Analele Universităţii din Oradea – Seria Geografie Year **XXI**, no. **2/2011** (**December**), pp. **286-293**
ISSN **1454-2749**, E-ISSN **2065-1619** Article no. **212114-556**

DEMOGRAPHIC AND ECONOMIC VULNERABILITIES WITHIN THE SUBURBAN AREA OF TÂRGU JIU

Daniela ZAMFIR*
University of Bucharets, Faculty of Geography, Interdisciplinary Center for Advanced Researches on Territorial Dynamics, CICADIT, Bucharest, Romania, e-mail: irdanniela@yahoo.com

Cristian BRAGHINĂ
University of Bucharets, Faculty of Geography, Interdisciplinary Center for Advanced Researches on Territorial Dynamics, CICADIT, Bucharest, Romania, e-mail: cristianbraghina@yahoo.com

Cristian TĂLÂNGĂ
University of Bucharets, Faculty of Geography, Interdisciplinary Center for Advanced Researches on Territorial Dynamics, CICADIT, Bucharest, Romania, e-mail: cristian2851@yahoo.com

Abstract: The purpose of this article is to determine the demographic and economic vulnerabilities in the suburban area of a medium-size town, considering the level of sensitivity of these areas and their interface characteristic between urban and rural places. A series of indicators were considered and correlated, and the conclusion is that these indicators resulted in identifying the most vulnerable regions from economic, but especially demographic, point of view. After considering this analysis, two major vulnerable regions were identified, which means they need urgent measures of recovery from both economic and demographic points of view.

Key-words: vulnerability, risk, population, economy, suburban area

* * * * * *

INTRODUCTION

The concept of *„vulnerability"* is used more and more often in the professional literature (both sociology and economics or geography). According to the explanatory dictionary of Romanian language, *„vulnerable"* means *„which can be easily affected or under attack, which has weak points"*.

For over two decades, the collocation *„vulnerable population"* is used on an international scale more and more often, meaning that population which had been hit by deluges and cyclones, by the poverty level or exposure to cacoethes (Bourdelais, 2005). The concept of *„vulnerability"* refers to the long-term poverty and social exclusion. This vulnerability implies two components (Chambers, 1989): first the risk, the possibility of an event with adverse effect to happen and secondly the ability to respond to this event, depending on the level of the resources (psychic, economic, social and political ones).

We decided to analyze the former component - the risk - which in demography means all of what can cause a degradation of the structures or result in adverse effects on the demographic dynamics. Demographic risk starts mostly as a result of economic vulnerabilities. The economic vulnerability was

* Corresponding Author

approached about a macro-level (country level), considering only the level of development of that country reflected on PIB/habitant or more recently about the worldwide economic crisis.

From geographical point of view, the most important issues are: the increasing effect of the risk, the ability to generate structures that can lead to the reconfiguration of territorial relationships on various levels of analysis (local, regional, national and even global). Geography has the advantage of being looked at beyond the barrenness of statistical data, being tied down to the realities in the field (Muntele, 2010).

As concerns the geographical analysis, practically we will focus on the territorial inferences of the geo-demographic and economic vulnerabilities (or better said the risks) on the suburban area of a medium-size town in Romania.

From demographic point of view, there are three major processes that result in a burst of unexpected events: the age of population, an old population and the decline of population in a specific region. The aggregation of these three processes leads to an indicator of the demographic vulnerability (according to the European Commission, Territorial Agenda of the European Union 2020, 2011). Demographic changes have a lot of economic, social and environmental implications. The aging process of the population may have an impact on the macro-economic variables, such as: productive capacity, investments and consumption.

According to European documentation, the changes in population size may have a major impact on regional development, leading to an old labour force. A great majority of these regions that have to overtake the demographic decline are rural or suburban regions characterized by a low level of income, a high level of unemployment and a high level of employment in falling economic sectors.

The impact on the regional development depends on several factors, such as: the structure of population, the level of professional qualification, the productive capacity and the level of regeneration of the labour force. The regions in which the populations have a high level of education are better prepared for overtaking the effects the demographic changes have on them by a higher level of the productive capacity of labour force (due to a higher level of flexibility to the labour market).

MATERIALS AND METHODS

The suburban areas are among the most sensitive regions to the economic and demographic changes. In this case it is about a medium-size town with a suburban area composed of the first circle of localities. It is undetermined; it is neither urban, nor rural, with both rural and urban features, being related more or less to the urban region it occupies (Stoica et al., 2010).

For identifying demographic and economic vulnerabilities, a series of indicators were considered and correlated, and the conclusion is that these indicators resulted in identifying the most vulnerable regions from economic, but especially demographic, point of view.

The selected indicators for identifying the economic vulnerabilities were represented by the depressed entrepreneurial activity (characterized by the number of companies, the rate of turnover) in 2009, the number of employees (2009) and the rate of unemployment (2009).

The indicators which describe the demographic vulnerabilities may be the natural balance of the population (the average for the period 2000 - 2009), the balance of migration (the average for the period 2000 - 2009), the population share of and over 65 years old (2008), demographic development (1912 - 2008) and the children birth rate (the average for the period 2006 - 2009).

Then, there was a process of intercalation of the regions affected both by the economic vulnerabilities and demographic ones for identifying the most sensitive regions of the suburban area of Târgu Jiu municipality which needs urgent measures of demographic regeneration.

CASE STUDY

The municipality of Târgu Jiu is one of the urban centres with the role of a regional pole of development (Peptenatu et al., 2009), demographic increasing being a modest one (95,271 inhabitants in 2008). The area which is polarized by a regional urban centre, still characterized by a migration of the population and of the resources from outskirts to the centre of the town, can

develop by maintaining a level of polarization of the regional centre and by implementing an incentive policy of the urban-rural partnership practices.

The analyzed region is composed of 11 administrative units, from which one is urban. In conclusion, it is about a fundamental rural region with a population of 44,568 inhabitants (representing 11.6% of the total number of people in the county).

Economic vulnerabilities

In our opinion, the most important factor in identifying the economic level of the area (lacking particular data on the income/inhabitant level) is entrepreneurial activity. This entrepreneurial activity was quantified by the interpolation of thematic maps containing the number of the companies and the turnover for every administrative unit, resulting in three categories (figure 1). Only two units have a medium level from this point of view (Bumbești Jiu și Bălești), the rest of them having a limited level of entrepreneurial undertaking. From this point of view, in the north-vest, a region in the suburban area can be distinguished (Arcani, Leleşti, Stănești, Schela), with both a very small number of companies (below 40) and a poor turnover (below 2 million RON). Besides, the predominance, for SMEs, of the tertiary sector is not, we might think, an element of economic development, but one of involution (Ianoş et al., 2010), considering that a great number of SMEs are to be found in the subordinate tertiary industry (especially the trade), whrere the number of work places is limited and the added value is much reduced (Braghina et al., 2010).

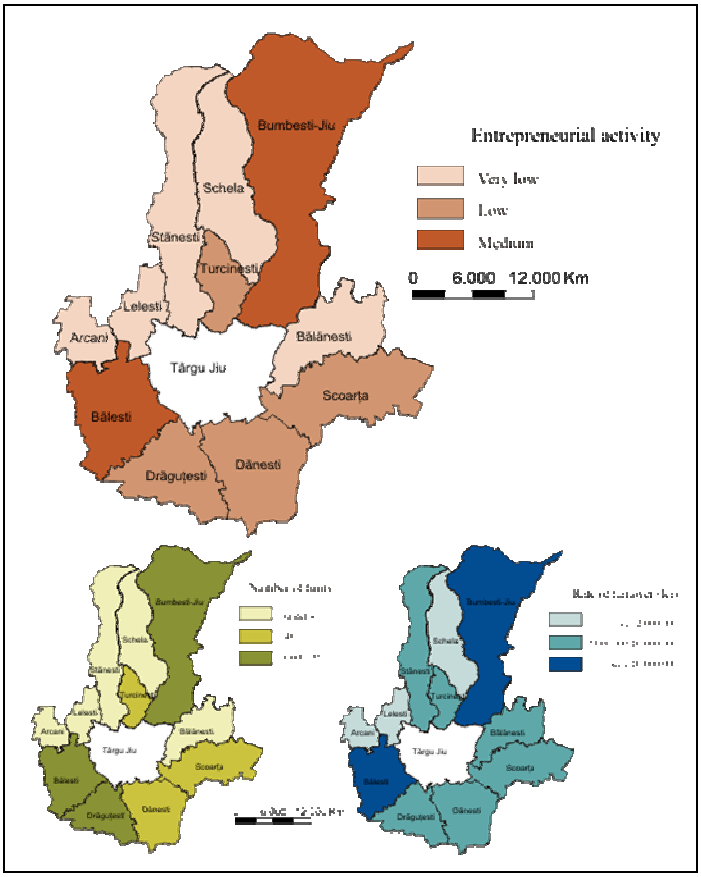

Figure 1. The degree of entrepreneurial activity by units
(Source data: the National Trade Register Office; processed data)

Being strongly related to the development level of the entrepreneurial activity, the number of employees and the rate of unemployment are the other two relevant factors in identifying the economic vulnerabilities. As regards the number of employees (figure 2), the most insignificant values (below 150/administrative unit) are in the localities situated in the north-west region, these also having the most significant unemployment rates, of over 20% (figure 3).

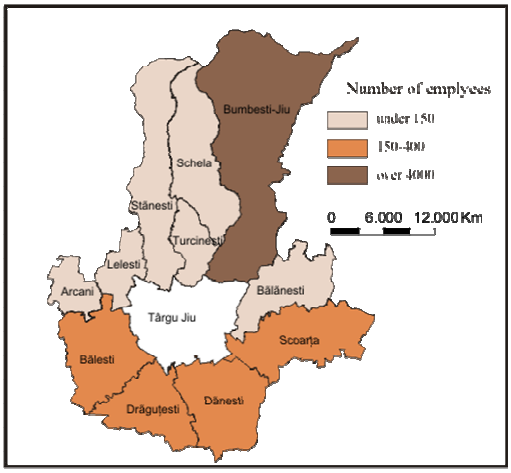

Figure 2. Number of employees by unit
(Source data: National Institute for Statistics)

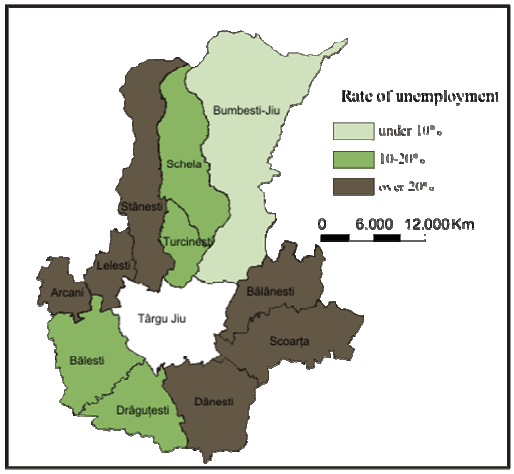

Figure 3. Rate of unemployment by unit
(Source data: National Institute for Statistics)

Analyzing the four elements (the number of the companies, the turnover, the number of employees and the rate of unemployment), it is discovered a number of five administrative units characterized by important economic vulnerabilities: Arcani, Leleşti, Stăneşti, Schela (in a compact region) şi Bălăneşti (situated in the estern part of the suburban area).

Demographic vulnerabilities

The demographic vulnerabilities, which are much stronger, were identified by means of several indicators in terms of long term consequences, and after being analyzed, the conclusion was that they can describe the present state of demographic dynamics and structure, and the evolution of the two concepts (demographic dynamics and structure) if adequate demographic measures and policies are not applied.

In order to recognize all the changes which occurred in different stages, the index of demographic evolution was calculated based on the following ratio:

$$I_d = \sqrt{\frac{\sum(C)^2 - \sum(D)^2}{P_N^2}},$$

Where:

L_d = index of demographic evolution;

$\sum(C)^2$ = sum of the square roots of the increasing values between census;

$\sum(D)^2$ = sum of the square roots of the decreasing values between census;

P = total number of people in the locality X.

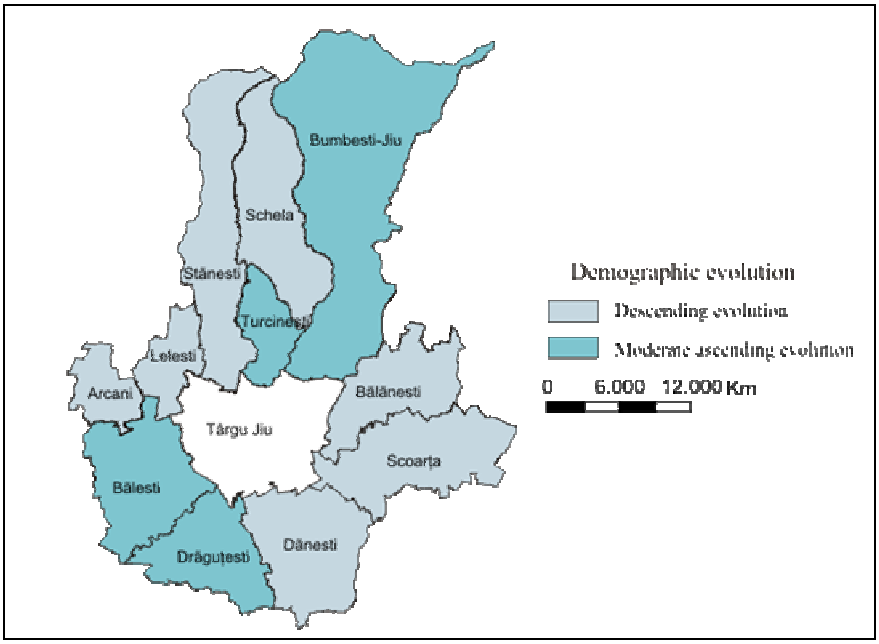

Figure 4. Type of demographic evolution (according the index of demographic evolution)
(Source data: National Institute for Statistics, processed data)

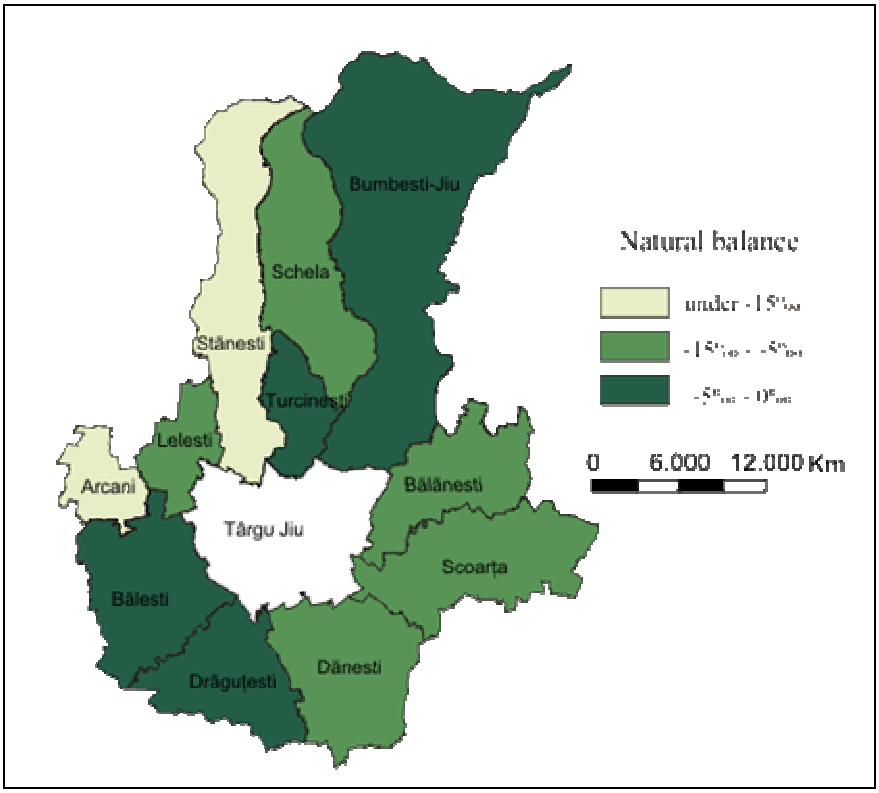

Figure 5. Natural balance of population
(Source data: National Institute for Statistics, processed data)

The values which were obtained are covering an interval from -4.21 (Dăneşti) and 1.12 (Turcineşti). The average for the suburban area describes an involution slightly descending (-0.14). For a synthetic analysis of demographic evolution of the administrative territorial units in the peri-urban area of Târgu Jiu municipality, there were identified two major evolutional categories (figure 4):

a) descending evolution, 63% of the area being included. This is specific only to the rural environment, being grouped in two regions: one in the north-west part and the other in the south-east part of the suburban area;

b) administrative units with an evolution moderately ascending (from 0.1 to 1.12) are four altogether, representing 27% out of the total. They are both in the urban and rural environment.

This pattern of localities in relation to their demographic evolution throughout the XX century is very useful in the process of describing the coming evolutional tendencies and of determination of the action. Other relevant indicators for population dynamics are the natural balance of the population and the balance of migration.

The natural balance reflects major problems from demographic point of view, none of the units of the suburban area registering positive values (figure 5), the values being situated between 23.4‰ (Arcani) and -0.8‰ (Bumbeşti Jiu) with an average of -9.88‰ for the entire area. Very important for these values is the infant mortality rate, which is very high (in the entire area the average is 15.7‰), but also the birth rate which, in some cases is rather low (5.9‰). The most questionable regions from this point of view are situated in the north-west and the south-east part of the suburban area.

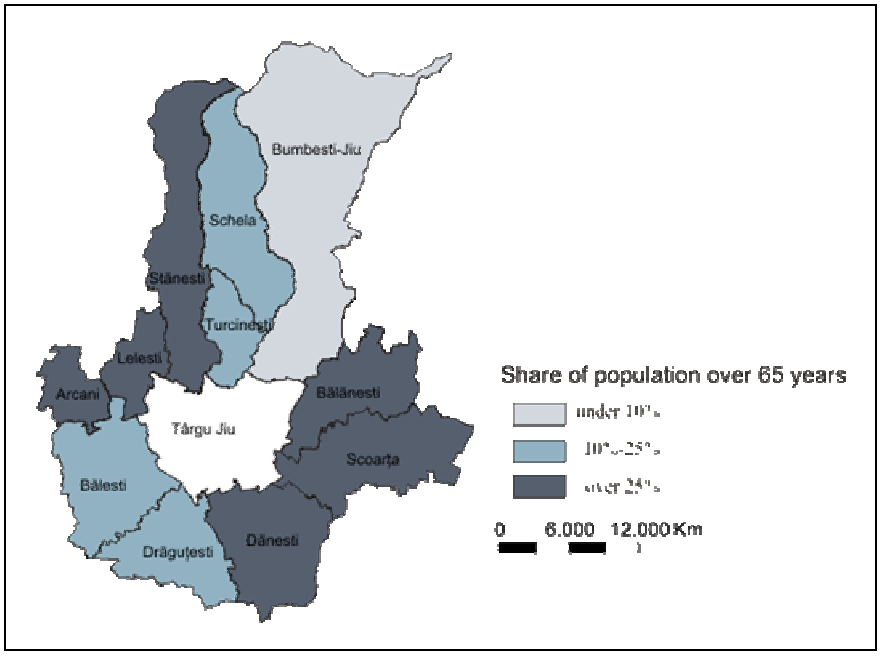

Figure 6. Share of population over 65 years old
(Source data: National Institute for Statistics, processed data)

The balance of migration of population may reflect also a series of demographic dysfunctions. In this instance, however, the balance of migration is globally positive (11.1‰), but with territorial changes. Some of these localities are characterized by a positive balance of migration due to some types of *urban sprawl*. There are also negative values (- 6.5‰ - Schela, - 5.4‰ - Bumbeşti Jiu). However the positive balance of migration does not compensate the

natural one, thus resulting situations in which the total balance of population stays negative: Bălăneşti (– 8.4‰), Schela (- 20.5‰), Scoarța (- 0.6‰) sau Bumbeşti Jiu (- 20.5‰).

The infant mortality is another problem to be analyzed, being directly related to the condition of sanitary system and the living standard. The high values in certain localities (Bălăneşti - 30.3‰, Leleşti - 25.6‰, Drăguțești - 23.8‰, Bumbeşti Jiu - 12.1‰, Băleşti - 11.6‰) describe that there are still important problems in the suburban area of Târgu Jiu municipality.

The most important problem is perhaps the one related to the aged population which can be quantified with the share of population of over 65 years old in the population total. With an average of 27.1% and one administrative unit with a value below 10% (Bumbeşti Jiu - 9.8%). This region can be included in the areas with an accentuated demographic level of aging.

From territorial point of view (figure 6), there are two categories of localities with values measuring over 25% (one in the nort-west part and the other one in the south-east part of the suburban area). In each region, there are localities with values measuring over 30% of the aged population (Bălăneşti - 32.3%) and even 45% (Arcani 49.7%), meaning that there are major problems related to the aged population.

If we analyze the birth-date ration, which has values below 25% in these regions, the conclusion is in fact that these two regions are characterized by demographic vulnerabilities.

Verifying all these indicators, the conclusion is that there are two different regions characterized by demographic vulnerabilities: the former is situated in the north-west part (Arcani, Leleşti, Stăneşti) and the latter in the south-east part (Bălăneşti, Scoarța, Dăneşti), both having at least a locality with major demographic problems: Arcani, and, respectively, Bălăneşti.

Overlaying the two types of vulnerabilities (demographic and economic), the conclusion is that there are both four administrative units extremely vulnerable (Arcani, Leleşti, Stăneşti) and two administrative units with a lower degree of vulnerability (Schela and Dăneşti). This vulnerability is much more accentuated in these regions so as there are also problems referring to urban public facilities (the lack of the gas grid and of the sewerage and water-supply systems) and infrastructure, but especially to a rather low level of population education (with a share of less than 2% for those with university education and a share of over 2% for ungraduated people).

CONCLUSIONS

It is obvious that for every family or community these two aspects of the vulnerability - the level of risk and the feature of responsiveness -, are strongly related to the social and economic structures. From an individual or small community point of view, the social discrimination and a not so advantageous economic position, with a limited political connection, are also motifs for the occurrence of vulnerability, even if the nature of these vulnerabilities differs depending on the local or national context (Chronic Poverty Research Centre 2009). Socially, the factors which lead to the feature of vulnerability and which affect people are represented by a series of social and economic structures. These structures and relationships are differing anyway. They can change at a community level, due to the economic variations or the state intervention (Morgan and Yablonski, 2011).

A very evident conclusion can be drawn, namely that for the areas situated in the demographic and economic high-risk regions certain rectifying measures and even a strong intervention are to come into prominence in order to stop the negative effect of these dysfunctions. Unfortunately, as regards the demographic component, the situation can change only by means of an appropriate demographic policy (at a national level) or by means of a series of economic measures which should improve the attractiveness degree of the area. Failing these actions, the social costs will increase exponentially (both of the aging process of the population and the increasing of the poverty level, which is high enough).

ACKNOWLEDGEMENTS

This work was supported by CNCSIS - UEFISCSU, project number PNII - IDEI code 1948/2008.

REFERENCES

Bourdelais P. (2005), *Qu'est-ce que la vulnérabilité?*, Annales de démographie historique, 2005/2 no 110, 5-9;

Braghina C., Stoica Ilinca Valentina, Zamfir Daniela (2010), *The role of SMEs in diminishing territorial disparities. Case Study: Gorj County*, Ovidius University Anals. Economic Series, vol. X, 398-402;

Chambers R. (1989), *Vulnerability, Coping and Policy*, IDS Bulletin, volume 37, no 4;

Ianos I., Braghina C., Stoica Ilinca Valentina, Zamfir Daniela (2010), *The dynamics and structure of SMES in the current economic context. Case study:Gorj County*, Revista Romana de Geografie Politica, year XII, no 2, 400-410;

Morgan R., Yablonski J. (2011), *Adressing, not just, managing vulnerability: Policies and Practice for Equity and Transformation*, International Conference „*Social protection for Social Justice"*, Institute of Development Studies, UK, 13-15 of April 2011;

Muntele I. (2010), *Les risque geo-démographique en Roumanie. Réalités et perspectives*, Essays of Geography Seminar „Dimitrie Cantemir", no 30/2010, pp. 73-85;

Peptenatu D., Pintilii R., Cepoiu Loreta, Drăghici C. (2009), *Polycentric Development Strategy – an Efficient Instrument in Administrative Decentralization*, Romanian Review on Political Geography, XI, 2, 99-111;

Stoica Ilinca-Valentina, Tălângă C., Zamfir Daniela (2010), *Urban-rural interface: general remarks. Application in the Romanian system of settlements*, Analele Universității din Oradea, Seria Geografie, tom XX, nr. 2/2010, 238-245;

*** (1999), *European Spatial Development Perspective. Towards Balanced and Sustainable Development of the Territory of the European Union*, Office for Official Publications of the European Communities, Luxembourg;

*** (2011), Territorial Agenda of the European Union 2020. *Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions;*

*** (2007), *Territorial Agenda of the European Union. Towards a more competitive and sustainable Europe of diverse region;*

*** Data from National Institute for Statistics

Submitted: September 06, 2011 | Revised: November 06, 2011 | Accepted and published online December 13, 2011