning activities for the national territory an important role plays the updating of the specific documents that support the entire development process from the national to local level. Among the issues that are to be considered in this context are included the validation of the place and of the role of each urban center as development pole (obviously located on different hierarchical levels) by assessing the complex set of relationships established between cities (including between the rural settlements proposed to become local development poles) and the adjacent areas, specifying the dysfunctionalities and the ways to eliminate or mitigate their effects.

The purpose of the study

The main objective of this study does not focus on analyzing exhaustively the urban – rural relations, but it is trying to emphasize both a theoretical interpretation and the applicability of the concept of rural – urban interface by pointing out the ways of determining the dysfunctionalities in the evolution and population structure of an administratively defined area.

Methodology

To achieve the purpose of this study we have considered the interpretation of the concept of urban-rural interface as a territory structured into hierarchical levels. They are a result of the intensity of the flows between the two spaces, consisting of mutual material, energy, demographic, financial, and information flows according to the size, role, and functions of the urban space and to the characteristics of the adjacent rural space (Allen 2003; Rauws et al. 2009).

The elements that characterize the urban space - the occupational structure of the population, the

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production of goods, the services and urban facilities and the characteristics of the rural space- socio-economic structure of population, economy, technical infrastructure, are found in the spatial planning documents (PATJ Botoşani, 1997 and 2010).

Based on the definition and the analysis of the urban-rural interface, we have taken into account the meso-level corresponding to the territorial administrative units surrounding the cities (Stoica et al. 2010).

Stages of analysis adopted for this level are reflected as follows:

- Highlighting demographic dysfunctionalities;
- Data collection and processing by using the indicators specific to the geo-demographic analyses;
- Interpretation of results;
- Proposals to mitigate the reported dysfunctionalities.

Results and interpretations

To highlight the dysfunctionalities analyses were performed for the entire county Botoşani considering all the geo-demographic indicators regarding the population evolution, the natural and migratory balance, the population structure, using data from the censuses of population and the statistical records of the basic territorial administrative units (communes and towns), focusing on the period 1990-2008.

Of these indicators were selected only those significant for the characterization of the human potential of the urban-rural interface and for an assessment of the polarization capacity of the seven cities in the county: the size of the territorial administrative unit in 2008, the population dynamics during 1990-2008, and the standardized index of the human potential.

In 2008 (January 1) the population of Botosani county summarized 453,958 inhabitants in total, with 1154 persons more than in 2002. By residential environments, the structure was as follows: 190261 urban residents (41.9%) and 263 697 rural residents (58.1%), which represents an improvement of the parameters compared to 2002 through the declaration of three new cities (Bucecea, Ştefăneşti and Flămânzi) added to the existent four cities (Botoşani, Dorohoi Darabani and Săveni).

From the demographic size perspective there are considerable differences between the cities of the county. There is a disproportion between Botoşani, the chief town, and the second city in the hierarchy - Dorohoi. The value of 3.8 / 1 indicates the degree of urban hypertrophy. The ratio between the first city in the hierarchy - Botoşani (116 669 inhabitants) and the last city - Săveni (8165 inhabitants) is14.3 / 1. All these features indicate the monocentric character of the urban system of the county (Pascariu 2010, p.53). These values emphasize the different polarization capacity exerted by the cities in the territory expressed by a concentration of rural population in communes situated in the western and northern part of the county, where their population size exceeds 4500 inhabitants (Figure 1).

The existent human potential both in the cities and in the surrounding rural settlements show a greater attraction capacity of the cities Botoşani, Darabani and Dorohoi compared with the other urban centers in the county. This fact is also revealed by the population dynamics in a period of almost 20 years (1990-2008). Most units recorded population declines greater than 10% and between 0 and 10% (specific to the east and north half of the county) whereas the Western part recorded positive values.

This dynamic indicates the relative stability of the polarization process exerted by the cities mentioned less by Darabani city and the adjacent area. However, the cartogram illustrates that the population decrease, the median part of the urban-rural interface of the cities in this county does not register high values, which leads to the conclusion that the other cities also maintain their polarization capacity and can be considered local development poles, obviously provided that they are supported economically (Figure 2).

To highlight the areas with demographic problems and the demographic disfunctionalities within each urban center and the average urban-rural interface has been calculated an index of the standardized demographic potential (for each administrative unit) based on standardized values for the following demographic indicators: the percentage differences between the population in 2000 and 2008 (I_1), dispersion index (I_2), average natural population balance for the period 2000-2008 (I_3), the average population migratory balance for 2000-2008 (I_4), the average total balance of the population for the period 2000-2008 (I_5) and the demographic dependency ratio (2002) (I_6).

The formula for calculating the standardized index of demographic potential (IS) is:

$$IS = [(I_1+I_2+I_3+I_4+I_5) - I_6] / 5$$

For each indicator considered the standardization formula of the values has been applied:

$$Vs = (Vreal - Vmin) / (Vmax - Vmin)$$

where: Vs = standardized value; Vreal = real value; Vmin = minimum value; Vmax = maximum value.

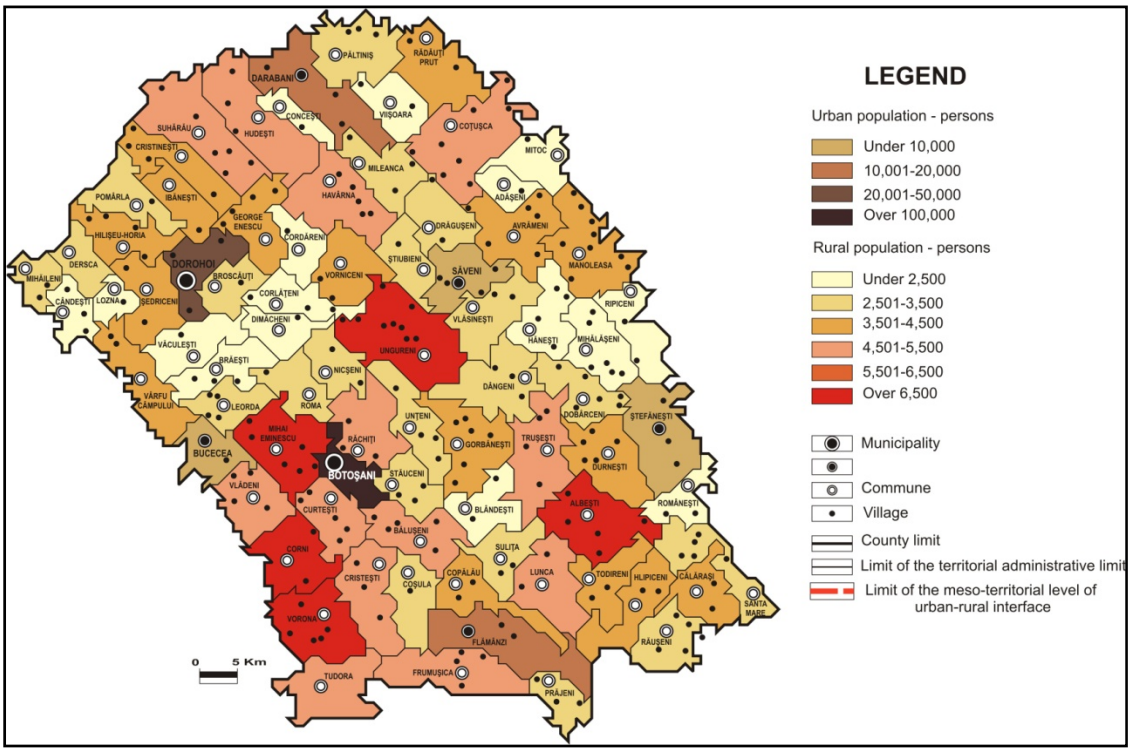

Figure. 1 Population size by administrative unit in 2008
Source: Statistical records of the communes and cities

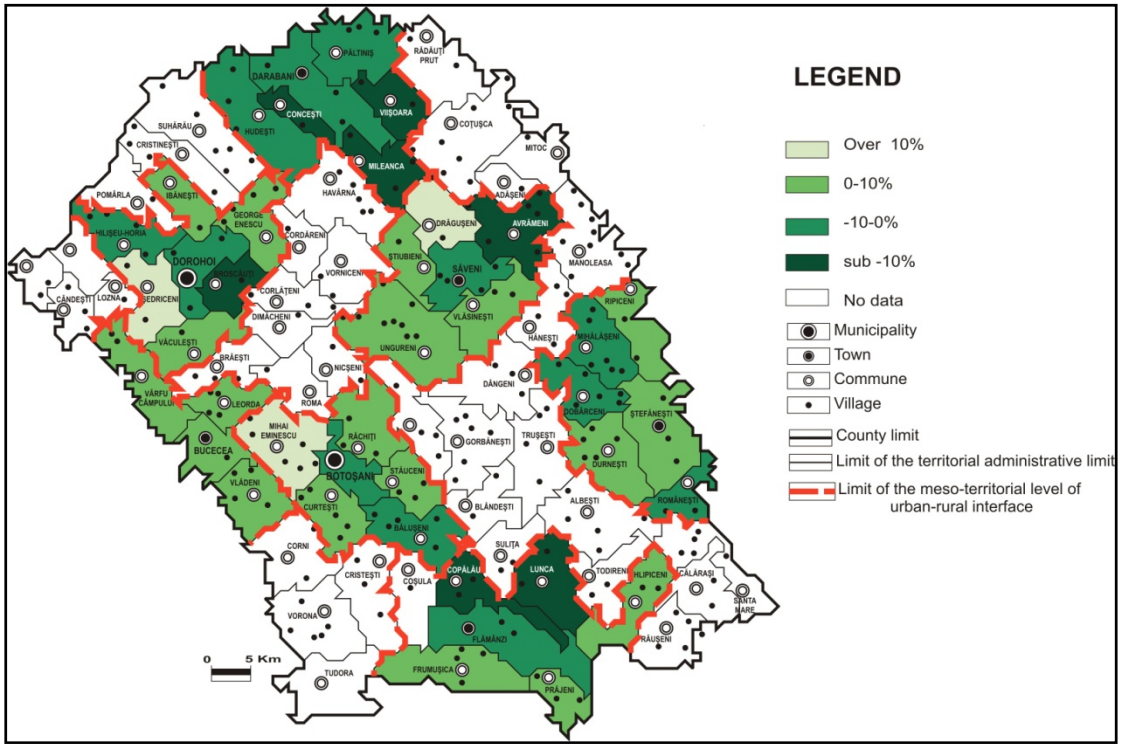

Figure 2. Population dynamics during 1990-2008
Source: INS, Statistical records of the communes and cities

For the dispersion index (Demageon index) was considered 0 to be the maximum value. It has been further proceeded to lower the value of the standardized indicator of demographic dependency ratio since due to the fact that high and low values indicate the negative and positive phenomena.

The conclusions that can be drawn from the variation and the territorial distribution (Figure 3) of this standardized index of the demographic potential are:

The variation range in between 0,176 (Mănoleasa) and 0,682 (Răchiți), for the entire county;

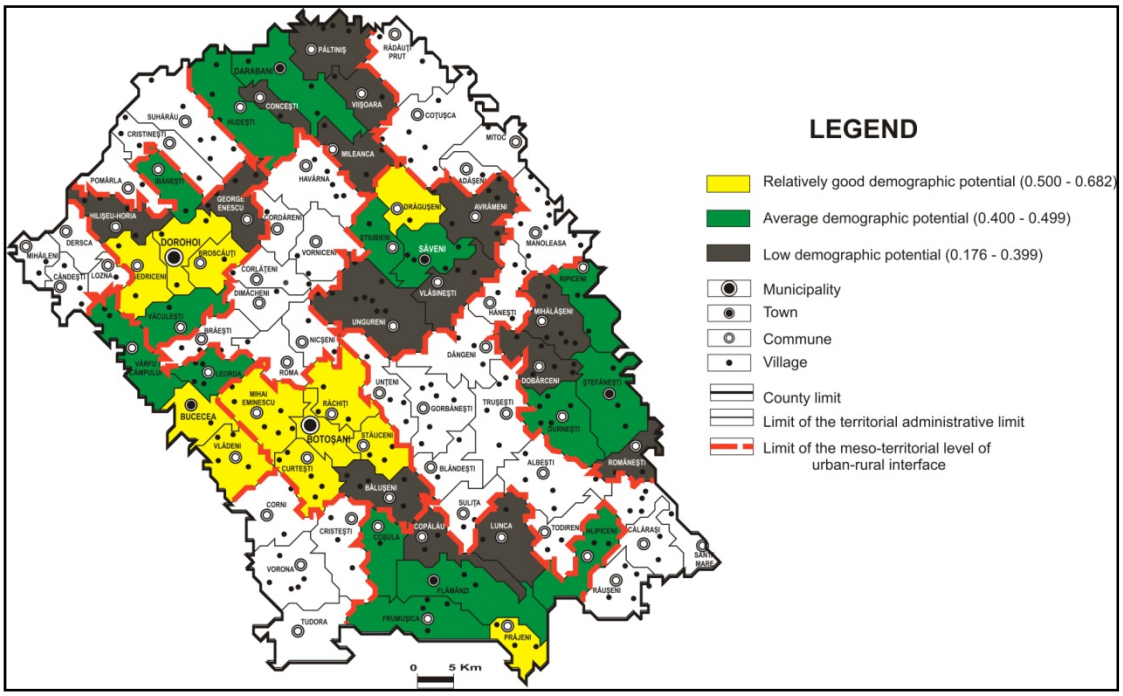

Figure 3. The human potential standardize index
Source: calculated data

- This range indicates the negative demographic dynamic throughout the county;
  The comparative analysis of the values of each administrative unit has led to defining the three areas illustrated in figure 3;
- Administrative units with relatively high demographic potential (0.500 to 0.682) where demographic problems related to the population decrease due to the evolution of the total balance, to the demographic aging and to the decrease of the young population are less conspicuous and require indirect punctual interventions are characteristic to the cities Botoşani, Dorohoi and Bucecea and their surrounding areas;
- Average values, ie average demographic potential (0.400 to 0.499), are recorded in other units of the urban-rural interface characteristic to the cities Darabani, Săveni, Ştefăneşti and Flămânzi where the demographic problems and the dysfunctionalities vary and also require indirect punctual measures;
- Administrative units with low demographic potential (0.176 to 0.399) - there are 15 such units-, most of them being located in the interface belonging to the cities in northern and eastern half of the county (Darabani, Săveni, Ştefăneşti and Flămânzi) where there is most acute the demographic involution phenomena and where it is necessary to apply a policy of integrated socio-economic development to alleviate the downward trend of the population.

All these reveal the disparity between the two municipalities Botoşani and Dorohoi, on the one hand and between the urban centers and their adjacent areas, on the other hand, requiring a strong unified treatment of the urban space and the adjacent areas, to stop the population decline.

Also, the values of the standardized index of the demographic potential highlights a number of negative factors: the artificial increase in the urban population by the declaration of new cities, big differences between the population of the cities with consequences on their polarization capacity, high degree of the population dispersion (especially in the eastern half of the county); the decline of the total population in most administrative units; a decrease of the birth rate and an increase in the overall mortality, negative natural balance, migratory balance deficit, negative values (-18 and 0) of the total balance of the population, the increasing aging population process , the demographic dependency ratio over 75%.

Conclusions

The measures required to mitigate the impact of these phenomena are related to a range of opportunities such as:

- The existence and the achievement of the County Strategy objectives for the period 2008-2013;
- The existence of the Regional Action Plan for the Technical and Vocational Education (PRAI) for 2004 - 2011;

- EU funding programs and national funding for human resources (POSDRU);
- Labor market demand for new specializations;
- Local government involvement in the regional development process.

In the county and local government involvement it is necessary to promote the concept of treating the two areas (urban and rural) as a whole through the development of programs /projects of cooperation between the local governments and various internal and external partners, which can lead to the attenuation disparities (not only demographic ones) between complexes (interfaces) urban-rural western half of the county (Botoşani, Dorohoi and Bucecea) and the eastern half (Darabani, Săveni, Ştefăneşti and Flămânzi).

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