




Social Development and Regional Disparities in the Rural Areas of Romania: Focus on the Social Disadvantaged Areas

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Abstract

Currently, Romania's rural area is undergoing a restructuring process (demographic, economic, social) acquiring new dimensions and characteristics. In the current paper we focus on the social characteristics of the rural area of Romania, as a consequence of the economic restructuring. Its aim is to identify the current patterns of social development and their territorial inequalities at a micro-scale level by assessing the levels of social development based on a Social Disadvantage Index (SDI). The indicators used for SDI include unemployment, employment in agriculture, dwellings quality, education, health. The results show that the deeply social disadvantaged rural areas are located in the north-eastern, south-eastern, south and south-western parts of Romania. The territorial continuity of these areas is interrupted by the presence of some metropolitan areas (Iaşi, Galaţi-Brăila, Constanţa, Bucharest, Piteşti, Ploieşti, Craiova). The rural settlements located in the central and western parts of Romania register some of the lowest SDI values being concentrated in counties well known for the very low degree of socio-economic development: Vaslui, Dolj, Olt and Teleorman. The research is in line with *Romania's Territorial Development Strategy* which aims to ensure an integrated strategic planning to guide the national territorial development processes.

Keywords Social development · Disadvantaged areas · Social Disadvantage Index (SDI) · Regional disparities · Rural · Romania

1 Introduction

Over the decades, social and economic decline in rural areas has intensified, especially in Central and Eastern European countries (Pašakarnis and Maliene 2010) since the different levels of development here lag significantly behind those in the Western countries (Bański 2009), thus heightening the east–west divide. Broadly, rural areas are characterised by different levels of socio-economic development with spatial differentiations, from dynamic in the environs of big cities (in suburban areas) to underdeveloped far from urban

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agglomerations and in peripheries (Bański 2005). The pattern of uneven development in rural areas is mainly triggered by the differences related to capital and labour flows, types of economic activities, interests of various actors and factors related to location, distance and environment (Sofer and Applebaum 2012).

The social development process can be assimilated to a systematic effort to solve the social problems based on two structural components: an "objective-status" to be reached and a set of actions aimed at meeting the "objective-status" (Zamfir 2017). The direct link between the social development process and the geographical space, the rural one in particular, relies on society/community, but also on the social actors involved in the identification, construction and implementation of the strategies/plans/programs developed to solve the social imbalances and achieve the "objective-status". The space not only "assists" the established relations between the social actors but "it is full of content, it is a central variable in the process of ... development ... at different scales" (Ianoş and Heller 2006, p. 1).

Social development did not emerge in developed countries since they didn't have "unplanned organic development" (Zamfir 2017, p. 173), but in underdeveloped countries. The latter confronted themselves with crisis situations, imbalances and gaps against the levels reached by the developed countries. This is also the case of Romania at the end of the nineteenth century and the beginning of the twentieth century, as well as during the transition from communism to capitalism. In particular, the Romanian rural space has evolved to a variety of landscapes. The great diversity and complexity of socio-economic, historical and cultural contexts have had implications in the general development process, thus ranging from rural "paradises" (like in tourism regions, especially in mountainous areas, in central and western parts of Romania) to disadvantaged areas (e.g. in the southern and eastern parts of Romania).

In the European Union (EU) rural development programmes have emerged since the early 1990s (Shortall 2008). Generally, rural development actions are aimed at supporting the social and economic development of rural communities of the EU Member States. In Romania, the major objectives of the National Rural Development Plan 2014–2020, as well as the priorities of Romania's Rural Development Strategy 2014–2020 (also in line with the provisions of the Europe 2020 Strategy) contribute to the types of development targeted by rural areas: smart, sustainable and inclusive. At present, the social development problems the Romanian rural area is facing are multiple and complex. Three main types are identified: economic, social and ecological (Rusali 2013; Ministry of Agriculture and Rural Development 2013, 2017; Ministry of Regional Development and Public Administration 2014).

The political and institutional factors (e.g. decentralization, democratization, the role of the public, civil society and local communities in decision-making) have been directly involved in the socio-economic changes (Popovici et al. 2016) that have affected Romania over the last three decades. The main economic branches to be targeted were agriculture and industry, concurrently working in shaping rural development and the related territorial disparities. Overall, some major events have influenced the changes in rural areas: the transition from the centralised economy to the free market system, the pre-accession to the European Union and the implementation of the Common Agricultural Policy (CAP). At first, through the decollectivisation and privatisation processes, the agriculture was subject to excess land fragmentation, reorganization of state farms, degradation of the productive quality of agricultural terrains, abandonment of extended arable lands and permanent crops (Popovici et al. 2013), giving place to their transition to other functions (e.g. residential, commercial, industrial). Moreover, following the decline of the industrial sector, the labour force which has not been absorbed by the services sector, was absorbed by agriculture in many rural areas (Iorio and Corsale 2010;

Popescu 2016). This phenomenon, combined with the deep social changes caused by the ongoing land restitution process, produced a new "agrarianisation" of society (Benedek 2003), while the strong agricultural legacy, the long standing economic and social underdevelopment and high level of rurality (Popescu 2016) had determined several development restrictions, especially in some areas with poor infrastructure and limited human resources (Van Regenmortel et al. 2018; Mocanu et al. 2018). Thus, the quality of life in rural areas is generally poor. Basic social infrastructure is also much less developed than in urban areas. These factors hamper economic development, increase out-migration and exacerbate sanitary and environmental problems (Iorio and Corsale 2010). After Romania's joining the European Union (2007), the sale of land to foreigners or foreign companies has become legal, thus in many regions some of the rural population no longer owns the arable land, which leads to the deepening of the phenomenon of poverty. However, the implementation of the CAP represented a new context for the development of agriculture, giving the opportunity to access non-reimbursable funds in the field of agriculture and sustainable rural development (Popovici et al. 2016).

While successful rural areas are regularly associated with the ability of local actors to exploit local resources and opportunities, supporting local entrepreneurship and increasing employment rates (Bryden and Bollman 2000, quoted by Sofer and Applebaum 2012), urban-rural cooperation (Bański 2014), the disadvantaged rural areas are related to a variety of social and economic factors. Moreover, poverty has always been a defining feature of many rural communities, and unemployment, population aging, the decline of agriculture or migration are just some of the processes generally associated with the ongoing restructuring of the rural areas which generally leads to rural deprivation and, ultimately, decline. Generally speaking, rural areas have always been associated with agriculture (Czapiewski 2005) and most rural economies in Central and Eastern Europe still suffer from a poorly developed non-farm economy and a lack of alternative economic activities outside of farming (Chaplin et al. 2007). The rural economy in Romania is still weakly diversified and dependent on farm activities (Burja and Burja 2014). The poorer rural regions are generally related to elevated rates of employment in agriculture (Turnock 2005), migration (Török 2014), restricted access to health care (Duma et al. 2014) and dental care (Carăușu et al. 2017; Popovici et al. 2017), reduced or even nonexistent technical-urbanistic infrastructure (Mitrică et al. 2016), low dwellings quality (Mocanu et al. 2017) etc. On the other hand, pluriactivity (Sofer and Bordânc 1998); rural tourism (Iorio and Corsale 2010) or small-scale agriculture (Tudor 2015) have been documented as success drivers in the rural areas of Romania.

In the present study we focus on the social characteristics of the rural area of Romania, aiming at identifying the current patterns of social development and their territorial inequalities at local administrative level (LAU) through the empirical examination of their underlying factors (e.g. unemployment, employment in agriculture, living space, education, health). Three different research directions were considered: (1) establishing the statistical variables and indicators for identifying the social disadvantaged rural areas, (2) assessing the levels of social development based on a Social Disadvantage Index (SDI), and (3) typifying the social disadvantaged areas using Hierarchical Ascending Classification (HAC) and Inverse Distance Weighting (IDW) methods.

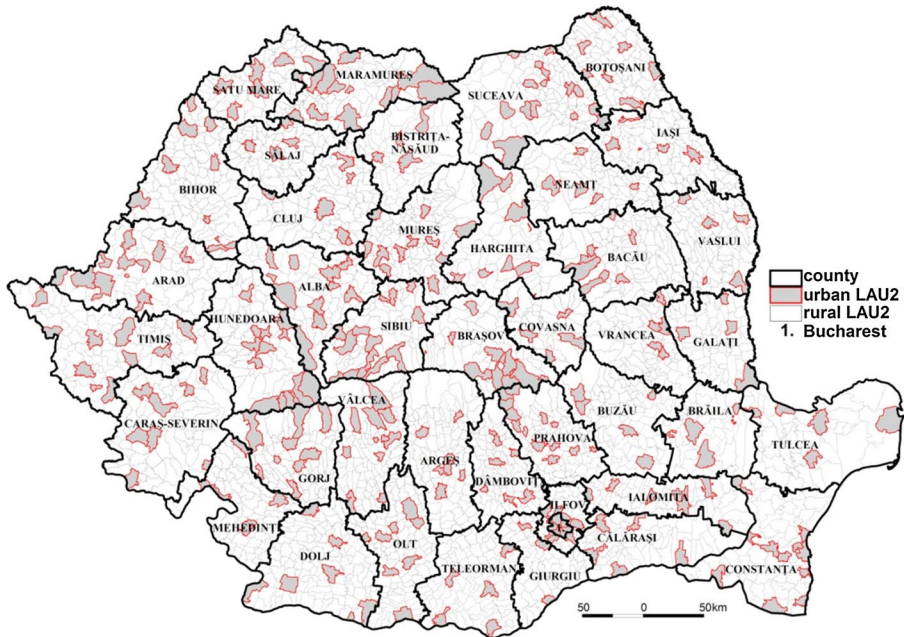


Fig. 1 Rural and urban areas in Romania

2 The National Strategic Actions for the Rural Social Disadvantaged Areas in Romania

In Romania, the rural area covers 207,522 km², accounting for 87.1% of the country's total land surface, where 48% of dwellings and 47% of residential area are distributed. From administrative and statistical points of view, according to the 2011 Population and Housing Census, Romania has 2861 communes (Fig. 1), consisting of 12,957 villages, the average demographic-size of a commune being 3300 inhabitants, and that of a village being 715 inhabitants. In 2017, the rural population was estimated at 9,703,510 inhabitants which was 43.6% of the country's population, 1.1% lower than in 2002.

Between 2001 and 2006 an Anti-Poverty and Promotion of Social Inclusion Commission (CASPI) was set up. The Commission has conducted several major research initiatives aimed at strengthening the fight against poverty: setting up of a methodology for computing absolute poverty, building a set of national and county indicators to be monitored, and developing the first poverty map at local level. In 2005 a Joint Social Inclusion Memorandum was signed by the Romanian Government and the European Commission as a first phase of a European social policy to be implemented jointly. The document, coordinated by the Ministry of Labour¹ was aimed at identifying the key challenges faced by Romania in promoting social inclusion, as well as the needed policy responses. In 2006 a National Social Inclusion Committee was set up within the Interministerial Council for Social Affairs, Health, and Consumer Protection managed by the Ministry of Labour,

¹ The Ministry of Labour had changes its name over time. Currently it is named Ministry of Labour and Social Justice.

Family, Social Protection, and Elderly People. In 2011 the Social Assistance Reform Strategy was approved. This document includes a series of key objectives that have acted as guiding principles for the government in the past few years: targeting social benefits to low-income people; reducing the cost of access for the recipients of social benefits; reducing the number of working age people who are dependent on social assistance; consolidating social assistance benefits. Moreover, in 2005 a new strategy was adopted on the inclusion of Romanian citizens of Roma ethnicity for the period 2015–2020.

The current research is in line with the Romania's Territorial Development Strategy (SDTR) and the National Strategy on Social Inclusion and Poverty Reduction 2015–2020 for Romania. Overall, the SDTR has set its sights on ensuring a strategic planning integrated framework to guide the national territorial development processes, to ensure a polycentric development and a balance between the need for development and the competitive advantages of the national territory in the European and global context etc. (Ministry of Regional Development and Public Administration 2014). The main results envisaged by the National Strategy on Social Inclusion and Poverty Reduction 2015–2020 for Romania are the social inclusion of vulnerable groups and lifting 580,000 people out of poverty or social exclusion by 2020 compared with 2008, as committed to by Romania in order to reach the goals of the Europe 2020 Strategy (Ministry of Labour, Family, Social Protection and Elderly 2014).

3 Data and Methodology

The current study was performed using the statistical data available at LAU level—the lowest level of administrative-territorial units—provided by the Population and Housing Censuses (2011) and TEMPO-Online time series published by the National Institute of Statistics (2011). Given that some indicators are only provided by census data, the authors have chosen the 2011 Census time level because is the most recent census survey providing all necessary data to compute the SDI. In addition, the general overview relies on various data and information extracted from documents published by the Research Institute for Life Quality, the World Bank and EUROSTAT etc. (EUROSTAT 2005; World Bank 2014; Zamfir et al. 2017).

It has been acknowledged that using a large number of different indicators can be more confusing than bringing focus (Sandhu-Rojon 2015). Thus, from a methodological point of view, the current study aims to select those situational indicators which provide a broad and accurate picture of the social developmental status in the Romanian rural area, as revealed by the Social Disadvantage Index (SDI). The computation of this composite index involves a rich data base. Despite the diversity of data sources, the used territorial level (LAU) restrains the database, thus making the selection more difficult. Hence, the statistical indicators were chosen based on scientific literature (e.g. Ferrera 2005; Marlier and Atkinson 2010; Copeland and Daly 2012; Abreu et al. 2019), on European and Romanian reports, as well as on scientifically sound official documents focusing on territorial disparities and social development issues in rural areas (Anania and Tenuta 2006; Ministry of Regional Development and Public Administration 2014; Ministry of Agriculture and Rural Development 2017). As a composite indicator, SDI should meet several important requirements related to the selection of variables (e.g. relevance, availability, data continuity and homogeneity) and the provision of an exploratory analysis focused on the overall structure of the integrated indicators (Caramani

2002; Victora et al. 2011; Michalek and Zarnekow 2012). The statistical indicators which emphasize the general level of social development and the typologies of rural areas are numerous (e.g. OECD 2007, 2009 Dijkstra and Poelman 2008; Dijkstra and Ruiz 2010; van Eupen et al. 2012; Bański and Mazur 2016) and a graph matrix was applied for establishing the degree of determination or subordination of each statistical indicator (Tudor and Rusu 2011; Stângă and Grozavu 2012).

Thus, the authors selected 8 statistical indicators in order to highlight the main components of social development (unemployment, Roma population, dwellings unconnected to the public sewerage system, dwellings without bath, living space, illiteracy and number of physicians), as well as the main types of rural areas (e.g. advantaged or disadvantaged). In order to select the final indicators for computing the SDI we used the Principal Component Analysis (PCA) (extracting a group of variables—linear combinations of the original variables together with the relationships between them), starting from the hypothesis of the existence of redundant information in the plurality of relations. PCA was used as an intermediate stage and then the Hull Score was computed.

The variables measured in different measurement units were initially standardized. Thus, the min–max normalization technique was used (Ianoş 1981; Mitrică et al. 2017). In order to observe the correlations between the variables, we examined the Rotated Component Matrix using the Varimax (Annex) (Abdi and Williams 2010). The question often asked in the PCA refers to the number of components to be kept. We used the graphical representation of eigenvalues, so-called "scree" for selecting the principal components (Cattell 1966; Jolliffe 2002).

Therefore, the eight variables were reduced to the components that most adequately explain the total variance, taking into account the correlations between the variables and eliminating the highly correlated ones. Thus, five variables out of the eight initial ones remained, which were used to compute the SDI as Hull Score.

$$\text{SDI} = 50 + 14 * (\text{UR} + \% \text{ROMA} + \% \text{DWELL_NO_WATER} + \text{LIVINGFLOOR} - \text{PHYSIC})/5$$

where INF_MORT=Infant mortality rate (%); AGING=Aging index; DEM_DEP=Demographic dependency rate (%); ROMA=Roma population (%); AGRI_EMPLOY=Employment in agriculture (%); UR=Unemployment rate (%); %DWELL_NO_WATER=dwellings unconnected to the public water supply network (%); LIVINGFLOOR=living floor (m²/inh.); PHYSIC=number of physicians (no./1000 inhabitants).

An LAU hierarchy of the level of social disadvantaged areas—Hierarchical Ascending Classification (HAC) method—clustered the territorial administrative units (communes and towns in this case) in terms of parametric values. The administrative units, having similar parametric values, were selected as representative, and included into one and the same class, forming thus a territorial typology. In 1977, Bruynooghe observed that this data exploration technique (HAC) enabled an easier and accurate hierarchization of a vast amount of data. Framing the administrative units into a specific class was made using the nearest neighbour method, distinguishing the classes involved the following algorithm: identifying pairs of neighbour elements within a set of objects so that each element of the pair should be close to the other element. Next, the nearest neighbour elements were progressively gathered into a joined link. Finally, this method leads to the alternation of a similitude graph with the building of a binary tree through successive integrations, just like in the case of the successive graph method (Bruynooghe 1977 quoted by Şerban and Tălângă 2015; Mitrică et al 2016; Benzécri 1982).

Inverse Distance Weighting (IDW) interpolation is one of the simplest interpolation techniques. Usually, this technique is used for spatial predictions in situations where the available data do not uniformly cover the territory under study or the amount of data is small and insufficient (Weisz et al. 1995; Gotway et al. 1996; Moyeed and Papritz 2002; Babak and Deutsch 2009). IDW is based on the weighted average for calculating the values of an indicator (according to deterministic criteria) for the neighbouring locations (Shepard 1968; Franke 1982; Diodato and Ceccarelli 2005). This technique was used for a quick visualization of the variable under study (Borga and Vizzaccaro 1997). The value applied for the power value p must be carefully handled because values over 2 can lead to the assignment of values of the neighbouring points in the sample and the estimated values of the indicator becomes the same as the estimated values produced by polygonal method (Diadato and Ceccarelli 2005). In the present study we applied the value 2 for the power p .

4 Results and discussion

Based on the above-specified methodology, the authors have thoroughly analysed a set of indicators which were ultimately grouped into 9 multiple indicator clusters. These were analysed for each LAU in the rural areas of Romania.

4.1 Unemployment

As one of the most important indicators of the social development, unemployment appears to be detrimental to the quality of life (Winkelmann 2014), its social consequences coupled with the insecurity of jobs referring to the negative impact of the unemployment on households and communities (Mitrică et al 2017). Inactivity and unemployment are often associated with poverty; unemployed people had the highest rate of poverty, especially in rural areas. High rates of long-term unemployment can significantly affect local communities, as reduced lifetime income leads to a variety of behavioural changes, and alter social networks (Kieselbach 2003; Nichols et al 2013).

Despite the relatively low unemployment rate, Romania has a very high rate of poverty for in-work people and widespread informal employment (Ministry of Labour Family, Social Protection and Elderly 2014). In 2011, the national average of unemployment rate was 5.4% compared to 2015, when the average was 5.2% (<https://www.anofm.ro/statistica>). At the rural LAU level, the values range from a minimum of 0.2% in Călărași (Botoșani County) to a maximum of 31.6% in Bărbulești (Ialomița County). The share of communes which register values over the national average is 48.8%, the highest values being concentrated in the centre, north-west and south-east, in areas with a declining mining activity and with low agricultural potential (e.g. Augustin, Brașov County; Jugureni, Prahova County; Agriș, Sălaj County; Gârla Mare, Mehedinți County; Dobromir, Constanța County—over 21.5%). The lowest values are recorded in the eastern and southern parts of the country, especially in the areas where the occupancy in agriculture is very high, over 85–95% (e.g. Găgești, Vaslui County; Sâmburești, Olt County; Dobârceni, Botoșani County; Stănești, Vâlcea County; Tămădau, Călărași County—below 0.5%) (Fig. 2).

Currently, unemployment rate values, resulting from the national and regional economic situation, are hindered by the labour out-migration, numerous such cases being registered throughout Romania, especially in many rural and urban areas in the border regions (Munteanu and Moraru 2015; Ministry of Regional Development and Public

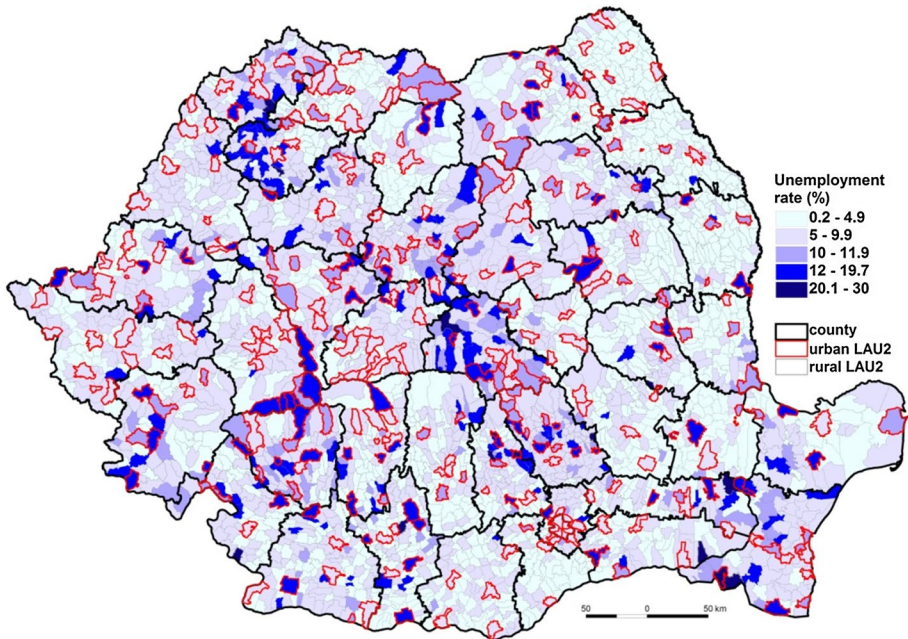


Fig. 2 Unemployment rate

Administration 2015). Also, the real unemployment values are hidden by the high share of unpaid family workers (7.3%) and self-employed who are, to the largest share, all employed in the subsistence agriculture (17.3%) (Zamfir and Stănescu 2007). These categories would have been unemployed if employment in agriculture would not have been so high in Romania.

4.2 Roma Population

Generally, Roma people are almost excluded from the labour and housing markets and have reduced accessibility to the education and health system (Cace et al. 2010; Jiğău and Surdu 2002; Duminică et al. 2007; Duminică and Ivasiuc 2010; Teşliuc et al. 2016). Overall, they represent a deep pocket of poverty (Precupeţu 2013), experiencing more severe poverty and social exclusion than almost all other ethnic groups (Sandu 2005; Mosora 2013). To a significant extent, this situation is the result of a complex mix of factors which also impacts other disadvantaged groups. Most experts stress that there is a lack of data to enable accurate comparisons between the poverty of Roma and the overall population. In spite of this, Roma population experience high and sometimes very high levels of poverty and deprivation. In Romania, the poverty risk among the Roma was 58% in 2006 which was four times higher than for the majority population (Frazer and Marlier 2011). According to UNDP/World Bank/European Commission data (2011), in Central and Eastern European countries, 3 out of 4 Roma lived in relative poverty, compared to 1 out of 4 non-Roma. In Romania, in 2005 only 2 out of 5 Roma lived in relative poverty conditions (European Union, Government of Romania 2012). The Roma population in rural areas represents 4.2% of the total population (390,708 people), below the national level of 3.1%.

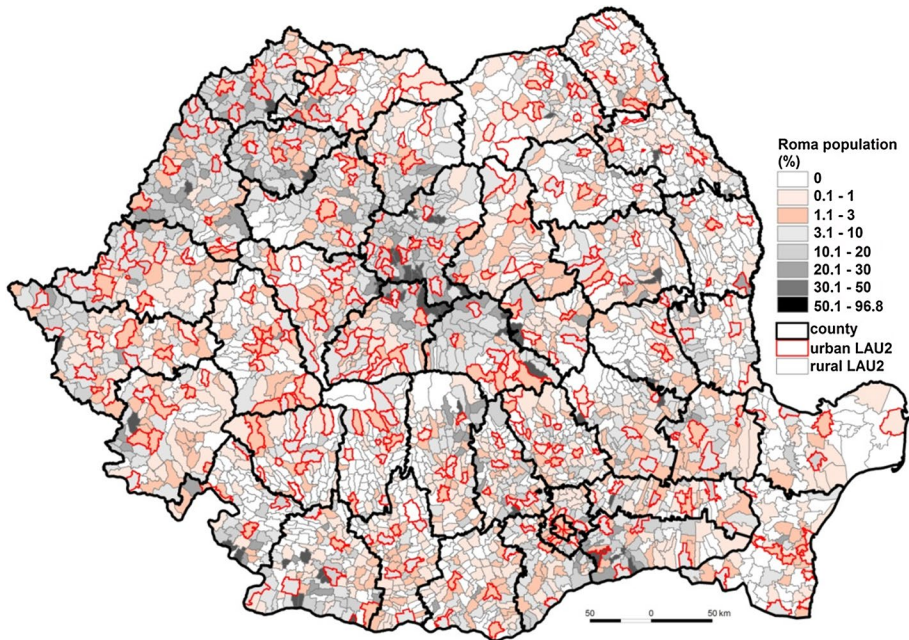


Fig. 3 Roma population

As of the 2002 Census, this ethnic group registered a 15.6% increase in 2011. In 150 LAUs, mostly located in central, south-western southern and western parts of the country, the share of Roma population is higher than 20%, that is 146,858 Roma people (37.6% of total rural Roma population). The high share of Roma population in the central and western part of the country is due to the movement of this ethnic group from the South in the houses inhabited by German people before 1989. 6 LAUs (e.g. Băilești, Cojasca, Slobozia Bradului, Brăhășești, Augustin, Vâlcelele) have over 23,000 Roma persons each, cumulating over 6% of the overall Roma population living in rural areas. However, there are 1013 rural LAUs without Roma population, representing 35.4% of the total rural LAUs (Fig. 3).

4.3 Dwellings Unconnected to the Public Water Supply Network

The access to sanitation and indoor wellbeing facilities (e.g. drinking water, sewage network, bathroom, heating) is reflected by a series of indicators related to the public utility infrastructure which mirror the population's income and the purchasing power. In contrast, these indicators point to the scale of the socio-economic problems the poor population with no access to some elementary life conditions is dealing with (UNFPA 2003). Public water supply and sewerage services are among these utilities of general public interest. The *EU Green Paper* has introduced the concept of a partnership between the different levels of governance in Europe, considering that public services of general economic interest are dominant in maintaining social cohesion, improving the quality of life and securing sustainable development (EU Green Paper 2014; Mitrică et al 2016). Water supply is a major indicator of the level of civilization, water playing an important role in the daily life of the population (Chiriac et al. 2001).

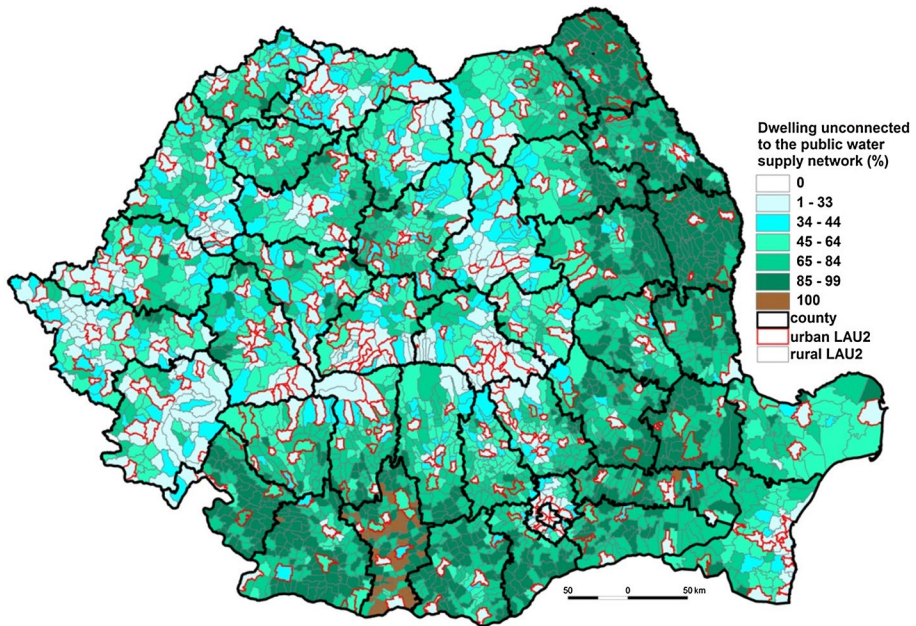


Fig. 4 Dwellings unconnected to the public water supply network

In the rural areas the share of dwellings without connection to the drinking water network is 62.8% of the total dwellings (2,429,158 dwellings) compared to the national average of 33.3%. 73.4% of all LAUs hold over 50% of the dwellings unconnected to the drinking supply network. Overall, there are 44 rural LAUs unconnected to the drinking water supply network, of which 43 are located in Olt County. The population without access to the water supply infrastructure is highly dependent on the fluctuating underground water flows, which during the droughty periods, induce water shortage in many rural settlements. The lowest values of dwellings without connection to the drinking water network are registered in central and western Romania, well known areas with a high level of economic development (Berliște—0.0%, Brebu Nou—1.4% and Eftimie Murgu—3.8% in Caraș-Severin County; Dumbrăvița—1.3% in Timiș County, Florești—4.0% in Cluj County) (Fig. 4).

The highest values are recorded in the eastern and southern parts of Romania where the rural area seems to be “dotted” with urban settlements with values of dwellings connected to the drinking water network below the national average. These LAUs are located, especially, in some counties having a low level of economic development.

4.4 Living Space

The living space/inhabitant ($\text{m}^2/\text{inh.}$) was selected as a relevant indicator for measuring the quality and the comfort provided by a dwelling (UNFPA 2003). This indicator is also important in quantifying the adequacy of living space in dwellings (a lower value for the indicator is a sign of overcrowding) (Dan 2003; IPSC 2014). According to the World Health Organization, at least $5.5 \text{ m}^2/\text{inhabitant}$ would guarantee proper living standards

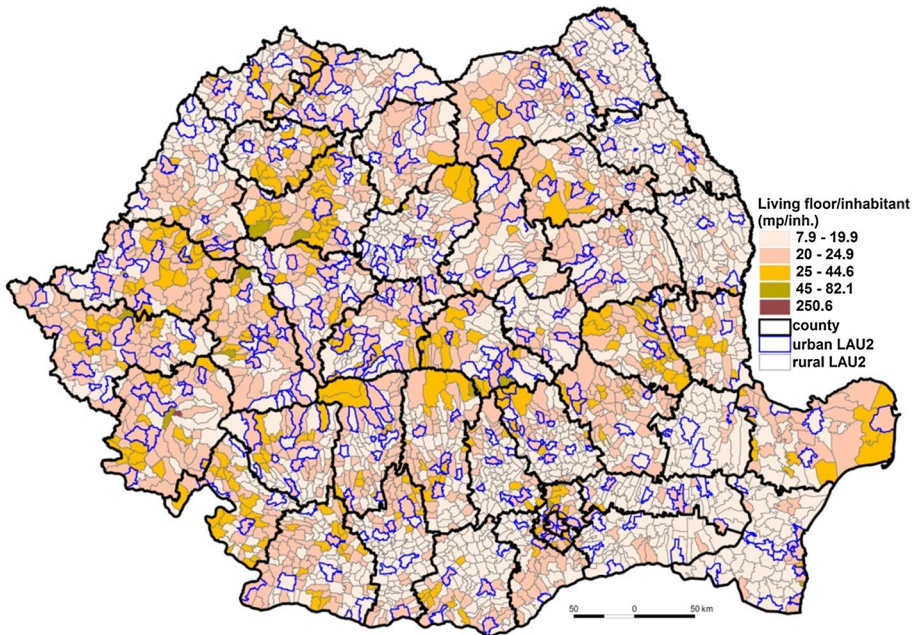


Fig. 5 Living floor

in terms of housing conditions. Large differences between different EU countries are manifested in terms of the average living area per capita. It should be noted that, in most countries, this indicator has remained constant, but there are countries where the value has increased, such as in Denmark, Spain, Slovenia and Poland (Alpopi et al. 2014). In Romania there was a slight increase from 14.1 m²/inh. in 2002 to 20.2 m²/inh. in 2011, especially due to increases registered in the countryside; 46% of Romania's population live in spaces below the national average (20.2 m²/inh.), while 60.2% of the rural population live under this level. However, persons living in rural households have more spacious dwellings, while in numerous localities we have seen phenomena such as migration and demographic ageing, especially in remote or secluded places, with little access to public utilities and to the transport/communication, health and education infrastructures.

The largest living space/inhabitant (over 45 m²/person) are registered in some rural LAUs from Caraş-Severin and Hunedoara counties (e.g. Brebu Nou, Bulzeştii de Jos, Bunila) less inhabited due to the demographic ageing, as well as in few rural LAUs from developed counties such as Cluj, Ilfov, Timiş (e.g. Belişte, Bogda, Corbeanca) or with touristic function such as Constanţa and Braşov (e.g. Costineşti, Fundata). The lowest values (≤ 10 m²/person) characterize the rural LAUs with a high percentage of Roma population and unemployment rate (e.g. Cojasca in Dâmboviţa County, Bărbuleşti in Ialomiţa County, Augustin in Braşov County, Lungani in Iaşi County) (Fig. 5).

4.5 Health

Health and social disadvantage are strongly interrelated. A lack of resources, as well as an unequal territorial distribution of resources makes it difficult for the national and local

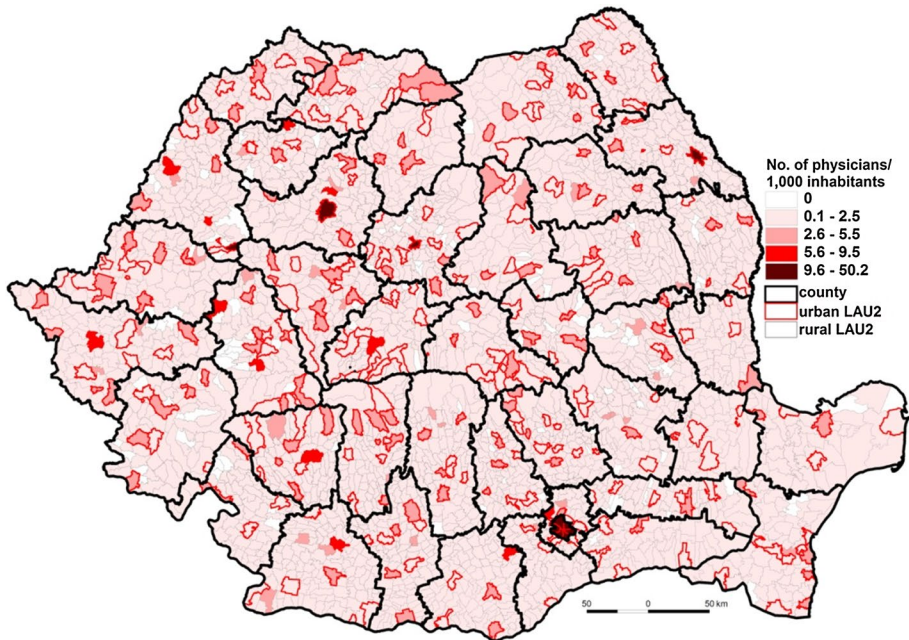


Fig. 6 Physicians/1000 inhabitants

healthcare system to supply proper treatment and medication in all areas of the country, particularly in rural and small urban areas (Ministry of Labour, Family, Social Protection and Elderly 2014). Moreover, income inequalities are correlated with poorer health and a lower life expectancy (Wilkinson 1996; Marmot 2005; Wolf et al. 2009). Thus, maintaining the level of health state is not only a question of medical assistance but also a deep social aspect, a component of all the social, economic and development conditions (Dumitrache et al. 2016). The number of physicians/1000 inh. ranges from 0 in the 151 rural LAUs up to 5.9 in Zam (Hunedoara County), with an average of 0.59. The highest values (5.9–4.7 physicians/1000 inh.) are registered in the communes with hospitals having various specialisations, most of them located in the western part of Romania, the more developed part (e.g. Zam, Hunedoara County; Borşa, Cluj County; Jabel, Timiş County; Sapoca, Buzău County; Brăduleţ, Argeş County; Nuşfalău, Sălaj County) (Fig. 6). Their values are related to those registered in the urban areas.

The values over the national average (5.50 physicians/1000 inh.) are registered in only two rural LAUs, meanwhile 2545 rural LAUs have values under 1.0 physicians/1000 inh. evenly spread throughout the country. Contrary to the previous indicators, the territorial distribution of this one doesn't show the central/western and eastern/southern Romania divide.

4.6 Social Disadvantage Index

Mapping all the selected indicators and computing the SDI is an opportunity to illustrate the general framework of the disadvantage rural areas (Fig. 7). In the rural area, the maximum value of SDI reaches 0.794 (Bărbuleşti, Ialomiţa County) and the minimum 0.240

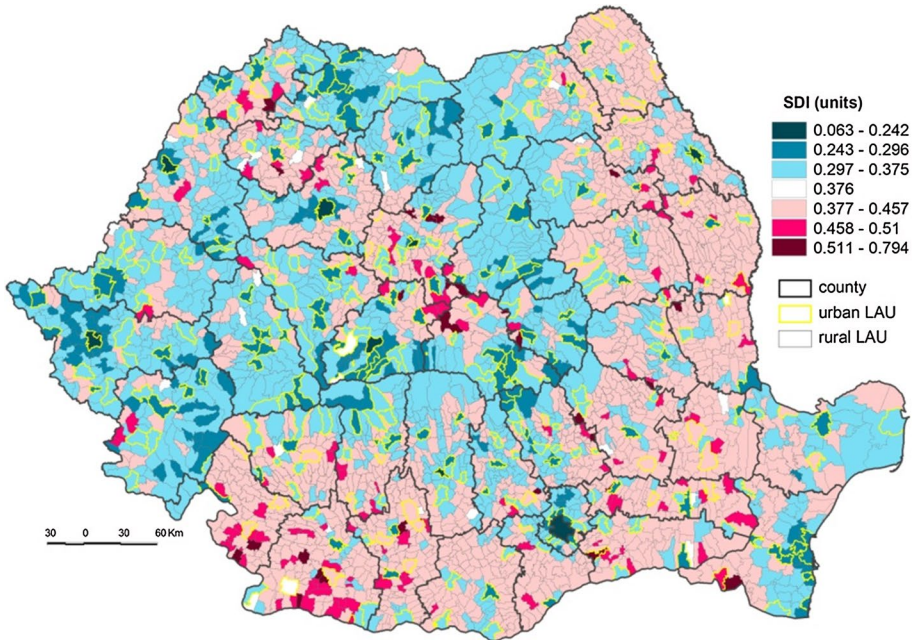


Fig. 7 Social Disadvantage Index 2011

in Dumbrăvița (Timiș County). Large rural areas located in the north-eastern, south-eastern, southern and south-western Romania registered high and very high SDI values. The *deeply* disadvantaged areas in term of social development are territorially concentrated in some counties, the majority of them well known for the very low degree of socio-economic development: Vrancea, Dolj, Dâmbovița, Olt and Mehedinți in the South and Neamț and Galați in the East. The highest values (over 0.550) are mainly recorded in some rural LAUs located in Vrancea (Slobozia Bradului), Brașov (Augustin), Dâmbovița (Cojasca), Satu Mare (Socond), Mehedinți (Gârla Mare), Galați (Brăhășești), Mureș (Beica de Jos), Prahova (Jugureni), Dolj (Cerat, Catane, Sălcuța), Neamț (Văleni), Olt (Valea Mare), Constanța (Dobromir). These values are related to the low percentage of connectivity to house facilities and in some cases, by the high shares of Roma population.

The territorial continuity of these extended disadvantaged areas is broken up by the presence of Iași, Galați-Brăila, Constanța, Bucharest, Pitești, Ploiești and Craiova metropolitan areas. Generally speaking, in these metropolitan areas, the rural settlements are more advantaged in terms of social development (e.g. Chiajna, Dobroești, Mogoșoaia, Corbeanca, Snagov in Ilfov County; Valea Lupului, Tomești in Iași County; Agigea, Valu lui Traian, Cumpăna, Lumina in Constanța County; Bănești in Prahova County). The rural settlements located in the central and western parts of Romania, more economic developed, register the lowest SDI values (under 0.260) in Dumbrăvița, Ghiroda, Giroc (Timiș County), Eftimie Murgu, Bucușnița (Caraș-Severin), Șieut (Bistrița-Năsăud), Agigea (Constanța), Cămin, Foiene (Satu Mare), Chiajna (Ilfov), Vladimirescu (Arad). However, some isolated or grouped rural settlements with high and very high values of SDI are recorded even in these parts of the country (meaning that they are *deeply* disadvantaged areas in terms of social development): the case of localities with former mining profile or isolated villages in the Carpathian Mountains

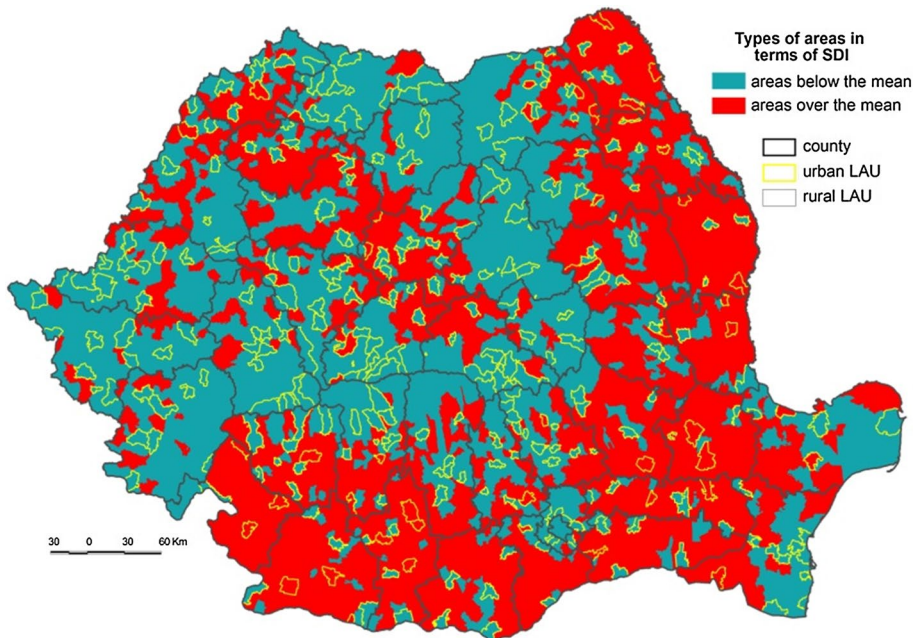


Fig. 8 Social Disadvantage Index—rural areas typologies

and the Subcarpathians (e.g. Augustin, Braşov County; Bulzeşti de Sus, Hunedoara County).

A synthetic image of SDI reveals that the values over the mean (0.376) are characteristic for 1700 rural LAUs (which represents 59.4% of the total rural LAUs network and 54.9% of the total rural population) (Fig. 8). This large socially disadvantaged area summarises 25.3% of the total number of Romania's population. The high SDI values are related to the higher values registered by dwelling quality, labour employment and share of Roma population indicators (Fig. 8).

The vast area with SDI values below the national average (1161 LAUs) is represented by 1061 rural LAUs and 272 urban LAUs (Bucharest included), cumulating 14,659,913 inhabitants (72.9% of total Romania's population). As shown in Fig. 8, the indicators which decrease the level of SDI are related to dwelling quality (especially in tourist mountain areas or hilly settlements and in metropolitan areas) and labour occupancy. Despite the general good level of social development, this area is experiencing social concerns emerged from the low values of physicians/1000 inhabitants (there exist almost 50 rural LAUs with null value).

The typology of local-administrative units related to social development analyses the role of each statistical indicator selected in determining the final SDI value.

Thus, the Romanian rural LAUs are grouped by HAC Method in nine classes, which offer information about their task in designing each SDI level (Fig. 9).

Class 1 includes 1052 LAUs located in the eastern and southern parts of Romania with positive deviations of the indicators related to households unconnected to the water network supply and with slight negative deviations of the unemployment rate and share of Roma population.

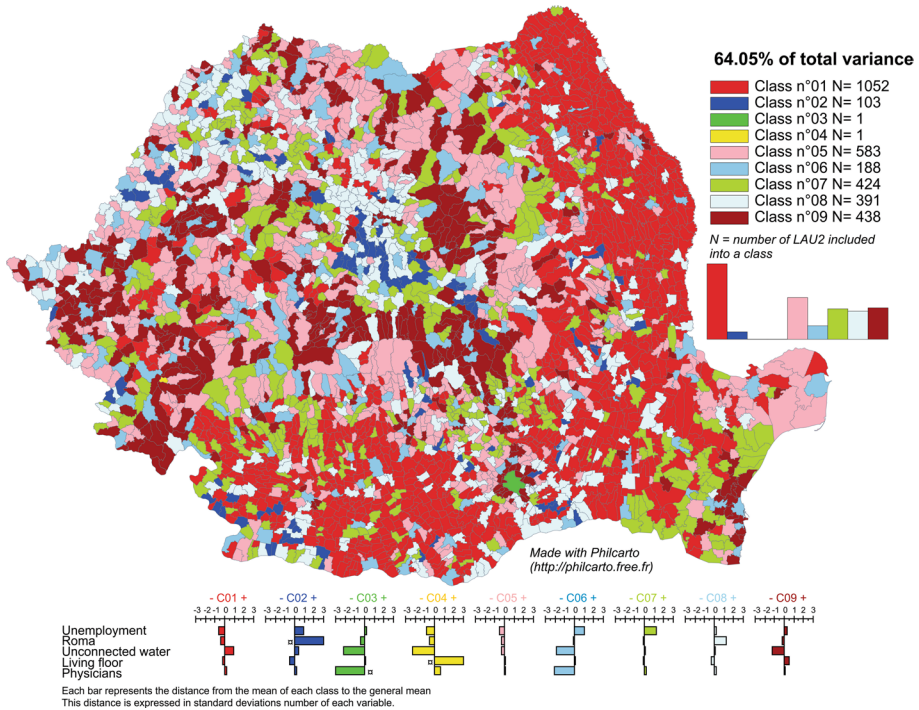


Fig. 9 Types of LAUs (HAC method)

Class 2 includes 105 LAUs spread all over the country with high positive deviations of share of Roma population and unemployment rate, indicators which increase the value of SDI.

Class 3 and *Class 4* are represented by one LAU, Bucharest Municipality and Bucușnița Commune (Caraș-Severin County). While Bucharest is characterised by a negative deviation of households unconnected to the water supply network and the number of physicians, Bucușnița is characterised by very high negative deviations of households unconnected to the water supply network and high one of unemployment rate and share of Roma population and very high positive deviation of living floor.

Class 5 is also relatively close to the national average, with negative deviations of the variables related to unemployment and Roma population, these negatively impacting the social development of the 583 LAUs mainly located in the depression areas of the Carpathian Mountains, the western parts of Romania and some metropolitan areas (e.g. Oradea, Iași, Brăila-Galați).

In *Class 6* the indicators related to living floor and Roma population are close to the national average, but the number of physicians and the share of households unconnected to the water supply network register notable negative deviations, decreasing the level of social development. 188 LAUs are territorially spread out all over the Romania.

Class 7 is also relatively close to the national average, with positive deviations of the variable related to unemployment. This class includes 424 LAUs mainly located in the eastern, southern and south-eastern (Subcarpathians, along the second part of the

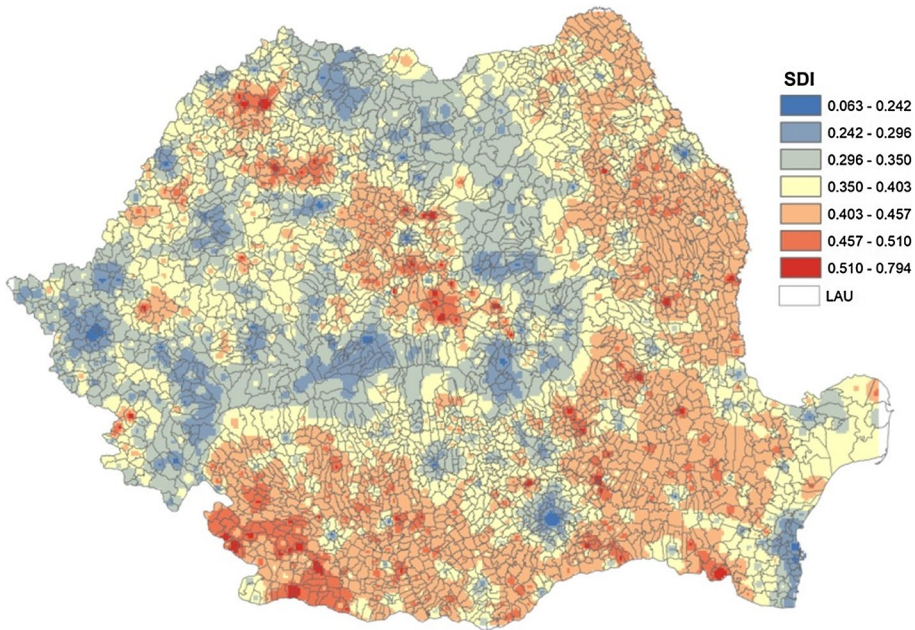


Fig. 10 Types of LAUs (inverse distance method)

Danube valley), and the central-western (Apuseni Mountains and Transylvania Plateau) parts of the country.

Class 8 grouping 391 LAUs, register notable positive deviations of indicator related to the share of Roma population, but still maintaining a positive deviation driven by the living floor. Generally, this class is formed by rural LAUs located in the central and North-Western part of the country and in some metropolitan areas (e.g. South-eastern part of Bucharest Metropolitan Area).

In *Class 9* the indicators related to the number of physicians are close to the national average, but the share of households unconnected to the water supply network registers notable negative deviations, and the share of the Roma population and living floor a positive one decreasing the level of social development. 438 LAUs are territorially concentrated in the central-western parts of Romania and few of them are located in other parts of the country (e.g. the touristic area along the Black Sea Coast and Prahova Valley).

The Inverse Distance Method shows some influences of big cities, the values of SDI increase from these cities to outside, these cities acting like polarisation centres. The factors which contribute to polarisation are due to big demographic-size, high level of GDP per capita, of employment in tertiary sectors, of foreign direct investments, innovative enterprises, the number of small and medium-size enterprises. At the same time, they act as big education and health centres, alongside the main universities and hospitals. Generally speaking, the traditional socio-spatial pattern of the socialist city characterised by the socio-economic status of population declining with distance from the centre remained obvious (Fig. 10).

The most obvious influencing situation is registered by Bucharest City in their metropolitan area, the values of SDI increase from centre to periphery. With a population of

1,183,425 inhabitants at the 2011 Census, the capital of Romania influenced the social life of another almost 1,000,000 inhabitants living in the Bucharest Metropolitan Area.

The same situation characterized, but on a smaller scale, growth and development centres such as Cluj-Napoca (324,576 inh.), Timișoara (319,279 inh.), Iași, Constanța, Craiova, Brașov, Galați, Ploiești (between 300,000 and 200,000 inh.), Oradea, Brăila, Arad, Pitești, Sibiu, Bacău, Târgu Mureș, Baia Mare, Satu Mare (between 200,000 and 100,000 inh.), Suceava and Râmnicu Vâlcea, (between 90,000 and 100,000 inh.).

This study reveals the pattern of Romania's development as being dual. This type of social, economic and spatial dynamics of the Romanian society, economy and territory is mentioned in some international studies, reports and national official documents. The World Bank's *Systemic Country Diagnostic for Romania*, assessing the obstacles to and opportunities for inclusive and sustainable growth, expresses the idea that "Romania's transformation has been "a tale of two Romanias"—one urban, dynamic, and integrated with the EU; the other rural, poor, and isolated" (World Bank 2018, p. 7). The results of our study show the lack of shared prosperity in the Romanian rural space; even the statistical indicators selected and valorised in this study do not look straight at institutional failures, but at the imbalance related to the aging process, to the unemployment phenomenon and to the insufficient and poor quality services of public infrastructure, health and education as the result of a complex mix of factors, whereas this blend of social and economic issues represents an effect of the unstable and insufficiently inclusive growth of the past 3 decades. The results of our study show that, despite the reforms spurred by the EU, in Romanian rural areas and in certain categories of urban areas (e.g. small towns), the economic opportunities, poverty, the insufficient and lack of access to different types of services and facilities are still widened in terms of territorial disparities: the dynamics of large urban Romanian centres (with their metropolitan or polarised extended territories) are competitive on an international scale, while the lagging Romanian rural areas and small towns remained weakened, unstable and even stuck in their economically and socially imbalanced environments. In Romania, the institutional challenges exist and addressing them means scaling down the differences between the "two Romanias". Hence, this study can contribute to some of the aims of the National Strategy on Social Inclusion and Poverty Reduction 2015–2020 for Romania in enhancing social inclusion by addressing child poverty, reducing discrimination against Roma, and integrating marginalized communities (Ministry of Labor Family, Social Protection and Elderly 2014).

5 Conclusions

The analysis of Romania's general territorial development shows that economic performance is more consolidated in the centre and western part of the country and more vulnerable in the east and south (Popescu et al. 2016). The current study relates the social level of development with the economic performance and poverty. As a result, applying a Social Development Index (SDI) the authors were able to assess the social developmental status in the Romanian rural space, delineating the most advantaged/disadvantaged areas. Thus, areas with SDI values over the national average, considered social disadvantaged areas, are located in the eastern, southern and central parts of Romania. The main factors behind the low social development are explained by the indicators related to the low quality of dwellings and the high share of Roma people, as well as by unemployment.

Table 1 Average values of indicators: differences between national, urban–rural and two types of areas

	National mean	Urban	Rural	Area below the average	Area over the average
UR (%)	5.4	8.7	5.6	0.5–23.3	0.2–31.6
ROMA (%)	3.8	2.1	4.2	0.1–38.1 (286 LAUs=0)	0.1–96.8 (739 LAUs=0)
D_NO_WATER (%)	33.3	8.3	62.8	0–70.6	34.4–100
LIVING_FLOOR (m ² /inh.)	20.2	20.8	19.6	10.5–250.6	7.9–54.2
PHYSIC (phys/1000 inh.)	5.5	5.29	0.59	0.1–50.2 (49 LAUs=0)	0.1–5.9 (104 LAUs=0)

As shown in Table 1, the rural territorial units falling in the disadvantaged areas category register mean values of the indicators which bring out the social issues higher than the national average (except the unemployment rate, which is close to the national average because of the very high occupancy rate in agriculture). The reverse situation is valid for the indicators which diminish the level of social development (e.g. physicians/1000 inhabitants). According to the average SDI value, 54.9% of the total rural LAUs fall into the category over the mean value, while 45.1% into the category below the mean value.

As revealed by the present study, unemployment is the foremost social and economic issue throughout the country, despite its slight decrease over the past decade. Analysing the statistical data, their territorial distribution and disparities, it can be concluded that unemployment is the main source of social disadvantages, especially in the central part of Romania, not because it doesn't exist in other parts of the country, but because in the east and south of Romania unemployment is hidden by the high and very high values of occupancy in agriculture. The dwellings quality (e.g. connected to public water supply and sewerage system, with indoor bathroom or kitchen) is also an impacting factor on the level of social development. Education and health are also strongly interrelated to social disadvantage; the lack of resources makes it difficult for the education and healthcare systems to provide proper services.

This study provides useful spatial data for further in-depth studies to be carried out at different spatial scales.

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