DE GRUYTER OPEN

STUDIA UBB SOCIOLOGIA, 60 (LX), 2, 2015, pp. 85-112
DOI: 10.1515/subbs-2015-0011

MAPPING DEPRIVATION IN RURAL AREAS FROM TRANSYLVANIA: REFLECTIONS ON A METHODOLOGICAL EXERCISE

CRISTINA RAȚ[1], ANDRADA TOBIAS[2] AND VALÉR VERES[3]

Abstract. The aim of the present paper is to present and critically discuss the potentialities and limits of using official data (collected and reported by state-institutions) in order to shed light on consequences of uneven development and measure area deprivation in present-day Romania. Our argumentation is based on a quantitative inquiry at the level of rural communes and small-towns from three counties located in the historical region of Transylvania. It presents the reasons for choosing certain statistical indicators, the construction of composite indexes and the profiles of localities according to their values. We explore the statistical correlations between our indexes and the poverty rates measured for 2002 (CASPIS, 2004), as well as the Local Human Development Index proposed by Sandu (2011) and revised by the World Bank (2014). Unlike other poverty-mapping inquiries, our goal was not to identify compact, segregated and severely impoverished settlements, but to measure the extent of material deprivation at the level of the entire administrative unit. In this way, we refrained from seeing poverty as the problem of a socially (and sometimes spatially) marginalized settlement, and instead defined poverty as a problem of the entire local community, that should be addressed by the local community as a whole. Our data reveals that, after controlling for poverty and local resources, the share of the Roma ethnic minority is a strong statistical predictor of registered unemployment, however, it does not correlate with the frequency of granting social assistance benefits.

Keywords: area deprivation, social mapping, Roma minority, rural Transylvania

[1] *Sociology Department, Babeș-Bolyai University Cluj-Napoca, e-mail: crat@socasis.ubbcluj.ro.*
[2] *PhD candidate in Sociology, Babeș-Bolyai University Cluj-Napoca, e-mail: andradatoby@yahoo.com.*
[3] *Department of Sociology and Social Work in Hungarian Language, Babeș-Bolyai University Cluj-Napoca, e-mail: veresv@socasis.ubbcluj.ro.*

Introduction[4]

The aim of the present paper is to present and critically discuss the potentialities and limits of using official data (collected and reported by state-institutions) in order to shed light on unequal development and measure area deprivation in present-day Romania. We present the reasons for choosing certain statistical indicators that local authorities regularly (yet not publicly) report at the level of localities, the construction of composite indexes based on these indicators and the profiles of rural communes (administrative unites comprising one or several villages) and small-towns (with less than 20,000 inhabitants) according to these indexes[5]. Unlike other poverty-mapping inquiries, our goal was not to identify compact, segregated and severely impoverished settlements (Sandu, 2005; Fleck and Rughiniș, 2008; Vincze, 2013; Vincze and Hossu, 2014), but to measure the extent of material deprivation at the level of the administrative unit as a whole. In this way, we refrained from seeing poverty as the problem of a socially (and sometimes spatially) marginalized settlement, and instead defined poverty as a problem of the entire local community, that should be addressed by the local community as a whole.

Our argumentation is based on a quantitative inquiry at the level of rural communes and small-towns from three counties from Transylvania, situated in the central part of Romania and partly corresponding to the historical region of Szeklerland (*Székelyföld* in Hungarian and *Ținutul Secuiesc* in Romanian): Mureș (Maros), Harghita (Hargita) and Covasna (Kovászna). Although in terms of ethnic distribution these three counties have a specific profile, with considerably larger shares of the Hungarian population[6], in terms of economic and labour force indicators they largely resemble the central-region of the country and Romania

[4] This article is based on a research report elaborated within a joint project of the "Caritas – Social Assistance" Branch of the Caritas Alba Iulia non-governmental organization, the Babeș-Bolyai University and the County Offices for Child Protection and Social Services from Mureș, Harghita and Covasna, entitled: *United Networks: Integrated initiatives for the social inclusion of marginalized communities*, code PEH 100, contract 05/H/SEE/30.04.2015 (12 months), with the financial support of the RO10 – CORAI Program, financed through the SEE 2009-2014 grants of Norway and administered by the Romanian Fund for Social Development (FRDS). Neither the initial report, nor the present article represents the views of FRDS or of the SEE 2009-2014 Grants. We are grateful to the project promoter and our partner organizations for their invaluable help in collecting the data for social mapping and for their insightful comments on the initial report. The graphic design of maps is courtesy to Aura Moldovan, PhD student at the Babeș-Bolyai University. We hold full responsibility for the content and validity of the information and arguments from the present article.

[5] The full dataset, the SPSS syntax for the construction of indexes and performing the statistical analysis are available upon request from the authors.

[6] According to the latest Census (INS, 2011), Hungarian ethnics comprise the very majority of the population in Harghita county (84%) and Covasna (72%), and more than one-third of the total population in Mureș (37%).

as a whole, but score slightly worse on several indicators. Whereas in 2012 the GDP per capital was almost 30,000 lei/inhabitant in Romania and 28,400 lei/ inhabitant in the Central Development Region (comprising also three other counties, namely Alba, Braşov and Sibiu), in our selected counties it reached only 23,400 lei/inhabitant in Mureş and it remained below 21,000 in Covasna and Harghita (see Table A1 in the Appendix). For cultivated agricultural land and meat production per inhabitants, seen as good indicators of agricultural production, the statistics were somewhat better for Covasna and Mureş, yet not for Harghita county; however, all three counties scored relatively well for milk production (Table A1). Concerning labour force statistics, the occupation rates for 2014 were similar to those registered at the national level (67%), slightly worse for Covasna county (63.5%), while the registered unemployment rates showed somewhat higher values than the national average (5.4%): 5.8% in Mureş, 6% in Harghita and 6.5% in Covasna (see Table A2 in the Appendix). The share of employees in the active-age up-to-work population in 2014 was lower in Harghita (30.5%), while in the other two counties scored very close to the national average (35%). The ratio of temporary migrants who left Romania for 12 months or more per total inhabitants almost equalled the national value of cca. 0.8 temporary migrants per one hundred inhabitants (Table A2). However, this value cannot be considered as a good estimate of temporary labour migration, given that the latter often occurs for shorter periods of three to six months, corresponding to seasonal work abroad (see Eurostat, 2011; Sandu, 2013).

Acknowledging that historical structural disadvantages and still existing ethnic prejudice harden the work opportunities and everyday life of the Roma ethnic minority[7], and in particular of those who visibly lack adequate living conditions and dwell at the peripheries, it was important to take into account the share of the Roma in the local population. Overall, their percentages vary from 8.5% in Mureş to 4% in Covasna and 1.7% in Harghita county, according to the official estimates of the 2011 Census. Nationwide, the Roma ethnic minority is proportionately more affected by unemployment (40%, as compared to 6% in the total population) and financial deprivation (74% of the Roma live in households with incomes below the at-risk-of-poverty threshold, as compared to 26% in the total population) (see the UNDP/World Bank/EC, 2011). The data sources employed in the present study do not allow to split micro-data

[7] Romania has developed since 1997 several national strategies and action plans for the social inclusion of the Roma, mostly at the recommendations of the European Union. As part of these strategies, institutions such as the National Agency for the Roma, with its regional chapters, school mediation and health mediation for impoverished Roma living in segregated settlements were also established. However, due to the lack of political will and the underfinancing of these institutional mechanisms, only little progress can be seen in the living conditions and work prospects of the Roma (see Moisă et al., 2013).

based on ethnicity, however, we were able to explore the statistical relations between area deprivation at the level of territorial administrative units and the share of persons self-identified as Roma in the 2011 Census.

Measuring area deprivation in Romania - connection with previous studies

Measuring multiple deprivation at the area-level is a widely used statistical tool for policy makers in empirically grounding and testing the impact of certain policy interventions. At the global level, probably the best known measures are the Human Development Index and the Human Poverty Index used by the United Nations Development Programme[8] and designed following Amartya Sen's approach on human capabilities (Sen, 1983; 1999; Alkire, 2000). There is also a growing interest in developing more complex and context-adjusted indexes, well illustrated by the work of the Human Development and Capability Association[9], yet difficult to implement due to the lack of data for the most impoverished regions. In the global North, the availability of detailed Census data allows the construction of multidimensional indexes, such as the British area-level multiple deprivation index[10], which has been serving for targeting social intervention in the most deprived neighbourhoods since 1970. In the US, measures of area deprivation, coupled with Census data on ethnic distribution, were employed to demonstrate the higher risks of poverty and poverty-related diseases in the case of the African-American population, most recently in a project of the the School of Medicine and Public Health from the University of Wisconsin-Medison[11], that followed the earlier approach of Gopal Singh (2003).

In Romania, the most comprehensive study on multiple deprivation dates back to 2003-2004 when the National Commission for Combating Poverty and Promoting Social Inclusion (CASPIS), led by Cătălin Zamfir, constructed a poverty map using the 2002 Census data at the level of territorial administrative units (communes, towns and municipalities). The indicators were based on the EUROSTAT methodology (see Atkinson et al., 2002) on computing the at-risk-of-poverty

[8] For a detailed technical discussion, see the Technical Notes of the latest, 2015 Human Development Report, http://hdr.undp.org/sites/default/files/hdr2015_technical_notes.pdf (Accessed: 20.10.2015).

[9] See The Human Development and Capability Organization, www.capabilityapproach.org (Accessed: 20.10.2015).

[10] The most recent report was published in 2015 for the *English Multiple Deprivation* by the UK Department for Communities and Local Government, see Index, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/465791/English_Indices_of_Deprivation_2015_-_Statistical_Release.pdf (Accessed: 15.12.2015).

[11] Details about the project and its methodology are available at http://www.hipxchange.org/ADI (Accessed: 15.12.2015).

threshold (60% of the median equivalent income), poverty rate, mean poverty gap, and also the rate of severe poverty (CASPIS, 2004). These data are still employed in order to set priorities and apply for funding in rural development, as they are listed, for example, in Annex 11 of the application guidelines for projects to be submitted to the National Agency for Financing Rural Investments[12].

Parallel to that, measures of area-level social development were developed by Dumitru Sandu, and later embraced in a slightly revised version by the World Bank country report of 2014: *Competitive Cities: Reshaping the Economic Geography of Romania*. The Local Human Development Index (LHDI) is composed of four main dimensions: *human capital* (indicated by the average level of education of the local population), *health capital* (life expectancy at birth), *vital capital* (medium age of adult population aged 18 or older) and *material capital* (average living floor area by house, distribution of gas for household consumption by locality inhabitant, and private cars to 1,000 inhabitants; these three indicators were first synthesized in one measure, and then introduced in the final index). The weights of each dimension in the composite index were computed based on factor analysis. In order to avoid the volatility of measure for smaller localities, those with a population below 1,000 inhabitants were excluded from the analysis.

In the case of the original Local Social Development Index (LSDI) constructed by Sandu (2011), the three indicators of material capital were introduced individually in the final composite index, and the size of the locality was also taken into account. For the "vital capital" dimension, the lower-age limit was set at 14 years instead of 18 years. The following weights were used:

- Human capital:
    - average educational level, 2002 data: 0.295
- Vital capital:
    - average age of those aged 14 or older in 2008: -2.237;
    - life expectancy at birth, average for the 2006-2008 period: 0.093;
- Material capital:
    - Private: number of cars per 1,000 inhabitants (natural logarithm): 0.218;
    - Private: average floor area by house in 2008: 0.201;
    - Public: gas consumption per inhabitant in 2008: 0.245;
- Size of the locality:
    - Total population in 2008: 0.266 (Sandu, 2011: 5, authors' translation).

[12] See the site dedicated to Measure 322: The Renewal and Development of Villages, implemented under AFIR, https://portal.afir.info/informatii_generale_pndr_pndr_2007_2013_masura_322_renovarea_si_dezvoltarea_satelor (Accessed: 15.12.2015).

As Sandu (2011) rightly emphasized, the index of local social development captures different aspects of local realities than measures of area deprivation do. Indeed, neither LSDI, nor LHDI contain any measures of inequality (such as the Gini coefficient, the quintile ratio or the poverty rate) or local public resources (such as the local budget per inhabitant) that could serve social development. The choice of the indicators suggests that the indexes better capture an envisaged *potential* for social/human development defined in terms of "human" and "vital" capital, than the existince of development as such, which could be depicted, for example, by the (low) rates of long-term unemployment, (high) average life expectancy at turning 65 or the (high) share of the adult population who completed at least secondary education. Moreover, the greatest weight is actually given to the age-profile of the local community, a younger average age of the adult population leading to a considerable increase of the value of the index. Furthermore, whereas cars and gas consumption can be easily identified as material capital (productive assets for development), average floor area by house is rather an indicator of material wellbeing (similarly to other goods in the sphere of distribution, and mostly alien to the sphere of production), also influenced by cultural options concerning family-size. While the fact that the index can be applied for both rural and urban areas is an important feature, highlighted by Sandu (2011) and the World Bank team (2014) as well, it is difficult to assess whether this provides advantages or disadvantages for its actual use, given the high disparities between rural areas or semi-rural small towns, on the one hand, and larger municipalities and their satellite neighbourhoods in rural metropolitan areas, on the other hand.

Our goal was not to create a unifying indicator of social or human development, given the fact that we wanted to avoid the conceptual and implicitely political framework of "development" and "social capital", which critique we share (Harvey, 2003; Somers, 2005; Kashir and Carbonella, 2008). In particular, we were aware of processes of uneven development related to global capital ventures, that have changed the economic and social geographies of rural areas and cvasi-rural small towns (Petrovici, 2013), often depending on their infrastructure for transport and proximity to larger cities. Also, high rates of labour migration towards other European countries produced effects of increasing domestic consumption and improving housing conditions, but these effects are difficult to be captured in statistics otherwise than approximating the value of remmitances sent home (Anghel, 2009; Sandu, 2010).

Instead, we propose to investigate more narrowly two dimensions of local-level needs with the help of an index of unemployment and income deprivation (IUID) and an index of housing deprivation (IDH). The following sections describe the construction of these two indicators, while the rest of the article tries to capture the their relations with existing measures of area-level poverty for 2002 (CASPIS, 2004), the values of the above-discussed LHDI for

2011, and selected indicators of local-level resources such as the share of wage-earners in the total population (2013), agricultural land per inhabitant (2014), local budget from taxes, before county-level redistribution (2015) and the share of the population with low level of education (2011).

The index of unemployment and income deprivation

With the construction of an index to measure unemployment and income deprivation we intented to provide a statistical tool that makes use of regularly collected and reported data by the main public institutions in charge of social inclusion, namely local-level welfare offices or social refferees from the mayor's office, and county-level Agencies for Social Benefits and Inspection (*Agenția Județeană pentru Plăți și Inspecție Socială* – AJPIS), Directorates for Social Assistance and Child Protection (*Direcția Generală pentru Asistență Socială și Protecția Copilului* - DGASPC), and Labour Offices (*Agenția pentru Ocuparea Forței de Muncă* - AJOFM*).* This approach carries the advantages of using "official" data that should be regarded as reliable at least by the institutions that produce them, the possibility of longitudinal area-level studies, given that they are monthly reported (as compared to Census-based data), and cost-efficiency, in the sense that they do not require additional surveys. At the same time, it has several limitations: our indicators are liable for the very same errors of inclusion/exclusion, over/ under-reporting that the rules and the social practice of the implementation of existing laws on social benefits and unemployment contain. Consequently, our index cannot be considered a precise measure of poverty and joblessness at the local level, but rather a mirror of income deprivation and registered unemployment designed by the state authorities themselves. Let us discuss these limitations for each indicator in detail below.

1. *The numer of registered unemployed in January 2015 divided by the number of persons aged between 20 and 63* (data source: AJOFM). The indicator certainly underestimates the extent of unemployment, but unfortunately the figures on ILO unemployment are neither registered, nor reported for the level of territorial administrative units. Moreover, the indicator is different from the registered unemployed rate as such, given that the latter excludes from the active-age population persons with disabilities or those still in education. However, given that registration at the Labour Office is necessary in order to apply for any subsidized vocational training, job-mediation or social benefits and services, moreover, given that we have purposefully measured it in January, when seasonal agricultural work at home or abroad is hardly available, we can assert that the indicator may serve as a proxy for the *relative* job deprivation in a certain area as compared to the national or regional average.

2. *The number of families receiving social assistance benefits in January 2015 according to the Law on the Guaranteed Minimum Income (GMI) No. 416/2002 divided by the total population* (data source: AJPIS for GMI beneficiary families and INS for population size). Due to the reporting system, which does not differentiate between family sizes higher than 4, it was not possible to measure the number of beneficiary persons as such. The problems in the implementation of GMI in Romania had been already extensively analized (World Bank, 2009; Rat, 2009) and it is suffice to sinthesize that benefits frequently do not reach out to the poorest segments of the population either because they do not hold valid identity papers, or because they fail to meet other bureaucratic requirements, such as obtaining monthly certificates from the Labour Office, located in the main municipalities often far away from their homes. Due to the stigmatizing nature of the compulsory community work (mostly cleaning public spaces, digging ditches etc.) and the lack of confidentiality concerning GMI receipt (the nominal list of beneficiaries should be placed on the walls of the mayor's office), some of the needy families shy away from claiming GMI. Despite these limitations, at which one should add the low amounts of benefits, GMI remains the main tool for social inclusion, as it also provides beneficiaries coverage by the public health insurance system and access to other in-kind benefits, such as heating allowance or occasional material aid. According to the law on *Social Marginalization* No. 116/2002 beneficiaries of GMI who face the risks of social exclusion should receive additional support from state authorities in terms of housing, subsidized jobs etc., but due to the underspecified norms of implementation the latter law is hardly applied. In order to have a better proxy of the number of families not only receiving, but needing GMI, we have used the figures for January, when the number of beneficiaries is usually the highest, given the lack of seasonal agricultural work that could be imputed as income. To conclude, the indicator is policy-wise very important, but it cannot be regarded as a direct measure of poverty. It captures the recognition of poverty by local authorities and, in the limits of existing regulations, their willingness to target social assistance benefits from the national (and not the local) budget towards the needy.

3. *The number of families receiving support allowance for needy families with children in January 2015 (Law 277/2010, that revised the earlier G.O. 105/2003 on the complementary allowance) divided by the total population* (data source: AJPIS for GMI beneficiary families and INS for population size). The reasons for chosing this particular indicator consist of the fact that, similarly to the GMI, eligibility is established based on a complex social inquiry and means test, thus family incomes should be under 530 lei/family member (cca 117 Euro) corresponding approximately to the at-risk-of-poverty threshold for Romania according to the Eurostat methodology. Still, this threshold is much more generous

as compared to those of the GMI (142 lei for a single person and 442 lei for a family of four), and no compulsory community work is requested. Since 2002, child poverty rates and especially the poverty rate in the case of families with three or more children have been consistently higher than the poverty rate for the general population, and this indicator may better capture these phenomena than the previous one. However, there is a serious limitation: eligibility is conditioned by the fact that *all* school-aged children, i.e. children aged 6-16, should prove their school attendance. The benefit of the whole family is cut in case of 20 or more absences per semester, and ceased for 40 absences, even if only one child is in that situation. The adverse effects of the law for the most severely deprived families, that might not have the means to properly equip their children or who live in marginalized settlements with difficult access to school have been pointed out in several studies (Popescu, 2006; Rat, 2012). Moreover, as "Second Chance" programs are hardly available in rural areas, and many children from impoverished families were not registered at school on due time[13], schooling remains out of reach and families are denied the allowance altogether. Consequently, this indicator should be used with caution, as it better approximates child poverty in areas with relatively easy access to all forms of education, including "Second Chance" programs and free after-school services, but it may considerably underestimate the number of children living in severe poverty, in spatially and socially marginalized settlements. As Roma children are overrepresented in the latter category, the indicator also underestimates child poverty among the Roma.

With all the above-discussed advantages and limits, we constructed a weighted additive index of unemployment and income deprivation, based on the results of the Chronbach' Alpha test for internal reliability (Alpha=0.674, Sig.=0.000, see Table 1) and a principal component factor analysis for establishing the weights based on the factor loadings (Table 2).

As expected from our previous discussion on the choice of indicators, the measure of support allowance for needy families with children shows the lowest correlation with the intended additive index. The factor analysis (KMO=0.643) reveals a similar result: although almost 80% (79.08%) of the common variance of the three variables is explained by a single latent factor, the correlation between the measure of support allowance and the factor is lower than for the other two measures (see Table 2).

[13] Often this happens because families migrated to work abroad together with their children and failed to register them at school on due time, and in the meanwhile the child turn 9 years old or older and s/he can only be registered at "Second Chance" programs located mostly in the cities.

Table 1.

Descriptive statistics for the Chronbach's Alpha test applied for the indicators of unemployment and income deprivation

Indicators of unemployment and income deprivation (for 204 territorial administrative units)	Average	Standard deviation	Expected correlation with the additive index	The value of Alpha if item deleted
Registered unemployed per population aged 20-63	.0607	.05716	.805	.737
GMI per total population	.0219	.02048	.881	.378
Support allowance beneficiary families per total population	.0231	.01291	.586	.705

Source: Authors' calculations.

Table 2.

The Matrix of Principal Components*

N=204 territorial administrative units (villages and small towns)	Correlations between variables and the factor
GMI per total population	0.947
Registered unemployed per population aged 20-63	0.909
Support allowance for needy families with children per total population	0.805

*Extraction Method: Principal Component Analysis
Source: Authors' calculations.

Consequently, the index of unemployment and income deprivation was computed using the standardized versions of the variables (Z-scores) and the weights derived from the principal component analysis, as follows:

index_unemployment_income_deprivation = 0.947*GMI_per_population (standardized) + 0.909*unemployed_per_population_20-63 (standardized) + 0.805*support_allowance_families_per_population (standardizat)

The descriptive statistics for each indicator and the composite index are presented, separately for the three counties, in Table 3.

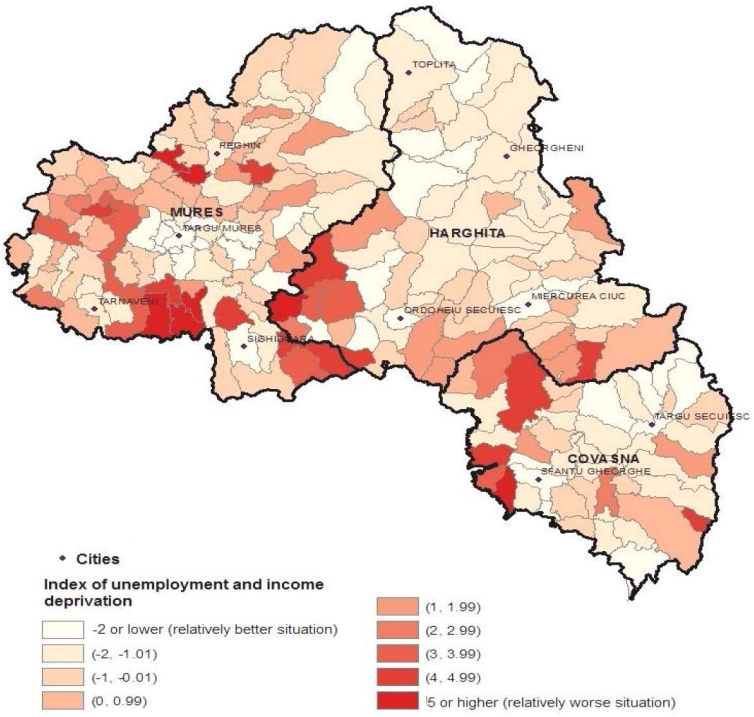
The specific values of the indicator and the index for those localities that registered values above 2 (i.e. at least two standard deviations above the regional mean of the index) are presented in detail in Table A3 from the Appendix. The most severely deprived localities were Fărăgău – Mureș (11.8), Zagăr – Mureș (8.3), Săcel - Harghita (8), Vâlcele - Covasna (5.7), Viișoara – Mureș (5.4), and Voivodeni – Mureș (5.2). The regional mapping of the values of the index are illustrated by Graph 1.

Table 3.

Descriptive statistics of the indicators for unemployment and income deprivation

N=204 territorial administrative units (villages and small towns)		Unemployed per population aged 20-63 (%)	GMI per total population	Support allowance for families with children per total population	Index of unemployment and income deprivation
Covasna	Median	4.671	0.014	0.015	-1.335
	Mean	5.951	0.018	0.019	-0.452
	Std. Deviation	5.163	0.018	0.012	2.239
Harghita	Median	3.545	0.011	0.022	-0.923
	Mean	5.139	0.020	0.022	-0.288
	Std. Deviation	4.937	0.021	0.012	2.111
Mureş	Median	4.345	0.016	0.024	-0.462
	Mean	6.728	0.025	0.025	0.383
	Std. Deviation	6.344	0.021	0.013	2.541
Total	*Median*	4.004	0.015	0.021	-0.709
	Mean	6.074	0.022	0.023	0.000
	Std. Deviation	5.716	0.020	0.013	2.372

Source: Authors' calculations.



Graph 1. The index of unemploymet and income deprivation in Covasna, Harghita and Mureş (authors' calculations)

The Index of Housing Deprivation

The 2011 Census Data allows us to measure housing deprivation at the level of territorial administrative units along the following dimensions: sewage, connection to a distribution-system of potable water (tap water), private toilet ensuit (inside the house), electric power supply, private heating system or connection to a public heating system, kitchen inside the house. Given the high correlation between the existence of sewage and that of tap water, we decided to employ as an indicator of housing deprivation only the lack of sewage. Furthermore, given that the experience of previous field researches revealed that deprived families often report having kitchen despite the fact that they actually use the very same space as both a bedroom and a kitchen, we decided to exclude this indicator from the future index of housing deprivation. Consequently, we used four indicators in order to build a composite index: the lack of sewage, the lack of private toilet in the house, the lack of electric power supply and that of a private or public heating system.

In order to test the internal reliability of the index, we used first the standard Chronbach Alpha test (Alpha=0.850, Sig.=0.000), and then the principal component analysis that allowed us to establish the weights of each indicator in the composite index, based on their correlations with the underlying latent factor. The descriptive statistics (see Table 4) for the test show that the lack of electric power supply correlates relatively worse with the composite index than the other selected indicators. However, we decided to keep this variable as well, due to its societal relevance.

Table 4.

Descriptive statistics for the Chronbach's Alpha test applied for the indicators of housing deprivation

Indicators of housing deprivation (for 204 territorial administrative units)	Average	Standard deviation	Expected correlation with the additive index	The value of Alpha if item deleted
Households without sewage (%)	51.40%	18.86%	.929	.693
Households without toilet inside the house (%)	55.07%	17.80%	.957	.672
Households without electric power supply (%)	5.01%	4.82%	.177	.946
Households without private heating system or connection to a public system (%)	83.28%	13.77%	.806	.763

Source: Authors' calculations.

The principal component analysis led to an acceptable factorial model (KMO=0.623), and the common variance of the four variables could be largely attributed to one latent factor (69.5%). Similarly to the Chronbach Alpha test,

the weakest correlation with the underlying factor was registered in the case of electric power supply (see Table 5).

Table 5.

The matrix of principal components: correlations between items and factor

	Correlations between each item and the factor
Households without toilet inside the house (%)	0.978
Households without sewage (%)	0.966
Households without private heating system or connection to a public system (%)	0.905
Households without electric power supply (%)	0.270

*Extraction Method: Principal Component Analysis
Source: Authors' calculations.

Based on the factor loadings (correlations between each item and the factor) and the standardized versions of each variable (z-scores) a composite **index of housing deprivation** has been computed with the formula:

index_housing deprivation = 0.978*households_without_toilet (standardized) + 0.966*households_without_sewage (standardized) + 0.905* households_without_ heating_system (standardized) + 0.270*households_without_electricity (standardized)

The descriptive statistics for the indicators and the composite index are presented, separately for the three counties, in Table 6.

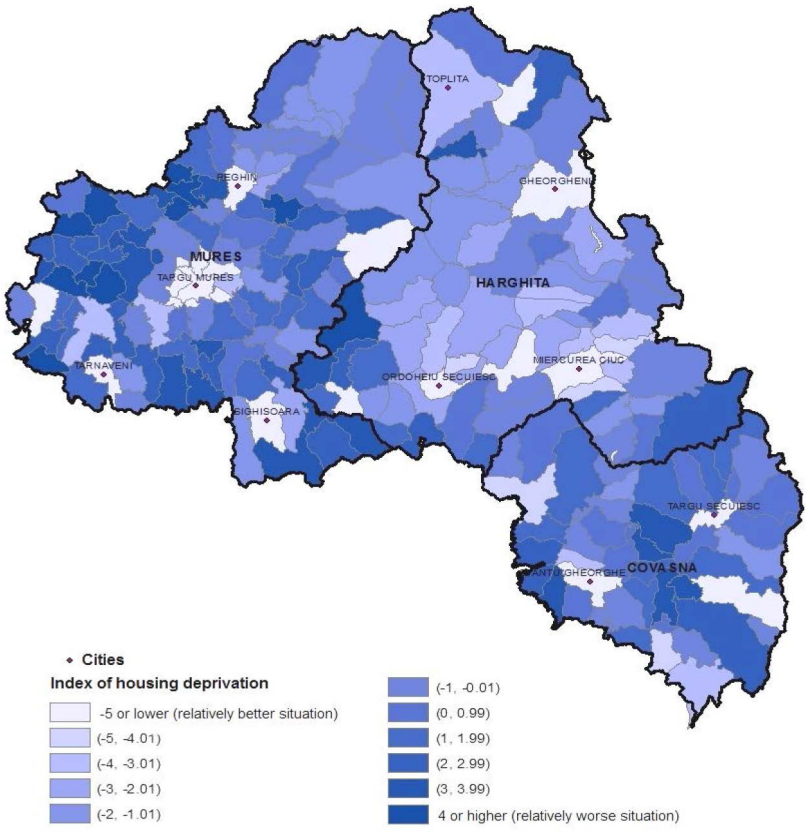
Tabel 6.

Medians, means and standard deviations of the indicators and the composite index of housing deprivation in Covasna, Harghita and Mures counties

Indicators of housing deprivation (204 territorial administrative units)		**Households without sewage (%)**	**Households without ensuite toilet (%)**	**Households without electric power supply (%)**	**Households without private heating system or connection to a public system (%)**	**Index of housing deprivation**
Covasna	Median	53.88	57.25	4.96	89.73	**0.40**
	Mean	51.92	55.51	6.24	87.26	**0.38**
	Std. Deviation	14.85	13.69	5.53	10.90	**2.30**
Harghita	Median	40.49	43.38	4.85	80.47	**-1.43**
	Mean	41.18	44.76	6.48	78.07	**-1.35**
	Std. Deviation	16.10	15.62	6.22	13.26	**2.54**
Mures	Median	60.64	63.09	2.75	89.19	**1.25**
	Mean	57.74	61.51	3.52	84.89	**0.70**
	Std. Deviation	19.35	17.76	2.50	14.34	**2.84**
Total	*Median*	*51.00*	*54.57*	*3.70*	*87.75*	***0.07***
	Mean	*51.40*	*55.07*	*5.01*	*83.28*	***0.00***
	Std. Deviation	*18.86*	*17.81*	*4.82*	*13.77*	***2.78***

Source: Authors' calculations.

As presented in Table 6, Mureș county registered the highest values of the housing deprivation indicators and the composite index. More than 50% of rural communes and small towns from Mureș county have values with 1.25 standard deprivations higher than the regional average of the index, as compared to Covasna, were the corresponding figure is only 0.40, while in Harghita the median value is negative (-1.43), i.e. the majority of localities registered lower values than the regional average.



Graph 2. The index of housing deprivation in Covasna, Harghita and Mureș (authors' calculations)

In Table A4 from the Appendix, the specific values of the indicators and the index for those localities that registered values above 4 (i.e. at least four standard deviations above the regional mean of the index). There were 11 such localities, 10 from Mureș county (Bala, Cozma, Fărăgău, Bichiș, Beica

de Jos, Papiu-Ilarian, Sânger, Miheşu de Câmpie, Iclăzel, and Sânpetru de Cîmpie) and one from Harghita (Atid). Four localities had less than 1,000 inhabitants. The regional mapping of the values of the index are illustrated by Graph 2.

Explaining the variance of the index of unemployment and income deprivation

We have tried to explore the relations between the two indicators and existing measures of area-level poverty for 2002 (CASPIS, 2004), the values of LHDI for 2011, and selected indicators of local-level resources made available by the National Statistical Institute such as the share of wage-earners in the total population (2013), agricultural land per inhabitant (2014), local budget from taxes, before county-level redistribution (2015) and the share of the population with secondary or tertiary education (2011).

First, we have undertaken simple linear regressions of the 2015 index of unemployment and income deprivation (IUID) on the 2002 poverty rate reported by CASPIS. The variance of the poverty rate explains 40% of the variance of IUID, and an increase of 1% of the poverty rate in 2002 leads, on average, to an increase of 0.21 points of IUID (Adjusted R-Square=0.403, Sig.=0.000, b=0.215, Std.=0.020, Beta=0.638). Furthermore, we tested whether the effects of the 2002 poverty rates on IUID were similar in the cases of the three countries. As the graphs from Annex 3 reveal, the effects varied considerably: in Covasna, the variance of poverty rate in 2002 explained 56% of the variance of the index, in Harghita 50% (58%, in case that Corund, an outlier case[14], is excluded), but only 38% in Mureş.

Second, in order to understand what explains the differential impact of the 2002 poverty rate on IUID, we introduced two potential explanatory variables in the linear regression, namely the LHDI for 2011 and the share of the Roma population (as assessed by the 2011 Census), also controlling for locality type (rural or small town). The model explained 53.7% of the variance in IUID (R-Square=0.537), and the strongest impact belonged to the poverty rate and the share of the Roma population, each increasing the risk of greater values of IUID.

[14] The fact that Corund is an outlier case, with a high poverty rate of 43% in 2002 but a low value of the index income deprivation and unemployment, is partly explained by the fact that after 2003 (one year after the Census) around 15 extended families from the segregated and impoverished Roma settlement from Corund migrated to work informally as recyclable waste reclaimers at the Pata-Rat landfill near Cluj-Napoca (see UNDP and UBB, 2012). In January 2015, these families were still not registered for social benefits in Corund, the majority of them still working on the waste dump (personal communication with the families).

Table 7.

Model 1 of linear regression for explaining the variance of the index of unemployment and income deprivation

Model 1 R-Square=0.537 N=195*	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	*-1.708*	*1.862*		*-.918*	*.360*
Dummy for locality type (rural = 0)	-1.240	1.008	-.067	-1.230	.220
Poverty rate in 2002 (CASPIS)	**.113**	**.028**	**.332**	**4.076**	**.000**
Index of Local Human Development 2011	-.047	.020	-.163	-2.341	.020
% of Roma population (2011 Census data)	**.093**	**.016**	**.385**	**5.819**	**.000**

***Note:** Out of the 204 villages and small towns included in the analysis, only 195 had their LHDI indexes, as the index was not computed for localities with below 1,000 inhabitants.
Source: Authors' calculations.

Table 8.

Model 2 of linear regression for explaining the variance of the index of unemployment and income deprivation

Model 2 R-Square=0.564 N=195*	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	*2.456*	*3.809*		*.645*	*.520*
Dummy for locality type (rural = 0)	-.929	1.007	-.050	-.923	.357
Poverty rate in 2002 (CASPIS)	**.114**	**.033**	**.337**	**3.488**	**.001**
Local Human Development Index 2011	-.045	.026	-.155	-1.690	.093
% of Roma population (2011 Census data)	**.105**	**.018**	**.432**	**5.778**	**.000**
% Population aged 60 or older	-.032	.042	-.054	-.756	.451
% Population with low level of education**	-.033	.030	-.098	-1.112	.268
Local budget from taxes in 2015 (Ln)	-.659	.404	-.106	-1.630	.105
Agricultural land/ 1,000 inhabitants	**.000**	**.000**	**.147**	**2.168**	**.032**
% of wage earners in the total population	.019	.042	.031	.458	.648

***Note:** Out of the 204 villages and small towns included in the analysis, only 195 had their LHDI indexes, as the index was not computed for localities with below 1,000 inhabitants.
**Low educational level means primary education (4 classes) or less.
Source: Authors' calculations.

Third, we tried to improve the model, and also test its stability by adding further potential explanatory variables.

The goodness of fit of the second model is slightly better, and the effects of the 2002 poverty rate and that of the share of Roma population remain almost unchanged: other conditions being equal, localities with 1% higher percentage of the Roma have, an average, 0.1 points higher values of the IUID (b=0.105), while a difference of 1% in the poverty rate corresponds, an average, to an increase of 0.11 points in the values of IUID (b=0.114). The effects of LHDI are no longer significant at the 0.05 threshold (sig.=0.093), yet this might be caused by the correlations between the index and two other explanatory variables, the percentage of the population aged 60 or older and the percentage of those with low level of education. At first sight somewhat surprisingly, the size of the agricultural land per inhabitants has a positive (albeit smaller) effects on the values of IUID. Actually, this might be caused by the fact that in localities with larger agricultural land there are more possibilities to engage in agricultural work at the local level, and therefore families do not leave for temporary work abroad and manage to maintain their GMI entitlement.

In both models, the poverty rate in 2002 and the share of the Roma in the total population hold the strongest effects on the variance of the index. In order to understand the meaning of these statistical effects, it is necessary to turn back to the three components of the index and test whether the regression models are similar in their cases as well. For the sake of simplicity, Table 9 indicates only Beta coefficients and statistical significance[15].

The goodness of fit of the linear regression model is greater in the case of explaining the variance of the number of GMI beneficiary families per total population in January 2015, as 78% of the latter is explained by the variances of independent variables. As expected, the greatest effect is held by the indicator of registered unemployment, followed by the 2002 poverty rate. A relatively smaller, but still statistically significant is reported for the size of agricultural land per 1,000 inhabitants, already discussed earlier. The percentage of the Roma population has no significant effect on the variance of GMI receipt at the local level. This is an important conclusion, in accordance with both quantitative (UNDP/WB/EC, 2011) and qualitative studies on welfare receipt among Roma families living in segregated, impoverished settlements, which often highlight barriers of access to social rights or forms of adverse inclusion in their case (Vincze and Hossu, 2013; Rat, 2011; 2013).

[15] The detailed regression statistics are available from request.

Table 9.

Linear regression models for the indicators of unemployment, GMI and support allowance for needy families with children

	Registered unemployed per population aged 20-63 in Jan.2015 (%)		**Number of GMI beneficiary families per total population in Jan.2015**		**Number of family support allowance for children per total population in Jan.2015**	
	R-Square=0.490		R-Square=0.782		R-Square=0.368	
	Standardized coeff. Beta	Sig.	Standardized coeff. Beta	Sig.	Standardized coeff. Beta	Sig.
(Constant)		*.802*		*.311*		*.074*
Dummy for locality type (rural = 0)	.000	.999	-.039	.301	-.109	.093
Poverty rate in 2002 (CASPIS)	**.323**	**.002**	**.204**	**.004**	**.078**	**.508**
Local Human Development Index 2011	-.137	.159	.023	.717	-.160	.125
% of Roma population (2011 Census data)	**.478**	**.000**	**.091**	**.111**	**.141**	**.160**
% Population aged 60 or older	-.003	.966	-.034	.497	-	-
% Population with low level of education**	-.122	.200	.029	.645	-.085	.432
Agricultural land/ 1,000 inhabitants	.075	.295	.100	.035	.068	.375
Registered unemployed per population aged 20-63 in January 2015	**-**	**-**	**.657**	**.000**	**.359**	**.000**
% Population younger than 15 years old	-	-	-	-	.044	.666

Note: The models were constructed for 195 cases, as the values of LHDI were only available for those. Alternatively, we also constructed regression models that also included the indicators of local budget per inhabitants in 2015 and the percentage of wage earners as % of the total population in 2013. The goodness of fit of the models increased slightly, but none of the previous statistical coefficients changed significantly and the two additionally introduced indicators did not have significant effects either. Consequently, we kept the simpler models.
Source: Authors' calculations.

For the number of registered unemployed per population aged 20-63, the set of variables explain almost 50% of its variance, with the greatest impact being held by the share of the Roma population, followed by the poverty rate in 2002. The other variables do not have significant effects, yet they serve as control variables that allow us to conclude that localities with similar levels of development, shares of persons with low educational levels, and agricultural land per inhabitants face higher risk of unemployment in case that they have larger Roma populations.

The variance of the number of families receiving the support allowance per children is not adequately explained by the set of variable, and the only statistically significant effect is held by the registered unemployment rate. As discussed in the previous sections, the conditionalities attached to this benefit prevent it to reach out to the most deprived families. This is reflected in the fact that neither the poverty rate in 2002, nor the LHDI influence significantly the variance of the index.

Explaining the variance of the index of housing deprivation in relation with other statistical indicators

Furthermore, we made a similar exploratory analysis of potential explicators of the variance of the housing deprivation index (IHD).

Table 10.

Model 1 of linear regression for explaining the variance of the index of housing deprivation

Model 1 R-Square=0.626 N=195*	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	*4.601*	*1.556*		*2.957*	*.004*
Dummy for locality type (rural = 0)	.421	.843	.024	.500	.618
Poverty rate in 2002 (CASPIS)	**.102**	**.023**	**.324**	**4.414**	**.000**
Index of Local Human Development 2011	**-.136**	**.017**	**-.508**	**-8.114**	**.000**
% of Roma population (2011 Census data)	.020	.013	.089	1.490	.138

***Note:** Out of the 204 villages and small towns included in the analysis, only 195 had their LHDI indexes, as the index was not computed for localities with below 1,000 inhabitants.
Source: Authors' calculations.

The first model explains 62% of the variance of IHD, and the greatest statistical effect is held by LHDI in 2011, followed by the poverty rate in 2002, whereas the influences of the type of locality (villages versus small towns) and ethnic composition are not statistically significant (see Table 10).

Table 11.

Model 2 of linear regression for explaining the variance of the index of housing deprivation

Model 2 R-Square=0.734 N=195*	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	*-3.970*	*2.779*		*-1.428*	*.155*
Dummy for locality type (rural = 0)	.554	.736	.032	.753	.453
Poverty rate in 2002 (CASPIS)	**.139**	**.025**	**.442**	**5.628**	**.000**
Local Human Development Index 2011	**-.046**	**.019**	**-.171**	**-2.360**	**.020**
% of Roma population (2011 Census data)	**.030**	**.015**	**.132**	**2.043**	**.043**
Index of unemployment and income deprivation 2015	.017	.059	.019	.296	.767
% Population aged 60 or older	**.170**	**.031**	**.307**	**5.477**	**.000**
% Population with low level of education**	.025	.022	.079	1.144	.255
Local budget from taxes in 2015 (Ln)	-.449	.297	-.078	-1.510	.133
Agricultural land/ 1,000 inhabitants	.000	.000	.104	1.928	.056
% of wage earners in the total population	**-.075**	**.031**	**-.131**	**-2.441**	**.016**

***Note:** Out of the 204 villages and small towns included in the analysis, only 195 had their LHDI indexes, as the index was not computed for localities with below 1,000 inhabitants.
**Low educational level means primary education (4 classes) or less.
Source: Authors' calculations.

The second model (see Table 11) explains 73.4% of the variance of IHD, and the effects of the 2002 poverty rate and LHDI for 2011 remain significant, yet of different extent. A one standard deviance difference in the 2002 poverty rate corresponds, on average, to a 0.44 standard deviance difference in the values of the 2011 IHD. The second most important effect is held by the percentage of the elderly population, followed by the LHDI for 2011, the percentage of the Roma population and the percentage of wage earners in the total population (2014). The latter two have almost equal influence: their one standard deviance difference corresponds, on average, to a decrease of the housing deprivation index with 0.13 standard deviances.

Conclusions

Statistical data that are regularly collected and reported by public authorities, while sometimes raise suspicions about their validity, offer an affordable and policy-wise meaningful methodological approach to the evaluation of local deprivation and resources. Our indexes of economic deprivation (based on registered unemployment and the share of persons receiving means-tested social assistance benefits as of January 2015) and housing deprivation (based on the 2011 Census data on basic household utilities such as sewage, toilet inside the house, heating facilities and electric power supply) proved out to have good internal reliability and to correlate remarkably well with the 2002 poverty rate computed by CASPIS (2004), the latest available local-level indicator that follows the Eurostat methodology. The index of local human development (LHDI) designed by Sandu (2011) and later revised by the World Bank (2014) did not hold significant effects on the index of unemployment and income deprivation, and influenced only modestly the values of the housing deprivation index. Even after controlling for the above mentioned explanatory variables, and adding other relevant potential predictors (such as the share of the elderly population, the percentage of population with low level of education, agricultural land per inhabitants, percentage of wage earners, and local budget per inhabitants), the effects of percentage of the Roma population remain statistically significant, increasing the risks of deprivation. However, when exploring their effects separately for the three variables that compose the unemployment and income deprivation index, it becomes clear that higher shares of the Roma population correspond, on average, to greater registered unemployment, but not to higher shares of persons receiving welfare benefits at the local level. In other words, localities with similar social and economic profiles, as measured by our indicators, show on average higher registered unemployment and more pronounced housing deprivation in case that their shares of Roma population are relatively larger, but they do not grant more frequently social assistance benefits.

REFERENCES

Alkire, S. (2002). *Valuing Freedoms.* Oxford: Oxford University Press.

Anghel, R. (2009). Schimbare socială sau dezvoltare? Studiu de caz într-un oraș din România [Social change or development? A case study of a town in Romania]. In R. Anghel and I. Horvath (eds.): *Sociologia migrației. Teorii și studii de caz românești [The sociology of migration. Theories and case studies from Romania].* Iași: Polirom, pp. 249-268.

Atkinson, T. C., Marlier, E., Nolan, B. (2002). *Social Indicators: The EU and Social Inclusion,* Oxford: Oxford University Press.

CASPIS - National Commission for Combating Poverty and Promoting Social Inclusion – (2004). *Indicators of social exclusion/inclusion.* Bucharest: CASPIS.

Eurostat (2011). *Migrants in Europe. A statistical portrait of first and second generation migrants.* Brussels: EU.

Fleck, G. And Rughiniș, C. (2008). *Come closer. The inclusion and exclusion of the Roma.* București: Human Dynamics.

Harvey, D. (2003). *The New Imperialism.* Oxford: Oxford University Press.

Kasmir, S. and Carbonella, A. (2008): Dispossession and the New Anthropology of Labour. *Critique of Anthropology*, 28(1):5-25.

Moisă F., Rostas I.A., Tarnovschi D., Stoian I., Rădulescu D. Andersen T.Ș. (2013), *Raportul societății civile asupra implementării Strategiei Naționale de Integrare a Romilor și a Planului de Acțiune al Deceniului în România în 2012 [Civil society report on the National Strategy for the Integration of the Roma and the National Action Plan in Romania in 2012],* http://www.romadecade.org/cms/upload/file/9270_file25_ro_civil-society-monitoring-report_ro.pdf (Accessed: 6.09.2013).

Petrovici, N. (2013). Neoliberal Proletarization along the Urban-Rural Divide in Postsocialist Romania. *Studia UBB Sociologia,* 58(2): 23-55.

Popescu, L. (2006). Child Care, Family and State in Post-Socialist Romania. In M. Mesner, and G. Wolfgruber (eds): *Politics of Reproduction at the Turn of the 21th Century; the Cases of Finland, Portugal, Romania, Russia, Austria, and the US*. Innsbruck: Studien Verlag, pp. 109-127.

Rat, C. (2009). The Impact of Minimum Income Guarantee Schemes in Central and Eastern Europe. In A. Cerami and P. Vanhuysee (eds.): *Post-Communist Welfare Pathways: Theorizing Social Policy Transformations in CEE*, Basignstoke: Palgrave Macmillan, pp. 164-181.

Rat, C. (2011). Incluziune adversă. Prestații sociale și persistența sărăciei în rândul romilor din România [Adverse Inclusion. Social Transfers and the Persistence of Poverty among the Roma from Romania]. In S. Toma and L. Foszto (eds.): *Spectrum. Cercetari sociale despre romi.[Spectrum. Social researches about the Roma].* Cluj-Napoca: Editura ISPMN and Criterion, pp. 159-180.

Rat, C. (2013). Bare peripheries. State retrenchment and population profiling in segregated Roma settlements from Romania. *Studia UBB Sociologia,* 58(2): 155-175.

Sandu, D. (2005). *Comunitățile de romi din România. O hartă a sărăciei comunitare prin sondajul PROROMI. [Roma communities in Romania. A community-poverty map based on the PROROMI survey].* Bucharest: The World Bank. http://www.anr.gov.ro/docs/statistici/PROROMI__Comunitatile_de_Romi_din_Romania_187.pdf (01.09.2015).

Sandu, D.(2010). Home orientation in transnational spaces of Romanian migration. *Studia UBB Sociologia,* 55(2):15-37.

Sandu, D. (2011). Disparități sociale în dezvoltarea și în politica regională din România, *International Review of Social Research*, 1(1): 1-30.

Sandu, D.(2013). Romanian migration in the frame of the East-West migration system: understanding its near future. Workshop on labour market liberalization, 11th of October 2013, The Hague. https://sites.google.com/site/dumitrusandu/. (2.04.2014).

Sen, A. (1983). Poor, relatively speaking. *Oxford Economic Papers, New Series*, 35(2): 153-169.

Sen, A. (1999). *Development as freedom.* Oxford: Oxford University Press.

Singh, G. (2003). Area deprivation and widening inequalities in US mortality, 1969-1998. *American Journal of Public Health*, 93(7):1137-43.

Somers, M. (2005): Let them Eat Social Capital: Socializing the Market versus Marketizing the Social. *Thesis Eleven*, 81(1): 5-19.

Vincze, E. (2013). Socio-spatial marginality of the Roma as a form of intersectional injustice. *Studia UBB Sociologia,* 58(2): 217-243.

Vincze, E. and Hossu, I. (eds.) (2014). *Marginalizarea socio-teritorială a comunităţilor de romi în România [The social and territorial marginalization of Roma communities in Romania].* Cluj-Napoca: Editura Fundaţiei pentru Studii Europene.

United Nations Development Programme/World Bank/European Commission – Fundamental Rights Agency (2011): *The Situation of the Roma in 11 Member States*, http://fra.europa.eu/sites/default/files/fra_uploads/2099-FRA-2012-Roma-at-a-glance_EN.pdf (20.12.2015).

United Nations Development Programme – UNDP (2013): Integrated Household Surveys among Roma Populations. *Roma Inclusion Working Papers,* UNDP, http://www.eurasia.undp.org/content/rbec/en/home/library/roma/roma-household-survey-methodology.html (20.12.2015).

The World Bank (2009): *Report on the Law on the Minimum Income Guarantee in Romania 2002-2009.* Washington: The World Bank.

The World Bank (2014): *Competitive Cities: Reshaping the Economic Geography of Romania.* Washington: World Bank. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/02/20/000456286_20140220151016/Rendered/PDF/843240v10Full00s0Box382123B00OUO070.pdf (15.10.2015).

Appendix

Table A1.

Economic indicators for Covasna, Harghita and Mureş as compared to national and regional values

	GDP per capita in 2012 (thousand lei)	Cultivated agricultural land per inhabitants in 2014 (hectares)	Milk production per inhabitants in 2014 (hectolitre)	Meat production per inhabitants in 2012 (tonnes)
Romania	29.7	0.41	2.3	66.3
Central Development Region (5 counties)	28.4	0.24	3.4	83.8
Covasna	20.7	0.35	4.0	67.0
Harghita	20.8	0.18	4.7	36.5
Mureş	23.4	0.34	3.7	57.8

Source: Authors' computations based on INS Tempo on-line dataset and the 2013 Statistical Yearbook (latest available) (Accessed: 20.12.2015).

Table A2.

Labour force indicators for Covasna, Harghita and Mureş as compared to national and regional values

	Employees per active-age up to work population 2014 (%)	Registered unemployment rate in 2014 (%)	Urban areas: temporary emigrants (left for 12 months or more) per inhabitants in 2013 (%)	Rural areas: temporary emigrants (left for 12 months or more) per inhabitants in 2013 (%)	Occupation rate in 2014 (%)
Romania	35.78	5.4	0.83	0.78	66.9
Central Development Region (5 counties)	38.89	5.5	0.82	0.81	64.6
Covasna	34.68	6.5	0.84	0.80	63.5
Harghita	30.52	6	0.82	0.82	66.7
Mureş	34.61	5.8	0.83	0.82	67

Source: Authors' computations based on INS Tempo on-line dataset and the 2013 Statistical Yearbook (latest available) (Accessed: 20.12.2015).

Table A3.

Unemployment and income deprivation in localities with the values of the index higher than 2

Name of the locality in Hungarian/ Romanian	County	Population in 2015	Registered unemployed per active age population in 2015	Number of families receiving GMI per inhabitants	Number of families receiving child support allowance in 2015	Index of unemployment and income deprivation	% of Roma population
Faragó/Fărăgău	Mureş	1723	34.39	0.11	0.08	**11.87**	38.09
Zágor/Zagăr	Mureş	1231	34.55	0.07	0.05	**8.37**	38.84
Románandrásfalva/ Săcel	Harghita	1258	25.39	0.08	0.06	**8.05**	18.12
Előpatak/Vâlcele	Covasna	4577	23.35	0.07	0.03	**5.72**	48.54
Csatófalva/Viişoara	Mureş	1735	22.16	0.06	0.04	**5.47**	31.95
Vajdaszentiványi/ Voivodeni	Mureş	1731	16.08	0.07	0.05	**5.23**	9.05
Bonyha/Bahnea	Mureş	3813	14.15	0.07	0.05	**5.11**	34.50
Kommandó/ Comandău	Covasna	958	15.46	0.04	0.06	**4.76**	0.60
Etéd/Atid	Harghita	2878	25.57	0.08	0.00	**4.70**	6.21
Szásznádas/Nadeş	Mureş	2722	14.67	0.05	0.05	**4.62**	18.40
Nagybacon/Băţani	Covasna	4513	18.59	0.06	0.04	**4.60**	12.24
Küküllőszéplak/ Suplac	Mureş	2204	18.13	0.05	0.04	**4.50**	11.69
Bölön/Belin	Covasna	2877	16.12	0.06	0.04	**4.48**	45.68
Mezőgerebenes/ Grebenişu de Câmpie	Mureş	1607	10.52	0.07	0.05	**4.48**	12.53
Székelyderzs/ Dârjiu	Harghita	1066	14.66	0.06	0.04	**4.40**	5.69
Csíkkozmás/ Cozmeni	Harghita	2166	7.06	0.08	0.04	**4.12**	2.88
Héjjasfalva/Vânători	Mureş	4360	19.09	0.07	0.02	**4.08**	29.94

Name of the locality in Hungarian/ Romanian	County	Population in 2015	Registered unemployed per active age population in 2015	Number of families receiving GMI per inhabitants	Number of families receiving child support allowance in 2015	Index of unemployment and income deprivation	% of Roma population
Alsóbölkény/ Beica de Jos	Mureş	2203	8.95	0.07	0.04	**4.02**	29.93
Marosugra/Ogra	Mureş	2574	16.75	0.05	0.03	**3.88**	29.20
Szászkézd/ Saschiz	Mureş	2112	14.70	0.04	0.05	**3.87**	8.96
Siménfalva/ Simonești	Harghita	3834	16.86	0.06	0.03	**3.81**	1.30
Mikefalva/ Mica	Mureş	4710	14.69	0.07	0.03	**3.80**	26.37
Szászbogács/ Băgaciu	Mureş	2662	13.06	0.05	0.04	**3.68**	31.16
Hídvég/ Haghig	Covasna	2205	15.22	0.05	0.04	**3.64**	30.32
Mezőszengyel/ Sânger	Mureş	2415	15.91	0.04	0.04	**3.61**	13.42
Szentábrahám/ Avrămești	Harghita	2615	13.60	0.05	0.04	**3.33**	11.28
Mezőtóhát/ Tăureni	Mureş	927	14.06	0.05	0.03	**3.28**	14.16
Mezőbánd/Band	Mureş	6446	7.97	0.05	0.05	**3.25**	25.67
Újszékely/Secuieni	Harghita	2786	14.47	0.05	0.03	**2.96**	21.29
Mezősályi/Şăulia	Mureş	2182	16.62	0.04	0.03	**2.71**	16.30
Magyarbükkös/ Bichiș	Mureş	966	13.80	0.05	0.03	**2.59**	9.32
Bardóc/ Brăduț	Covasna	4943	11.67	0.04	0.03	**2.54**	13.52
Nagyborosnyó/ Boroșneu Mare	Covasna	3316	9.70	0.05	0.03	**2.06**	1.19

Source: Authors' calculations.

Table A4.

Housing deprivation in localities with the values of the index higher than 3

Name of the locality in Romanian/ Hungarian	County	% without sewage	% without toilet inside	% without electric power supply	% without own heating system	Index of housing deprivation	% of Roma population
Băla/ Balla	Mureş	91.96	92.20	1.89	99.53	**5.01**	7.0
Cozma/Kozmatelke	Mureş	87.47	87.74	7.80	98.33	**4.79**	0.0
Fărăgău/ Faragó	Mureş	88.18	90.07	6.13	96.35	**4.73**	38.1
Bichiş/ Magyarbükkös	Mureş	86.49	86.49	6.05	97.38	**4.51**	9.3
Beica de jos/ Alsóbölkény	Mureş	85.38	85.91	9.75	94.81	**4.46**	29.9
Papiu-Ilarian/ Mezőbodon	Mureş	85.40	85.40	4.68	98.35	**4.38**	0.4
Sânger/ Mezőszengyel	Mureş	86.58	86.58	4.82	95.07	**4.30**	13.4
Miheşu de Câmpie/ Mezőméhes	Mureş	83.55	84.88	5.11	96.22	**4.14**	11.8
Iclăzel/ Kisinkland	Mureş	81.24	81.80	11.32	94.45	**4.08**	1.8
Atid/ Etéd	Harghita	74.02	76.20	19.38	97.10	**4.03**	6.2
Sânpetru de Câmpie/ Uzdiszentpéter	Mureş	84.57	86.84	2.19	94.31	**4.01**	12.8
Boroşneu Mare/ Nagyborosnyó	Covasna	76.23	76.99	13.03	97.46	**3.86**	1.2
Band/ Mezőbánd	Mureş	82.37	82.64	7.44	92.21	**3.82**	25.7
Crăieşti/ Mezőkirályfalva	Mureş	76.17	82.71	11.68	92.52	**3.77**	0.0
Viişoara/Csatófalva	Mureş	78.38	79.81	6.20	97.46	**3.74**	31.9
Vânători/ Héjjasfalva	Mureş	79.95	81.69	1.73	97.44	**3.67**	29.9
Tăureni/Mezőtóhát	Mureş	82.56	84.28	2.70	91.89	**3.64**	14.2
Săcel/ Románandrásfalva	Harghita	79.11	80.59	3.56	96.74	**3.62**	18.1
Apold/ Apold	Mureş	77.02	80.44	3.80	98.01	**3.61**	21.9
Brateş/ Barátos	Covasna	73.69	74.08	15.58	95.68	**3.59**	0.0
Cernat/ Csernát	Covasna	66.65	67.67	29.84	92.97	**3.50**	0.2
Vâlcele/ Előpatak	Covasna	74.01	74.69	15.76	92.56	**3.45**	48.5
Mădăraş/ Mezőmadaras	Mureş	74.30	77.32	8.64	94.60	**3.34**	10.5
Coroisânmartin/ Kóródszentmárton	Mureş	79.37	80.47	1.10	94.33	**3.33**	15.3

Name of the locality in Romanian/ Hungarian	County	% without sewage	% without toilet inside	% without electric power supply	% without own heating system	Index of housing deprivation	% of Roma population
Breaza/ Beresztelke	Mureş	80.17	80.17	3.49	91.29	**3.29**	10.6
Subcetate/ Gyergyóvárhegy	Harghita	73.15	75.23	13.54	92.25	**3.29**	3.5
Dalnic/ Dálnok	Covasna	74.94	75.88	2.81	97.42	**3.15**	0.7
Şincai/ Mezősámsond	Mureş	76.02	77.07	5.88	92.91	**3.15**	10.2
Bahnea/ Bonyha	Mureş	74.34	75.76	4.11	95.04	**3.03**	34.5

Source: Authors' calculations.