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Segregation, education, and inclusion of European Roma: A demographic analysis

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Abstract

The isolation of Romani people is rooted both in discrimination by non-Roma and in Romani informal institutions known as romaniya. Residential desegregation is a sectoral objective in the European Union public policies for Roma. The current study is based on the EU-MIDIS II study of 20,375 Romani adults from south-western and south-eastern Europe. A logistic regression with fractional polynomial transformation is used to model hypothesised relationships between education and residential segregation on the one hand and economic outcomes and discrimination on the other among segregated and non-segregated Roma. The analysis demonstrates that among Roma, more years of education were related to a higher likelihood of adult employment, living above the at-risk-of-poverty threshold, and the ability of households to make ends meet irrespective of the ethnic composition of the neighbourhood. In densely populated areas residential segregation was not significantly associated with the economic performance of the Roma. Education and residential segregation were not significant predictors of self-perceived discrimination.

Keywords: *Roma; inclusion; education; segregation; desegregation*

Introduction

Roma are one of the most marginalised social groups in Europe. In 2016, in the European Union, 77% of Roma lived below the country's at-risk-of-poverty threshold and 74% of Roma were unemployed or inactive (*EU Minorities and Discrimination Survey*, EU-MIDIS II). Education is considered important in interrupting the intergenerational transmission of poverty. Out-of-school children and children with limited access to education were found to be more likely to experience the negative transfer of low human capital (Bird & Higgins, 2011). Traditionally, Roma educate their children within families and local communities by involving them in professions (Weyrauch, 2001). In 2016, in the European Union, the educational attainment of 81% of Romani adults did not exceed ISCED level 2 (EU-MIDIS II).

Ethnic residential segregation is the degree to which two or more ethnic groups live separately from one another (Massey & Denton, 1988). It is closely related to spatial separation (Kovács, 2012), but it is a multidimensional phenomenon (Kovács, 2012) that stems from a complex interplay of social and economic processes (Massey & Denton, 1988). Zsolt Farkas et al. (2017) concluded that racial and ethnic divisions are the most powerful factors of residential separation, but they are strongly associated with income inequalities.

Picker (2013) considered spatial segregation one of the key disadvantages affecting the Roma. Zsolt Farkas et al. (2017) suggested a self-reinforcing spiral between ethnic residential segregation and income inequalities. Kahanec et al. (2020) also hypothesised a relationship

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between the residential segregation of Romani people and their limited access to secondary education. According to the European Union Agency for Fundamental Rights (2009), residential segregation of Roma can negatively affect employment chances and access to and attainment in education. Hence, member states were recommended by the agency to make efforts to resolve the issue of residential segregation of Roma.

The isolation of the Roma is rooted both in discrimination by non-Roma (Institute of International Education, 1992; Ringold et al., 2005; Žižek, 2009) and in Romani informal institutions, which are known as *romaniya* or Gypsy law (Ciaian & Kancs, 2019; Leeson, 2013; Weyrauch, 2001). The social perception of the Roma remains dual and involves negative stereotypes of thievery, laziness, unreliability, and dirtiness and of a romantic nature of merriness, musicality, and freethinking (Cohn, 1973; Maučec et al., 2013; Villano et al., 2017). Additionally, Romani people are more likely to be perceived by mainstream society (non-Roma) as dependent on welfare benefits (Ringold et al., 2005) and not having an interest in education (Institute of International Education, 1992). The perception of the Roma as a burden is likely to intensify when non-Roma think about the Roma in their proximity (Vašečka, 2003). According to the 2017 European Value Survey, 42% of adults oppose having Roma as their neighbours (European Value Survey, 2022), which is more than the corresponding values for Jews (10%), Muslims (19%), and homosexuals (31%) but less than those for heavy drinkers (63%) and drug addicts (76%).

According to *romaniya*, the Roma need to limit interactions with mainstream society due to the risk of pollution (*marimê*). Children are assumed to not be at risk of pollution until puberty, and older Roma are perceived to be at a lower risk of pollution (Weyrauch, 2001). *Romaniya* assumes that the body is contaminated (*marimê*) by contact with faeces, menstrual blood, semen, and urine (Leeson, 2013). For example, access to private living spaces should be limited for people who do not follow *romaniya* and a special seat, cup, and dish should be provided for them (Leeson, 2013). Hence, the residential segregation of the Roma may be considered partially rooted in their tradition, which makes it unclear whether desegregation policies should be implemented. Magazzini and Piemontese (2016) concluded that there is no shared consensus on whether the integration of Roma should concern their cultural recognition, socio-economic redistribution, ethnicity, or lifestyle.

In general, Roma are more likely to maintain economic than social relationships with non-Roma people. However, in *romaniya*, some professions are considered impure (*marimê*) for Roma, which limits their labour market opportunities. Most polluting occupations are menial jobs; particularly impure occupations are those related to collecting the garbage of non-Roma and undertaking or cleaning their possessions (Weyrauch, 2001). As was shown in EU-MIDIS II, in 2016, a slim majority of working Romani adults were employed in elementary occupations[2], and 91% of working Romani adults considered that their jobs corresponded well to or exceeded their educational attainment.

[2] Elementary occupations are defined in the EU-MIDIS II questionnaire as domestic, hotel and office cleaners, building construction labourers, garbage and recycling collectors, street vendors (excluding food), domestic helpers, window cleaners, shelf fillers, hand packers, unskilled factory workers, kitchen/catering assistants, food preparation assistants, postal workers, road sweepers, refuse sorters, traffic wardens, agricultural, forestry and fishery labourers, fruit and vegetable pickers, labourers, packers, goods handling and storage staff, labourers in mining, manufacturing and transport, and odd job persons (EU Agency for Fundamental Rights, 2020).

Traditionally, Roma have formed work alliances (*kumpania*; plural: *kumpanji*), i.e., loose associations for cooperation within internal rules. The collectives have been of more or less permanent duration (Weyrauch, 2001). This pattern of economic activity is one of the reasons why, among Roma, compared to mainstream society, traders, craftspeople, entertainers, and seasonal workers have been overrepresented, for example. In this context it is noteworthy that the European Union Agency for Fundamental Rights (2009) recommended avoiding the development of artificial and separate 'Romani' labour markets.

As was shown in EU-MIDIS II, in 2016, 55% of Romani adults living in the European Union (hereafter European Roma) reported having friends without a minority background. Additionally, 41% of European Roma reported that they would feel totally comfortable with someone from the family being married to a person who does not have an ethnic minority background. Hence, the rules of *romaniya* summarised above after Weyrauch (2001), Leeson (2013), Ciaian, and Kancs (2019) relate to only a fraction of European Roma, which are not homogenous in this matter.

First, the current study examines the variation in employment, living below the at-risk-of-poverty threshold, and the ability of households to make ends meet in relation to formal education among European Roma. Second, the models test whether the relationships between residential segregation on the one hand and employment, living below the at-risk-of-poverty threshold, and the ability of households to make ends meet on the other are likely to vary depending on the population density of the neighbourhood. The latter is equivalent to a moderating role of the population density of the neighbourhood. The lack of a difference in economic performance between integrated densely populated areas and segregated densely populated areas would document that isolation is the main disadvantage of European Roma and that spatially segregated Roma can function well in densely populated areas, i.e., when they are not isolated. The above hypotheses are tested in the first subsection within the *Results* section. Desegregation of housing and schools is a sectoral objective in the *EU Roma Strategic Framework for Equality, Inclusion, and Participation for 2020−2030*. According to EU-MIDIS II, in 2016, 67% of European Roma considered their neighbourhoods to be composed of only Roma or mostly Roma, and 59% of Roma reportedly lived in ethnically segregated areas.

Third, the current study hypothesises that self-perceived discrimination among Roma decreases with formal education. Hypothetically, non-Roma should be positively disposed towards educated Roma, since the main negative views on Roma are their perceived lack of interest in education and low education (Cohn, 1973; Maučec et al., 2013; Villano et al., 2017). A number of studies have revealed discrimination against less-educated individuals (Hammarström, 2014; Meisel, 2022; Quiterio et al., 2008). The above hypothesis is tested in the second subsection within the *Results* section. Additionally, it is of interest to understand whether the shape of the relationship between education and self-perceived discrimination depends on the ethnic composition of the neighbourhood, which corresponds to the moderating effect of residential segregation.

In each case, a logistic regression with fractional polynomial transformation (Royston & Altman, 1994) is used to model the hypothesised relationships with adjustment for age, gender, number of household members, country of residence, and population density. The analysis is conducted on the EU-MIDIS II data on Romani adults from south-western (Portugal and Spain) and south-eastern Europe (Bulgaria, Croatia, the Czech Republic, Greece, Hungary, Romania, and Slovakia).

Material and methods

Participants

The analysis is based on the results of the 2016 *EU Minorities and Discrimination Survey* (EU-MIDIS II). The findings given in this article are based on interviews with Romani adults from Bulgaria, Croatia, the Czech Republic, Greece, Hungary, Portugal, Romania, Slovakia, and Spain. Data on these individuals were obtained by face-to-face interviews administered by interviewers using a computerised questionnaire. The participating Romani households were selected using the random-route method (EU Agency for Fundamental Rights, 2017). A multi-stage clustered sampling approach was used to select the study areas populated with Roma (primary sampling units). For the purposes of the current analysis, the EU-MIDIS II data were limited to individuals aged 18 years or more, and living in private households, who self-identify as Roma and whose usual place of residence has been in the European Union for at least 12 months. Self-identification is a common method used to identify Romani ethnicity (Messing, 2014). The analysis is based on data on 20,375 household members, corresponding to 7,633 interview participants.

The figures given in the *Introduction* and *Discussion* sections are weighted numbers to account for the differences in the size of the Romani populations in the countries. Roma living in the nine countries covered by EU-MIDIS II represent more than 70% of Roma living in the European Union and more than 60% of Roma living in Europe (Council of Europe, 2012).

Measures

In EU-MIDIS II, the ethnic composition of the neighbourhood is represented by a binary variable measuring the ethnic segregation of the neighbourhood of a household. The population density of the neighbourhood is given on a three-point scale (densely, intermediately, or thinly populated neighbourhood). The study hypothesises a moderating effect of population density on the relationship between the ethnic composition of the neighbourhood and the economic performance of European Roma. To make the results clear to the reader, subgroup analysis was performed instead of including an interaction term between residential segregation and population density in the regression models. Education is measured in years of schooling. Additionally, the categorical variable of the highest achieved level of education (ISCED 0, ISCED 1–2, ISCED 3–8, International Standard Classification of Education of 2011) is included for a reference in one of two regression models of self-perceived discrimination. Age is measured in whole years. A dummy variable for gender is coded 1 if male and 0 if female. For categorical regressors, the most frequent category is used as the reference group. The household net monthly income is divided by the number of household members to obtain per capita values. Net monthly income amounts reported in national currencies are converted to euro.

Four dependent variables are analysed in the study. Being employed is defined as being currently engaged in paid work or being self-employed. Living below the at-risk-of-poverty threshold is defined as having an equivalised current monthly disposable household income below 1/12 of the national annual at-risk-of-poverty threshold of 2014, which is set at 60% of the national median equivalised disposable income, divided by the number of household members converted into equalised adults, using the modified OECD equivalence scale (Eurostat, 2015). The ability of a household to make ends meet is measured by a six-point

variable, taking the value 1 if a household is able to make ends meet with great difficulty, 2 if with difficulty, 3 if with some difficulty, 4 if fairly easily, 5 if easily, and 6 if very easily. Perceived discrimination among Roma is measured by a binary variable taking the value of 1 if the respondent reported discrimination in the recent five years when looking for a job, when at work, when using healthcare services, when trying to rent or buy an apartment or house, or when in contact with school authorities and 0 otherwise.

Analysis

The study employs binary and ordinal logistic regression to model the odds of economic outcomes and self-reported discrimination among European Roma based on a fractional polynomial in the number of years of education. A generalisation of the polynomial function provides flexible parameterisation for quantitative variables. This approach was proposed by Royston and Altman (1994) and can be used in exploratory studies to determine the functional form of a relationship. The current study discusses the relationship between years of education on the one hand and employment, living below the at-risk-of-poverty threshold, the ability of households to make ends meet, and the self-reported prevalence of discrimination on the other. Fractional polynomials differ from regular polynomials in that they allow logarithms, non-integer powers, and repeated powers:

$$y = \beta_0 + \beta_1 x^{p_1} + \beta_2 x^{p_2} + \cdots + \beta_m x^{p_m}$$

where y is an outcome (replaced by the logit in the logistic regression), x is a regressor, and exponents p belong to the set of powers $S = \{-2, -1, -0.5, 0, 0.5, 1, 2, 3\}$ suggested by Royston and Sauerbrei (2008). Use of a small set eases the estimation and makes it more robust to outliers. The convention is that x^0 equals $\ln(x)$. Typically, maximum likelihood is used to fit the model. Fractional powers are different from regular powers for $p = 0$ and repeated powers $p_1 = p_2$. If repeated powers are involved, the second term is multiplied by $ln(x)$. A pair $(p_1 = 1, p_2 = 2)$ is equivalent to quadratic regression. Statistical analysis was performed using Stata 16.

Results

Education and economic inclusion of European Roma

In 2016, among European Roma, length of formal education was related to a higher likelihood of adult employment (Table 1). According to the survey results, ethnic residential segregation did not remove the positive effect of formal education on the employment inclusion of Romani adults. The magnitude of the estimated relationship between formal education and adult employment varied slightly depending on the ethnic composition of the neighbourhood (Figure 1). The positive relationship was robust to limiting the sample to individuals living in ethnically heterogeneous or Romani neighbourhoods, to men or women, and to individuals living in densely, intermediate, or thinly populated areas. The relationship held in both Roma living in south-western and in south-eastern Europe.

Among European Roma, the relationship between length of formal education and living below the at-risk-of-poverty threshold appeared to be significant (Table 1). It was robust to limiting the sample, as in the above case of the relationship between formal education and

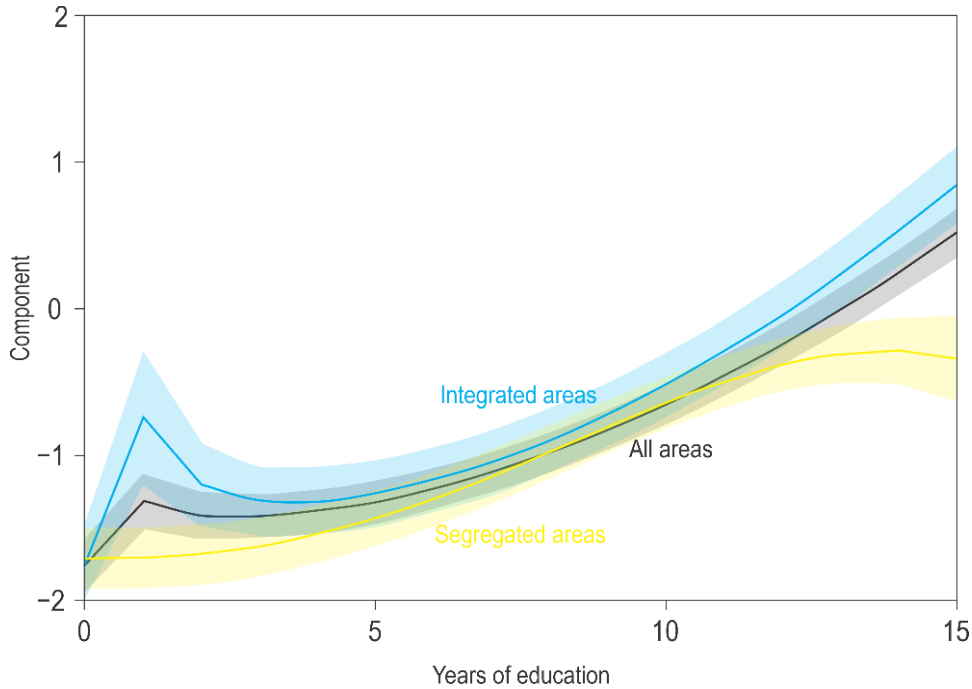
adult employment. Again, the magnitude of the estimated relationship varied non-significantly by the ethnic composition of the neighbourhood (Figure 2).

The ability of a household to make ends meet was also associated with the length of formal education (Table 1). It was robust to limiting the sample, as in the above case. The magnitude of the relationship was similar among European Roma living in ethnically heterogeneous and Romani neighbourhoods (Figure 3).

According to the three models presented in Table 1, no difference in economic performance was observed between European Roma living in integrated densely populated areas and segregated densely populated areas ($p > 0.05$). Put differently, in densely populated areas, residential segregation was not significantly associated with another economic performance of European Roma.

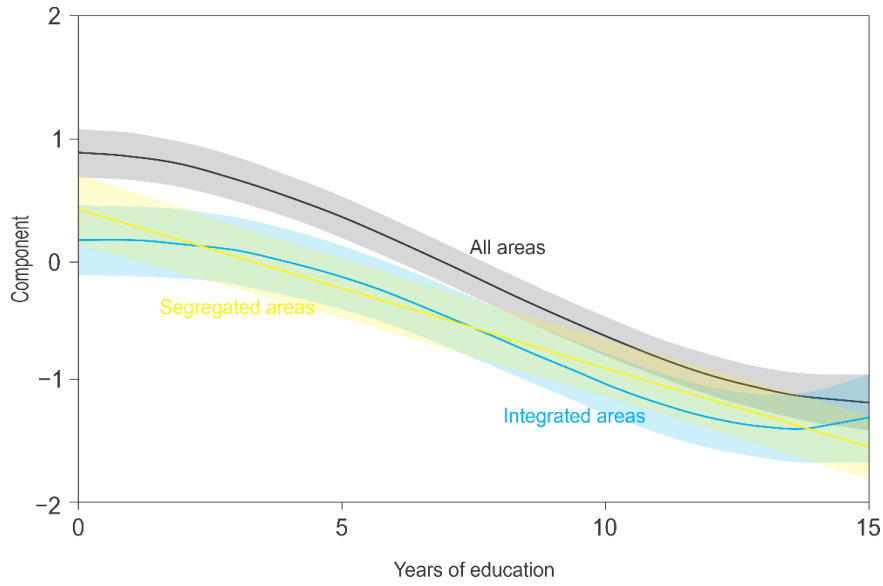
The material life domain is usually assessed by respondents in relation to their social environment. The *Measures* subsection of the current paper specifies, how the at–risk–of–poverty threshold was calculated in the participating countries. With this in mind, it might be concluded that after adjustment for several controls, three measures of economic performance took relatively advantageous values in Romanian Roma and disadvantageous values in Croatian, Slovak, and Spanish Roma.

Figure 1. The estimated relationship between education and employment after adjustment for age, gender, number of household members, population density, and country of residence, with a 90% confidence interval



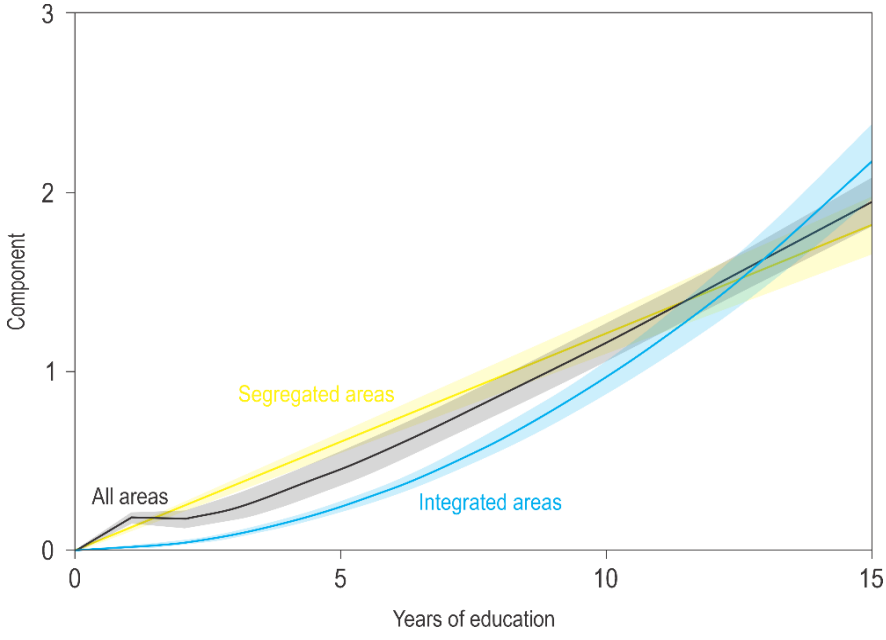
Source: Own elaboration based on the EU-MIDIS II sample of Romani adults.

Figure 2. The estimated relationship between education and living below at-risk-of-poverty threshold after adjustment for age, gender, number of household members, population density, and country of residence, with a 90% confidence interval



Source: Own elaboration based on the EU-MIDIS II sample of Romani adults.

Figure 3. The estimated relationship between education and ability of household to make ends meet after adjustment for age, gender, number of household members, population density, and country of residence, with a 90% confidence interval



Source: Own elaboration based on the EU-MIDIS II sample of Romani adults.

Table 1. Fractional polynomial regression models of employment, living below at-risk-of-poverty threshold, and ability to make ends meet

	Employment (power A: –0.5, B: 2)				Living below at–risk–of poverty threshold (power A: 2, B: 3)				Ability to make ends meet (power A: –0.5, B: 2)			
	Coefficient	*95% Confidence Interval*		*Significance*	*Coefficient*	*95% Confidence Interval*		*Significance*	*Coefficient*	*95% Confidence Interval*		*Significance*
Constant	–1.872	–2.079	–1.665	<0.001	1.067	0.825	1.309	<0.001				
Years of education:												
Power A	0.449	0.207	0.691	<0.001	–0.028	–0.033	–0.023	<0.001	–0.267	–0.395	–0.139	<0.001
Power B	0.009	0.009	0.010	<0.001	0.001	0.001	0.002	<0.001	0.178	0.153	0.204	<0.001
Area of living (reference: *segregated thinly populated areas*):												
Integrated densely populated areas	0.439	0.291	0.588	<0.001	–0.608	–0.782	–0.434	<0.001	0.112	–0.005	0.228	0.060
Segregated densely populated areas	0.370	0.246	0.494	<0.001	–0.543	–0.708	–0.377	<0.001	0.236	0.136	0.336	<0.001
Integrated intermediately populated areas	0.492	0.364	0.621	<0.001	–0.541	–0.695	–0.388	<0.001	0.320	0.215	0.426	<0.001
Segregated intermediately populated areas	0.051	–0.058	0.161	0.359	–0.008	–0.145	0.130	0.913	0.140	0.054	0.227	0.001
Integrated thinly populated areas	0.270	0.165	0.375	<0.001	–0.293	–0.416	–0.170	<0.001	0.045	–0.038	0.128	0.287
Age	–0.010	–0.013	–0.008	<0.001	–0.010	–0.013	–0.007	<0.001	0.007	0.005	0.009	<0.001
Gender	1.175	1.104	1.246	<0.001	0.016	–0.068	0.100	0.708	–0.041	–0.096	0.014	0.148
Number of household members	–0.009	–0.024	0.006	0.248	0.282	0.259	0.306	<0.001	–0.042	–0.054	–0.030	<0.001
Country of residence (reference: *Romania*):												
Bulgaria	–0.426	–0.547	–0.304	<0.001	1.274	1.132	1.416	<0.001	–0.738	–0.833	–0.643	<0.001
Croatia	–1.963	–2.205	–1.722	<0.001	1.661	1.413	1.909	<0.001	–0.843	–0.966	–0.719	<0.001
Czech Republic	–0.514	–0.658	–0.369	<0.001	0.217	0.068	0.365	0.004	–0.454	–0.570	–0.338	<0.001
Greece	0.872	0.730	1.014	<0.001	1.815	1.529	2.101	<0.001	–1.521	–1.656	–1.386	<0.001
Hungary	0.282	0.166	0.398	<0.001	0.429	0.304	0.555	<0.001	–1.057	–1.154	–0.960	<0.001
Portugal	0.522	0.363	0.680	<0.001	*	*	*	*	–2.059	–2.224	–1.893	<0.001
Slovakia	–1.091	–1.227	–0.955	<0.001	1.995	1.828	2.162	<0.001	–1.133	–1.235	–1.030	<0.001
Spain	–1.336	–1.507	–1.165	<0.001	3.871	3.496	4.246	<0.001	–1.722	–1.850	–1.593	<0.001

Source: Own elaboration based on the EU-MIDIS II data about Romani adults

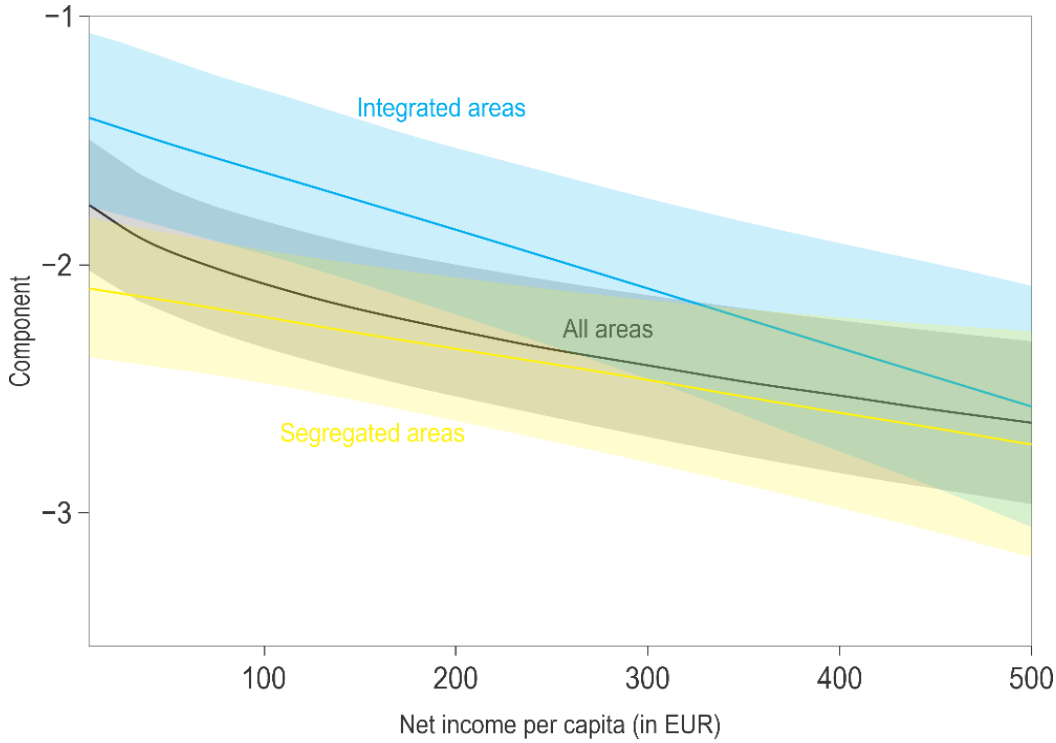
Education and self-perceived discrimination of European Roma

Education did not differentiate the levels of perceived discrimination among European Roma when looking for a job, when at work, when using healthcare services, when trying to rent or buy an apartment or a house, or when in contact with school authorities in the past five years. This finding held both when using a quantitative variable of length of formal education in years (Table 2, specification A) and a categorical variable of highest level of completed education (Table 2, specification B). However, household net income per capita was significantly associated with lower self-perceived discrimination (Table 2, specification B). This relationship remained significant after limiting the sample to Roma living in ethnically heterogeneous or Romani neighbourhoods (Figure 4).

In the overall adult sample of EU-MIDIS II (without limiting the sample to Roma), the relationship between education and perceived discrimination among the European Union's minorities was, on average, significant and positive: better educated individuals were more likely to report higher levels of discrimination, both when adjusting for socio-demographic

variables and by direct comparison. This did not hold among European Roma. In the two models presented in Table 2, no difference in self-perceived discrimination was observed between European Roma living in integrated areas and segregated areas ($p > 0.05$). Simply put, residential segregation was not associated with other levels of self-perceived discrimination among European Roma.

Figure 4. The estimated relationship between household net income per capita and perceived discrimination after adjustment for number of age, gender, number of household members, population density, and country of residence, with a 90% confidence interval



Source: Own elaboration based on the EU-MIDIS II sample of Romani adults.

Table 2. Fractional polynomial regression models of self-reported discrimination

	Specification A				Specification B			
	Coefficient	*95% Confidence Interval*		*Significance*	*Coefficient*	*95% Confidence Interval*		*Significance*
Constant	–2.180	–2.506	–1.853	<0.001	–1.599	–1.904	–1.294	<0.001
Years of education:								
Power –0.5	0.108	–0.213	0.429	0.510	*	*	*	*
Power 0.5	0.035	–0.031	0.101	0.297	*	*	*	*
Area of living (reference: *segregated thinly populated areas*):								
Integrated densely populated areas	0.211	0.014	0.408	0.035	0.234	0.037	0.431	0.020
Segregated densely populated areas	0.195	0.028	0.362	0.022	0.187	0.020	0.354	0.028
Integrated intermediately populated areas	0.410	0.224	0.597	<0.001	0.439	0.254	0.624	<0.001
Segregated intermediately populated areas	0.504	0.355	0.654	<0.001	0.505	0.355	0.654	<0.001
Integrated thinly populated areas	–0.009	–0.177	0.160	0.920	–0.026	–0.194	0.143	0.766
Age	–0.004	–0.008	–0.001	0.020	–0.005	–0.009	–0.002	0.004
Gender	0.067	–0.032	0.165	0.186	0.074	–0.024	0.172	0.137

Number of household members	–0.128	–0.152	–0.103	<0.001	–0.157	–0.184	–0.130	<0.001
Country of residence (reference: *Romania*):								
Bulgaria	–0.087	–0.297	0.123	0.418	–0.041	–0.251	0.169	0.702
Croatia	0.931	0.710	1.152	<0.001	1.004	0.780	1.229	<0.001
Czech Republic	0.642	0.426	0.858	<0.001	0.950	0.697	1.204	<0.001
Greece	0.779	0.555	1.004	<0.001	0.869	0.634	1.103	<0.001
Hungary	0.234	0.026	0.442	0.028	0.373	0.160	0.587	0.001
Portugal	1.374	1.159	1.589	<0.001	1.443	1.226	1.660	<0.001
Slovakia	0.327	0.118	0.537	0.002	0.415	0.201	0.629	<0.001
Spain	0.670	0.451	0.888	<0.001	0.832	0.601	1.062	<0.001
Highest completed education level (reference: *ISCED 1 and 2*):								
ISCED 0	*	*	*	*	0.010	–0.129	0.149	0.889
ISCED 3–8	*	*	*	*	0.066	–0.098	0.230	0.429
Net income per capita:								
Power 0.5	*	*	*	*	–0.043	–0.061	–0.024	<0.001

Source: Own elaboration based on the EU-MIDIS II data about Romani adults.

Discussion

Public policies aimed at the inclusion of Roma can be divided into those beginning with desegregation and those more focused on the social and economic conditions of Romani populations at their current place of residence. *The EU Roma Strategic Framework for Equality, Inclusion, and Participation for 2020−2030* invites the member states to present a plan and measures for preventing and fighting segregation in housing, among other aspects. Resettlement to desegregated housing and reducing school segregation are sectoral objectives in the *EU Roma Strategic Framework for Equality, Inclusion, and Participation for 2020−2030*. Spatial integration is generally assumed to be associated with better socio-economic outcomes. However, desegregation is likely to be in conflict with the Romani tradition or *romaniya*. This assumption was the basis for the 'laws to protect nomadic cultures' introduced in Italy in the 1980s and 1990s (van Baar, 2011), which was likely to maintain ethnic residential segregation. The rational sequence of public policy actions may depend on the commitment to *romaniya* of the local societies. In EU-MIDIS II, a very tight commitment to ethnic identity (not equivalent to following *romaniya*) was reported by 91% of Roma living in south-western Europe and 71% of Roma living in south-eastern Europe.

The EU-MIDIS II results revealed that desegregating housing was not necessary for the economic inclusion of Roma through education. The relationship between low education on the one hand and non-employment, living below the at-risk-of-poverty threshold, and the ability of households to make ends meet on the other reflects the persistence of exclusion: educational exclusion in childhood is likely to precede economic exclusion in adulthood. The lack of difference in economic performance between European Roma living in integrated densely populated areas and segregated densely populated areas documents that spatially segregated Roma functioned in densely populated areas as well, as those living in spatially integrated (non-segregated) housing. Further studies might be undertaken to establish whether residential isolation rather than residential segregation is disadvantageous to European Roma.

The EU-MIDIS II results documented a relationship between ethnic segregation and adult employment in European Roma. Notably, legality of employment was not measured in the current survey. Lebedinski (2020) concluded that among the Serbian Roma, the effect of ethnic segregation on adult employment differed between formal and informal employment. Namely, in Serbia, in 2002–2003, the share of Roma in a census tract was positively spatially

related to the probability of informal employment and was negatively spatially associated with that of formal employment. However, the latter was non-significant when limiting the sample to younger individuals. In contrast, length of education was negatively spatially related to the probability of informal employment and positively spatially associated with that of formal employment (Lebedinski, 2020), which is more favourable. Bosakova et al. (2020) suggested a public–private partnership to increase formal employment among segregated Roma based on qualitative evidence from Slovakia.

The limitation to elementary occupations is more severe for Roma than for mainstream society, since most impure (*marimé*) occupations involve menial labour (Weyrauch, 2001). Hence, it may be hypothesised that the link between the possibility of working outside of elementary occupations and employment is stronger among Roma individuals than non-Roma individuals. The EU-MIDIS II results revealed that education should be considered an effective means of extending employment possibilities or, in general, the economic inclusion of Roma, particularly those who follow *romaniya*.

The EU-MIDIS II results indicated that in 2016, 75% of European Roma expressed a very tight commitment to their ethnic identity. However, most European Roma were likely to report liberal attitudes towards interactions with non-Roma, which might be contrary to some *romaniya* rules. In EU-MIDIS II, 71% of European Roma reported having friends without a minority background. Additionally, 42% of European Roma considered themselves totally comfortable with someone from the family being married to someone who does not have an ethnic minority background. However, the comparison of the actual share of exogamous marriage among surveyed Roma (2%) and broad self-reported acceptance of intermarriage (42%) reflects the limitation of the study design. Data were collected by non-Romani individuals, who are likely to be treated with a certain degree of caution by Romani respondents (Ciaian & Kancs, 2019; Leeson, 2013 Weyrauch, 2001).

According to the EU-MIDIS II results, educational inclusion was not enough to reduce discrimination in adult life perceived by Romani people. Namely, among European Roma, education was unlikely to be directly related to the acceptance of Roma by the mainstream society, as measured by self-perceived discrimination by Roma. However, education may be hypothesised to be related to the Roma's acceptance of non-Roma: caution about the interaction with non-Roma is likely to be a form of institutionalised superstition. More specifically, among Roma, factors affecting acceptance of interactions with non-Roma are likely to be the forces that have been shown to make people critical towards superstition, such as good education and high urbanisation (Torgler, 2007; Vyse, 2014). According to the EU-MIDIS II results, formal education was strongly related to the intermarriage of Roma, among other factors.

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