Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 16, Issue 1, 2016
PRINT ISSN 2284-7995, E-ISSN 2285-3952

EVALUATION OF TERRITORIAL COMPETITIVENESS. CASE STUDY: SOUTH – EAST REGION AND TULCEA COUNTY

Mihai Alexandru CHIȚEA[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 Mărăști, District 1, 11464, Bucharest, Romania, Phone: +40213182564, Fax:+40213182888, Email: ion_dona@yahoo.com

Corresponding author: mihai_chitea@yahoo.com

Abstract

The concept of competitiveness still represents an important debate subject for the academic and economic environment. Differences of opinion regarding its nature, of macro or micro economic, continue to motivate the identification of common elements that can constitute a widely accepted framework. The common point of these approaches seams to be represented by productivity, regardless of the aggregation level. The different ways of expressing productivity, thou, lead to different models for evaluating competitiveness, of which, the best known are applied at national and regional level. For the evaluation of local competitiveness, specific models have been elaborated, at international and European level, based on representative indices for the investigating areas. The present paper aims to evaluate the competitiveness at county level, compared to the upper aggregation level, namely the Tulcea County and South-East development region, based on a model adapted to the local specifics, represented by the available data sources and structure of relevant indices for this level. The initial hypothesis is that the competitiveness at county level is strongly influenced by the dominant economic character and available resources, both of human and knowledge nature.

Key words**:** *regional competitiveness, models, competitiveness indices*

INTRODUCTION

The concept of competitiveness has been an important debate subject both at academic and economic level, with supporters and contesters with regard to its utilization opportunity and nature. Depending on the level at which it is expressed, the conceptual framework, the evaluation methods and the understanding of the competitiveness concept significance has a series of specific particularities.

As regards the *competitiveness at regional level*, two types of approaches have been prefigured: one that considers regional competitiveness as the sum of individual competitiveness of firms and the other that considers it as deriving from the macro-economic competitiveness. The first requires the existence, at regional level, of certain firms that can constantly and efficiently produce goods and services that comply with the free market price and quality requirements, etc. In this case, the hypothesis is that both the interests of the firms and the interests of the region are parallel; this is difficult to achieve, as long as the regional competitiveness must include several aspects, not only productivity. Certain organizations are in favour of the idea of enlarging the concept framework, in the sense that this should reveal that in the region there are a series of common factors affecting the productivity of firms that operate on the territory of that region. Summarizing, other authors consider that "the prosperity of a region is determined, firstly, by the power of its export base meaning….all those activities that bring incomes into the region by ensuring goods and services for the outside world"[5]. A similar approach to regional competitiveness has been also taken at European level: "[Competitiveness is defined] as the ability to produce goods and services

that stand the test of international markets ensuring, at the same time, high and sustainable income levels, or, more generally, the ability (of regions) to generate, while exposed to external competition, high levels of incomes and employment…in other words, for a region to be competitive it is important to ensure both quality and quantity of jobs"[6].

In this context, productivity appears as a key element of competitiveness [4]: "*Competitiveness remains a concept that has not been fully understood, despite the wide recognition of its importance. In order to understand competitiveness, the starting point should be the source of a nation's prosperity. The living standard of a nation is determined by the productivity of its economy, measured by the value of the goods and services produced by unit of labour, natural and capital resources. Productivity depends both on the value of the goods and services of a nation, measured through the prices that can be obtained on the free markets, and on the efficiency of producing these goods and services. The real competitiveness is thus measured by productivity*".

The second type of approach, which considers competitiveness as derivate or of macro-economic nature, has a series of limitations generated by the laws governing the international trade economy, which does not operate at regional level – for instance, the exchange rate movements and the price-wages ratio flexibility – these either do not exist or do not operate appropriately at the level of the region. There is also the idea that a different mechanism operates at this level, much more efficient and penalizing, namely the inter-regional migration of mobile factors, of capital and labour, which may represent a real danger for the regions. In the absence of such an economic adjustment mechanism, the macro-economic competitiveness concept cannot be fully applied at regional level either [2].

As regards the evaluation of local/zonal competitiveness, there are generally adapted models, designed by teams of researchers, for assessing the competitiveness of certain specific zones of interest for them; these models have common elements with the models from the higher aggregation level, and also elements specific to the investigated zones and aggregation level. We shall next present a few evaluation models of local/zonal competitiveness:

-model developed by Mara Balestrieri [1], from the Agriculture Department of the University of Sassari, Italy, for the evaluation of municipalities from the region Sardinia. This classifies the municipalities on the basis of the relationship between the existing rurality/urbanization levels and competitiveness in order to evaluate the similarities and differences. The study uses the multivariate analysis of two sets of indicators that are grouped into three macro-categories: activities, persons and practices. The municipalities from Sardinia were classified according to their rurality level, using a set of rurality specific variables that correspond to certain areas with low population and residential density where the agricultural sector has played an important role in local economy. On the basis of this model, the 377 municipalities in the region were divided into 5 competitiveness and welfare classes: very high, high, medium, low and very low.

- model for local competitiveness assessment – Croatia – O. Mikuš, R. Franić and I. Grgić [3]. The model was developed in order to evaluate the rural area competitiveness from Zagreb County, located near the capital; afterwards, Zagreb County was compared to the national average on the basis of the rural competitiveness index. The selection of indicators for measuring the rural competitiveness was based on the sustainable rural development concept and the indicators were grouped into four categories: human resources, situation of the non-agricultural sector economy, situation of the agricultural sector economy, and other income-gaining activities on the agricultural household farms. At the level of each category, the selected indicators were assigned an identical specific weight; the same procedure was applied in the case of the categories of indicators. Finally, the value resulting from the application of the calculation algorithm represented the rural

competitiveness index of the county Zagreb; the conclusion of the study was that the rural area from Zagreb County was by almost 9% less competitive than the rural area at national level.

To sum up, for each aggregation level there are several evaluation possibilities/models, and the choice of a certain model for competitiveness assessment should be correlated with the goal of the investigation and the investigated area specificity.

The present paper attempts to adapt such a competitiveness evaluation model to the local conditions from our country and to investigate the competitiveness of the county Tulcea compared to the competitiveness of the development region South-East where it is located. The initial hypothesis is that both territorial units have a relatively similar competitiveness level, influenced by the prevailing economic character and by the available human and knowledge resources.

MATERIALS AND METHODS

In order to evaluate the competitiveness of Tulcea county compared to that of the development region South-East, the present paper uses the model developed by O. Mikuš, R. Franić and I. Grgić (2012) to evaluate the county Zagreb, compared to the national level; the model was adapted to Romania's conditions, as regards the available data sources necessary for the investigation (table 1).

The adaptation had in view the identification of the largest number of indicators possible from the original model for which official data are available and the completion/replacement of those for which there are no appropriately structured data.

The four groups of indicators from the original model were the following: human resources, situation of the non-agricultural sector economy, situation of the agricultural sector economy and other income gaining activities on the agricultural household farms. Following the process of identification of data corresponding to the county level in Romania, the last group of indicators from the original model was replaced by the group *Specialization and innovation*.

For the model adapted to the county level in Romania, the data were extracted at the level of the year 2012, having in view the limitations imposed by certain indicators for which the last year available was 2012. The only indicators for which the data were extracted at the level of the year 2010 are the *population with higher education* and the average farm size [8], [9].

Table 1. Adapted pattern for competitiveness assessment at county 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

The calculation formula of the competitiveness indicators (components of the competitiveness index) was the following:

$$X_i = 100(x_i/X)/(p_i/P)$$

where:

- the small letters represent the county values

and the capital letters represent the values at regional level;
- X_i represents the selected variable for the county and X for the region;
- p_i represents the population at county level and P the population at regional level.
Each indicator was assigned a specific weight equal to that of the other indicators from the group, and for each group an intermediary value of the index was calculated (shortly SUB IND), using the arithmetic mean; thus, the values resulting for each group of indicators (SUB IND) were used for the calculation of the competitiveness index value at county level, resulting from the calculation of the arithmetic mean of the SUB IND values – it was considered that all the components are equally important in expressing competitiveness. The turnover indicators, the value of exports and the net average wage were calculated in euro at the average exchange rate of the year 2012.

RESULTS AND DISCUSSIONS

Before proceeding to the calculation of the competitiveness index at county level, compared to that of the region, we shall briefly present the main characteristics of the development region South-East and of the county Tulcea.
The development region South – East is located in the south-eastern part of Romania; its area is 35,762 km^2, i.e. about 15% of Romania's total area and it ranks on the second place as regards its size, among the 8 regions of Romania.
Its relief forms include the Danube river plain, Bărăganului plain, Dobrogea Plateau with Măcinului Mountains, while the north-western part of the region covers a part of the Curvature Carpathians and Sub-Carpathians. At the same time, the region is crossed by the Danube river, it includes the Danube Delta and in its eastern part it borders on the entire Romanian Black Sea coast. The plain is the main relief unit, with continental climate [11].
In the year 2012, the population of the region totalled 2,538,949 persons, accounting for 12.6% of Romania's total population, with a population density of 70.9 pers/km^2, under the national average of 84.3 persons/km^2. The network of localities consisted of 35 towns (out of which 11 municipalities) and 1448 villages organized into 355 communes – out of which 63 villages belonged to municipalities and towns. The most important towns of the region are Constanta, Galati, Brăila, Buzău, Focsani and Tulcea.
As regards the job supply, it is mostly represented by the tertiary sector, which concentrated 58.4% of the employed population, followed by the primary sector (agriculture, forestry and fisheries) with 33.7% and the secondary sector (industry+constructions), with 26.4% [7].

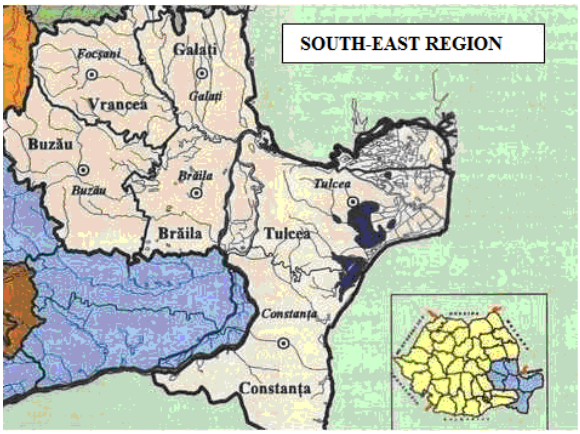

Photo 1. Map of the South-East development region
Source: www.vaslui.insse.ro

It is worth mentioning the high share of the population employed in the sector of services in the counties Constanţa and Galaţi, due to the development of tourism resorts alongside the sea coast and the presence of the ports Constanţa, Mangalia and Galaţi [11]. As regards the transport network, the region has a good connection to the national and European road transport network, being crossed by important corridors (E60, E85, E87, E70) and by an extended river/sea transport infrastructure favoured by the Danube river and the Black Sea: the port Constanta, the largest port at the Black Sea and the fourth in size from Europe and the river ports Brăila, Galati and Tulcea.
From the administrative point of view, the region South-East consists of 6 counties, namely: Constanta, Tulcea, Brăila, Galati, Buzău and Vrancea. The county Tulcea is

located in the eastern, south-eastern extremity of Romania, in the central-northern part of Dobrudgea at the Danube river mouth and has exit to the Black Sea. It borders on the county Galati in the north-west, on the county Brăila in the west and on the county Constanta in the south. The eastern point of Romania is also found in this county, i.e. the town Sulina [10].

Photo 2. Emblem of the Tulcea county
Source: www.cjtulcea.ro

In terms of area, the county Tulcea has the highest share in the area of the region South-East, with 8,499 km^2, accounting for 23.7% of the total area and 3.56% of the country's area. It is the fourth county as regards its size, after the counties Timiș, Suceava and Caraș-Severin. In its total area, the area covered by the wet areas of the Danube Delta and the lagoon complex Razim Sinoie account for about 3500 km^2. The relief is characterized by the presence of two distinct physical-geographic units: a higher relief unit, in the central-western part, and a lower relief unit in its northern, north-eastern and eastern part represented by the Danube Delta and the northern part of the complex Razim Sinoie.

As regards the areas by relief units, the county Tulcea is structured as follows: hills and plateaus (3,722.4 km^2) – 43.8%, mountain areas (433.4 km^2) – 5.1% and river plain and the Danube Delta (4343.2 km^2) – 51.1%.

The economy of the county Tulcea is characterized by:

-a diversified industry – shipbuilding and ship repair, ores, textile confections, magnesia products, construction materials, civil and industrial constructions, food industry products, furniture;

-a developed agriculture – benefits from soil and weather conditions that are favourable for the cultivation of cereal crops, legumes, industrial crops, vegetables and fodder crops and for the appropriate development of the livestock sector; at the same time, the soil nature, the weather conditions and the plentiful sunshine favour vine farming, mainly in the areas of the localities Niculițel, Babadag, Tulcea, Isaccea, Dăeni; other very important activities are the following – river, lake and sea fishing, hunting and sportive fishing;

-a well-developed tourism sector, favoured by the extremely important natural endowment both for the county Tulcea, as well as at national, European and international level – the Danube Delta, the youngest territory of Europe; the huge tourism potential is completed by the presence of numerous historical and archaeological sites and remains, monuments, museums, as well as by the existing traditions, traditional houses and customs – all these ensuring conditions for a prolonged tourism season, thus generating significant incomes for the local economy.

We shall next evaluate the competitiveness of Tulcea county compared to that of the development region in which it is located, the South-East region.

The four groups of indicators from the model, their values calculated for the year 2012, reveal both the strengths and the weaknesses of the county Tulcea, compared to the level of the region South-East. With the calculation of the individual values for each group in part, we can calculate the Competitiveness Index value of the county Tulcea (table 2).

The competitiveness index calculated on the basis of the adapted evaluation model reveals the existence of a competitiveness level of Tulcea county equal to that of the South-East development region. However, a series of important particularities contributed to this result in the direction of increasing or, by contrast, decreasing the competitiveness level.

Two of the four groups of indicators included in the evaluation model acted in the direction of limiting the competitiveness level versus

the regional one, being in their turn influenced by the levels of specific indicators. In the first place, we refer here to the group *Human resources* where we can notice the very low value of the indicator *population density* – by almost 3 times lower than that at regional level, which can be also explained by the presence of vast wetland areas and of the Danube Delta, hardly accessible territories, with low population number. In the same sense, yet with a much higher value, we have the effect of the indicator *population with higher education*, with a significantly lower value than that of that at regional level. The effect of the other two indicators from this group is neutral, with values that are almost identical to those at regional level.

Table 2. The local competitiveness Index – the Tulcea County vs South-East Region, year 2012

Variables	Tulcea County pi = 212,012	Region S-E P=2,538,949	Indicator (X_i) of county Braila competitiveness Region S-E=100
	p_1/P = 0.083503		
Human resources			
Employed Population, 2012 (thousand persons.)[1]	84.4	1,011	99.97
Higher education population (no.pers.)[1]	17,097	268,348	76.30
The young population 0-20 y.o (no.pers.)[1]	45,546	540,895	100.84
The population density (no.pers./sq, km)[2]	24.8	70.8	35.03
The mean of indicators in the first component (sub-index 1)			**SI_1 =78.03**
The non-agricultural sector's indicator			
The turnover rate (thousand euro) [1]	1,064,954.024	21,982,843.28	58.02
The exports' value (thousand euro) [1]	279,897	4,129,817	81.16
The local active units' density /1,000 inhab.) [2]	19.08	21.34	89.42
The net average wage (euro) [2]	360.64	329.67	109.39
The average of the indicators in the second component (sub-index 2)			**SI_2** = 84.50
The agricultural sector's Economy			
The average size of the agricultural farm (ha/farm) [2]	7.88	4.94	159.51
The turn over rate (thousand euro) [1]	123,577.85	1,305,892.82	113.33
The exports' value (thousand euro) [1]	37,784	542,293	83.44
Local active units density (active units /1,000inhab.) [2]	2.19	1.17	187.05
The net average wage (euro) [2]	246.41	233.17	105.68
The indicators' mean in the third component (sub-index 3)			**SI_3 = 129.80**
Specialization and innovation			
% of the employed population in the non-agricultural sectors [2]	62.6	66.3	94.39
The salary workers employed in RDI per 1,000 civil employed persons [2]	20.7	16.4	126.22
% of crop production in total value of production of the agricultural branch (2012) [2]	67.33	65.67	102.53
The mean of indicators in the fourth component (sub-index 4)			**SI_4 = 107.71**
The local competitiveness index – county Brăila			***ICL_{BR} = 100.01***

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

The second group of indicators that influence the competitiveness of the county Tulcea, in the direction of limiting competitiveness, is the group *economy of the non-agricultural sector*. Although benefiting from a diversified industry, a special archaeological and cultural capital – materialized into a huge tourism potential, which should represent strengths in the non-agricultural sector development, this cannot equal the very good performances of the polarizing industrial and services centers represented by the sea and river ports Constanța, Mangalia, Galați, Brăila, and also of the towns Buzău and Focșani, which have an essential contribution to the non-agricultural economy of the development region South-East. In these conditions, most indicators from this group had significantly lower values in the county Tulcea versus those at regional level, the poorest performance being noticed in the case of the *turnover* of the units from the non-agricultural sector – by about 42% lower than its value at regional level.

If these had been the only groups of indicators from the model, it is certainly that the competitiveness level of the county Tulcea would have been much lower that that of the region South-East. Fortunately, this was not the case. The following groups of indicators had as effect the increase of the competitiveness level, covering almost the

entire difference generated by the sector of the human resources and the non-agricultural sector.

We must mention here the *economy of the agricultural sector* of the county Tulcea, whose competitiveness level was obviously higher than the regional level, by almost 30% higher. This was mainly determined by the *density of local active units* in the agricultural sector and by the *average farm size*, both representing the benchmarks of a well-developed agricultural sector, based on a land structure that contributes to obtaining good results in the farming activities. Besides these two indicators, we also have a good effect of the *turnover* of the agricultural units, by about 13 % higher than that at regional level and the *net average wage*. The only indicator in this group whose value was lower that that at regional level was the *value of the exports* of the agricultural sector.

The group of indicators *specialization and innovation* also contributed to competitiveness increase. The main contribution was brought by the indicator *employees in RDI in 10000 employed persons*, the value of which is by about 26% higher than that at regional level, which reveals the existence of higher innovating potential of the county Tulcea; this potential, in the conditions in which it is well used, can bring an important competitive advantage in the region.

CONCLUSIONS

Considering all these aspects, the initial hypothesis of the present paper has been confirmed: both territorial units had a similar competitiveness level in the year 2012, which was strongly influenced by the prevailing economic character, as well as by the human resources and their knowledge and skills. In the case of Tulcea county, we can speak about a strong farming sector, which by its organization structure, dynamics of local active units and the obtained outputs has significantly contributed to the competitiveness level; besides this, the characteristics included in the group of indicators Specialization and innovation also have the same effect, which provides an important competitive potential to the investigated territory.

In spite of the limitations regarding the measurement and analysis of competitiveness at this level, coming both from the insufficiently developed conceptual framework and from those derived from the selection of indicators and availability of appropriately structured data, this model / quantitative analysis, besides revealing, at least partially, the competitiveness at county level, turns to be an inspiration source for the development of research activity both for the measurement of competitiveness and for the enlargement of the base of indicators.

REFERENCES

[1]Balestrieri Mara., 2014, Rurality and ompetitiveness. Some observation on the local area: the case of Sardinian Region în International Journal of Rural Management, Vol 10 (2): 173-197

[2]Carmagni R., 2002, On the concept of territorial competitiveness: sound or misleading? Paper presented at the ERSA conference, Dortmund

[3]Mikuš O., Franić R., Grgić I., 2012, The evaluation of rural competitiveness in creating a policy of rural development in Croatia în Journal of Food, Agriculture & Environment, Vol.10 (2): 962-969

[4]Porter M.E, Ketels C.H.M., 2003. UK competitiveness: moving to the next stage. DTI Economics Paper 3, Londra

[5]Rowthorn R.E., 1999, The political economy of full employment in modern Britain. University of Oxford

[6]European Commision, 1999, Sixth periodic report on the social and economic situation of regions in the EU. Brussels

[7]INS, Tempo on-line

[8]INS, Recensământul General al Populației și Locuințelor 2010

[9]INS, Recensământul General Agricol 2010

[10]www.cjtulcea.ro – Prezentarea județului Tulcea

[11]www.fsesudest.ro – Regiunea de dezvoltare Sud-Est