Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 17, Issue 1, 2017
PRINT ISSN 2284-7995, E-ISSN 2285-3952

RURALITY AND COMPETITIVENESS TYPOLOGIES: ANALYSIS AT THE COUNTY LEVEL IN ROMANIA

Marioara RUSU

Institute of Agricultural Economics, Romanian Academy, 13, Calea 13 Septembrie, District 5, Bucharest, Phone: 0213182411; E-mail: rusu.marioara@gmail.com

Corresponding author: rusu.marioara@gmail.com

Abstract

In recent decades, the European Union's interest to rural areas has increased. This interest is somewhat explained in that these areas are mainly characterized by weaker economic and social development than urban ones. The aim of this paper has been to achieve a typology of Romanian counties on rurality and competitiveness. This approach has generated a synthetic image of their spatial differentiation. As a working method, the multivariate analysis of two sets of indicators that define the two issues was used, followed by a comparison of the results. The main conclusion indicates that there is an inverse relation between rurality and competitiveness / well-being: the higher the rurality the lower the territorial competitiveness. The results of this work can be a starting point to design specific rural development policies.

Key words**:** *competitiveness, regional typologies, Romania, rural policy, rurality*

INTRODUCTION

In a period of increasing global competition and urbanization, many rural areas are struggling to maintain their economic vitality and viability. Although there is no single comprehensive measure of economic performance, researchers agree that, in general, rural areas have lower performance than urban ones [25][19][16]. European Union (EU) faces several key challenges regarding rural areas and solving them will prove to be a very complex and expensive process. Their primary objective is to increase efficiency by using factors such as competitiveness, innovation, etc. [6].

Getting aware of the endangered rural identity, of its resources and viability, many EU member states, particularly those with developed economies, tried to stop the unfavourable tendencies and preserve rural heritage. The diversity of problems facing rural areas today requires specific identification tools and appropriate intervention policies. Thus, EU programs have become important funding sources for rural development since the late eighties. The EU took into account the change of rural development policy, which aim to guide national and regional governments towards achieving a balance between the rural heritage preservation need, on one hand, and the modernization and development of rural life, on the other hand [1][5].

Research Agenda of the EU recognizes the importance of the spatial perspective of rural development policies and classification of rural areas [3][20]. Thus, over the years, many rural typologies were established at European level [10]. However, few studies take into account the link between the state of rurality and the competitiveness/well-being of the regions.

In order to address the relationship between rurality and competitiveness it is necessary to clarify, in the first place, the meaning of the concepts and to identify their defining characteristics.

Frequently, "rural" refers to a physical, economic, social and cultural concept that is opposite to "urban". There is a rich literature about rural and its characteristics. The rural area was investigated and defined at different moments of time, by different specialists, from different positions, with the main purpose to understand a complex reality [23]. There is an approach based on physical and economic characteristics, such as extensive

use of land, low population density, particular types of landscapes, low density of buildings and prevalence of agricultural production, etc. There is also an approach that focuses more on social issues - socio-professional structure, general cohesion of rural communities and the institutionalization of their functions, etc. [18][26][21]. The literature lack consensus regarding the definition of rural areas, whose meaning also evolves in time.

The competitiveness concept has been as well the subject of intense debates at academic a level, both supporters and opponents existing with regard to its operation opportunity and nature [15]. Depending on the level at which this is expressed, the conceptual framework, the assessment methods and understanding the significance of the competitiveness concept have a series of specific features. Differences of opinion referring to its macroeconomic or microeconomic, sectoral or territorial nature continue to motivate the identification of common elements that could represent a widely accepted conceptual framework [24].

Study the territorial competitiveness has become increasingly important, both in theory and in practice, representing the source of territorial policies and strategies [11]. A series of recent debate on territorial development have shown / proved that competitiveness is actually a combination of economic, social and environmental factors [13][8].

Territorial competitiveness is often treated as synonymous with welfare: competitiveness is sustained growth in living standards of a nation or region [7]. In this context, competitiveness has been seen as a complex concept, which focuses more on the dynamics and long-term prosperity of a region and less restricted competition on the resources. Thus, the competitive regions are places where both the companies and people want to settle and invest [14].

In conclusion, several rurality and competitiveness definitions were formulated throughout the years. On one hand, an unequivocal definition of the rural concept is quite a difficult approach, this being a generic term that covers very different realities, being an interdisciplinary investigation field. On the other hand, the regional/territorial competitiveness is a concept characterized by complexity and multidimensionality. Competitiveness is a main factor supporting economic growth and bridging up the social and economic gaps, in the context of convergence processes. Both concepts have rather a relative than absolute dimension and significantly interact.

MATERIALS AND METHODS

The diversity of definitions and interpretations given to the rurality and competitiveness concepts can lead to a variety of methodological approaches and evaluation tools. These concepts are difficult to quantify. In the first place because existing methods of analysis cannot fully capture the multiple dimensions of the investigated concepts. This paper aims to realize a typology of Romanian counties on rurality and competitiveness. For this purpose, the paper adapted the model used by Balestrieri for the assessment of rural municipalities on the basis of the relation between the existing rurality/urbanization and competitiveness/welfare levels in order to evaluate the similarities and differences. The study uses two sets of indicators that are grouped into three categories: activities, persons and practices. The first category – population – shows that in the absence of a critical human mass there will be no adequate framework for innovation, research, innovating solutions, autonomous development and surmounting dependencies. The second category – activity – refers to the economic progress expressed by different aspects of employment. The third category – practices relates to the fact that the spatial organization system can be an important stimulus for attractiveness and development [2].

For Romania, the selected indicators are differentiated according to the research objective, the existence and accessibility of statistical data and the spatial scale [9][17]. There were certain constraints in the practical building of the database, generated by the availability of indicators: many indicators proposed in the area studies could not be used, as they were not available at county level or

their quality was not satisfactory. Thus, on the basis of available information at county level, both for rurality and for competitiveness, a set of indicators was selected that are subsumed under the categories mentioned above (Table 1).

Table 1. Matrix of rurality and competitiveness - categories and indicators

Category	Indicator	Data source/year
RURALITY		
Activities	Importance of agriculture (share of agricultural enterprises in total enterprises)	NIS, TempoOnline database 2014
	Importance of population working in agriculture (share of population employed in agriculture in total employed population)	NIS, TempoOnline database 2014
Persons	Demographic density (number of inhabitants per km²)	NIS, TempoOnline database 2014
	Demographic importance of the county (share of rural population of the county in total rural population)	NIS, TempoOnline database 2014
Practices/ Structures	Importance of land area used in agriculture (share of agricultural area in total area)	NIS, TempoOnline database 2014
COMPETITIVENESS		
Activities	Importance of agriculture (share of agricultural enterprises in total enterprises)	NIS, TempoOnline database 2014
	Importance of population working in agriculture (share of population employed in agriculture in total employed population)	NIS, TempoOnline database 2014
Persons	Demographic density (number of inhabitants per km²)	NIS, TempoOnline database 2014
	Demographic importance of the county (share of rural population of the county in total rural population)	NIS, TempoOnline database 2014
Practices/ Structures	Importance of land area used in agriculture (share of agricultural area in total area)	NIS, TempoOnline database 2014

First, in order to reduce the large amount of data and to capture the common elements of the set of variables, the factor analysis – analysis of main components - was used (using the software package Statistical Package for the Social Sciences -SPSS).

The purpose of this analysis was to identify new variables, on the basis of data matrix, which should synthetically express the old variables, so that the total amount of information should not be lost but on a controlled basis [12]

Thus, the rurality analysis followed a multidimensional approach, which goes beyond the simple population density, dimension that is frequently used in the classification of the rural areas. In this context, in order to investigate the rurality of counties, a set of five variables was proposed, as presented in Table 1. Through the application of the correlation analysis (Pearson coefficient), the indicator "share of agricultural enterprises in total enterprises" was eliminated. Thus, four indicators were included in the Principal Component Analysis, which were contracted into two significant factors that contain 72.547% of the information of initial indicators (Table 2).

Table 2. Rurality – total variance

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of variance	cumulative %	Total	% of variance	cumulative %
1	1.508	37.703	37.703	1.508	37.703	37.703
2	1.394	34.845	72.547	1.394	34.845	72.547
3	0.764	19.100	91.648			
4	0.334	8.352	100.000			

Extraction Method: Principal Component Analysis.

Similarly, to the manner addressing the rurality, to characterize the competitiveness/welfare twelve indicators were used (Table 1).

Table 3. Competitiveness – total variance

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.942	43.795	43.795	3.942	43.795	43.795
2	1.617	17.970	61.765	1.617	17.970	61.765
3	1.299	14.431	76.196	1.299	14.431	76.196
4	0.748	8.310	84.506			
5	0.500	5.561	90.067			
6	0.347	3.856	93.923			
7	0.231	2.571	96.495			
8	0.188	2.092	98.587			
9	0.127	1.413	100.000			

Extraction Method: Principal Component Analysis

Using the correlation analysis, out of the twelve indicators initially taken into consideration, only nine were retained, three

were eliminated (labour force replacement rate, natural increase of the population and the migration growth rate). By the application of the Principal Component Analysis, described above, four main factors were extracted that describe 76.197% of the initial information (Table 3).

econd, the cluster analysis, statistical method by which the elements of a set are grouped into subsets, starting from one or several characteristics of these elements were applied [12]. We tried to classify the forty-one counties starting from a series of known attributes, having in view that the elements of each class are as similar as possible.

Thus, both for rurality and for competitiveness, the forty-one counties were grouped through the cluster analysis of hierarchical type, the farthest neighbour method, calculation modality between two objects (classes) – Euclidean distance.

For comparability, we stopped at a classification of the 41 counties into five classes, both for the rurality and competitiveness, which are introduced in the next section.

RESULTS AND DISCUSSIONS

The results acquired on the basis of the above-presented methodology indicate that rurality at NUTS3 level has significant variations (Table 4).

Table 4. Rurality classes

	Cluster 1	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Cluster 5**
Component counties	Brăila, Buzău, Mehedinți, Neamț, Satu-Mare, Vrancea, Botoșani, Călărași, Dolj, Giurgiu, Ialomița, Olt Teleorman, Vaslui	Alba, Arad, Bistrița-Năsăud, Caraș-Severin, Covasna, Gorj, Harghita, Hunedoara, Maramureș, Sălaj, Tulcea, Vâlcea	Dâmbovița, Galați, Iași	Argeș, Bacău, Bihor, Brașov, Cluj, Constanța, Mureș, Sibiu, Suceava, Timiș	Ilfov, Prahova
Rurality	Extreme	High	Moderate	Low	Rather urban
No. of counties	14	12	3	10	2
Share (%)	34.15%	29.27%	7.32%	24.38%	4.88%
Characteristics	- significant agricultural potential supported by the significant share of agricultural land and of the population employed in agriculture; - low population density.	- medium agricultural potential expressed by medium values of the share of agricultural land and population employed in agriculture; - low population density.	- agricultural potential characterized by medium share of agricultural land and low share of population employed in agriculture; - medium population density	- medium to low agricultural potential characterized by medium share of agricultural land and low share of population employed in agriculture; - medium population density.	- agricultural potential supported by medium values of natural agricultural resources and low values of population employed in agriculture; - very high population density.

In conformity with the hypothesis from which we started, the initial expectations confirmed that going from the counties with extreme rurality to the counties with urban influence, the importance of labour force employed in agriculture and of the natural resources expressed by the share of agricultural land decreases, while the population density increases.

Thus, the counties with extreme rurality have the greatest share, summing up 34.15% of total counties. These counties are mainly located in the southern and eastern part of Romania (Figure 1).

The counties with high rurality (29.27%) cover significant areas in the south-eastern part, in the canter and northern part of Romania. The centre of the country is mainly occupied by counties with low rurality. Two counties, Ilfov and Prahova, which are located in the proximity of the capital city Bucharest, were classified as rather urban.

Fig. 1. Territorial distribution of counties by rurality level (Source: author's processing NIS data)

The main conclusion that can be drawn from the analysis is that most counties from Romania are characterized by different rurality levels, with very few counties that can be defined as urban (two counties).

The competitiveness analysis led to the identification of five clusters /classes covering different competitiveness / welfare levels, as presented in Table 5.

Going from the counties with a very low competitiveness level to the counties with high competitiveness, we can notice an increase of the average monthly salary, of the share of individual entrepreneurs, of the higher education graduates and of the local infrastructure, while the trends of the population and labour force dynamics are discontinuous.

Figure 2 presents the territorial distribution of counties according to the competitiveness level. We can notice the high share of counties with low and very low competitiveness, accounting for 70.73%, which are located all over Romania's territory.

The Iași, Argeș and Prahova counties belong to the moderate competitiveness class. The counties with rather high competitiveness level have a low share (19.52%) and are mainly located in the central and eastern part of the country. There is only one county, i.e. Ilfov, classified as having high competitiveness / welfare.

The comparison of obtained results from the analysis of rurality and competitiveness typologies revealed the following aspects: the counties with extreme and high rurality belong to the very low and low competitiveness classes (24 counties); the intermediary rurality is accompanied by a relatively high competitiveness (7 counties); there is only one county classified as having low rurality and moderate competitiveness and an urban county with very high competitiveness.

There are also combinations in disagreement with the initial hypothesis. In this situation, unexpected combinations emerge that reveal either a performance above expectations, like the case of the county Arad, which is included in the high rurality class and the medium competitiveness class, or a performance that is below expectations: the county Prahova, included in the urban class belongs to the medium competitiveness class; three counties, i.e. Argeș, Bacău and Suceava belong to the

intermediary rurality class, the first county being found in the moderate competitiveness class, while the other two counties are found in the very low competitiveness class.

Table 5. Competitiveness classes

	Cluster 1	**Cluster2**	**Cluster 3**	**Cluster 4**	**Cluster 5**
Component counties	Călăraşi, Giurgiu, Ialomiţa, Teleorman, Tulcea, Brăila, Caraş-Severin, Covasna	Botoşani, Buzău, Dâmboviţa, Dolj, Galaţi, Gorj, Harghita, Neamţ, Hunedoara, Sălaj, Maramureş, Olt, Mehedinţi, Satu-Mare, Suceava, Vâlcea, Vaslui, Vrancea, Alba, Bacău, Bistriţa,	Argeş, Iaşi, Prahova	Bihor, Cluj, Mureş, Sibiu, Arad, Braşov, Timiş, Constanţa	Ilfov
Competitiveness	very low	low	Moderate	rather high	high
No. of counties	8	21	3	8	1
Share (%)	19.52%	51.21%	7.32%	19.52%	2.43%
Characteristics	- high dependency ratio and medium employment rate; - very low number of higher education graduates and of employees in research & development; - low to medium share of individual entrepreneurs; - the modernized rural infrastructure has medium to low value; - monthly salary gain has medium values; - the agricultural sector is characterized by a significant share of large-sized farms.	- high dependency ratio and employment rate medium to high; - medium share of modernized roads; - low share of higher education graduates and of employees in research & development; - low to medium share of private entrepreneurs; - medium-sized farms; - monthly salary gain is low to medium.	- medium dependency ratio and employment rate; - medium share of higher education graduates and of employees in research & development; - low share of modernized roads; - small-sized farms; - monthly salary has medium values; - medium to high share of private entrepreneurs	- medium dependency ratio and high employment rate; - medium share of modernized roads; - medium to high share of higher education graduates and of employees in research & development; - high monthly salary.	- dependency ratio above the average and medium employment rate; - high share of modernized roads; - high share of employees in research & development but low share of higher education graduates; - high values of monthly salary; -high share of private entrepreneurs

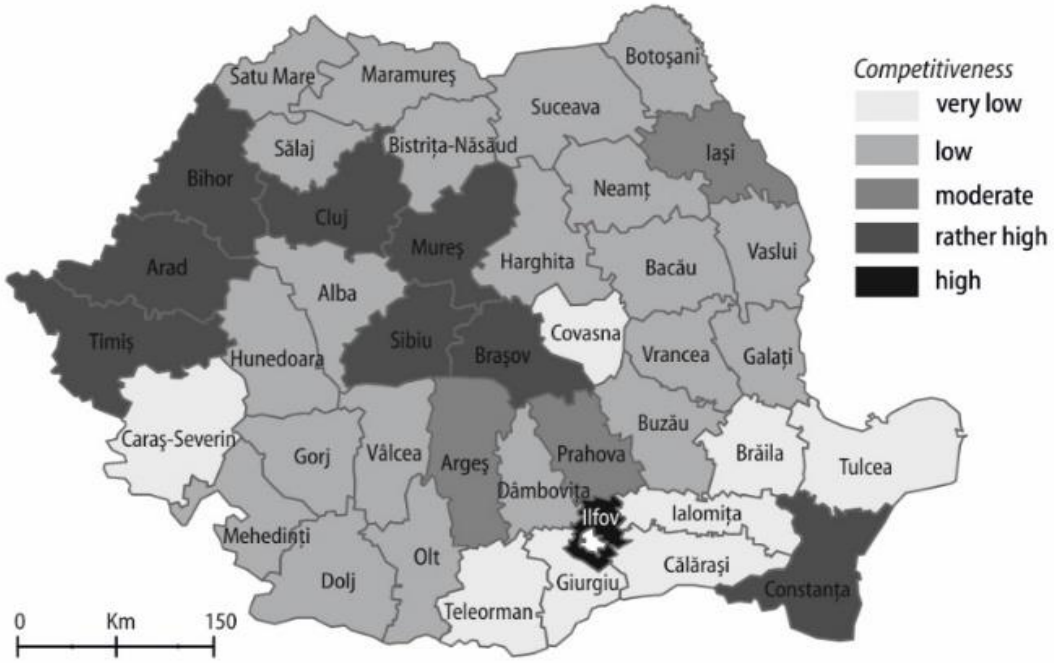

Fig. 2. Territorial distribution of counties by competitiveness level (Source: author's processing NIS data)

The counties Dâmbovița and Galați belong to the lower rurality class and are found in the moderate competitiveness class.

CONCLUSIONS

The EU interest in the rural areas has grown in time. This interest is partly explained by the fact that the rural areas are generally characterized by a lower economic and social performance as compared to the urban areas. The purpose of this paper was to classify Romania's territory (at county level – NUTS3) investigating the existing relationships between rurality and competitiveness so as to enhance knowledge of this connection.

The main conclusion that was drawn reveals that the results confirm the initial hypothesis: the higher the rurality level the lower the territorial competitiveness.

Thus, by comparing the results of the two analyses, we can find the following situation: i) all the counties that are found in the extreme rural class belong to the low competitiveness class (71.43%) and very low competitiveness class (28.57%); ii) except for the county Arad, all the counties classified as having a high rurality level were classified into the low competitiveness class (66.67%) and very low competitiveness class (25%); iii) most counties that belong to the low rurality class belong to the relatively high competitiveness cluster (70%); iv) the counties belonging to the medium rurality class are found in the low competitiveness class; an exception is the Iași county, which is found in the medium competitiveness class; v) as regards the two relatively urban counties, the Ilfov county is found in the high competitiveness class, while the county Prahova is in the medium competitiveness class.

The methodology used has both strengths and weaknesses. The advantages of this approach are given by the transparency of the framework matrix of indicators that makes it possible to analyse rurality and competitiveness on the basis of its determinants. However, the transposition of the two concepts on the map can lead to false accuracy because each county presents an important heterogeneity at commune level. One of the main contributions of this paper is that the identification of the rurality – competitiveness relationship at county level provides the decision-makers and other rural players with important benchmarks for the

design of adequate rural development policies.

REFERENCES

[1]Barca, F., McCann, P., Rodríguez, A., 2012, The Case For Regional Development Intervention: Place - Based Versus Place - Neutral Approaches, Journal of Regional Science, 52(1): 134 – 152

[2]Balestieri Mara, 2014, **:** The Case of the Sardinian Region, International Journal of Rural Management, 10: 173-197

[3] Bryden, J., M., 2002, Rural Development Indicators and Diversity in the European Union, Keynote speech at the USDA-ERS Conference on Measuring Rural Diversity,Washington,D.C. (http://www.researchgate.net/publication/228865950_Rural_Development_Indicators_and_Diversity_in_the_European_Union).

[4] Cloke, P., 2003, Knowing ruralities, in: Cloke, P. (Ed.), Country Visions. Harlow: Pearson: 1–13.

[5]Crescenzi, R., Giua, Mara, 2014, Europe in Question, Discussion Paper Series "The EU Cohesion policy in context: regional growth and the influence of agricultural and rural development policies", LEQS Paper 85 /2014. (http://www.lse.ac.uk/europeanInstitute/LEQS/LEQSPaper85.pdf**)**

[6] Dwyer, J., Baldock, D., Beaufoy, G., Bennett, H., Lowe, P., Ward, N., 2002, Europe's Rural Futures – The Nature of Rural Development II: Rural Development in an Enlarging European Union, London: Institute for European Environmental Policy.

[7] European Commission (EC), 2008, European Competitiveness Report.

[8] Filo, C., 2008, Indicators of territorial compettiveness, /http://drfilocsilla.blogspot.ro/2014/02/filo-c-2008-indicators-of-territorial.html)

[9] GEA (Grupul de economie aplicată), 2007, Manual de evaluare a competitivității regionale, http://www.adrmuntenia.ro/documente/manual-de-evaluare-a-competitivitatii-regionale.pdf

[10]Giray, H., F., Ratinger, T., (eds.), 2008, Approaches to Rural Typology in European Union, European Comission, JRS, Luxembourg.

[11] Harvey, D., 1989, The Urban Experience. Oxford: Blackwell.

[12] Jaba, Elisabeta, Grama, Ana, 2004, Analiza statistică cu SPSS sub Windows, Ed. Polirom, București.

[13] Jiang, Y., Shen., J., 2010, Measuring the Urban Competitiveness of Chinese Cities in 2000, Cities, 27 (5): 307–314.

[14]Kitson, M., Martin, R., Tyler, P., 2004, Regional Competitiveness: An Elusive yet Key Concept ?, Regional Studies, 38(9): 991-999.

[15]Krugman, P., 1994, Competitiveness – a dangerous obsession, Foreign Affairs 73: 28-44.

[16].McCann, P., 2016, The UK Regional – National Problems. Geography, Globalisation and Governance, Taylor & Francis Publisher.

[17] Mereuta, C., Albu, L.,L., Iordan, M., Chilian, M.,N., 2007, A Model to Evaluate the Regional Competitiveness of the EU Regions. Romanian Journal of Economic Forecasting, 8(3): 81-102.

[18]OECD, 2011, Regions at a Glance, OECD Publishing, Paris.

[19]OECD, 2007, Rural Policy Reviews: Mexico, Paris.

[20]OECD, 1996, Territorial Indicators of Employment: Focusing on Rural Development, Paris.

[21]Otiman, P., I.,1997, Dezvoltarea rurala in Romania, Ed. Agroprint, Timisoara.

[22]Porter, M., 1990, The Competitive Advantages of Nations, Free Press, New York.

[23]Rusu, Marioara, 2005, Dezvoltarea rurală - structuri și politici economice, Ed. Expert, București.

[24] Schwab, K., 2013, Global Competitiveness Report 2012- 2013, World Economic Forum, (http://reports.weforum.org/global-competitiveness-report-2012-2013).

[25]Thomson, N., Ward, N., 2005, Rural Area and Regional Competitiveness. Report to Local Government Rural Network, (http://www.ncl.ac/cre/publish/researchreports/competitivenessreport.pdf).

[26] Woods, M., 2005, Defining the rural, in: Woods, M.,(Ed.),, Rural Geography. London: Sage: 3–16