



**Doctoral School of
International Relations
and Political Science**

THESIS BOOK

of the doctoral dissertation of

Mátyás Borbély

titled

**Territorial characteristics of the weakening social positions of minority
Hungarians based on the proportion of graduates**

Supervisor:

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Associate Professor

Budapest, 2024

CUB Department of Geography and Planning

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I. Research background and justification of the topic

In recent years, the situation of Hungarian minorities living in the countries neighboring Hungary has gained increasing attention not only in political and public discourse but also in the realm of academic research. Over the past two decades, there has been a significant increase in studies focusing on the demographic (GYURGYÍK L. – SEBŐK L. 2003, GYURGYÍK L. – KISS T. 2010, GYURGYÍK L. et al. 2010, GYURGYÍK L. 2011, BADIS R. 2012, KISS T. – BARNÁ G. 2012, KAPITÁNY B. 2013, GÁBRITY M. I. 2015, KOCSIS K. – TÁTRAI P. 2015a, 2015b, KOCSIS K. et al. 2015, TÁTRAI P. et al. 2018, 2019) and educational (KOZMA T. 2003, KOZMA T. – PUSZTAI G. 2006, KOZMA T. – PATAKI GY. 2011, BODÓ B. – MÁRTON J. 2012, BODÓ B. 2013, BARNÁ G. et al. 2016, PUSZTAI G. – MÁRKUS ZS. 2017, PÁSZTOR A. 2017, TÁTRAI P. et al. 2022) status of these communities.

However, as several researchers (KISS T. 2010a, PÉTI M. – SZABÓ B. 2016, BORBÉLY M. 2020) have pointed out, studies specifically aimed at capturing the socio-economic positions of these minority communities have received far less attention. While the social positions of Hungarians in Transylvania have been extensively and frequently monitored in detail (VERES V. 2006, 2014, 2015, PAPP Z. A. 2008, KISS T. 2010a, 2010b, 2014, CSATA ZS. 2017, 2019b), the same cannot be said for the Hungarians in Slovakia, Vojvodina, and Transcarpathia, nor for the less populous minority Hungarian communities. Moreover, in most cases, the comparative interpretation of the available information is not without challenges. Therefore, we have relatively little comprehensive information about the changes in the social positions of minority Hungarian communities over the past decades, despite the fact that such research could provide vital information for both the academic community and the policy-makers of Hungary and its neighboring countries.

In modern societies, educational attainment is one of the most crucial determinants of social position. At the individual level, it is associated with labor market and income status (SCHULTZ, T. W. 1961, BECKER, G. S. 1964), life expectancy, health status, satisfaction, the quality of social relationships, social and institutional trust, as well as political participation (COLEMAN, J. S. 1988, VILA, L. E. 2000). At the societal level, higher educational attainment contributes to economic development, the stability of social structures, and more efficient redistribution. Therefore, the proportion of individuals with higher education is particularly indicative of a community's social and economic positions, economic development, and growth potential.

As higher education is also a factor of power, members of non-privileged social groups generally have lower chances of attaining it compared to others (BOURDIEU, P. 1983). In some ethnically plural societies, the institutionalized forms of power are unevenly distributed among different ethnic groups. In such cases, in GERHARD LENSKI's multidimensional stratification model, ethnic groups should be regarded as power classes, and the ethnic hierarchy as an ethnic class system (LENSKI, G. E. 1966, KISS T. 2010a). Therefore, ethnic inequalities observed in the proportion of individuals with higher education implies a society stratified (also) along ethnic lines.

Since the second half of the 20th century, along with many other countries, the massification of higher education has led to an increasingly rapid rise in the proportion of individuals with higher education in the countries of the Carpathian Basin as well (NAGY P. T. 2014, POLÓNYI I. 2014). The social and economic changes following the collapse of the socialist regimes around 1990 further accelerated this growth: from the second half of the decade, the number of students in higher education, and consequently the proportion of those with higher education, grew explosively in all countries of the Carpathian Basin (LANNERT J. 2004, POLÓNYI I. 2014). From the end of the first decade of the 2000s, this extraordinarily dynamic growth was followed by years of declining numbers in most countries, with only brief periods of mild growth breaking the trend. As a result, domestic education researchers have been talking about the end of higher education expansion for some time (HÍVES T. – KOZMA T. 2014, HRUBOS I. 2014, POLÓNYI I. 2014, 2023).

However, some researchers are talking about persistent inequalities, suggesting that inequalities in origin based opportunities have persisted even after the transformation and expansion of the education systems (SHAVIT, Y. – BLOSSFELD H. P. 1993, SHAVIT, Y. et al. 2007). The period of higher education expansion therefore provides an excellent basis for observing the ethnic dimensions of educational inequalities in ethnically plural societies and, ultimately, for understanding the evolution of ethnic stratification systems.

Based on historical educational attainment and higher education enrollment data, it can be shown that the massification of higher education systems during the socialist period led to the gradual loss of position for Hungarian communities in all neighboring countries (TÓTH L. 1994, GÁBRITY M. I. 2001, PÁSZTOR A. 2006, KISS T. 2010b, GYURGYÍK L. 2014). However, the changed social-political-economic environment after 1990 set completely new directions for higher education expansion in these countries. Therefore, the question arises: how has the extremely dynamic expansion of higher education systems since 1990 impacted the weakening educational positions of minority Hungarian communities over the decades?

Based on research from the past decades, it can be inferred that some ethnically plural Eastern European societies are stratified also along ethnic lines, which is reflected, among other things, in ethnic inequalities in higher education positions as well (AASLAND, A. – FLØTTEN, T. 2001, LINDEMANN, K. 2009, LINDEMANN, K. – SAAR, E. 2011, LIAKOVA, M. 2013, WŁODARSKA-FRYKOWSKA, A. 2016). Similar conclusions have been reached by studies examining the social positions of minority Hungarian communities (GYURGYÍK L. 2008, 2014, VERES V. 2006, 2014, 2015, BADIS R. 2008, PAPP Z. A. 2008, KISS T. 2010a, 2010b, 2014, TÁTRAI P. 2023). However, it is important to note that the results of related research are only partially comparable, and there is a significant lack of comprehensive studies that uniformly examine every major minority Hungarian communities.

Even fewer works analyze the higher education positions of minority Hungarians with a high level of territorial detail. This is despite the fact that previous literature points out that a territorial perspective is crucial both for understanding the social situation of Hungarians abroad (KOC SIS K. et al. 2015, PÉTI M. et al. 2020) and for understanding the processes of higher education expansion (RECHNITZER J. 2009, GÁL Z. 2014, 2016, KOZMA T. 2016). There is thus a strong demand for research that examines the higher education positions of minority Hungarians on the basis of detailed territorial analyses.

For these reasons, the goal of this doctoral research is to comprehensively analyze the changes in the higher education positions of Hungarians abroad during the period of the higher education expansion between 1990 and 2020 with a high level of territorial detail. This main issue will be explored by answering three well-defined, interrelated sub-questions. First, it is important to understand the general correlations between educational attainment and ethnic affiliation identified by previous research. It is also necessary to understand how and with what spatial characteristics the proportion of individuals with higher education has developed in the Carpathian Basin during the period of higher education expansion since 1990. Finally, a key question is how the higher education positions of minority Hungarian communities have changed in recent decades compared to these trends, and what spatial characteristics they have exhibited.

II. Applied methods

The research questions of the study require diverse methodological approaches and tools for effective exploration. The first sub-question, which investigates the general relationship between ethnicity and educational attainment, particularly forms the foundation for the subsequent stages of research by reviewing and synthesizing key related literature. Therefore, the first substantive chapter of the dissertation summarizes the main findings of this literature review.

The next chapter of the dissertation focuses on examining the temporal and spatial characteristics of educational attainment, especially tertiary education, across the four examined geographic regions. Spatial characteristics in this context refer to territorial patterns, differences, and inequalities, as well as potential spatial relations between educational attainment and other socio-economic characteristics, leading to distinct territorial configurations. To achieve this, the dissertation analyzes census data on educational attainment, specifically focusing on the proportion of individuals with higher education, collected at county and local government levels since 1990 in the four regions. The emphasis of the analysis is on the descriptive exploration of the distribution of individuals with higher education. Territorial inequalities are assessed primarily using weighted relative standard deviations, while spatial relations between socio-economic indicators are evaluated through correlation calculations. In some cases, the interpretation of the data is supported by map-based data visualization.

The final substantive chapter of the dissertation specifically focuses on the higher education attainment positions of minority Hungarian communities and their spatial characteristics. Within this framework, the dissertation firstly examines the the main spatial characteristics of the Hungarian ethnic structure in the Carpathian Basin, followed by an analysis of the temporal evolution of higher education attainment positions of the minority Hungarian communities. Subsequently, the dissertation explores the spatial characteristics of higher education attainment positions of minority Hungarians through analyses conducted at various territorial (region, county, municipality) levels and using different methods. Spatial characteristics, in this case, also refer to territorial patterns, differences, and inequalities, as well as potential spatial relations between the higher education attainment positions of ethnic Hungarians and other socio-economic characteristics, leading to distinct territorial configurations.

The dissertation primarily analyzes the spatial patterns and inequalities in the higher education attainment positions of ethnic Hungarians at the county level, focusing on the differences between the proportions of higher-educated individuals among the Hungarian and non-Hungarian populations. The emphasis is again on the descriptive exploration of the spatial patterns of higher education attainment positions, while territorial inequalities are assessed primarily using weighted relative standard deviations. In examining territorial relations, the dissertation seeks to answer the question of how closely the higher education attainment positions of ethnic Hungarians in the studied counties and municipalities are correlated with other socio-economic indicators. These spatial relations are evaluated using correlation calculations, with data interpretations supported by map-based data visualizations.

The more detailed, municipality-level territorial relations analysis focuses on the spatial correlations between the proportion of higher-educated individuals and the minority Hungarian population. To investigate this, the dissertation summarizes the main findings of a shift-share analysis conducted on municipality-level census data regarding ethnicity and education in the three foreign regions.

Shift-share analysis¹ is a mathematical method used to quantify the importance and role of territorial characteristics and local dynamics in various social phenomena. It allows for the quantitative separation of the impact of territorial and other structural dimensions on different social phenomena. The classic version of the method is used to separate the territorial and sectoral factors of economic growth ((PERLOFF, H. S. 1960, NEMES N. J. 1979), but it can be applied to analyze any social phenomenon for which the appropriate territorial-level data are available (NEMES N. J. 2005).

To perform the analysis, data disaggregated by at least two dimensions – typically territorial and sectoral – are needed. The sectoral designation can represent any structural distribution: economic sectors, age groups, or – in ethnically plural societies – even categories based on the magnitude of the presence of a particular ethnicity. The territorial dimension can also vary: settlements, municipalities, counties, regions or whole countries. Both dimensions must cover the entire spectrum, meaning territorial categories must encompass the entire region under study, and sectoral categories must cover the full sectoral spectrum (NEMES N. J. 2005).

In this study, the shift-share analysis examines whether the proportion of higher-educated individuals in the examined counties was more influenced by the proportion of Hungarians in the municipalities or by other local factors (e.g., settlement structure). The first

¹ For more details on the method, see: (NEMES N. J. 2005)

step of the shift-share analysis involves summing the populations and the higher-educated populations of the examined municipalities by county and by Hungarian population proportion categories within each county. By dividing the latter values with the former, the average proportion of higher-educated individuals in municipalities within each Hungarian population proportion category can be determined within each county.

These values can then be compared to the average value for the county and the average value for the Hungarian population proportion category as well. The deviation of a county's Hungarian population proportion category value from the county average allows for the calculation² of the impact of the Hungarian population proportion on the proportion of higher-educated individuals in that county. Similarly, the deviation of a county's Hungarian population proportion category value from the category average allows for the calculation of the impact of other local factors on the proportion of higher-educated individuals.

The type of a county based on the shift-share analysis is determined by the deviation of its higher-educated population proportion from the average across all counties (so basically by the county's relative education level) and the relationship between the structural and local effects that influence this deviation. A county is classified as highly educated (H) if its proportion of higher-educated individuals exceeds the average by more than one percentage point. Conversely, a county is classified as lowly educated (L) if its proportion of higher-educated individuals is more than one percentage point below the average. In all other cases, the county is classified as moderately educated (M). The dominance of local effects (L) is identified when the local value exceeds the structural value by more than one percentage point. Conversely, the dominance of structural effects (S) is indicated when the structural value exceeds the local value by more than one percentage point. If neither effect's dominance is detectable, the county is classified as balanced (B) in terms of effects.

² For details on the calculation see: (NEMES N. J. 2005)

III. Results of the Dissertation

Evaluation of direct research history

Research over the past decades suggests that some ethnically diverse Eastern European societies are also stratified along ethnic lines, which manifests in ethnic inequalities in higher education positions as well (AASLAND, A. – FLØTTEN, T. 2001, LINDEMANN, K. 2009, LINDEMANN, K. – SAAR, E. 2011, LIAKOVA, M. 2013, WŁODARSKA-FRYKOWSKA, A. 2016). Similar conclusions have been drawn from studies examining the social positions of the minority Hungarian communities (GYURGYÍK L. 2008, 2014, VERES V. 2006, 2014, 2015, BADIS R. 2008, PAPP Z. A. 2008, KISS T. 2010a, 2010b, 2014, TÁTRAI P. 2023). However, it is important to note that the results of these studies can only be compared partially, and there is a significant lack of comprehensive research that examines the major minority Hungarian communities uniformly.

There is even less research that analyzes the higher education positions of the minority Hungarian communities with high level of territorial detail. This gap exists despite the fact that previous literature highlights the significant role of regional perspectives in understanding both the social positions of the minority Hungarian communities (KÓCSIS K. et al. 2015, PÉTI M. et al. 2020) and the processes of higher education expansion (RECHNITZER J. 2009, GÁL Z. 2014, 2016, KOZMA T. 2016). Therefore, there is a particularly large need for studies that examine the higher education positions of minority Hungarian communities with substantial regional detail.

The spatial and temporal characteristics of higher education in the Carpathian Basin

The analysis of historical data confirms that the literacy rate in the Carpathian Basin began a dynamic increase during the Dual Monarchy period, which was a crucial precondition for the later acquisition of secondary and higher education qualifications. The literacy rate was highest in the present-day territory of Hungary and Slovakia (KARÁDY V. 2013). The spatial distribution of those with higher education was quite similar at the beginning of the 20th century. During the interwar period, the proportion of those with higher education stagnated. However, during the state-socialist period, mass higher education expansion took place across the Carpathian Basin (NAGY P. T. 2014). Besides the increasingly rapid growth of the proportion of graduates across the entire macro-region, Hungary retained its leading position until the change of regime.

Following the regime changes, the proportion of graduates initially increased at a slower pace in the 1990s in all examined major regions. However, after the turn of the millennium, the accelerated expansion of higher education (LANNERT J. 2004, POLÓNYI I. 2014) led to a remarkable growth (*Figure 1*). This growth was particularly dynamic in Slovakia and Transylvania, newly joined to the EU, while in war-torn Vojvodina, it lagged behind the macro-regional average. In the 2010s, the growth rate in Slovakia and Transylvania slowed down, leading to the highest increases in Vojvodina and Hungary.

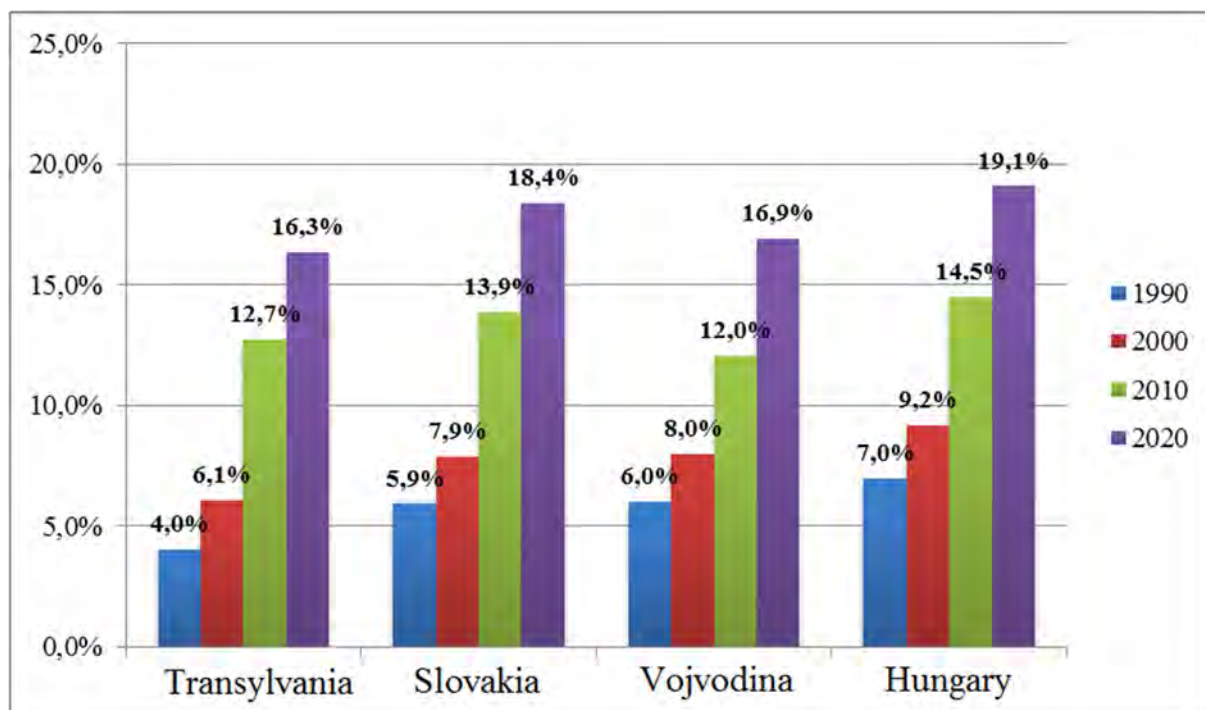


Figure 1: Share of tertiary educated in the total population of the examined regions; 1990, 2000, 2010, 2020 (%)

Source of data: author's own calculations based on census data of the countries concerned

The growth following the regime changes affected different regions of the Carpathian Basin to varying extents. The rate of growth was mostly influenced by the size of the settlements: in larger municipalities, the already higher proportion of graduates increased more rapidly (*Table 1*). Additionally, the center-periphery relationship was also decisive: municipalities in large urban areas typically performed above their size category. This relationship is confirmed by the very strong spatial correlations between the proportion of graduates and municipality size, as well as economic development.

Size category	Hungary	Slovakia	Transylvania	Vojvodina	Altogether
1) capital city	9,0	8,7	-	-	8,9
2) over 200 thousand people	7,6	5,8	13,0	6,7	10,1
3) 100-200 thousand people	6,3	-	11,4	4,0	7,9
4) 50-100 thousand people	5,9	6,9	10,9	3,3	6,7
5) 20-50 thousand people	5,0	7,3	7,3	2,8	5,9
6) 10-20 thousand people	4,9	7,1	6,1	2,1	5,3
7) 5-10 thousand people	4,6	6,6	5,4	4,6	5,5
8) 2-5 thousand people	3,7	5,5	3,1	-	3,8
9) 1-2 thousand people	3,1	5,8	2,6	-	3,9
10) 500-1000 people	2,7	5,4	2,5	-	4,1
11) under 500 people	2,5	5,3	3,4	-	3,9
Összesen	5,3	6,3	6,8	4,1	5,9

Table 1: Change in the share of tertiary educated in the total population of the examined municipalities by size category of municipality; 2000-2010 (percentage points)

Source of data: author's own calculations based on census data of the countries concerned

Thus, the centers of higher education expansion in the Carpathian Basin were clearly the large urban areas, with outstanding values increasingly exceeded the average and below-average values of other regions over time (Figure 2). As a result of the suburbanisation processes that characterised the whole examined period, the spatial extent of these metropolitan areas increased, while their population also grew as a result of the migration processes towards them (as economic centres).

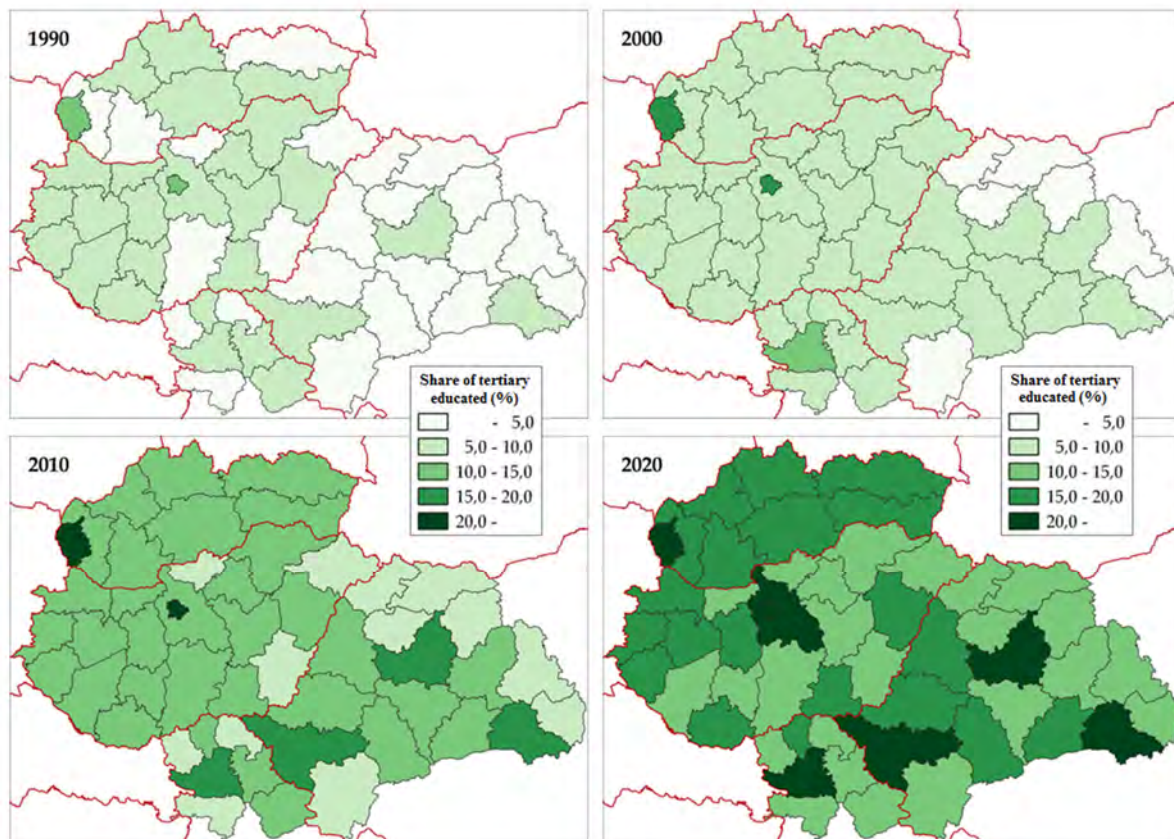


Figure 2: Share of tertiary educated in the total population of the examined counties; 1990, 2000, 2010, 2020 (%)

Source of data: author's own calculations based on census data of the countries concerned

Throughout the examined thirty years, the regional disparities in the proportion of graduates in the Carpathian Basin decreased at both the county and municipality levels. Thus, the county-level convergence processes continue to obscure significant local inequalities. Moreover, the Carpathian Basin's disadvantaged regions, which benefited minimally or not at all from higher education expansion, became more distinct over the decades. These regions significantly overlap with areas predominantly inhabited by ethnic minorities (*Figure 3*).

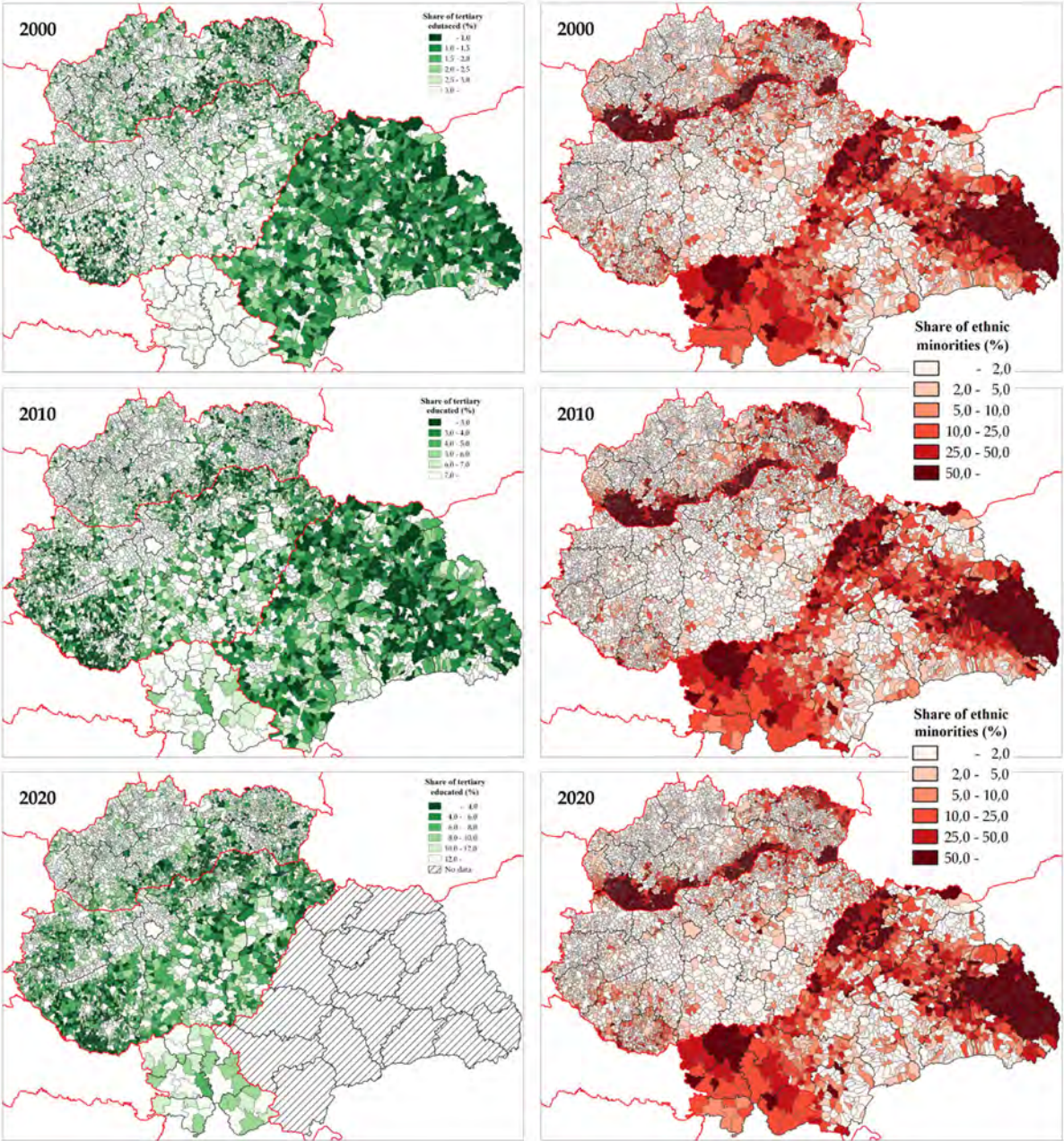


Figure 3: Share of tertiary educated and share of minority population in the examined municipalities (%); 2000, 2010, 2020

Source of data: author's own calculations based on census data of the countries concerned

There are thus clear spatial relationships between the presence of minority populations and the proportion of graduates, despite the overall weak – though slowly strengthening – negative correlation between these two phenomena. This is particularly striking in areas with

higher Roma populations: the significant educational disadvantage of these minority groups is confirmed by ethno-specific data as well.

The spatial characteristics of the higher educational positions of minority Hungarians

In examining the historical background of higher education positions minority Hungarians, it is confirmed that during the era of the Austro-Hungarian Monarchy, the Hungarian majority not only had a better position within the borders of present-day Hungary but also in the regions of the former Hungarian Kingdom that later became separated. After World War I, the position of Hungarian communities in these foreign territories began to gradually weaken, as they were forced into minority status (GYURGYÍK L. 1998, SEBŐK L. 2001, KISS T. 2010a). The better positions of Hungarian minority communities largely turned into positions of disadvantage during the state-socialist era, primarily due to the massification of higher education systems in all affected countries after World War II (PÁSZTOR A. 2006, KISS T. 2010b). By the time of the regime changes, the higher education positions of minority Hungarian communities were already weaker than those of the majority societies in every foreign region.

Throughout the 20th century, Hungarian minorities experienced a weakening not only in their educational but also in their demographical positions, primarily due to migration and assimilation processes (KOC SIS K. et al. 2015). These losses continued and even intensified in certain areas during the 21st century, affecting the changes in higher education positions of minority Hungarian communities.

The slow increase in the proportion of graduates in the 1990s led to only a slight weakening of the educational positions of minority Hungarians (*Figure 4*). The most significant losses were experienced by the Hungarians in Vojvodina, heavily impacted by the effects of the Yugoslav wars. The first decade of the new millennium saw a very dynamic increase, and it was accompanied by significant weakening of the positions of all the three examined minority Hungarian communities. The most notable decline was in the relative position of Transylvanian Hungarians, though significant weakening was also observed among Slovakian and Vojvodinian Hungarians. In the 2010s, the weakening of the positions of the Slovakian and Vojvodinian Hungarians somewhat moderated but continued. However, the drastic deterioration in the position of Transylvanian Hungarians that characterized the first decade of the 21st century effectively stopped in the subsequent decade.

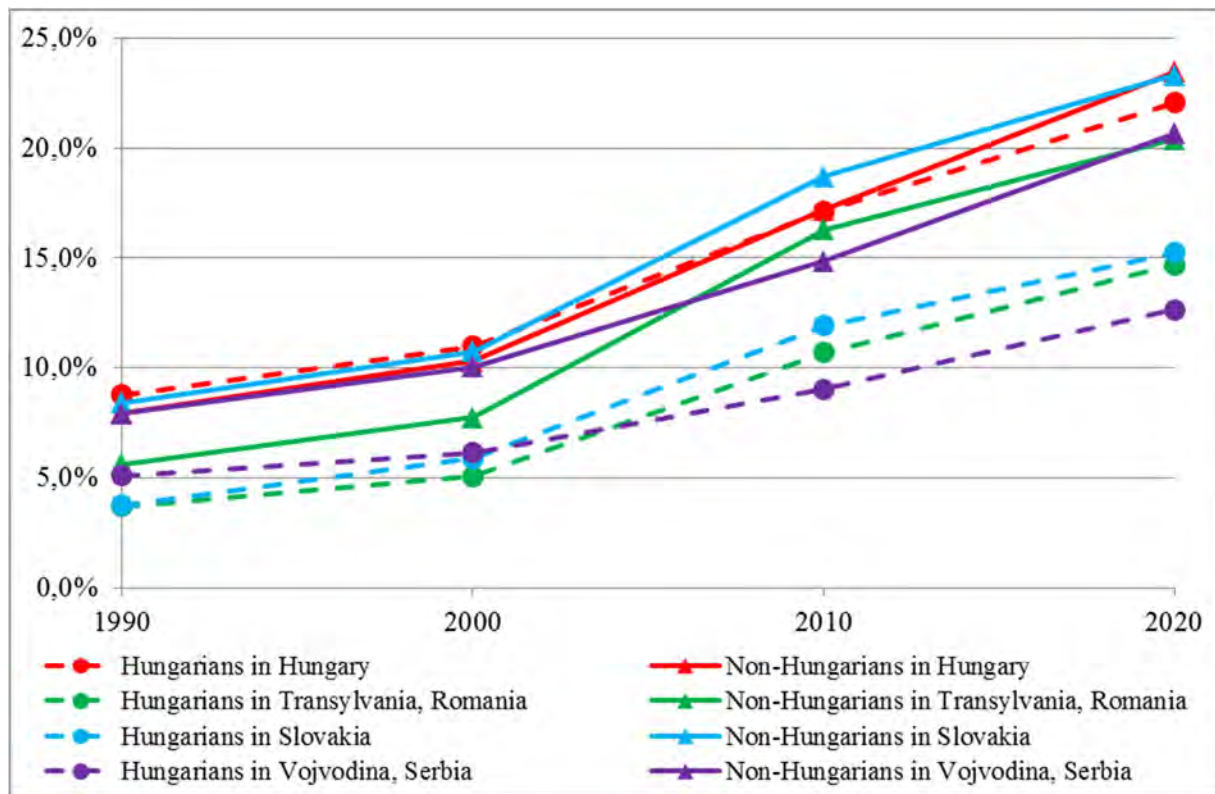


Figure 4: Change in the share of tertiary educated among the population aged 15 and over; 1990, 2000, 2010, 2020 (%)

Source of data: author's own calculations based on census data of the countries concerned

Over the three examined decades, all three minority Hungarian communities experienced a major weakening in their educational positions. Although the proportion of graduates increased significantly in these communities as well, the Hungarian minorities were able to capitalize on the dynamics of higher education expansion to a much lesser extent than the titular ethnic groups. Overall, the hypothesis seems to be confirmed that in the three examined major foreign regions, power asymmetries along ethnic lines are observable to the detriment of Hungarians.

The results also confirm the hypotheses highlighting the significance of the brain drain effect exerted by the kin-state of Hungary (and partly by other more developed countries) on minority Hungarians. The migration of highly educated populations to Hungary has affected Vojvodina Hungarians to the greatest extent among the three examined minority Hungarian communities (BADIS R. 2012, KINCSES Á. 2015). The results indicate that over the three decades, this group also experienced the most substantial loss of position. However, besides the high migration rates of the educated population, the generally weakening position of minority Hungarians could be attributed, in some cases, to the high assimilation rates of these groups as well.

Significant territorial differences are evident in the educational positions of minority Hungarians (Figure 5). In two-thirds of the examined foreign counties, the Hungarian position

was consistently worse, and in many cases, this position even weakened throughout the examined period. In the 1990s, out of the thirty examined foreign counties – except for three districts in Northern Slovakia with fewer than thousand Hungarians – six saw a slight improvement in the relative position of Hungarians. In the first decade of the millennium, the position of Hungarians improved only in these three Northern Slovakian districts, while it significantly declined in every other county. In the 2010s, the position weakened again in seven of the eight Slovakian districts, but in thirteen of the sixteen Transylvanian counties, the Hungarian position strengthened, with some counties showing significant improvements.

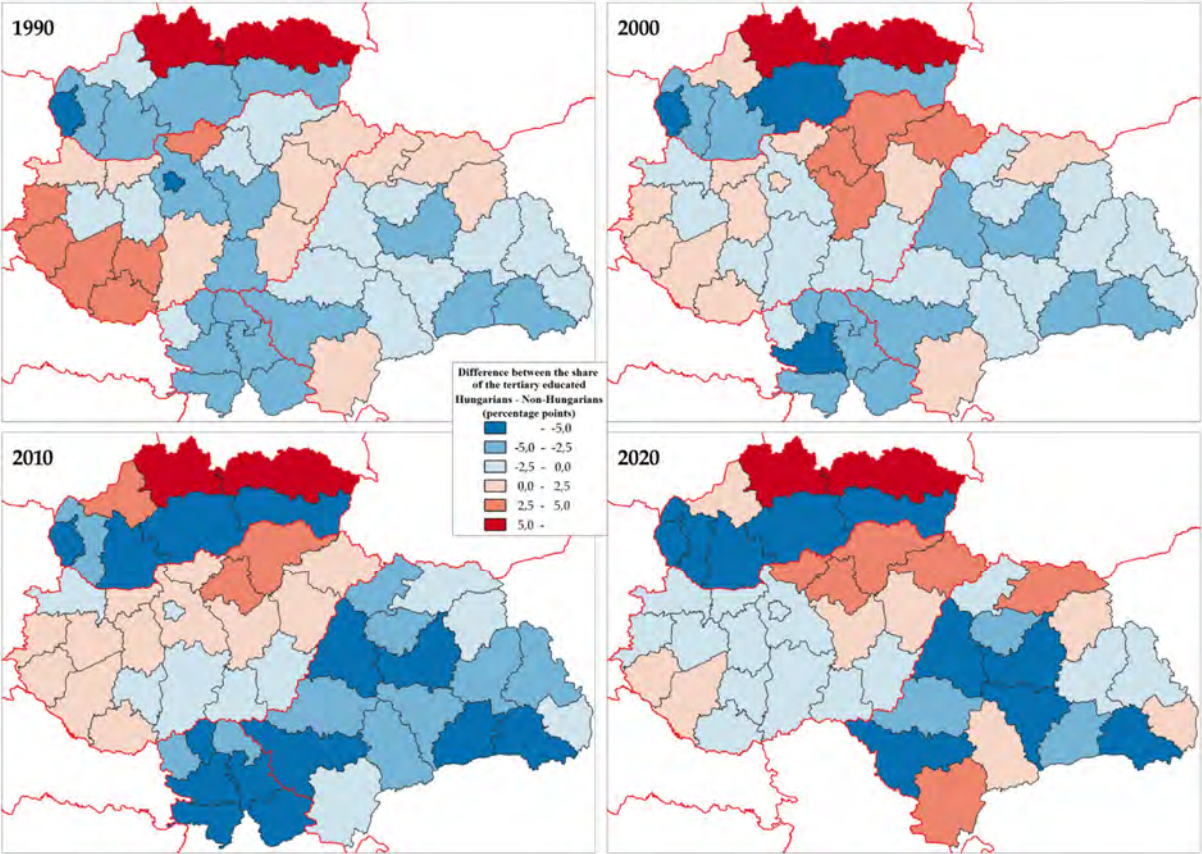


Figure 5: Differences between the proportion of people with tertiary education within the Hungarian and non-Hungarian population in the population aged 15 and over in the examined counties; 1990, 2000, 2010, 2020 (percentage points)

Source of data: author's own calculations based on census data of the countries concerned

The overall significant weakening of Hungarian educational positions over the thirty years is supported by analyses of the relationship between the proportion of Hungarians and the proportion of graduates. This relationship is characterized by an increasingly strong negative correlation at both county and municipality levels. The spatial patterns also show significant similarities: regions with deteriorating educational positions largely overlap with areas inhabited mainly by minority Hungarians (*Figure 6*).

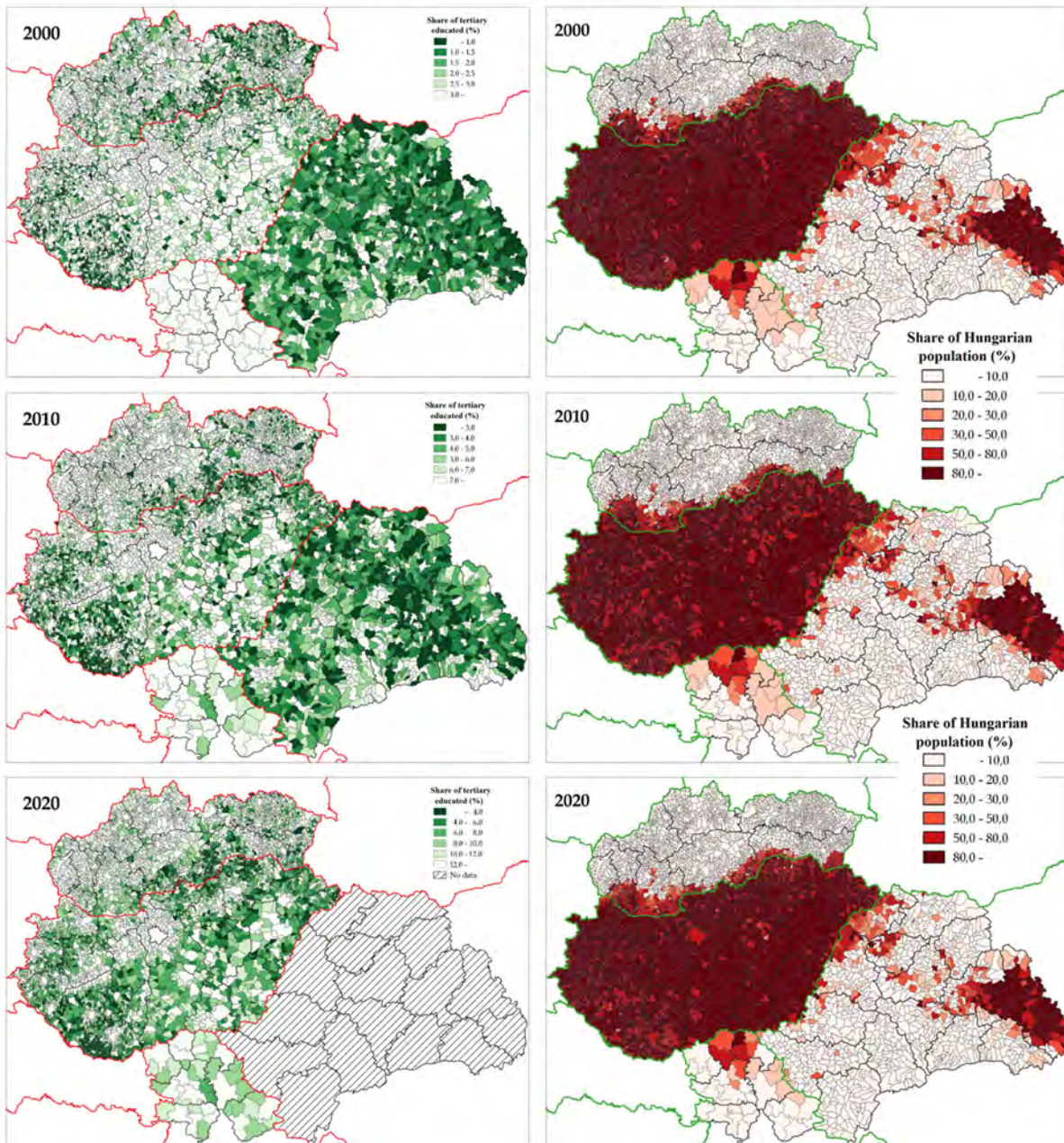


Figure 6: Share of tertiary educated and share of Hungarian population in the examined municipalities; 2000, 2010, 2020 (%)

Source of data: author's own calculations based on census data of the countries concerned

However, shift-share analysis conducted at municipality level demonstrated that the proportion of graduates were dominantly impacted by the proportion of Hungarians in only three of the foreign counties (Figure 7). In the highly educated Temes County with low proportion of Hungarians, this was evident in the consistently lower proportion of graduates in areas with higher Hungarian proportions compared to the county average. However, in the two counties with the highest proportion of Hungarian population (Harghita and Covasna), the opposite relationship was observed: equally low educational indicators were identified in both the Hungarian-populated and the less populated areas.

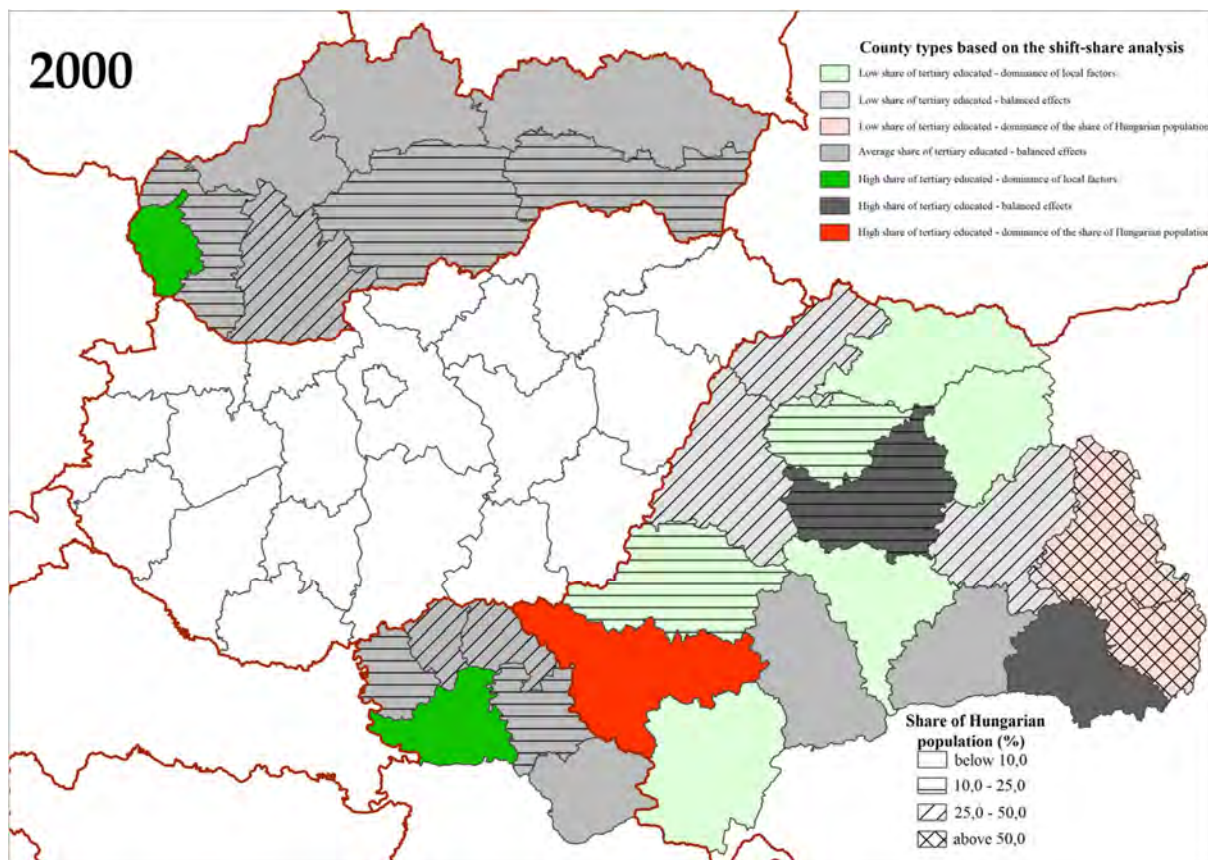


Figure 7: Type of examined foreign counties based on the shift-share analysis; 2000
 Source of data: author's own calculations based on census data of the countries concerned

In every other counties, the effect of the proportion of Hungarians was not significant, with other local effects generally dominating. Among these local effects, one of the most prominent is the impact of settlement size. Consequently, the study also examined the impact of settlement structure on the low educational positions of Hungarians abroad. Comparing the proportion of graduates and the representation surplus/deficit of Hungarians by settlement size category confirmed that the disadvantaged position of minority Hungarians is significantly due to the rural settlement structure of these communities (*Table 2*).

The urbanization lag of Hungarians is most evident in large metropolitan areas, where the proportion of Hungarians is very low and continually decreasing during the examined period. Meanwhile, in smaller, less educated municipalities, the representation of Hungarians has increased. Therefore, Hungarian communities are considered the overall losers of higher education expansion primarily because they live in these key areas at increasingly lower proportions.

Size category	Representation surplus/deficit of Hungarians (percentage points) 2000	Share of tertiary educated (%) 2000	Representation surplus/deficit of Hungarians (percentage points) 2010	Share of tertiary educated (%) 2010	Representation surplus/deficit of Hungarians (percentage points) 2020*	Share of tertiary educated (%) 2020*
1) capital city	-2,2	19,1%	-2,2	27,8%	-4,7	37,6%
2) over 200 thousand people	-2,9	14,4%	-5,2	24,9%	-5,8	28,9%
3) 100-200 thousand people	2,9	10,2%	3,3	19,4%	3,1	17,0%
4) 50-100 thousand people	-6,5	9,9%	-5,8	16,9%	-8,2	23,9%
5) 20-50 thousand people	1,9	7,2%	0,5	13,5%	2,5	17,3%
6) 10-20 thousand people	0,2	5,6%	1,4	11,4%	1,0	15,8%
7) 5-10 thousand people	5,2	3,4%	3,7	9,4%	4,2	15,9%
8) 2-5 thousand people	2,5	2,3%	4,4	6,1%	0,8	13,5%
9) 1-2 thousand people	-0,3	2,9%	0,9	7,4%	3,3	13,3%
10) 500-1000 people	-0,4	3,1%	-0,6	8,2%	2,2	12,5%
11) under 500 people	-0,3	2,6%	-0,3	7,8%	1,6	11,7%
Altogedher	-	6,9%	-	13,2%	-	18,5%

Table 2: Representation surplus/deficit of Hungarians (percentage points) and the share of tertiary educated (%) in each municipality size category in the three examined foreign regions; 2000, 2010, 2020

Source of data: author's own calculations based on census data of the countries concerned

* Due to the lack of educational data for the local administrative level in Transylvania in 2020, only data from Slovakia and Vojvodina are included in the summary for this year.

However, it is important to note that the weaker position of Hungarians abroad generally persists even after partial control of the effects of the settlement structure (Table 3).

Size category	Share of Hungarian population (%)										Altogedher	
	0-5	5-10	10-15	15-20	20-30	30-40	40-50	50-60	60-80	80-100		
1) over 200 thousand people	24,9	24,4		29,2								25,5
2) 100-200 thousand people	19,7	21,8	17,1		24,0	14,7	22,5					19,4
3) 50-100 thousand people	16,7	22,5	10,7	21,4					17,2			16,9
4) 20-50 thousand people	13,9	13,0	14,8	10,7	13,5		8,4	12,2	17,0	11,3		13,5
5) 10-20 thousand people	12,0	9,1	12,0	10,4	10,7	16,5	9,6	11,6	8,7	11,5		11,4
6) 5-10 thousand people	10,7	7,4	13,6	7,1	6,3	7,2	8,4	10,0	7,4	5,5		9,4
7) 2-5 thousand people	6,8	5,5	5,1	4,3	5,0	4,8	5,1	5,2	5,1	4,3		6,1
8) 1-2 thousand people	7,9	4,4	4,5	2,9	6,7	7,1	6,1	6,7	6,5	5,4		7,4
9) 500-1000 people	8,6	9,8	4,4	8,6	7,0	8,1	6,4	6,2	6,5	6,2		8,2
10) under 500 people	8,3	7,9	5,7	6,1	9,6	5,7	5,6	7,2	5,6	5,1		7,8
Altogedher	13,1	15,8	13,2	19,4	13,7	11,3	13,5	9,3	9,2	6,2		13,2

Table 3: The average share of tertiary educated in the municipalities of the three examined foreign regions by size category and the share of Hungarian population; 2010

Source of data: author's own calculations based on census data of the countries concerned

Analysis of territorially more detailed data with ethnic differentiation shows that the overall weak position of minority Hungarians is influenced to varying extents of the effects of the settlement structure as well as other local disadvantages independent from settlement structure effects in the three examined regions. For example, in several counties in Transylvania, it is obvious that the position of urban and rural Hungarians is better than that of the non-Hungarian population. Consequently, the general disadvantaged position of Transylvanian Hungarians, both in urban and rural regions, cannot be justified. The disadvantaged position of Transylvanian Hungarians is therefore largely due to their mainly

rural settlement structure and the more rural character of the Hungarian-majority areas of Transylvania.

In Slovakia, the generally weak position of Hungarians, independently from settlement structure effects is more evident. However, it is also clear that the weak position of Slovakian Hungarians primarily stems from their rural settlement characteristics. Unlike the other two foreign communities, the higher education position disadvantages of Vojvodinian Hungarians is not predominantly determined by their settlement structure characteristics, as these disadvantages are strongly present even within individual settlements.

However, it is true for all the three minority Hungarian communities that they hold weak and increasingly deteriorating positions in the key areas of higher education expansion of the Carpathian Basin. This is partly due to the low urbanization rate of minority Hungarians: in large metropolitan areas of the neighbouring countries, Hungarians live in very low and decreasing proportions. Additionally, within these areas, the educational lag of Hungarians is also evident: results indicate that Hungarians are significantly lagging behind in all major urban areas, and this lag has been increasing over the decades. Since metropolitan areas play a key role in the Carpathian Basin's higher education expansion, the generally weak educational position of minority Hungarians is primarily determined by their weak (demographic and educational) positions in large urban areas.

Summary and Conclusions

This doctoral dissertation, based on GERHARD LENSKI's multidimensional stratification model, primarily sought to answer whether the ethnic inequalities observed in the higher education positions of minority Hungarian communities reflect the characteristics of ethnically stratified societies.

The higher education expansion that took place in the Carpathian Basin after 1990 provides an excellent foundation for observing how the ethnic dimension of educational inequalities evolved in ethnically plural societies. A key question is how this dynamic expansion of higher education affected the long-standing deteriorating educational positions of minority Hungarian communities.

Given the importance of regional perspectives in understanding both the social situation of minority Hungarians and the processes of higher education expansion, it is crucial to examine how the territorial characteristics of higher education positions of minority Hungarians evolved during the studied period.

Thus, this research fills in a significant scientific gap by comprehensively analyzing the changes in the higher education positions of minority Hungarians between 1990 and 2020 in high level of territorial detail.

The analysis revealed that the primary beneficiaries of higher education expansion in the Carpathian Basin were the large urban areas, where the relative advantage over other regions of the macroregion steadily increased over time. County-level processes of catching up conceal significant inequalities at the municipal level: the regions of the Carpathian Basin that have been lagging behind, benefiting little or not at all from the expansion of higher education, have become more distinctly delineated over the decades. These regions significantly overlap with areas where ethnic minorities in the Carpathian Basin are more densely populated. Clear spatial correlations can be observed between the presence of minority populations and the proportion of higher educated population.

Over the examined three decades, all three studied minority Hungarian communities experienced a significant decline in their higher education positions. Although the proportion of higher educated population increased significantly within these communities as well, the Hungarian minorities were far less able to leverage the dynamic effects of higher education expansion than the dominant nationalities. Consequently, the hypothesis seems to be confirmed that in the three examined major foreign regions, power asymmetries along ethnic lines are observable to the detriment of minority Hungarians.

There are significant territorial disparities in the educational attainment of Hungarian minorities: in two-thirds of the examined counties, Hungarians consistently held worse positions, and in a substantial number of these, their position weakened further during the study period. The significant decline in the educational attainment positions of Hungarian minorities over the thirty years is also confirmed by analyses examining the relationship between the proportion of Hungarians and the proportion of higher educated. The spatial patterns in this regard also show significant similarities: regions that are lagging behind in terms of educational attainment substantially overlap with areas predominantly inhabited by Hungarian minorities.

However, the shift-share analysis conducted at the municipal level found that only in three counties did the proportion of Hungarians dominate the effects on the proportion of higher educated, while in the majority of counties, other local effects were more dominant. Detailed regional analyses confirmed that the disadvantaged position of Hungarian minority communities is largely due to the rural settlement structure characteristic of Hungarians. However, it is also important to note that in most regions, the weaker position of Hungarian

minorities is present within individual settlements as well, even after partially filtering out the settlement structure effects.

In conclusion, the study demonstrates that the educational positions of minority Hungarian communities significantly deteriorated over the past three decades, particularly due to their urbanization deficit in high-value urban areas for higher education. The overall weak position of minority Hungarians is primarily determined by their poor demographic and educational status in urban centers.

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