

# Ethnicity from Spatial Centrality to Periphery. The Case of Cluj County, Romania

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**Keywords:** ethnic group, minority-majority relationship, periphery, ethnic ratio, homogeneity index, IDW method

## ABSTRACT

This study aims to analyze the ethnic structure of the population in Cluj County, Romania, by highlighting the essential traits of their spatial distribution at local level, in urban and rural areas. Having the diversity in the ethnic structure registered in the study area in 2011, we proposed to reveal the spatial distribution of ethnic communities, emphasizing on the localization of the first three ranked ethnic groups (Romanian, Hungarian and Roma). Data revealed that the ethnic majority in the area is represented by the Romanian population (75.37%) and the first ranked minority is represented by the Hungarian population (14.99%). After calculating the relevant indices (the homogeneity index, the ethnic ratio, the ethnic differentiation) results showed a particular feature of the ethnic minority group in relation with the ethnic majority group. We used the IDW method (*Inverse Distance Weighting*) to cartographically reflect the spatial distribution of the ethnic groups at local level. Results also show an inverse distribution pattern, in which the minority ethnic group is located centrally whereas the majority ethnic group was pushed to peripheral areas. We noted that the added share of Roma population (3.36%) to the first ranked minority Hungarian group did not change the spatial distribution pattern displayed after using the IDW Method. The conclusion revealed that in a mostly Romanian inhabited space, the ethnic majority does not correspond to spatial centrality but to periphery, this fact being determined by the intrusion of the minority ethnic groups in this area through morphologically advantageous corridors, thus “cramming” the local Romanian population mostly in the mountainous and hilly areas. In the end, by showing this spatial distribution pattern of ethnic groups, we aimed to point out that among the main factors that trigger the spatial centrality and periphery in the Cluj county, ethnicity plays also an important role.

## 1. INTRODUCTION

The change of the political system in Romania after 1989 has significantly contributed to the emergence of new research approaches in the field of human geography, especially in the study of population-related topics. Before 1990, national censuses did not include aspects of ethnicity or religious preferences at all, thus making the research on the basic population traits as profoundly as possible but on the whole, at national or regional level. Nationally, we can mention

some of the first studies on the migration and national structure of the Romanian population (Pop, 1992; 2004; 2011), on the structure of the Romanian population at national level (Pop, Rusu, 2014), several successful research attempts on the religious structure, ethnicity and electoral behaviour of the population in Transylvania, Banat, Crişana and Maramureş provinces (Bodocan, 2001; Creţan, 1999; Ilieş, 1998), on the Russian minority of Russian Lipovans in Romania (Ipatiov, 2002). These studies focused on geodemographic issues at national, regional or county

levels. Recently, more detailed analyses reveal a synthetic but more complex picture of the ethnic minorities in Romania describing their current state and the demographic evolution of the population at national level based on the data provided by the official censuses by including variables as nationality/ethnicity, maternal language and religion [14]. On the other hand, researchers have also focused on the issues of the multiethnic communities in terms of good governance and what would be the basic principles, best practices and strategies to be followed to ensure inclusiveness of the minorities in the community, a good relationship between the representatives of the ethnic groups, and eventually avoid their segregation, achieve successful development and overcome any challenges inferred by the existence of several ethnicities in the same community [15]. Benedek, J. et al (2013) have analysed ethnic diversity as one of the major factors in the delimitation of structural regions or in the creation of regional identity, linking ethnicity to the spatial dimension, and concluding that the centre is where the regional cultural identity reaches its peak, gradually decreasing towards the spatial periphery [8]. Our study aims to highlight the main characteristics of the ethnic structure of the population in Cluj County, Romania and their spatial distribution, morphologically and administratively (urban and rural areas). This is to identify the spatial distribution pattern of the first three ranked ethnic groups, the spatial majority-minority relationships in an overall majority Romanian inhabited space, and reveal the particularities of the relationship ethnic majority - spatial centrality and ethnic minority - spatial periphery based on the criterion of ethnicity.

The data recorded at the census of 2011 at national level showed that the population is majority Romanian (83.45%) and the first two minority ethnic groups are the Hungarians (about 6%) and the Roma (about 3%) [1], [13]. In these circumstances, Cluj County registered the same ethnic ranking of the shares of majority and minority population groups corresponding to those recorded at national level. Cluj County is a representative territorial administrative unit in Romania, located in the North-West region of Romania, with a surface of 6,304 sq km and with a continuously increasing population from 520,073 inhabitants in 1948 up to 691,106 inhabitants in 2011 (Fig. 1).

Presently, it is ranked fourth at the national level, after Bucharest, Iași and Prahova counties. It consists of 6 urban municipalities (Cluj-Napoca, Câmpia Turzii, Dej, Gherla, Turda, and Huedin) and 75 rural administrative units. Morphologically, Cluj County overlaps the north-east part of Apuseni Mountains, the lower corridor of Arieș River, Iara-Hășdate lowland, Feleacu Massif, the corridor of Căpuș River, Păniceni Plateau and Huedin lowlands at the foothills of Apuseni

Mountains, as well as quite extensive parts of Cluj Hills and Transylvania Plain. It is crossed by several streams Someșul Mic, the lower sectors of Someșul Mare and Arieș rivers, the upper sectors of Crișul Repede River.

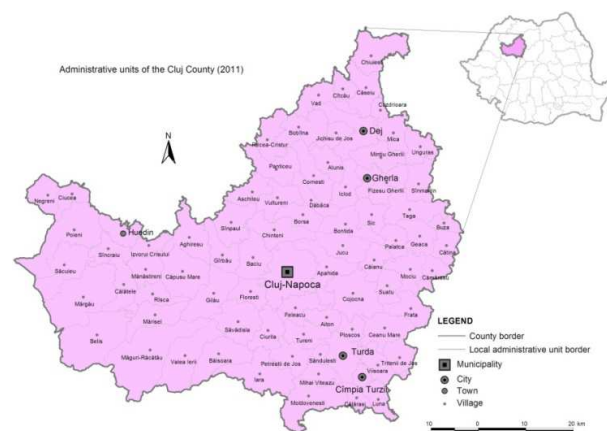


Fig. 1. Localization of the area under study at national level.

## 2. THEORY AND METHODOLOGY

The concept of centre-periphery has resulted from the analyses of the global economy of the '70s in the 20<sup>th</sup> century and it is today extrapolated in various scientific fields, and implicitly in the study of the spatial distribution of ethnic groups. This spatial distribution generates a certain level of territorial centrality and periphery through the relationships developed between the ethnic groups but also as a result of the demographic, economic, social and cultural traits of these ethnic groups. Based on these, a minority ethnic group, compactly distributed in an area triggers the effect of centrality in relation with the majority ethnic group, manifested through diverse cultural, social, economic and political actions. The use of maternal language against the official national language, the selection of minority representatives in key administrative positions, the adoption of specific lifestyle, customs and clothing, architecture and economic land use, all represent examples of centrality expression.

This acknowledged territorial centrality, constituted on ethnicity criteria, triggers the emergence of a periphery at its border, which manifests through interethnic tensions, relocation/displacement of some ethnic groups to less favourable locations, ethnic and cultural assimilation processes, etc.

The end result of this process is the emergence of a hyper-centrality and hypo-periphery. This state is possible in the context of a clash of two ethnic groups with diametrically opposed values. In our case, these two ethnic groups are the Romanians and the Hungarians, generating ethnic centrality and periphery, especially in Transylvania and partly in Crișana and Maramureș.

If maintained and enhanced, the causes producing the effect of ethnic hyper-centrality in the territory can lead to greater conflicts and the emergence of territorial claims based on ethnic criteria, cultural and administrative autonomy, federalization, and finally to the dismantling of a state in residual structures. From this perspective, it is a priority to analyse the ethnic structure of the population resident in a territory and note the effect of the emerged ethnic centrality, in order to timely detect and prevent the appearance of new ethnic conflicts and their effects. The scientific approach is required to be oriented towards the capitalization of the positive traits of such centrality effects materialized through cultural exchanges, development of common principles and values.

Our study aims to depict the effect of centrality that emerges in Cluj County, Romania, by highlighting the ethnic structure of the population and their spatial distribution, which further determines the premises for the existence of ethnic centrality and periphery at the local level. The main indicator used in this approach is the weight of ethnic groups in the total population number, then pointing out the areas in which the predominant ethnic group is other than the Romanian majority.

By presenting the ethnic structure of the population resident in the administrative territory of Cluj County graphically and cartographically, we highlight the particular types of areas and the premises for the emergence of ethnic periphery and centrality.

The most important feature in the territorial distribution of ethnic communities is the alteration of zones with high ethno-cultural diversity with others more homogeneous ethnically or religiously, which is a result of historical developments [8]. This spatial distribution and the ethnic structure of population can be illustrated by employing several demographic indices: ethnicity weight, ethnic homogeneity index, ethnic differentiation index, the ethnicity ratio, which we will further present, including the calculation methodology and interpretation of their values.

*The ethnicity weight.* The most general characterization of the structure of the population is obtained by setting the weight of a specific population group (subgroup) holding a certain feature out of the total population, expressed in relative values, according to the formula:

$$N = \frac{P_x}{P_t} \times 100 (\%)$$

where:

$N$  – specific weight;

$P_x$  – subgroups grouped by certain characteristics;

$P_t$  – total population.

*Index of ethnic homogeneity.* In the qualitative analysis of population ethnic structure, it is highly important to observe the degree of homogeneity (heterogeneity). We used this global synthetic indicator, proposed by Vert (2001) as suitable to qualitatively reflect the phenomenon under study, and entitled the index of population homogeneity. In the elaboration of this index, the following reasoning was taken into account: i. if a human community of 100 people consists of a single ethnic group, then we consider it homogeneous; ii. if the same community consists of two ethnic groups with equal shares of 50%, we can say that it is relatively homogeneous; iii. In case that half of the community does not represent a single ethnic group, but 25 ethnic groups, then we consider this population as being ethnically heterogeneous. Accordingly, the phenomenon must be analyzed from two perspectives, namely: 1) the number of people representing the minority ethnic group(s); and 2) the number of ethnic minority groups.

To consider both aspects in the analysis of this phenomenon Vert (2001) proposes the following relationship by which we can determine the degree of homogeneity, in our case, the ethnic homogeneity of the population [7]:

$$I_{oe} = 10 - \frac{\sum_{i=1}^n m_i \times N_m}{P_t}$$

where:

$I_{oe}$  – the ethnic homogeneity index;

$m_i$  – the number of persons representing a minority ethnic group;

$N_m$  – the number of ethnic minority groups;

$P_t$  – total population.

The values obtained vary between 0 and 10. Values tending towards zero show the heterogeneous feature, whilst values tending towards 10 prove the homogeneous character. For the demarcation of different levels of homogeneity, the variation scale is divided into several classes of values and the main ranges are:

10-7.51 – ethnically homogeneous population;

7.50-5.10 – relative ethnic homogeneity;

5.00-0 – ethnically heterogeneous population.

In conclusion, it is considered that this simple indicator proposed for quantifying this demographic phenomenon, operating with low values, which can also be easily graphically represented and mapped by various methods, significantly highlights the features of the studied phenomenon.

*Index of ethnic differentiation.* The ethnic fragmentation of the territory can be calculated and compared using ethnic differentiation index, developed by Muir (1981) [10].

$$IDE = \frac{\sum_{i=1}^k n_i^2}{P_t^2} \times 100$$

where:

$k$  - number of ethnic groups;  
 $i$  - the ethnic group;  
 $n$  - the size of the ethnic group;  
 $P_t$  - total population.

In this case, the lower the value of the index, the greater the ethnic differentiation is. Thus, when the index equals 100, we have a perfectly ethnically homogeneous territory.

The advantage of using this index against the weight of the majority ethnic group, is that it greater reflects both the size of ethnic groups and their number. However, this index reflects only the major ethnic groups, the small ones not influencing the values of this indicator [9].

*The ethnicity ratio.* This index highlights the ratio between various minority ethnic groups and the majority ethnic group and it is calculated by the formula:

$$R_e = \frac{P_n}{P_m} \times 100$$

where:

$R_e$  - the ethnicity ratio;  
 $P_n$  - the size of the minority ethnic group;  
 $P_m$  - the size of the majority ethnic group.

In the case of this indicator, the more values tend towards zero, the higher the ethnic homogeneity, and the more they tend towards 100, the higher the ethnic heterogeneity. If values exceed 100, we can note the existence of an inverse ethnic homogeneity, due to the predominance of other ethnic backgrounds than of the ethnic majority.

To reflect the level of ethnic centrality and periphery in the area under study, we used the *IDW interpolation method (Inverse Distance Weighting)* operated with GIS ArcView 3.2a software.

This method is based on the assumption that the nearby values contribute more to the interpolated values than distant observations, and thus the influence of a known data point is inversely related to the distance from the unknown location that is being estimated [12].

This interpolation method was developed by Shepard, D. (1968) who described it as being intuitive and efficient and quite suitable to be employed in case of evenly distributed points, otherwise being subject to errors [12], [13].

The Shepard method, the simplest form of IDW interpolation, uses weight function  $W_i$  given by:

$$W_i = \frac{h_i^{-p}}{\sum_{j=0}^n h_j^{-p}}$$

where:

$p$  - is an arbitrary positive real number;  
 $h_j$  - are the distances from the dispersion points to the interpolation point, given by:

$$h_j = \sqrt{(x - x_1)^2 + (y - y_1)^2}$$

where:

$(x; y)$  - the coordinates of the interpolation point;  
 $(x_i; y_i)$  - the coordinates of each dispersion point.

The weight function varies with a value of unity at the dispersion point to a value close to 0 as the distance to the dispersion point increases. The weight functions are normalized as a sum of the weights of the unit.

By applying the IDW method of cartographic representation of the spatial distribution of the ethnic indices, we aimed to highlight the geographical areas where the ethnic groups concentrate, generating ethnic centrality and periphery, and also the interethnic transition areas.

### 3. RESULTS AND DISCUSSION

The results of the National Census of October 2011 revealed that the total number of inhabitants in Romania was of 20,121,641 assigned to 21 ethnic groups (*Romanians, Hungarians, Roma (Gypsies), Ukrainians, Germans, Turks, Russian-Lipovans, Tartars, Serbians, Slovaks, Bulgarians, Croats, Greeks, Italians, Jews, Czechs, Polish, Chinese, Armenians, Csangos, Macedonians*) plus the category of *Other nationality*, and the category of *Unavailable information*. We need to also mention that the database contains two specific situations: the first situation in which the *asterisk (\*)* was used for ethnic groups that registered less than three persons, and the second situation in which the *dash (-)* was used for showing the fact that no ethnicity information was recorded. These methodological shortcomings bring out certain errors in the interpretation of data, even though not significant in our study.

#### 3.1. The ethnic structure

In order to present the most significant traits of the ethnic structure of the population in Cluj County we used the data provided by the National Institute of

Statistics, employed them in calculating the main indices and elaborate the cartographic material that would enhance the illustration of spatial distribution of the three main ethnic groups and reveal the issues of periphery and centrality.

Data revealed the number of inhabitants and the correspondent ethnicity at county level, in urban areas (5 municipalities) and rural areas (75 communes) and their spatial distribution considering the morphology and hydrographic network in the area under study. Each of the ethnic groups is defined in order, yet without giving certain significance to any of them.

Overall, out of the 21 ethnic groups, two of them dominate in Cluj County, the Romanians with 75.37% of the total population and the Hungarians with 14.99% of the total population, followed at a great distance by a third minority ethnic group – the Roma,

with a share of 3.26%. The rest of the ethnic groups, register insignificant values up to 0.49% and the population that did not declare their ethnicity with a total share of 5.89% (Table 1).

In fact, after careful observation, we can note that the ethnic structure of the population in Cluj County is rather homogenous with a clear significance of the first three ethnic groups. Having these, we decided to present the basic features of the three major ethnic groups, and just synthetically the other 18 ethnic groups. As we will note, and taking into consideration the categories of minorities stated by Kiss and Veress (2010), there are cases where the Hungarian minority group forms the local majority (with shares of over 80% or between 50 and 80%), or cases in which this minority represents a significant minority (with shares of 10-20% or between 20 and 50%) and cases in which it can be considered as Diaspora (with shares under 10%) [14].

Table 1. The ethnic structure of the population in Cluj county (urban and rural) in 2011.

No.	Ethnic groups	County level		Urban level		Rural level	
		No. of persons	Weight	No. of persons	Weight	No. of persons	Weight
1	Romanians	520,885	75.37	349,142	50.52	171,743	24.85
2	Hungarians	103,591	14.99	64,763	9.37	38,828	5.62
3	Gypsies	22,531	3.26	9,137	1.32	13,394	1.94
4	Ukrainians	173	0.03	141	0.02	32	0.00
5	Germans	687	0.10	618	0.09	69	0.01
6	Turks	89	0.01	73	0.01	16	0.00
7	Russian-Lipovans	58	0.01	53	0.01	5	0.00
8	Tartars	10	0.00	9	0.00	1	0.00
9	Serbians	25	0.00	22	0.00	3	0.00
10	Slovaks	54	0.01	40	0.01	14	0.00
11	Bulgarians	21	0.00	18	0.00	3	0.00
12	Croats	2	0.00	2	0.00	0	0.00
13	Greeks	78	0.01	74	0.01	4	0.00
14	Italians	154	0.02	108	0.02	46	0.01
15	Jews	185	0.03	177	0.03	8	0.00
16	Czechs	11	0.00	9	0.00	2	0.00
17	Polish	29	0.00	25	0.00	4	0.00
18	Chinese	11	0.00	11	0.00	1	0.00
19	Armenians	66	0.01	65	0.01	1	0.00
20	Csangos	16	0.00	14	0.00	1	0.00
21	Macedonians	6	0.00	6	0.00	0	0.00
22	Other nationality	1,715	0.25	1,611	0.23	104	0.02
23	Unavailable information	40,709	5.89	32,250	4.67	8,459	1.22
24	Total resident population	691,106	100.00	458,368	66.32	232,738	33.68

Out of the 691,106 inhabitants of Cluj County, 66.32% live in urban areas and 33.68% live in rural areas. Data revealed that there are not so significant differences in the shares of the three ethnic groups if we look the data at county level as compared to the shares recorded in the urban/rural areas. Thus, in the case of urban areas, 76.17% are Romanians, 14.13% are Hungarians and 1.99% are Roma, whilst in the case of

rural areas, 73.79% are Romanians, 16.68% are Hungarians, and 5.75% are Roma.

### 3.1.1. The Romanian ethnic group

As already pointed out, the Romanian ethnic group represents the majority in Cluj County, with a share of 75.37% of the total 691,106 inhabitants, about

50.52% being located in urban areas and 24.85% distributed in 420 villages of the rural area.

In the case of urban area, the highest share of Romanians are found in the municipalities of Dej (81.80%) and Câmpia Turzii (80.93%), followed by Turda (77.05%), Gherla (76.03%), Cluj-Napoca (75.71%). The lowest share of Romanian population is found in Huedin Town (56.52%)

In the case of rural areas, the Romanians hold a share of 73.79% of the total number of inhabitants (232,738) in the 75 rural administrative units, their local share ranging from over 90% down to below 50%.

We can note that in almost a third of the villages the share of the Romanian ethnic group is of over 90% and in other 10% of the villages the Romanian group is of over 80%. The least share of the Romanian population (of about 20-30%) we find in 16 of the total rural administrative units of the Cluj County. In the end, we need to emphasize that Mărișel village holds the maximum share of the Romanian ethnic group (98.19%), and Sic village stands out through the least share of the Romanian ethnic group (3.58%).

Morphologically, the Romanian ethnic group prevails in the settlements located in the mountainous area, fact that could be explained through the low attractiveness the mountains have had to the Hungarian population, which due to their origins in the Asian steppe did not show interest in the highlands with high density of forests.

### 3.1.2. The Hungarian ethnic group

The Hungarians are the first and the most significant minority group at national level. In the case of Cluj county they represent 14.99% of the total population, overall. They are distributed both in urban and rural areas, yet more than half of them (62.52%) being located in all of the six urban centres in the area under study, whereas 16.68% live in the rural areas.

The most representative shares of the Hungarian population we find in Huedin town (27.80%), Cluj-Napoca municipality (15.27%) and Gherla (16.37%), whilst in the other urban areas this ethnic group records a share of about 10% each.

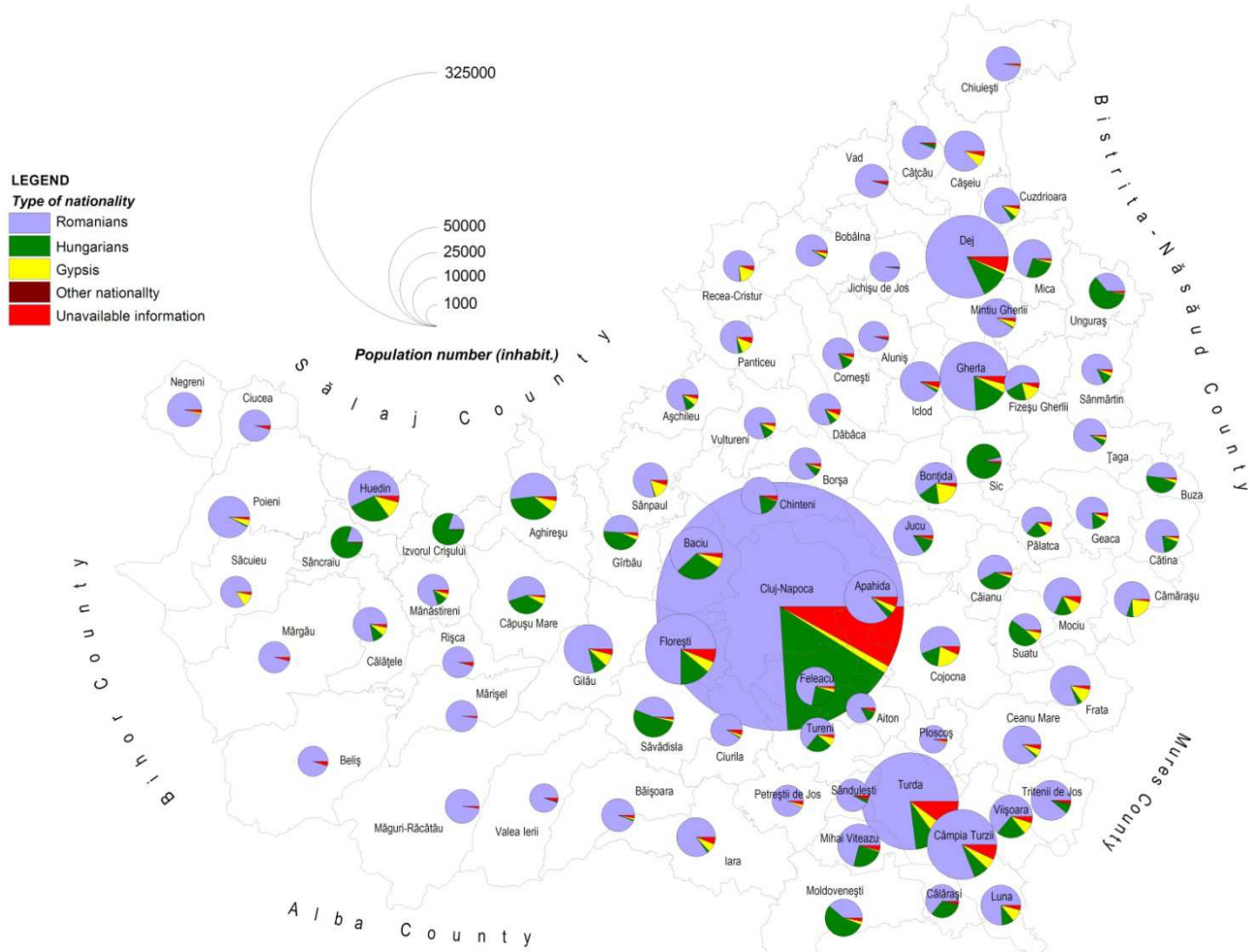


Fig. 2. The ethnic structure of the population in Cluj County in 2011.

In the case of rural area, the Hungarian population is spatially distributed unevenly in all of the

75 of the administrative units (table 3), being able to classify the relevant categories of shares, as follows:

The Hungarian ethnic group registers the lowest shares (below 10%) in almost half of the rural administrative units of Cluj County, mostly in the mountainous areas, in Iara-Hășdate lowland, the southern half of Huedin lowland, the corridors of Crișul Repede and Someșul Mic rivers, Cluj and Dej Hills (5-10% in Așchileu, Borșa, Cămărașu, Dăbâca, Gilău, Luna, Țaga and Tritenii de Jos; below 1% in Aluniș, Băișoara, Beliș, Cășeu, Chiuiești, Ciucea,

Jichișu de Jos, Măguri-Răcățau, Mărgău, Mărișel, Mintiu Gherlii, Negreni, Petreștii de Jos, Poieni, Rișca, Săcuieu, Sânpaul and Vad). The highest shares of the Hungarian ethnic group (over 50%) are found in 6 of the rural administrative units (Izvorul Crișului – 79.04%, Moldovenești – 55.14%, Sâncraiu – 78.44%, Săvădisla – 51.16%, Sic – 93.78 and Unguraș – 61.47%) and almost 50% are found in 3 rural administrative units (Buza, Gârbău and Suatu).

Table 2. The shares of the Hungarian ethnic group spatially distributed in the morphological and rural administrative units, as registered at the National Census of 2011.

Morphological units	20-30%	30-40%	40-50%	Over 50%
Huedin Depression (lowland)	-	-	-	Izvorul Crișului, Sâncraiu
Căpuș River Corridor	-	Căpușu Mare	-	-
Nadăș River Corridor	Baciu	Aghireșu	Gârbău	
Someșul Mic River Corridor	Mica	-	-	Săvădisla
Arieș River Corridor	Mihai Viteazu, Tureni, Viișoara	Călărași	-	Moldovenești
Transylvanian Plain	Fizeșu Gherlii, Pălatca	Căianu	Buza, Suatu	Sic, Unguraș
Feleac Massif	Feleacu	-	-	-

We can note that the lowest shares of the Hungarian ethnic group are found almost without exception in valleys, corridors, lowlands and the western border of the Transylvanian Plain.

### 3.1.3. The Roma ethnic group

They represent the second ranked minority in the area under study, with a share of 3.26% at the county level. They are present in both rural and urban areas, yet their shares being higher in the rural administrative units (5.75%) as compared to 1.99% registered in the urban area. This minority ethnic group is present in all six urban municipalities, their shares ranging from 1% (in Cluj-Napoca) to about 11% (in Huedin Town) of the urban population. At the rural level the Roma ethnic group is present in almost all of the administrative units (in 71 of the 75). The lowest shares of Roma population (below 1%) we find in the mountainous rural settlements (Măguri-Răcățau, Mărgău, Mărișel, Beliș, Aluniș, Cățcău, Ciucea). The highest shares of Roma population are found in a third of the rural administrative units.

The values range from 7% up to about 15-20% (Cămărașu – 21.58%, Cojocna – 20.39, Bonțida – 19.81%, Recea-Cristur – 18.34%, Fizeșu Gherlii – 16.15%, Sânpaul – 15.37%, Panticeu – 13.12%, Săcuieu – 13.03%, Frata – 11.60%, Mociu – 11.20%, and Luna – 10.45%). There are four rural administrative units that do not register any representatives of this ethnic group, but with high shares of the Hungarian ethnic group (Izvorul

Crișului, Sâncraiu) or with low economic performance (Jichișu de Jos and Rișca).

### 3.1.4. Other ethnic groups

In order to have an integrative of the ethnic structure of the population in Cluj County we analysed the data provided by the National Institute of Statistics and we can note the presence of representatives of all the 18 national minority ethnic groups at county level, even though with quite low values (0.24% of the total population), along with the representatives of other ethnic groups. They are mostly present in urban areas (Germans, Ukrainians, Italians, Turks, Jews, Greeks, Russian-Lipovans and Slovaks). The least representative are the ethnic groups of Serbians, Polish, Bulgarians, Tartars, Croatians, Czechs, Chinese, Armenians, Makedonians, Csangos and Croats.

### 3.1.5. Unavailable data

For the first time registered at the census of 2011 at national level, this category of data reveals that the ethnic information for a share of 5.89% of the total population of Cluj County was not provided or recorded. They are residents in urban and rural areas.

### 3.2. The spatial distribution of the main ethnic groups

By using the IDW method to cartographically represent the spatial distribution of the demographic

indices employed in the ethnicity analysis, made us able to pinpoint the areas of ethnicity centrality and periphery, previously anticipated to exist in the county of Cluj even when representing the distribution of ethnic groups graphically (see Fig. 2).

We note the delineation of three central areas and one secondary ethnic area in the county, generated by the large number of representatives of the minority Hungarian ethnic group, bordered by peripheral areas inhabited by the majority Romanian ethnic group (Fig. 3, 4, 5, 6).

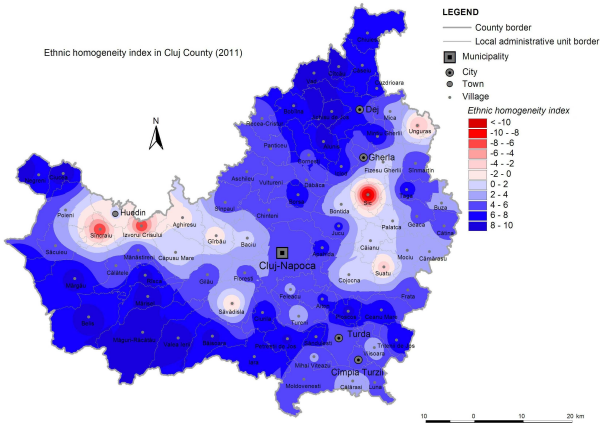


Fig. 3. Ethnic homogeneity index in Cluj County (2011).

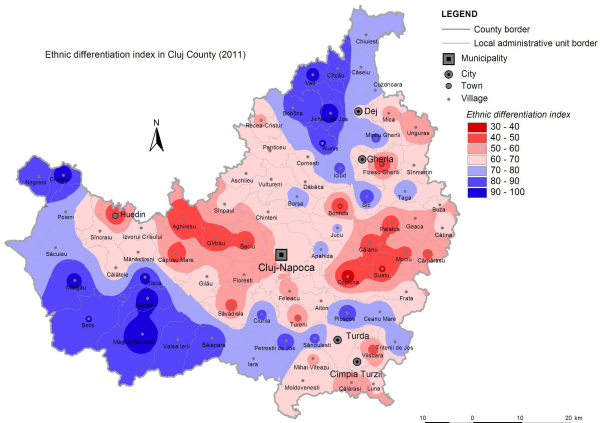


Fig. 4. Ethnic differentiation index in Cluj County (2011).

The most extensive and complex central ethnic area is grafted in the eastern part of Cluj county, overlapping the Transylvanian Plain, where the Hungarian and Rroma ethnic groups hold significant shares or are even dominant in relation to the majority population of the county. Here we can notice obvious peripheral ethnic areas formed both in the centre and at the borders. In this part of the county, the effects of center-periphery create the most favorable conditions for the spatial interethnic tensions to manifest. The second central ethnic area is found in Huedin Lowland, whose perimeter extends eastwards towards Nadăș river corridor. The third central ethnic area overlaps Hășdate Lowland and the fourth central secondary area emerges in the lower sector of Arieș River.

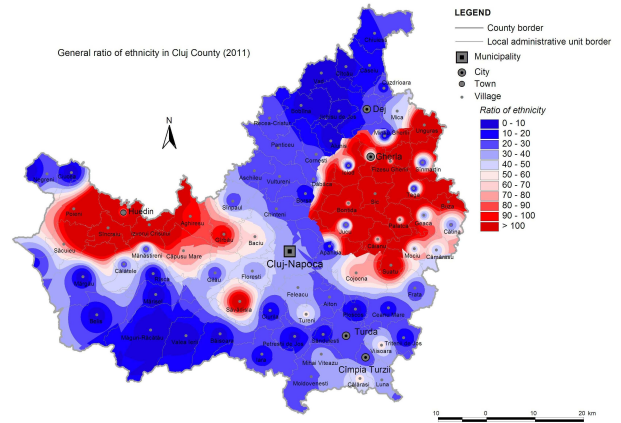


Fig. 5. General ratio of ethnicity in Cluj County (2011).

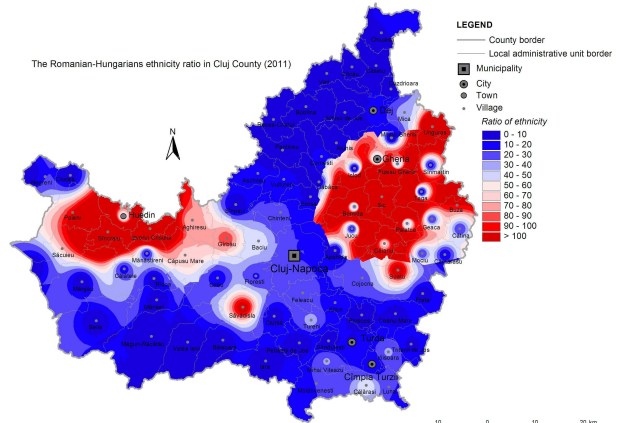


Fig. 6. The Romanian-Hungarians ethnicity ratio in Cluj County (2011).

With a certain degree of homogeneity, the majority ethnic Romanian groups are distributed between these four central ethnic areas. In this case, these areas of ethnic homogeneity of the ethnic majority are considered as spatially peripheral ethnic areas. What is important to be observed is that the areas of ethnic centrality are grafted over the most strategic areas of Cluj county, represented by development corridors, territorial hubs and areas of economic convergence of the county, thus amplifying even more the general effect of center-periphery that occurs spatially.

At local level, results show an opposite spatial distribution pattern in relation with the ethnic groups representing the majority and the minority. In this case, the minority ethnic group is located centrally, whereas the majority ethnic group was pushed to peripheral areas. We note that the added share of Rroma population to the first ranked minority Hungarian group does not change the spatial distribution pattern. Thus, if we should consider the ethnic majority as corresponding to the spatial core, hence giving the area their cultural identity, the analysis shows that in a mostly Romanian inhabited space, the ethnic majority becomes peripheral. In fact, by settling centrally in the area under study, the minority ethnic groups trigger a



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Journal Settlements and Spatial Planning, Special Issue, no. 4 (2015) 219-229

switch in the identification of the spatial centrality and periphery in Cluj county, consequently ethnicity playing

an important role in the creation of local cultural identity.

Table 3 . Indices of ethnic differentiation of the population in Cluj County.

No.	Administrative units	Homogeneity index	Differentiation index	General ethnicity ratio	Romanian - Hungarian ethnicity ratio	Romanian - Rroma ethnicity ratio	Hungarian - Rroma ethnicity ratio
<b>1</b>	<b>Cluj county</b>	<b>4.58</b>	<b>59.46</b>	<b>32.68</b>	<b>19.89</b>	<b>4.33</b>	<b>24.21</b>
<b>2</b>	<b>Towns</b>	<b>4.76</b>	<b>60.61</b>	<b>31.28</b>	<b>18.55</b>	<b>2.62</b>	<b>21.17</b>
2.1	Cluj-Napoca	4.66	60.29	32.08	20.17	1.33	21.50
2.2	Câmpia Turzii	5.80	66.47	23.58	8.22	6.25	14.48
2.3	Dej	5.99	68.50	22.28	13.80	1.26	15.05
2.4	Gherla	4.72	60.64	31.54	21.53	4.61	26.14
2.5	Turda	4.95	60.89	29.81	10.62	7.08	17.69
2.6	Huedin	0.43	39.86	76.94	49.19	20.01	69.20
<b>3</b>	<b>Communes</b>	<b>4.23</b>	<b>57.38</b>	<b>35.52</b>	<b>22.61</b>	<b>7.80</b>	<b>30.41</b>
3.1	Aghireșu	-0.58	40.56	92.66	70.79	15.32	86.11
3.2	Aiton	6.21	70.05	20.82	14.03	1.34	15.37
3.3	Aluniș	9.05	91.67	4.52	0.60	0.17	0.77
3.4	Apahida	6.82	73.77	16.90	4.68	4.51	9.19
3.5	Așchileu	5.32	63.09	27.04	12.45	9.36	21.81
3.6	Baciu	1.53	46.36	62.56	47.16	10.38	57.55
3.7	Băișoara	8.61	87.83	6.77	0.88	2.48	3.36
3.8	Beliș	8.88	90.27	5.38	0.35	0.17	0.52
3.9	Bobâlna	8.07	83.33	9.62	2.23	4.32	6.56
3.10	Bonțida	1.12	38.52	67.66	28.03	33.21	61.24
3.11	Borșa	6.92	74.75	16.28	9.81	3.27	13.08
3.12	Buza	-1.49	44.15	109.27	96.52	8.28	104.80
3.13	Căianu	0.79	47.04	72.02	62.38	4.38	66.76
3.14	Călărași	2.16	52.09	55.42	50.65	0.61	51.27
3.15	Călățele	5.07	61.49	28.87	14.01	10.73	24.74
3.16	Cămărașu	3.36	49.17	43.20	8.25	30.91	39.16
3.17	Căpușu Mare	0.15	44.41	81.10	67.47	10.22	77.69
3.18	Cășeiu	7.11	75.56	15.12	0.49	10.92	11.41
3.19	Cățcău	8.71	88.80	6.22	3.89	0.30	4.20
3.20	Cătina	4.87	61.85	30.43	22.71	5.24	27.95
3.21	Ceanu Mare	7.45	78.30	13.13	2.47	6.76	9.22
3.22	Chinteni	4.94	62.65	29.87	23.01	0.76	23.77
3.23	Chiuiești	9.37	94.36	2.96	0.13	1.10	1.24
3.24	Ciucea	9.16	92.62	3.97	0.34	0.40	0.74
3.25	Ciurila	7.94	82.41	10.31	1.31	3.81	5.12
3.26	Cojocna	0.28	34.47	79.12	29.97	36.51	66.48
3.27	Cornești	5.61	65.81	24.92	15.64	4.26	19.90
3.28	Cuzdrioara	6.47	70.88	19.08	5.93	9.06	14.99
3.20	Dăbâca	5.89	66.92	22.95	8.45	7.89	16.33
3.30	Feleacu	3.87	57.29	38.62	31.56	3.49	35.05
3.31	Fizeșu Gherlii	0.73	38.11	72.78	36.05	27.90	63.95
3.32	Florești	4.54	58.89	33.02	19.10	6.51	25.60
3.33	Frata	5.79	65.67	23.67	4.34	14.34	18.69
3.34	Gîrbău	-1.27	43.50	105.13	90.92	8.24	99.16
3.35	Geaca	4.60	59.32	32.55	19.37	6.35	25.71
3.36	Gilău	5.46	63.89	26.02	10.96	9.81	20.77
3.37	Iara	6.69	72.52	17.70	2.87	8.62	11.50
3.38	Iclod	7.98	82.78	10.09	2.50	2.43	4.93
3.39	Izvorul Crișului	-7.63	66.43	403.70	398.15	0.00	398.15

3.40	Jichișu de Jos	9.60	96.41	1.86	0.53	0.00	0.53
3.41	Jucu	6.54	72.46	18.68	13.79	1.00	14.79
3.42	Luna	4.66	58.49	32.01	12.77	13.80	26.57
3.43	Măguri-Răcățău	9.49	95.46	2.37	0.18	0.09	0.27
3.44	Mănăstireni	5.70	65.95	24.33	13.17	6.63	19.80
3.45	Mărgău	9.19	92.83	3.85	0.42	0.14	0.56
3.46	Mărișel	9.59	96.30	1.92	0.14	0.14	0.27
3.47	Mica	3.44	56.14	42.48	37.29	2.95	40.24
3.48	Mihai Viteazu	3.68	56.73	40.35	34.01	2.10	36.10
3.49	Mintiu Gherlii	8.06	83.29	9.65	0.91	5.06	5.97
3.50	Mociu	3.01	49.15	46.53	22.14	16.39	38.53
3.51	Moldovenești	-3.46	45.55	157.53	142.00	9.01	151.01
3.52	Negreni	8.81	89.51	5.74	0.50	2.46	2.96
3.53	Pălatca	1.80	45.03	59.42	37.04	13.87	50.92
3.54	Panticeu	4.94	59.82	29.86	4.79	17.04	21.83
3.55	Petreștii de Jos	8.52	87.12	7.23	0.28	2.77	3.05
3.56	Ploscoș	8.81	89.60	5.72	0.00	1.81	1.81
3.57	Poieni	8.19	84.30	8.95	0.61	5.65	6.25
3.58	Recea-Cristur	4.72	57.97	31.59	1.40	24.14	25.54
3.59	Rișca	9.21	93.06	3.73	0.14	0.00	0.14
3.60	Săcuieu	6.58	71.37	18.42	0.16	15.43	15.59
3.61	Sâncraiu	-7.53	65.61	392.17	385.84	0.00	385.84
3.62	Sândulești	8.15	84.25	9.17	4.07	0.24	4.31
3.63	Sânmărtin	6.00	68.20	22.24	13.15	4.85	18.01
3.64	Sânpaul	5.29	62.04	27.23	1.23	19.54	20.77
3.65	Săvădisla	-2.24	46.39	125.33	116.31	4.00	120.31
3.66	Sic	-11.21	88.12	2694.32	2620.45	11.36	2631.82
3.67	Suatu	-3.29	38.98	152.47	121.66	23.84	145.49
3.68	Țaga	7.47	78.73	12.99	6.73	3.65	10.38
3.69	Tritenii de Jos	7.54	79.61	12.58	9.00	0.53	9.53
3.70	Tureni	2.15	47.58	55.46	38.34	11.73	50.07
3.71	Unguraș	-4.15	50.49	180.14	172.08	4.13	176.21
3.72	Vad	9.06	91.73	4.47	0.73	0.31	1.04
3.73	Valea Ierii	8.86	90.08	5.44	1.54	0.24	1.78
3.74	Viișoara	2.02	45.87	56.93	35.10	13.88	48.99
3.75	Vultureni	5.64	65.55	24.73	13.64	7.48	21.12

#### 4. CONCLUSION

The analysis on the ethnic structure of the population located in the county of Cluj shows a certain level of diversity. However, the weights reveal three main ethnic groups that settled and live here (Romanians - as the population majority, Hungarians and Roma). Much more, the effect of ethnic centrality or periphery is only generated by the Hungarian minority, this holding the majority shares in several areas within the county borders, such as: Câpuș River Corridor, Nadeș River Corridor, Crișul Repede River Corridor, Lower Corridor of Arieș River, Transylvania Plain, and Săvădisla Depression. In these areas the Hungarian ethnic group holds over 20% of the total population and in some case even up to 50-70%. These values determine a switch in the common population majority – minority situation. Locally, they turn the Hungarian group into the majority ethnicity, generating

the formation of strong ethnic nuclei that due to the strong antagonistic relations between ethnic groups generate certain effects of ethnic periphery and centrality in these areas. They are visible in the territory and clearly influence the socio-cultural and economic life of the communities and implicitly the organization of settlements. Significant effects of ethnic periphery and centrality are mostly visible in Săvădisla depression area, in which case the Hungarian ethnic group settled in the lowlands even from the beginning, whereas the Romanian group was pushed to the mountain and hilly peripheral areas where the environmental conditions are less favourable.

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