

THE ACCESS TO EDUCATION OF THE HUNGARIAN MINORITY IN ROMANIA. A MULTIVARIATE ANALYSIS

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Abstract: During the transition the topic of Hungarian higher education in Romania has been very intensely debated as its polemic has been often characterized by ethnicist and nationalist arguments. One major issue of the debate is, however, that in Romania Hungarians have lower chances of access to tertiary education diplomas than the Romanian majority. The present study aims at clarifying the distribution and the covariates of educational and subsequently social chances among citizens of Romanian and Hungarian ethnicity in Romania.

Using the consolidated data of the Romanian Public Opinion Barometer of 1998–2004 (N=11040) our multivariate analyses test three models of educational achievement: an ethnic determination hypothesis, a model of regional discrepancies in educational achievement and the basic social reproduction hypothesis. Though bivariate analyses indicate that there is a significant gap in educational chances for Hungarians, measured through educational achievement, the multivariate analysis proves that the thesis of lower educational chances of Hungarians from Transylvania does not hold. However, educational inequalities seem to be more a regional issue: Szeklerland, with an overwhelming majority of Hungarians provides significantly lower chances of attaining a diploma of higher education than the rest of Transylvania. One explanation for this could rely on the modernization deficit of the region. The topic requires further research in order to clarify the impact of the diverse covariates on career decisions and status attainment.

Keywords: higher education, social capital, minority, social reproduction, regional differences

- * Previous versions of the present material have benefited from the remarks of several colleagues. Special thanks to Professor Dumitru Sandu for his detailed observations referring especially to the elaboration of the multivariate models and statistics we used. Therefore the authors are entirely responsible for every deficiency that would affect the material.

**INTRODUCTION:
THERE ARE FEWER EDUCATIONAL OPPORTUNITIES FOR THE
HUNGARIAN MINORITY IN TRANSYLVANIA**

During the transition there had been an intense debate upon the issue of the Hungarians' higher education in Romania, and the sharpest polemics most often emerged from the ethnic/nationalist nature of the arguments used, the emotional and political tone employed (for instance Papp 1998; Magyari and Vincze 1999; Erdei and Papp 2001; Murvai 2000a, Murvai 2000b; Bolyai Committee of Initiative 2006).

The arguments supporting the re-creation of the Bolyai University as an institution of Hungarian language having complete autonomy are sustained by references to multiple rights. One often encounters discourses that use general humane arguments (recalling cases when Hungarian students and professors were humiliated – Bolyai Committee of Initiative 2006; Somai 2007), arguments typical to the minority (the danger of assimilation; the lack of opportunity to study some specializations in Hungarian; the official language of the universities being the Romanian language constituting a limitation for students who do not speak Romanian; Hungarian youth are under-represented at the level of academic education; the Hungarian studies at the universities are subordinated to the Romanian ones, thus they do not have a voice in the decisions regarding the educational process, etc. – for instance: Magyari and Vincze 1999; Veress 2000; Chiribucă and Magyari 2003; Csata 2004; Bolyai Committee of Initiative 2006), European arguments (one has to mention especially the support of the European Council regarding the implementation of the multicultural character of the Babeş Bolyai University by complying with the treaties that support ethnic minorities – especially the official statement initiated in May 2007 by the Bolyai Committee of Initiative and the Hungarian members of the European Parliament), and some arguments that plead for respecting the rights to proper education (access to education in Hungarian on every level of education – see: Kurdi and Ring 1999; Weber 2000; Veress 2000; Bolyai Committee of Initiative 2006).

A thesis often mentioned in association with the need to establish/restore the Hungarian state university is that of inequality of educational chances among Hungarian youth and the majority population in Romania, especially regarding access to higher education. Indeed, according to the 2002 census, the proportion of those enrolled in universities is much lower among the Hungarians (4.48% as compared to 6.60%), and it would prove the deficiencies of the educational opportunities the Hungarian have. The 2004–2005 statistical data available show that out of every 10,000 Romanian inhabitants the number of students is 300, while the same indicator is 207 for the Hungarian population (Bolyai Committee of Initiative 2006). A similar argument is quoted by Csata (2004) who, after analyzing the statistics regarding the number of schools where the language of instruction is Hungarian and the number of students who study in Hungarian, suggests that the evolution of access to education in one's native language indicates less educational opportunities for the Hungarian youth than for those belonging to the majority.

Table 1. Students who Learn in Hungarian in Romania

School Year	The total number of students in Romania	Of which those who learn in Hungarian	Percentage (%)
1989–1990	5,380,141	231,893	4.3
1990–1991	4,843,569	236,708	4.9
1991–1992	4,559,610	222,826	4.9
1992–1993	4,397,521	216,663	4.9
1993–1994	4,289,123	211,380	4.9
1994–1995	4,303,540	208,652	4.8
1995–1996	4,330,774	202,545	4.7
1996–1997	4,297,119	196,158	4.6
1997–1998	4,245,808	198,808	4.7
1998–1999	4,223,444	197,279	4.7
1999–2000	4,089,033	190,335	4.6
2000–2001	4,032,127	187,140	4.7
2001–2002	3,972,245	187,156	4.7

Source: Csata 2004: 101.

Access to education is a fundamental resort for achieving a certain status in modern societies (Blau and Duncan 1967; Bourdieu and Passeron 1970). This proposition is true in Romania too, where sporadic stratification and mobility studies provide evidence of the role of educational achievements for status attainment (Hatos 2006; Larionescu et al. 2006). Thus, according to the evidences quoted above, the life-chances of Hungarians living in Romania are lower than that of the majority. On the other hand, the inequality of chances registered nowadays has only been the continuance of the institutionalized discrimination that started during the National–Communist era, when access to higher education in Hungarian language was dramatically limited (Csata 2004).

Using as indicators of educational, and implicitly social chances of the Hungarian youth in Romania the rates of participation in education in Hungarian language or even the rates of enrolment at a certain level is quite obviously superficial. First of all, Hungarian youth do not learn and have not learnt only in Hungarian, but undoubtedly many of them have been choosing, or their parents have done so, to study in Romanian. This decision can be alarming for those who see Hungarian education as a means of preserving Hungarian identity in Transylvania, but it might have beneficial effects for the accomplishments of the status goals the young have. On the other hand, the figures quoted in some of the researches we have referred to, beginning with Table 1, do not take into account the cohort effects that influence the proportion of Hungarian youth among the school-age population. According to demographic data the Hungarian population is visibly older than the Romanian, and the rate of Hungarians among the school-aged tends to be sensibly lower than the overall rate of Hungarian people among the population in Romania, at least in the last 3–4 decades (*Figure 1*). This could explain to a large measure the lower percentage of college students among the Hungarians.

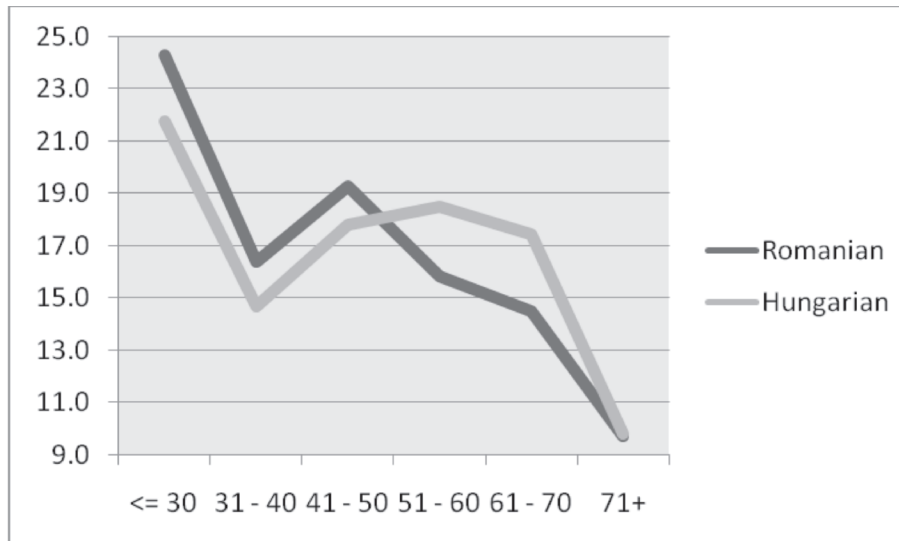


Figure 1. The Age-group Distribution of the Hungarian and Romanian Population in Transylvania (%)

Source: The Consolidated Database of the Public Opinion Barometer 1998/2004.

Moreover, some (for instance Fox 2000) allege that the quota system used to admit students to the Hungarian study programs of Babeş Bolyai University (in Cluj) favors Hungarian candidates, since there is a lower competition for the places subsidized by the state (this could also mean a lower demand for university degrees on the part of the Hungarian youth in Transylvania) but also an easier access to scholarships.

It is obvious, however, that there are no solid arguments in favor of the thesis that there have been significantly lower educational opportunities for present and past generations of Hungarians as compared to the opportunities of the Romanian majority.

THE AIMS OF THE STUDY AND THE THEORETICAL BACKGROUND

Consequently, we would like to contribute to a clearer description of the distribution of educational chances among Romanians and Hungarians, having in mind the numerous covariates of the length of educational careers. The underlying premise of our multivariate analyses is that the evidence of unequal accomplishments must be tested against the effect of important controls whose influence might be confounded with that of ethnicity. The factors considered in our study are ethnicity, socioeconomic background and regional disparities in the distribution of educational opportunities. For all three covariates, there is a strong case in the literature on educational or sociological stratification.

Modernization theories of stratification and mobility assume a decreasing role of ascriptive features like ethnicity in determining various measures of achievement,

including education. However, there are evidences of persistent ethnic-based educational inequalities around the world, which often come hand in hand with racial ones, especially in developing countries. Children of indigenous origins, for instance, suffer age-grade distortion in Bolivia and Guatemala (Patrinos and Psacharopoulos 1996). A similar example is found in Smooha and Kraus (1985) who point to significant and intergenerationally resilient inequalities concerning status attainment among Oriental and Ashkenazim Jews in Israel. Research results pointing at ethnic differentials in educational achievements have been obtained in Europe too, where the focus has been on the inequality of educational opportunities between immigrants and the indigenous people (PISA 2001, 2007).

Such inequalities can often be attributed to ethnically targeted policies of which the literature provides several examples. Such is the case of independent Malaysia, where the Malayi population benefited from affirmative action policies whereas members of the Chinese and Indian groups did not (Shreeniwas 1997). Half of the achievement gap suffered by the indigenous Mayan children in Guatemala can be attributed to characteristics of schools (Hernandez-Zavala et al. 2006; McEwan and Trowbridge 2007), an evidence of unjust allocation of schooling resources among schools in those regions. Ethnic inequality in occupational status between Han Chinese and minorities in China can be explained by increased ethnic differences in education which are due to systematic educational disadvantages (Hannum and Xie 1998).

Disadvantaged social and economic situation of an ethnic group can, on the other hand, create the appearance of educational discrimination. According to sociological knowledge that has become wisdom educational attainment depends greatly on the parents' socio-economic status. Intergenerational transmission of educational achievement is described in well known models of social reproduction. Blau and Duncan have shown that a great part of intergenerational transmission of social statuses occur through mechanisms of educational reproduction. The social reproduction argument is one of the most solid results of post-war educational studies (Bourdieu and Passeron 1970; Boudon 1973; Coleman 1966; Jencks and Mayer 1990; Plowden 1968). According to this educational achievements depend on material, educational and cultural resources of the family of origin. If the children of immigrants in Europe perform worse at school it is mainly because they have poorer material and cultural endowments than the children of the majority. One cannot, though, ignore the importance of history. Social mobility is affected by institutional and structural changes. Social and educational mobility has been regressing in Romania during the last three decades (Cartana 2000; Hatos 2006 Tomescu-Dubrow 2006), following the patterns found all across Eastern and Central Europe (Ganzeboom and Nieuwbeerta 1999) and the tendencies to reproduce social inequalities via the intergenerational transmission of relative educational statuses are more and more noticeable. On the other hand, variations in measures of mobility may interact with demographic phenomena and ethnic belonging suggesting ethnic differentials in life chances. Therefore, the impact of cohorts should also be considered.

Recent studies highlight though the importance of context variables on educational accomplishments. The stress is on measures of variables at higher levels of aggregation that have values beyond the aggregates of individuals' student collectives (classes and schools), educational policies and country-specific institutional

arrangements – as in the case of international comparative analyses (see (Buchmann and Hannum 2001). Though more rare, regional comparisons of educational achievements are able to underline the impact that regional differences in the size of resources, educational policies and their implementation have on the apparition or the persistence of regional disparities in educational opportunities (Bills et al. 1985; Cote 1997). Since ethnic groups are often spatially concentrated, discerning regional from ethnic inequalities in educational opportunities can be difficult.

One theoretical but, at the same time political problem is decomposing the ethnic gaps in educational achievement in individual-level factors (which are indicators of a simple intergenerational reproductive mechanism) and upper level variables which would indicate systematic or even institutionalized discrimination. Such a topic is heated, for instance, concerning the achievement gap of the indigenous children in Central America (Hernandez-Zavala et al. 2006; McEwan and Trowbridge 2007).

All three explanations can be invoked to account for the apparent lack of chances for Hungarians in Romania to acquire higher education credentials. The social reproduction argument would explain the ethnic differences in educational achievements on the basis of enduring social, economic and cultural discrepancies associated with ethnicity that could impede on Hungarians' school careers. Politically, the most sensitive thesis is that of ethnic inequalities. Anti-Hungarian policies from the nationalist period of the communist regime, which liquidated almost entirely the college-level education in Hungarian, the presumably negative effect of the bilingual primary and secondary education on school results may have had negative effects on educational chances for Hungarians. It is also plausible to explain the observed differences using interregional discrepancies in educational opportunities. A certain deficit of educational supply in Szeklerland, where roughly half of the Transylvanian Hungarians reside, attributable to the remoteness of the region, could also produce statistically measurable disadvantages for the Hungarian population. In addition to the above mentioned three hypotheses one has to consider the possibility that the relatively lower educational participation rates of young Hungarians could have been maintained during the period following 1990 by the systematic migration phenomena that involved a significant part of the active Hungarian ethnic population. Thus the main objectives of the present paper are:

1. To assess the relative educational accomplishments of Romanian and Hungarian adults in post-war Romania;
2. To evaluate the interaction of educational career, ethnicity, cohort, region of residence and socio-economic features in order to discern the actual causal mechanism behind the differences in educational achievements of Hungarians and Romanians.

DATA AND METHOD

The test of these models will be performed using a variant of elaboration process (see Rosenberg 1968) during which some relations will be first tested through simple bivariate tabulation processes while the multivariate models will be realized using hierarchical log-linear modeling, a technique developed mostly within stratification and mobility studies which will replace the partial associations used in Rosenberg's

and Lazarsfeld's statistical technique. Since the focus of the study is mainly on revealing the patterns of multivariate associations among categorical variables, rather than modeling a dependent variable based on values of others, log-linear regression is better suited than other procedures, especially logistic or logit regressions. The intention of the authors is not to produce an exhaustive explanatory model of educational careers, the present study being just a contribution to this process by testing the impact of ethnic belonging on the focus variable – the level of instruction of Transylvanian adults.

In order to test the impact of several variables on the Hungarian and the Romanian population's educational attainment we used the data available in the consolidated database of the Public Opinion Barometer from 1998–2004, only we excluded every person who was born after 1977, ($N=11040$), because at the time of the analysis (2006) there would have been a high probability that they have not finished yet their school career. In the main analyses we used just one subset of data comprised of people from the Transylvanian counties (including Crişana, Maramureş and Banat).

MEASUREMENTS AND VARIABLES

The focus variables of the study are: the respondent's level of instruction – measured using four categories (no formal education or primary school, middle school, vocational school and high school and higher education) – and the respondent's ethnic belonging. The contingent variables include: the education of the respondent's father (on a scale identical to the subject's level of instruction), the region of residence (the Szeklerland and the rest of Transylvania), the type of settlement (urban/rural), gender and cohort (here, with four categories: born before 1937, born between 1938 and 1950, born between 1950 and 1973, and those who were born between 1974 and 1977).

RESULTS

At a first glance of the relation between ethnicity and the level of instruction in Romania one sees that between Hungarians and Romanians there is a strong dissimilarity concerning educational attainment (*Table 2*).

*Table 2. The Levels of Instruction With Regard To Ethnic Aspects
(Row Percentages and Adjusted Standardized Residuals)*

	No formal education, Primary	Middle School	Trade-School, High-School	Vocational, University	Total
Romanian	15.7	20.8	44.8	18.6	100
	6.3	-8.3	-0.8	4.0	
Hungarian	9.9	29.6	45.9	14.6	100
	-6.3	8.3	0.8	-4.0	
Total	15.3	21.5	44.9	18.3	100

$P(Khi^2) < 0.01$
 $N = 11,040$

The standardized residuals of Khi^2 show that among the Romanian population the extreme categories of the instruction level are overrepresented, while among the Hungarians the observed count of middle school graduates is significantly higher than expected while the figures are significantly lower for those with no education and those with diploma of higher education. Are these discrepancies the result of ethnic determination that influences the educational goals of the country's inhabitants or are they the result of other covariates?

The reading of the multivariate models on the following pages presumes a relative notification on the impact of gender and on that of the urban/rural residence. It seems obvious that these two variables have a significant impact on educational chances in any context. The exploratory log-linear models have confirmed it that the level of instruction of the respondents is significantly influenced by both variables. At the same time the models we refer to have shown that the relations in which the present paper is mostly interested – between the respondent's educational attainments on the one hand, ethnicity and region on the other – hold after controlling for gender and for urban/rural residence. Moreover, none of the effects retained in the models presented in this study are significantly influenced by the introduction of the two variables, even if they are marginally associated with some of the features we are focusing on – especially with the cohort and with the father's level of education. In order to simplify the presentation and to facilitate the understanding of the material we have given up on these two variables, but we repeat: this does not mean that we ignore the efficiency of the role they play in the generation of the individuals' educational trajectories.

In the first model which includes the father's level of education, the respondent's final level of instruction, the respondent's cohort and his ethnic belonging shows that the direct relation between the cohort and ethnic belonging is insignificant by itself. The father's level of education, but also the respondents' levels of education are directly related to ethnic belonging.

Table 3. Log-linear Model 1. Significant Interactions between the Respondent's Level of Instruction, Ethnicity, Father's Level of Education and Cohort

Interactions
(cohort, the respondent's level of instruction)
(cohort, father's level of instruction)
(the respondent's level of instruction, father's level of instruction)
(the respondent's level of instruction, ethnicity)
(father's level of instruction, ethnicity)

$N=11,040$
 $P(LR^2)<0.05$
 $P(Khi^2)<0.05$

The reading of the log-linear parameters that correspond to the interactions in the Table above shows the quality of the relation between the selected pairs of variables, controlling for the effect of the other characteristics included in the analysis (*Table 9*, see *Appendix*)¹.

Parameters of the association between the parents' level of education and the respondent's educational attainment behave accordingly to a mobility table affected by a strong upward structural mobility (there is no positive coefficient under the main diagonal, at the same time the number of upper positions increases significantly from the generation of parents to that of the respondents) and by a significant intergenerational inertia of educational positions, considering the fact that the largest positive parameters are those on the main diagonal.

The interpretation of the parameters of association between the fathers' education and the respondents' cohort underlines the fact that every generation that was born up to 1974 had more educated parents than those from the previous cohorts. Thus, at the level of instruction of the youngest respondents' parents we find the highest rate of parents with high school and third level education. A similar pattern – even if not as consistent as the former – is also revealed by the relation between the respondent's level of education and his/her cohort. The numbers show that the younger the respondents are the more educated they are, only with the notable exception of having taken their university degree, in this case those in advantage were born between 1961 and 1973. The fact that among the youngest (born between 1974 and 1976) respondents the percentage of people with higher education is lower than it used to be in the previous generations is partially due to the reality that a large measure of the cohort has not finished its studies at the moment of the surveys but also to the diminishing of the structural educational mobility of the younger generation.

1 Agresti (1991) provides a detailed interpretation of the λ parameters. Provided that we collapse each association table into tables of 2x2 by setting the row and column of the parameter in point, $e^{4\lambda}$ gives us the odds ratio for the frequencies on the diagonal it covers. In short, a significant positive parameter indicates significantly greater chances for the corresponding cell, as opposed to the independence hypothesis, while the negative parameter shows decreased chances, provided that the other modeling variables are under control. The sum of the parameters for each bivariate contingency table is nil.

In the context of the present analysis the most interesting figures are those that demonstrate the interactions between ethnicity and the measures of educational outcome. While the Hungarian parents who have completed their secondary level education – both lower and upper levels – have a statistically insignificant advantage, the *percentage* of Romanian fathers with the lowest educational levels is significantly higher than that of Hungarians with the same situation. The Hungarian respondents' parents are, according to the present data, better represented in the group of individuals who have higher education. The impact of ethnicity on educational attainment presents a dramatically inverted relation: Romanians are in advantage according to the positive significant parameters corresponding to the secondary and third levels of education, and to the strongly negative parameter corresponding to first level education. Comparing the log-linear parameters to the contingency table of the two variables one notices a remarkable difference: while the marginal frequencies contain meaningful residuals favouring Hungarians graduating from the lower secondary school, this association disappears in the case of the log-linear parameters, suggesting that these marginal variances are conditioned by the interaction occurring with the other variables within the model.

For the time being the data collected from our sample population shows that Hungarians achieve significantly worse educational achievements than the Romanians. The significance of these statements is highlighted by the comparisons between the generation of parents and that of their descendants within the sample: while in the case of the parents one can mention a certain advantage of the Hungarians, the situation is reversed for their descendants. The generations of Romanians born up to 1977 have reaped the benefits of an important educational mobility, an advantage that seems the Hungarian population has greatly lacked.

Is this conclusion – namely that the Hungarians have not benefited to the same extent as the Romanians did from the ascending structural mobility in education during the communist era – irrefutable? And if this hypothesis was true, could it be explained through the institutional mechanisms of direct discrimination, or it has been an indirect result – even if probably desirable – of some specific developmental dynamics that are associated with the distribution of Hungarian population? The proof of the second hypothesis would reveal what one calls in the multivariate analysis' jargon the "Simpson paradox" (Agresti 1991: 138). The above mentioned paradox will be confirmed if two variables – in this case the ethnicity and the level of education – are conditionally independent – the marginal relation between them being different from their partial associations, controlling for other variables.

THE HYPOTHESIS OF REGIONAL CONDITIONING

The rhythm of growth, consequently the opportunities for the improvement of the human resources and also the capacity to attract manpower has been unbalanced in Romania. In spite of the bold expansion of education and particularly primary education in the post-1918 era, Transylvania (Livezeanu 1998), maintained in 1930 the highest rate of literacy in Romania (Scurtu 2003: 663) excepting Bukowina. The social homogenization policy, supported by tenacious measures of positive

discrimination favoring those belonging to the previously disadvantaged categories² – during the interwar period, but especially during the first two decades of communism – have caused, through the industrialization of some backward regions and also by forced geographical mobility of the highly educated – a serious drawback of the educational capital in the Transylvanian counties. Even if on the level of industrial output the discrepancies among the most developed and the least developed regions were reduced to 85%, Transylvania, along with Banat and Muntenia (the latter formerly known as Wallachia), was still among the most industrialized regions of the country in 1970 (Dobrescu and Blaga 1973: 126). The premise of regional heterogeneity is even more plausible when we talk about the distribution of human capital in the regions inhabited by Hungarians. Hungarians were mainly concentrated in the Szeklerland, a region with mediocre development indicators as compared to the rest of Transylvania (see, for example, Sandu 2006), which also implied more precarious educational stocks (see Table 4). Acknowledging the measurements from Sandu's work quoted above, the educational capital indicators for the Szekler counties are above the national average, but they are not that impressive if one strictly compares them to those in the rest of Transylvania, where the counties with the most educated population in the country – Cluj, Timiș, Sibiu and Brașov – are located. Table 4 shows on the one hand that people living in the Old Kingdom³ are in advantage compared to the rest of Transylvania concerning the number of third level degrees of education, while the secondary school degrees are more frequent in Transylvania, including Szeklerland.

Table 4. The Region and the respondent's level of instruction
– Rates and standardized residual adjusted to the theoretical frequencies –

	No formal education, Primary	Middle school	Trade-school, High-school	Vocational, University	Total
Transylvania excluding Szeklerland	13.9 -5.0	22.9 2.8	46.1 3.1	17.1 -2.1	100
Szeklerland	8.0 -5.4	30.0 5.1	49.0 2.3	13.0 -3.3	100
Other	17.0 6.8	20.8 -4.5	43.7 -3.8	18.5 3.2	100
Total	15.9	21.6	44.5	18.0	100

P(Khi²)<0.01
N=11,040

- 2 A statistical study in a book published in 1946 in France (Study and Research Centre for Transylvania) reveals that up to 1930 in Transylvania there was a faster increase in literacy in the counties with a majority of Romanian population than in the ones with a higher rate of Hungarians.
- 3 Old Kingdom is the popular name for the regions that composed Romania up to 1918.

The contingency table of the respondent's region of residence – coded in three categories (the former Kingdom – Moldavia and Vallachia, Szeklerland and the rest of Transylvania – including Banat and Crişana) – along with the respondent's father's level of education lead to results that further confirm our theses (*Table 5*).

Table 5. The Region and the Respondent's Father's Level of Education
– Rates and Standardized Residual Adjusted to the Theoretical Frequencies –

	No formal education, Primary	Middle school	Trade-school, High-school	Vocational, University	Total
Transylvania excluding Szeklerland	44.3	32.8	17.9	5.1	100
	-7.6	7.6	1.7	-1.1	
Szeklerland	36.4	44.8	15.6	3.2	100
	-4.9	6.9	-0.6	-1.7	
Other	52.9	24.8	16.6	5.7	100
	9.1	-9.9	-1.4	1.7	
Total	50.1	27.5	16.9	5.5	100

P(Khi²)<0.01
N=11,040

At the same time the level of education depends on the respondent's ethnicity considering only the subjects from Transylvania, just like in the analyses on the whole sample (*Table 6*).

Table 6. Levels of Education by Ethnic Groups in Transylvania
– Rates and Standardized Residual Adjusted to the Theoretical Frequencies –

	No formal education, Primary	Middle school	Trade-school, High-school	Vocational, University	Total
Romanian	13.5	21.2	47.4	17.9	100
	4.0	-7.0	1.0	3.1	
Hungarian	9.6	29.9	46.0	14.5	100
	-4.0	7.0	-1.0	-3.1	
Total	12.5	23.3	47.1	17.1	100

P(Khi²)<0.01
N=11,040

The rate of respondents with higher education is significantly larger in the Old Kingdom than in Transylvania and particularly in Szeklerland. This is also the region with the highest percentage of people with no formal education or with primary education only. These data, along with the significant rates of those with secondary education from the areas inhabited by Hungarians statistically confirm our expectations, even if they indicate a development focused rather on industry and services in Transylvania, and a persistence of the agricultural characteristics in the

areas outside of the Carpathians on the one hand, and probably a significant expansion of the class of highly educated office workers mainly in the public sector.

In order to control for the effect of the regions' characteristics on the process of supplying educational capital we shall exclude from the following analyses all respondents living outside of Transylvania. The comparisons between Romanians and Hungarians will not be affected since 94.5% of the Hungarians in the sample of the Consolidated Opinion Barometer had been living in Transylvania. At the same time we shall differentiate the population residing in Szeklerland from those living in other parts of Transylvania, the rate of middle school graduates being much higher in the first region.

The log-linear analysis constructed with the help of the new variable confirms the Simpson paradox (see *Table 7*). By excluding the non-Transylvanian population from the database and by identifying the Szekler inhabitants we managed to elaborate a model in which the level of education is conditionally independent of the respondent's ethnic belonging. As presumed by the model of structural mobility, among the Transylvanian population the association between the level of education and ethnicity is determined by the fact that Hungarians are concentrated in the Szeklerland, and here we encounter a distribution of educational attainment that is statistically different from the rest of Transylvania in a significant degree.

Table 7. Log-linear Model 2. Significant Interactions among the Respondent's Level of Education, Ethnicity, Father's Level of Education, Cohort and Region

Cohort, the respondent's level of education
Cohort, Father's education
The respondent's level of education, father's education
The respondent's level of education, region
Region, ethnicity

$N=3249$ (valid cases)
 $P(LR^2) > 0.05$
 $P(Khi^2) > 0.05$

Compared to the first model, the changes we have made dramatically modify some of the interactions that occur among the variables (see Appendix, *Table 10*). The relations among the focus variables bear the most important changes: the father's education, the respondent's level of education and ethnicity. While in the first model these interactions covered significant Khi^2 parameters, the differentiation among Transylvanian regions and the exclusion of respondents from the Old Kingdom have annulled any significant relation.

The parameters of the relation between the respondent's level of education and the Transylvanian region where this individual resides are also quite interesting (*Table 8*).

Table 8. The Λ Parameters of the Relation between the Region and the Respondent's Level of Education

Respondent's education* Region	Transylvania	Szeklerland
No education or primary	-0.31*	0.31*
Lower secondary	-0.12	0.12
Vocational, high school	0.22*	-0.22*
Higher education	0.20*	-0.20*

* significant coefficients at $p < 0.05$

Controlling for the other variables entered in the model – including the ethnic background – one may observe that the chances of an individual from Szeklerland to obtain a certain degree in education, compared to the population from the rest of Transylvania are inversely proportional to the level of degree.

One approach that can be sustained in reading our results using plausible arguments is the one that refers to the migratory waves – gaining and losing human resources, both internally and internationally – that could differ from one (already mentioned) region to another. The effects of internal migration are correlative with another hypothesis: the low levels of modernization in the region made temporary migration from the Szeklerland for educational purposes permanent. On the other hand the lack of economic and professional opportunities encouraged a massive emigration of the qualified manpower in the region, especially to Hungary.

The numbers describing the waves of emigration from Romania do not confirm the above mentioned alternative hypothesis. The data available do not sustain the thesis of a scale of definitive migration of the Hungarians from Romania that would influence so dramatically the distribution of human capital so that its effects may be recorded in our analysis.

According to Sandu et al. (2004) the number of people who have emigrated permanently to Hungary between 1980 and 2003 is 52,682, half of which left before 1990. Supposing, against all evidence that all these people are of Hungarian ethnic origin a simple calculus demonstrates that they represent about 3% of the Hungarian population in Romania. A serious effect on the distribution of qualifications and degrees in the Hungarian community in Romania can be assumed only in the hard-to-believe case when their origin and distribution of qualifications are highly unrepresentative of the Hungarian population at large.

It is obvious that in this calculus one must take into consideration the temporary migration for work too. The people who left for this reason do not participate in polls, and their absence might have distorted the results of the inquiries that are at the basis of our study. The numbers mentioned by Sandu et al. (idem) show that the rate of temporary migration in the Szekler counties at the census in 2002 was around the Transylvanian average (20.5 ‰ in Covasna and 27.7 ‰ in Harghita), much lower than in a few other Transylvanian counties that are an important source of temporary migrants – like Bistrita Nasaud (36.8 ‰) or Maramures (35.6 ‰). Considering that the qualification structure of the emigrants' groups cannot be radically different among these regions, since there is no evidence that especially the highly educated people

from the Szekler counties would temporarily leave for work, and that the migration rate in the Szekler counties is not uncommon compared to the rest of the region or the country, we may conclude that circulatory migration did not significantly affect the distribution of the respondents according to their educational level in the surveys consulted.

It is clear that we do not have enough information to describe without doubt the migration phenomena that have affected the population of Romania. It is clear that not all who have immigrated to Hungary are Hungarians, as well as it is true that not all Hungarians have established themselves in Hungary. We do not know either how many of them have been from the Szeklerland and how many from the rest of Transylvania. Moreover we do not have any information about the distribution of degrees in the groups of the permanent or temporary emigrants. If we approve the numbers in Sandu et al. (*ibidem*) we may yet conclude that emigration has affected the Hungarian population's educational structure, compared to the Romanian population, to an extent that does not influence significantly our results.

DISCUSSION

The dependence of educational stock in Transylvania on region can be interpreted in several ways that lead to different considerations and policy recommendations. In connection with the present study's objectives we may regard the apparent lower educational opportunities of the population in the Szeklerland compared to the other areas in Transylvania as an indicator of a regional discrimination which disguises a policy that has been hostile toward the Hungarian minority. This argument can be verified by the evaluation of the educational network and the investments in education made in the region compared to the conditions in the rest of Transylvania during the communist regime and also the years that have followed.

It is possible, however, that our results are the "perverse effect" kind of outcome of individual decisions concerning investment in education. The Hungarian youth from Szeklerland and their parents living in a linguistically homogenous environment might have estimated that they have reduced chances to complete higher education and might have consequently limited their aspirations to attaining merely a secondary degree. In this case the recorded educational handicap is the result of a series of structural factors – the homogenous linguistic environment and the poor consecutive assimilation of the Romanian language – as well as a political factor – the suppression of higher education generally and in minority languages in particular. The lack of any institutions of higher education in the Szeklerland during the communist era also made pursuing an advanced education less enticing.

Our data rejects the hypothesis that the significant interaction between region and educational attainment is a statistical product of phenomena of external migration. However, turning to internal migration, that is considering that the educated human resources move from the regions poor in opportunities to the more modern ones probably can be sustained. In this case the most important migration flux from the Szekler counties would be directed toward the crowded urban settlements like Cluj-Napoca or Targu-Mures. However, internal migration, just like the external one,

confirms on the one hand the regional discrepancies in the distribution of the social opportunities and on the other hand it plays a part – by mechanisms that create a vicious circle – in deepening these inequalities. In this case the vaster the proportions of these phenomena the more significant the presumable effects would be.

CONCLUSIONS

Using Romanian survey data we have investigated three alternative explanations for the statistically significant lower percentage of persons belonging to the Hungarian minority that hold higher education degrees compared to the distribution of educational credentials in the entire population or the Romanian majority.

The most important result is that the hypothesis of strictly ethnic based lower educational opportunities for the generations of Transylvanian Hungarians born up to 1977, compared to the chances the Romanians from the same geographical context and cohorts cannot be sustained. It is true that the Hungarians possess a poorer stock of degrees of higher education than the Romanians in Transylvania, but the secondary education graduates, especially those holding a lower secondary degree, are better represented among the Hungarian population. The statistical analyses demonstrate that this ethnic disadvantage is merely apparent as it is generated by the variability of educational opportunities at the regional level. The Szeklerland with a high concentration of Hungarian speaking population appears to have been an unfavourable place for completing high-school and trade-school education, but also achieving a certificate of higher education, while the very same region concentrates a large number of people with lower degrees than the rest of Transylvania. Moreover, gender and urban/rural residence, the former conditionally independent of the educational level while the latter marginally associated with it, do not influence the relations among ethnicity, the region and the final level of instruction – the reason why we did not include them in the models presented here.

Our results sustain the thesis of deficient modernization in the Szekler counties compared to the other regions in Transylvania. This being sufficient ground for the lower educational opportunities the population in this region has, at the same time a premise for the perpetuation of this undesirable situation and also a warning signal for the authorities implied in elaborating development plans. It is quite clear that the development of Hungarian higher education outside the Szekler counties for instance will not play a significant part in the development of the region; on the contrary, it will contribute to the absorption of its human resources.

It is clear that the results do not exhaust the subject of unequal educational opportunities among Romanians and Hungarians in Transylvania. A more thorough retrospective study should take into account both external and internal migration phenomena that have affected the distribution of educational capitals registered at a given time in Romania. Then, generalizations referring to the distribution of educational chances among the cohorts with their school career in progress imply far more detailed analyses of the corresponding age groups, and a longitudinal approach could be beneficial in order to clarify the several covariates' impact – including that of the ethnic belonging – on career decisions and social chances.

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APPENDIX

Table 9. Parameters of the Second Grade Interactions in the First Log-linear Model

Interaction	λ Parameter	Parameter value	Sig.
Ethnicity*The father's education	1	.241	.001
	2	-.072	.354
	3	-.039	.620
Ethnicity*The respondent's education	1	-.301	.009
	2	-.153	.069
	3	.184	.004
The father's education*The respondent's education	1	.919	.000
	2	.727	.000
	3	-.290	.001
	4	-.346	.065
	5	.532	.000
	6	.226	.012
	7	-.456	.020
	8	-.288	.019
Ethnicity*Cohort	1	.036	.669
	2	-.037	.627
	3	.026	.793
	4	.106	.303
The father's education*Cohort	1	.674	.000
	2	.444	.000
	3	.295	.017
	4	-.391	.014
	5	.211	.058
	6	.250	.017
	7	.213	.115
	8	-.102	.531
	9	-.357	.005
	10	-.318	.009
	11	-.082	.611
	12	.108	.520
The respondent's education *Cohort	1	1.174	.000
	2	.335	.069
	3	-.507	.031
	4	-.496	.038
	5	.033	.842
	6	.103	.412
	7	.048	.777
	8	-.455	.011
	9	-.929	.000
	10	-.568	.000
	11	.022	.882
	12	.906	.000

Table 10. Parameters of the Second Grade Interactions in the Second Log-linear Model

Interaction	λ Parameter	Parameter value	Sig.
Ethnicity*The father's education	1	0.04	0.65
	2	-0.06	0.46
	3	-0.02	0.82
Ethnicity*The respondent's education	1	-0.05	0.63
	2	-0.11	0.25
	3	0.05	0.54
The father's education*The respondent's education	1	0.43	0.01
	2	0.58	0.00
	3	-0.11	0.36
	4	-0.44	0.02
	5	0.36	0.01
	6	0.27	0.01
	7	-0.19	0.33
	8	-0.40	0.02
	9	0.19	0.17
Ethnicity*Region	1	0.50	0.00
The father's education*Region	1	0.10	0.21
	2	0.07	0.43
	3	0.15	0.11
The respondent's education *Region	1	-0.31	0.01
	2	-0.12	0.21
	3	0.22	0.00
Ethnicity*Cohort	1	-0.01	0.90
	2	-0.12	0.23
	3	0.02	0.86
	4	0.08	0.45
The father's education*Cohort	1	0.59	0.00
	2	0.39	0.01
	3	0.11	0.43
	4	-0.34	0.05
	5	0.23	0.13
	6	0.15	0.31
	7	0.24	0.11
	8	-0.24	0.18
	9	-0.37	0.05
	10	-0.24	0.17
	11	-0.10	0.59
	12	0.25	0.18
The respondent's education *Cohort	1	0.67	0.00
	2	0.08	0.68
	3	-0.32	0.13
	4	-0.38	0.09
	5	0.23	0.21
	6	0.25	0.13
	7	0.04	0.83
	8	-0.49	0.01
	9	-0.71	0.00
	10	-0.36	0.02
	11	-0.04	0.79
	12	0.80	0.00
Region*Cohort	1	0.08	0.43
	2	0.22	0.03
	3	0.07	0.51
	4	-0.08	0.47