

## Article

# Ethnicities in Post-Communist Romania: Spatial Dynamics, Fractionalisation, and Polarisation at the NUTS-3 Level

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**Abstract:** Scholars have shown a special interest in discovering and studying the role of ethnic diversity and spatiality at the country and region levels. This study contributes to the theoretical debate on the spatial dynamics of ethnicities, with the aim of (1) determining the evolution of ethnic dynamics in post-communist Romania and (2) applying ethnic fractionalisation and polarisation indices. The study uses a mixed methods approach based on a descriptive statistics analysis and applies the fractionalisation and polarisation indices to Romania's NUTS-3 (i.e., county) level. The findings suggest that the ethnic spatial dynamics in post-communist Romania have shown a decrease in all ethnicities due to migration and low birth rates, with the exception of the Roma ethnicity, for whom the trend is increasing. Additionally, polarisation and fractionalisation indices have different evolutionary manifestations depending on the dynamics of the ethnic groups present in certain geographical areas. Although neither of the two analysed indices has witnessed profound change at the spatial level, these small changes in spatial and short-term ethnic diversity can help us advance knowledge about co-existence in ethnically diverse societies. Higher values of the two indices are obvious in several counties where ethnic Hungarians cohabit with Romanians and other ethnicities. This discovery can inform policy-makers to implement more policies for the further peaceful co-existence of Hungarians, Romanians, and other ethnic groups in Transylvania and other western counties in Romania. Furthermore, as the population growth trend for the Roma ethnicity is upward, Romania has to implement proper policies and build better government infrastructure to counter social inequality against the Roma people. This will help curb potential conflicts between the Roma and other ethnic groups at the local level. Finally, as most ethnicities decreased in number in post-communist times, further attention needs to be paid to the erosion of ethnic diversity in Romania because this could have a negative impact on economic development, social trust, and democracy.

**Keywords:** Romania; ethnicities; fractionalisation; polarisation; NUTS-3 units



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## 1. Introduction

In recent decades, there have been various changes in the ethnic composition of countries. This development has aroused great interest among researchers who seek to discover and study the role of ethnic diversity in modern human society [1,2]. Ethnic diversity plays an important role in shaping socio-economic and political goals. Ethnic diversity is also relevant to various different public policies, including those relating to ethnic integration and migration.

Social scientists have measured ethnic diversity using various indices, but most of these indices treat ethnic fractionalisation and polarisation as time-invariant phenomena [3] (p. 1). Recent studies in ethnic fractionalisation have approached the time-variant issue of fractionalisation and polarisation based on immigration estimates [4] or different national units [5]. Alternatively, they considered only one country at a time [6]. In more recent times, some scholars have published articles that use time-varying measures of ethnic fractionalisation [7,8]; however, all of the indices used are very limited, either with regard

to time-variation or the countries covered. The most relevant study for longer-term changes in ethnic fractionalisation studies is Lenka Drazanova's [3] Historical Index of Ethnic Fractionalisation (HIEF). The author introduced the HIEF dataset as a longer-term variant index for further ethnic fractionalisation studies. Additionally, the ethnic polarisation index has been studied more in relation to civil war and conflict issues. For instance, Schneider and Wiesehomeier [9] presented a correlation between *ethnic polarisation, potential conflict, and civil wars, while* Bhavnani and Modownik [10] examined how the relationship between ethnic polarisation and civil war could be moderated by different degrees of ethnic salience. However, we are not aware of any study on ethnicity that takes the short-term and space as variants of both fractionalisation and polarisation at national and/or regional levels in East Central Europe. Moreover, previous studies on ethnic diversity in Romania [11–13] only referenced the 1992 fractionalisation index for Romania or examined ethnic spatial centrality/periphery at the county level [14]. These studies do not compare the fractionalisation and polarisation indices at different time scales at the post-communist Romania county level.

By contributing to the background of ethnic studies literature, this study aims to identify the ethnic spatialisation of Romania in the post-communist period and to determine the ethnic dynamics in post-communist Romania at the NUTS-3 (i.e., county) level based on the ethnic fractionalisation and polarisation indices. Therefore, the specific objectives of this study are (1) to determine the numerical evolution and ethnic spatial dynamics in post-communist Romania and (2) to apply the index of ethnic fractionalisation and ethnic polarisation.

The key questions of the paper are:

- (a) How has ethnicity evolved in Romania in post-communism at the NUTS-3 (i.e., county) level?
- (b) Are there spatial changes in the fractionalisation and polarisation indices according to the official censuses of the post-communist period?

We conducted a literature review, followed by a brief historiography of the main ethnicities in Romania, the study area, and the presentation of the methods and data used in this study. Finally, we present the main results and discussions on the spatial evolution of ethnicity and the indices of ethnic polarisation and ethnic fractionalisation.

#### *Literature Review: Ethnicities, Fractionalisation, and Polarisation*

Yang [2] considers that *ethnicity* is not a precise and clear concept but is subject to different interpretations. This is because some authors understand it as ancestry, and others perceive it as a physical attribute. The classic definition of 'ethnicity' is presented by Glazer and Moynihan [15]. They define it as the feature of belonging to a particular ethnic group. In contrast, Rogers Brubaker proposes an alternative approach, different from the classical anthropological approach, defining *ethnicity* as a way of seeing and perceiving the world around, as well as social self-identification (whereby individuals identify themselves with certain social groups) [1]. A study by Walker Connor shows that ethnicity and nationalism underlie the construction of the nation-state and are based both on elements of kinship due to common ancestry and psychological ties [16]. Furthermore, Wallerstein and Gordon [17] used this term to designate the sense of belonging to a particular people or community of subgroups in American society. According to Craig Calhoun [18], ethnicity is a concept used in relation to groups that share a combination of cultural, historical, racial, religious, or linguistic characteristics; often, ethnicity implies common ancestral origins and, as such, overlaps in meaning with the concept of people—which was used earlier—or certainly more modern conceptions of race. A prescriptive explanation of ethnicity is proposed by Cashmore [19], who defines it as an indispensable characteristic of a social group whose distinctive elements will be perpetuated and transmitted from one generation to another. However, in some cases, the term "ethnicity" is used in conjunction with "ethnic minority" or "ethnic group". According to Crețan [13], *ethnicity* can be broadly defined as belonging

to or identifying with an ethnic group, the notion being synonymous with terms such as ethnic group members, ethnic identity, and ethnic affiliation.

*Ethnic groups* are defined as distinct population groups within a society whose culture is different from that of the majority population (from mainstream culture) [19]. Furthermore, an *ethnic minority* would represent a social entity that does not constitute a dominant group in the total population of a given society. This usually designates foreign, outsider people who are different from the native population [20]. The key concept in defining ethnic minorities is culture. The specific culture of an ethnic minority refers to the system of meanings shared and developed in an economic and social context against a specific historical and political background.

The basis of building a healthy multi-ethnic human society is the identification and maintenance of *ethnic identity*. Julia Chaitin et al. [21] (p. 7) argued that ethnic identity could be considered a fundamental and permanent aspect of human identity that claims the existence of a common origin. According to Descartes [22] (p. 57), ethnic identity represents a social construct, including culture, language, collective origin, and shared cultural traditions. The objective approach to the concept of ethnicity implies that belonging to a particular ethnic group requires the existence of criteria regarding homogeneous particularities, such as origin, language, culture, etc., or their combination. However, the subjective approach assumes that people are convinced that they are part of a particular community, with importance placed on individual self-inclusion. Although ethnicity can be subjectively identified as a product of human feelings, objectively, it is a construction of social relations [22].

Researchers have developed various theories of ethnicity in the existing literature, including primordialism, situationism, constructionism, and instrumentalism. From the perspective of *primordialist theory*, ethnicity will never disappear, rather experiencing a continuous development. Under this theory, ethnicity has a socio-biological perspective that represents the extension of kinship relations, the biological factor being very important in the development of ethnicity [23]. On the other hand, Gryosby [24] argues that ethnic groups and nationalities exist because there are traditions of belief and action towards primordial objects, such as biological factors and territorial location. This argument is based on a concept of kinship, where members of an ethnic group feel that they share characteristics, origins, or sometimes even a family relationship. Yang [2] also argues that ethnicity is based on kinship relations—it exists and is able to develop because of the existence of a common origin. According to primordialist theory, ethnicity is the deepest layer of a person's identity. In other words, in the primordialist conception, ethnicity is the essence of an individual's socio-cultural self, which determines the manifestation of other forms of belonging (e.g., gender, social category/class, political affiliation, etc.) [25].

The theory of *situationism* is in contrast to the primordialist view of ethnicity. According to this theory, changes in human behaviour are situational factors rather than traits that a person possesses [26]. The concept of 'ethnicity' would be the cultural repertoire of people that is contextually made available to individuals. Therefore, ethnicity marks the interaction between individuals based on their affections and strategic interests in various situations. According to situationism, the norms imposed by ethnicity may, in some situations, determine a certain type of behaviour.

The *constructivist theory* emerged as a new theory in 1970. According to Yang [2], this theory is based on two principles: (1) ethnicity is a created entity and social construction, and (2) ethnic boundaries are flexible and can be changed. Therefore, it can be stated that ethnicity is dynamic, representing the reaction to certain social circumstances. Basically, society determines or builds ethnic belonging or affiliation. Yancey et al. [27] believed that ethnicity would represent "a response to structural changes in society", speaking of the perspective of "emergent ethnicity" (p. 392). Moreover, Jonathan Sarna [28] initiated the two social features of the theory of ethnicity: attribution and adversity. "Attribution" means that the members of an ethnic group are part of a cohesive community within the school or church, and "adversity" implies prejudice, discrimination, and hostility in the

same ethnic group, which forces the members of the same group to unite, thus maintaining the group's identity and solidarity.

From the point of view of *instrumentalism*, ethnicity is a tool to obtain resources. It is considered that the basis of ethnicity is determined by the general and economic interests of the individual [29] and that ethnicity exists because it is useful [2]. Brubaker [30] considered that ethnicity could be identified with the concept of nationality, arguing that ethnic heterogeneity, which characterises most states, coincides with national heterogeneity. Cohen [31] also took an instrumentalist view of the concept of ethnicity, stating that economic and political reasons take precedence over psychological ones within ethnic groups in order for ethnic identity to be maintained. Taking up this idea, Banks [32] also considered 'ethnic identity' to be instrumental in nature. In addition, the cohesion of ethnicity can be ensured by certain complex behavioural patterns, such as the use of a certain language and participation in certain religious and public rituals [33]. According to Williams [34] and Banks [32], ethnicity equates to the country of origin and can only be understood in relation to the notions of state and nation. However, it is worth noting that, ethnically speaking, the vast majority of states around the world are characterised by heterogeneity [35]. However, it should also be pointed out that in some states, some ethnic groups consider themselves, or are considered by others, to belong to different nations, nationalities, or national groups [36].

In summary, there is no uniform criterion on how to define ethnicity. Group identities are complex and mostly socially constructed, depending on the school of ethnic theories to which the scholars adhere. Furthermore, ethnic fractionalisation and polarisation indices are among the most used indices in measuring ethnicities. In order to overcome the possible shortcomings in constructing ethnic classifications, Alesina et al. [37] proposed a classification that distinguishes between ethnic, linguistic, and religious diversity. They created separate indices for each factor because relying only on one factor, i.e., linguistic distinctions, could obscure other aspects of ethnicity (i.e., racial origin, skin colour). On the other hand, Campos and Kuzeyev [38] used data from post-communist countries to introduce time-sensitive fractionalisation indices to endogenise the relationship between ethnic heterogeneity and growth (see also [39]). Their findings show that while ethnic fractionalisation has little or no impact on economic growth when treated exogenously, it is negatively related to growth when analysed endogenously.

There have also been efforts to overcome simple fractionalisation measures by focusing on conjunctures with other heterogeneities, such as the index of ethnic inequality [40]. Moreover, sociologist Peter Blau [41] argued that heterogeneity—the distribution of a population into multiple categories of group membership—is positively associated with the likelihood of intergroup relations. The Historical Index of Ethnic Fractionalisation (HIEF) introduced by Dražanova [3] seems to be the best ethnic fractionalisation index for analysing long-term historical ethnic datasets. The author argued that time variance is crucial in ethnic fragmentation studies.

On the other hand, the ethnic polarisation index is more commonly used in conflict studies. Bhavnani and Modownik [10] examined how the relationship between ethnic polarisation and civil war could be moderated by different degrees of ethnic salience (i.e., fixed and variable). Holding ethnic salience fixed effectively amplifies the negative effect of polarisation on economic performance. Moreover, Schneider and Wiesehomeier [9] gave their insight into the ethnic polarisation-conflict link by coding and classifying conflict and highlighting the distinction between conflict incidence and conflict onset. They argued that highly polarised countries do not experience more civil war than countries characterised by lower levels of polarisation. They also suggested that fractionalisation, rather than polarisation, is negatively associated with economic growth.

Our paper contributes to the above-mentioned theoretical debates by arguing that ethnic fractionalisation and polarisation indices could be used as short-term and spatial variants because changes in the spatial and short-term ethnic diversity can help advance knowledge about co-existence in ethnically diverse societies.

## 2. Methods and Data

This paper uses a mixed methods approach. We use an archival methodology and descriptive statistics to present the spatial dynamics of ethnicities. Furthermore, two ethnic indices (fractionalisation and polarisation) were used to determine if there are specific tendencies at the county level in post-communist Romania.

We selected the historical literature of all major ethnic groups in Romania to contextualise their historical geographies and spatial position within Romania. The archival methodology is not only applied to past histories but also to analysing digital texts, including electronic databases, e-mails, and web pages [42]. The archival research method was used to obtain several sets of statistical data from INS Romania (i.e., the national statistical office of Romania). Furthermore, we plotted graphs based on these sets of statistical data using the descriptive statistical method. These graphs are used to present the ethnic structure of the Romanian population. We then made comparative sets of data on ethnic structure and interpreted the results obtained. Descriptive statistics, which deals exclusively with the properties of observed data, can be used to summarise population data in data analysis [43]. A descriptive statistic is a summary statistic that quantitatively describes or summarises the features of a collection of information [44]. Finally, we calculated the indices of ethnic fractionalisation and ethnic polarisation at the county level in Romania.

In investigating the ethnic structure of human society and being able to assess social diversity implicitly, the literature states that the weight of some ethnic groups in a total population is of limited use. Therefore, two fundamental indicators/indices are used in addition, namely the fragmentation index, also called the fractionalisation index (FRAC) and the polarisation index (Q) [45–49]. Both indices can be applied, irrespective of the intergroup demarcation criteria, whether ethnic, confessional, or linguistic.

According to Taylor and Hudson [48] (Equation (1)), the fragmentation or fractionalisation index (FRAC) is determined as follows:

$$FRAC = 1 - \sum_{i=1}^n p_i^2 \quad (1)$$

where

$n$  = number of ethnic groups;

$p_i$  = the relative proportion/frequency/empirical ratio in the form of a coefficient of the ethnic group ' $i$ ' in the total population, which is determined as the ratio/fraction between the number of inhabitants of the ethnic group ' $i$ ' and the total number of inhabitants.

The ethnic fractionalisation index usually measures diversity as a steadily increasing function of the number of groups in a country. It is based on the probability that two individuals drawn randomly from a country belong to two different ethnic groups. The FRAC index takes values between 0 and 1, where 0 is a perfectly homogeneous population from an ethnic point of view (i.e., when all individuals are members of the same group). If the number of ethnic groups increases, the value of this index will also increase. However, it never reaches 1 since 1 means that each individual belongs to his/her own group, and all groups would have only one member [48]. The FRAC index is quite limited and even controversial, especially in terms of its use in ethnic studies. Most researchers in the field believe that inter-ethnic violence is lower in very homogeneous or very heterogeneous communities.

According to Esteban and Ray [45], the polarisation index (Q) measures the probability of a potential conflict that may occur between two equal groups. In this paper we use the Reynal-Querol polarisation index (Equation (2)) [47]. This index is determined as follows:

$$Q = 1 - \sum_{i=1}^n \left( \frac{0.5 - p_i}{0.5} \right)^2 p_i \quad (2)$$

where

$n$  = number of ethnic groups;

$p_i$  = the relative proportion/frequency/empirical ratio in the form of a coefficient of ethnic group 'i' in the total population, which is determined as the ratio/fraction between the number of inhabitants of ethnic group 'i' and the total number of inhabitants.

The polarisation index Q measures the standardised distance of an ethnic distribution from a bimodal distribution (bimodal distribution occurs when there are two perfectly equal groups in a community, i.e., each group represents 50% of the community). As well as measuring a particular aspect of population structure, Q also indicates the extent to which one group may perceive another group as a threat to its interests, validating the hypothesis that the most conflict-prone ethnic configuration would be one in which a majority co-exists alongside a sizeable minority. In game theory, this situation may be the natural tendency of the two groups to represent their situation as a zero-sum game [45].

The statistical data were processed using GIS (Geographic Information Systems) in order to apply the fractionalisation and polarisation indices. GIS offers the possibility of an awareness of different situations in real time and space [50]. ArcMap 10.8.2 software (with license provided by Department of Geography, West University of Timișoara, Timișoara, Romania) was used to produce thematic maps, including ethnicity cartographic diagrams and diachronic maps, to determine differences in ethnic dynamics. In order to create the maps, we used digital data from Esri Romania, available in vector format and free of charge at [www.geo-spatial.org](http://www.geo-spatial.org) (accessed on 15 January 2023) [51]. The fractionalisation and ethnic polarisation indices were calculated in the vector data-attribute table (polygons represent the boundaries of Romania's administrative/territorial units). The entire analysis is carried out at the administrative units (counties) level, equivalent to NUTS-3 at the European level. The analysis includes data from the 1992, 2002, and 2011 censuses [52].

One of the methodological limitations of this study is that it did not include the recent 2021 census in Romania because its data were only preliminary at the time of writing this paper (February 2023) and did not have a definitive form of data processing at the county level. Another limitation is that this study does not analyse the situation of ethnic groups at the urban and rural levels. This is an objective for future studies.

### 3. Study Area and Short Historiography of Ethnicities in Romania

#### 3.1. Study Area

Romania is a country in East Central Europe, situated at the southeast and eastern border of the European Union. Its neighbouring countries are Hungary, Serbia, Bulgaria, Moldova, and Ukraine. Romania has an area of 238,397 sq km, with a population of under 19 million inhabitants (2022), making it the 12th largest European country and the sixth most populous state in the European Union.

Apart from Romanians, the most important ethnicities in Romania are Hungarians, Roma, Germans, Ukrainians, Russian-Lipovans, Jews, Turks, Tatars, Armenians, Bulgarians, Serbs, Croats, Czechs, Slovaks, Poles, and Greeks (Table 1). An analysis showed that the main ethnic group in Romania is Romanians, followed by Hungarians, and the Roma, whose share is increasing, reaching about 3% of the stable population in Romania. The other ethnicities in Romania each account for less than 1% of the total population.

An important point to note is that a high percentage (over 6%) of the population did not declare their ethnicity in the 2011 population census, compared to about 0.01% in the previous (2002) census. The ethnic structure of Romania's population in the post-communist period has changed slightly from one census to another. However, there is a decrease in the population at a relatively slow pace, a trend that will probably continue in the coming years. Low birth rates and the immigration of younger people to Western European countries are among the major issues which have strongly impacted the decrease in ethnic groups in Romania in the three decades. For instance, Romania's crude birth rate decreased from 13.5 per 1000 total population in 1992 to around 10.0 per 1000 total population in 2021 [52]. Moreover, the natural increase in population reduced from positive (68,000 inhabitants in 1990) to negative values (−119,000 inhabitants in

2020) [52]. Poor living standards and the lack of a job/occupation have been among the main reasons for immigration. Germany, the UK, Italy, Austria, and Spain were the main destination countries for Romanian migrants in post-communist times. On the other hand, although immigrants/asylum seekers in Romania increased in the last decade to about 170,000 people [52], Romania is still not as much of an attractive country for immigrants from Asian and African countries when compared to most Western European countries.

**Table 1.** Dynamics of the ethnic structure of Romania’s population in post-communist times.

Ethnicities	Census Year					
	1992		2002		2011	
	Number of Persons	%	Number of Persons	%	Number of Persons	%
Romanians	20,408,542	89.47	19,399,597	89.48	16,792,868	83.46
Hungarians	1,624,959	7.12	1,431,807	6.60	1,227,623	6.10
Roma	401,087	1.76	535,140	2.47	621,573	3.09
Germans	119,462	0.52	59,764	0.28	36,042	0.18
Ukrainians	65,472	0.29	61,098	0.28	50,920	0.25
Russians-Lipovans	38,606	0.17	35,791	0.17	23,487	0.12
Serbs, Croats, Slovenes	33,769	0.15	29,570	0.14	23,484	0.12
Turks	29,832	0.13	32,098	0.15	27,698	0.14
Tatars	24,596	0.11	23,935	0.11	20,282	0.10
Slovaks	19,594	0.09	17,226	0.08	13,654	0.07
Bulgarians	9851	0.04	8025	0.04	7336	0.04
Jews	8955	0.04	5785	0.03	3271	0.02
Czechs	5797	0.03	3941	0.02	2477	0.01
Poles	4232	0.02	3559	0.02	2543	0.01
Greeks	3940	0.02	6472	0.03	3668	0.02
Armenians	1957	0.01	1780	0.01	1361	0.01
Other ethnic groups	8618	0.04	23,445	0.11	26,544	0.13
Undeclared ethnicity	766	0.00	1941	0.01	1,236,810	6.15
Total	22,810,035	100.00	21,680,974	100.00	20,121,641	100.00

(Source: [52], accessed on 1 December 2022).

### 3.2. A Brief Historiography of Ethnicities in Romania

In order to better understand the origin of ethnic groups in Romania, we briefly present a historiography of Romania’s major ethnic groups below.

The *Romanians* are Daco-Roman descendants, a people that came to be through the cohabitation of the Dacians and the Roman colonists in the northern part of the river Danube. They are a Latin-speaking population surrounded by the Slavic populations and the Hungarians.

After the Romanian state was created in 1918 due to the unification of its historical regions, the Romanians increased in number in the interwar period but had a short decrease in population during World War II. In the more recent evolution of Romanian ethnicity, there were noticeable increases during mid-late communist times due to state policies on the interdiction of abortion and the sustenance of birth rates. Moreover, internal migration in communist times was specific; people migrated from the less developed regions to the more industrialised regions of Romania [53]. There has been a noticeable decrease in general Romanian numbers since 1990 because of the freedom to migrate abroad and lower birth rates [13].

The *Hungarians* entered the history of Europe as one of the ethnicities that the great migrations pushed from the Asian steppes to Western Europe. The organisation of the Hungarian kingdom and the territorial expansion towards the east put the Hungarians in direct contact with the Romanians who had lived in Romanian-Slavic voivodships in the area of Bihor or the Banat region [54]. The presence of Hungarians in Transylvania was recorded by numerous medieval Hungarian chronicles [55]. In the Middle Ages, the Hungarian kings settled other populations in Transylvania and Banat [56]. Therefore, as the situation in the first centuries of the Middle Ages evolved, Transylvania became the cradle of a specific kind of civilisation, in which various ethnic groups, including Romanians, Hungarians, Germans, and Roma, co-existed in a complex relationship [57]. The Trianon Treaty and the creation of the Romanian national state at the beginning of the 20th century meant a new economic, political, and legal framework for the development of the Hungarians [58]. The consolidation of the communist regime under Soviet pressure also had negative consequences for the Hungarian minority in Romania. Nicolae Ceausescu's regime sought to further restrict the possibility of preserving national identity for all Romanian ethnicities [58,59].

History shows the existence of local conflicts between Romanians and Hungarians in Transylvania and other western Romanian settlements. However, the major clash between Hungarians and Romanians in the post-communist period was in March 1990 in the Transylvanian city of Târgu Mureş. Five deaths and hundreds of injuries were recorded. Tom Gallagher's study [60] revealed that members of the Vatra Romanesca Union—a regional/Transylvanian Romanian nationalist party—were considered to have played an important role in the degeneracy of the events leading to the clash. The clash began after it was proposed that an important high school in Târgu Mureş should be divided into two based on ethnicity. The proposal called for separate Romanian and Hungarian schools. Those events remained known as the Black March (Martie Negru in Romanian or Fekete Március in Hungarian).

It is not known exactly when the first *Roma* arrived in Romania. However, they are now an ethnic group found in all the counties of the country. Their massive migration to Europe is thought to have started in the 14th century, with most scholars believing that there were several waves of migration from India to Europe [61]. In the Middle Ages, they were considered non-Romanians and non-Christians and suffered enslavement in southern and eastern Romanian Principalities [62]. After the Great Union in 1918 and the creation of Romania, the number of Roma in the country increased. In the interwar period, the Roma emancipation movement began, and a new elite emerged. However, the Roma remained on the periphery of Romanian society, discriminated against and marginalised. During the Second World War, they were deported to Transnistria in camps built by the order of Marshal Ion Antonescu. The Nazis considered the Roma a “second-class nation” [63].

Later, the communist ideology in Romania led to the fuelling of nationalism, which sometimes emerged with hostilities of the Romanian majority against all ethnic neighbours but especially against the Roma [13]. Thousands of Roma families were forced to move to the outskirts of towns in socialist Romania in the 1950s in order to “cleanse” the big cities of the Roma. During the communist regime, the Roma were forced to give up their old occupations to work in agriculture, industry, or sanitation [64]. The Romanian communist state tried to stop the Roma from appearing as a nationality in official documents. At the same time, the Romanian communist state confiscated assets held by the Roma. As such, many Roma fled communist Romania to democratic countries [65].

After 1990 and the political regime change, the Roma regained their status as an ethnic minority. However, many Roma communities still suffer from poverty and social marginalisation, and they are sometimes victims of discrimination [66–69], which often leads to their social and spatial ghettoisation [13]. The Roma are vulnerable and exposed to both social exclusion and spatial segregation [70,71].

The Germans are another important ethnic group in Romania. The German ethnic group is made up of Saxons, Swabians, and “Zipseri (Țipțeri)”. The settlement of the Saxons

in Transylvania began in the 12th century and lasted until the beginning of the 14th century for economic and military reasons. The Saxons were settled by the Hungarian kings in Transylvania (around Sibiu, Braşov, Sighisoara, and Năsăud) from Luxembourg, Saxony, Flanders, and the Moselle regions in order to defend the border of the Hungarian kingdom in southern Transylvania [72,73].

The second group of the German minority in Romania are the Swabians—the name given to the Germanic populations by their neighbours of other ethnic groups. Germanic populations were colonised in the 18th century by the emperors of the Habsburg Empire. The Danubian Swabians are made up of the Swabians of Banat and the Swabians of Satu Mare, as well as the Germans from Hungary and the former Yugoslav republics [74–77].

The third group of the German minority in Romania is made up of the “Zipseri (Țipțeri)”, found in Maramureş and Bucovina. The ‘Țipțeri’ can also be found in the Spiš region of Slovakia, which is where this ethnic group immigrated to Romania [78]. Unlike the Saxons, the ‘Țipțeri’ of Maramureş were mostly miners, while those of Bucovina (settled in the 17th and 19th centuries) were engaged in wood processing [79].

The ethnic group called the Turks is represented in the geographical region of Dobrogea, especially in the county of Constanța. They arrived in Romania in the middle of the 13th century in Dobrogea with a mission to spread the Islamic religion. Dobrogea was almost unpopulated at that time, with the “Golden Horde” to the north and the Byzantine Empire to the south. This historical Romanian province was removed from Ottoman rule and came under Romanian administration after the War of Independence in 1877. Under these circumstances, some Turks preferred to leave for their Muslim homeland after the collapse of the Ottoman Empire, while others remained in Romania, where their language, religion, and customs were respected [80].

Another small, Turkish-speaking ethnic group found in the Dobrogea region is the Tatars. They are of Mongolian-Turkish-Turanian origin. The first wave of Tatar migrants arrived in Dobrogea in the 13th century to spread the Islamic religion, followed by a second wave at the end of the 16th century. Towards the end of the 18th century, after the Tsarist Empire had increased its power and annexed Crimea, the Ottomans brought Crimean Tatars to Dobrogea, who, for the most part, had left Romania after the War of Independence in 1877. However, some preferred to stay on the Dobrogean lands, creating their own culture based on their history, religion, customs, and traditions [81].

The Lipovans/Russian-Lipovans are a small ethnic group of Slavic origin. They arrived in Romania in the 18th century as a result of Russian religious persecution. They came from the Don Valley areas in Russia and settled in the northern part of Dobrogea, especially in the Danube Delta, but also in Bucovina and Moldova, more precisely in the Constanța, Tulcea, and Brăila counties. They separated from the Russian Orthodox Church, as they did not agree to renounce their faith. They were called “raskolnici” (in Russian meaning “schismatics”) or “staroveri” (in Russian, meaning “old believers”) since their religion was the Old Rite Christian Orthodox religion. In history, two large waves of their emigration are known: the first wave—during the reign of Tsar Peter the Great and the second—during the reign of Tsarina Catherine the Great. Fishing, gardening, and viticulture are the main occupations of this ethnic group [82].

Serbs, Croats, and Slovenes are small ethnic groups of Slavic origin, mostly found in the southwest of the country, in the counties of Timiș, Caraș-Severin, Arad, and Mehedinți. Serbs emigrated from the Balkan Peninsula in successive waves. At the end of the 14th century, many Serbs—both commoners and nobles—emigrated across the entire territory of Romania, most of them to Banat, Crișana, and Transylvania. This was as a result of the strong Turkish penetration of the Balkans. Many Serbs had entered Banat even when it was under the Ottoman Empire. In the 17th–18th centuries, many Serbs settled in Banat on the Danube Gorges to defend the borders of the Empire, as Banat was under Habsburg rule at that time [83]. Most Serbs in Romania currently live in the southwest and west of the country. Serbs are Orthodox Christians, most of them are New Rite Orthodox Christians, but there are also some Old Rite Orthodox Christians [84].

Croats can be found in Romania in the counties of Caraş-Severin and Timiș. Their colonisation also took place in successive waves in the 13th–14th centuries, and they were known as Caraşoveni [85]. The dialect spoken by the Caraşoveni was the Kosovo-Resava dialect [86]. Some of the Croats in Romania are descendants of the Slavicized Vlachs of Bosnia [87]. Today, most of the Caraşoveni claim to be Croats [85]. They are of the Roman Catholic religion [88].

There are very few Slovenes in Romania. Additionally, since they are identified as Serbs and Croats in the population census, their exact number cannot be identified. They are descendants of the South Slavs, their religion is Roman Catholic, and the language they speak is Slovenian [86].

Slovaks can be found in the west of Romania, in the counties of Arad, Bihor, Timiș, Sălaj, and Caraş-Severin [89]. They were colonised in the 18th century, with their primary occupation being forestry, mostly in mountainous areas but also in lowland areas (which had been affected by the wars with the Ottomans) and in mining areas in Maramureş and Satu Mare [90]. Specific to the Slovaks settled in Arad County is the fact that they did not create new settlements but settled in already existing settlements, where populations of other ethnic groups lived, forming their own nuclei of habitation (e.g., alleys or neighbourhoods) [91,92].

According to information from the City Hall Archives of Brasov, the Bulgarians arrived in Romania at the end of the 14th century, when Bulgarian builders were brought in to build the city church (Black Church) [93]. The builders settled in the Şchei district. Later, at the beginning of the 18th century, by fleeing from Ottoman rule, the Bulgarians also arrived in Banat, seeking a decent living after obtaining economic privileges from Habsburg rule [93]. Bulgarian migratory waves had been particularly strong after the Austro-Turkish and Russo-Turkish wars during the 17th–19th centuries [94], with Roman Catholic Bulgarians emigrating primarily to Banat [95] and Transylvania and Orthodox Bulgarians settling in Wallachia [94].

Another ethnic group with a very small population share in Romania is the Jews. Like other ethnic groups that call Romania home today, the colonisation of the Jews took place in several waves. By the middle of the 16th century, a group of Jewish merchants was already living in Bucharest. Other waves followed, caused by the difficult life situation of Jews in Galicia, starting in the second half of the 18th century [96]. The Jews in Romania have become a significant ethnic community since the 19th century, not only in terms of numbers but also economically, culturally, and even politically [97]. According to the 1930 census, there were 756,930 registered Jews living in Romania [52]. However, the fascist and anti-Semitic ideology also reached Romania, with legionaries leading to the physical elimination of ethnic Jews [96]. The establishment of the State of Israel in 1948 led to the emigration of Jews from Romania to their new homeland, resulting in a massive decline in their numbers [58]. Thus, only 24,667 people declared themselves to be of Jewish ethnicity in the 1977 census. By 1992, the number had dropped to 8955 [52].

The Czechs are a small ethnic group spread in the southeast of Banat, especially in the County of Caraş-Severin. Some of them also live in Mehedinţi, Timiș, and Arad. They were among the last colonised populations from around 1820 [98]. The Czechs first came to Romania to work in the forest as woodcutters but later became farmers, miners, or lime producers [99]. After the 1990s, many ethnic Czechs chose to leave the country because of diminishing economic opportunities and the desire to return to their country of origin [17].

The vast majority of Poles live in Suceava County, followed by Bucharest, Hunedoara, and Timiș. They were colonised at the end of the 18th century in Bucovina after this Romanian province became part of the Habsburg Empire. The Poles from Bochnia and Wieliczka were brought to work in the salt mines of Cacica. Some Poles preferred to settle in the Jiu Valley to work in the coal mines. However, some Poles emigrated to Bukovina for political reasons [100]. The occupation of Poland by Hitler in the Second World War led to the largest wave of Polish emigration to Romania [101].

Armenians are another ethnic group in Romania, with their presence in the country attested to for more than a thousand years. The historian Nicolae Iorga argued that the Armenians had arrived on the territory of Romania even before the formation of the Principality of Moldova, adding that it was not possible to trade without Armenians in Moldova ([102], see also [103]). Armenians are credited with building and developing Gherla as an important international trading centre [103]. Their presence in Wallachia has been mentioned since the 14th century [104].

The Greeks are an ethnic group whose presence in the current territory of Romania has been recorded since ancient times. Around 2700 years ago, ancient Greek communities colonised the Black Sea basin and built the first cities in Dobrogea, including Histria, Tomis, and Calatis. However, starting from the 17th century, Greeks in the Romanian Principalities began to hold important positions in the state, including the ruler of the country. During the reign of the Ottoman Porte, Greeks were appointed as Phanariots in Moldova and Wallachia [105]. At the beginning of the 19th century, the Greek aristocrats preferred to leave the Romanian Principalities after Greece gained independence. However, many Greeks from the lower social classes, such as merchants, sailors, etc., stayed back in Romania and continued to maintain their culture and traditions [106].

Romania is also home to ethnic groups, such as the Albanians, Italians (an ethnicity that migrated to Romania mainly after 1990), Chinese, and other ethnic minorities.

In summary, ethnic diversity has been present in Romanian territory for centuries due to complex historical factors. However, we do not find any important new ethnic groups settling in the country in the post-communist transition period. Romania is still not an attractive country for immigrants from Asia, Africa, and other continents.

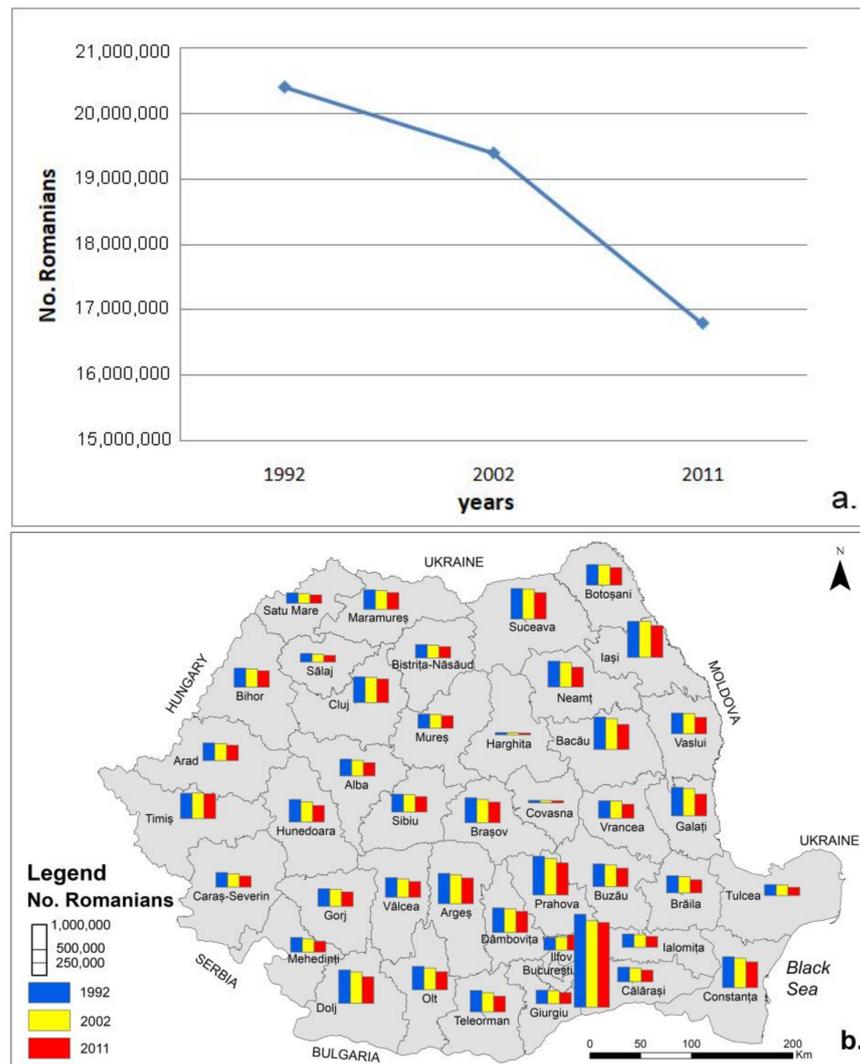
## 4. Results

### 4.1. Analysis of the Territorial Evolution of Ethnic Groups in Post-Communist Romania

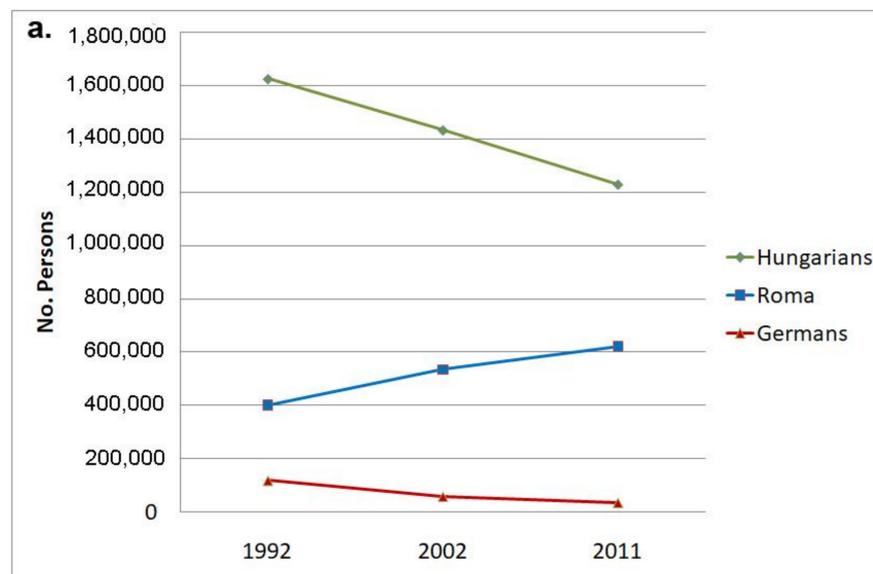
This part of the study responds to the first key question of this paper, i.e., how has ethnicity evolved in Romania during post-communism at the NUTS-3 (i.e., county) level? When compared to Western Europe, where most countries are more economically developed and attract immigrants from different regions worldwide, Romania and other East Central European countries are not yet developed enough to become areas of attraction for immigrants. However, as presented in an earlier section, Romania is a country inhabited by many ethnic groups who settled in historically different times due to complex political and administrative issues.

An analysis of the timeline of ethnic groups in post-communist Romania is important to determine if the short time of 30 years of democracy has brought changes (decrease or increase) to ethnic groups.

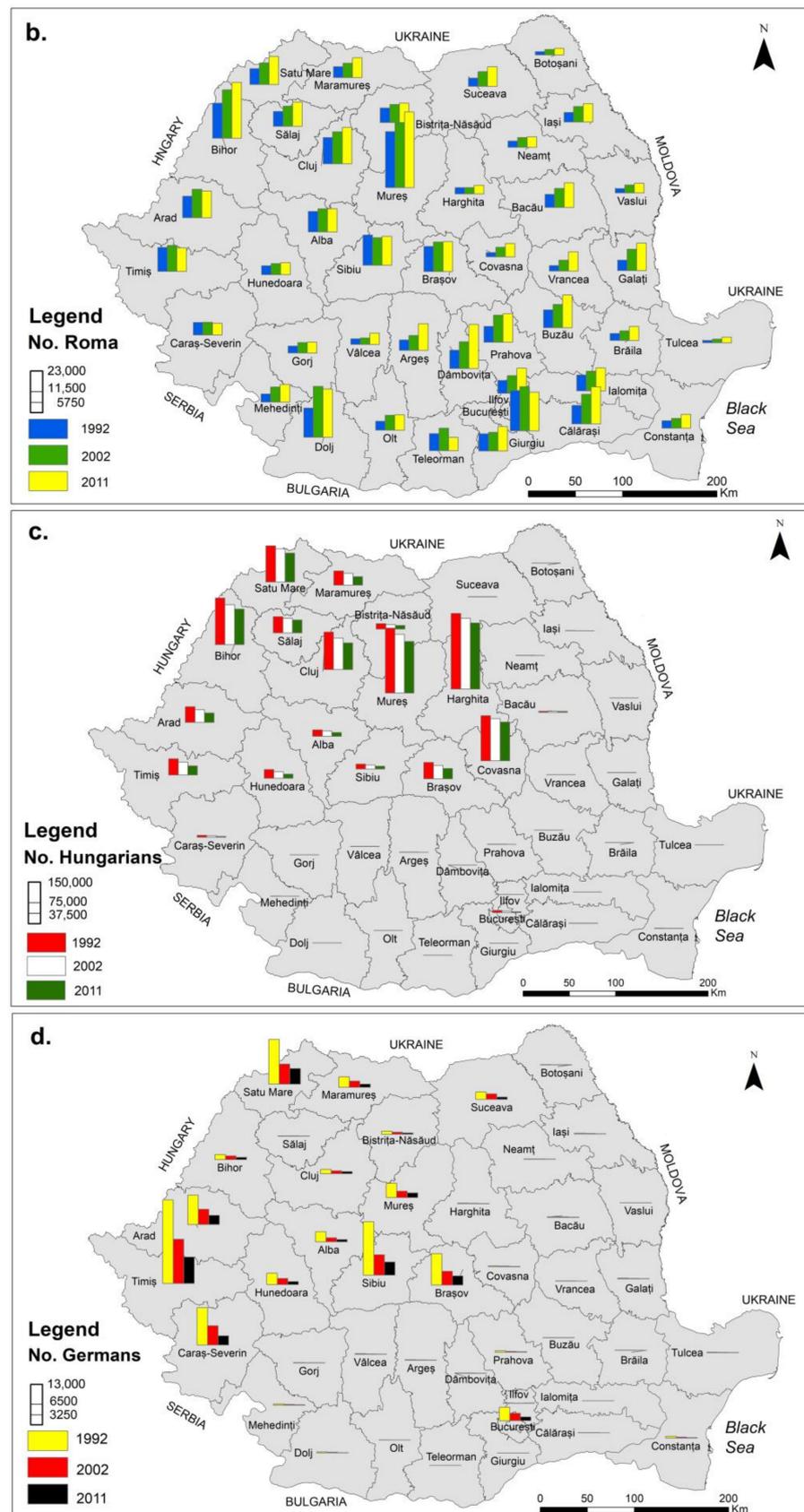
Figure 1a shows that the number of Romanians began to decline relatively slowly in the early years of the post-communist period, and then the decline became increasingly steep. This situation is a consequence of the demographic policy that repealed “Decree no. 770 of 1 October 1966, regulating the interruption of women’s pregnancy” in 1990, as well as the right to free movement, which led many Romanians to immigrate to Western European countries for a better living. The decreasing population trend is specific to all counties of the country (see Figure 1b), except for Ilfov County, where the number of Romanians increased. This was because many inhabitants of the nearby capital Bucharest preferred to leave the city for Ilfov County because of overcrowding. After the Romanians, Hungarians are the largest ethnic group in the country, with about 1.5 million people, constituting between 6% and 7% of the country’s stable population during the post-communist period. However, the number of ethnic Hungarians in the post-communist period decreased relatively slowly in the 1990s. Therefore, the decrease of Hungarians became significant, both at the national level (see Figure 2a) and at NUTS-3 (see Figure 2c). This was due to the country’s new demographic policy, which prioritises democracy, and the fact that many ethnic Hungarians emigrated to Hungary or other Western countries after acquiring the right of free movement.



**Figure 1.** The numerical evolution of Romanian ethnicity according to the censuses of 1992, 2002, and 2011. ((a) National level; (b) NUTS-3 (i.e., county level).



**Figure 2.** Cont.



**Figure 2.** Numerical evolution of the Roma, Hungarian, and German minorities in Romania. ((a) Evolution at the national level; (b) evolution of Roma ethnic groups; (c) evolution of Hungarian ethnic groups; (d) evolution of German ethnic groups).

The analysis of statistical data for the Roma in the post-communist period shows that the number of ethnic Roma in Romania started to increase significantly (Figure 2b). This is because the Roma regained their ethnic status and were able to declare their ethnicity without any restrictions following the change of the political regime. At the county level, an increase in numbers of this ethnic group is noticed, except for counties in the south and west of the country. In the south and west, there was an increase in numbers, followed by a slight decrease in numbers due to immigration to Western countries (Germany, Spain, France, Austria, and the UK). Additionally, many Roma in those regions did not declare their ethnicity in order to avoid various stigmatisation or discrimination.

Many ethnic Germans in Romania migrated to Western Europe in the post-communist period, with their number almost halving (Figure 2d). At the same time, the processing of statistical data shows that the number of ethnic Germans is significant only in Banat, Transylvania, and Bucharest and that their population is constantly decreasing. On the other hand, after the fall of communism, democratic changes allowed the political, economic, and cultural affirmation of the German minority. In the last three decades, the German-language education network has been strengthened, cultural and scientific societies have resumed activities, new cultural and civil associations and societies have been founded, and numerous German-language media organisations have been established.

All the other smaller ethnic groups living in Romania have a much-decreased percentage of the total stable population of Romania and have encountered a numerical reduction in their population in the last few decades (Figure 3). For instance, Serbs, Croats, and Slovenes have significant numbers only in the Banat region (Figure 3a), while Czechs and Slovaks are mostly found in the counties of western Romania (Figure 3b,c).

Additionally, ethnic Ukrainians are still found in significant numbers only in the counties of Maramureş, Timiş, Caraş-Severin, and Tulcea (Figure 3d), while the Turks and Tatars are still an important ethnic group only in the counties of southeast Romania (Figure 3g,h). The Poles have significant numbers only in the northern Romanian counties (Figure 3e), and the Lipovans/Russians only in the Dobrogea and Bucovina regions of Romania (Figure 3i). Similarly, ethnic Greeks are found in significant numbers only in Bucharest and the counties of Constanţa, Tulcea, Brăila, Galaţi, and Iaşi, with their number decreasing during the post-communist period (Figure 3j). Bulgarians have a core area in the southwestern and southern counties (Figure 3f), while Jews and Armenians are mostly represented in several cities and towns (see Figure 3k,l).

In conclusion, the population of most of the ethnic groups in post-communist Romania has decreased. Migration to Western Europe, lower birth rates, and the assimilation of smaller ethnic groups are among the major causes of this process. Only the Roma population recorded an increase in population due to its traditional larger family nuclei.

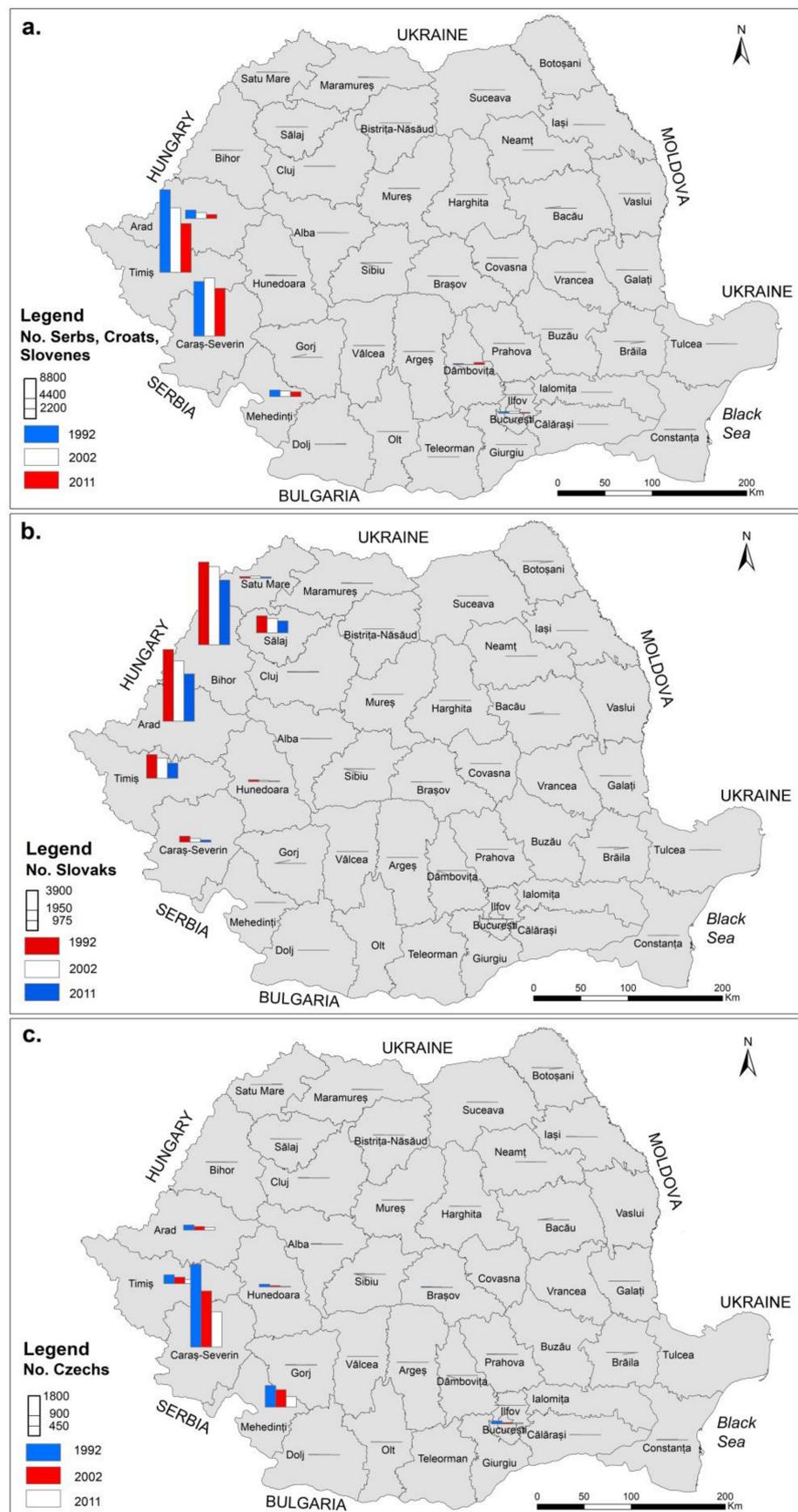


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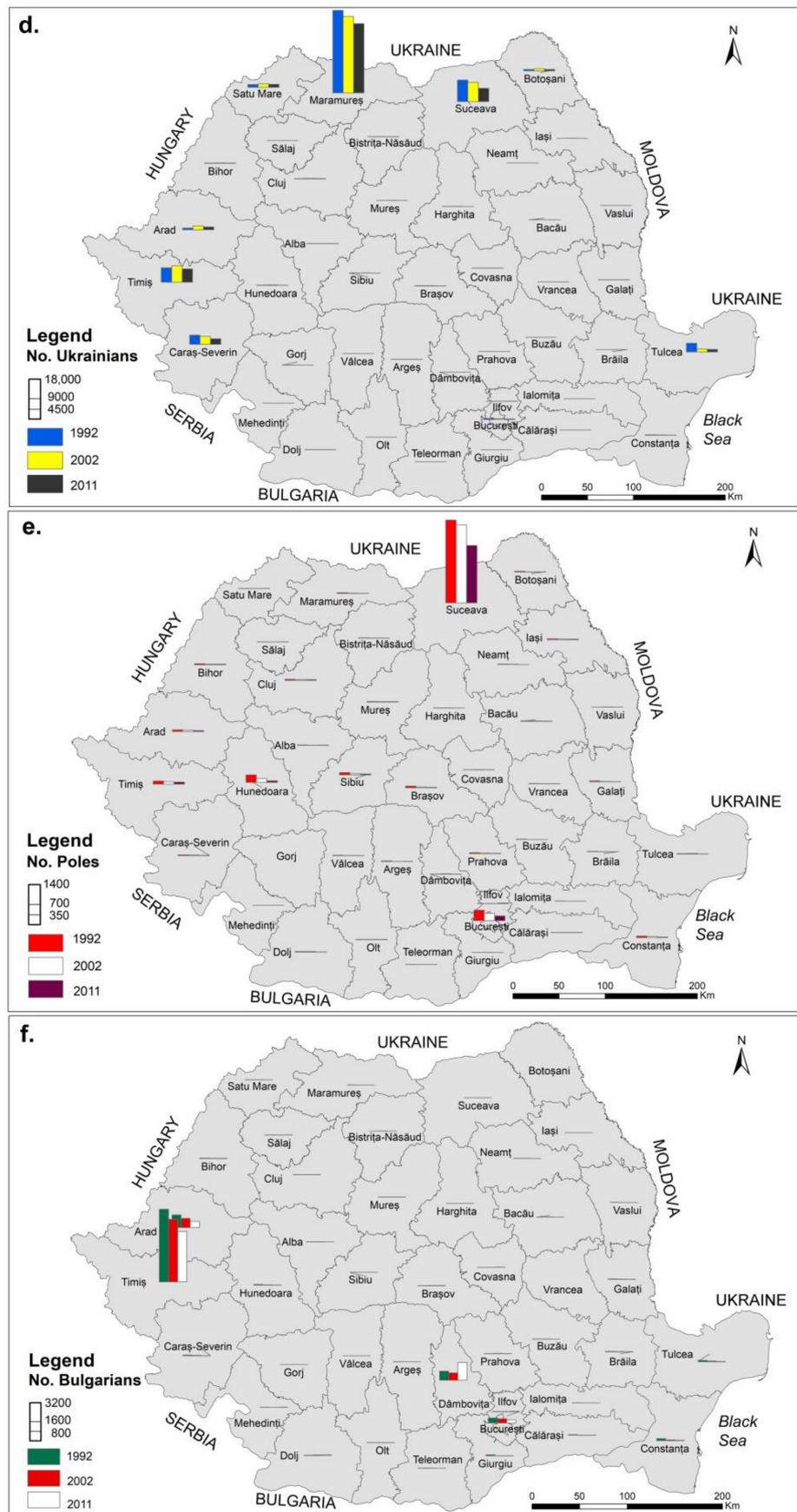


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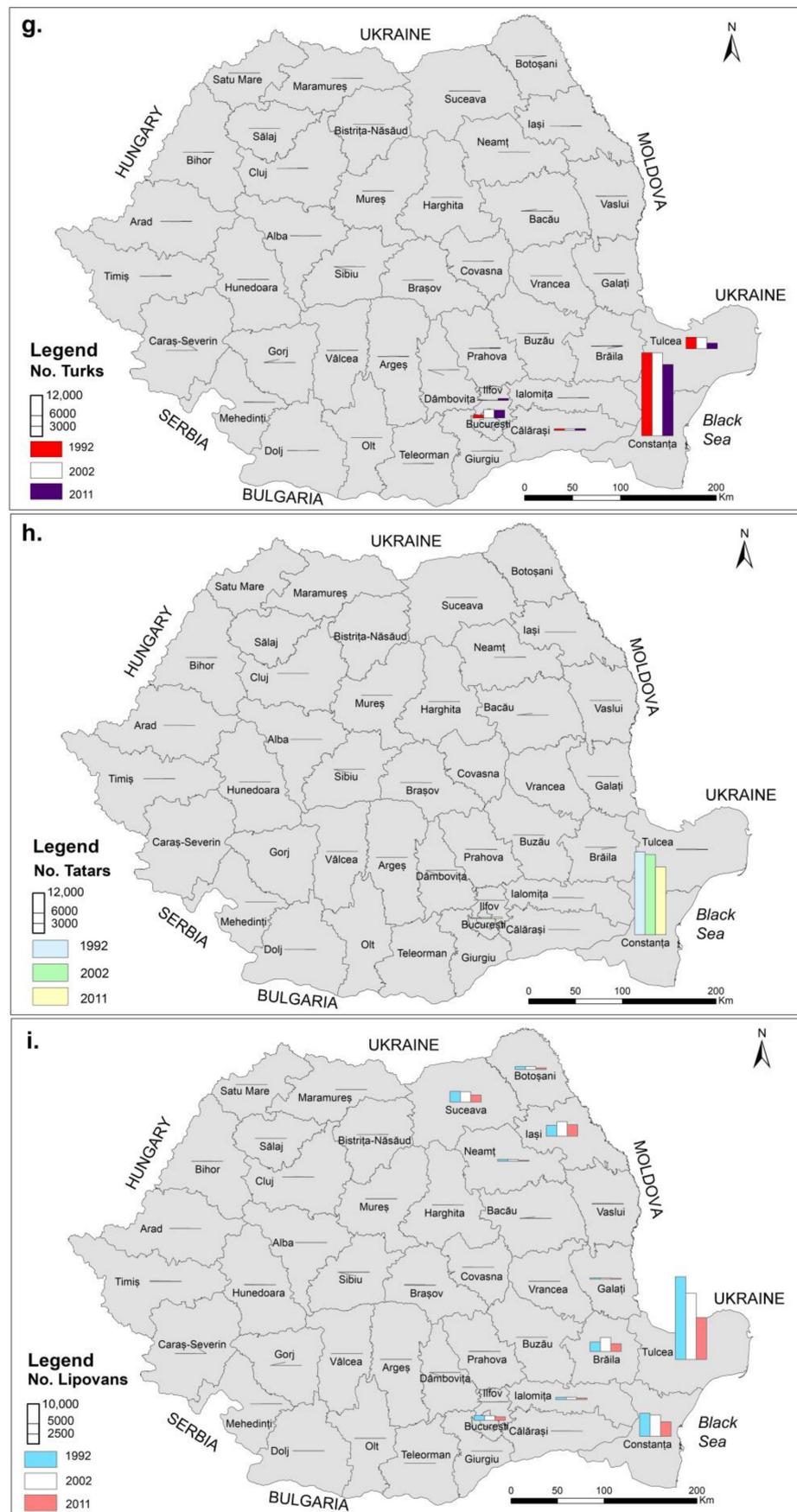
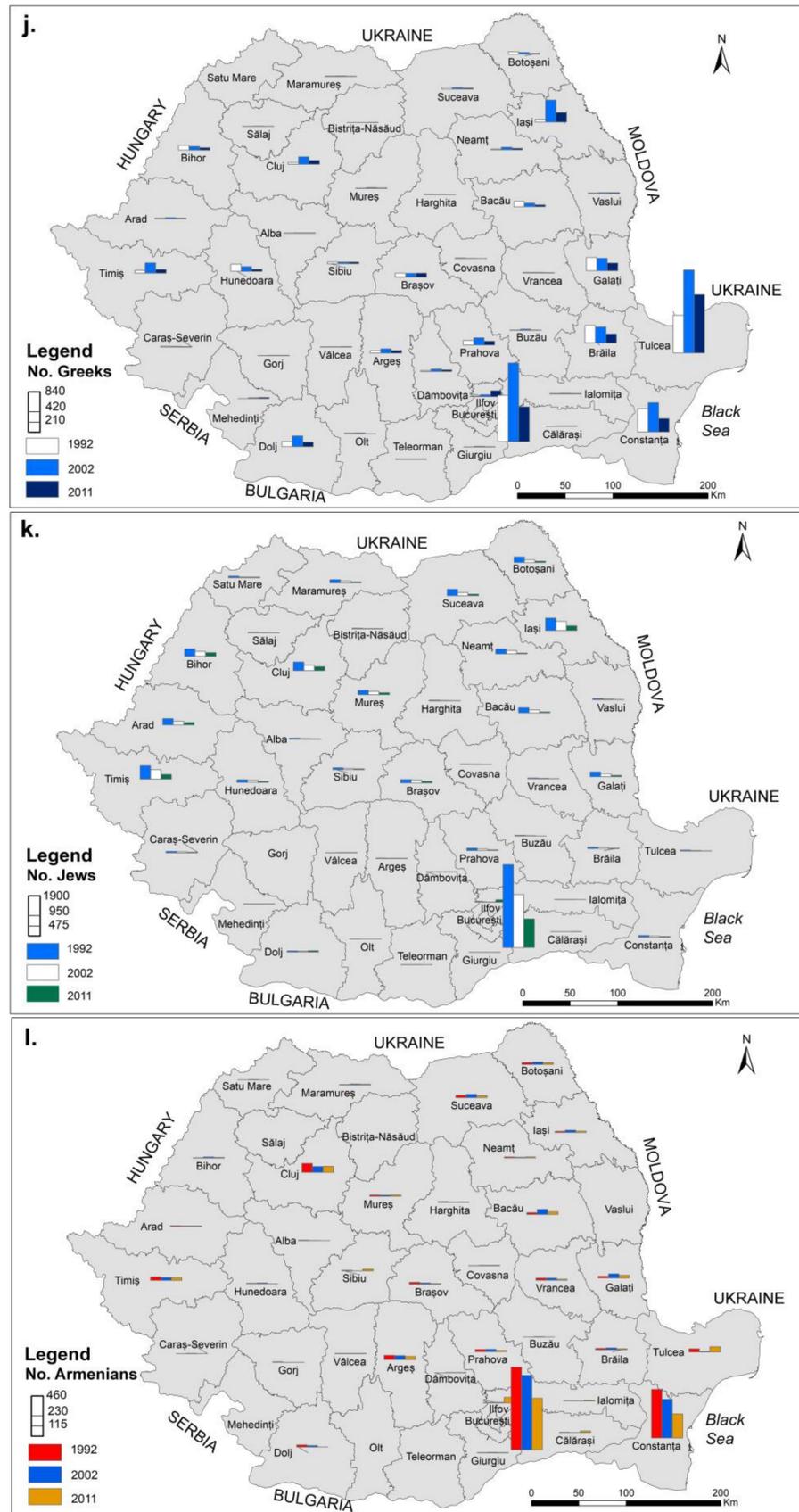


Figure 3. Cont.



**Figure 3.** Numerical evolution of other ethnic groups in post-communist Romania. ((a) Serbs, Croats, and Slovenes; (b) Slovaks; (c) Czechs; (d) Ukrainians; (e) Poles; (f) Bulgarians; (g) Turks; (h) Tatars; (i) Lipovans; (j) Greeks; (k) Jews; (l) Armenians).

#### 4.2. Fractionalisation and Polarisation Indices in the Spatial Investigation of Ethnic Evolution

Analysing the long or short-term effects and time-varying changes of ethnic diversity in a population could help us advance our knowledge of peaceful co-existence in ethnically and confessionally diverse societies. For this purpose, fractionalisation and polarisation indices are used, successfully measuring diversity as a steadily increasing function of the number of groups in a country based on the probability that two individuals randomly drawn from a country belong to two different ethnic groups [48]. To this end, we attempt to answer the second question of this paper, i.e., if there are spatial changes in the fractionalisation and polarisation indices according to the official censuses of the post-communist period.

Based on post-communist population census data and using the fractionalisation index formula (FRAC), we obtained data on ethnic fractionalisation at the NUTS-3 (i.e., county) level (Table 2).

**Table 2.** Ethnic Fractionalization Index at the NUTS-3 (i.e., county) level in Romania.

County	FRAC INDEX		
	1992	2002	2011
ALBA	0.1836	0.1782	0.2662
ARGEŞ	0.0216	0.0313	0.1280
ARAD	0.3348	0.3117	0.3617
BUCUREŞTI	0.0471	0.0583	0.2473
BACĂU	0.0388	0.0497	0.1742
BIHOR	0.4750	0.4759	0.5310
BISTRIŢA-NĂSĂUD	0.1773	0.1807	0.2456
BRĂILA	0.0383	0.0544	0.1703
BOTOŞANI	0.0170	0.0237	0.1127
BRAŞOV	0.2501	0.2295	0.3086
BUZĂU	0.0433	0.0585	0.1723
CLUJ	0.3581	0.3387	0.4049
CĂLĂRAŞI	0.0701	0.1109	0.2736
CARAŞ-SEVERIN	0.2477	0.2185	0.3104
CONSTANŢA	0.1577	0.1645	0.2947
COVASNA	0.3790	0.4005	0.4392
DAMBOVIŢA	0.0452	0.0636	0.1745
DOLJ	0.0492	0.0864	0.1842
GORJ	0.0248	0.0348	0.1113
GALAŢI	0.0253	0.0468	0.1835
GIURGIU	0.0680	0.0764	0.2143
HUNEDOARA	0.1526	0.1375	0.2213
HARGHITA	0.2624	0.2641	0.2958
ILFOV	0.0584	0.0760	0.2197
IALOMIŢA	0.0672	0.0844	0.2155
IAŞI	0.0251	0.0384	0.1657
MEHEDINŢI	0.0491	0.0752	0.1979

Table 2. Cont.

County	FRAC INDEX		
	1992	2002	2011
MARAMUREŞ	0.3272	0.3142	0.3752
MUREŞ	0.5542	0.5570	0.6044
NEAMŢ	0.0186	0.0264	0.1243
OLT	0.0223	0.0379	0.1553
PRAHOVA	0.0269	0.0443	0.1246
SIBIU	0.2258	0.1760	0.2673
SĂLAJ	0.4219	0.4369	0.5063
SATU MARE	0.5329	0.5283	0.5886
SUCEAVA	0.0651	0.0722	0.1392
TULCEA	0.2075	0.1856	0.2752
TIMIŞ	0.3465	0.2967	0.3417
TELEORMAN	0.0435	0.0626	0.1666
VÂLCEA	0.0192	0.0243	0.1222
VRANCEA	0.0193	0.0368	0.1742
VASLUI	0.0125	0.0228	0.1463

The cartographic representation of the values obtained (see Figure 4) shows that the ethnic fragmentation of the population in Romania has undergone some changes during the post-communist period in the sense that it has increased in some counties. This means that the risk of interethnic conflict in those counties has also increased.

According to the 1992 and 2002 census data, all Romanian counties had an ethnic fractionalisation of the population at a moderate level. According to the 2011 census data, however, the ethnic fragmentation of the population in Mureş County exceeded the threshold of 0.6, translating into a high ethnic fragmentation, a development that could generate tensions and interethnic conflicts, with the risk of triggering them being high. The northeastern part of Romania, including Salaj, Satu Mare, and Bihor Counties, also had high values of fragmentation (0.5–0.6). It is noted that the ethnic fragmentation of the population in the counties of southern Muntenia and Dobrogea, as well as in the counties of Hunedoara and Alba, has also increased from a very low level to a low level. While this does not raise any great concern at the moment, the situation should nevertheless be carefully monitored in the future. On the other hand, the ethnic fragmentation of the population in the counties of Moldova, Oltenia, and northern Muntenia remained at very low values, while that of the population in the counties in western Romania (Timiş, Caraş-Severin, and Arad) for the ethnic fragmentation of the population remained at low values. On the other hand, there were average ethnic fractionalisation values in the counties in the northwest of the country (Bihor, Satu Mare, and Sălaj). Based on the same post-communist population census data and using the formula for the polarisation index (Q), we also obtained the values for ethnic polarisation at the NUTS-3 (i.e., county) level in Romania (Table 3).

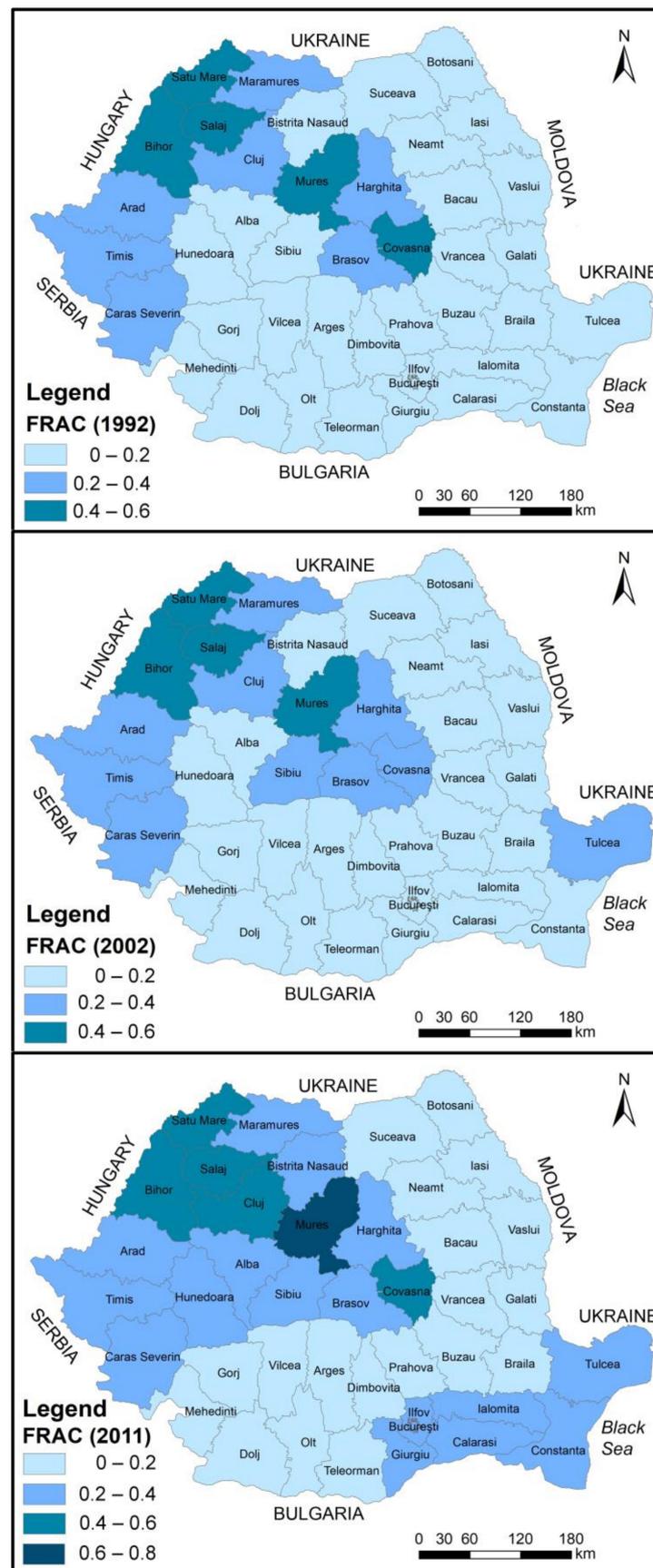


Figure 4. Evolution of the Ethnic Fractionalization Index at the NUTS-3 (i.e., county) level in Romania.

**Table 3.** Ethnic Polarization Index at NUTS-3 (i.e., county) level in Romania.

County	Ethnic Polarization Index		
	1992	2002	2011
ALBA	0.3388	0.3299	0.4562
ARGEȘ	0.0431	0.0623	0.2432
ARAD	0.5653	0.5168	0.5692
BUCUREȘTI	0.0918	0.1129	0.4641
BACĂU	0.0763	0.0975	0.3234
BIHOR	0.8292	0.8021	0.7878
BISTRIȚA-NĂSĂUD	0.3316	0.3357	0.4264
BRĂILA	0.0752	0.1062	0.3164
BOTOȘANI	0.0337	0.0469	0.2181
BRAȘOV	0.4530	0.4187	0.5138
BUZĂU	0.0865	0.1166	0.3210
CLUJ	0.6680	0.6228	0.6533
CĂLĂRAȘI	0.1392	0.2204	0.4844
CARAȘ-SEVERIN	0.4149	0.3769	0.5078
CONSTANȚA	0.2888	0.2997	0.4953
COVASNA	0.7290	0.7400	0.7359
DAMBOVIȚA	0.0897	0.1264	0.3234
DOLJ	0.0979	0.1717	0.3409
GORJ	0.0493	0.0693	0.2137
GALAȚI	0.0503	0.0928	0.3420
GIURGIU	0.1355	0.1524	0.3918
HUNEDOARA	0.2902	0.2618	0.3936
HARGHITA	0.5071	0.5091	0.5297
ILFOV	0.1160	0.1507	0.3983
IALOMIȚA	0.1334	0.1673	0.3930
IAȘI	0.0496	0.0756	0.3143
MEHEDINȚI	0.0960	0.1470	0.3617
MARAMUREȘ	0.5524	0.5316	0.5803
MUREȘ	0.9341	0.9234	0.8750
NEAMȚ	0.0370	0.0524	0.2399
OLT	0.0446	0.0757	0.2956
PRAHOVA	0.0534	0.0879	0.2374
SIBIU	0.3973	0.3212	0.4558
SĂLAJ	0.7556	0.7572	0.7714
SATU MARE	0.8944	0.8975	0.8521
SUCEAVA	0.1253	0.1386	0.2584
TULCEA	0.3787	0.3405	0.4662
TIMIȘ	0.5497	0.4881	0.5376
TELEORMAN	0.0869	0.1251	0.3169

Table 3. Cont.

County	Ethnic Polarization Index		
	1992	2002	2011
VÂLCEA	0.0383	0.0482	0.2342
VRANCEA	0.0385	0.0734	0.3254
VASLUI	0.0249	0.0456	0.2817

By mapping the values of the ethnic polarisation index (see Figure 5), it became clear that the ethnic polarisation of the Romanian population increased in the post-communist period. With the exception of Bihor County, where the value of the polarisation index decreased from a very high level (recorded in 1992 and 2002) to a high level only (in 2011), it increased or remained constant in all other counties, which means that the risk of interethnic conflict in some of the counties of the central western areas of Romania could also increase. It is also noted that the ethnic polarisation of the Romanian population has remained at a very low level in only one county—Gorj County in Oltenia. Meanwhile, there are also low values in Bucharest, Moldova, northern Muntenia, Oltenia and Alba County. This highlights that there should be no cause for potential concern regarding conflict at the moment, as the polarisation index has increased in these counties from very low to low values. Higher values of polarisation (over 0.7) are observed in the Transylvanian counties (Mures and Covasna), as well as in the counties of Bihor, Harghita, and Cluj, areas which should be monitored in the future for an upward trend.

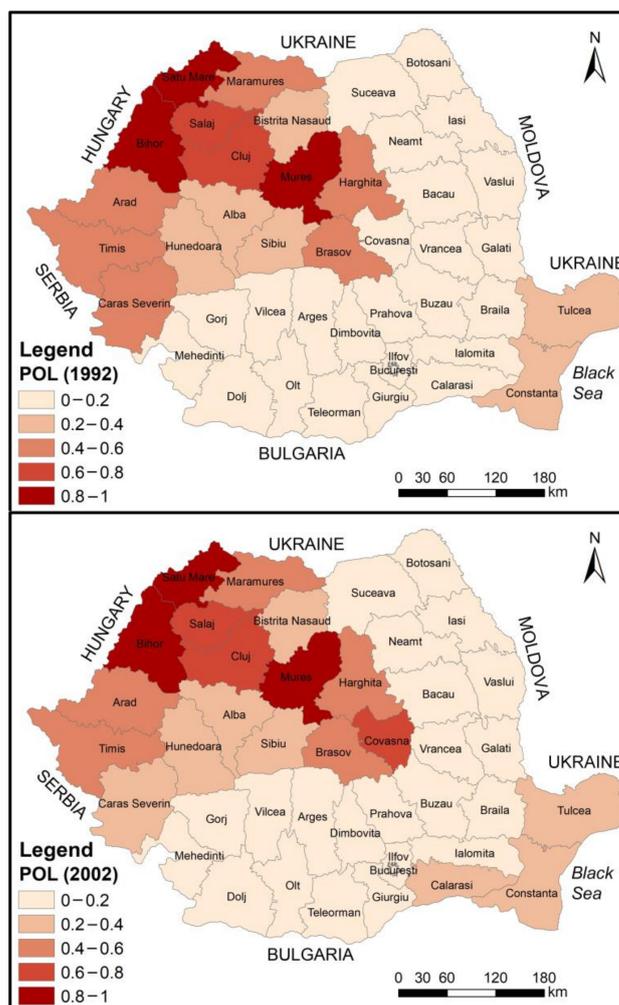
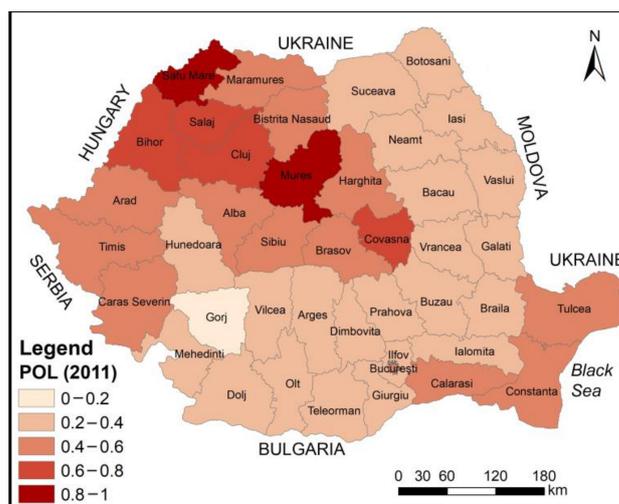


Figure 5. Cont.



**Figure 5.** Evolution of the Ethnic Polarization Index at the NUTS-3 (i.e., county) level in Romania.

In conclusion, ethnic fractionalisation and polarisation can slightly change over short periods and at a regional spatial level, especially in areas where an important minority ethnic group, namely the Hungarians, cohabit with an ethnic majority population and other ethnic groups.

## 5. Discussion

Romania is home to many ethnic groups who settled in different historical times due to complex political and administrative reasons. The analysis of the timeline of ethnic groups in post-communist Romania is important because the short 30 years of democracy had brought changes in the decrease in ethnic groups. Only the Roma population recorded an increase in number in most Romanian counties.

The existing literature highlights that an increase or decrease in ethnic diversity over time is likely to have very different consequences, even if people seem to adapt to the ethnic diversity of society over time [107]. For example, in the event of the dissolution of multi-ethnic states or the collapse of the communist regime, ethnic diversity could decline at a rapid pace, leading to completely different challenges for the new homogeneous societies. On the other hand, countries with increasing ethnic diversity may be more willing to introduce institutions to effectively manage the problems of more heterogeneous populations than countries with shorter histories of ethnically diverse societies and lower average rates of diversity change [108]. Failure to consider these historical developments could hinder our understanding of the effects of ethnic diversity on the population in a given region. As has been highlighted in this study, ethnic fractionalisation and polarisation can bring changes even over a short period and at the regional spatial level, mainly in areas where an important minority ethnic group co-exists with an ethnic majority population. In this case, Romania has to implement more cultural institutions in the areas of high fractionalisation and polarisation to manage potential friction between the Romanians and the Hungarians, especially in Transylvanian counties where Hungarians are present in a larger number. For instance, conflicts like those of March 1990 in Târgu Mureș should never happen.

Furthermore, there is a close correlation between the ethnic fragmentation and polarisation of the population in a given region and the risk of tensions. Conflict in society could appear at a given time [108]. Historical changes in ethnic diversity within countries are of particular importance in the countries of East Central Europe, of which Romania is a prime example. Even if Romania had not encountered major changes in the fragmentation and polarisation indices in post-communist times, particular attention still has to be paid to the erosion of ethnic diversity in Romania because this could negatively impact economic development, macroeconomic stability, social trust, participation in government, the quality

of governance, democracy, and many other socio-economic outcomes [109,110]. Moreover, ethnic fragmentation could also have an impact on the distribution of consumption, which may have independent negative consequences, with the ethnic and confessional heterogeneity of the population negatively affecting the provision of public goods [111,112]. To compound matters, given the redistributive nature of public goods, their low provision could lead to the negative impact of ethnic fragmentation on social inequality [113,114].

Finally, high levels of social inequality can lead to conflict and crime [115], inefficient redistribution [116], high tax rates [117], and lower rates of economic growth in general [72]. For instance, our results show that the Roma people are growing in number in most of the counties in Romania. Therefore, the Romanian state has to put into practice certain laws against social inequality towards the Roma. On the other hand, some researchers [118] argue that it may be useful to rethink the assumption that ethnic diversity is relatively invariant over time, as changes in the ethnic heterogeneity of a population may play a role in the relationship between ethnic and denominational diversity and socio-economic outcomes. Ethnic diversity has reshaped and will continue to reshape social relations in Romania. For instance, as Blau [41] argued, when the parameters of heterogeneity are only weakly correlated, fewer subgroups are perfectly homogeneous in all aspects. This is one reason why Romania's ethnic dynamics have to be further studied. This will help determine if ethnic fractionalisation and polarisation will change at different spatial levels.

## 6. Conclusions

Ethnic diversity has always represented a significant aspect of population studies. Changes in ethnic heterogeneity over time might be relevant for the effects of ethnic fractionalisation and polarisation on diverse social, economic, and political outcomes. Previous studies have concluded that changes in ethnic diversity could have a negative impact on macroeconomic stability [119], governance [120], and economic development [107].

This paper argued that ethnic diversity is a time and spatial variant. Historical and spatial changes in heterogeneity might play a role in the relationship between ethnic diversity and social, economic, and political outcomes. From the post-communist ethnic evolution analysed, this study has shown that most of the ethnic groups in Romania recorded a decrease in population because of the opening of Romania's borders after 1989, leading to the massive migration of Germans, Romanians, and other ethnic groups. Another cause would be the general decrease in the ethnic birth rate. This decrease highlights an erosion of ethnic diversity in Romania, which could have a negative impact on economic development, social trust, democracy, and many other socio-economic outcomes. However, an exception to the decreasing population growth was noted in the Roma people, who are growing in numbers due to a higher natural increase in the traditional population. These aspects can inform policy-makers to build stronger institutions in order to counter social inequality against the Roma people (see also [66–69]) and curb potential conflicts between the Roma and other ethnic groups at the local level.

Ethnic polarisation and fractionalisation are important indicators of ethnic cohesion and diversity at the territorial level. The situation in Romania has changed only in small geographical areas, mainly in some counties in Transylvania where Hungarians co-exist with Romanians. Therefore, ethnic fractionalisation and polarisation in Romania have encountered slight changes in the decades after communism at the regional spatial level. These appeared mainly in areas where an important minority ethnic group co-exists with an ethnic majority population. In this case, Romania has to implement stronger policies and institutions to manage potential conflicts between the Hungarians, Romanians, and other ethnic groups in Transylvania and other western counties of Romania, where Hungarians are present in a larger number. This will help avoid a similar dreadful event, such as the March 1990 conflict of Târgu Mureş.

A broad limitation of this study is that it did not consider other diversity variables, such as language and religion, as we intend to include them in our future studies. It did not

consider a longer historical perspective because our research interest was only in the ethnic diversity trends in post-communist times. Additionally, we did not connect ethnicities to economic growth or other socio-economic patterns. Finally, the recent Romanian census of 2021 could be a useful data tool for further ethnic diversity studies in Romania, but we could not rely on these data as they are currently available only as preliminary data. In this regard, future studies on Romanian ethnic diversity might determine if the trends in ethnic dynamics, including fractionalisation and polarisation, remain the same as in this study or if they change. Considering multiple variables in connection to ethnicities in Romania could be very useful for policy-makers. Comparative studies on ethnic diversity might also be conducted between different countries to observe the dynamics of the ethnic groups of the respective countries.

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