# TYPOLOGY OF THE ROMANIAN RURAL AREA BASED ON THE MODERNIZATION AND RURAL SOCIO-ECONOMIC DEVELOPMENT PERSPECTIVES

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#### Abstract

The main purpose of this paper is to create a typology of the Romanian rural area according to the socio-economic modernization-development perspectives. The starting point consisted in the development of three indices to measure the analysed processes, namely the rural modernization index, the rural development index and the rural household modernization index. To create the typology, the author proposed a method that takes into consideration both the value of indices and the trend of these indices in the period 2007-2018. From the resulting typology, a general trend was noticed, namely that the Romanian rural area has a different behaviour depending on the proximity of large urban centers (see the counties Timiş, Ilfov, Cluj, Sibiu, Constanța, Braşov), the rural households in the proximity of cities have easier access to utilities and more attractive jobs, the population is younger and more educated.

Key words: rural area, rural development, rural modernization

## **INTRODUCTION**

The main hypothesis of the paper was that modernization is different from development. Development final stage is the of modernization, in which transformations are profound and long lasting, and involve changes in all respects: in economic, social, political, technological and cultural terms. The modernization-development process in Romania has not been a constant/continuous process, being directly linked to the historical evolution - political influence (change of political regime) [13].

According to Parsons, the society functions as system of four subsystems: social. a economic, political and cultural. The changes produced at the level of any subsystem trigger effects in all the other subsystems [7]. This phenomenon can be also transposed in the case of rural space and actors (rural household) to which the ecological subsystem be added. The modernizationcould development of rural areas has not been achieved uniformly at national level, there ae different particularities that trigger significant gaps between counties, between rural areas.

The necessary elements for modernization in the rural area are the presence of entrepreneurship, a modern infrastructure, existence of modern attitudes and values. The presence of these elements does not imply the loss of rural specificity (of traditions and customs); ideally, these should be valorized. The modernization of rural households has been achieved in a differentiated manner, depending on the intensity of exposure to innovative elements, and this has facilitated their acceptance in the current lifestyle [2]. Romania's accession to the European Union has triggered a new modernization development process of rural areas. This was quite a complex phenomenon, acting in several directions: modernization of road and technical infrastructure, of communications, etc.; the free access to the European labour market, which resulted in the migration of young population; population's access to continuous vocational training; modernization of institutions and institutional relations, with the possibility of advanced endowment and technological upgrade; modernization of the agro-processing process, raising quality standards; modernization of farms through access to technical endowment with tractors, machinery and high-performance equipment; encouraging the diversification of rural economy.

Financing the investments in rural areas was achieved both through direct payments under the single area payment scheme (Pillar 1), and through rural development measures (Pillar 2), and mainly targeted agricultural activity, food industry, non-agricultural activities, rural infrastructure as well as other activities [11]. In addition to these EU funding sources through European Agriculture Guarantee Fund (EAGF) and European agricultural Fund for Rural Development (EAFRD) exclusively dedicated to rural areas, there is also funding from national sources and other European funds (operational programs).

Starting from the multi-dimensional character of the Romanian rural area, of rural development and of its regional, county and local specifications, a set of relevant indicators was proposed for measuring the modernization – socio-economic development processes in the Romanian countryside. Following the consultation of recent literature on the use of theoretical and applicative modelling in measuring rural development, a theoretical model was developed to measure the degree of modernization and socioeconomic development of the Romanian rural area, on the one hand, and the degree of rural household modernization, on the other hand.

# MATERIALS AND METHODS

On the basis of the aggregation methods from the national and international literature, the generally accepted stages of building the composite indices were established, even though the aggregation methods have certain particularities related to the selection and aggregation of primary indicators [4].

# Development of theoretical models of analysis

The great diversity of the Romanian rural area is the main element that generates differences in terms of development/modernization in the rural area, situation that is also reflected in the socio-economic behaviour of rural households. The rural area diversity (through the relief differences; natural potential of the

area; accessibility - distance from city, accessibility in transport infrastructure; road technical infrastructure. infrastructure. healthcare infrastructure; cultural specificity) argument the difference in can modernization/development between the territorial units, which is quite difficult because there are some less quantifiable aspects. One of the points of interest in the research is the identification of some direct or indirect links between different social and economic factors and the development/modernization level of the rural area, without omitting the ecological nature of activities in the rural area. The main objective of the research is to establish the causal relationship between modernization and socio-economic development, on the one hand, and the rural household modernization, on the other hand. In reaching this objective, the first step was to construct the theoretical model - establish the size and selection of depending on relevance and indicators availability of data. The main source of data was the National Institute of Statistics tempo online. The indicators were introduced into the SPSS software for aggregation, data analysis and presentation of results. Indices were calculated at country, macro-region, development region and county level, and the investigated period was the post-accession period (2007-2018). The classification of counties by the favourability of investigated phenomena implied the following stages: 1. Establishing the indices taken into consideration: RDI, RMI, RHMI, RDI trend, RMI trend, RHMI trend; 2. The next step was to establish the limits of each index (minimum and maximum); 3. Dividing the interval for each index into 5 equal groups, each group receiving a rating score from 1 (the weakest) to 5 (the best); 4. Each county was assigned a partial score from 1 to 5 according to the level reached for each index; 5. The final score for each county was calculated by summing up the partial scores.

# **RESULTS AND DISCUSSIONS**

The typology of counties established according to the score obtained is the

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following: E) counties with net modernization - socio-economic development trends of the rural area and rural household modernization trends (Bistrița-Năsăud, Sibiu, Brașov, Cluj, Ilfov, Timis) – 14.63%; D) counties with slight modernization – socio-economic development trend of the rural area and rural household modernization trend (Alba, Constanța, Harghita, Maramureș, Mureș) -12.21%; C) counties at a standstill in terms of modernization - socio-economic development of the rural area and rural household modernization (Bihor, Brăila, Caraș-Severin, Prahova, Hunedoara, Ialomita, Iasi, Arad, Arges, Covasna, Sălaj, Satu Mare, Suceava) -31.70%; B) counties with low perspectives of modernization - socio-economic development of the rural area and rural household Neamt, modernization (Gorj, Călărasi, Dâmbovița, Tulcea, Vâlcea, Vrancea, Dolj, Galați, Teleorman) - 24.39%; A) counties with no perspective of modernization - socioeconomic development of the rural area and rural household modernization (Buzău, Bacău, Giurgiu, Botosani, Mehedinti, Olt, Vaslui) -17.07%.



Map 1. Typology of counties by the modernization – socio-economic development of the rural area and rural household modernization trend, 2018

Source: author's own calculations based on NIS data, [9] and [8].

The structure of counties by the modernization and development trend of rural area and of rural household implicitly reveals a concentration of counties that fall in the medium interval (31.70%) and lower interval (41.46%). The counties with net and slight modernization – development trends are the only ones where RDI and RMI indices increased. The RHMI index decreased in all

the categories, the lowest decrease being found in the case of counties with net modernization and development trends.

## Analysis of the main indicators by categories of counties according to the modernization and development perspectives of the rural area.

The demographic indicators declined significantly in the investigated period, except the group of counties with net for modernization-development perspectives, which points to the need for demographic policies meant to prevent existing structural problems. Even if certain indicators, such as the dependency ratio, have had a positive evolution, in recent years a decrease has been noticed, from 56.82% to 50.82% (in the entire national rural area). If only the evolution of the dependency ratio were considered, the situation would be encouraging, but if we look at the evolution by age groups, the situation generates a series of problems: the diminution is determined by the decrease in the share of young dependent persons – under 15 years of age (from 17.91% in 2007 to 15.89% in 2018). Over time, the elderly population will disappear and will be replaced by a numerous population from the present population group aged 15-64 years, the 15-64 year olds will benefit from a low contribution of young population, which will lead to a high demographic dependency ratio. If the declining rate of young population is maintained and there is no intervention through demographic, economic and social policies to encourage the birth rate, the situation will continue to generate major imbalances in the age structure of the population.

As demographic indicators that have a direct relationship with the typology of counties by the modernization – development perspectives of the rural area, we mention the natural balance  $(+0.763^{**})$ population and the  $(+0.419^{**})$ : migration balance as demographic indicators with an inverse relationship we mention the degree of aging (- $0.426^{**}$ ) and the dependency ratio (- $0.362^{*}$ ).

The demographic evolution, in the case of rural population in Romania – the demographic decline, is influenced by two processes, namely the natural movement of the population (population renewal capacity) and the migratory movement, mainly of the young population.

The natural increase values indicate a demographic crisis in the rural area, which is severe (in the case of categories A (-8.31) and B (-6.94) and acute (categories C (-4.91) and D (-2.84). Category E has positive values of this indicator, yet not in all counties.

*Migration balance* was favourable in the period 2007-2018, yet decreasing, from plus 927 persons in 2007 for the rural area to plus 467persons in 2018, except for the category E, where the number of persons coming to the rural area increased (from plus 1,240 persons in 2007 to plus 1,886 persons in 2018). It is worth noting that the positive migratory balance in the rural area is found only in adult and elderly people, while in the case of young people it is negative [1].

Migration is based on changing the perspective of life in the community with sustainable social and economic effects, having at its basis "a perspective of the sustainable relationship between the assumed goals and means" [12].

Migration has consequences for the rural household by changing its demographic social needs and economic structure, competitiveness. Unfortunately, the rural household becomes once again a means of survival for the population, of ensuring its subsistence. The urban area is losing population in favour of the rural area. But the phenomenon is not based on solid principles in economic terms, the rural area does not provide sufficient security or welfare for the population, the village being a refuge due to the inability to cope with the requirements of the urban area.

*The aging rate* in the rural area – in the investigated period – increased from 106.75% in 2007 to 111.90% in 2018, which indicates a strong aging process; the counties from category E are an exception, with the decrease of the aging rate, in the conditions in which the aging rate in this category has the lowest value anyway. Rural population aging will generate increasing financial pressure on pensions and healthcare in the next period, a

situation that is mainly caused by the increase of life expectancy [3].

In terms of social dimension there is a strong direct or indirect link between the resulting typology and certain social indicators: there is a direct link with the fertility rate  $(+0.701^{**})$  and the average lifespan  $(+0.367^{*})$  and an indirect link with the infant death rate  $(-0.341^{*})$ . There are weak links with the other social indicators (number of pupils/teachers +0.142, pupils' access to PC +0.021).

*The fertility rate* in dynamics is specific to a space facing difficulties in the process of demographic renewal. The involution in the value of this indicator is clear in the rural area: the decline from 44.53 live births/1,000 fertile women to 37.37 live births/1,000 fertile women. The decline is stronger is the counties with no modernization – socio-economic development perspective as against the counties with net perspectives, where there is a slight decline (from 45.35 live births/1,000 fertile women).

Fertility rate is higher in the rural area than in in the urban, where this indicator slightly increased (from 31.9 live births/1,000 fertile women in 2007 to 36.3 live births/1,000 fertile women in 2018).

At rural household level, fertility decrease is caused both by demographic factors (population aging, high death rates) and by economic factors (pressure of financial sources from agriculture – 64.20% of total incomes are agricultural incomes; precarious investments). In the year 2018, the size of rural household was 2.8 persons and 64.29% of households were run by persons aged 50 years and over.

The average lifespan increased significantly in the period 2007-2018 (from 71.64 years in 2007 to 74.24 years in 2018), indicating positive changes in the quality of rural life, even though there is a significant gap between the urban (77.12 years) and rural (74.24 years) areas. Lifespan is reflected in food quality, living conditions, education access and healthcare quality. access and quality. environment quality, quality of family/social relations, etc. [5].

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Infant death rate, indicator with high significance in the analysis of the degree of modernization at community and rural household level, significantly decreased, yet maintaining quite high values (from 13.90‰ in 2007 to 7.98‰ in 2018). In terms of the typology by modernization and socioeconomic development perspectives of the rural area and household, significant differences can be noticed. when the perspectives are higher, the infant death rate decreases.

The spatial analysis of this indicator identified, at county level, rural areas where: the demographic and social vulnerability is revealed by the values of indicators that continue to be high: Botoşani 17‰, Tulcea 15,2‰, Sălaj 14,4‰, Călăraşi 13,5%; the demographic and social stability is described by the low values of this indicator: Hunedoara 1.3‰, Ilfov 2.8‰, Dâmboviţa 2.9%.

At the level of rural household, the high infant death rate is the result of the low access to healthcare infrastructure, mothers' low level of training-educational level and the significantly low economic level.

At the level of economic indicators there is a strong direct or indirect relationship between the resulting typology and certain economic indicators: there is a direct relationship with the share of animal production  $+0.337^*$ , number of employees in 1,000 inhabitants  $+0.633^{**}$ , UAA per agricultural household  $+0.503^{**}$  and an indirect link with labour force renewal rate ( $-0.645^{**}$ ). There are weak links with the other economic indicators (LLU per household +0.306, share of employed population in agriculture +0.250, agricultural area per person employed in agriculture +0.268 and number of tractors in 100 ha).

The share of animal production is an indicator that decreased in the analyzed period, in the conditions of increased orientation towards crop production that also generates a low, highly volatile value added (caused by the evolution of climate factors, variation of prices).

Within the typology by the modernization – development trend of the rural area and household, the share of animal production decreased in all the categories of counties, by 25.94% on the average. The greatest decreases were noticed in the category A – counties with no perspective (by 42.47%), in the category B – counties with low perspectives (by 40.86%) and C – counties at a standstill (by 20.66%). The decrease of the share of animal production in the case of category D (-1.74%) – of counties with slight perspectives – is smaller than in category E (-5.89%) – of counties with net perspectives, but category E remains the category with the highest share of animal production.

The indicator Number of employees in 1,000 inhabitants increased in all categories of counties. There is a strong direct link between the modernization – development trend of the Romanian rural area and rural household and the number of employees in 1,000 inhabitants. Category E (counties with net trends) stands out. The proximity of large cities is a great economic opportunity for the rural areas: on one hand, various non-agricultural the activities develop here (warehouses, agroprocessing, industrial activities, etc.), and on the other hand, urban areas attract rural labour, increasing the purchasing power of the rural population.

There are two indicators Agricultural area per person employed in agriculture and UAA per agricultural household that had contrary evolutions in the period 2007-2018. Thus, the Agricultural area per person indicator employed in agriculture has a clear increasing trend in the conditions in which the share of the population employed in agriculture decreases and the agricultural area remains the same (in the case of this indicator the total agricultural area is taken into consideration). Taken separately, this indicator can be considered favourable, but it does not take into consideration other aspects: decline of the population and labour force, land left fallow, land concentration in the case of large agricultural holdings.

The increase of average agricultural land per person employed in agriculture does not result in the increase of average size of individual agricultural holding, but it is based on other processes of demographic nature, decline of population and employment in agriculture. This adds to the fact that part of the land is

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left uncultivated (either by the rural land owners or by the new owners who do not live in the countryside); this is also reflected in the decrease of utilized agricultural area, in the period 2007-2016, from 8,966,308.55 ha to 6,926,256.09 ha (FSS-NIS). At rural household level, no land consolidation can be noticed; on the contrary, the agricultural area used by an individual agricultural holding decreased from 2.29 ha in 2007 to 2.09 ha in 2016 [13]. A better situation can be noticed in counties with the case of a slight modernization-development trend of rural household and rural (from 2.88area ha/household in 2007 to 3.31 ha/household in 2016) and in the case of counties with net modernization-development trends (from 2.86 ha/household in 2007 to 2.92 ha/household in 2016), while a decline was noticed in all the other categories.

The indicator Labour force renewal rate (The ratio of young population aged 25-29 years to the population in the age group 15-24 years) measures the ability to sustain the economic activities. From 2007 to 2018, the decreasing trend of the labour force renewal rate from 1.90 to 1.77 - a level in which the economic and occupational multiplication was still taking place in relatively normal conditions, is not valid for the entire rural area. For the analysis of the labour force renewal rate at territorial level the following classification will be taken into consideration [6]: I. Territorial units with values over 2, the labour force renewal process will take place in for favourable conditions occupational diversification and economic development; II. Territorial units with values larger than one ranging from 1.5 to 2, the labour force renewal process will take place in normal conditions; III. Territorial units with values larger than one ranging from 1 to 1.5, the labour force renewal process will experience certain difficulties; IV. Territorial units with values ranging from 0.5 to 1, the labour force renewal process will be very difficult.

In the typology by modernizationdevelopment rends, the values of indicator fall in the second category, ranging from 1.58 in the category of counties with net trends to 1.94 in the category of counties with no perspectives. By counties, most counties are in the category of territorial units where the labour renewal process will take place in normal conditions.

At the level of indicators regarding the housing dimensions, there is a strong direct or indirect relationship between the resulting typology and all the indicators related to this dimension; thus, there is a direct relationship with the average living area per person  $(+0.376^*)$ , share of new dwellings  $(+0.622^*)$ , quantity of natural gas supplied to the population  $(+0.541^{**})$ , quantity of drinking water  $(+0.345^*)$ .

The *living area per person* had a spectacular evolution, from 15.19 m<sup>2</sup>/inhabitant to 19.78 m<sup>2</sup>/inhabitant, which can be explained by two contradictory phenomena, namely the diminution of population and of the number of members in a household, on the one hand and expanding the new housing stock through the investments of families who have worked abroad and townspeople returning to the countryside. This is a fact also confirmed in the hierarchy of counties by the average living area, the counties with net modernization development perspectives being at the top of the list: Ilfov 28.45 m<sup>2</sup>/inhabitant, Cluj 25.06 m<sup>2</sup> /inhabitant, Timis 24.11 m<sup>2</sup>/inhabitant; the counties with no perspectives or with low perspectives rank last: Vaslui 16.86 m<sup>2</sup> /inhabitant, Botosani 17.17 m<sup>2</sup>/inhabitant, Călărași 17.24 m²/inhabitant.

The analysis of the housing conditions specific to rural households reveals the following characteristics: the individual house is the farmer's fundamental choice: in the year 2007 the share of those who had a private individual house was 94.9%, while in 2018 this percentage increased to 97.4%; the quality of housing conditions has increased: the share of rural households with problems in the house (poor light; lack of proper heating; leaks through roofs or walls; dampness in walls, floors, foundations; damaged window frames, walls or floors) was down from 49.3% to 17.5% in the period 2007 - 2018. However, a worsening of problems can be noticed related to "dampness" - increase from 42.3% 2007 to 51.9% in 2018 and to in "carpentry/masonry" (deteriorated frames,

walls, floors) – which increased in percentage from 61.2% in 2007 to 65% in 2018.

The number of living rooms in the rural household had significant evolutions for all types (1-2 rooms; 3-5 rooms; 6 rooms and over); in the same statistical period, 2007-2018, an increase from 59.5% to 68.2% was noticed in the case of rural households with dwellings consisting of 3 - 5 rooms; from 2.9% to 3.5% for the rural dwellings consisting of 6 rooms or over and a decrease from 37.6% to 28.3% for the dwellings with 1-2 rooms [10]. The share of rural dwellings by household utilities and endowments significantly increased in the period 2007-2018, with a narrowing of the rural-urban gap, yet differences are still significant.

*The share of new dwellings* is an indicator that captures modernization by the housing stock renewal. In the case of this indicator, the counties with net modernization – development perspectives stand out with the highest share of new dwellings, which increased from 12.53 % in 2007 to 15.38% in 2018; all the other categories of counties had small declining values, ranging from 2.84% for the counties with no perspectives to 4.64% for the counties at a standstill.

It is worth noting that there are rural localities in the proximity of urban centers that attract the retired population of cities who want to settle in the countryside, as well as the young population for whom the rural area is a refuge for the weekend. This phenomenon can contribute to the increase of the number of new dwellings. The indicators Quantity of natural gas supplied to the population and Quantity of drinking water supplied to the population are relevant for measuring the modernization of rural areas by increasing the level of comfort, the degree of health security of the rural people (ensuring minimum hygiene conditions), for carrying out economic activities (thus the existence of these networks increase the chances of attracting investors), as well as in terms of environmental protection. In rural Romania, the rural households have low access to drinking water supply networks and sewerage networks. Even though there are drinking sewerage water supply and networks

operating at rural locality level, the households cannot use them, as they do not have equipped kitchen and bathrooms and they have no possibility to make investments for the modernization of dwellings to have access to these utilities. At rural household level, only 8% of the population benefit from the sewerage network.

At the level of ecological indicators there is not a strong link between the resulting typology and certain ecological indicators; we note only a weak direct link with the amount of organic fertilizers/100 ha (+0.297).

The counties with slight trends have almost 100% increase in the case of organic fertilizers and only 14.30% increase in the case of chemical fertilizers. In the other categories of counties, the amount of chemical fertilizers applied increased significantly (by about 85%), while the organic fertilizers increased slightly to moderately (from 5% to 31%). The agro-environmental measures applied in the period 2007-2013 mainly aimed to maintaining a high environmental value of agricultural land by providing compensation who voluntarily farmers practice to environmental friendly extensive farming. This has created the opportunity to benefit from an increase in incomes for farmers who have an eco-friendly behaviour and work in areas eligible for these measures, with limited natural resources. The ranking of localities in the category of eligible areas - less-favoured mountain areas eligible for M211 and less favoured areas (other than mountain areas) eligible for M212 can be considered a modernization - development opportunity for the population in these less favoured areas to benefit from an increase of incomes by maintaining traditional farming practices. To a certain extent, there is a significant link between the typology of counties (with the exception of counties with net modernizationdevelopment trends) and the share of areas eligible for Measure 211.

# CONCLUSIONS

From the typology of counties by the modernization – development perspectives of the rural area it can be noticed as a general

trend that the Romanian countryside behaves differently depending on the proximity of large urban centers (see Timiş, Ilfov, Cluj, Sibiu, Constanța and Brașov counties), and the rural households in the vicinity of cities have easier access to utilities and more attractive jobs, accessible to a younger and more educated population.

The counties with a net modernization – development trend of the rural area stand out by the most favourable demographic situation. The most populated communes can be found here, with the lowest degree of aging, the lowest dependency ratio, the highest degree of demographic renewal, the only one with a positive natural increase, the highest migration balance.

In economic terms, the counties in this category have the highest degree of diversification of economic activities, the indicator Share of population employed in agriculture having the lowest value. Another argument of the diversification of non-agricultural activities in the counties with net modernization – development trend are the values of the following indicators: the lowest number of agricultural households, the lowest number of days worked on the household, the highest number of employees in 1,000 inhabitants.

This category also stands out by the best living conditions: the largest living area per person, the highest share of new dwellings, the largest amounts of natural gas and drinking water supplied to the population.

At the opposite pole we have the counties with no modernization – socio-economic development perspective of rural area and household, with a strong demographic decline, continuous degradation of social infrastructure, with no employment opportunities, etc.

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