EVALUATION OF MACRO REGIONAL COMPETITIVENESS IN ROMANIA. CASE STUDY: MACRO REGION 1

Mihai Alexandru CHIŢEA[1], Ion DONA[2]

[1]Institute of Agricultural Economics, 13, Calea 13 Septembrie, District 5, 050711, Bucharest, Romania, Phone: +40213182411, Fax: +40213182411, Mobile: +40723586650,
Email: mihai_chitea@yahoo.com
[2]University of Agricultural Sciences and Veterinary Medicine Bucharest, 59 Mărăşti, District 1, 11464, Bucharest, Romania, Phone: +40213182564, Fax:+40213182888,
Email: ion_dona@yahoo.com

Corresponding author: mihai_chitea@yahoo.com

Abstract

The present paper approaches the evaluation of competitiveness at macro regional level, compared to national level, focusing on Macro-region 1. The methodology is based on a model for the evaluation of the competitiveness of rural areas developed in Croatia, which was adapted to national specificities referring to available statistical data and structure of relevant indices. The preliminary results highlight a macro-regional competitiveness level lower than the national average, due, mainly, to the results obtained by the agricultural and specialization and innovation sectors. The paper represents a follow up of previous researches in the field of territorial competitiveness's evaluation at county and regional level.

Key words: *macro regional competitiveness, evaluation models, Romania*

INTRODUCTION

Performance evaluation at different territorial aggregation levels (national, regional and local) represents at present, more than in any other period, a main objective of nations and of different international economic and scientific organizations. Numerous evaluation models, developed at international level, are based on elements of different economic theories elaborated throughout time, among which we can mention the classical and neoclassical theories, the theory of competitive advantage and of economic clusters. Starting from the national level, a series of models have been adapted for competitiveness assessment at lower aggregation levels, i.e. regional and local. While in the case of the regional level, the models have numerous similarities with those designed for the national level, for the local level the models were generally developed by scientists, for the evaluation of competitiveness of certain specific zones, being adapted from the point of view of the statistical information available at this level to

the purpose of investigation.

The present paper approaches the macro regional competitiveness evaluation compared to the national level, starting from an evaluation model developed in Croatia in the year 2012, and represents a follow up of previous researches in the field of territorial competitiveness's evaluation at county and regional level, based on the above model.

In a broad sense, the specialty studies define the territorial competition as the actions undertaken by the economic operators in a certain area to ensure the increase of the living standard of the people from the respective territory [4]. Jaques Poot is among the supporters of this defining modality, who considers that the territorial competition process is manifested at different levels: at town, regional and national level.

At micro-economic level, at the level of firms respectively, there is a relative consensus on the competitiveness concept, based on the capacity of firms to compete, develop and be profitable. At this level, competitiveness results from the capacity of firms/companies to constantly and efficiently produce goods

and services that meet the standards of open market, in terms of price, quality, etc. The higher the competitiveness of a firm, compared to other competitors, the higher is its ability to get a larger market share [7].

On the other hand, at macro-economic level, the competitiveness concept is much less defined, generating numerous discussions and contradictory debates. Despite the fact that the increase of a nation's/region's competitiveness is often at the core of economic policies, there are numerous discussions on what this really means and even if it is correct to approach this topic at macro-economic level. One of those who strongly contest the national competitiveness concept is Paul Krugman, who dedicated a great part of his studies to spatial development. Frequently referring to the situation in the United States, Krugman argued that: "The concerns about competitiveness are, as an empirical matter, almost completely unfounded …The obsession with competitiveness is not only wrong, but also dangerous … thinking in terms of competitiveness leads, directly and indirectly, to bad economic policies on a wide range of issues" [6]. These arguments are well-known by the macro-economic competitiveness concept supporters. Within what we can call a "consensual glance", there is an ample recognition of the fact that the improvement of a nation's economic performances cannot take place to the detriment of others and that productivity represent a core element of competitiveness.

Despite the existing controversies at academic and economic level in relation to the competitiveness concept and its implications, there are a series of definitions illustrating the existence of common characteristics, considered as component elements of the "consensual glance:

-"The competitiveness of a nation represents the degree to which the respective nation can produce goods and services under free and fair market conditions, which meet the requirements of international markets, while contributing to the increase of real incomes for its citizens …". [12];

-"Competitiveness can be defined as the degree to which a nation can, under free market conditions, produce goods and services that meet the test of foreign competition, while simultaneously maintaining and expanding the real incomes of its people." [10];

-"Competitiveness is the ability of a country to obtain a high, sustainable rate of the Gross Domestic Product per capita" [13];

-"An economy is competitive if its population can enjoy high and increasing living standards and a high employment rate, in a sustainable manner. More exactly, the economic activity level should not generate a foreign balance that is non-sustainable for the economy, neither to compromise the welfare of future generations.."[11].

Martin suggests that we can distinguish, from the above-mentioned aspects, the following characteristic elements of competitiveness at macro-economic level: high economic performance generally judged in terms of high living standards or of real incomes; frees market conditions for the goods and services produced by the respective nation; short-term competitiveness should not generate disequilibria leading to unsustainable high performance [7].

Taking into consideration these definitions of competitiveness, as well as several other definitions, Porter argues that the final purpose of competitiveness is to maintain or increase the citizens' real incomes, which is generally reflected by the living standard, by an increasingly high competitive performance of firms and sectors [9]. From this perspective, Cojanu *et al.* consider that: "competitiveness as policy element is a means to reach a goal; its ultimate target is represented by the increase of the living standard of the nation under free market and fair competition conditions". [3].

Addressing the issue of regional competitiveness definition and measurement in Romania, Mihaela Nona Chilian and Marioara Iordan consider that in its broader sense: "competitiveness can be defined as the capacity of a country, measured by comparison with other countries, to create and ensure an economic, social and political environment supporting the accelerated

creation of value added"; another proposed definition is the following: "competitiveness is the capacity to obtain high productivity on the basis of the innovative use of human, financial and material resources". [1]

Also at this level, i.e. at macro-economic level, Adina Criste, Elena Ana Moșneanu and Alina Georgeta Glod consider that national competitiveness is the "capacity of a nation to create and maintain, through adequate policies, an adequate environment that supports production with high value added in its enterprises, in obtain or retain a dominant position on the international markets" [5].

There are certainly other valuable contributions as well, both at national and international level, with regard to macro-economic or national competitiveness, referring to the conceptual framework and evaluation methods.

In this context, we would like to highlight Valentin Cojanu's contributions to the conceptual framework of territorial competitiveness and spatial development, as well as of their evaluation. In his study "A discussion on competitive groups of countries within the European Area of Integration", the author addresses the issue of grouping the European states into competitiveness clusters, focusing on the European economic integration that differentiates the random effect of the process of regional clusters formation on the basis of geographical neighbourhood from the hypothetical effect of competitive development supported by the homogenous integration areas. The objective of the approach was to bring further evidence during the debates on the competitive development conditions in the regional context of the European integration area. [2]

Many of these theories regarding territorial competitiveness have formed, throughout the time, the basis for the development of evaluation models by international, European and national institutions as well as by researchers and other academic representatives. Some models where adapted, from the upper aggregation levels to lower ones, taking into consideration various specific factors playing an important role at these levels and also the objectives of the

researches undertaken.

The present paper aims to evaluate the competitiveness at macro regional level, compared to the national one, starting from the previous researches at county and regional level.

MATERIALS AND METHODS

Building up on previous work, the present paper turns to an adapted evaluation model, which was used for evaluating competitiveness at county and regional level, for the current objective of evaluating the macro regional competitiveness, compared to the national level, in Romania, with focus on macro region 1.

The original model developed in Croatia in 2012, for constructing a rural competitiveness index based on the sustainable rural development concept, consisted of a set of 16 indicators grouped into four components: human resources, non-agricultural sector economy, agricultural sector economy and other activities of rural households [8]. An average of indicators from each component was obtained, resulting four rural competitiveness sub-indicators, which were individually analyzed.

The calculation formula of the rural competitiveness index (RCI) was:

$$Xi = 100 \ (xi \ / \ X) \ / \ (pi \ / \ P),$$

where:
xi – selected variable for the investigated area;
X – selected variable at country level; pi – number of inhabitants in the investigated area;
P – number of inhabitants nationwide.

Starting from the study described above, we intended to adapt the model to calculate: a macro regional rural competitiveness index to measure the competitiveness of Macro-region 1, compared to the national level.

The indicators from the Croatian model were not available in the official statistical data sources from Romania. Other available statistical data series were identified, compatible with the unavailable indicators in terms of statistical significance. Thus, the Croatian model was adapted in accordance

with the statistical data available in Romania and the regional rural competitiveness index comprised four components in which 16 indicators were used.

The first component – human resources – included the following indicators: employed population (data at the level of the year 2014), population with higher education (data from 2010), young population, aged 0-20 years and population density (data from 2014). The second component – non-agricultural sector economy – included the indicators: turnover and value of exports, expressed in thousand euros, density of local active units in 1,000 inhabitants and net average salary, expressed in euro (data from 2014). The third component – agricultural sector economy – included the indicators: average size of agricultural holding (data from 2013), turnover, value of exports, density of local active units in 1,000 inhabitants and net average salary (data from 2014). For the last component – specialization and innovation – the following indicators were selected: share of employed population in the non-agricultural sectors, employees in research-development-innovation in 1,000 civil employed persons and share of crop production in total agricultural production.

Thus, for the adapted model, at macro-regional level, most data were extracted for the year 2014. However, there were two indicators for which the latest available data were from the year 2010 for population with higher education and from the year 2013 for average farm size [16], [14].

The calculation formula for the Rural Competitiveness Index (RCI) was taken over from the Croatian model and adapted to calculate the macro-regional rural competitiveness index. Thus, the formula was

$$Xi = 100 \, (xi / X) / (pi / P),$$

where:

xi – selected variable for the macro-region; X – selected variable at country level; pi – number of inhabitants in the macro-region; P – number of inhabitants at country level.

Table 1. Adapted pattern for competitiveness assessment at macro-regional level

Variable – Original pattern Croatia	Variable – Adapted pattern
Human resources	
Employed population in the rural zone (pers)	Employed population, thousand persons
Population with higher education (pers)	Population with higher education (pers)
The young population in the rural zone (pers)	The young population (pers)
The population density - pers/sq km	The population density– pers/sq km
The situation of the non-agricultural sector's economy	
GVA(Euro)	Turn -over rate– thousands euros
Exports' value Euro)	Exports' value- thousand euros
Investments in long term goods (Euro)	Density of local active units no/1000inhab.
The net average wage (Euro)	The net average wage (Euro)
The situation of the agricultural sector's economy	
The farm's average size - ha/farm	The farm's average size– ha/farm
GVA (Euro)	The turn-over rate–thousand euros
The exports' value (Euro)	The exports' value– thousand euros
Investments in long term goods (Euros)	The density of the local active units
The net average wage (Euro)	The net average wage (Euro)
Other generating incomes activities at agricultural farms' level	**Specialization and innovation**
The share of touristic farms	The share of employed population in non-agricultural sectors
The share of krafts' cooperatives	The salary workers in CDI at 10000 civil occupied persons
The share of processing farms	% crop production in total value of the production in agricultural branch
The share of farms gaining from other incomes' generating activities	

Source: adaptation after the pattern elaborated by O. Mikuš, R. Franić şi I. Grgić, 2012

Each indicator was assigned a specific weight equal to that of the other indicators within the group; for each group an intermediate value of index (SI) was calculated, using the arithmetic mean; the resulted values for each group of indicators (SI) were used for the calculation of the Rural Competitiveness Index (RCI) macro-regional level through the calculation of the arithmetic mean of the values SI; it was considered that all components are equally important, having the same weight in expressing competitiveness.

RESULTS AND DISCUSSIONS

Before proceeding to calculate the rural competitiveness index at macro-regional and

regional level, we shall briefly present the main characteristics Macro-region 1.

The macro-regions and the development regions represent territorial statistical units without legal status, corresponding to the NUTS 1 and NUTS 2 level respectively (Nomenclature of Territorial Units for Statistics) as divisions of the European Union member states. These were created for the purpose to collect statistical data and do not have any administrative status/role or own form of governance or administration.

Photo 1. Map of macro-regions in Romania
Source: www.ro.wikipedia.org

Macro-region 1 comprises, from the statistical point of view, the development regions Centre and North-West, with a total area of 68,259 km² – accounting for 28.6% of Romania's total area and a population of 4,941,815 inhabitants (2014) – accounting for 24.8% of Romania's population [15].

The development region North-West is located in the north-western part of Romania and covers an area of 34,159 km², representing 14.3% of the country's total area; it is the 4th largest region among the 8 development regions. The region borders Hungary in its western part, Ukraine in the north, and the regions Centre, West and North-East in the middle. As regards the relief, the region is located in an interference area of various relief units, benefiting from a special natural and landscape heritage – 28% mountains, 30% hills and 42% river plains [18].

In the year 2014, the region North-West had a total population of 2,588,488 people, accounting for 12.9% of Romania's total

population and a population density of 75.7 pers./km², under the national average of 83.5 pers./km². The network of localities consisted of 43 towns (out of which 15 municipalities) and 1800 villages organized into 403 communes. The most important municipalities and towns, at the level of the region, are the following: Cluj Napoca, Baia Mare, Oradea, Zalău, Bistrița and Satu Mare.

From the economic point of view, the most important development poles are represented by the towns Cluj Napoca, Baia Mare, Oradea, Zalău, Bistrița and Satu Mare. The main sectors that contribute to regional economy are the tertiary sector (of services), represented by a well-developed tourism sector, which puts into value the particular natural and cultural heritage of the region (thermal springs, salt mines, mountain tourism sector, cultural and ethnographic heritage), the secondary sector (industry and constructions) – represented by constructions, textile industry, machinery and equipment industry) and the primary sector – based on a high agricultural potential, in livestock production in particular and on the presence of large food industry enterprises.

The second development region from Macro-region 1, the region Centre, is located in the central part of Romania, with an area of 34,100 km² – representing 14.3% of the country's total area, ranking 5th in size among the 8 development regions. Through its location in the central part of Romania, the region borders 6 out of the other 7 development regions. The relief of the region is dominated by the presence of the Carpathians (that cover about half of the region's area), the hilly area of Transylvania Plateau and the depression area connecting the hilly area to the mountain area, while the plains are almost lacking [17].

In the year 2014, the population of the region Centre totalled 2,353,327 persons, accounting for 11.8% of Romania's total population with a population density of 69 pers./km2, significantly lower than the national average of 83.5 persons/km2. The network of localities was represented by 57 towns (out of which 20 municipalities) and 1788 villages organized into 357 communes. The most

important municipalities and towns in the region are Braşov, Sibiu, Alba Iulia, Târgu Mureş, Sfântu Gheorghe and Miercurea Ciuc.

As regards the labour market, in terms of employed population, the tertiary sector (of services) prevails, with 43.4%, followed by the secondary sector (industry and constructions) with 34.1% and the primary sector (agriculture, forestry and fisheries – 22.5%.

From the economic point of view, the polarizing centres are represented by the large towns and peri-urban areas, which concentrate a large part of the economic activities. The

main sectors that contribute to the regional economy are the secondary sector (industry and constructions) – the machine-building industry and metal working, chemical industry, construction materials, wood, textile and food industries, the tertiary sector (of services) – fostered by growth in fields like transports, financial-banking services, telecommunications, as well as (mountain, balneary, cultural, agro-tourism) tourism as well as the primary sector (agriculture, forestry and fisheries) – based on a significant and diversified natural potential [17].

Table 2. The rural competitiveness Index – the Macro-region 1 versus national level, year 2014

Variables	Macro-region 1 $p_i = 4,941,815$	National level $P=19,913,193$	Indicator (X_i) of Macro-region1 competitiveness National=100
	$p_1/P = 0.248167$		
Human resources			
Employed Population (thousand persons.)[1]	2,212.8	8,431.7	105.75
Higher education population (no.pers.)[1]	617,500	2,591,021	96.03
The young population 0-20 y.o (no.pers.)[1]	1,109,679	4,393,393	101.78
The population density (no.pers./sq, km)[2]	72.4	83.5	86.71
The mean of indicators in the first component (sub-index 1)			**SI$_1$ =97.57**
The non-agricultural sector's indicator			
The turnover rate (thousand euro) [1]	56,264,320.65	277,958,974.9	81.57
The exports' value (thousand euro) [1]	13,027,771	47,877,695	109.65
The local active units' density /1,000 inhab.) [2]	26.45	25.29	104.59
The net average wage (euro) [2]	336.83	384.27	87.65
The mean of the indicators in the second component (sub-index 2)			**SI$_2$ = 95.86**
The agricultural sector's Economy			
The average size of the agricultural farm (ha/farm) [2]	4.1	3.66	112.02
The turn over rate (thousand euro) [1]	1,525,797.61	8,078,655.54	76.10
The exports' value (thousand euro) [1]	389,853	3,695,231	42.51
Local active units density (active units /1,000inhab.) [2]	0.91	0.89	102.25
The net average wage (euro) [2]	267.29	285.74	93.54
The mean of indicators in the third component (sub-index 3)			**SI$_3$ = 85.29**
Specialization and innovation			
% of the employed population in the non-agricultural sectors [2]	73.9	72.7	101.65
The salary workers employed in RDI per 1,000 civil employed persons [2]	33.3	51	65.29
% of crop production in total value of production of the agricultural branch [2]	61	65.83	92.66
The mean of indicators in the fourth component (sub-index 4)			**SI$_4$ = 86.54**
The competitiveness index –Macro-region 1			**RCI = 91.31**

Source: own calculations based on NIS data Note: [1] – variable calculated with the formula: $X=100*(xi/Xi)/(pi/Pi)$; [2] – variable calculated with the formula: $X=xi/Xi*100$

In the case of the first group of indicators, Human resources, the SUB IND 1 value was close to the national level - 97.57%. Here two indicators acted in the direction of increasing macro-regional competitiveness, and the other two in the direction of its decrease. Thus, the variable "employed population" exceeds by almost 6% the national level, while the variable "young population aged 0-20 years" is also above the national average. At the opposite pole, the variable that mostly acted

in the direction of competitiveness decrease was "population density" – only 86.71% of the national average.

The non-agricultural sector performance in Macro-region 1, in the year 2014, was under the national level, by about 4%; the variables that decisively contributed to the decrease of macro-regional competitiveness level were the "turnover rate" – only 81.57% of national level and "average net salary" – by almost 12% lower than that at national level. At the

same time, we can notice the positive results in the "value of exports" and the "density of local active units", with values above the national average, thus offsetting the low values of the other two sub-indicators.

As regards the agricultural sector performance, this was by about 15% lower at the level of Macro-region 1, compared to the national level. Only two of five sub-indicators contributed to competitiveness increase, namely: "average farm size", by about 12% higher than that at national level, representing a favouring factor for the development in good conditions of modern agricultural activities and in obtaining increased yields, thus contributing to the achievement of good economic results", and "density of local active units". On the other hand, among the indicators that strongly influenced the competitiveness level decrease, we must mention the "value of exports" – less than 50% of the national average and "turnover rate" – only 76.1% of the national average.

The total value of SUB IND 4 Specialization and innovation calculated at the level of Macro-region 1 was by about 14% lower than the national average. The sub-indicator that mostly contributed to the competitiveness level decrease was "employees in RDI in 10,000 civil employed persons" – only 65.29% of the national average; the only sub-indicator from this group with a value above the national average was "share of population employed in non-agricultural sectors".

CONCLUSIONS

The competitiveness index calculated on the basis of the adapted evaluation model reveals a significantly lower competitiveness level (RCI 91.31) of Macro-region 1, compared to the national level. All the four groups of indicators contributed to a decreasing RCI, with SUB IND 4 "Specialization and Innovation" standing out, whose value was much under the national average. However, we must punctually observe a positive evolution in certain indicators from the four groups, among which we mention the following: "Employed population" – Group "Human resources", "Value of exports" and "Density of local active units" – Group "Non-agricultural sector", "Average farm size" and "Density of local active units" – Group "Agricultural sector", as well as "Share of employed population in non-agricultural sectors" from the Group "Specialization and innovation". However, these could not offset the values under the national average of the other indicators, so that the Competitiveness Index calculated for Macro-region 1 was finally under the national average.

Considering all these aspects, the initial hypothesis of the present study has been confirmed: the competitiveness level of Macro-region 1 was lower then national level, being determined by the unitary action of the four groups of indicators.

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