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## **Phantom borders in Eastern Europe**

**The historical roots of regional inequalities and their  
relationship with present-day peripheries and conflict zones  
(1897–2010)**

**Budapest**

**2022**

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# *GIStorical Studies* 3

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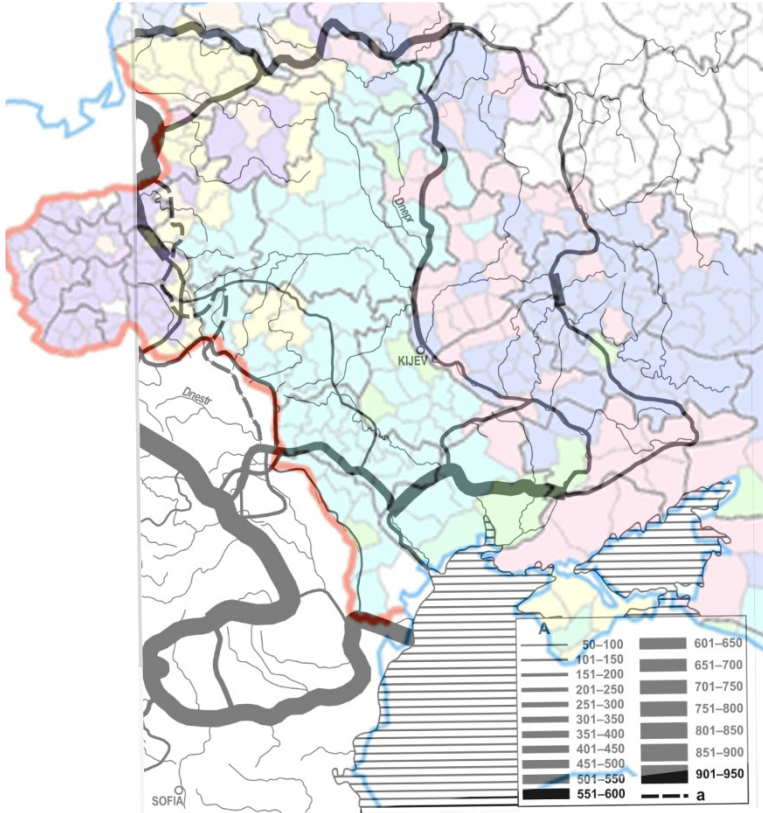
GIStorical Studies 3

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Front cover: clusters based on the variables derived from the census of 1897 and its relationship with pre-1773 and present-day state borders

Back cover: the development level of *uyezds* in 1897 and its connection with the present-day borders



Longevity of historical borders (in yrs) and their connection with the historical regions based on the cluster analysis of the variables derived from the 1897 census. (see Chapter 3.1)

## Table of Contents

<b>1. Introduction – phantom borders in East-Central Europe</b>	5
<b>2. Aims and methods</b>	16
<b>3. Regional inequalities in Russia in 1897</b>	20
3.1 <i>The connection between historical regions, administrative systems, and present-day hot-spots</i>	20
3.2 <i>The persistence of historical regions and their differences in development level in 1897</i>	33
3.3 <i>Internal inequalities: The urban-rural dichotomy in 1897</i>	39
<b>4. Fault lines towards the West after 1920</b>	59
<b>5. Regional inequalities in the post-Soviet realm after 1990</b>	69
<b>6. Conclusions</b>	83
<b>7. Literature</b>	87



## **1. Introduction – Phantom borders in East-Central Europe**

The series of political conflicts that developed in the post-Soviet realm just decades after the collapse of the Soviet Union have highlighted the internal tensions within newly emergent political entities. These tensions were partly the result of economic shocks imposed on transforming economies, and partly the result of unresolved social problems. Beyond these factors, the conflicts also show a clear territorial pattern that is itself the result of the re-emergence of nationalism throughout the region (Brubaker, R. 1996, Kolstø, P. 2016, Anderson, B. 2016). Having been strengthened during the Soviet era, persistent and even revitalized forms of nationalism have re-emerged along historical fault lines and fractures. The instability of political entities, from the Republic of Moldova to the Baltic region, is partly caused by the fact that these states conform neither to the concept of the nation-state, nor to the concept of the state-nation (citizenship-nation). The instability is also partly due to the often changing political and ideological circumstances over the last hundred years. In other words, the old-new boundaries that were established after 1990 cannot fulfill – or just barely fulfill – their homogenizing and identity-forming functions, and thus have largely failed in regard to the political unification of the post-Soviet territory. Like the old imperial and Soviet boundaries before them, the borders created after 1990 have not been able to overcome historical differences in development and culture. As a consequence, historically determined structures in the European post-Soviet region still influence present political behavior. (Bottlik, Zs. 2008, 2016, Karácsonyi, D. et al. 2014a, 2014b, Karácsonyi, D.; Bottlik Zs. 2018). Problems in the region therefore become more obvious and understandable not only by tracing existing social and political

fault lines, but also by examining current and historical spatial patterns through the lens of “phantom boundaries” (v. Hirschhausen, B. et al., 2015). Employed alongside political science, geography contributes to a better understanding of these “frozen conflicts” (Dembinska, M.; Campana, A. 2017, Tudoroiu, T. 2012, 2016).

Researchers such as Bottlik, Dembinska and Campana, Hirschhausen, Karácsonyi, and Tudoroiu have highlighted the significant parallel between political protest, economic development and the old political boundaries in East Central Europe and the post-Soviet region, and have stressed the clear spatial aspects of these social phenomena. Jańczak, J. (2015) and Zarycki, T. (2015) have proven that there is a significant correlation between the historical boundaries from 1795 to 1920 between Prussia, Austria, and Russia, on the one hand, and the spatial patterns of Polish parliamentary and presidential elections, on the other (Kaczynski vs Tusk, then Kaczynski vs Komorowski in 2010 and Komorowski vs Duda in 2015) (*Fig. 2*). Of course, one may argue that this political pattern has nothing to do with “historical roots,” and instead simply reflects the present-day economic-structural differences in Poland, such as the ratio of people employed in the private sector, or the ratio of industrial employees compared to the agrarian population, or the spatial pattern of foreign investments and private entrepreneurship (Putz, R. 1998) (*Fig. 3-4*). However, it is clear these patterns coincide not only with the historical borders, but also with the spatial pattern of railway density as well (*Fig. 2*). As most of the railways were constructed before 1945, it is more likely that it was the old features that determined the development of present economic differences than to think of them developing in this pattern merely by coincidence, or as the result of differentiated regional development

after 1990 (Barta, G.; Illés, T.; Bottlik, Zs. 2018). This also suggests that neither conditions in interwar Poland, which resulted in regional differences between illiteracy rates and agrarian outputs (Fig. 11), nor the “egalitarianist” communist policies, were able to overcome regional differences that were established between 1795 and 1920. The Polish example demonstrates that historically-determined differences may persist over centuries, even in an ethnically and religiously homogeneous political entity.

In Belarus, the abundance of the Belarusian language shows great similarity to the location of the old Polish-Russian border from 1920-1939 (Bottlik, Zs. 2016) (Fig. 5). Electoral geography exhibits the same pattern. Lukashenko’s opponents are always more popular in the western fringes of the country (Fig. 6). Language use in this region can be considered as an act of political protest, as both the Belarusian language, as well as Greek Catholicism, were banned during the Soviet era. The territorial and cultural expression of this political behavior suggests that, despite the ostensible ethnic homogeneity of Belarus, latent dividing lines can still be identified. When a crisis hits, a renewal of these historical “frontlines” can be expected (Radzik, R. 2002). The Belarusian-Polish boundary represents a transitional zone between the Polish-Catholic and Russian-Orthodox ideologies. This transitional zone has manifested itself in cultural differences as well, and has resulted in an entangled, and selective, interpretation of the historical past, and the emergence of a regional identity in Belarus.

Whereas present-day Poland is a good example of the persistence of phantom borders generated by political boundaries that lasted from 1795-1920 where these phantom borders managed to divide

or split an ethnically and religiously homogeneous state, by contrast, Belarus is an example of the persistence of differences along political borders that lasted only a short time — from 1920 to 1939 — and endured despite long-running imperial efforts at homogenization (when the country was incorporated into historical Poland or into the Soviet Union, Bottlik, Zs. 2013, 2016). This also implies that differences observed in present-day Belarus can be traced back well before the establishment of the 1920 boundaries. And, unlike in Poland, the different development pattern has manifested itself in language preferences in Belarus. Political behavior and ethnic consciousness have a strong correlation and a clear territorial pattern in Montenegro as well (*Fig. 8-9-10*). Those who claim themselves to be Montenegrins, and who supported Milo Djukanović in 1997 and the secession from Serbia in 2006, live in the core area of the republic within the pre-1912 borders (Bottlik Zs. 2008, Demeter, G. 2010). Those who identify themselves as Serbs live on the fringes that were occupied after 1912.

The persistence of these historical structures is not only reflected in self-determination, but also was strengthened by the selection of new symbols. These symbols included a new national anthem and flag — which signaled a denial of the Yugoslavian era — as well as the codification of the new Montenegrin language, which differs only slightly from the Serbian language. Despite the codification of the new Montenegrin language, its everyday use has been of secondary importance in ethnic identity and self-definition. Most Montenegrins speak Serbian, not Montenegrin.

In Ukraine, however, the Ukrainian language is in everyday use, and does not correlate with identity, but rather has a strong correlation with political behavior. This phenomenon also has historical roots and has manifested itself in a spatial pattern, and

East-West division. It also coincides with differences in physical geographical conditions, such as steppe areas versus woodland areas. These physical geographical features have influenced the history of the region, as well as its socio-economic conditions (Karácsonyi, D. et al. 2014a-b; Karácsonyi D. 2006, 2008, 2009, Karácsonyi, D.; Bottlik Zs. 2018). The conquest of the Crimean Tatars, and the vacuum created by the fleeing of Muslims, attracted hundreds of thousands of people who were drawn to the promise of economic prosperity, which was in turn influenced by free trade on the Black Sea from 1783, and also by western demand for grain. The colonization process supported by the state reshaped both the economic and ethnic characteristics of Crimea and Eastern Ukraine, and led to the acceleration of industrialization, urbanization, and Russification. This was further triggered by industrialization during the Soviet era when the state depended on coal and iron ore from the Donets basin. The persistence of old privileges enjoyed by the Don Cossacks also contributed to the maintenance of an east-west division. It is therefore not surprising that present-day Ukraine still exhibits these historical divisions (*Fig. 7*).

Recent elections in Italy, Turkey (2018), and Romania<sup>1</sup> proved this spatiality is not confined to the “transitional” regions of East Central Europe, which includes the European post-Soviet region. Instead, this spatiality seems to be a more general phenomenon (*Fig. 1*). Italy’s Five Star Movement is deeply rooted in the poorer, southern Mezzogiorno region, which is the former Kingdom of Naples and Sicily. Supporters of President Erdoğan in Turkey,

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<sup>1</sup> <https://www.electoralgeography.com/new/en/>

moreover, can be defined not only on a social basis, but spatially as well. In turn, the 2014 election of Klaus Iohannis as president of Romania is apparently due to the votes in Transylvania and Bucovina, an electoral result that corresponds to the old borders.<sup>2</sup> These still-traceable internal fault lines and fractures that relied on former cultural or political boundaries, and which have been identified in Western literature as “phantom boundaries”, have only come into focus through recent research (Hirschhausen, B. et al. 2015, Hirschhausen, B. 2017a, 2017b, see also the German project *Phantomgrenzen in Ostmitteleuropa*).<sup>3</sup> This chapter will focus on whether present fault lines in the post-Soviet realm can be considered historically determined (that is, inherited from the past). In order to trace these fault lines, regions need to be identified with the aid of historical statistical analysis. Then, boundaries need to be studied to determine if they coincide with any previous, or present, political boundaries or conflict zones. Differences in levels of development, or other features or characteristics, between the identified historical regions also need to be identified and examined. Historical differences between urban and rural environs need to be traced and compared as well with the results of regional planning in the Soviet era. Finally, a description and illustration of regional inequalities in the post-Soviet area in 2010 needs to be compared to the pattern of inequalities in the existing conflict zones, as well as to the location of the newly identified historical regions.

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<sup>2</sup> [https://azonnali.hu/cikk/20180420\\_a-monarchia-visszavag](https://azonnali.hu/cikk/20180420_a-monarchia-visszavag)

<sup>3</sup> [www.phantomgrenzen.eu](http://www.phantomgrenzen.eu)

The term “fracture, fault” is used when the spatial pattern of indicator values of neighboring entities do not show the “expected” gradual transitions (as defined by Tobler, W. R. 1970), but are very definite.

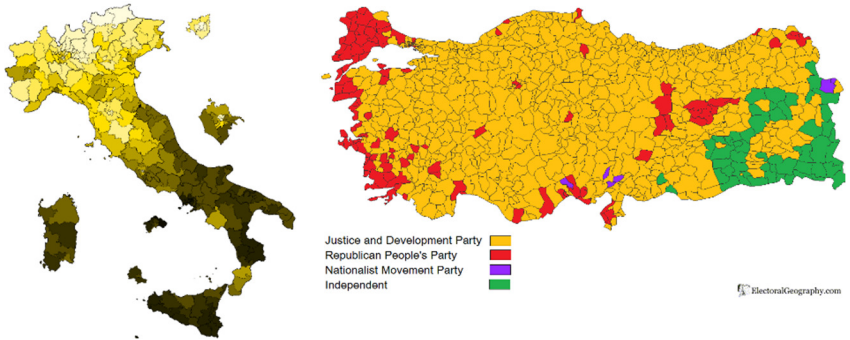


Figure 1. The results of the elections in Italy (2018, Movimento 5 Stelle) shows remarkable differences along the historical regions (left)  
Territorial pattern of the Turkish elections in 2011 (right)

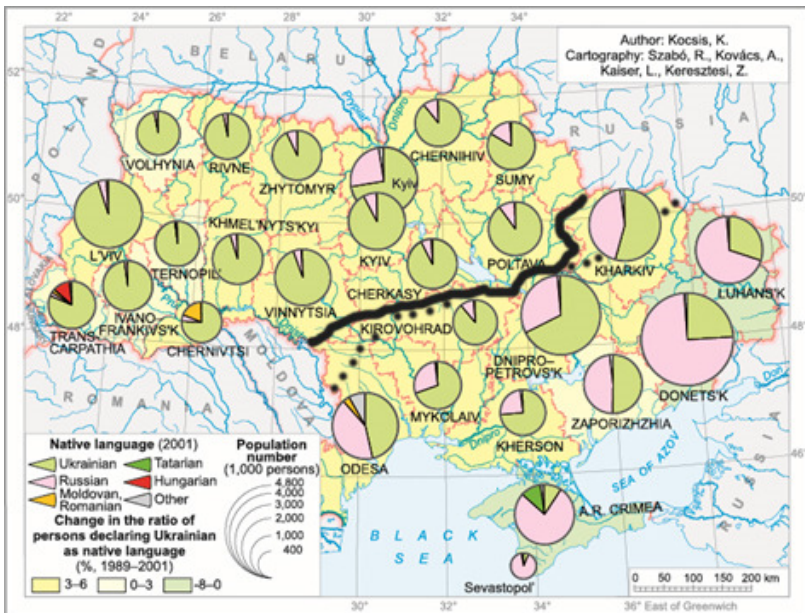


Figure 7. The regional pattern of language use in Ukraine coincides with the results of the elections and the physical geographical regions (division line between districts won by Janukovich and Timoshenko is indicated by black line; dotted line indicates the boundary between the steppe and woodlands)

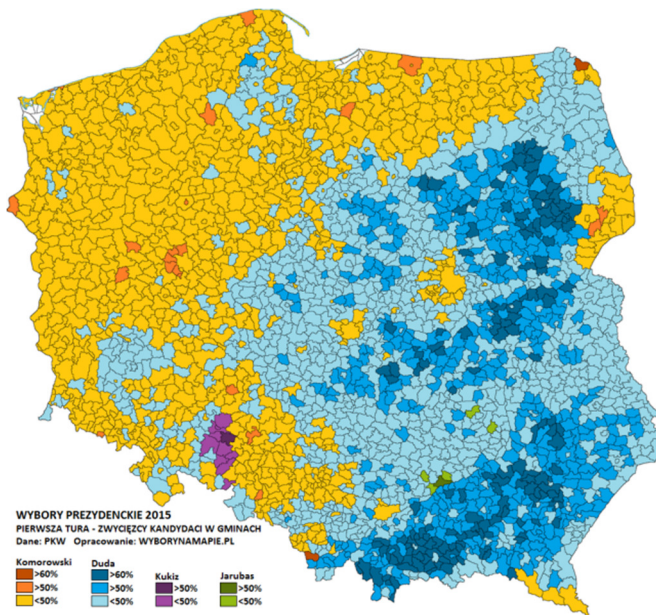
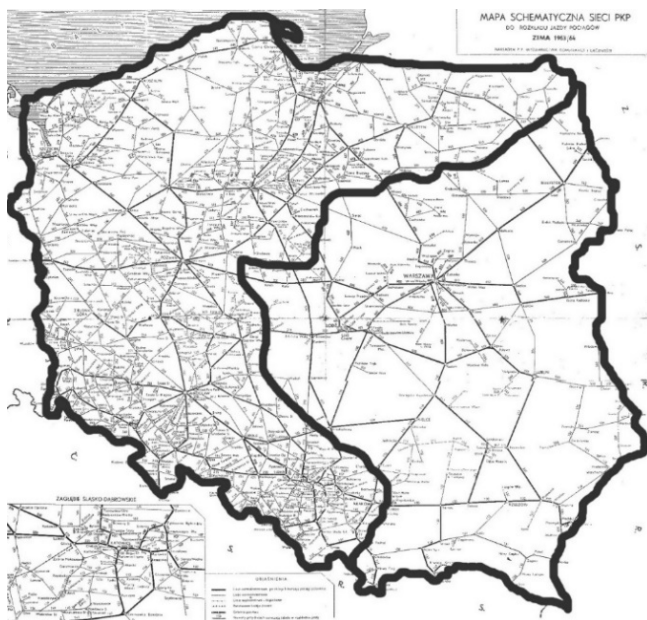


Figure 2.

The territorial pattern of the Polish presidential elections in 2015 coincides with the former historical entities



Differences in railway density in Poland can be interpreted as the heritage of historical boundaries



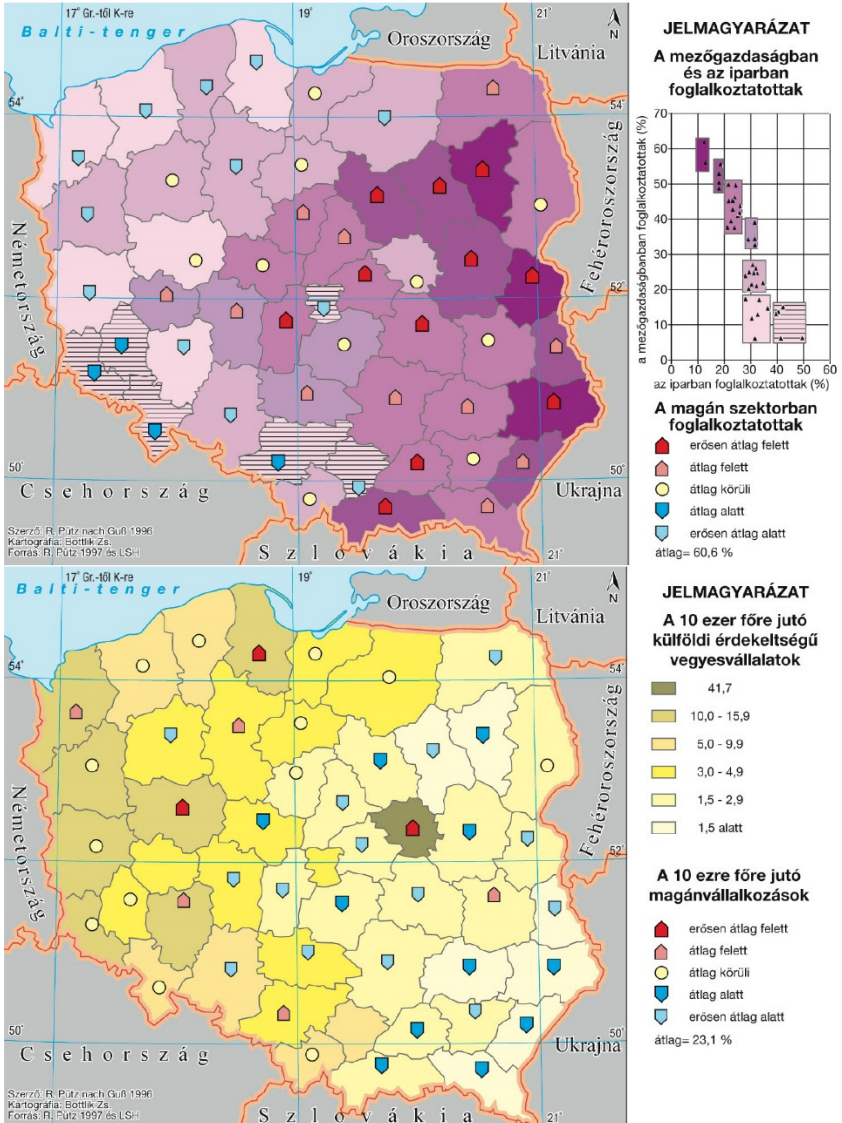


Figure 3–4. The bimodality that characterizes Poland nowadays shows the boundaries of the historical formations (above: employees in the agrarian sector – solid; employees of the private sector – arrows; below: private enterprises with foreign interest per 10,000 prs; private enterprises per 10,000 prs)

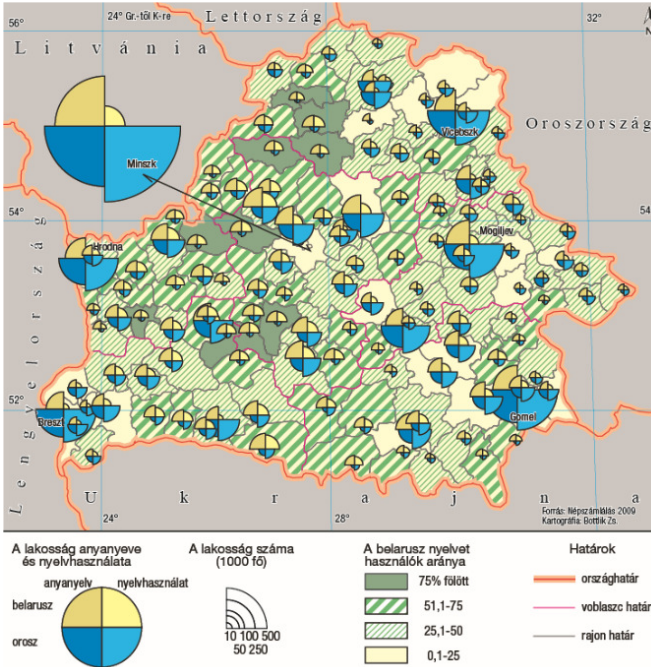


Figure 5.

The preference of Belarussian language (light) compared to Russian can be observed in the West, which formerly belonged to Poland

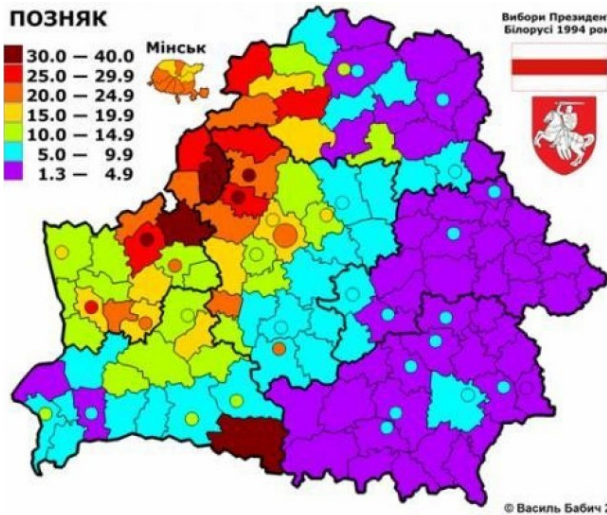


Figure 6.

The patterns of the result of the presidential election in Belarus coincide with language preferences and with historical boundaries

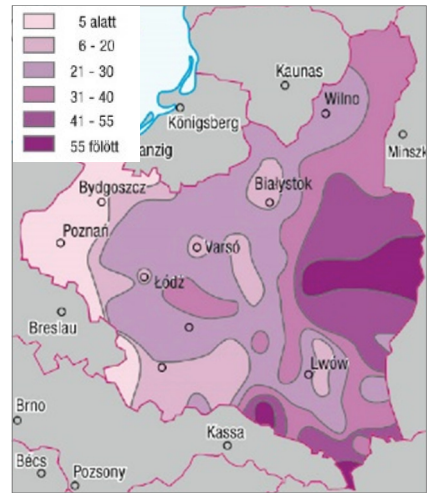
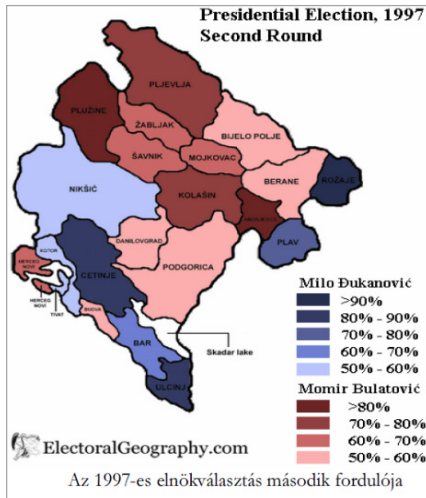
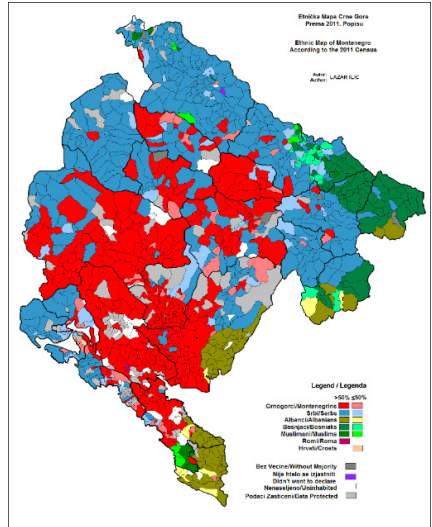
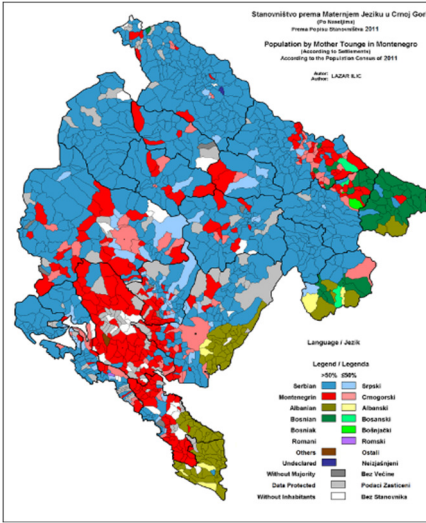


Figure 8–9. The distribution of population based on language (above, left) and ethnicity (right) in Montenegro shows spatial pattern. Ethnic Montenegrins live in the core areas, but most of them does not use Montenegrin language (which hardly differs from Serbian) as mother tongue.

Figure 11. Illiteracy in Poland in 1930

Figure 10. The spatial pattern of the presidential elections in Montenegro also reflects the difference between the historical core area and the regions acquired until 1914.

## 2. Aims and methods

The Western literature that deals with phantom borders has focused primarily on case studies (v. Löwis, S. 2015b, 2017, Zamfira 2015), while macroregional, historical, and statistical approaches have rarely been applied together (v. Löwis, S. 2015a). This chapter investigates how, and to what extent, the ethnic and regional policy first of the Russian Empire and then of the Soviet Union was both willing and able to overcome the cultural differences of the formerly incorporated areas. Simple administrative readjustments made by the state were not always enough to eliminate entrenched regional differences.

With this in mind, the working hypothesis of the present chapter is threefold: 1) If regional patterns at the end of the nineteenth century coincide with old political boundaries, this implies that the Russian Empire's national and regional policy was not aimed at homogenization at all, or alternatively, that its attempt to homogenize the region had failed.

2) If the boundaries of this region at the end of the nineteenth century coincide with present-day fault lines, then this would suggest that the Soviets were also unsuccessful at eliminating existing differences.

3) If both of these assumptions are correct, then present-day fractures and conflict zones are the result of historical boundaries that are more than 200 years old.

If current tensions in the post-Soviet region are the result of ethnic and cultural divisions that have existed for two centuries, then this is interesting in two respects. First, communism in the Soviet Union lasted for more than 70 years, whereas collective memories and traditions based on oral history begin to fade after two

generations, then quickly vanish (Herrschel, T. 2007). This means that collective memory and traditions based on oral history, which are contributors to the persistence of phantom boundaries, did not have an effect, because they would have faded before the end of Soviet rule. If phantom boundaries still persist, despite the lack of these collective memories, their existence is a result of political factors and other cultural determinants.

Secondly, although both tsarist Russia and the Soviet Union can be described as empires, there were significant differences between their regional and ethnic policies. The administrative uniformity of tsarist Russia was increasing by the end of the nineteenth century as a result of the simultaneous strengthening of nationalism and the centralizing efforts of the empire (for details see the next chapter). The creation of *guberniyas* and *uyezds* as new administrative territorial units was partly based on historical traditions; however, establishing boundaries based on ethnic differences was not the goal. Special privileges such as tax exemption for Germans settled at the Volga river, military exemption for the peasants in Bessarabia, or special development policy as in the case of the Caucasus, Crimea or the constitution for Finland, were unique to the recently occupied frontier zones, and assisted in the colonization, pacification and integration of these regions (Kószegi, M. 2018).

When the communists came to power in 1918, they abandoned the idea of establishing a homogeneous Russian nation. In addition to the enormous social and economic differences across the Soviet Union, which made the nationalization of the region impossible, the communists were also aware of other dimensions of regional differences and inequalities. As a result, the Soviet leadership allowed the formation of territorial (collective) autonomies based on ethnicity, as well as the use of local languages. They believed

that a supranational dictatorship of the proletariat, as outlined by Karl Marx, could be achieved through the establishment of national self-government as an intermediary stage (Tolz, V. 2005).

If the homogenization efforts of both imperial Russia and the communists were unsuccessful, then the present-day fault lines, which correspond to former cultural boundaries, are a result of the limited viability of the political boundaries inherited from the Soviet era. Therefore, they suggest a failure of the administrative, regional, and national policies of the Soviet Union.

The Russian imperial census of 1897 covered most of the region that is now referred to as European Post-Soviet. This census enables us to examine the whole area by using the same indicators and there is no need for data harmonization which would be unavoidable if numerous countries are involved in such investigations. Up to now, this source has not been utilized for its regional aspects. Mironov's (2000) research relying on this source mainly focused on vertical structures (social stratification) and not on the identification of regional patterns (see *Table 1*).

The examination of regional differences *after* the collapse of the Soviet Union was based on the census data from the 2000s and 2010s. For the investigation a fine resolution raion-level territorial approach was used (covering 740 territorial entities), which is more sophisticated than the usually applied approach in the literature (Karácsonyi, D.; Kocsis, K.; Bottlik, Zs. 2017, Kocsis, K.; Rudenko, L.; Schweitzer, F. 2008). It is also finer than the resolution of the investigation on 1897 (composed of 340 entities).

The investigation of regional patterns after the turn of the millennium required the harmonization of Belorussian, Ukrainian and Russian national censuses (Karácsonyi, D. 2014, Karácsonyi, D.; Bottlik Zs. 2018), and this was a limiting factor for the selection

of available indicators. Thus, the indicators used in the two investigations were not the same, not only because of the above outlined problem, but also because the structure of censuses also changed in the last 100 years. Nor was the territorial coverage the same.

The investigation of 1897 did not cover the Austrian part of Galicia, whereas the investigation of the situation in 2010 did not contain the Baltic states and Poland. Moreover, although the methods were the same, these limiting factors noted above should be taken into consideration during the interpretation of the results, i. e. the location of the fault lines in 1897 and in 2010. Despite all these constraints, it is remarkable that many fault lines in 2010 coincided with former (and in 2010 no longer existing) political boundaries and with the socio-economic fault lines identified in 1897.

*Table. 1 Indicators used in the investigations for 1897 and for the post-Soviet era*

<b>Russian census of 1897</b>	<b>Indicators from 1979 and 2010</b>
population of local birth, %	employment rate %, 2010
proportion of literate people, %	income/capita, 2010
proportion of merchants, %	migration rate, 2010
proportion of urban population, %	ageing index, 2010
proportion of pravoslavs, %	birth rate, 2010
(ratio of priests+bureaucrats+nobility to merchants)	death rate, 2010
households larger than 6 members, %	urban population change 2010/1979
proportion of households with servants %	
ratio of people between 20-59 / 60 years and older	



### **3. Regional inequalities in 1897**

#### *3.1 The connection between historical regions, administrative systems, and present-day hot-spots*

This section investigates the results of imperial homogenization efforts, the outcome of which is illustrated through the identification of historical regions, the differences in their development, and the relationship between the boundaries of historical regions and present-day hot-spots. It is important to point out that language-based national consciousness and homogenization are not the specific features of empires (Anderson, B. 2016). As in other empires, in the Russian Empire it was loyalty to the imperial state, or “Mother Russia”, not to the nation, that was of prime significance (Osterhammel, J. 1997). Nevertheless, hybrid and entangled systems did exist, especially if an empire wanted to increase its level of integration, or if the elite wanted to preserve its power by utilizing nationalism as a tool. Even the Russian empire attempted to adopt nationalism to increase the level of homogenization. On the one hand, it had the option of choosing a supranational approach, which involved the creation of the “citizenship nation” (this was the path chosen in the Ottoman Empire, though pan-Osmanism ultimately failed). On the other, it could have chosen a language-based, nationalist approach, but this option was hampered by the fact that only 45% of the population spoke Russian as their mother tongue. The tools for national homogenization in an empire were the reshaping of territorial administration, education and imperial administration.

For this investigation, several variables from the 1897 Russian imperial census were selected. The proportion of migrants was chosen, as it is generally accepted that modernization processes



trigger mobility. State interventionist policies pursued by imperial Russia (such as those linked to the colonization of conquered areas) also increased migration. Therefore, the proportion of migrants can function as an indicator of the impact of modernization and/or state interventionist policies. A rise in literacy rates, as a result of compulsory education, can also be an indicator of the effects of modernization and state intervention. The proportion of merchants, and of urban dwellers, are two different features according to this hypothesis. Although both can indicate a level of modernization, it is also assumed that a non-urban merchant population existed in Russia because of the significant Jewish population in rural areas. The correlation matrix later confirmed the assumption that the share of urban population, and the proportion of merchants, refer to different aspects.

The ratio of (bureaucratic) nobility and clergy measured to merchants symbolizes the relationship between the “old” and “new” elites, which also has a territorial pattern. The assumption was that religion also has an impact on socio-cultural and economic behavior. As a result, the proportion of Pravoslavs (Orthodox people) was also used (our presumption was later confirmed by the correlation matrix). The high proportion of Orthodox people, and the prevalence of Russian as a mother-tongue, may refer to the penetration of the central power into local spheres, and the impact of centralization (Kószegi, M.; Pete, M. 2018). The difference between the proportion of the Orthodox population, and the proportion of Russian speakers, can indicate the level of homogenization. A map illustrating the distribution of the Russian mother-tongue in the peripheries shows the Crimean and Don-Kuban regions as target areas of Russian colonization (*Fig. 17*). A map of non-Russian Orthodox people indirectly indicates Russian infiltration, or the level of

Russian assimilation, in Belarus and Ukraine. The proportion of households with servants can be used as a proxy for family economic potential and social prestige. The proportion of households with more than six persons, including both family members and servants, represents a traditional behavior that is characteristic of agrarian societies in the case of values above the country average. Thus, the two indicators are not equivalent (which was confirmed by the correlation matrix, *Table 2*). Finally, the ageing index, which indicates the proportion of the population above 60 years of age, shows the same pattern. It is not considered a sign of demographic decline when applied to the late nineteenth century, but is rather considered a positive feature which may indicate improvements in health care. Due to the constraints of the population census, it was impossible to include additional indicators. As a result, these data related to demographics and social behavior can only indirectly refer to development level as discussed below when we interpret the relationship between the variables from historical perspectives.

The goal of this study was to identify community characteristics other than language to delineate the regions, so the use of ethnic categories as variables was avoided. Also, the 1897 census exaggerated the proportion of Russians in the region (Bottlik Zs. 2016). After indicators were selected the relationship between the variables was analyzed. This highlighted the region's socio-economic characteristics, allowing for the elimination of variables that proved to be irrelevant for the study of development levels. The investigation was carried out at the *uyezd* level. A strong correlation was measured between the percentage of merchants and the proportion of traditional elite, but the negative coefficient refers to territorial separation of the two social layers. The higher the proportion of the local-born population was in

European Russia, the less likely they were able to read and write. In other words, the migrants of that era were educated, which indicates a higher level of capitalization (merchants, freelance professions), and also highlights the empire's efforts to colonize the area (some social layers were immobile: peasants were allowed to move only after 1861, while Jews had to live in pre-designated districts). The higher the proportion of Pravoslavs, the lower the rate of literacy. Higher education was a privilege for those who were born under the influence of western culture. Despite the colonization efforts of the state, migration was not a common behavior for Orthodox people in general. (Orthodox people were thought to be loyal, therefore one may suppose that they were overrepresented in this process. This might be true, but the large numbers of immobile rural Orthodox people decrease the possible correlation between migration and Orthodoxy). The proportion of servants was also low among Pravoslavs, and among the less-mobile autochthonous population in general. This suggests a correlation between economic potential and religion, or economic potential and education levels. The higher the proportion of servants in the population, the higher the rate of literacy as well. Large family size correlated to low literacy, and low family economic potential, and it had a relatively strong connection to Orthodoxy.

After this analysis and historical interpretation of the relationship between the selected variables, the spatial pattern of the single indicators was investigated. These individual maps are then overlain on one another. This created a complex map which indicated development levels (the values of the single variables were normalized and aggregated), and allowed for the delimitation of regions based on differences in development.

Table 2. Relationship between the indicators derived from the 1897 census data

Indicators	Literacy rate (%)	Indigenous, %	Merchant, %	(Noble+priest) / merchant	Urban dwellers, %	Pravoslavs, %	Families > 6 members, %	Households with servants	Prs above 60 yrs %	Under 20 yrs / above 60 yrs
Literacy rate (%)	1.000	-0.556**	-0.072	0.170**	0.361**	-0.566**	-0.549*	0.741**	0.343**	-0.449**
Indigenous, %	-0.556**	1.000	-0.100	-0.031	-0.461**	0.371**	0.471**	-0.605**	0.094	0.059
Merchant, %	-0.072	-0.100	1.000	-0.823**	0.034	0.462**	0.191**	-0.150**	-0.117*	0.047
(Noblemen+priest) / merchant	0.170**	-0.031	-0.823**	1.000	0.151**	-0.437**	-0.226**	0.270**	0.164**	-0.137**
Urban dwellers, %	0.361**	-0.461**	0.034	0.151**	1.000	-0.415**	-0.339**	0.453**	-0.231**	0.149**
Pravoslavs, %	-0.566**	0.371**	0.462**	-0.437**	-0.415**	1.000	0.500**	-0.562**	-0.106*	0.172**
Families with more than 6 members, %	-0.549**	0.471**	0.191**	-0.226**	-0.339**	0.500**	1.000	-0.474**	-0.194**	0.288**
1-10 household servant, %	0.741**	-0.605**	-0.150**	0.270**	0.453**	-0.562**	-0.474**	1.000	0.062	-0.114*
Prs above 60 yrs %	0.343**	0.094	-0.117*	0.164**	-0.231**	-0.106*	-0.194**	0.062	1.000	-0.917**
Under 20 yrs / above 60 yrs	-0.449**	0.059	0.047	-0.137**	0.149**	0.172**	0.288**	-0.114*	-0.917**	1.000

Strong correlations are indicated by grey background.

In addition to the reconstruction of development levels, cluster analysis was used in an attempt to identify regions with similar features and characteristics in order to delimit and map homogeneous regions. The territorial extent – or number – of regions delimited based on development levels, as well as regions defined by their relative similarity, do not necessarily match. The 1897 census data also provided a possibility to trace differences in the level of development between urban and rural zones within

administrative units. As a result, internal inequalities could be measured and mapped too.

The number of servants employed by a household, as a measure of family prestige and economic potential, was high in former Polish and Lithuanian regions, and in the southern parts of Ukraine (*Fig. 16*). Literacy rates (*Fig. 13*) showed a similar pattern. It was high in the conquered Crimea and Southern Ukraine. This was a result of the proportion of newcomers in the area, and is confirmed by the territorial distribution of the Russian-speaking population in the region. Interestingly, the proportion of merchants, as a new social class of capitalism, was low in the Polish-Lithuanian area, but relatively high in Belarus and Crimea. This suggests that the connection between Jews and trade was somewhat weaker than originally believed. Though an 1804 decree had forbidden Jewish people from settling east of Kiev (Pandi, L. 1997), still a relatively high proportion of merchants was measured in the region, probably as a result of increasing grain exports from southern Russia. At the same time, in the region of Warsaw, where the proportion of Jews was over 10% (Bottlik, Zs. 2016), the proportion of merchants was low (*Fig. 14*). The ageing index was favorable in Volhynia and Crimea, but was very unfavorable in the Baltic region. The proportion of urban dwellers (*Fig. 14*) was higher in the West, but showed a gradual decrease with a broad transitional zone towards the East. The bulk of urbanized areas coincided with the boundary of Congress Poland in 1815 and the Baltic region. Finally, the map illustrating the ratio of the old and new elite – the number of priests + nobles measured to the number of merchants – shows the Polish-Lithuanian region, which up to then showed favorable tendencies, also had some retrograde

features (*Fig. 15*). The old elite was overrepresented compared to the new bourgeoisie in the region of the Don river as well, because the Cossacks had managed to preserve their privileges collectively. Households larger than six, which suggested traditional structures and underdevelopment, were dominant in future Belarus and Central-Ukraine. At the same time, the proportion of locally-born individuals was over 90% in the areas that would become Belarus, northern Ukraine, Bessarabia, and the southern part of the Baltic region, which also suggests the maintenance of traditional structures (*Fig. 13*).

As the figures illustrate, *homogeneity was not characteristic for the investigated region in 1897, despite the passing of more than a century after the dismemberment of Poland (1772/1795) and the acquisition of the Baltic region and Crimea in 1783*. As most of the single variables (cartograms) showed regional patterns and not fragmented, mosaic-like structures, we therefore attempted to identify homogeneous sub-regions with common or similar features and special characteristics (which makes them discernable from other regions) using the above analyzed indicators. For the identification of these so-called “formal regions” (regional geography usually makes a distinction between these mainly preindustrial formations and “functional regions” which are characterized by cooperation and interdependence between the territorial constituents, therefore their features are heterogeneous and may vary within small distance), cluster analysis was carried out (*Fig. 18*).

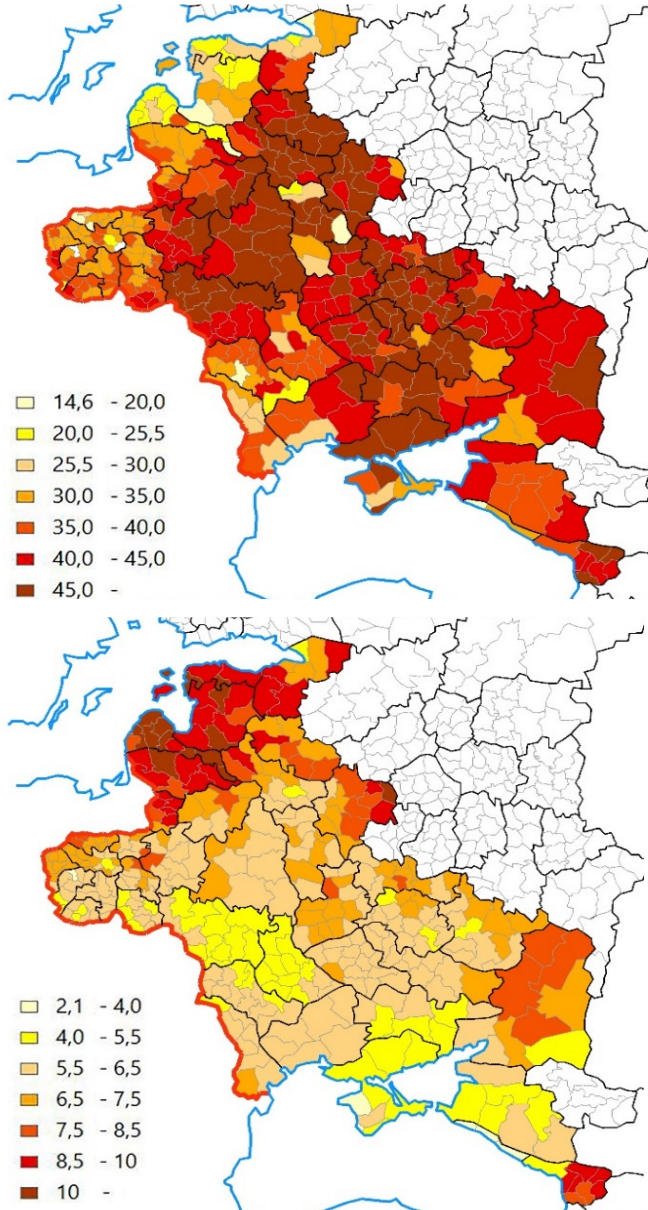


Figure 12. Proportion of households above 6 members (%) / Proportion of population over 60 years (%) (Ageing index and the average household size shows similar pattern to these)

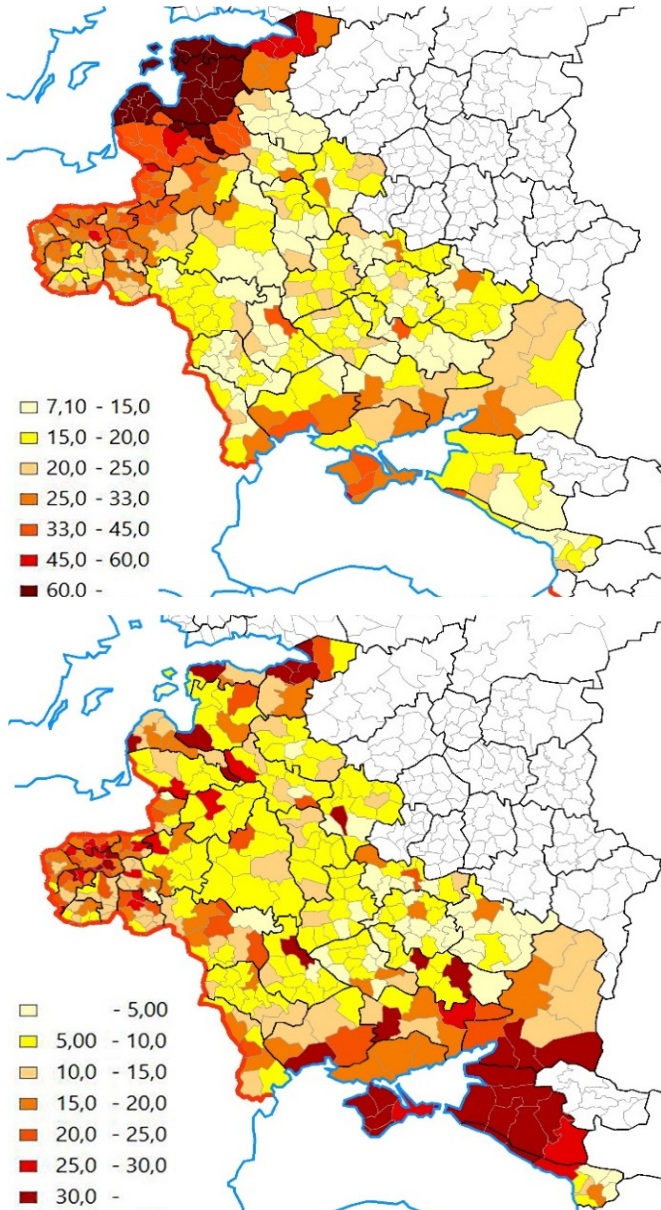


Figure 13. Spatial patterns of literacy rate (%) and the proportion of non-autochthonous people (%).



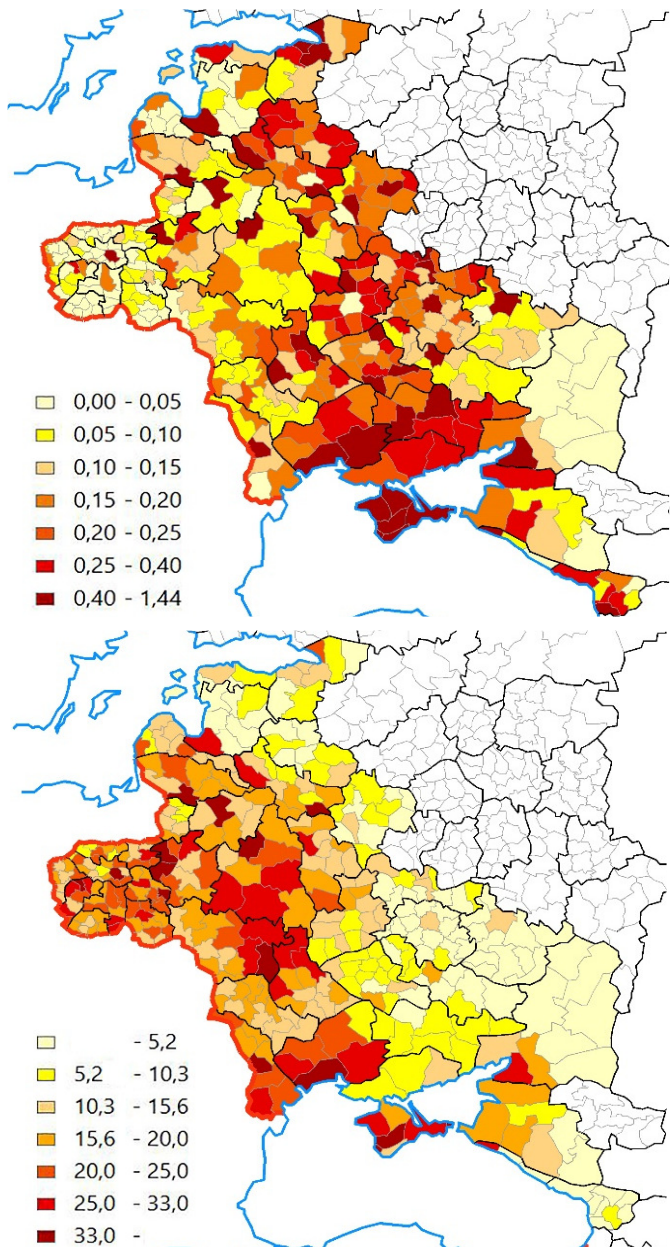


Figure 14. The proportion of merchants (%) and urban dwellers in 1897

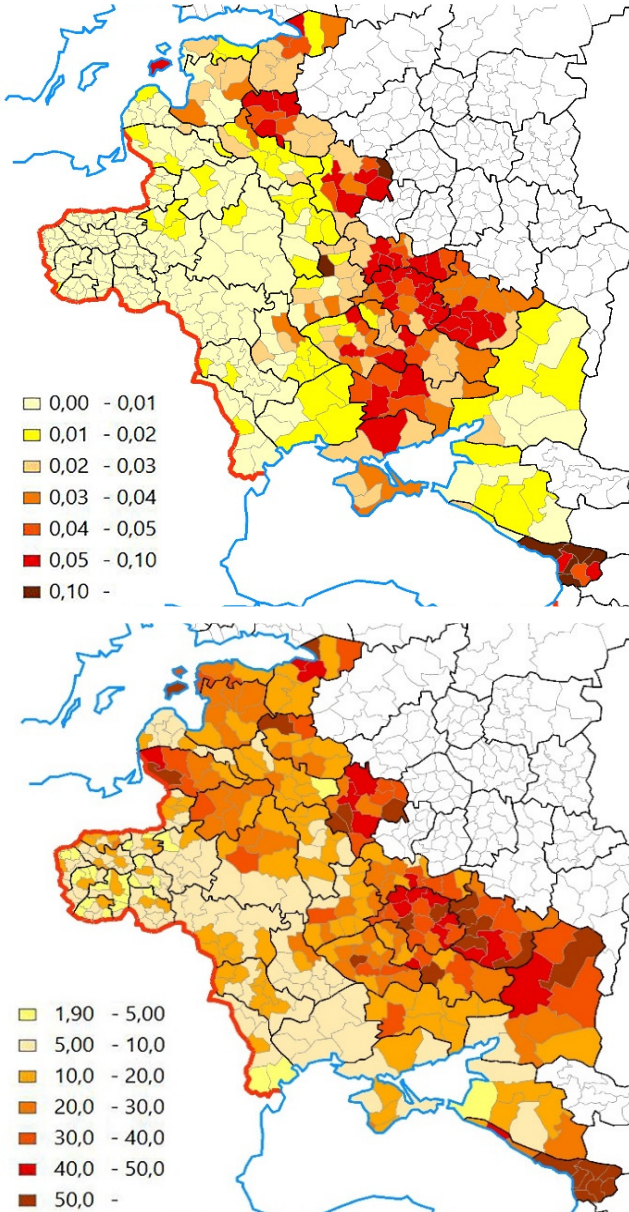


Figure 15. Proportion of merchants measured to urban dwellers and the proportion of nobles and priests measured to urban population (%).

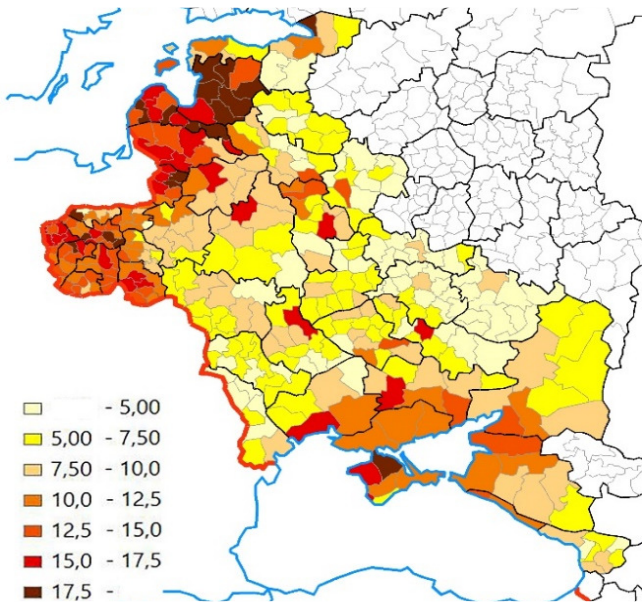
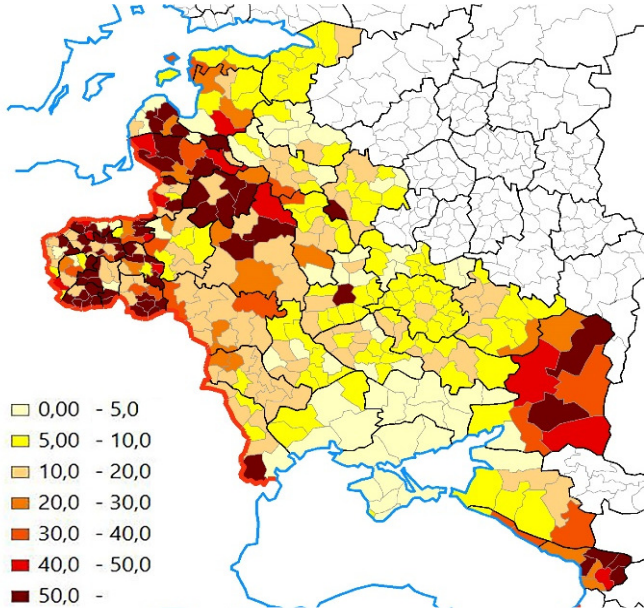


Figure 16. Nobles and priests (old elite) measured to merchants.  
Households with servants (%) in 1897



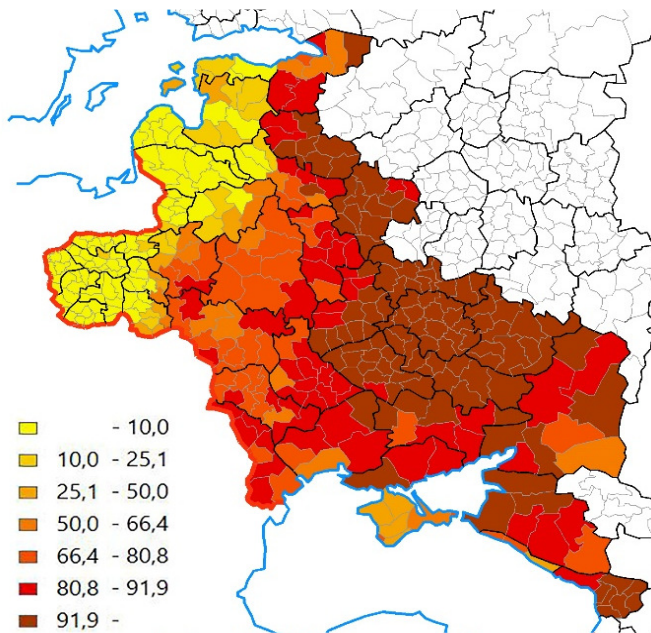
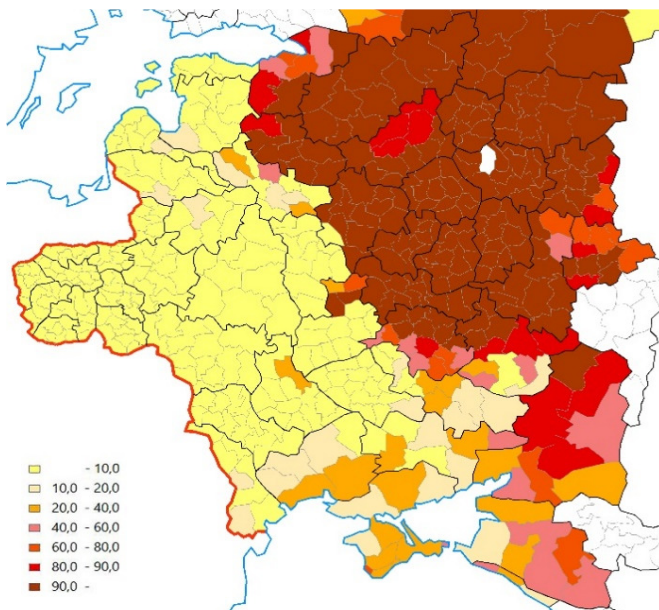


Figure 17. The share of Russians (%) and Pravoslavs in 1897

### *3.2 The persistence of historical regions and their differences in development level in 1897*

The historical regional structure appears distinct even at setting only five clusters (that refers to five predicted regions). The external and internal boundaries of old Poland (*Rzeczpospolita Polska*) were still visible 100 years after its dismemberment. The indicator values for Latvia and Estonia, which were under Swedish rule for centuries, were also different from that of the Polish-Lithuanian bloc in terms of characteristics. The Orthodox regions of the former Polish-Lithuanian Commonwealth also constituted a separate group (detached from the Polish core areas along the future Curzon line), and differed significantly from the Voronezh-Smolensk region located in the Russian frontier zone. *The bimodality of present-day Ukraine was evident even at that time.* If Crimea and its surrounding area is included, present-day Ukraine was grouped into three clusters in 1897, which generally resembled the former Polish-Russian-Ottoman border prior to 1772.

The investigation was repeated by increasing the number of clusters (that is the number of predicted regions) to ten. This resulted not in large new patches (with the exception of Lithuania and the Don Cossacks), but rather caused fragmentation along the borders of the formerly defined clusters. In other words, a continuous buffer zone evolved along these “splinters” split off from the core regions. This means that the previously defined cluster (region) boundaries (when the cluster number was set at five) can be considered structurally stable. Thus these five regions have relatively stable and well-discernable borders.

In order to test the working hypothesis, the present-day boundaries and the map by Rónai in 1945, which illustrates the long-term stability of historical borders in East Central Europe, were overlain (see page 3). Present-day hot-spots were also marked. *The result was clear: the boundaries of the pre-defined clusters for 1897 match present-day administrative-political boundaries only in Poland and the Baltic region.* The boundaries of these clusters, which delineate the population of Crimean Tartars, the Don Cossacks, the Polish-Lithuanian Commonwealth, and Estonia/Livonia, coincide with older political boundaries. *The pre-1772 boundary of the Polish Commonwealth coincided with the boundary of one of the clusters in 1897, and the boundaries of the developed Crimean cluster matched the old Ottoman boundary. It is also clear that the present-day fault lines in Ukraine, Crimea, and Belarus already existed in 1897.*

Furthermore, the identified historical clusters not only varied in their characteristics, but there is also an evident difference in their development levels as well (Fig. 19, Table 3). Polish and Baltic regions were similarly developed, but were grouped into 2 different clusters, which means that their characteristics were also different, which is worth further analysis (see later). Present-day southern Ukraine, which demonstrated five indicators with values above the regional average, as well as Crimea, were very developed then, thanks to fertile lands, western demand for grain exports, and state intervention policies, which included the development of the military and heavy industry. However, the cluster analysis grouped southern Ukraine into two clusters based on the differences of indicator values. Areas north of this region were found to be underdeveloped in 1897. *The east-west division of the future Ukraine was evident with respect to development as well, but*

at that time eastern Ukraine was more underdeveloped. This situation only changed later due to the industrial developments of the Soviet era. Furthermore, both zones extended beyond the present-day boundaries of Ukraine to the north, towards present-day Belarus.

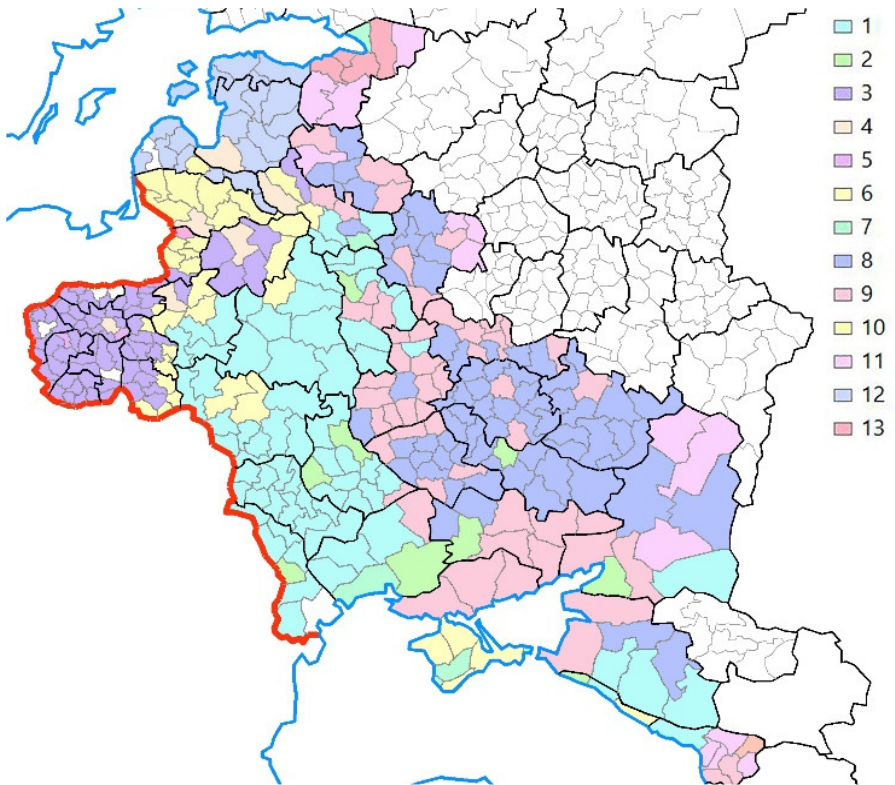


Figure 18. Regions with similar features generated by the cluster analysis

The surrounding area of Warsaw showed a similar level of development to Crimea. The area of present-day Lithuania was also developed, but had only two indicators showing values above the regional average. The Baltic region demonstrated five favorable indicators, but had a low level of urbanization and a high

ageing index. The area of Congress Poland was behind them, but demonstrated more favorable indicators than western Ukraine, whose development level was around the average. Present-day eastern Belarus, eastern Ukraine, and the Russian borderland were considered the most backward. Surprisingly, the splintered buffer zones were also characterized by higher development, which means that these are not semi-peripheral regions, but rather *contact zones of cultures* in Huntingtonian sense, characterized by vitality (cultural transfers).

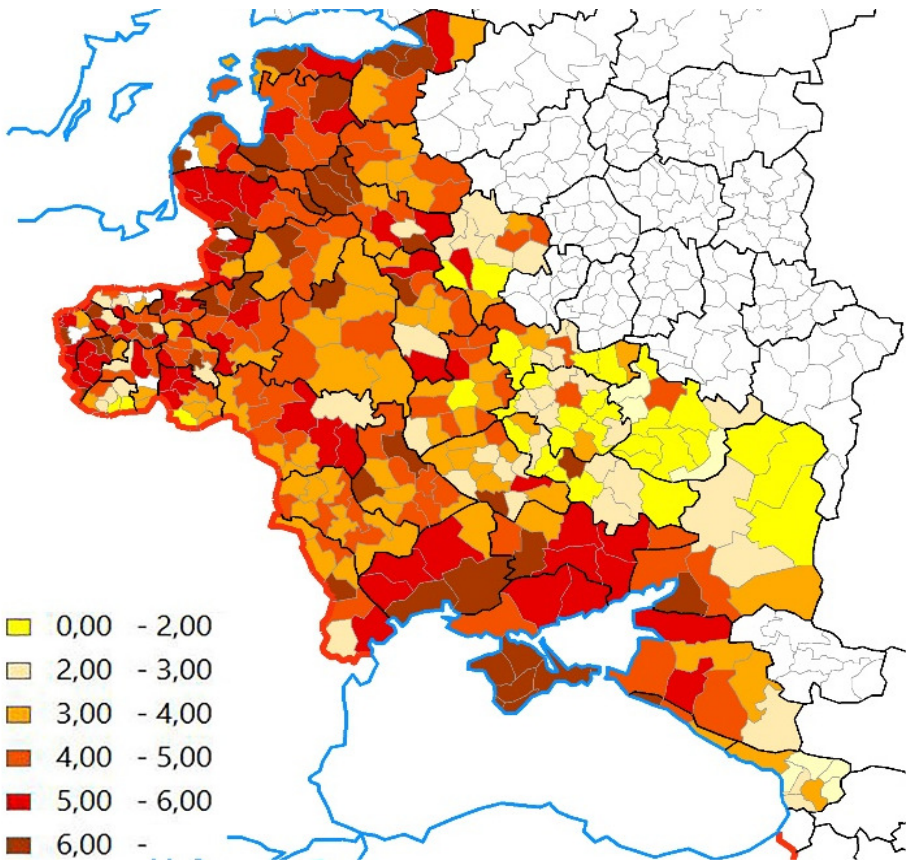


Figure 19. Complex level of development in 1897 based on the variables listed in Table 1.



Table 3. Average values of the indicators for each cluster

Cluster (historical region)		Literacy rate %	Not indigenou, %	Merchant per 1000 pns	Urban dweller, %	Not pravoslav, %	Family size above 6, %	1–10 household servant, %	Over 60 yrs, %	(nobles+priests) / merchant
1. West Ukraine	Mean	16.1	12.1	10.0	18.1	20.1	39.4	6.8	5.8	19.0
	Std. Dev.	3.9	10.2	0.1	6.3	6.6	8.5	2.3	0.6	19.8
13. Southern Ukraine	Mean	34.8	38.2	90.0	31.0	25.1	32.1	14.0	5.5	5.4
	Std. Dev.	11.6	20.5	0.3	11.7	13.0	9.4	4.5	1.1	1.9
3. Poland	Mean	28.2	18.2	10.0	18.6	95.1	35.1	12.8	6.4	132.9
	Std. Dev.	5.7	10.4	0.1	5.3	6.9	5.4	4.0	0.7	245.1
4. Lithuanian- Livonian buffer	Mean	47.5	34.8	60.0	36.5	88.1	31.6	15.3	7.2	11.2
	Std. Devi.	13.3	11.4	0.2	9.7	4.3	7.6	3.9	1.3	9.1
10. Polish buffer and Crimea	Mean	30.2	22.5	20.0	19.1	48.2	41.9	10.8	6.0	59.3
	Std. Dev.	12.7	16.9	0.3	8.7	10.7	13.6	4.3	1.4	143.8
8. East-Ukraine and East-Belarus	Mean	16.8	10.1	20.0	7.1	3.9	45.2	6.2	6.4	10.2
	Std. Dev.	4.0	10.9	0.1	4.2	3.8	4.0	2.7	0.7	9.4
6. Lithuania	Mean	39.8	15.0	10.0	16.1	97.1	37.0	13.7	9.0	55.4
	Std. Dev.	5.3	208.9	0.1	4.5	2.0	4.3	4.4	0.8	49.4
5. Eastern fringes	Mean	19.1	8.9	10.0	2.9	7.0	41.0	4.9	9.3	423.2
	Std. Dev.	6.5	4.6	0.1	2.1	7.1	4.5	1.4	0.9	1459.9
12. Livonia	Mean	77.9	15.9	10.0	8.3	90.4	25.9	16.3	10.8	36.0
	Std. Dev.	3.2	10.8	0.1	6.2	9.9	4.3	4.8	1.5	60.1
Total area	Mean	25.6	12.7	10.0	14.2	39.4	40.9	10.1	6.7	59.6
	Std. Dev.	16.1	46.2	0.2	9.5	39.4	21.3	12.5	1.6	323.2

Indicator values and regions above average of the the total area are indicated by dark grey, values under average are indicated by light grey.

*In other words, the geographical peripheries of the Russian Empire experienced the highest levels of development, while the core areas were considered peripheries in economic sense. As a result, it is not surprising*

that separatism grew within the peripheries, leading to the loss of these regions after 1920.

What were the main distinctive features responsible for the different characteristics in the 1897 clusters? In the area of present-day southern Ukraine, for example, the proportion of migrants, merchants, and urban population was higher than in west-Ukraine, where the low level of literacy and the low proportion of household servants was characteristic regionally, similarly to eastern Ukraine, but here three more indicators showed values under the regional average. *Table 3* offers a possibility to identify the specific, distinctive features of the area, whereas *Fig. 20* shows the relationship between administrative areas (*guberniya*), present-day borders and the clusters defined by us.

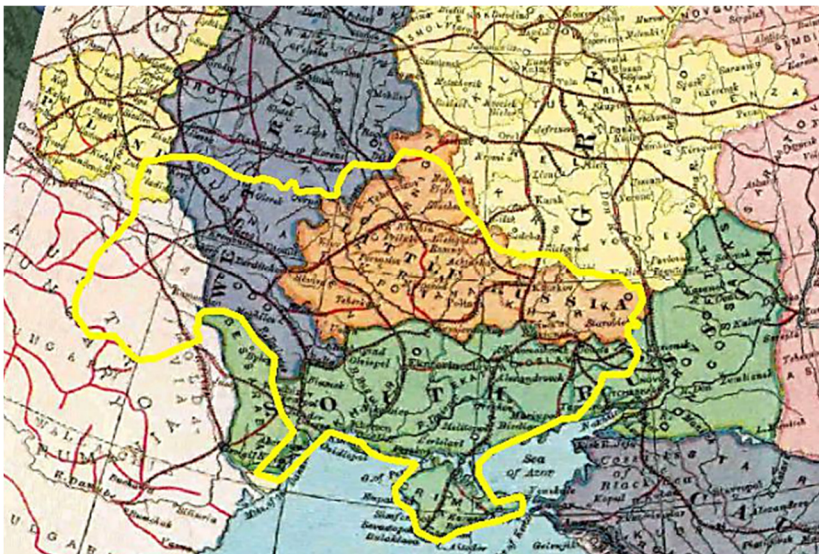


Figure 20. Historical regions (governments) of Russia and their relationship with today's Ukraine and the clusters defined by the investigation for 1897

### 3.3 Internal inequalities: The urban-rural dichotomy in 1897

The census of 1897 can also be used to examine regional patterns of urban development. It is possible to calculate sub-regional differences, and to also measure inequalities within the uyezds. Cluster analysis can pinpoint typical differences and urban-rural relationships. An investigation of internal inequalities within districts is important because the dynamic and programmed urbanization of the Soviet era resulted in the increase, as well as the uniformization, of urban-rural differences, regardless of their original character and patterns of difference.

Indicators used to assess the development level and characteristics of towns were the same as those used in previous investigations (*Table 4*). The literacy rate was seen to correlate with the proportion of migrants, as well as with social status (which was represented by the share of priests and noblemen from total earners). Strong negative correlation was observed between household size and literacy. The proportion of merchants did not correlate with religion. Calculations showed that greater household size in urban environments decreased the probability of migration. However, as migration was more characteristic for urban environs, this also suggests that household size in towns was smaller than in the countryside. The proportion of nobles and priests in towns correlated with the proportion of households with servants. In the case of merchants, a correlation with households with servants was not as evident. In other words, *the connection between indicators in urban environments hardly differed from their connection at the sub-regional level. Only one remarkable difference was identified. As the literacy rate in towns was usually higher than in the district*

itself, it did not correlate with the number of households with servants, or with the proportion of non-Orthodox, which is in contrast to the situation observed during the investigations at the regional level. The 500 towns and townlets investigated were not equally distributed throughout the region. Polish regions were characterized by high town-density, but in areas east of this region, in the moorland of Pripyaty, the population density was very low. The physical geography not only influenced the number of towns, but also their characteristics, though this was not always verified in our examinations.

Based on their rich historical past, we supposed different urban types abundant in the Baltic region, from those that characterized the plains of Russia. We also assumed that the urban centres around the Black Sea (recently established or colonized) also constituted a separate type. These assumptions were tested through the analysis of the territorial patterns of single indicators. With respect to literacy rates, the *Pripyaty* functioned as a real barrier towards the south (the future Ukraine), where literacy dropped below 40%, while this tendency in the east was not observable. However, the dispersion of values was great in the Polish areas. The regional pattern was colored further by the towns around the Black Sea, which were characterized by higher literacy rates again due to the economic and military functions of the towns.

The differences in literacy rates between towns and their rural surroundings was small in the Baltic region and in today's southern Ukraine, while in the central and eastern half of the area studied, differences between towns and their hinterlands was great (Fig. 21). Generally, *literacy rate in towns decreased towards the*

East from above 50% to 30-40%. Difference was observable in Polish areas between towns and townlets, where more than 3-4 urban settlement could be found in one *uyezd*. Towns along the newly founded and colonized towns of the Azov coast-line were also characterized by high literacy rates.

Table 4. Relationship between the indicators derived from the 1897 census in the case of the 492 urban settlement

Spearman rank correlation	Literacy rate (%)	Not indigenous, %	Noblemen and priests, %	Merchants, %	(Nobles+priests) / merchant	(Nobles+priests) / urban dweller	Pravoslavs, %	Rural population, %	Family size over 6 prs, %	Households with servants, %	Population above 60 yrs, %
Literacy rate (%)	1.000	0.526	0.589	0.214	0.206	0.418	-0.124	0.273	-0.611	0.331	0.136
Not indigenous %	0.526	1.000	0.607	0.134	0.247	0.325	-0.054	0.303	-0.549	0.397	-0.417
Noblemen and priests, %	0.589	0.607	1.000	0.465	0.269	0.775	0.300	0.351	-0.427	0.549	-0.142
Merchants, %	0.214	0.134	0.465	1.000	-0.737	0.574	0.557	0.208	0.020	0.425	0.073
(Nobles+ priests) / merchant	0.206	0.247	0.269	-0.737	1.000	0.034	-0.342	0.030	-0.316	-0.011	-0.158
(Nobles+ priests) / urban	0.418	0.325	0.775	0.574	0.034	1.000	0.572	0.705	-0.293	0.380	0.072
Pravoslavs, %	-0.124	-0.054	0.300	0.557	-0.342	0.572	1.000	0.427	0.205	0.105*	0.028
Family size over 6 prs, %	-0.611	-0.549	-0.427	0.020	-0.316	-0.293	0.205	-0.353	1.000	-0.158	-0.082
Households with servants, %	0.331	0.397	0.549	0.425	-0.011	0.380	0.105*	0.101*	-0.158	1.000	-0.235
Population above 60 yrs, %	0.136	-0.417	-0.142	0.073	-0.158	0.072	0.028	0.093*	-0.082	-0.235	1.000

Strong correlation is indicated by black background.

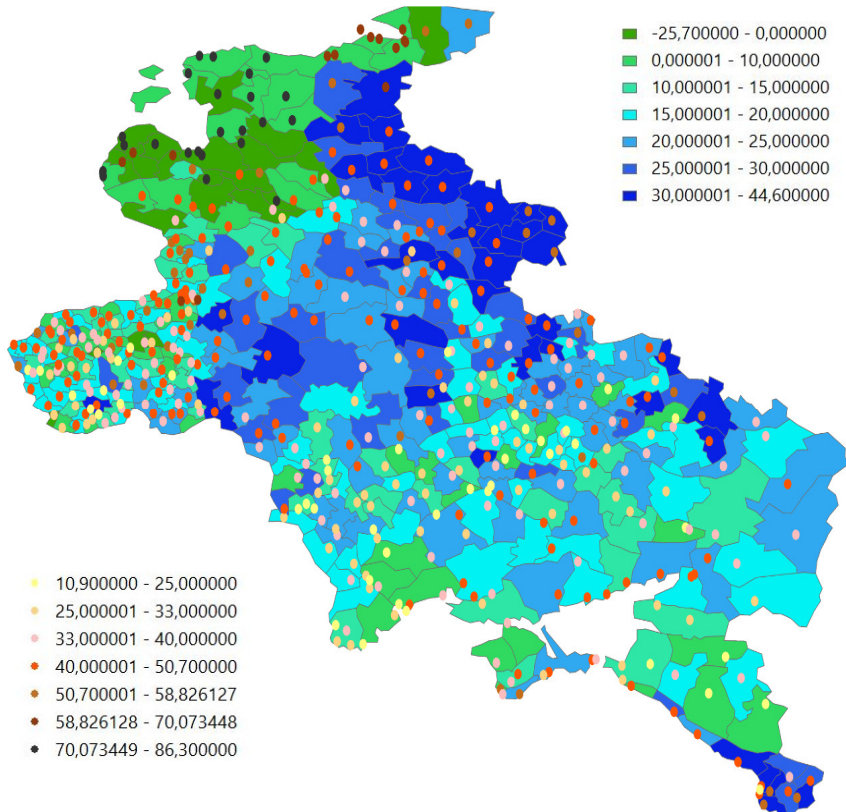


Figure 21. Regional pattern of literacy rate in towns and townlets and the difference (in %) between towns and their rural hinterland (*uyezd*) in 1897

The share of the non-autochthonous population in towns (those who migrated to their dwelling place in 1897) was the highest on the fringes, in southern Ukraine, and in Crimea. This was a result of attempts by the state to colonize the region. It was high in the Baltic region as a result of trade routes and proximity to the capital of St. Petersburg. It was also high in Poland as a result of the industrial revolution, although there were large local differences. In the central parts of the area studied, the proportion of migrants was lower, and there was less of a difference between the

proportion of migrants in urban and rural areas. The same was true for the Caucasus. The difference between towns and rural regions was surprisingly high in the Baltic Region and on the Black Sea coast, which suggests that colonization usually occurred in St. Petersburg and other urban areas first, as these areas were more appealing to settlers (*Fig. 22*), than rural farming zones.

When considering the pattern of religious affiliation, the relationship between towns and their hinterland areas was very instructive (*Fig. 25*). In the Baltic and Polish areas, Orthodox urban dwellers were, not surprisingly, in the minority. However, in the central parts of the area studied, Orthodox inhabitants were in the majority in rural regions, while in urban areas, Greek Catholics (a heritage of Polish rule) constituted a relative majority of 40% to 50%, even in 1897, a hundred years after the dismemberment of Poland. This large *contact area, which encompassed the future Belarus, was therefore characterized by an urban-rural dichotomy with respect to religion*. Further east, away from the former area of the *Rzeczpospolita Polska*, the difference between the proportion of Orthodox urban dwellers and their corresponding rural population gradually lessened and Orthodoxy became predominant.

The ratio of the traditional elite, including nobles and priests, and the modern elite, including merchants, was similar in the rural and urban regions of Lithuania and present-day northern Belarus. In other regions, the traditional elite was more predominant in towns. This does not mean that merchants were absent from these towns (this variable gives only the ratio of two layers), but rather that, in these regions merchants were abundant in rural hinterlands too, while nobles were missing (*Fig. 23*).

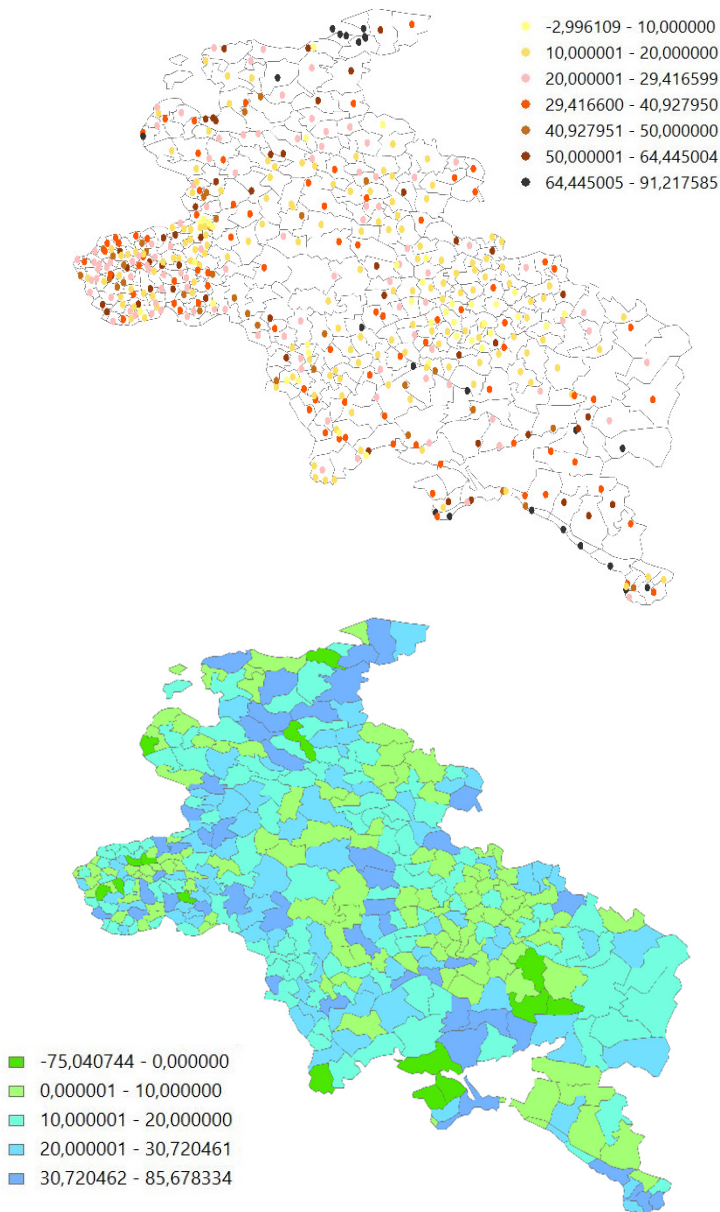


Figure 22. The proportion of non-autochthonous population in towns (%) and the difference between non-autochthonous population in towns and rural zones in %



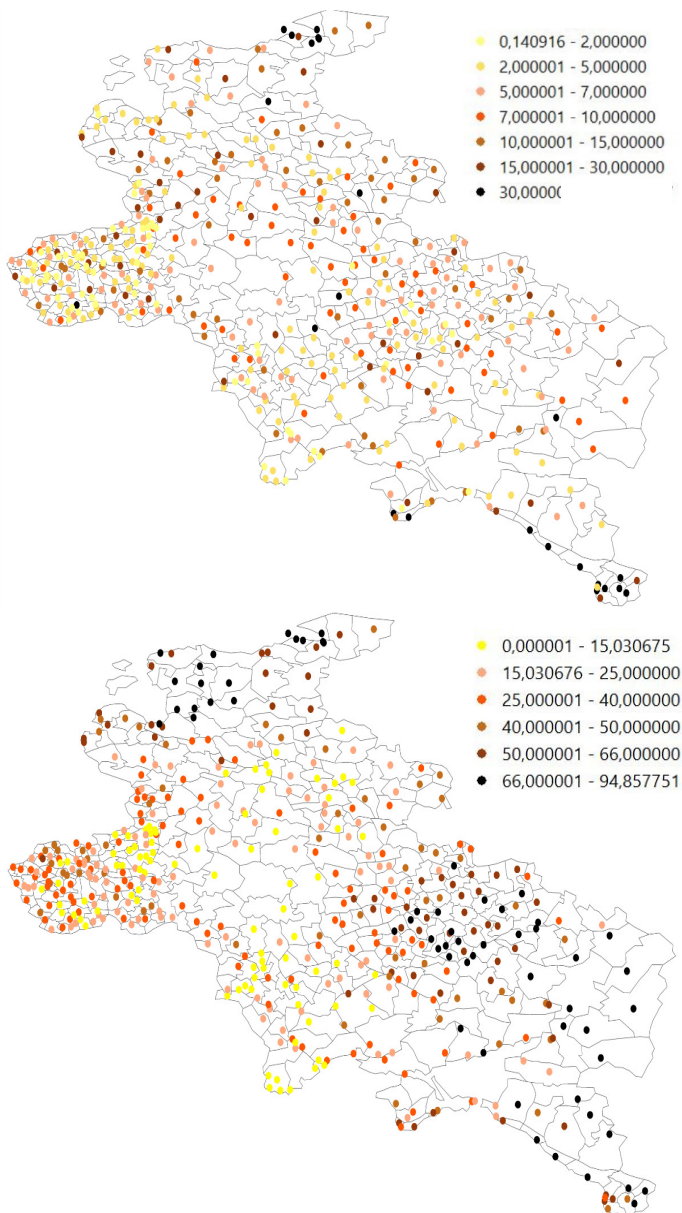


Figure 23. The share of noblemen and priest from urban family heads (%)  
Peasants living in towns and townlets in 1897 (%)

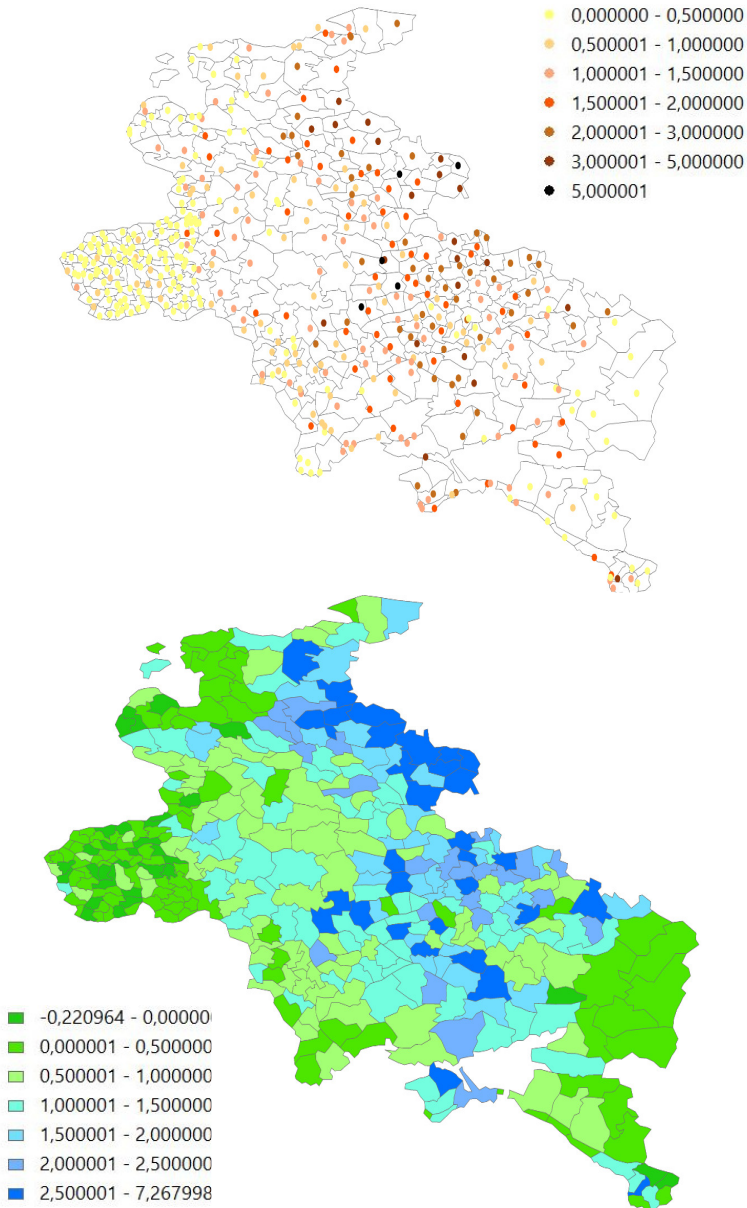


Figure 24. The share of merchants from earners (%) and the difference between the proportion of urban and rural merchants (%)

The share of urban peasantry was high in the Baltic region and in eastern Ukraine and in the newly acquired southern regions too, while it was low in Poland and Lithuania, representing a different quality of urban development there. The proportion of merchants reached 3–5% east of the Pripjaty (*Fig. 24*), while in the Don-Kuban region and in the Baltic region values below 0.5–1% were characteristic. Here the difference between the proportion of rural and urban merchants was also low, while in the eastern parts of today's Ukraine it was high, as well as in western Russia. The ratio of traditional and modern elite was similar both in the urban and rural zones of Lithuania and northern Belarus, while in other sub-regions towns were characterized by higher ratio, which means that nobility and priests were concentrated in towns there.

Households above 6 members were more frequent in the towns of the Baltic and Polish regions and along the coast of the Black Sea (*Fig 26*). Great differences regarding urban-rural relations were characteristic only in Poland, western Ukraine and southern Latvia.

The (high) share of population above 60 years refers to better life quality, hygienic or social endowments, thus it is a proxy of development level. This value was the highest in the Baltic area, while in the recently conquered southern coastal areas with the Caucasus and in western Ukraine or southern Poland the age structure was more favourable. Here soldiers, bureaucrats and merchants were overrepresented, and the proportion of elderly people among them is usually lower than in the whole society. The difference in this respect was great in the eastern fringes, which is interesting because here not even in towns can we find high proportions of people above 60 years.

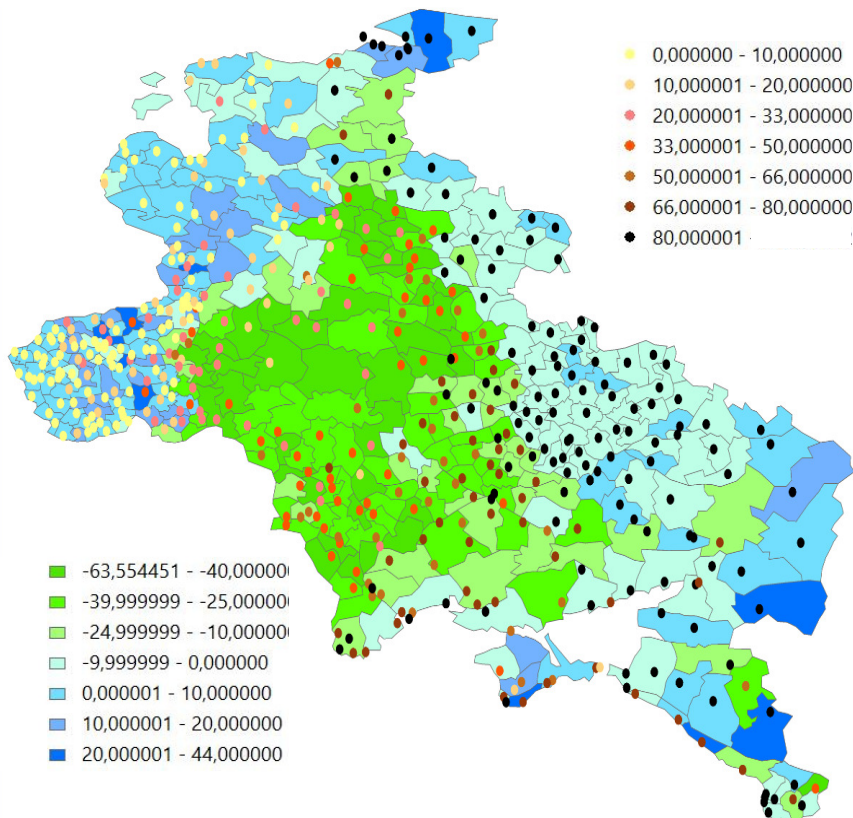


Figure 25. The proportion of Orthodox people in towns (%) and the difference between the proportion of Orthodox population in towns and rural regions (in %) in 1897

Considering the proportion of households with servants, no definite urban pattern could be identified in the region. However, the difference between urban and rural proportions showed spatial patterns. The difference between rural and urban environments was small in the Baltic region, in the area of the former Congress Poland, and in Crimea. In the future Belorussian, Ukrainian, and Russian territories, the greater difference between urban and rural communities was a result of the weaker economic potential of the countryside in 1897.

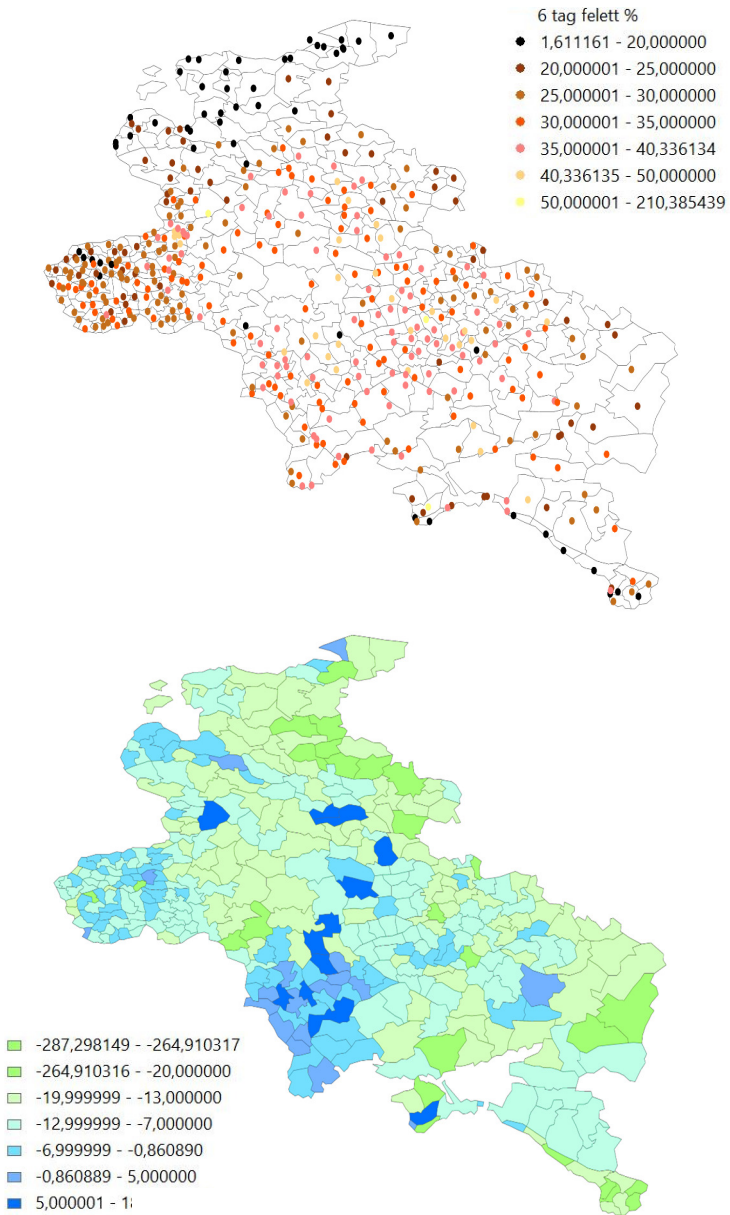


Figure 26. Households above 6 persons in towns (%) and the difference between the proportion of large households in towns and the rural regions (in %)



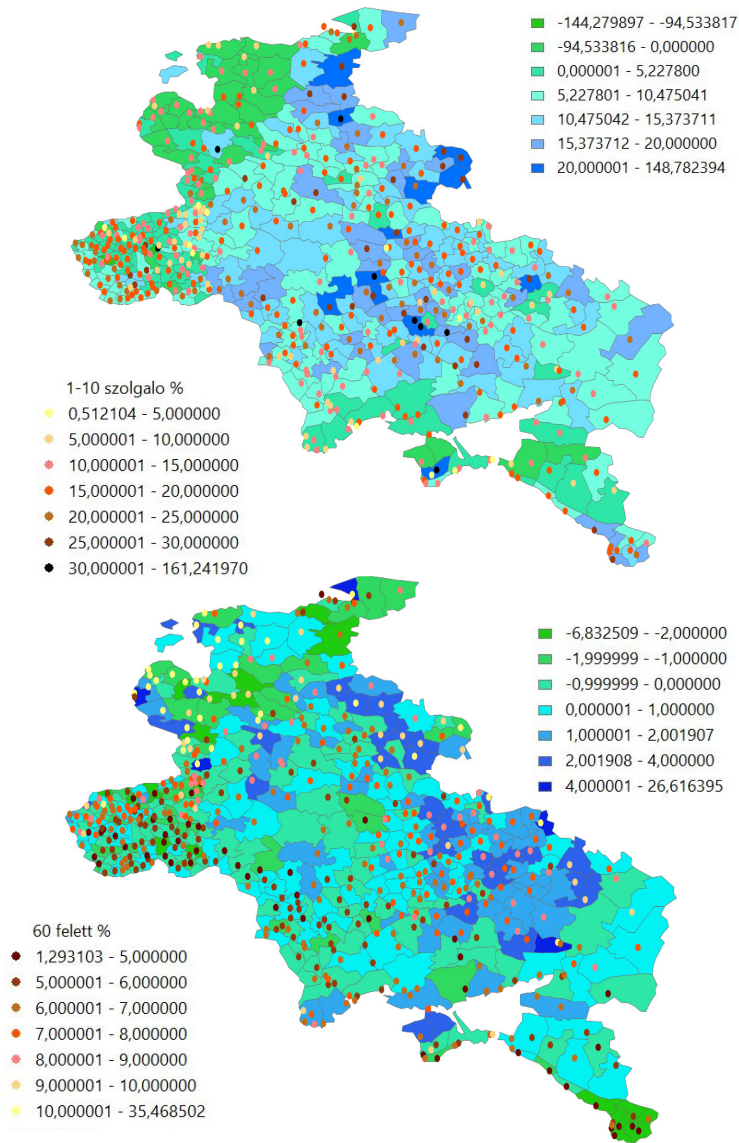


Figure 27. The proportion of households with servants in towns and the difference in the proportion of households with servans in towns and in rural region (in %) in 1897  
 Bottom: The share of elderly people in towns (%) and the difference between elderly people in towns and uyezds (%) in 1897

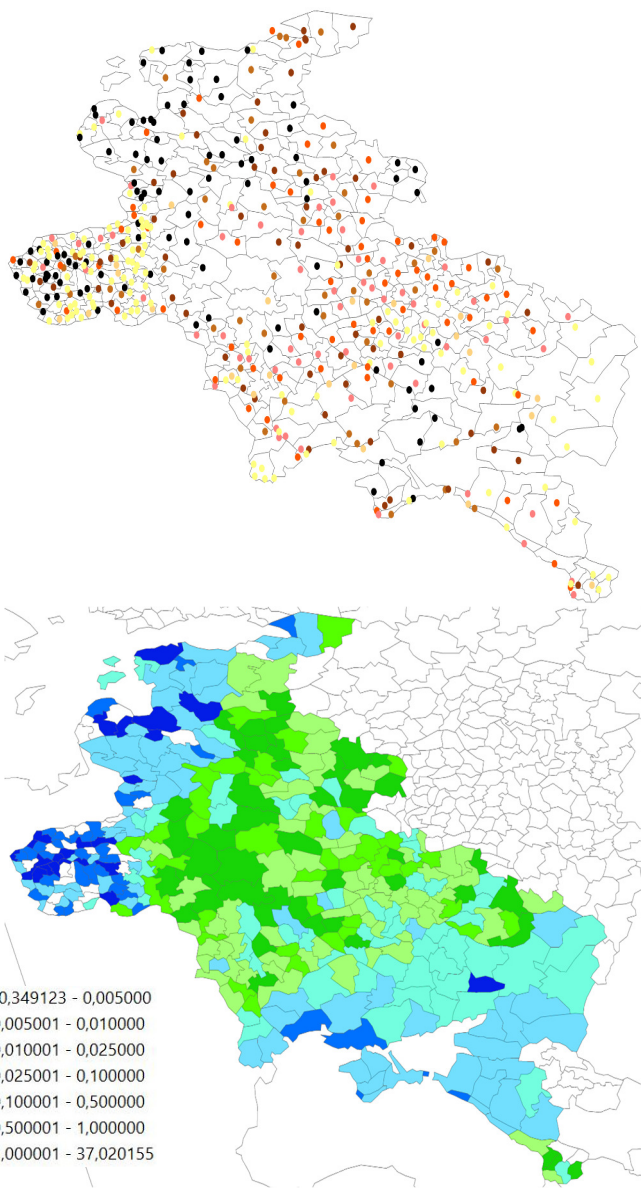


Figure 28. Regional differences in the complex development level of towns (darker colour means higher development) and the development level of the rural background measured to the urban development (based on the complex development level) in 1897

When the values of the single variable are aggregated in order to obtain a general overview of the complex development level of central places (*Fig. 28*), the pattern we see is very similar to the pattern shown previously by the *uyezds*. The most developed towns in 1897 were found in the Baltic region area of Congress Poland, and in Crimea.

In the case of Crimea, targeted state intervention contributed to the favorable picture. In the case of the Congress Poland, it was the industrial revolution in the textile industry (primarily in Łódź), while in the Baltic region it was the closeness of the capital, in addition to historical traditions, that contributed to the high level of development. In the case of the Polish areas, the picture was very versatile: minor towns showed weak progress, and their level of development was similar to that of towns in eastern Ukraine and the Danube delta. With respect to the difference between the level of development of urban centers and their rural background (*Fig. 28*), the central areas displayed the greatest difference (where the countryside was characterized by Orthodoxy, but towns were not). In contrast, Polish, Baltic, and southern towns, were not only more developed, but the level of development of their background was similar to that of the towns.

If development levels are disregarded, and the focus is aimed at similarities in the value of indicators, and town groups are created according to this using cluster analysis (*Fig. 29*), then the group of “southern” towns was characterized by low levels of literacy, low migration rates, and the predominance of traditional elite over the capitalist formations, while the proportion of households with servants was low. In the “eastern” bloc these values were significantly higher. The proportion of households with servants



was above the average, as was the proportion of merchants. These two groups overlapped in the southeast. In the third urban type characteristic for the “Polish areas”, and for the future Belarus, the proportion of noblemen and merchants was low among urban dwellers, but the previous layer was more significant. This cluster was characterized by a low proportion of Orthodox people (*Table 5*).

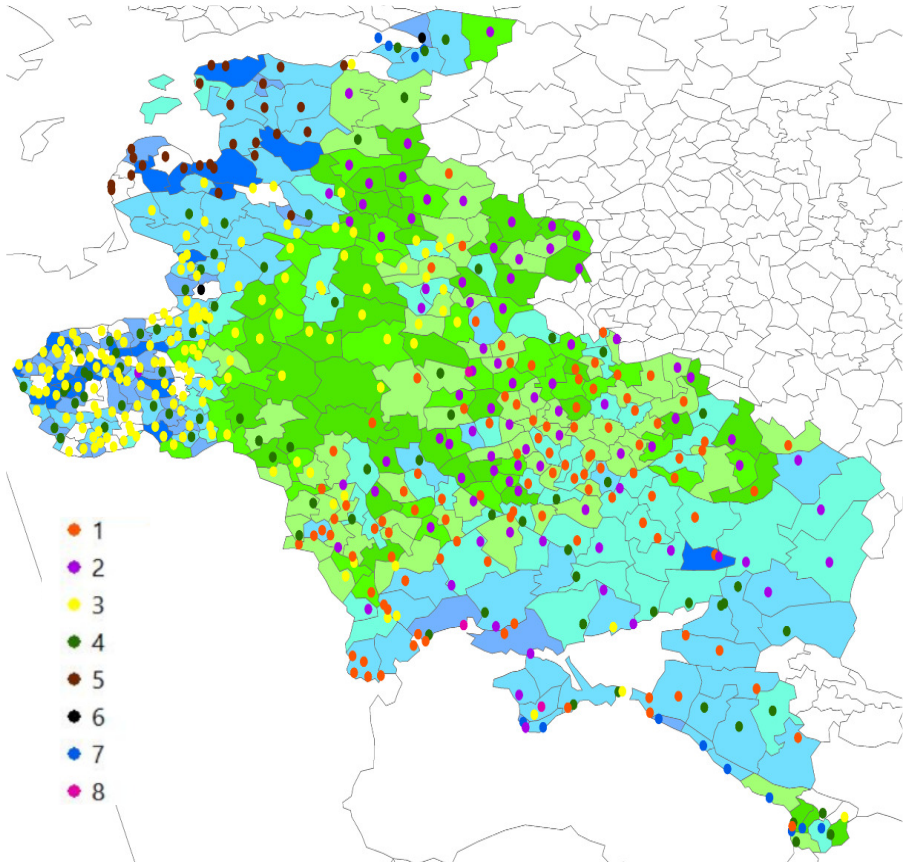


Figure 29. Urban types based on cluster analysis (1897)  
Basemap illustrates the difference in development level between urban areas and rural background

The “Baltic type” was characterized by high literacy rates. The numeric difference between the old elite of nobles and priests, and the new elite of merchants, was smaller here, than in Polish towns. The urban population was relatively old, whereas the population in the cluster of coastal towns was relatively young. The proportion of migrants was high in these coastal towns which suggested smaller households. The literacy rate was also high, and the proportion of priests and nobles was among the highest, as these two layers were the representatives of state power. The aggregated level of development in the Polish-Belorusian urban type in 1897 was above the regional average, while the cumulative development value in the Lithuanian-Galician group and in southern Ukrainian towns was below the regional average.

*The spatial pattern of urban-rural differences did not always follow the pattern of urban clusters (Fig. 29–30). Sometimes same urban types occurred on different clusters, sometimes more than one urban types were abundant on a certain rural regions, which implies the additional fragmentation of the economic space.*

*The development level of the Baltic, Crimean, and Polish countryside was close to that of the urban cluster. However, the development level of the rural hinterland is always relative. (The difference can be small between developed towns and developed hinterland, but it was also small between underdeveloped towns and backward hinterlands. Clusterization made it possible to differentiate between them.) Areas reclassified into rural cluster nr. 3, that was also abundant in the above described areas, was moderately developed measured to towns in its area, whereas rural clusters 6 and 7 were lagging behind the towns in their area. Their distinctive*

features (that separated clusters 6 and 7) were also well identifiable (Table 6). In the case of rural cluster 6 the difference between urban places and background areas was great regarding non-autochthonous population and the proportion of priests and nobles, while in the case of rural cluster 7 the major difference between urban centres and rural background could be found in the proportion of merchants and elderly people. Both cluster 6 and 7 were characterized by great differences in literacy rates and proportion of households with servants regarding urban-rural relations. Cluster 1 and cluster 3 located next to each other had numerous common features too, but in areas grouped into cluster 3 the urban-rural difference regarding literacy was high.

To sum up, *at the beginning of the Soviet era, most of the old historical structures still prevailed despite the administrative reorganization in imperial Russia.* The area encompassed by the former boundaries of the *Rzeczpospolita Polska*, the Baltic region, and Crimea were separate regions based on their general level of development, as well as on regional characteristics. The future Ukraine comprised three different historical regions that partly extended beyond the Ukrainian territories. The present eastern borders of Poland, and the present boundary between the Baltic states and Russia/Belarus, were drawn parallel to the “phantom” boundaries of the historical regions that were identified in 1897. The investigation of internal inequalities between urban and rural environs confirmed the existence of these regional phantom boundaries. Even the future area of Belarus correlated with the extent of the cluster that was characterized by great discrepancies between towns and villages in 1897. All of these cases support Osterhammel’s theory (1997)

that empires either refrain from attempting ethnic homogenization, or that their homogenization efforts ultimately fail.

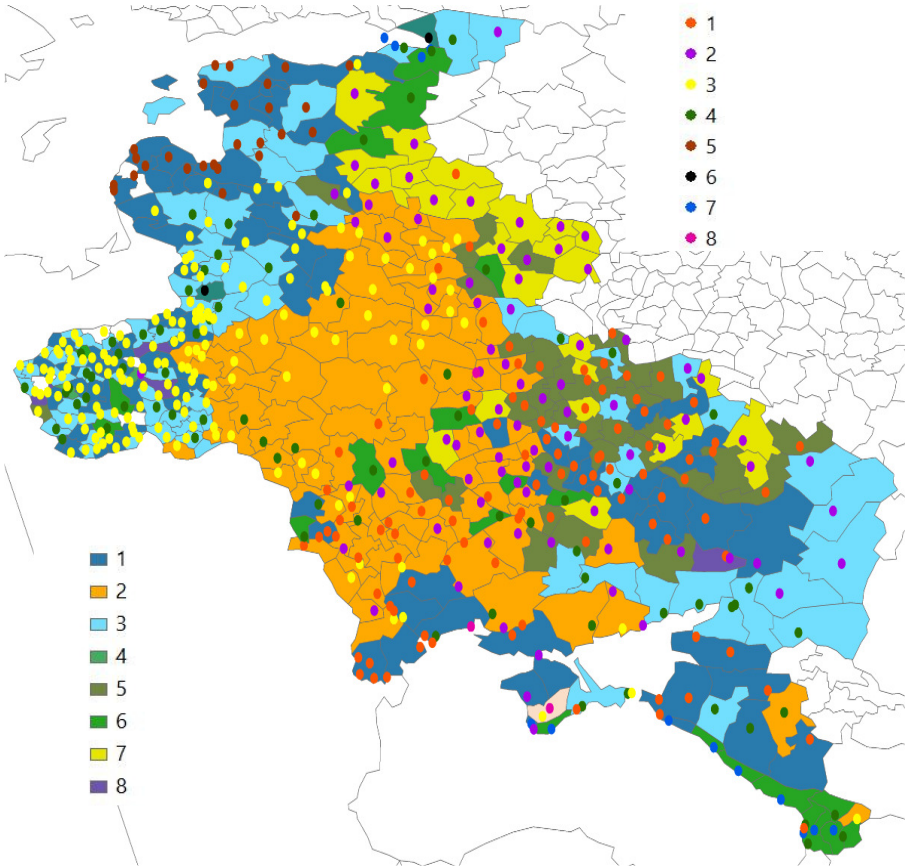


Figure 30. The typization (clusters) of rural areas (*uyezds*) based on the differences between towns and their background. Rural cluster types are illustrated together with urban clusters

Table 5. Urban cluster types and their characteristics, distinctive features based on the average values of the indicators (1897)

Clusters (Types) Ward Method (Case number in brackets)		Literacy rate(%)	Not indigenous (%)	Nobles and priests per 1000 prs	Merchant/1000 prs	(noble+priest+mercha nt)/ urban dweller	Pravoslavs (%)	Large households over 6 prs, %	Households with servants (per 1000)	Population above 60 yrs (%)
1 (108) Southern Ukrainian	Mean	29.06	14.71	42.16	109.34	13.61	81.46	36.09	130.17	7.04
	Std. Dev.	7.27	7.66	20.05	84.94	11.38	21.16	4.90	43.39	1.16
2 (86) Eastern	Mean	42.05	26.88	88.95	228.53	22.17	72.72	30.55	223.31	7.48
	Std. Dev.	6.20	8.67	37.99	141.16	20.92	23.58	5.93	108.77	1.56
3 (173) Polish a Belorussian	Mean	38.72	22.24	46.60	40.91	111.89	15.92	30.57	143.87	7.01
	Std. Dev.	9.63	9.48	33.14	54.61	1390.87	16.51	6.35	52.00	1.63
4 (78) Lithuanian- Polish-Galician	Mean	46.73	52.61	170.52	106.47	27.23	49.34	25.19	208.68	5.45
	Std. Dev.	7.87	10.84	97.33	72.94	45.71	31.85	5.75	50.10	1.29
5 (28) Baltic	Mean	76.05	35.86	73.53	61.33	17.27	11.49	15.22	124.52	10.36
	Std. Dev.	6.25	19.49	54.09	57.19	10.90	9.36	3.92	36.24	1.99
6 (2) St. Petersburg	Mean	55.95	45.72	216.32	68.82	34.31	43.83	22.81	211.08	30.26
	Std. Dev.	9.40	32.47	174.67	97.33	34.24	58.55	9.06	94.67	7.36
7 (14) Southern coastline	Mean	52.94	76.06	508.88	147.84	137.98	79.36	14.69	171.21	3.58
	Std. Dev.	9.28	10.82	215.68	109.20	292.23	9.16	5.77	54.25	1.55
Total (492)	Mean	41.01	28.67	88.34	110.83	55.77	49.05	29.98	167.62	7.04
	Std. Dev.	13.44	17.95	104.80	186.61	826.97	49.56	11.44	98.53	2.43

Dark background represents indicator values above total average, light grey colour indicates values below total average. Colours in the first column represent overall development level measured to the total average.

Table 6. Characteristics of rural groups generated by cluster-analysis based on the differences between towns and their uyezds (background areas), 1897

Clusters based on the nature of difference between towns and uyezds (Ward Method)		Literacy rate (%)	Not indigenous (%)	Nobles and priests / 1000 prs	Merchant/1000 prs	(noble+priest+merchant) / urban dweller	Pravoslavs (%)	Large households over 6 prs, %	Households with servants (per 1000)	Population above 60 yrs (%)
1 (89)	Mean	6.91	4.39	3.39	0.49	0.50	-0.54	-8.12	2.34	0.43
	Std. Dev.	7.85	12.71	2.11	0.52	0.41	7.42	8.44	6.74	1.36
2 (95)	Mean	21.74	17.57	5.30	1.14	0.44	-37.54	-8.64	11.97	0.07
	Std. Dev.	5.28	8.85	2.59	0.67	0.28	11.26	9.56	4.52	0.76
3 (78)	Mean	15.54	24.32	9.45	0.55	0.95	5.86	-11.32	6.37	-0.57
	Std. Dev.	7.72	9.00	5.14	0.55	0.73	12.11	5.64	5.70	1.11
5 (37)	Mean	20.36	8.75	4.69	1.80	0.38	-6.27	-12.30	11.29	1.73
	Std. Dev.	5.80	4.09	1.68	0.46	0.11	9.36	4.76	2.91	0.99
6 (24)	Mean	28.03	35.26	29.81	1.07	0.70	-4.05	-17.60	13.12	-1.68
	Std. Dev.	7.85	15.66	16.01	0.93	0.34	19.51	7.94	7.11	2.22
7 (26)	Mean	31.60	16.66	8.98	3.60	0.40	-5.88	-17.65	17.14	1.30
	Std. Dev.	5.17	7.69	3.04	1.43	0.19	7.66	5.48	4.70	1.44
8 (4)	Mean	10.62	3.49	3.36	-0.05	7.26	3.04	-7.47	4.99	0.73
	Std. Dev.	7.18	9.12	1.76	0.06	2.55	3.39	6.65	3.42	2.48
Total (358)	Mean	17.40	15.81	7.58	1.07	0.66	-10.01	-11.67	8.24	0.29
	Std. Dev.	10.17	13.56	8.21	1.08	0.89	20.21	23.76	14.19	2.30

Dark background represents values above total average, light grey colour indicates values below total average. Colours in the first column represent overall development level measured to the total average.

#### **4. Fault lines towards the West – after 1920**

In the previous chapters we examined the structural differences of the post-Soviet space within the Russian Empire, while this chapter investigates whether beyond the internal fault lines of the Warsaw–Vilnius–Minsk–Kiev–Odessa region definite external faults existed towards the West or a broad transitional zone was characteristic instead. For this the data of the Central European Atlas (Rónai 1945) compiled by András Rónai for the 1930s were analyzed. The investigation was aimed at the question whether the new boundaries after 1918 coincided with the old fault lines or not, and to what extent were the new boundaries able to overprint the original patterns of old structural differences, diminishing the regional differences within East-Central Europe. The original hypothesis was that contrary to economic features, socio-demographic features are more conservative – the latter change slower than economy –, so remarkable changes 10 years after the border changes should not be expected. In other words, if development levels are calculated and broken down to components, then social features, due to their greater persistence, will reflect more or less the old situation (whereas in the case of economic indicators this is not evident at all). So, if fault lines are identified these are inherited and not the consequence of the new situation.

A great advantage of the 'Rónai Atlas' is that its editors put emphasis on data harmonization and integration of the numerous statistical bureaus in this politically fragmented space. A disadvantage is that neither the two areas investigated in the two time-horizons (1897 and 1930s) are comparable, nor the variables investigated were the same.



This implied that neither the goals of the two investigations, nor the methods applied were the same.

To carry out the investigation for the 1930s in a different region, 15 available indicators, representing the social and economic segments, were selected (see *Table 7*: the limited number of available variables focused mainly on the agrarian sphere and demography). The upper and lower quartile of the values of single variables was selected and a new, rescaled value (+1 and -1) was assigned to the highly positive and negative features. Finally, each rescaled map with its unified legend was overlain on each other and were visualized on a complex map aggregating all indicators. Since the 15 variables before and after rescaling showed low correlation, they could be considered more or less independent variables. Only illiteracy and death rates, illiteracy and agrarian density, and – surprisingly – illiteracy and the proportion of industrial earners showed correlation  $r > 0.5$ . The latter refers to the phenomenon that the significance of well-trained and educated labor force was smaller in the industrialization of the region here. The correlation between death rates and the proportion of agrarian earners was also above 0.5 (referring to many preindustrial regions), which means that the increasing role of the industry does not necessarily diminished the role of agriculture by 1930, and it also explains the connection between illiteracy and the proportion of industrial earners.

The selected indicators were first grouped in order to separate quickly changing economic and more conservative socio-demographic features and these subsets were also illustrated on maps. Aggregated values refer to the level of development. Demography was

represented by birth rates, death rates, infant mortality and the combination of density and population growth.

In East-Central Europe the Polish region showed the most favourable situation regarding *demography* (low death rate, mediocre birth rate). In the Balkans the similarly good values of these indicators were accompanied by low values of other variables. There was a remarkable drop along the old Galician border and along the new Polish-Romanian and Polish-Soviet borders (*Fig. 31*).

The map illustrating the composite *agrarian features* shows the good performance of Hungary, Western Poland and Southern Romania, and it marks fault lines along the old Croatian-Hungarian boundary and the new Romanian-Hungarian border, reaching the future Curzon line.

The aggregated map illustrating phenomena connected to *modernization processes* contained data on railway accessibility, infant mortality and illiteracy. The level of development radically decreased beyond Oradea, Cluj and Lvov. The lowest values occurred along the Carpathian Mts., in Transylvania and along the border of Moldova and Bessarabia. Hungary together with the Polish regions (showing weaker performance) constituted a wide transitional zone between the German and Ukrainian-Belarus-Moldavian region. The map strengthens the conventional theory on the three historical regions in Europe (Szűcs J. 1981), as the 'Visegrad countries' occupied a separate space (except for the Czechs) (*Fig. 32*).

Finally the *superposition* of these three maps in a complex map offers possibility to illustrate general differences of development (*Fig. 33*) in the 1930s. The values ranged between -11 and +11 (the theoretical limit was -15 and +15). Despite the broader interval compared to the

previous 3 maps, *fault lines did not become deeper, which means that some sort of intraregional specification did exist that time and this partly extincted, mitigated the differences.* The *intra-Polish fault line (the future Curzon-line, the dividing line between Orthodoxy and Catholicism), the ranges of the Carpathian Mts., as well as the new Hungarian-Romanian border were the major rifts observed in the 1930s.*

*Territories beyond the new (1921) Polish-Soviet boundary were even more backward.* Bessarabia occupied a separate subspace in 1930 and differed from the Romanian regions. The relatively high development of Galicia was due to the pull-effect of Lvov (neither Bucharest, nor Kiev or Belgrade was able to increase the development level of their broad surroundings). *The overall picture suggests that East-Central Europe was a transitional zone in the 1930s. Underdeveloped, backward regions along old (Carpathian Mts., Galicia) and new boundaries (Erul Valley, Bukovina, Bessarabia) occurred with the same probability.*

Regarding the western links of the post-Soviet space, *the southern regions remarkably differed from the East-Central European space due to the fault line along Bessarabia and Galicia. In the case of the newborn Poland a wide transitional zone with deteriorating levels was observable towards the Russian regions. The internal fault line located within the new Poland was the same observed in 1897. This fault disappeared only by 1945, when the rearrangement of the boundaries solved the problem.*

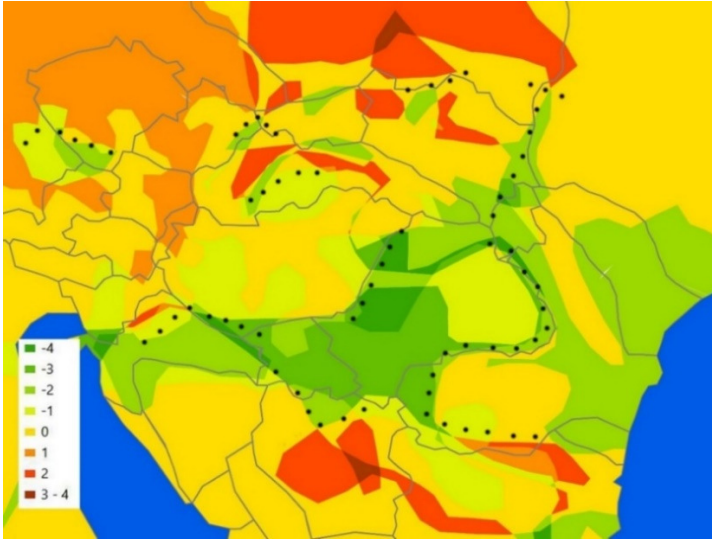


Figure 31. Regional differences in development of East-Central Europe based on *aggregated demographic* indicators and their relationship with new and old boundaries (Higher values represent favourable features)

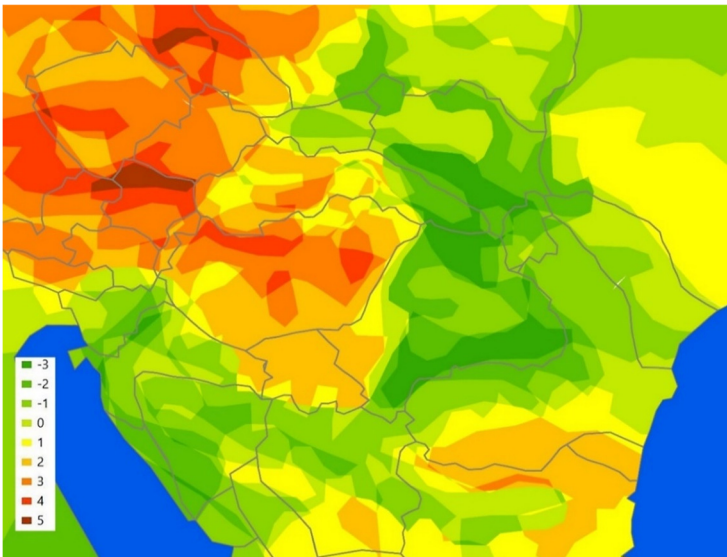


Figure 32. Regional differences in development of East-Central Europe based on *agrarian* indicators and their relationship with old and new boundaries

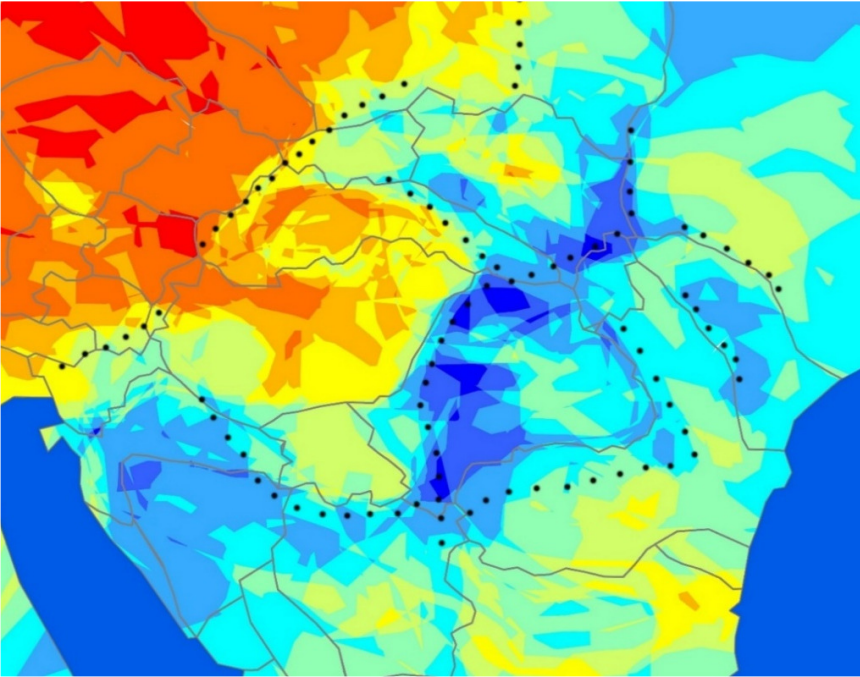


Figure 33. Regional differences of (aggregated) development in East-Central Europe in the 1930s and its connection to the old and new boundaries

The relatively low correlation between the 15 variables made it possible to execute a cluster analysis. The goal was the same as in the 1897 investigations: to delimit subregions of similar characteristics and to identify their distinctive features (*Fig. 34*). Nevertheless, these formal regions do not necessarily coincide with development regions. Even in the case of setting 7 clusters, the area of Congress Poland could be distinguished from other regions like Galicia or Russia. The discriminant-analysis applied as control method showed a 90% success rate at reclassifications. *Romania and the SHS Kingdom also belonged to this Russian-Galician cluster, which means that the latter region was similar to the Balkans regarding its socio-economic and demographic*

*features. The position of cluster 4 (Polish regions) on the diagram overlapped with cluster 2 (Hungarian Great Plains), which means that the former was similar to the latter, rather than to the Russian zone.*

If the number of predicative groups is increased to 15 (Fig. 35), then the homogeneous Galicia and the Carpathian Mts. becomes more fragmented and *Southern Poland (the northern part of the former Austrian Galicia) also became separated from other Polish regions previously under Russian rule. As the result of the fragmentation Bessarabia also became a separate region, but resembled more the Ukrainian regions, while Transnistria was similar to the Regat (Old Romania). A large part of Belarus and Ukraine was grouped into the same cluster and the boundaries of this cluster (13) towards Poland remained stable. The same cluster still incorporated the area of the SHS Kingdom, thus the features of Eastern Europe repeated themselves in the Balkans. Similarly, the Polish core area had its 'pair' in Serbia. In case of increasing the number of clusters, the boundary between the Polish and Belorussian-Ukrainian zone still remained the most stable. However, the discriminant-analysis warned that the reclassification of Polish areas were, in fact, the most uncertain (50% success rate at reclassification), thus they can be considered the least homogeneous territorial entities with wide transitional zones towards other clusters in the West and the South (but not to the East, where a fault line – a sudden drop in development level or stable cluster boundaries – separated it from Russia).*

Calculating the average values and standard deviation of the single variables for each cluster allows us to make distinction between them and to identify their distinctive features (Table 7).

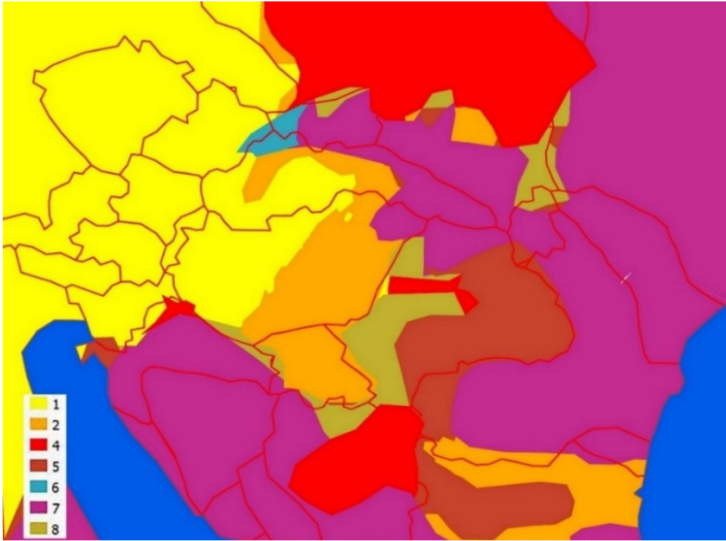


Figure 34. Formal regions of East-Central Europe based on the values of 15 variables (7 clusters)

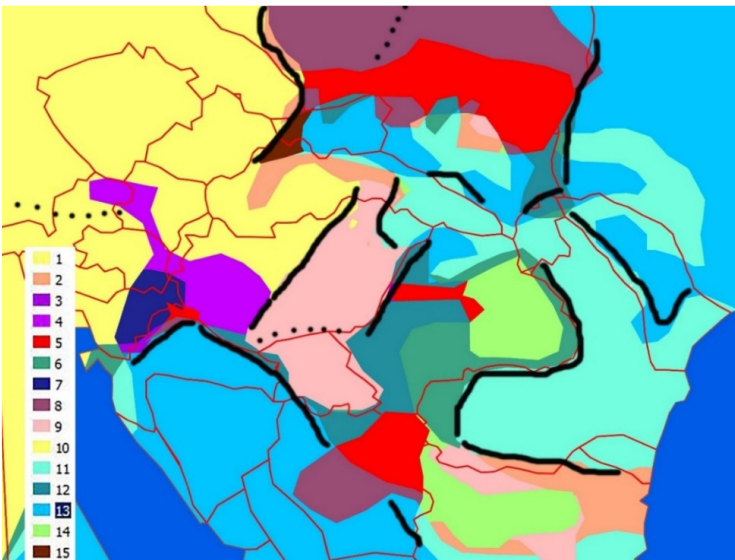


Figure 35. Formal regions in East-Central Europe (12 clusters) in the 1930 based on 15 variables. Stable regional boundaries are indicated by black lines, dotted lines represent further fragmentation in case of increasing cluster numbers from 12 to 22



Table 7. Average values of the indicators in the case of 15 clusters in the 1930s

Formal regions (clusters)		Illiteracy rate	Infant mortality	Railway accessibility	Grain-surplus	Mortality rate	Meat surplus	Industrial employees	Public servants	Income of pastures	Population increase	Agrarian earners	Agrarian density	Income of meadows
1. Germany and Austria	Mean	0.88	0.23	0.47	0.03	1	0.43	0.79	1	0.06	-0.25	0.4	0.9	0.61
	Std.Dev.	0.325	0.764	0.5	0.783	0	0.496	0.407	0	0.233	0.548	0.49	0.4	0.488
2. Slovakia and North-Bulgaria	Mean	0.16	-0.45	0.31	-0.03	1	0.28	0.14	1	0.19	-0.07	-0.47	1	0.26
	Std.Dev.	0.724	0.499	0.463	0.699	0	0.448	0.658	0	0.397	0.495	0.5	0	0.44
3. Southern Transdanubia	Mean	0.87	0.19	0.4	0.44	1	0.94	0.44	-1	0	-0.61	-0.18	0.78	0.39
	Std.Dev.	0.338	0.761	0.492	0.592	0	0.239	0.519	0	0	0.505	0.687	0.416	0.49
5. Galicia-Polish borderline	Mean	-0.61	0.05	0.67	0.24	1	0.45	-0.42	-1	0.05	-0.07	-0.92	-0.66	0.06
	Std.Dev.	0.525	0.607	0.471	0.586	0	0.499	0.645	0	0.215	0.593	0.28	0.737	0.239
6. Southern Transylvania	Mean	-0.57	-0.37	0.24	-0.62	-1	0.19	-0.15	1	0.13	-0.69	-0.87	-0.54	0.19
	Std.Dev.	0.575	0.485	0.431	0.604	0	0.393	0.787	0	0.333	0.478	0.333	0.72	0.393
7. Slovenia	Mean	1	0.29	0.39	-0.83	1	0.22	0.41	-1	0.07	-0.41	-0.05	-1	0.54
	Std.Dev.	0	0.461	0.494	0.381	0	0.419	0.499	0	0.264	0.499	0.218	0	0.505
8. Poland and Central-Serbia	Mean	-0.54	0.23	0.65	0.01	1	0.71	-0.34	-1	0.15	-0.04	-0.89	-0.21	0.13
	Std.Dev.	0.513	0.573	0.479	0.623	0	0.456	0.677	0	0.357	0.479	0.312	0.843	0.336
9. Hun. Great Plains and Vojvodina	Mean	-0.2	-0.17	0.36	0.71	0.41	0.73	-0.14	1	0.2	-0.39	-0.78	0.95	0.01
	Std.Dev.	0.53	0.378	0.482	0.455	0.916	0.443	0.617	0	0.398	0.535	0.419	0.213	0.077
11. Romania, S- Bulgaria and Ruthenia	Mean	-0.61	-0.51	0.39	-0.55	-1	0.36	-0.35	1	0.17	-0.1	-0.99	-0.05	0.17
	Std.Dev.	0.488	0.506	0.489	0.66	0	0.482	0.674	0	0.373	0.525	0.106	0.922	0.376
12. Partium and East-Galicia	Mean	-0.52	-0.42	0.46	0.1	-1	0.35	-0.17	-1	0.02	-0.55	-0.98	-0.11	0.12
	Std.Dev.	0.501	0.496	0.5	0.645	0	0.478	0.672	0	0.141	0.64	0.141	0.969	0.327
13. West-Balkans Soviet Union	Mean	-0.65	-0.33	0.4	-0.43	-1	0.5	-0.58	-1	0.26	-0.31	-1	-0.12	0.2
	Std.Dev.	0.477	0.612	0.491	0.668	0	0.501	0.574	0	0.442	0.526	0	0.896	0.404
14. Transylvanian Basin, Balkans	Mean	-0.75	0.03	0.39	-0.17	1	0.57	-0.45	1	0.39	-0.65	-1	-0.81	0.22
	Std.Dev.	0.434	0.517	0.489	0.705	0	0.498	0.645	0	0.489	0.404	0	0.396	0.416
15. Austrian Silesia	Mean	0	-0.51	0.26	-1	-0.71	0	0.63	-1	0.6	0.4	0.49	1	0.94
	Std.Dev.	0	0.507	0.443	0	0.71	0	0.49	0	0.497	0.203	0.507	0	0.236
<b>Total</b>	<b>Mean</b>	<b>-0.15</b>	<b>-0.16</b>	<b>0.43</b>	<b>-0.14</b>	<b>0.07</b>	<b>0.45</b>	<b>-0.05</b>	<b>0.15</b>	<b>0.16</b>	<b>-0.28</b>	<b>-0.6</b>	<b>0.16</b>	<b>0.26</b>

Dark background represents values above total average, light grey colour indicates values below total average. Colours in the first column represent overall development level measured to the total average.

*In the case of 15 clusters 5 micro-regions were more developed than the general average (German areas, Hungarian Great Plains, Southern Transdanubia and Graz, Lvov, Slovakia, Northern Bulgaria). The Soviet regions were characterized by 7 indicators below average, only birth rate showed favourable tendencies. Contrary to this, Polish areas had 5 indicators showing favourable tendencies (infant mortality, railway accessibility, meat-surplus, death rate and birth rate), whereas 4 indicators had unfavourable values. Most of the favourable indicators were of demographic and not economic character. Southern Poland had good accessibility and favourable death rates, while other 6 variables showed values below average. Table 7 indicates these patterns and the identified distinctive features of the clusters. In most cases it is the number of unfavourable and favourable indicators that makes clusters discernable, and not their unique patterns. (Sometimes the solely positive indicator value can be identified as the distinctive one).*

As the fault lines with hundred-year old history were not overwritten by 1930, it is not surprising that the *Soviet regional planning after 1945 neither was able to make these old patterns disappear*, despite the Second World War created a 'tabula rasa' in many places. Soviet policies even contributed to the maintenance of differences in certain cases (in West-Ukraine, for example; whereas in the Baltic states the appearance of Russian population and the Russian cultural policy in Belarus led to the levelling of the regional differences).

## 5. Regional inequalities in the post-Soviet realm after 2000

It is worth examining what happened to the regional disparities after 1990, the collapse of the Soviet regime, in the post-Soviet region. In the next sections we investigate whether the pattern of development levels changed in the last 100 years, or remained constant, and whether the actual pattern of inequalities coincided with recent fault lines and hot-spots or not. We have already seen that the *historical regional boundaries we identified for 1897 often did coincide with present fault lines*.

In order to examine these questions, several indicators were created from the raw variables of Ukrainian and Belorussian censuses covering the period from 1979 to the 2010s. The area under investigation encompassed the territory of Belarus, Ukraine, and some environs from the Russian peripheries (in particular Bryansk) as a control area. First, the spatial patterns of the single indicators were identified as outlined in *Table 1 (Fig. 36–42)*. The processes of ruralization and urbanization, which were accelerated by Soviet regional planning, are well observable. The first of these is seen in the historical areas of Galicia and east-Ukraine, and on the Russian fringes. The latter is seen in western Ukraine and western Belarus along the Polish-Lithuanian border. The ageing index was high in the north, but low in Galicia and southwestern Ukraine. The natural population increase was also high in western and southwestern Ukraine, and in the Polesye. Migration could not compensate for this population pressure because net emigration was seen only in the northern regions, whereas in western Ukraine, in- and out-migration was relatively balanced. As a result, western Ukraine experienced a population increase.

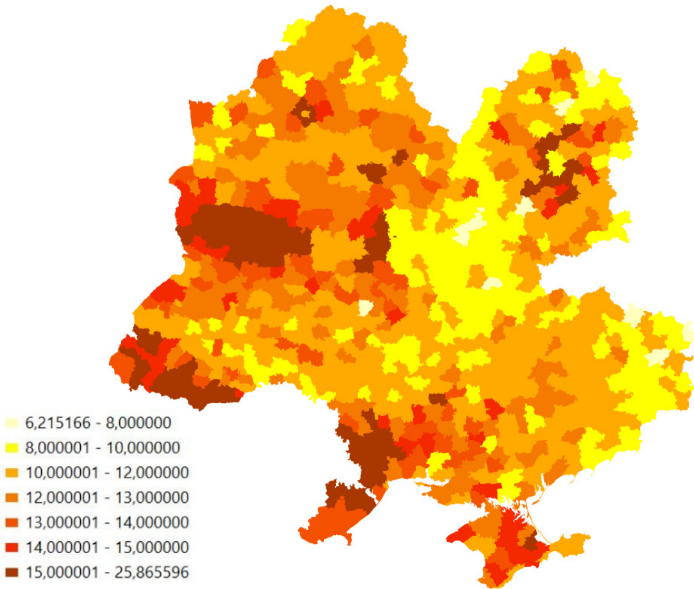
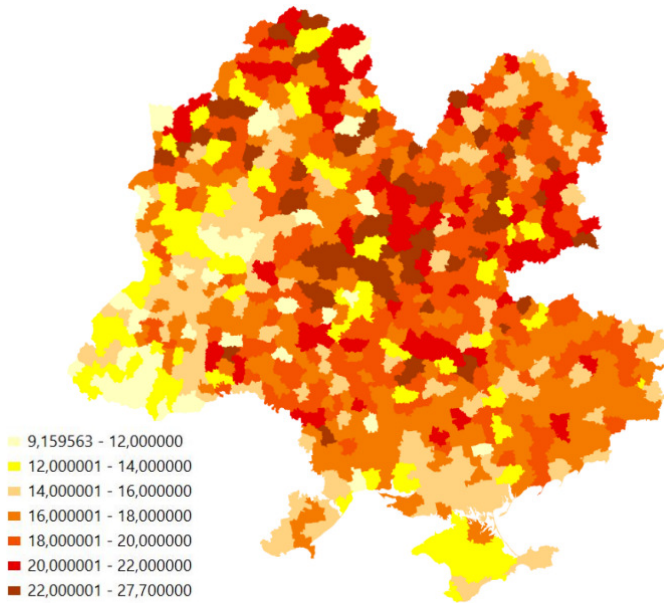


Figure 36. Differences in death rate after 2000 / Differences in birth rates after 2000

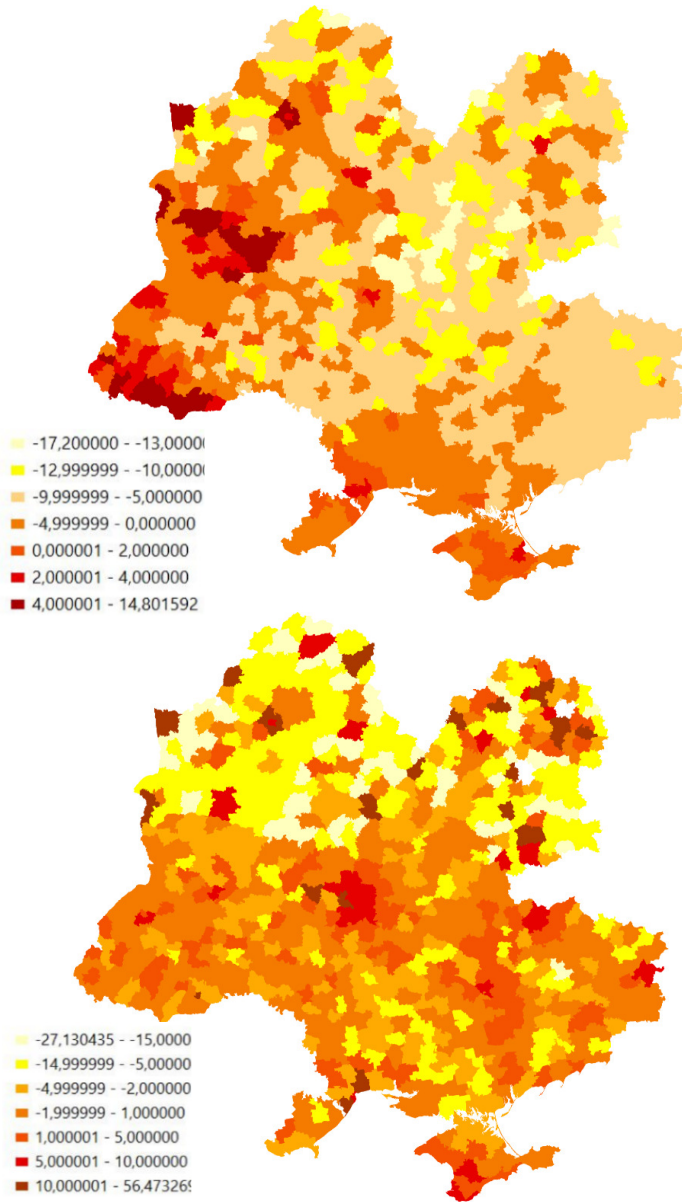


Figure 37. The pattern of the natural population increase (per 1000 prs) after 2000  
Differences of migration rate in the *rayons* after 2000 (per 1000 prs)

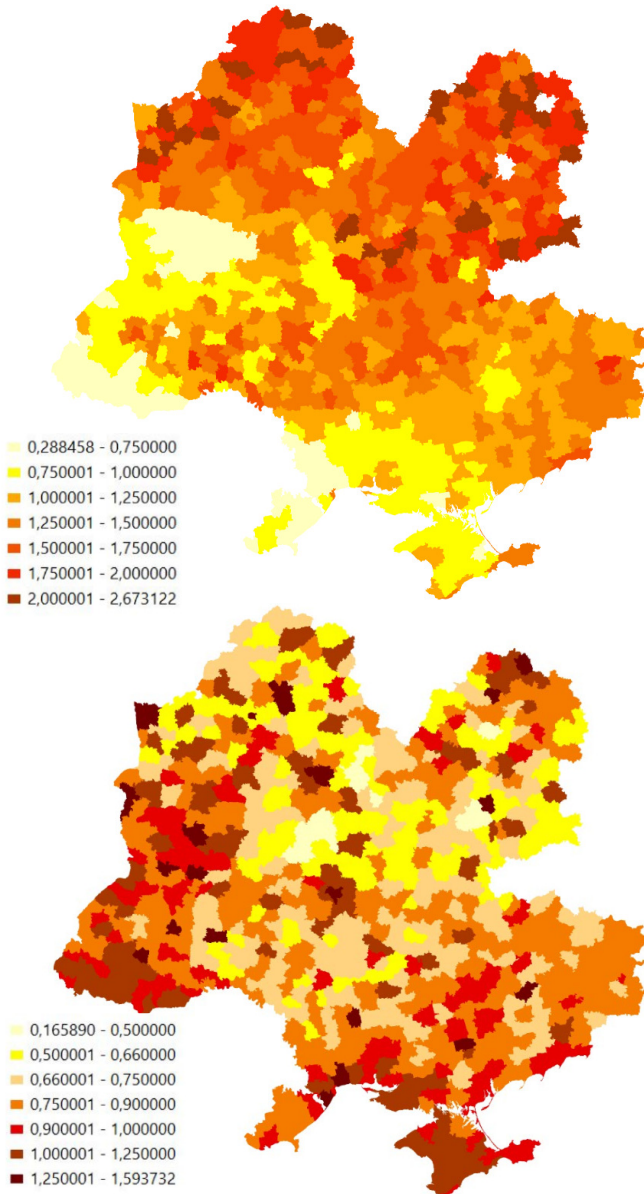


Figure 38. Differences of ageing in the investigated regions after 2000  
Patterns of population growth between 1979 and 2010

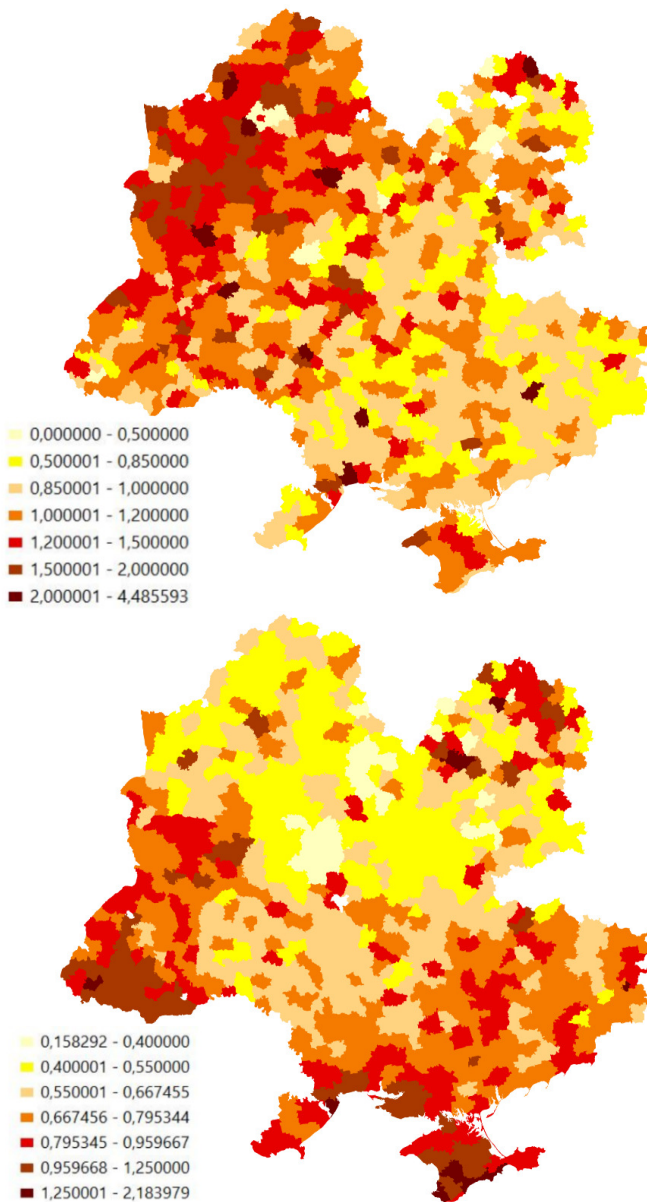


Figure 39. Change in number of urban population (2010/1979)  
Change in number of rural population (2010/1979)



The same was also true for Crimea, which experienced high immigration rates, as well as the Russian fringes outside urban environments.

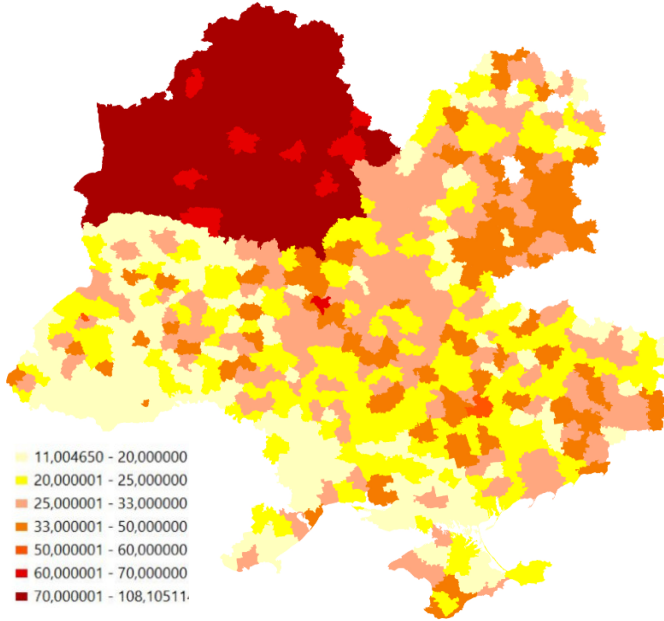


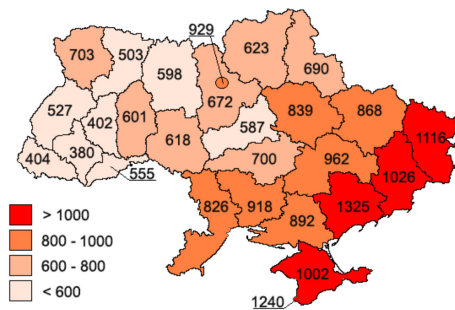
Figure 40. Spatial pattern of employment rate in the 2000s

*In Ukraine, income per capita values, illegal activities, and exports per capita, all showed a regional distribution very similar to the linguistic-political-physical geographical division. However, other features such as life expectancy, employment rates, and death rates did not demonstrate this pattern. Instead, the spatial pattern of population growth showed a gentle East-West slope rather than a sudden fracture, which was dominated by a decrease in population in the East. Employment and migration values showed a similar slope. Furthermore, in some cases, reverse tendencies and patterns occur. In eastern Ukraine, higher income per capita values*

are measured after 2000 than in western Ukraine, which was facing a structural crisis, though the fault line itself persisted. In Belarus regional variability was even less observable. In the case of population increase, birth rates, and ageing index an East-West division reflecting the former Polish-Russian border (1920-1939) was observable, but other (especially non-demographic) indicators did not show this division. A new regional fault line evolved on the Belorussian-Ukrainian state boundary because of the political system in Belarus (the high employment rate can be considered as a relic of the Socialist era). *Based on the income per capita, and the change in the population of urban areas, the Donets basin (the Donbas, with its heavy industry developed on coal and iron during the Soviet times) and the strip along the Polish-Lithuanian border was in a more favourable situation than other areas.*

Figure 41.

Frequency of crimes in Ukraine in 2008



Regional share of exports in 2013

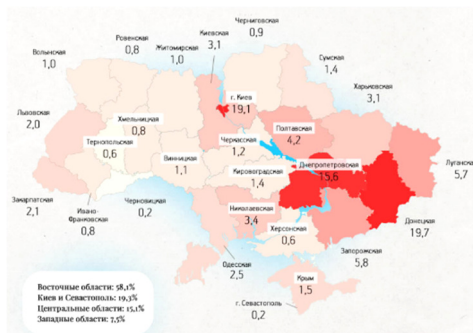


Table 8. Correlation matrix of indicators derived from the censuses of 1979 and 2000. Indicators dropped later are indicated by *Italic* letters, strong correlation is indicated by grey background

Indicators	Employment rate	<i>Employment density, 2000</i>	Income per earner, 2000	<i>Income density, 2000</i>	Migration rate (10-year avg.)	Ageing index (10-year avg.)	Birth rate (10-year avg.)	<i>Death rate (10-year avg.)</i>	<i>Natural population increase</i>	Change in number of urban population	<i>Change in number of rural population</i>
Employment rate	1.000	0.458	0.460	0.533	-0.208	0.407	-0.084	0.141	-0.140	0.242	-0.375
<i>Employment density, 2000</i>	0.458	1.000	0.235	0.949	0.328	-0.197	0.018	-0.485	0.362	0.304	0.268
Income per earner, 2000	0.460	0.235	1.000	0.483	0.061	0.342	-0.078	-0.019	-0.022	0.047	-0.037
<i>Income density, 2000</i>	0.533	0.949	0.483	1.000	0.312	-0.069	-0.001	-0.440	0.321	0.293	0.238
Migration rate (10-year avg.)	-0.208	0.328	0.061	0.312	1.000	-0.301	0.045	-0.396	0.322	0.044	0.417
Ageing index (10-year avg.)	0.407	-0.197	0.342	-0.069	-0.301	1.000	-0.559	0.680	-0.760	-0.122	-0.611
Birth rate (10-year avg.)	-0.084	0.018	-0.078	-0.001	0.045	-0.559	1.000	-0.331	0.692	0.206	0.292
<i>Death rate (10-year avg.)</i>	0.141	-0.485	-0.019	-0.440	-0.396	0.680	-0.331	1.000	-0.894	-0.362	-0.666
<i>Natural population incr.</i>	-0.140	0.362	-0.022	0.321	0.322	-0.760	0.692	-0.894	1.000	0.350	0.619
Change in number of urban pop.	0.242	0.304	0.047	0.293	0.044	-0.122	0.206	-0.362	0.350	1.000	0.049
<i>Change in number of rural population</i>	-0.375	0.268	-0.037	0.238	0.417	-0.611	0.292	-0.666	0.619	0.049	1.000

The aggregation of the single variables in a complex map illustrating the cumulative level of development (Fig. 43) showed that *western Ukraine, Crimea, the Donbas and the Russian border areas were more developed than central Ukraine, which represented the average, while Belarus – due to the similarity of the employment rate in the raions, but differences in salaries and demography – was characterized by great disparities, with territories both above and below*

*the Ukrainian average.* Generally speaking, some of the fault lines, such as the one in western Ukraine along historical Galicia (which was a part of Austria-Hungary prior to 1920), the one along the present Polish-Lithuanian border or the southern Ukrainian fault, and the old fracture between east and west Ukraine *are still traceable (these are not so evident as in 1897, though, because the communist regime and the changes after 1990 rearranged some of the former patterns).* The finer resolution of the investigation – 740 entities instead of 360 – and the different set of variables might also contribute to this difference. Surprisingly, *the socio-economic indicators did not correlate with each other, with the exception of employment rate versus income.* For example, migration rates did not correlate with employment rates, nor with incomes, which was not an expected outcome, but can be explained by the differences in political systems and the creation of new boundaries.

After the examination of levels of development, an attempt was made to identify “homogeneous” regions with the help of cluster analysis (Fig. 44), as was done when studying the 1897 census. Cluster settings seemed to be ideal between eight and eleven (higher cluster number settings resulted in clusters with one or two raions, and such small entities cannot be considered as regions or sub-regions). *The extent of formal regions generated by cluster analysis and that of the development regions did not match.* For example, despite their similarity in development levels, the Russian areas and the Donbas were classified into three different but *intertwining clusters.* The same was true for western Ukraine and southern Ukraine with Crimea. In contrast to this, the Polish-Lithuanian frontier, and the region northeast of Kiev, were classified into the same cluster, despite differences in their development level, whereas 100 years ago they were grouped into different formal

regions. A relatively new phenomenon was identified (and probably the finer resolution and the different set of variables are responsible for this): the central parts of Ukraine and Belarus were classified into two “interconnected” clusters. Cluster 7 was characterized by good employment rates, but low income and migration rates. Despite this, areas classified into this cluster were still in a slightly more favorable position when compared to areas in Cluster 6, even though they occupied nearly similar physical spaces.

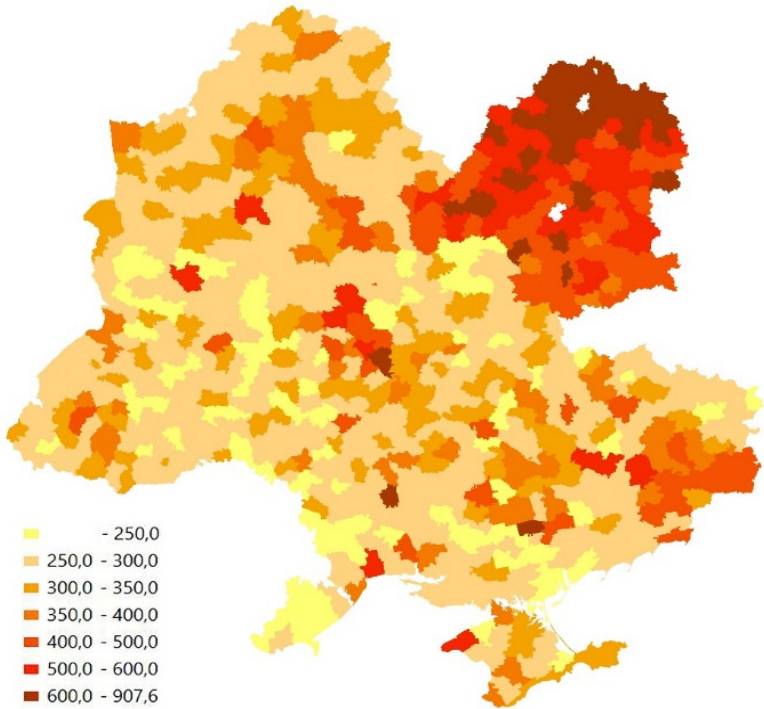


Figure 42. Regional patterns of income per capita

Table 9. Average values of indicators for the different clusters identified as homogeneous regions: characteristics and distinctive features

Clusters Ward method		Employment rate	Income/capita	Migration rate	Ageing index	Birth rate	Death rate	Natural population inc	Proportion of urban dweller	Population increase (2010/1979)
1. Polish-Lithuanian borderline	Mean	49.74	295.72	-9.75	1.83	10.51	22.54	-12.03	0.99	0.60
	Std. D.	27.70	76.99	8.14	0.32	1.49	1.59	2.27	0.25	0.10
2. Russian fringe 1	Mean	28.34	635.42	-8.14	1.84	10.18	19.14	-8.96	0.79	0.74
	Std. D.	7.04	64.65	8.73	0.23	1.21	1.18	1.76	0.40	0.12
3. Russian fringe 2	Mean	30.44	481.37	-3.59	1.68	13.20	20.39	-7.18	1.00	0.69
	Std. D.	6.69	52.49	7.09	0.25	2.33	2.28	3.35	0.17	0.08
4. Donbas	Mean	32.23	513.09	1.96	1.46	10.70	16.57	-5.87	1.00	0.90
	Std. D.	11.86	96.94	13.10	0.25	1.25	1.66	2.26	0.26	0.15
5. Urbanized zone 1	Mean	47.02	472.55	3.31	0.92	13.01	11.85	1.16	1.97	1.32
	Std. D.	20.38	148.32	6.57	0.28	1.74	2.11	3.03	0.73	0.16
6. Central-Ukraine	Mean	26.06	280.36	-1.73	1.21	11.32	17.80	-6.48	0.97	0.76
	Std. D.	11.61	36.84	3.74	0.14	1.41	1.34	1.61	0.18	0.08
7. Central-Belarus and Ukraine	Mean	44.80	284.73	-5.01	1.52	10.53	18.60	-8.06	1.10	0.72
	Std. D.	26.62	34.40	5.71	0.16	1.40	1.37	2.36	0.27	0.08
8. Urbanized zone 2	Mean	36.32	315.54	0.65	1.15	11.06	14.10	-3.04	1.15	0.97
	Std. D.	20.06	45.89	3.64	0.17	1.15	1.64	2.15	0.22	0.12
9. South and Weste- Ukraine 1	Mean	23.40	264.88	-1.67	0.86	13.88	15.61	-1.73	1.00	0.84
	Std. D.	15.71	31.41	4.52	0.13	1.44	1.59	1.78	0.20	0.12
10. South and Weste- Ukraine 2	Mean	19.65	289.79	-0.48	0.63	16.32	12.40	3.93	1.17	1.04
	Std. D.	6.98	40.91	3.21	0.13	2.57	1.20	2.81	0.28	0.09
Altogether	Mean	33.79	334.41	-2.63	1.30	11.80	17.27	-5.47	1.07	0.81
	Std. D.	20.78	112.81	7.16	0.40	2.24	3.26	4.55	0.33	0.19

Values differing from the overall average are indicated by light and dark grey. Regions in the first column above average level of development are indicated by grey background.

Cluster 9 and Cluster 10 recurred in two geographically distant regions, but their development levels, which were based on aggregated values, remained under, or near, the regional average. The main difference between them was that Cluster 10 showed six indicators above the average, whereas Cluster 9 had only two, but the low employment rate and low incomes diminished the progress observable in demographic features. The formerly developed historical Galicia, classified into these clusters, found itself in this poor position only after 1990, because the above-mentioned low employment rate and the regional differentiation of salaries was not characteristic during the Soviet period. Galicia and Zakarpatya still constituted separate clusters, and differ from the central and eastern Ukrainian zones as a result of their historical past. Their development level is not any better, however, than that of the Russian and eastern Ukrainian regions. Present-day hot-spots are located along the identified cluster boundaries and are also abundant where sudden drops in the development level occurred in 2010.



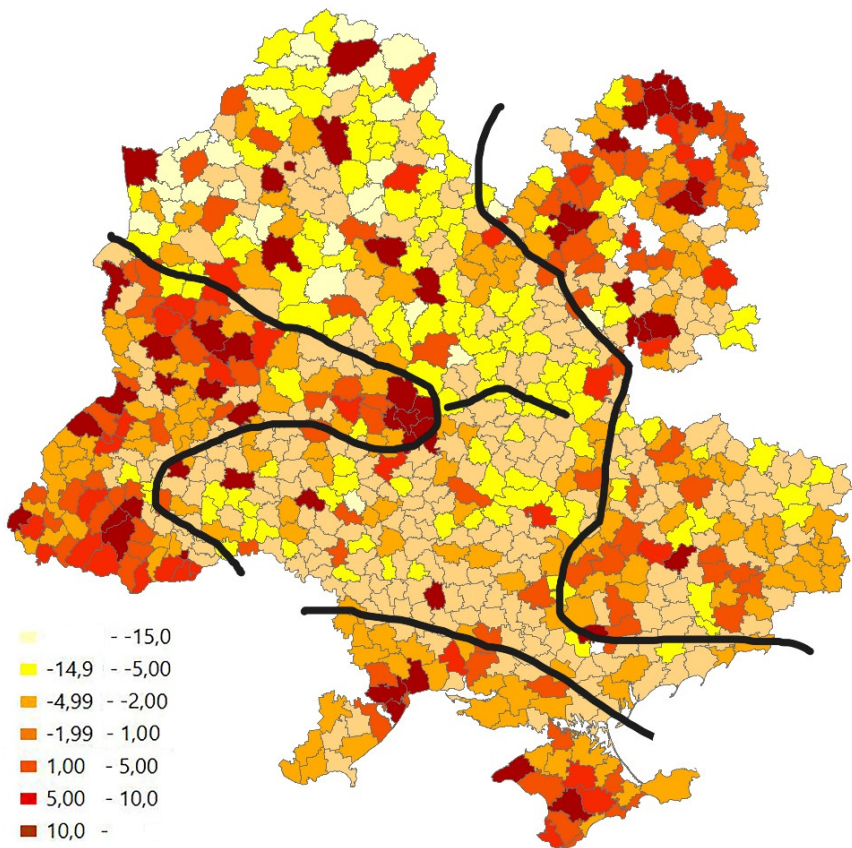


Figure 43. Development pattern of the post-Soviet region in the 2000s based on the aggregation of the factor score values (PCA)

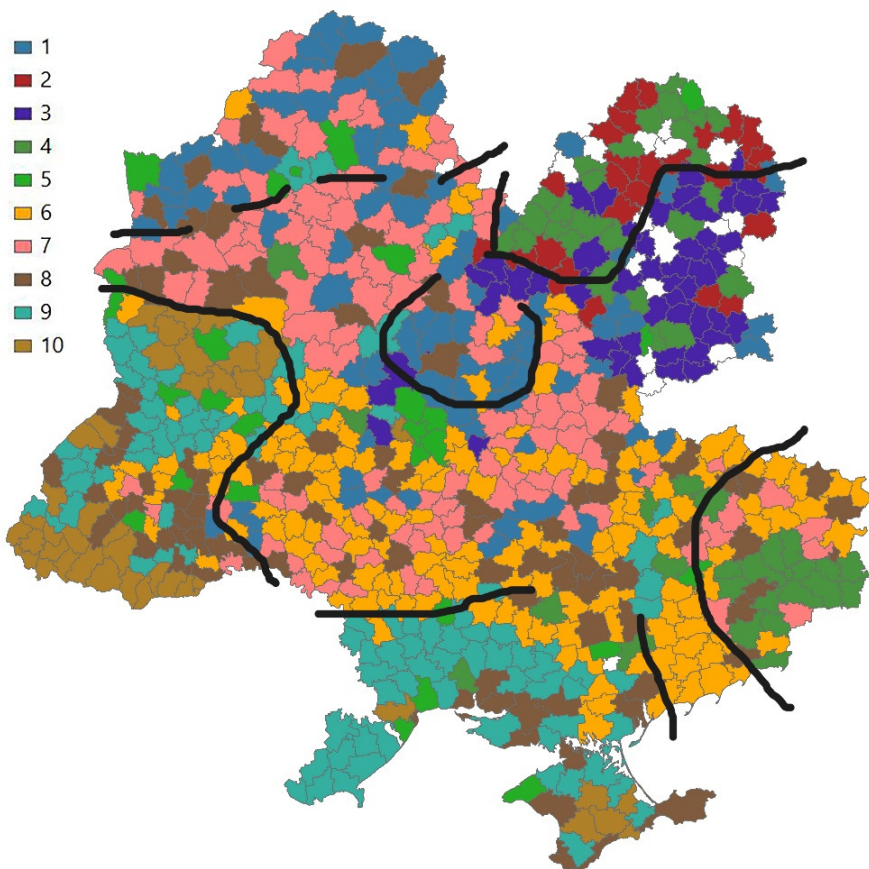


Figure 44. Homogeneous (formal) regions of the investigated area in the 2000s based on the cluster analysis of socio-economic and demographic variables.

## 6. Conclusions

The quantitative investigation of the 1897 census proves that the Russian Empire, though it was able to integrate the acquired territories of Ukraine in 1654, Poland in 1772, and Bessarabia in 1812, was unable to homogenize European Russia until the twentieth century. It is also important to emphasize that, unlike administrative-bureaucratic unification, ethnic homogenization for the empire was not a primary goal as it had huge costs. Loyalty was manifested in ways other than through “belonging to the same nation”. As a result of the relatively low percentage of Russians (45%), the differences of cultural level (the incorporated areas had their own statehood and historical consciousness), and the extensive area (the Russian “colonies” – contrary to the European practices – were in physical connection with the core, which promoted administrative unification, but made ethnic homogenization difficult), nationalism in imperial Russia was not really successful.

The boundaries of historical regions correlated more closely to the old political boundaries than to the new ones. This proves that most of the “phantom borders” are “deep structural fault lines” that are not recreated and maintained by a short-term political-collective memory, but are instead determined by long-term differences in historical development, and are reflected permanently in socio-demographic, not economic, features. Therefore, the failure of the Soviet uniformization effort (which differed from the practices of tsarist Russia) is not surprising. (The term homogenization is improper here, as the USSR, at least theoretically, supported ethnic diversity). The new inorganic

boundaries that were redrawn by Soviet regional planning, such as the incorporation of Crimea into the Ukraine, lacked historical or ethnic content, and in fact remained vague during the decades. The problems of the new political entities stem from the distortions inherited from the Soviet era (Slovakia, for example, is a young state, and is ethnically heterogenous, similarly to Ukraine, but socio-economically more stable).

On the other hand, the census of 1897 implies that the nationalization of empires was a “mission impossible,” (within the given timeframe), especially if the empire’s goal was to create a true nation-state, rather than a “citizenship-nation” (like the USA, for example).

Most of the present-day internal fault lines in Belarus, and in conflict zones such as Ukraine and Moldova, also coincide with old political boundaries. In the case of Belarus, this is the short-lived political boundary between Poland and the Soviet Union from 1920 to 1939. In the case of Ukraine, it is the eastern border of the former *Rzeczpospolita Polska* near Kiev, or with the boundaries of “historical regions” delimited by the quantitative analysis of the 1897 census. The traditional cultural patterns prevailed, partly because of recent political movements that were usually in opposition, or that have re-appeared in the form of regional, and partly ethnic, identities. Among the present-day borders, only the eastern political boundary of Poland and the Baltic region generally coincides with the historical cultural-economic fault lines.

The existing internal inequalities are not only the result of Soviet regional planning, or the collapse of the USSR. Some of these inequalities already existed in 1897, though their pattern may have changed. The pattern of internal inequalities in 1897 also confirms the existence of historical regions. In the towns of what would

become Belarus the proportion of the non-Orthodox population was high, while towards the east differences between towns and their rural hinterland decreased together with the decrease of their general level of development. Some of the differences in 1897 identified in this study remained traceable even in 2010, despite the subsequent effects of Soviet regional policy and the turn in the economic policies of the post-Soviet states, both of which attempted to reprogram the old spatial patterns characteristic of 1897.

Some examinations not discussed here in detail also pointed to the fact that Soviet regions in 1930 differed remarkably from other parts of Central Europe based on the values of some socio-economic indicators (Ronai, A. 1945). Based on the values of these indicators (representing development level in general), the Polish areas of 1897 that regained independence after 1920 were considered to be a part of East Central Europe, whereas East Central Europe — also based on these development indicators — was functioning as a buffer zone of the West (Demeter, G. 2018, based on Ronai 1945). Present-day western Ukraine and western Belarus was a homogenous region in the 1930s based on the indicator values, and was separated from the core of the Polish territories, not only by cultural, but also by economic differences. At the same time, the Balkan Peninsula, which experienced different political circumstances, showed a similarity in its socio-economic indicators to the communist western Ukrainian and Belarus regions.

The regional inequalities after the fall of communism and the collapse of the Soviet Union have prevailed, but show a different pattern than in 1897. Though the cluster analysis still indicates the existence of historical regions that were identified in 1897, such as western Ukraine, eastern Ukraine, southern Ukraine, and the

Polish-Lithuanian border strip, this does not mean there are still significant differences in their development levels as was the case in 1897. The western fringes of the post-Soviet region, which were formerly characterized by higher levels of development when compared to the eastern regions, had lost their favorable position in many aspects by 2010. During the Soviet and post-Soviet eras, an economic levelling took place between the developing eastern Donets, and the stagnating-declining western and southern parts of Ukraine.

The formerly backward Russian territories also showed significant advancement. The western parts of Russia now experience a higher standard of living than Belarus or western Ukraine. Fault lines observable in 1897 in both socio-economic and demographic indicators are observable now mostly in differences of demography. It is also worth mentioning that the pattern of clusters (sub-regions) was more mosaic-like in 2010 than in 1897. However, this might be caused by the differences in the size of territorial units and the indicator structure instead of socio-economic processes. Despite the changes in development levels and economic structures, the present-day “frozen conflicts” are still located around former and present socio-economic and cultural cleavages.

As the examples show, spatial analysis – that is, the identification of backward, underdeveloped peripheries or regions of different characteristics – can contribute to a better understanding of historical questions, as well as the evolution of present-day conflicts.

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