ROMANIAN RURAL AREA TYPOLOGY BY THE INEQUALITY LEVEL - A MULTICRITERIAL APPROACH –

TIPOLOGIZAREA SPAŢIULUI RURAL ROMÂNESC DUPĂ GRADUL DE INEGALITATE - ABORDARE MULTICRITERIALĂ –

MONICA MIHAELA TUDOR[1], MARIOARA RUSU[1]

[1] Institute of Agricultural Economics, Bucharest, Romanian Academy, Romania; monik_sena@yahoo.com

Abstract: *The economic and social inequalities take multiple forms. Their complexity and effect upon individual and overall human development are increasingly deep as several inequality risk sources are cumulated. There is a well-known mutual driving effect that the economic inequality causes have upon social inequality, the reciprocal being also valid. The present study attempts to identify the main inequality sources in the rural area: the territory equipment in the first place, followed by the demographic disequilibria, economic development of the area that provides occupational opportunities, social infrastructure and appetence for investments. We propose a theoretical methodology for the aggregation of rural inequality indicators, which enables grouping the communes from Romania into three clusters, depending on the cumulated intensity of the manifestation of factors that describe and/or condition the socio-economic inequalities.*

Key words: *socio-economic inequality, rural area, Romania*

INTRODUCTION

The complexity and size of inequalities, the existing interdependency between the different aspects of people's life and their impact upon human development in general have represented one of the most controversial aspects of the economic and social discourse in latest years, both at global and local level. Briefly considering the conclusions of this type of discourse, the specialists from the World Bank, from the United Nations Development Program and the United Nations Organization make a clear distinction between two categories of inequality aspects: a) *economic*

aspects (income distribution, poverty level, occupational status, etc.); b) *non-economic aspects* (health, life expectancy, education, malnutrition, ethnic group, residence region, etc).

The economic-social inequalities are not accidental or isolated in a uniform population mass, but they are rather materialized into combined structures of the above-mentioned disadvantages that are mutually intensified. *Equity* is defined in the terms of two basic principles. The former is represented by *equal opportunities:* the achievements in any person's life should be determined, in the first place, by his/her own talents and efforts, more than by pre-determined circumstances, such as race, gender, social or family origin or the country of origin. The latter has in view *the access* to the health and education systems and an acceptable level of consumption. (Paul Wollfowitz, World Bank - 2006).

The investigation of inequalities has been the object of many studies in the world as this aspect fundamentally conditions the human development premises. The different aspects of inequality (of economic and non-economic nature) have potentiation and mutual driving effect; out of this reason, we consider it interesting to propose *an aggregation model of the economic and non-economic inequality indicators. The theoretical model aggregating the inequality indicators* is constructed on the basis of those aspects of inequality with the greatest mutual driving force and permits the evaluation of the socio-economic inequality level that the population in a given area is facing. This model was constructed within the project PN II, Partnerships in priority domains, no. 92072/2008 and is concerned with the socio-economic inequality aspects that the Romanian rural area is currently facing.

Such a unitary and integrated approach of the relevant inequality aspects permits to make a *typology of the rural area by rural inequality level.* The hierarchy of rural communities and/or regions by the socio-economic inequality level reveals the areas that are most vulnerable and less submitted to the inequality risk and enables strategic decisions with regard to the corrective intervention stringency.

MATERIALS AND METHODS

On the basis of the diagnosis analyses of the rural socio-economic inequalities by regions, the analyses made under the above-mentioned

project, a set of five criteria has been selected describing and conditioning the rural inequality level in Romania. Each criterion is associated to a number of indicators that describe the inequality level, calculated at the level of commune, on the basis of available statistical data from the NIS

MATRIX OF SOCIO-ECONOMIC INEQUALITY CRITERIA AND INDICATORS

Criterion 1: **TERRITORY EQUIPMENT –** *provides information on the on-dwelling comfort; rural technical infrastructure as support to rural development – to business environment included. Selected indicators:* Living floor/inhabitant; Quantity of drinking water supplied to consumers for domestic use*;* Simple length of the drinking water supply network; Simple length of the sewerage network; Length of natural gas supply pipelines

Criterion 2: **DEMO-ECONOMIC DIMENSION –** *provides information on the local demographic perspectives, on the disintegration of family values, living attractiveness of the zone and the economic-social opportunities that the respective area is presumed to provide, etc. Selected indicators:* Natural increase/1000 inhabitants; Divorces/1000 inhabitants; Balance of change of domicile /1000 inhabitants; Balance of change of residence /inhabitants; External migration balance/1000 inhabitants.

Criterion 3: **SOCIAL INFRASTRUCTURE –** *provides information on the educational and health infrastructure and its adjustment to the community needs; potential access to ICT, etc. Selected indicators:* Enrolled pupils /teacher; Number of inhabitants / physician; PC/1000 inhabitants.

Criterion 4: **ECONOMIC DIMENSION –** *provides information on paid job access opportunities and the rural population's dependence on the social transfers and agriculture, agricultural land operation intensification, development of economic activities complementary to agriculture, the abilities to promote rural services complementary to agriculture, etc. Selected indicators:*Number of employees/1000 inhabitants; share of arable land in total agricultural land; share of area under vineyards and orchards in total agricultural area; average number of beds/accommodation unit; number of nights spent on accommodation units / accommodation beds.

Criterion 5: **INVESTMENTS –** reveals the projection on the future development potential of the rural community, etc. *Selected indicators:* Number of dwellings finished in 2008 / 1000 existing dwellings.

local databases for the year 2008.

The theoretical model aggregating the rural inequality indicators that is used in the present study is based on **cluster analysis** as this method makes it possible to classify the objects into homogenous clusters, according

to a given set of variables. As the cluster analysis permits the identification of a set of homogenous groups by grouping the elements so that to minimize variation within the group and to maximize variation among groups, it was considered as the most adequate method for the aggregation of inequality indicators.

The cluster analysis of the secondary statistical data available in the commune fiches provided by NIS for the year 2008 enabled a *typology of the Romanian rural area by rural inequality level.*

RESULTS AND DISCUSSIONS

The importance of each of the five selected criteria for the explanation of the community socio-economic inequality level is different, the **factor analysis** revealing the contribution of each of the selected community characteristics to the total variation of cumulated inequality.

The factors on which the rural socio-economic inequality level mostly depends are those regarding the *demo-social dimension*, the indicators attached to this criterion explaining 31.4% of the total variation of the inequality level. Under this dimension, the most relevant aspects are related to:

Change of residence balance/1000 inhabitants which reflect the demographic desertification risk of rural communities that are economically and socially isolated and are no longer attractive for living.

The second demo-social aspect relevant to socio-economic inequality is the natural increase, which reflects the demographic ageing risk, labour force ageing and depopulation of rural communities.

The territory equipment of the rural communities is the second predictor of inequality, as this explains 24.8% of the total variation of rural inequality. The most important aspect from the territory equipment point of view, relevant for socio-economic inequality, is the dwelling comfort (expressed by the amount of drinking water supplied to inhabitants and the living floor per inhabitant).

Equipment of the communes with technical infrastructure elements (water supply networks, natural gas supply networks and sewerage systems) which, in its turn, has a significant contribution to the explanation of the general socio-economic inequality, as the indicators that measure the simple length of natural gas supply pipelines of the are the most relevant for the

general inequality, as compared to the indicators related to other technical infrastructure networks.

Table 1. Importance of socio-economic inequality criteria and indicators in explaining the general variation of the inequality level

Criteria	Indicators	% in total variation of cumulated inequality	
		indicators	cumulated by criteria
TERRITORY EQUIPMENT	Living floor/inhabitant (m²/inhabitant)	1.86	24.76
	Drinking water quantity supplied to domestic users (m³/inhabitant)	10.65	
	Simple length of drinking water supply network – km	2.64	
	Simple length of sewerage network - km	3.01	
	Simple length of natural gas supply pipelines - km	6.59	
DEMO-SOCIAL DIMENSION	Natural increase/1000 inhabitants	5.67	31.38
	Divorces/1000 inhabitants	3.70	
	Change of domicile balance/1000 inhabitants	2.64	
	Change of residence balance/1000 inhabitants	14.00	
	External migration balance/1000 inhabitants	5.37	
SOCIAL INFRASTRUCTURE	Enrolled pupils/teacher	5.21	17.12
	Inhabitants/physician	3.81	
	PC/1000 inhabitants	8.10	
ECONOMIC DIMENSION	Number of employees/1000 inhabitants	4.80	23.11
	% arable land in agricultural land	4.22	
	% area under vineyards and orchards in total agricultural land area	4.36	
	Average number of beds/ accommodation unit	6.46	
	Number of nights spent in accommodation units in 2008 / bed	3.28	
INVESTMENTS	Dwellings finished in 2008 / 1000 existing dwellings	3.63	3.63

Source: processing Project PN II, Partnerships, no. 92072/2008 on the basis of statistical information from commune fiches, NIS, 2008

The indicators related to the *economic dimension* of rural communities represent the third stage in the order of importance of factors

determining the socio-economic inequality level. Overall, the economic dimension explains 23.1% of the total variation of the inequality level.

Among the indicators composing this dimension, the most relevant in the differentiation of communes is average number of beds/ accommodation unit due to the poor development of tourism infrastructure and weak tourism potential promotion.. The second aspect, economically important, is the incidence of contractual relations on the labour market (measured by the indicator *number of employees/1000 inhabitants),* which reflects the access opportunity to a paid job and the diminution of the risk of dependence on own agricultural holding.

Social infrastructure is on the fourth position in the hierarchy of criteria conditioning the distribution of communes on the socio-economic inequality scale, this criterion explaining 17.1% of the total variation of the inequality level. The indicators that measure the social infrastructure development level (load of pupils per teacher, number of inhabitants per physician) have a narrow variation range, the most part of the communes from Romania being characterized by the poor development of these infrastructure elements which make them have a low incidence on the inequality level.

The number of computers per 1000 inhabitants reflects the risk of not having access to electronic information resources. This indicator is the third indicator that explains the total variation of cumulated socio-economic inequality.

The criterion *Investments* has a low incidence upon the general inequality level (it explains only 3.6% of the general variation of socio-economic inequality). Only for the communes from cluster 1 – accounting for only 1/5 of the rural localities – the number of investments in new dwellings is statistically representative, for the other 80% of the communes the share of new dwelling is not significant, which overall also makes the criterion *Investments* be less relevant for the economic-social inequality structuring in rural Romania at present.

The results of the cluster analysis of data series on the rural economic and social inequality led to the division of the communes from Romania into three clusters.

The distribution by clusters of the 2860 communes under investigation is the following:

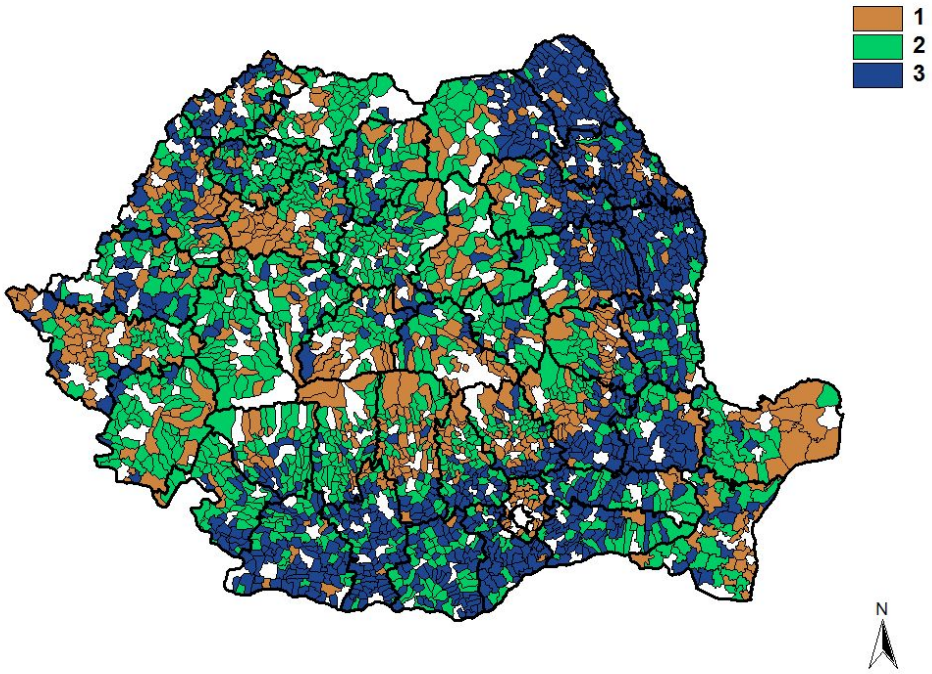
- cluster I – 20.5% of communes

- cluster II – 40.7% of communes
- cluster III – 38.8% of communes

and it is graphically presented in Map no. 1

The three clusters can be interpreted as categories that regroup the communes of the country *according to the cumulated intensity of the manifestation of the factors that describe and/or condition the socio-economic inequalities.*

Map 1. Community profile of rural inequality in Romania



Source: processing Project PN II, Partnerships, no. 92072/2008 on the basis of statistical information from commune fiches, NIS, 2008

Thus, we make the difference between:

- rural communities characterized by a lower rural socio-economic inequality level (cluster I)
- rural communities characterized by a medium rural socio-economic inequality level (cluster II)

- rural communities characterized by a higher rural socio-economic inequality level (cluster III).

It is necessary to specify that the parameters in which this classification was made are characteristic to the Romanian rural area, the distribution by clusters being made by taking into consideration the variation range of indicators throughout Romania's territory.

CONCLUSIONS

The hierarchy of the main inequality sources in Romania's rural area led to the conclusion that the element that mostly conditions the socio-economic inequality in rural Romania is territory equipment. This is followed, as source of socio-economic inequality, by the demographic disequilibria, the economic development of the area providing job opportunities, social infrastructure and the inhabitants' appetence for investments.

The rural communities that cumulate the most economic and social vulnerability sources are grouped into relatively compact areas. These are in general communes located in the plain areas, whose local economies highly depend on agriculture, providing relatively few opportunities for ascending occupational mobility as the nearest areas are also less attractive to investors. Urgent corrective interventions are needed in these rural areas in order to remove the causes of social inequalities as there is the risk of an increase in the negative social and economic effects translated into the absence of available resources and access to resources that should sustain an acceptable human development for the 21st century.

REFERENCES

1. *** Project PN II, Partnership, no. 92072/2008 "Economic-social models to attenuate the inequalities in the rural areas by regions" (2008-2011)
2. *** NIS (2010) Commune fiche 2008
3. *** United Nations (2006) Report on the World Social Situation, 2005,http://daccessdds.un.org/doc/UNDOC/GEN/N05/418/73/PDF/N0541873.pdf