

## THE SOCIO-ECONOMIC DEVELOPMENT LEVEL OF THE ROMANIAN RURAL SPACE

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### **Abstract**

*In the present paper, the authors propose the elaboration and application of a theoretical model to assess the degree of socio-economic development of the Romanian rural space in view of giving a counties' hierarchy and setting some temporal tendencies having as a reference year- the year 2007, that of the European Union accessing . In order to accomplish these goals the specialty literature regarding the theoretical model was reviewed and a set of relevant and available indicators in the national database (NSI) was proposed, on basis of which a composite indicator was calculated.*

**Key words:** *theoretical analysis model, durable development region, composite indicator*

### **INTRODUCTION**

The EU rural development policy, for the period 2014-2020, is oriented by the Europe 2020 Strategy and the Common Agricultural Policy, following the achievement of three strategic goals on long term: agriculture competitiveness' stimulation; the guarantee for a durable management of the natural resources and the fight with the climate changes; supporting a balanced territorial development of rural communities, mainly, by sustaining the local economies, the creation and maintaining of jobs.

The Rural Development National Plan 2014-2020 [7] is following the present needs of the inhabitants in the rural, having the following major priorities: the maintaining of traditional agricultural and non-agricultural activities.

In the last years, the concerns for a balanced social and economic development in territorial profile were expanded.

The assessment of the socio-economic development degree must be regarded from two perspectives, one positive linked to the development potential and a negative one which takes account of the needs and

problems with which a certain territory is confronting itself [5].

For a clear image regarding the degree of socio-economic development of the Romanian rural space, at national, regional and county level, in the European and national specialty literature it is met the tendency to utilize aggregated indicators, even if the individual indicators are not at all neglected, either [3].

There is, within the specialty literature, a series of pro and con arguments for the utilization of the composite indicators [11]. Specialists, supporting their utilization, are evidencing the following advantages: the easy identification of a common tendency, and in some territorial comparisons [12].

The specialists, contesting the utility of the composite indicators have in view the possibility of sending wrong messages, when these indicators are badly constructed or wrongly interpreted [9].

In the Romanian specialty literature there is a series of composite indicators used in the socio-economic diagnosis analysis of the rural space (Durable development index [6], Aggregated indicator regarding the present stage of economic and social development [3],

The global index of the present stage of economic and social development [14], The rural development index [10]; The index of communes' development IDC [13]; Aggregated indicator necessary for the assessment of the development potential of a locality [1]; The synthetic development index of rural households [2] etc.

Table 1. The main pro's and con's for the utilization of composite indicators

Pro's	Con's
The composite indicators can be utilized in order to sum up complex problems or multi-dimensional ones, in view of supporting the decision factors.	The composite indicators can transmit wrong policy messages in case these are wrongly constructed or wrongly interpreted.
The composite indicators are supplying the overall image.	The composite indicators under the form of an 'overall image' can invite the politicians to make simplistic political conclusions.
The composite indicators are making the tendency interpretation easy, than this thing would be followed separately by the indicators. They are facilitating the understanding of some complex problems at national, regional, county level.	The composite indicators must be utilized in combination with the sub-indicators in order to make sophisticated political conclusions.
The composite indicators could contribute to the reduction of the dimension of a list of indicators or to include more information within the existent dimension limit	The construction of the composite indicators implies the following stages: selection of sub-indicators, choosing the model, the weighing of the indicators and the treatment of the lacking values. These stages must be transparent and based on solid statistical principles.
	The sub-indicators' selection and their weighing could be the target for the political challenge.
	The composite indicators are increasing the quantity of necessary data, because the data are necessary for all sub-indicators and for a significant analysis, statistically speaking.

Source: Saisana M and Tarantola S. (2002), State-of-the-art report on current methodologies and practices for composite indicator development, EUR 20408En, European Commission-JRC: Italy [11]

## MATERIALS AND METHODS

Starting with the multi-dimensional character of the rural space, of rural development, a theoretical model is proposed to analyze the socio-economic development degree of the rural space under the form of a matrix within which it is taken into account a series of criteria and sub-criteria for which a set of relevant indicators was proposed.

The result of the model will be a composite indicator regarding the socio-economic development degree of the Romanian rural space, at county level, which can be useful both for the researchers, and for the local political decedents, of the county, region or national ones.

The composite indicator is supplying useful information for complex comparisons between regions, but also punctual aspects regarding the demographical, social and economic criterion. When the analysis is made at regular intervals an indicator can indicate the change tendency within each criterion, as well as in time.

The selection of the indicators necessary for the construction of the theoretical model to assess the socio-economic development degree of the rural space is based on available statistical indicators, relevant for the goal followed.

In the present paper, the analysis will have in view the measuring of the development level or of the socio-economic discrepancies between certain territorial units (between counties), in different periods (There were chosen the years 2000, 2005, 2007, 2010 and 2015 in order to see the influence of the EU accession also, upon the Romanian rural space development degree).

Following the utilized aggregation methods, in the specialty literature, abroad and national, there is a certain phasing, generally accepted, overtaken also for the calculation of the composite indicator regarding the socio-economic development degree of the rural space, such as:

(a)Development of the theoretical analysis model [4] – The theoretical analysis model is the starting point in the construction of the composite indicators.

-*Concept Definition* – the frame should define, clearly, the phenomenon which must be measured and the sub-components, the selection of individual indicators and weights which should reflect their relative importance and the dimensions of composite ensemble

-*Determination of sub-groups* – the multi-criteria concepts can be divided. Such a tree like structure improves the understanding by the user of the drivers from behind the composite indicator.

-*Identification of selection criteria* – the selection criteria should function as a guide to establish if it should be included an indicator or not in the global composite index.

(b) Selection of variables (primary indicators) – ideally, the primary indicators should be selected on basis of their relevance, analytical solidity, promptitude, accessibility, etc

(c) The multi-variant analysis – once established, the structure of the composite indicator and the set of individual indicators, which are describing clearly the phenomenon followed, also the econometric method of data analysis will be established

(d) Normalization or standardization of primary indicators (1. Ordination 2. Standardization 3. Min-Max 4. Relative distance 5. the categorial scale 6. Indicators around average)

(e) Indicators' aggregation and the formation of the composite indicator;

(f) The sensibility analysis.

## RESULTS AND DISCUSSIONS

The first step in the construction of the theoretical analysis model was the definition of the concept of rural socio-economic development, and in the case of the present paper, rural development must ensure at the same time the economic development and the social welfare, these, at their turn being directly linked to the demographical resources and natural anthropic ones able to potentiate the other two.

In the elaboration of the theoretical analysis model for the socio-economic development degree in the rural space there are held in view the following analysis criteria: The natural and anthropic capital, the

demographical capital, the social capital, the economic capital.

Table 2. Composite index regarding the socio-economic development degree of the rural space

Criteria	Sub-criteria	Basic indicators
	<i>Land fund 50 %</i>	<i>Agricultural area per capita</i>
	<i>Infrastructure 50%</i>	-Modernized public roads at county level -Share of localities with edible water distribution net work -Share of localities with public sewerage network - Share of localities in which natural gases are distributed
<b>Demographic criterion 30 %</b>	<b>Population increase factors 100</b>	- Birth rate / mortality rate /natural increase -Balance of internal/external migration -Average life expectancy
<b>Social criterion 30%</b>	<b>-Education 50 %</b>	The average pupils' number per one teacher
	<b>-Health 50 %</b>	-The average inhabitants' number per one family physician /dentist
<b>Economic criterion 30%</b>	<b>Employment 100%</b>	-Population employment ratee

Source: Chițea Lorena, 2017, Households in the Romanian Rural Area - Theoretical Model, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development [4]

Each criterion and sub-criterion has received a specific share, the indicators having equal shares within the sub-criterion it makes part of.

The indicators were selected based on availability (some indicators which were relevant for the paper's goal were not available at county level for the rural

environment) and comparability with other indicators following the rural development and based on their relevance in defining the socio-economic development degree of the rural space.

The data processing for the Composite Index for the rural socio-economic development degree was performed with the help of the Excel Program and SPSS. Indicators were grouped by criteria (natural-anthropoc, demographical criterion, the social criterion, the economic criterion), each criterion receiving a specific share. To the sub-criteria were given equal shares within the criterion, the same the indicators within the sub-criterion.

It was realized the indicators' normalization, the national average being consider as reference, and the formula used was the following:

$X = 100 \times (x_i / X_i) / (p_i / P_i)$ , where  $x_i$  and  $X_i$  represent the values registered at county and national level, and  $p_i$  and  $P_i$  – population at county and national level. For the indicators already expressed in ratio to the population, the calculation formula was:  $X = 100 \times (x_i / X_i)$ .

Aggregation of the indicators into sub-criteria and criteria was realized according to the theoretical model.

The composite index of the rural socio-economic development degree resulted after the methodology presented before put into evidence the following situation:

- In top of the 2015 index there are the counties: Ilfov, Cluj, Timiș, Brașov, Sibiu, Constanța. These were in the top, even if in other hierarchy, in the whole analyzed period (2000-2015), except for Ilfov county, which in the year 2000 was under the national average and its evolution was a-typical for the rural environment, the polarizing effect of Bucharest being very strong.

- At the opposed end of the interval there are the counties: Călărași, Botoșani, Vaslui, Giurgiu, Ialomița, which from the point of view of the general index, their situation deteriorated in the analyzed period.

- Out of 41 counties, the value of the 2015 general index of rural development is over the national average only in case of 31.70% of the country's counties, in year 2000, these

represented 41.46%. This is reflecting the real situation with which the Romanian rural space is confronting namely: the differential development between the counties based the development poles and a certain concentration of the developed zones and a higher and higher discrepancy towards the under-developed ones. If the analysis had been realized at locality level, the discrepancy between the developed ones and those less developed would have been bigger.

Ilfov county is in a net advantage towards the other counties due to its position towards the strongest pole of Romania, the capital, which is imprinting a strong urbanization from occupational point of view, of the living standard, with a continuous populating of the zone.



Fig.1. The map of Global index of rural development in Romania

Source: Own calculations after data in tempo online NSI [8]

From point of view of the time evolution of the rural space socio-economic development degree, counties are divided into more categories:

- Strong counties, which preserved their top position: Brașov, Sibiu, Constanța, Hunedoara;

- Strong counties which evolved in a positive way: Timiș, Cluj;

- Less developed counties, which registered involutions: Vaslui, Botoșani, Călărași, Galați, Telorman, Neamț, Dâmbovița;

- Less developed counties, which preserved their position: Giurgiu, Ialomița, Buzău, Olt.

In the natural-anthropoc criterion the following indicators were included: the share of modernized public roads at county and commune level; the share of localities with

network of edible water distribution; the share of localities with public network of public sewerage; the share of localities in which natural gases are distributed. This indicators have equal share within the sub-criterion – the index of the natural-anthropic index.

Table 3. Distribution of counties by the index of natural-anthropic criterion, year 2015

Braila, Sibiu, Caras-Severin, Tulcea, Cluj, Ilfov, Mures, Arad, Harghita, Brasov, Timis, Hunedoara, Alba	Very high
Constanta, Teleorman, Covasna	High
Ialomita, Calarasi, Satu Mare, Mehedinti, Maramures, Gorj	Medium
Bistrita-Nasaud, Bihor, Galati, Dolj, Olt, Valcea, Vaslui, Giurgiu, Salaj, Bacau, Dambovita	Low
Buzau, Suceava, Prahova, Arges, Botosani, Vrancea, Iasi, Neamt	Very low

Source: processing after NIS, tempo online [8]

In case of the natural-anthropic criterion, 53.65% of counties are in the favorable category, over the national average, and the index values are varying between 58.17 and 156.78.

Within the demographical criterion the following indicators were included: natural increase, balance of internal/external migration, average life expectancy.

By the index of demographical criterion, county Ilfov is detaching itself from the others, being by 164.64% higher than the national average.

The followings, at a considerable distance from the Ilfov county, are the counties: Timiș, Cluj, Brașov, Sibiu, Constanța. The counties at the end of the hierarchy are: Teleorman, Olt, Vaslui, Botoșani, Tulcea.

Table 4. Distribution of counties by the index of demographical criterion, year 2015

Ilfov, Timis, Cluj	Very high
Brasov, Sibiu, Constanta	High
Iasi, Suceava, Mures, Harghita	Medium
Bihor, Satu Mare, Arad, Maramures, Covasna, Giurgiu, Galati, Dambovita, Vrancea, Neamt, Bacau, Arges, Hunedoara, Dolj, Salaj, Prahova, Bistrita-Nasaud, Alba, Valcea	Low
Gorj, Mehedinti, Buzau, Braila, Calarasi, Ialomita, Caras-Severin, Tulcea, Botosani, Vaslui, Olt, Teleorman	Very low

Source: processing after NIS, tempo online [8]

In case of the social criterion the following indicators were included: the average number of pupils per one teacher, the average number of inhabitants per one family physician/dentist.

Table 5. Distribution of counties by the index of the social criterion, year 2015

Hunedoara, Brasov	Very high
Cluj, Timis, Sibiu, Alba, Constanta, Dolj	High
Arad, Caras-Severin, Valcea, Bihor, Mures, Maramures	Medium
Gorj, Mehedinti, Braila, Arges, Olt, Satu Mare, Harghita, Covasna, Salaj, Galati	Low
Teleorman, Prahova, Iasi, Tulcea, Buzau, Bistrita-Nasaud, Bacau, Neamt, Ialomita, Dambovita, Suceava, Vaslui, Vrancea, Botosani, Giurgiu, Ilfov, Calarasi	Very low

Source: processing after NIS, tempo online [8]

The top counties from the point of view of the social criterion are: Hunedoara, Brașov, Cluj, Timiș, Alba, and at the end of the classification are: Călărași, Ilfov, Giurgiu, Botoșani, Vrancea, Vaslui. The share of less socially developed counties represent 60,98%. It is to be remarked that county Ilfov is on the penultimate place from the point of view of social development, which can be explained through the rapid expanding of the Ilfov rural zone (area limitrophe to Bucharest) without being expanded, at the same time, the social infrastructure. This thing does not mean a weak instruction of the pupils or a limited access to the medical services, as these are using the Capital’s resources.

Table 6. Distribution of counties by the economic criterion index, year 2015

Arad, Alba, Cluj, Sibiu, Salaj, Bistrita-Nasaud, Timis, Bihor, Valcea	Very high
Brasov, Hunedoara, Vrancea, Harghita, Arges, Satu Mare, Mures	High
Constanta, Teleorman, Maramures, Neamt, Covasna, Tulcea, Braila, Caras-Severin, Prahova, Buzau, Mehedinti, Gorj, Ilfov, Dolj	Medium
Olt, Suceava, Dambovita, Botosani, Ialomita, Vaslui, Bacau, Iasi, Galati	Low
Calarasi, Giurgiu	Very low

Source: processing after NIS, tempo online [8]

In case of the economic criterion it was taken into account only the indicator: population employment rate.

The top counties from point of view of the economic criterion are: Arad, Alba, Cluj, and at the end of the classification there are the counties: Giurgiu, Călărași, Galați. The share of less developed counties from economic point of view represent 73.17%.

## CONCLUSIONS

The composite index regarding the socio economic development level of the rural space highlights an unbalanced territorial development dominated by under developed counties (68,29% of them being under the national average), characterized by an important agricultural potential, a significant demographic decline, limited access to utilities and social services and financially rewarding jobs (the majority of rural population being employed and underemployed in agriculture – a sector generating lower income levels compared to others).

The criteria analysis reveals that there is no correlation between the development level and the natural potential of the area, the intensity of development being imprinted by the urban development poles.

The percentage of counties with recorded values higher than the national average, based on the reporting criterion is:

- 53.66% for the natural – anthropic criterion;
- 31.70% for the demographic criterion;
- 39.03% for the social criterion;
- 26.83 for the economic criterion.

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