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Abstract

Parents who experience poverty and who want to provide their children with an escape route can be expected to encourage and support their progeny's education. The evidence that Roma parents behave differently is unsettling. In this paper we test empirically an explanation for that behavior. The explanation is based on a theory (Stark et al. 2018) that can be "borrowed" to rationalize the enforcement of norms of little formal education in underprivileged communities. An analysis of survey data collected in Roma communities in four Central and Eastern European countries lends support to the explanation. The analysis reveals a strong negative correlation between the influence of the Roma community on an individual member's life and the importance accorded by the individual to formal schooling for children. The correlation is robust to controlling for standard determinants of attitudes towards schooling, such as poverty, unemployment, labor market discrimination, and parents' educational attainment. The analysis suggests that policy interventions aiming to increase the formal education of Roma children need to reckon with the influence of Roma community norms on individual choices.

Keywords: Community influence; Social norms; Social distance; Exposure to relative deprivation; Roma communities; Formal education of children

JEL classification: J15; J24; J70; O12; Z13

1. Introduction

Whereas some migrant and minority ethnic groups exhibit high levels of economic achievement and a considerable degree of integration into the mainstream society, others tend to remain detached. Roma communities in many European countries belong to the latter category. Geographic concentration and social isolation are common to Roma communities. The incidence of abject poverty and the unemployment rates of Roma households exceed those of mainstream society households substantially. School attendance by Roma children is dramatically lower than school attendance by children from the mainstream society. School absenteeism and early school dropout rates are several times larger for Roma children (Ringold et al. 2005; UNDP 2005; European Commission 2004, 2012). Given the extent and persistence of those phenomena, identifying the reasons why Roma communities are locked into a vicious circle of isolation, poverty, unemployment, and poor education is important.[1,2] We focus on one such reason, which thus far has been missing from academic discussion and policy formation: community influence that is not supportive of the formal education of children.

Several of the causes of Roma children's low levels of schooling are well known. Poverty is one cause: poor parents are unable to afford the prices of basic inputs such as school meals and suitable clothing and books; children often are needed to work and assist the family in meeting its day-to-day requirements (Ringold et al. 2005). Discrimination in the labor market is another cause: it reduces labor market opportunities for Roma people (O'Higgins and Ivanov 2006; Drydakis 2012; Cviklova 2015) and, consequently, it lowers the economic returns to education. A third cause is bullying and prejudice at school: Roma children frequently are sent to special schools for disabled children either by their parents as a protection against bullying in regular schools, or by the local authorities because of prejudice against them (Ringold et al. 2005). In such schools, academic standards are low. A fourth

[1] Isolation, poverty, unemployment, and poor education reinforce each other to create a vicious cycle: poor parents lacking the resources to invest in the education of their children resort to child labor for sustaining the household. They have low expectations regarding their children's labor market success. They tend to have less education than better-off parents, which helps explain why their children too will have levels of education that fall short of the average educational attainment of the children of middle- and high-income parents. Meagre formal schooling of children increases the probability that they will end up unemployed, poor, and reside in isolated spaces. Geographical isolation contributes to social isolation which limits information on labor market opportunities and the availability of formal jobs. Unemployment of household members aggravates poverty.

[2] A meta-evaluation by the European Commission (2019) lists recent policy interventions aimed at improving the Roma's situations in the spheres of education, employment, healthcare, and housing, as well as at reducing discrimination against the Roma.

cause is a linguistic barrier: many Roma children have limited or no mastery of the mainstream language. The language deficiencies affect their school performance and discourage them from pursuing schooling. Poverty, discrimination, and linguistic barriers combine to produce low levels of education which, in turn, contribute to the perpetuation of poverty.

A new and complementary explanation of social isolation, poverty, and low levels of education of Roma communities can be derived from a recent theoretical analysis of Stark et al. (2018). In order to explain why different groups assimilate to different degrees, Stark et al. study the inner workings of communities, asking how the characteristics of a community influence the assimilation behavior of its members into the mainstream society and economy. The analysis of Stark et al. rests on two main assumptions. First, that individuals experience relative deprivation when the average income of individuals in their comparison group is higher than their own income. Second, that the comparison group for an individual is not determined exogenously; rather, it is influenced by the individual's behavior, which in turn is influenced by the community's values and norms, and by the community's ability to enforce its norms. The acquisition of skills that are valuable in the mainstream economy, such as formal education, has three effects on wellbeing: it raises the income of an individual; it brings the individual closer in social space to the mainstream society, which is assumed to be wealthier, thereby subjecting the individual to greater relative deprivation;[3] and it inflicts greater relative deprivation on the members of the individual's community who continue to compare themselves to him. Because of the latter relative deprivation externality, community attitudes and actions aimed at dissuading individuals from deviating from community norms can be socially advantageous. Specifically, it can suit communities to exert influence and adopt mechanisms that impede investment in formal education by community members. Such mechanisms build on social norms of low investment in the formal education of children and limited contacts with the mainstream society. Communities that abide by and enforce such norms remain in a low education and low assimilation equilibrium. Stark et al. refer to

[3] The tensions that the Roma face between absolute income on the one hand, and relative deprivation resulting from socioeconomic integration in the mainstream society on the other hand, is described vividly by Ringold et al. (2005). On referring to the situation of Roma in the Slovak Republic, Ringold et al. (pp. 62-64) write that "in general, Roma in integrated areas are less poor than Roma living in settlements, and they have greater access to opportunities in the labor market and education. Conversely, Roma living in isolated and marginalized settlements have limited chances for upward mobility and interaction with the rest of society. … Many Roma also compared their situations to those of fellow citizens. Unemployed Roma living close to non-Roma felt much worse off in comparison with others. Many Roma living in villages or towns with non-Roma believed that it was more difficult for them to find work than their non-Roma neighbors. … In contrast, Roma in segregated settlements were less likely to compare themselves to non-Roma."

communities that are able to discipline their members in that manner as exhibiting tight cohesion.

With ancestral roots in northern India, the Roma migrated to Europe in the 10th to 11th centuries. A millennium later, the Roma represent a unique example of a migrant group residing in Europe that has resisted assimilation which, even if economically beneficial, would threaten the integrity of the group's social fabric and compromise its cohesion. The Roma have a history marked by poverty and persecution. Highly discriminatory policies were implemented by the countries in which the Roma settled. Those policies, which are described in considerable detail in Ringold et al. (2005), constitute a disturbing catalogue. Included are residential restrictions that pushed the Roma to live on the outskirts of towns and villages; limits on the quantities of goods Roma metal workers were allowed to sell (sixteenth century Hungarian Kingdom); a declaration that all Roma are outlaws, and orders that Roma men be hanged (eighteenth century Austro Hungarian empire); limited mobility and limited civil rights for Roma (first Czechoslovak Republic); deportation of Roma people to concentration and forced labor camps, and the annihilation of half a million Roma people (across Europe during World War II); banning of Roma cultural activities; forced relocation of Roma families; breaking up of caravans and slaughtering of Roma horses in the middle of the night (Czechoslovak socialist regime); enslavement of Roma people (Romania, fifteenth-to-nineteenth centuries); forced assimilation (Romanian communist regime under Ceausescu); suppression of cultural expression and persecution by police and local officials (Romania, World War II to 1970s). Alienation from the mainstream society helped to strengthen the importance the Roma accorded to their own community.

In a historical context of severe poverty and sharp economic disparities, limiting contacts with the mainstream society in order to minimize feelings of relative deprivation may have been a welfare-maximizing strategy for Roma communities. A low education equilibrium was consistent with a social distance equilibrium from the mainstream society. The limiting of access to formal education was enforced through social pressure. Zahova (2016) documents vivid episodes in which Roma girls who pursued higher education were ridiculed by their neighborhood peers, situations in which pressure from elderly members of the community caused young girls to marry early rather than attend school, cases when parents prevented their children from attending school, and examples in which graduating from university made it impossible to marry within the community. The low education equilibrium was supported by a system of values and beliefs (akin to a caste system) called

Romaniya, which strongly discourages contacts with non-Roma people, places, and objects and, as a consequence, weakens the incentive of parents to invest in the formal schooling of their children.[4] Poverty, discriminatory policies, effective social pressure, and the *Romaniya* belief system combined to produce and maintain a low education, low assimilation equilibrium of Roma communities.

Leeson (2013) writes that the *Romaniya* system of values and beliefs emerged as an efficient mechanism of social control in a context in which such control could not have been exerted by formal government institutions or through simple ostracism. In Leeson's view, the norm that interactions with non-Roma people pose threats is necessary to deepen the fear of being ousted from the community, thus rendering social control more effective. Another explanation for the emergence of a belief that contributes to the isolation of the community from the mainstream society is a need to cope with relative deprivation, an idea formalized by Stark et al. (2018). Historically, complete economic integration with the more privileged mainstream society was unachievable for Roma people because of prejudice, highly discriminatory laws, and extreme initial levels of poverty. In such circumstances, separating the community socially and economically from the mainstream society helped reduce the stress caused by relative deprivation and served as a welfare-maximizing strategy for the community, in spite of its negative effects on the incomes of some community members. Whether it is for ensuring social order, coping with relative deprivation, or a combination of those factors along with others, a belief that contacts with the mainstream society should be avoided and the associated norm of limiting the formal education of children are likely to have emerged as optimal responses of Roma communities to the social and economic constraints they were facing.

In this paper, we study empirically the relationship between measures of the influence of the Roma community on the lives of individual members, and their attitudes towards formal schooling. We conjecture that communities exercising substantial influence on individuals' lives will have members who exhibit greater aversion to the formal schooling of children. As explained further below, we measure the influence of a community on the basis of information provided by community members. We take advantage of the fact that not all

[4] For a vivid account of the *Romaniya* system of values and beliefs consult Leeson (2013). For a documentation of the culture, traditions, and institutions of Roma communities, consult Brown (1929), Clébert (1963), Lee (1967, 1997), Yoors (1967), Trigg (1973), Gropper (1975), Miller (1975), Sutherland (1975), Liégeois (1986), Sway (1988), and Weyrauch and Bell (1993).

members of a Roma community are influenced to the same extent, allowing us to relate variations in the influence of a Roma community on individuals' lives to variations in the importance that individuals accord to the formal education of children. Our working hypothesis is that attitudes towards the formal schooling of children are such that community members for whom the role of the community in their lives is stronger will exhibit more resistance and assign lower values to the formal schooling of children. That relationship, if substantiated, will present an important link that policy makers who seek to increase the schooling completion rates of Roma children will need to acknowledge.

In our empirical analysis we draw on United Nations Development Program (UNDP) survey data collected in 2002 in European countries with large Roma communities that constitute large ethnic minorities: Romania, Hungary, the Slovak Republic, and the Czech Republic. At the time of the survey, the population share of the Roma was between 5% and 7% in Romania and in Hungary, 9% in the Slovak Republic, and 3% in the Czech Republic.[5,6] The survey, which covered about 1,000 Roma individuals in each country, provides information on the extent to which the respondents are influenced by their Roma community on the importance attached to the formal schooling of children; and on factors that are standard determinants of attitudes towards schooling, such as poverty, perceived discrimination, and the respondents' own education.

In brief, what we find is that individual Roma who are influenced more strongly by their community exhibit attitudes and preferences that are more closely aligned with Roma community values and norms, which is reflected in respondents being less likely to consider the formal schooling of children to be important. Specifically, individuals who list a larger number of Roma community support systems,[7] who have strong preferences for segregation from the mainstream society, and who speak Roma at home, are more likely to consider missing school acceptable. We also find that poorer and less educated Roma are significantly

[5] The precise sizes of the Roma populations are hard to assess; estimates obtained from different sources vary considerably. Because of considerations of privacy, data on ethnic origins are not collected systematically or accurately. Official censuses appear to underestimate the size of the Roma populations because in order to escape prejudice and discrimination, Roma often avoid identifying themselves as such. Besides, Roma ethnicity is a fluid concept, and no consensus exists about the criteria to be used in defining "Roma" (individual self-identification alone, or individual self-identification together with other markers such as cultural identity, behavioral patterns, traditions, and language). A detailed discussion of the difficulties in measuring the size of a Roma population and estimates of the Roma populations at the time of the survey are contained in Ivanov et al. (2002).

[6] Roma were estimated to constitute about 12% of the population in Northern Macedonia, 4% in Serbia and Montenegro, 3% in Albania, 2% in Spain, and 1% in France (Ringold et al. 2005).

[7] Forms of community support are listed below in Subsection 2.3.

less likely to consider schooling to be important, which helps explain why poverty among Roma is an intergenerational phenomenon. We hasten to add that although poverty is an important predictor of attitudes towards the schooling of children, we find that when we control for poor living conditions, unemployment, and perceived labor market discrimination, the coefficients of the community influence measures are statistically significant. In combination, the findings suggest that policy interventions aimed at improving education and socioeconomic integration for the Roma should take into account the role of the community in forming individual values and influencing individuals' behaviors.

In their report on Roma communities in Central and Eastern Europe, Ivanov et al. (2002) note that hostility to the non-Roma environment and to non-Roma social structures is an important traditional aspect of Roma identity, and that the educational institutions of the mainstream society are viewed by the Roma with suspicion. When describing attitudes towards formal education in Roma communities, Lee and Warren (1991) note that for the Roma, academic success reduces (rather than increases) social standing: formal education is viewed as waste of time, it prevents children from learning useful life skills, it erodes social cohesion, and because it removes children from parental guidance and exposes them to physical, social, and psychological dangers it is detrimental to children's integration into the family and community. To the best of our knowledge, ours is the first empirical analysis that provides robust support for the hypothesis that resistance among Roma individuals to the formal education of children is linked to a strong influence of the Roma community.

Our results relate to research on the influence of peers and on the role of community norms in the educational choices of underprivileged communities. Several empirical studies have shown that peer and community pressure can be obstacles to acquiring education. Fryer and Torrelli (2010) present evidence for the existence of a negative peer externality referred to as "acting white," meaning that members of a minority incur a cost when mimicking a behavior that is perceived as characteristic of "whites," such as aspiring to earn good grades. Specifically, use of survey data for a sample of more than 90,000 junior-high and high-school students from 80 US communities reveals that the relationship between academic achievement and social status varies across ethnic groups: better grades are associated with higher social status (measured by the number of same-race friends within a school) among white students, whereas among black and Hispanic students the relationship is flatter and beyond a certain grade point average even becomes negative. Bursztyn and Jensen (2015) conducted a field experiment in which students enrolled in mostly Hispanic and poorer than

average high schools in Los Angeles were offered the option to sign up for a free online Standard Aptitude Test (SAT) preparatory course. Several randomly chosen students were told that their choice will not be revealed to anyone, others were told that their classmates will be able to observe their choices. The experiment revealed that students who were informed that their decisions will be made public were less likely to sign up for the course because they did not want their classmates to know that they harbored aspirations for higher education. Several theories were developed to explain the emergence of low educational norms in underprivileged communities. Examples are: positions in social space affect the value of trade between two individuals (Akerlof 1997); signaling dilemmas, which arise when signals that reveal high wages invite peer group rejection (Austen-Smith and Fryer 2005); a tradeoff between cooperation with the community and economic success (Fryer 2007); and limiting the stress caused by relative deprivation (Stark et al. 2018).

2. Empirical specification

2.1 Data

As noted already, we rely on data collected in a survey conducted in 2002 by the UNDP in Romania, Hungary, the Slovak Republic, and the Czech Republic.[8] For at least three reasons, the survey is both interesting and helpful. First, it contains information on the respondents' attitudes towards formal schooling and on the influence of the Roma community in their lives, which allows us to examine the relationship between community influence and the importance assigned to schooling. Second, the countries covered by the survey have large and diverse Roma populations, thus the patterns found in the data are not specific to a particular Roma community. Third, at the time of the survey the surveyed countries were on the path to European Union accession and, subsequently, they received substantial assistance from the European Union for promoting social inclusion (for which education was a main pillar) of

[8] The UNDP survey was also conducted in Bulgaria - another country with a significant Roma community on the path to EU accession at the time of the survey. However, we do not include observations from Bulgaria in our analysis because no information on the respondents' municipality of residence is available for that country. Information on municipalities is necessary for clustering standard errors at the municipality level, which in turn is needed in order to avoid overstatement of the precision of estimators arising from the correlation of error terms within municipalities. We hasten to add that the results reported below hold when observations from Bulgaria are included, and when we use robust standard errors. The corresponding estimates are presented in Appendix Table A9.

marginalized communities such as the Roma.[9] The 2002 data allow us to identify the determinants of Roma individuals' attitudes towards schooling that predate EU policy intervention. Identification of such "raw" determinants is useful both for evaluating the effectiveness of past EU policy interventions and for the design of future policies.

Using random quota sampling based on the last formal census, the survey drew representative samples of approximately 1,000 Roma individuals in each country. Standardized face-to-face interviews were conducted at the respondents' homes.[10] One person was interviewed in each household surveyed. The questions that were asked were both individual-oriented and household-oriented. The numbers of respondents surveyed in a given area and the distribution of the sampling clusters were determined as a function of the overall population of the country, with heavier weights assigned to larger Roma population concentrations. Ethnic affiliation was attributed by combining subjective self-identifications with culturally based objective criteria.[11] The sampling strategy was designed in consultation with experts in ethnic relations, representatives of national polling agencies, and Roma NGOs. For more information on the sampling methodology and on the questionnaire used in the survey, consult Ivanov et al. (2002).

2.2 The dependent variable

One of the survey questions concerns the importance given to the formal education of children. Respondents were asked to select three justifiable reasons for a child in their household to miss school. The menu of possible responses included lack of decent clothing, bullying at school, uselessness of going to school, a child's unwillingness to go to school, a

[9] The social and economic integration of the Roma featured prominently on the EU's policy agenda ever since its expansions of 2004 and 2007. In 2005, the EU launched the "Decade for Roma inclusion" - a coordinated effort by national authorities, international organizations, and civil society aimed at eliminating discrimination against the Roma and at shrinking the gaps in education, employment, and living standards between Roma and the rest of the society. In the context of its "Framework for National Roma Integration Strategies," the EU required member states to submit national Roma integration plans of action. Between 2014 and 2020, the EU invested 90 billion Euros in building human capital and promoting social inclusion of marginalized communities, including the Roma.

[10] The fieldwork was undertaken in November 2001 in the Slovak Republic, in December 2001 in the Czech Republic and Romania, and in January 2002 in Hungary.

[11] Still, and admittedly, because ambiguities concerning Roma identity and the size of the Roma population in each country cannot be brushed aside, those who conducted the survey do not claim to have achieved perfect statistical representation.

long distance to school, a need to help in the caring of family members at home, as well as the response that a parent will not stop a child from attending school under any circumstances. The question was asked separately for boys and for girls. In order to construct an indicator of the importance assigned to schooling, we created a dummy variable *Importance of school*, which takes the value of 1 if the respondents indicated that they will never stop their children (boys or girls) from attending school, and 0 if the respondents did not select that option either for boys or for girls. In other words, our dependent variable takes the value of 1 if a respondent believes that neither boys nor girls should miss school under any circumstances, and 0 otherwise. According to that measure, fewer than half of the respondents assigned high importance to the formal education of children (Table 1).[12] We expect a negative effect of community influence on the probability of assigning high importance to formal education. Results presented in the Appendix show that our findings are robust to using alternative measures of the importance of schooling: results obtained from separate analyses of the importance of school for boys and girls are reported in Table A4, part (a); results obtained from analyzing the circumstances that were mentioned as a justifiable reason for missing school are reported in Table A4, parts (b) and (c).

2.3 The explanatory variables

In order to construct measures of community influence, we drew on survey responses that reflect the impact of the Roma community on the respondent's life. As described next, we constructed three measures of community influence.[13]

The first measure indicates reliance on the Roma community for support. The scale variable *Support of Roma community* measures how many of the following forms of community support systems were listed by the respondent: support from Roma political parties, support from informal Roma leaders, support from Roma NGOs, support from rich Roma, support from Roma friends, interests in the community best defended by local

[12] A substantial between-country variation in the responses is found: the percentages of respondents who assigned high importance to education is 0.28 in Romania, 0.69 in the Slovak Republic, 0.34 in Hungary, and 0.52 in the Czech Republic. To some extent, the circumstances of the Roma and the social values to which the Roma communities adhere are country specific. Notwithstanding such variation, in the main text we estimate regressions on the pooled sample of Roma from all four countries. As a test of robustness, we re-estimate the baseline model for each country separately. The results, presented in Appendix Table A10, suggest that the patterns observed in the pooled data also hold for each country when studied separately.

[13] In Appendix Table A11, we present the pairwise correlations between the three measures of community influence. That the correlations are relatively small suggests that the measures represent distinct dimensions of community influence.

branches of Roma parties, interests in the community best defended by Roma leaders, and interests in the community best defended by Roma NGOs. The scale is normalized to take values between zero and one, with larger values within the range implying that more community support systems were listed by the respondent. Cronbach's alpha for the scale is 0.75, indicating a high positive correlation between the variables used to construct the scale.

The second measure indicates a preference for separation from the mainstream society. The scale variable *Preference for segregation* measures the number of the following circumstances the respondent prefers not to interact with the mainstream society: working together, children playing together, being neighbors, mixed marriages for Roma boys, and mixed marriages for Roma girls. The scale is normalized to take values between zero and one, with larger values within the range reflecting stronger preferences for segregation. Cronbach's alpha for the scale is 0.79, likewise indicating substantial correlation between the variables used to construct the scale.

The third measure gauges the influence of the community on the language spoken at home. The dummy variable *Roma language* takes the value of 1 if the respondent speaks the Roma language at home, and 0 otherwise. Although the variable reflects the influence of the community on the individual, it also attests to linguistic barriers that may reduce the appeal of formal schooling. We therefore consider the variable to be an auxiliary measure of community influence. Approximately half of the respondents speak Roma at home (Table 1).

Table 1: Descriptive statistics of the dependent and explanatory variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Importance of school	3385	0.48	0.50	0	1
Support of Roma community	3385	0.20	0.23	0	1
Preference for segregation	3385	0.10	0.22	0	1
Roma language	3385	0.49	0.50	0	1
Primary education	3385	0.73	0.44	0	1
Unemployed	3385	0.43	0.50	0	1
Food insecurity	3385	1.77	1.02	1	4
Poor living conditions	3385	0.44	0.50	0	1
Capital goods	3385	2.78	1.33	0	4
School-aged children	3385	0.57	0.50	0	1

Source: Authors' calculations based on the 2002 UNDP survey.

2.4 The control variables

We control for individual socioeconomic characteristics that may correlate with both educational attitudes and community influence:

- The dummy variable *Primary education* indicates that the respondent has completed at least primary education.[14]
- The dummy variable *Unemployed* indicates that at the time of the survey the respondent was unemployed.
- The scale variable *Food insecurity* indicates how often the respondent's family did not have enough to eat over the past year, with larger values representing more frequent episodes of food shortages.
- The dummy variable *Poor living conditions* indicates that the respondent lives in a dilapidated (the term used in the survey is "ruined") house or apartment, a slum, a shack, or a caravan.
- The scale variable *Capital goods* indicates how many of the following are present in the respondent's home: running water, sewerage, legal electricity supply, and a refrigerator.
- The dummy variable *School-aged children* indicates that at least one school-age child (between 7 and 15 years old) lives in the household.

The six variables are listed at the bottom half of Table 1. The overall picture that emerges from reading the Table is that approximately four out of ten respondents experience poor living conditions and unemployment, and that about 70% of them have completed primary education. On a four-point scale, the average food insecurity score is slightly less than two, where 1 indicates no food insecurity, and 4 indicates regular shortages of food.

In addition, in order to control for differences in demand for education driven by the countries' socioeconomic environments, country dummies are entered into the model.

[14] We rely on a dummy for completed primary education as the baseline measure of education because, as noted in the main text, 70% of the sample of respondents completed primary education, whereas fewer than 6% completed secondary education. In the robustness checks reported in Appendix Table A3, we enter a more fine-grained measure of education, consisting of ten educational categories.

2.5 Empirical specification

Because our dependent variable is binary, the coefficients are estimated by a logistic regression model. Our baseline specification is:

$$P\left(Y_{ic}=1\middle|\left\{X_{ijc}\right\},\left\{Z_{ikc}\right\},\delta_c\right)=\Lambda\left(\beta_0+\sum_j\beta_j X_{ijc}+\sum_k\gamma_k Z_{ikc}+\gamma_c\delta_c\right),$$

where Y_{ic} takes the value of 1 if individual *i* who resides in country *c* assigns high priority to children's formal education; $\Lambda(\cdot)$ is the logistic function; X_{ijc} is the set of explanatory variables capturing the community's influence; Z_{ikc} is the set of the individual's socioeconomic and demographic characteristics; the coefficients γ_k and γ_c measure the impact of individual characteristics and country fixed effects on educational preferences; and δ_c are country dummies. The coefficients of interest are β_j, measuring the effect of the community influence variables on educational preferences. Because model errors are likely to be correlated within localities, standard errors are clustered at the municipality level.

3. Empirical inquiry: Results

3.1 Baseline results

Our baseline regression coefficients are reported in Table 2, column (1). In line with the theoretical predictions presented in Section 1, the community influence variables have negative and significant effects on the importance assigned to schooling: individuals who list more Roma community support systems, who have stronger preferences for segregation from the mainstream society, and who speak Roma at home, are less likely to assign high importance to the formal education of children. Those coefficients are significant at the 1% level, and their magnitudes are quite substantial. Because the coefficients are estimated using a logit model, they can be interpreted in terms of odds: a one unit increase in an explanatory variable multiplies the odds of assigning importance to children's schooling by a factor that is equal to the exponential of the estimated coefficient for that variable.[15] Thus, the odds of assigning importance to children's education are 0.34 times smaller for a respondent who mentions all of the community support systems listed in the survey than for a respondent who

[15] The odds are defined as the probability of assigning importance to children's schooling divided by the probability of not assigning importance to children's schooling.

mentions no community support system; the odds are 0.22 times smaller for a respondent who indicates a preference for segregation in all circumstances listed in the survey than for a respondent who indicates no preference for segregation; and the odds are 0.70 times smaller for a respondent who speaks Roma at home than for a respondent who does not speak Roma at home.

Poverty is negatively associated with the importance of education: individuals who experience food insecurity, whose living conditions are poor, and whose homes lack basic amenities and appliances (such as running water, legal electricity supply, sewerage, and a refrigerator) are significantly less likely than more privileged individuals to consider formal education to be important. Having completed primary education and having school-age children living in the household increase the probability of considering formal schooling to be a priority. Once again, we report the magnitudes of the effects observed in terms of odds. The odds of considering children's education important are 1.81 times higher for a respondent who has completed primary education than for a respondent who has not; the odds are 0.83 times smaller for a respondent who is unemployed than for a respondent who has a job; the odds are multiplied by a factor of 0.76 if food insecurity is one unit higher (on a four-point scale, where larger values represent more frequent episodes of lack of access to food); and the odds are 0.81 times smaller for a respondent who lives in a ruined house or apartment, a slum, a shack, or a caravan than for a respondent who lives in a proper house or apartment.

Table 2. Baseline regression results

	(1)	(2)	(3)	(4)	(5)
Support of Roma community	-1.073***	-1.047***	-1.074***	-1.047***	-1.061***
	(0.245)	(0.246)	(0.242)	(0.241)	(0.242)
Preference for segregation	-1.508***	-1.501***	-1.489***	-1.531***	-1.519***
	(0.342)	(0.341)	(0.344)	(0.345)	(0.344)
Roma language	-0.351***	-0.346***	-0.333**	-0.317**	-0.321**
	(0.134)	(0.133)	(0.134)	(0.133)	(0.133)
Primary education	0.593***	0.604***	0.561***	0.588***	0.584***
	(0.104)	(0.105)	(0.103)	(0.105)	(0.105)
Unemployed	-0.182*	-0.071	-0.205**	-0.195*	-0.195*
	(0.101)	(0.115)	(0.104)	(0.105)	(0.105)
Food insecurity	-0.270***	-0.262***	-0.282***	-0.287***	-0.284***
	(0.060)	(0.060)	(0.060)	(0.061)	(0.061)
Poor living conditions	-0.208**	-0.202**	-0.213**	-0.208**	-0.207**
	(0.088)	(0.089)	(0.089)	(0.089)	(0.089)
Capital goods	0.134**	0.131**	0.132**	0.132**	0.131**
	(0.055)	(0.056)	(0.055)	(0.055)	(0.055)
School-aged children	0.148*	0.156*	0.009	0.005	0.013
	(0.085)	(0.088)	(0.090)	(0.089)	(0.091)
Household unemployment		-0.127***			
		(0.048)			
Unemployment benefits			0.054	0.087	0.087
			(0.126)	(0.125)	(0.125)
Social assistance			-0.067	-0.054	-0.056
			(0.110)	(0.109)	(0.108)
Child support			0.341***	0.344***	0.340***
			(0.106)	(0.105)	(0.105)
Pensions			-0.186*	-0.130	-0.130
			(0.097)	(0.104)	(0.105)
Older generation adults				-0.199***	
				(0.061)	
Parents					-0.344***
					(0.119)
R2_P	0.15	0.16	0.16	0.16	0.16
N	3,385	3,385	3,385	3,385	3,385

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. Column (2) controls for the number of unemployed individuals living in the household (Household unemployment). Column (3) controls for households receiving unemployment benefits, social assistance, child support, and pensions. Column (4) controls for the number of older people (parents, parents in law, grandparents, aunts, uncles) living in the household (Older generation adults). Column (5) controls for living together with parents or parents in law (Parents). Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

In Table 2, columns (2) through (5), additional household characteristics are held constant. The results show that the probability of considering school a priority declines when more unemployed people live in the household (column 2). Receiving child support has a positive and significant effect on considering schooling a priority, whereas no effects are found for receiving unemployment benefits and social assistance (column 3). A weakly significant negative effect is found for receiving pensions (column 3), which seems to be

driven by living together with older people (columns 4 and 5). Controlling for the additional variables does not alter the signs, magnitudes, or significances of the community influence coefficients

Regressions that include additional sociodemographic characteristics (age, gender, marital status, and number of children living in the household) are presented in Appendix Table A2. None of those variables is significant, and their inclusion does not alter the coefficients of our variables of interest.

3.2 Issues of endogeneity

The results presented in Subsection 3.1 could be prone to problems of endogeneity: the coefficients might be driven by variables that are missing from the baseline specification, but that are correlated both with attitudes to schooling and with community influence. Three such variables come particularly to mind.

One potential missing variable is the remoteness or the degree of isolation of the respondent's community. Individuals who live in remote areas, such as rural locations far away from big cities or in isolated informal settlements, may underestimate the returns from formal schooling that accrue from doing skilled work in urban areas. In addition, because the quality of schools may be lower in remote areas, individuals living in such areas may consider formal schooling to be of lesser value. Individuals living in remote or isolated areas likewise are more likely to rely on or be influenced by their community, and experience little contact with the mainstream society. Geographical remoteness and isolation of certain communities could therefore give rise to the negative correlation observed between community influence and the value attached to schooling.

To address that possibility, we enter among the explanatory variables five different measures of the community's remoteness and isolation:[16] (1) living in an area principally inhabited by Roma, mixed, or principally inhabited by non-Roma; (2) living in the inner city, periphery, remote area, or a Roma colony; (3) living in the national capital, a district center, a small town, or a village; (4) the percentage of sampled households from the same

[16] Descriptive statistics on the concentration of the Roma, calculated on the basis of our data, and using several alternative measures of geographical concentration, reveals that less than half of the Roma live in integrated communities; about a third live in villages and about two thirds live in urban areas; about 9% live in Roma colonies; 4% live in remote areas; and about 40% live in principally Roma areas.

municipality who report having legal electricity supply in their homes; and (5) the average number of unemployed persons per household in the municipality. The results, presented in Table 3, reveal that only electricity access is a significant predictor of schooling attitudes, with a positive sign.[17] Controlling for community remoteness and isolation does not thus alter the magnitudes or significances of the community influence coefficients.

[17] The positive impact of legal electricity coverage on the importance assigned to formal schooling could be driven by the technical artifact that access to electricity is necessary for watching TV, listening to the radio, or having a mobile telephone service, any of which may expand the social space of the individuals beyond the confines of their community and, presumably, illustrate the benefits of education and formal labor market opportunities. To test for that plausible explanation, we analyzed the impact of ownership of TVs, radios, and mobile telephones on educational attitudes. We found that having a TV at home has a positive and significant effect on the importance assigned to education, while no effects were found for owning a radio or a mobile telephone. However, controlling for individual TV ownership does not alter the significance of electricity coverage at municipality level, and the average ownership of the three devices at the municipality level has no effect on individual attitudes towards education. (The estimations are available on request.) That observation therefore does not lend support to the explanation that a legal electricity supply increases the values assigned to education by allowing individuals to watch TV, listen to the radio, or communicate by mobile telephone. An alternative explanation is that a legal electricity supply is a more accurate measure of economic development at municipality level, or that it is positively correlated with the quality of the schools available in the municipality.

Table 3. Additional controls for community remoteness / isolation

	(1)	(2)	(3)	(4)	(5)
Support of Roma community	-1.077***	-1.085***	-1.092***	-1.014***	-1.020***
	(0.244)	(0.247)	(0.252)	(0.240)	(0.235)
Preference for segregation	-1.506***	-1.509***	-1.509***	-1.438***	-1.449***
	(0.346)	(0.343)	(0.344)	(0.331)	(0.337)
Roma language	-0.352***	-0.346***	-0.373***	-0.392***	-0.362***
	(0.132)	(0.134)	(0.135)	(0.135)	(0.132)
Primary education	0.594***	0.599***	0.594***	0.575***	0.588***
	(0.103)	(0.105)	(0.102)	(0.099)	(0.104)
Unemployed	-0.186*	-0.179*	-0.173*	-0.154	-0.154
	(0.099)	(0.103)	(0.098)	(0.101)	(0.101)
Food insecurity	-0.271***	-0.272***	-0.282***	-0.291***	-0.263***
	(0.060)	(0.060)	(0.061)	(0.060)	(0.059)
Poor living conditions	-0.210**	-0.211**	-0.210**	-0.196**	-0.199**
	(0.093)	(0.088)	(0.086)	(0.086)	(0.088)
Capital goods	0.144***	0.144***	0.121**	0.080	0.135**
	(0.054)	(0.055)	(0.055)	(0.055)	(0.056)
School aged children	0.143*	0.144*	0.172**	0.184**	0.156*
	(0.085)	(0.085)	(0.084)	(0.088)	(0.086)
Mixed area	-0.156				
	(0.128)				
Non-Roma area	-0.043				
	(0.156)				
Periphery		0.177*			
		(0.104)			
Remote area		0.205			
		(0.276)			
Roma colony		0.125			
		(0.266)			
District center			0.050		
			(0.250)		
Small town			-0.158		
			(0.247)		
Village			-0.020		
			(0.260)		
Municipal electricity				3.210***	
				(1.187)	
Unemployed municipality					-0.352
					(0.246)
R2_P	0.16	0.16	0.16	0.16	0.16
N	3,385	3,385	3,385	3,385	3,385

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. Column (1) controls for the type of area where the respondent lives and the reference category is one that is principally Roma area. Column (2) controls for the location of the area where the respondent lives and the reference category is an inner city. Column (3) controls for the type of settlement where the respondent lives and the reference category is the national capital. Column (4) controls for the electricity coverage in the municipality where the respondent lives, calculated as the percentage of respondents from the same municipality declaring that they have legal electricity in their homes. Column (5) controls for the level of unemployment in the municipality where the respondent lives, calculated as the average number of unemployed adults per household in the respondent's municipality. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

A second potential missing variable that could bias the community influence coefficients in the baseline model is the respondent's perception of discrimination against Roma in the labor market. A respondent who believes that Roma people routinely are

discriminated against owing to their ethnicity, their level of education notwithstanding, will attach lower values to formal schooling. Also, opinions about discrimination may correlate positively with the community influence measures: individuals who rely strongly on their community and who prefer not to have contacts with the mainstream society also may be those who feel more discrimination from the mainstream society. The estimated effects of the community influence variables thus could be driven by perceptions of discrimination.

To negate that possibility, we control for *Employment discrimination* - a three-point scale variable indicating how severely discrimination in access to employment affects the household. The results, presented in Table 4, reveal that perceptions of discrimination are not correlated significantly with attitudes towards education, and that the community influence measures remain robust when controlling for the respondent's perception of discriminatory treatment in the labor market. It is thus unlikely that our findings are explained by individuals who rely more on their community feeling greater discrimination in the labor market and, consequently, ending up attaching lower values to schooling.

Table 4. Additional control for the experience of employment discrimination

Support of Roma community	-1.067***
	(0.250)
Preference for segregation	-1.503***
	(0.343)
Roma language	-0.333**
	(0.134)
Primary education	0.599***
	(0.103)
Unemployed	-0.162
	(0.102)
Food insecurity	-0.256***
	(0.061)
Poor living conditions	-0.190**
	(0.090)
Capital goods	0.135**
	(0.055)
School aged children	0.160*
	(0.087)
Employment discrimination	-0.118
	(0.074)
R2_P	0.16
N	3,385

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. Employment discrimination is a three-point scale indicating how severely discrimination in access to employment affects the respondent's household, where 1 indicates that discrimination is not a problem at all, 2 indicates that discrimination is a problem but not serious, and 3 indicates that discrimination is a major problem. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

A third potential missing variable is the respondent's intrinsic preference for adhering to the Roma culture and traditions. Individuals who are more attached to traditional Roma ways of life are less likely to assign high importance to formal schooling because such education is seen to pose a risk that children will distance themselves from the community and its traditions. Individuals who are more attached to traditional Roma ways of life likewise are more likely to be influenced by the opinions, norms, and values of the Roma community. Our results therefore could be driven by the preference for Roma culture and traditions featuring as part of the error term and being correlated with the community influence measures. Empirically, it is difficult to rule out such reasoning because intrinsic preferences are not observed. Theoretically, an important quandary is what explains the emergence and sustainability of preferences for traditional Roma ways of life. Stating that the preferences are determined exogenously and that they explain all of the observed differences between individuals is of limited appeal. Instead, it is plausible that to some extent at least, individual

preferences are explained by membership in a community itself. Clearly, communities can shape individual preferences by inculcating systems of values, beliefs, behavioral norms, and socioeconomic support that lead to alignment of individual choices with socially desirable outcomes. The provision of socioeconomic support within the community and the *Romaniya* belief system described in Section 1 tend to reinforce a preference for traditional Roma ways of life and little formal schooling. From that perspective, the preference for traditional Roma ways of life is not a missing explanatory variable in our model, but another (related) outcome of community influence.

In Table 5, we present evidence that cohesive Roma communities shape respondents' values. Respondents who, according to our measures, report stronger influences of the Roma community also are more likely to report that they have acquired and learned traditions, moral values, and respect for the elderly in the community rather than at school.

Table 5. Community influence on individual values

	Traditions	Moral values	Respect elderly
Support of Roma community	1.320***	0.352	0.849**
	(0.304)	(0.364)	(0.360)
Preference for segregation	0.437	-0.311	-0.286
	(0.305)	(0.445)	(0.434)
Roma language	1.221***	0.367**	0.115
	(0.138)	(0.182)	(0.203)
Primary education	-0.103	-0.015	-0.054
	(0.116)	(0.141)	(0.101)
Unemployed	-0.160*	-0.156	-0.178*
	(0.089)	(0.121)	(0.106)
Food insecurity	0.067	-0.034	0.063
	(0.063)	(0.057)	(0.064)
Poor living conditions	0.065	0.091	0.031
	(0.092)	(0.132)	(0.158)
Capital goods	0.074	0.192**	0.141
	(0.065)	(0.076)	(0.093)
School aged children	-0.062	0.111	0.325***
	(0.095)	(0.092)	(0.096)
R2_P	0.09	0.27	0.17
N	3,296	3,218	3,271

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent variables Traditions, Moral values, and Respect elderly, respectively, take the value of 1 if the respondent declares that he or she has learned traditions, moral values, and respect for the elderly from the community and not from school. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

The reported correlations between community influence and attitudes towards education likewise could be (partly) driven by reverse causality: individuals could first form

attitudes towards education and then choose the extent or the degree of the influence of the Roma community on their lives. For example, an individual who attaches high importance to the education of his children may want to limit the influence of the Roma community in his life by choosing not to speak the Roma language at home, by not relying on the Roma community's support system, and by nurturing contacts with the mainstream society rather than segregation. Empirically, the data at our disposal do not allow us to assess or discard the validity of that possibility. Analytically, however, it is hard to find an explanation for reverse causality that is independent of the community influence reasoning: if a community did not discourage behavior that deviates from the norm of little formal education, why would individuals who value education need to distance themselves from the community?

In the tests of robustness reported in the Appendix, we enter alternative measures of attitudes towards formal schooling, community influence, and socioeconomic controls. In addition, instead of estimating logistic regressions, we estimate a linear regression model. The finding that community influence is negatively and significantly associated with the importance assigned to formal schooling is robust to the adoption of those alternatives.

4. Discussion

Our empirical analysis points to a robust negative correlation between the influence of the Roma community on an individual's life and the importance assigned by the individual to the formal education of children. The reported results are in line with the theoretical predictions of Stark et al. (2018): an equilibrium with little investment in formal schooling is a welfare-maximizing strategy for communities when complete economic integration with the mainstream society is not feasible. Reducing the stress of relative deprivation is a reason for remaining in an equilibrium in which investment in formal schooling is perceived as unimportant.

Institutions, including communities, that endow their members with senses of distinct identities and confer upon them substantial benefits such as social safety nets and protection from being bullied by the state or by markets can, and often do, continue to survive even when the social and economic environments that make the rewards and benefits valuable undergo substantial change. But then, communal norms and practices that delivered gains in the past can become impediments in the present. In the case of the Roma, communal beliefs and norms, along with the *Romaniya* system of values and beliefs, helped forge a sense of

separate and distinct identity, and supported self-segregation from the mainstream society, thereby reducing the stress from relative deprivation and exclusion. However, several of the community's traits may no longer serve the interests of members of the Roma community once discriminatory anti-Roma policies are less common, and technological and other changes increase measurably the economic returns to education.[18]

If the community institutions of the Roma indeed inhibit a broader social engagement, such as formal schooling, that eventually could raise the welfare of a good many Roma individuals, then our analysis bears distinctly on policy formation: interventions aimed at expanding access to formal education among the Roma need to target *all* members of the Roma community. That implication connects with an informal inference drawn by Zahova (2016), who refers to the necessity of policy interventions reaching community members of both sexes and of all generations in order to change traditional practices. Alternatively, an effective policy intervention could provide strong incentives for acquiring advanced education for a limited number of individuals who are expected to remain in the community. Such engineering of change from within could overcome the social pressures to adhere to community norms. Policy measures that have only a weak effect on the incentives of a limited number of community members to acquire advanced education may not be effective because the pressure to conform to traditional behavioral cause individuals to behave in a manner that preserves the status quo.

The reasons for the social and economic isolation of the Roma and for the low educational attainments of Roma children are complex and context specific. Several of the reasons are mentioned often: discrimination and prejudice from the mainstream society and authorities, financial constraints, and language barriers. In this paper we draw attention to yet another reason for which we provide a theoretical explanation and empirical evidence: the influence of the community on the importance that parents assign to the formal schooling of their children. Our claim herein is not that community influence is the sole, or necessarily the leading reason for the socioeconomic conditions of the Roma communities in Central and Eastern Europe. Our message is that community influence constitutes a non-negligible (if not a forceful) constraint on individuals' investment in formal education. Policy interventions

[18] Although anti-Roma policies no longer are in evidence, anti-Roma biases remain prevalent. Such biases include racist attitudes, abusive behavior of police and of teachers, and the failure of authorities to take remedial action when anti-Roma biases are observed (Petrova 2003; Mudde 2005; Cviklova 2015).

aimed at increasing the formal education of Roma children may need to be tailored to respond head-on to that consideration.

In what way does our analysis affect possible policy interventions aimed at increasing the formal education of Roma children? As is often the case, policies are combinations of benefits and costs. The benefits of such interventions for the Roma as well as for mainstream society are fairly clear: a shift of Roma communities from low-education equilibrium to high-education equilibrium can help reduce poverty, improve health outcomes, increase life expectancies, and reduce reliance on social welfare programs. The costs include erosion of *Romaniya*. The challenge for policy makers is to design policy interventions such that the costs incurred will be mitigated. For example, formal schooling is more likely to succeed if the discrimination and bullying that Roma children experience in mainstream schools can be reduced. That could be achieved by selecting teachers who are sensitive to the Roma way of life, training teachers to address discrimination and bullying, recruiting Roma teachers, including in the curricula positive Roma role models, and making arrangements for home schooling and distance learning as suggested, for example, in a recent European Fundamental Rights Agency report (European Agency for Fundamental Rights 2020). Nonetheless, there are downsides. It seems to us that contact with values, norms, and perspectives that belong to the "alien culture," even if delivered by Roma teachers, most likely will be received with hostility. Such teachers will be looked at as harbingers of threatening change; hence, they will not be welcomed. Our paper proposes an explanation for such rejection. Conversely, a school run by Roma teachers who teach a Roma curriculum could work as a form of schooling, but it will perpetuate the *Romaniya* system rather than serve as a means of changing it, bringing it closer to the system of mainstream society.

We need to bear in mind that the *Romaniya* system is based on an intricate web of values, beliefs, and norms that have little in common with modern-day school curricula. After undergoing formal schooling, Roma children will be exposed to perspectives that could cause them to doubt, if not rebel against, the prevailing detachment of the Roma from mainstream society. In the medium to long run, the *Romaniya* system will be at risk of rupture. For example, attending mixed-gender schools goes against the Roma custom of avoiding mixed-sex socializing for young people past puberty, on grounds that it may pose a risk to the reputations of young Roma women (Sutherland 1975) and lead young Roma, as they grow up, to entertain ideas that threaten the Roma's perceptions of proper gender roles. Likewise, educational qualifications would enable young Roma to enter formal labor markets and, as a

result, have regular contact with mainstream society. Such exposure goes against the *Romaniya* norm of separation from non-Roma people, non-Roma culture, and non-Roma objects. The very pillars of the *Romaniya* system can be shaken as a result of young Roma undergoing formal education. The *Romaniya* system has served Roma communities for long stretches of time, and in a number of ways: ensuring social order, as argued by Leeson (2013), shielding Roma communities from relative deprivation, as argued in this paper, providing a sense of identity, and delivering social and economic support. Tampering with that socioeconomic infrastructure entails a cost that is not easy to reduce, a cost that has to be weighed against the benefits that exposure to and move towards mainstream socioeconomic institutions are expected to bring about. Whether mainstream society has the moral, philosophical, or other form of right to try to weaken, let alone dismantle and replace, the *Romaniya* system, although a public choice theme, is a normative issue that lies beyond the terms of reference of this paper.

5. Conclusion

We present a new explanation for the persistence of low levels of education within Roma communities in Central and Eastern European countries. Following the theoretical analysis of Stark et al. (2018), which argues that a not well-to-do minority group may develop institutions that enforce norms of low investment in the acquisition of mainstream labor market skills in order to protect group members from relative deprivation, we examine empirically the importance that Roma individuals attach to the formal education of their children, in relation to the perceived influences of the community. We find that considering the community as influential significantly reduces the probability of assigning priority to the formal education of children. That finding remains significant when we control for poverty and unemployment, which traditionally have been considered the main factors inhibiting the formal education of children in Roma communities, as well as when we control for community remoteness, perceived labor market discrimination, and a wide range of individual confounding factors.

The institutions that govern Roma communities draw upon and project values and norms that do not invite formal schooling. The prevailing social, cultural, and governance infrastructure evolved as a response to historical pain inflicted on Roma communities by oppressive and highly discriminatory treatments. Although prejudice and discrimination against the Roma by mainstream societies remain prevalent, in many countries in which the

Roma live, policies towards the Roma have become less rigid, less paternalistic, less oppressive, and more encompassing. In such a milieu, it is possible that the Roma will move to a superior equilibrium, one that involves more education and greater integration into the mainstream society, an equilibrium that was harder to attain in the past when Roma culture, norms, and institutions were formed. Today's Roma may be locked in the old equilibrium because culture and values are persistent; they do not change as quickly as the surrounding socioeconomic and political environments change. It is then a task of policy makers to design policies that can support a Roma's switch to a new equilibrium.

Our analysis suggests that policy interventions aimed at increasing formal education among the Roma will be made more effective when the community's influence on individual choices, educational and others, is recognized and specifically responded to, for example, by targeting all community members rather than a subset of them. Interventions targeting vulnerable groups are often tested first on a limited number of subjects and, if proven successful, they are scaled up. A recent report by the European Commission recommends intensification of interventions that, when tested on a small scale, proved effective in strengthening the integration of the Roma in mainstream society (European Commission 2019). Whereas from a budgetary point of view, pre-testing the effectiveness of an intervention on a small scale makes sense, the analysis presented herein suggests that this advantage could be offset by a drawback: when a social institution, such as a community at large, influences individual attitudes and behavior, the precise impact of a policy intervention can be ascertained only when the policy is administered at the full-scale community level.

That community influence may constitute a barrier to formal education is not specific to the Roma in Central and Eastern Europe. Similar effects were identified for African American and Hispanic communities in the US (Akerlof 1997; Fryer and Torrelli 2010; Bursztyn and Jensen 2015), and a somewhat similar phenomenon is observed for ultra-religious Jewish communities in Israel, who are rigidly reluctant to enroll their children in secular schools. Such community norms emerge in consequence of socioeconomic constraints (Akerlof 1997; Austen-Smith and Fryer 2005; Fryer 2007; Stark et al. 2018), and they tend to be time-persistent. Thus, a community that is relatively poor and marginalized can remain in a "bad" equilibrium not only because of well-known poverty traps such as credit constraints, linguistic barriers, lack of employment networks, and discrimination, but also because certain norms and values, emerging as a rational response to the socioeconomic constraints the community has faced, impede the community's integration into the mainstream society.

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Appendix: Checks for robustness

We conduct several tests for robustness in which we use alternative measures of attitudes towards formal schooling, community influence, and socioeconomic controls. In Appendix Table A2 we control for the respondent's gender, age, number of children, marital status. None of these variables is significant, and their inclusion does not alter the sign, significance, or magnitude of the community influence coefficients. In Appendix Table A3 we control for a more detailed measure of the respondent's education than we did in the baseline regression. The probability of assigning high priority to schooling increases with the respondent's education, yet the coefficients of the community influence measures remain robust. In Appendix Table A4 we report on alternative measures of the importance assigned to schooling. In Table A4 part (a) we consider separately attitudes towards the schooling of girls and boys. We find that with the exception of poor living conditions, which has a significant negative effect on the importance assigned to the education of girls but no significant effect on the importance assigned to the education of boys, attitudes towards the formal schooling of girls and boys are determined by the same individual characteristics. In both cases, the dependent dummy variables indicating that missing school is not acceptable are correlated negatively and significantly with the community influence measures. In Table A4 parts (b) and (c), we consider separately the reasons listed by the respondents for it to be acceptable to let children miss school. We find that respondents who according to our measures are more influenced by the Roma community are more likely to state that missing school is acceptable because the child needs to help raising younger siblings, because the child is married or has children, because the child learns nothing useful at school or can learn what is needed at home, because the child is treated badly by non-Roma children or by the teachers, or because the school is far away. The results that we obtain lend support to the argument that cohesive Roma communities reduce investment in schooling by instilling individual values that are not supportive of investment in formal schooling. Specifically, the belief that nothing useful is learned at school, and that being with the family is more important than going to school, is significantly more common in the case of respondents who are strongly influenced by their community. Several of the community influence measures are significant predictors for stating that missing school is acceptable because the child does not want to go to school, because the child will be unemployed anyway, and because the child does not speak the official language well. No community influence measure is a significant predictor of stating that missing school is acceptable because the child does not have decent clothes. In addition,

the results remain robust when we use dummy indices for the community influence measures instead of scales (Appendix Table A5, column (1)), when we use a dummy indicating actual relations with the mainstream society instead of the preference for segregation dummy (Appendix Table A5, column (2)), and when we estimate the coefficients using ordinary least squares (Appendix Table A6).

As yet another measure of community influence, we use the average opinion held in the respondent's municipality regarding the importance assigned to education. In order to avoid an endogeneity bias, the average opinion in a municipality is calculated without counting the respondent's own opinion. The results of the corresponding regressions, presented in Appendix Table A7, are that attitudes towards education among the Roma who live in the individual's municipality constitute a powerful predictor of the individual's attitude towards education. In fact, this variable is the strongest predictor of attitudes towards formal schooling. To the extent that the average opinion towards schooling among other Roma living in the same municipality serves as a close proxy of the community norm, these results support the thesis that the attitude of an individual towards schooling is largely synchronized with the norm of his community.

In Appendix Table A8 we estimate the baseline model drawing on a sub-sample that consists only of respondents who are parents. Individuals who are already parents may have given more thought to the importance of the schooling of children, so their answers could differ from the answers provided by non-parents. Moreover, individuals who do not have children can be seen as deviants from the social norm of having children, so that the extent to which they are influenced by the community norms may be different from that of parents. Excluding respondents who are not parents reduces the sample size by approximately 10%, but the results remain robust: the sign, significance, and magnitude of the coefficients of interest are similar to those obtained in the baseline regression.

Table A1. Descriptive statistics for the variables used in the endogeneity and robustness tests

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of unemployed in household	3385	2.56	1.46	0	8
Unemployment benefits	3385	0.17	0.38	0	1
Social assistance	3385	0.49	0.50	0	1
Child support	3385	0.66	0.47	0	1
Pensions	3385	0.25	0.43	0	1
Older generation adults	3385	0.34	0.75	0	6
Parents	3385	0.19	0.39	0	1
Employment discrimination	3385	2.06	0.85	1	3
Relations with majority	3345	0.84	0.36	0	1
Moral values	3218	0.65	0.48	0	1
Traditions	3296	0.47	0.50	0	1
Respect elderly	3271	0.76	0.43	0	1
Decent clothes	3385	0.16	0.37	0	1
Raise younger children	3385	0.11	0.31	0	1
No use	3385	0.07	0.26	0	1
Unemployed anyway	3385	0.06	0.24	0	1
Prejudice	3385	0.14	0.35	0	1
Long distance	3385	0.03	0.17	0	1
Marriage	3385	0.11	0.31	0	1
Unwilling	3385	0.09	0.28	0	1
Language barrier	3385	0.03	0.18	0	1
Parenthood	3385	0.13	0.33	0	1
Other	3385	0.04	0.20	0	1

Note: Number of unemployed in household indicates the number of unemployed individuals living in the household; Unemployment benefits indicates that the household receives unemployment benefits; Social assistance indicates that the household receives social assistance; Child support indicates that the household receives child support; Pensions indicates that the household receives pensions; Older generation adults indicates the number of adults from older generations (parents, grandparents, uncles, aunts…) living under the same roof; Parents indicates that parents or parents in law live together with the respondent; Employment discrimination is a three point scale indicating how seriously discrimination in access to employment is affecting the household; Relations with majority indicates that the respondent has some relations with the mainstream society; Moral values, Traditions, and Respect elderly indicate, respectively, that the respondent reports having learned moral values, traditions and respect for the elderly in the community and not at school. In addition, Decent clothes, Raise younger children, No use, Unemployed anyway, Prejudice, Long distance, Marriage, Unwilling, Language barrier, Parenthood, and Other indicate, respectively, that the respondent believes that it is acceptable for either girls or boys to miss school if the child does not have decent clothes, needs to help raising younger children, learns what is really necessary at home or learns nothing important at school, will be unemployed anyway, is treated badly at school by non-Roma children or teachers, lives far away from school, is married, is unwilling to go to school, does not know the official language well, has become a parent, or for other reasons.

Table A2. Additional controls for individual sociodemographic characteristics

	(1)	(2)
Support of Roma community	-1.044***	-1.081***
	(0.247)	(0.247)
Preference for segregation	-1.510***	-1.486***
	(0.345)	(0.345)
Roma language	-0.324**	-0.323**
	(0.132)	(0.132)
Primary education	0.555***	0.582***
	(0.115)	(0.110)
Unemployed	-0.196*	-0.196**
	(0.110)	(0.100)
Food insecurity	-0.265***	-0.284***
	(0.060)	(0.061)
Poor living conditions	-0.185**	-0.212**
	(0.087)	(0.091)
Capital goods	0.131**	0.135**
	(0.055)	(0.053)
School aged children	0.171**	0.103
	(0.084)	(0.086)
Male	0.003	
	(0.090)	
Age	0.008	
	(0.022)	
Married or with partner	0.194	
	(0.134)	
Number of children	-0.042	
	(0.026)	
age 20-24		0.285
		(0.189)
age 25-29		0.613***
		(0.224)
age 30-34		0.340
		(0.243)
age 35-39		0.415*
		(0.220)
age 40-44		0.203
		(0.219)
age 45-49		0.148
		(0.288)
age 50-54		0.502**
		(0.242)
age 55-59		0.348
		(0.323)
age 60-64		0.109
		(0.315)
age 65-69		-0.138
		(0.356)
age 70+		0.377
		(0.307)
R2_P	0.16	0.16
N	3,331	3,380

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. The reference category for age in column (2) is 15-19 years old. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term the coefficients of which are not reported.

Table A3. Additional control for a detailed measure of the respondent's education

	(3)
Support of Roma community	-1.127***
	(0.249)
Preference for segregation	-1.496***
	(0.344)
Roma language	-0.317**
	(0.134)
Unemployed	-0.172*
	(0.101)
Food insecurity	-0.260***
	(0.059)
Poor living conditions	-0.187**
	(0.090)
Capital goods	0.119**
	(0.056)
School aged children dummy	0.149*
	(0.086)
Incomplete primary	0.511**
	(0.257)
Primary	0.927***
	(0.244)
Incomplete Apprenticeship	1.002***
	(0.262)
Apprenticeship	1.056***
	(0.235)
Incomplete Secondary	1.089***
	(0.266)
Secondary	1.512***
	(0.312)
College	1.711***
	(0.409)
University	2.177**
	(1.040)
R2_P	0.16
N	3,385

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. The reference category for education is no education. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term the coefficients of which are not reported.

Table A4. Alternative measures of the importance of schooling:

(a) Acceptability of missing school for girls and for boys

	girls	boys
Support of Roma community	-0.932***	-0.890***
	(0.246)	(0.231)
Preference for segregation	-1.471***	-1.332***
	(0.320)	(0.295)
Roma language	-0.390***	-0.356**
	(0.136)	(0.142)
Primary education	0.597***	0.572***
	(0.098)	(0.104)
Unemployed	-0.177*	-0.262***
	(0.096)	(0.101)
Food insecurity	-0.270***	-0.268***
	(0.061)	(0.058)
Poor living conditions	-0.227**	-0.145
	(0.090)	(0.093)
Capital goods	0.114**	0.146***
	(0.058)	(0.054)
School aged children	0.135*	0.143*
	(0.080)	(0.077)
R2_P	0.15	0.15
N	3,385	3,385

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. In column 1, the dependent variable takes the value of 1 if the respondent believes that no good reason exists for girls not to go to school. In column 2, the dependent variable takes the value of 1 if the respondent believes that no good reason exists for boys not to go to school. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

(b) Acceptability of missing school because the child lacks decent clothes, needs to help raising his siblings, school is perceived as useless or subject to prejudice against the Roma

	Decent clothes	Raise younger children	No use	Unemployed anyway	Prejudice
Support of Roma community	0.047	2.013***	1.140***	0.908**	1.022***
	(0.366)	(0.304)	(0.367)	(0.441)	(0.302)
Preference for segregation	-0.004	0.734**	1.071***	0.636	0.938***
	(0.308)	(0.308)	(0.328)	(0.427)	(0.333)
Roma language	0.359*	0.645***	0.715***	0.527**	0.444***
	(0.218)	(0.235)	(0.205)	(0.254)	(0.163)
Primary education	-0.439***	-0.215	0.082	0.444*	0.018
	(0.125)	(0.143)	(0.226)	(0.267)	(0.158)
Unemployed	0.167	-0.136	-0.041	0.389**	0.071
	(0.105)	(0.121)	(0.175)	(0.162)	(0.138)
Food insecurity	0.198**	0.121	0.124	0.048	0.160**
	(0.089)	(0.078)	(0.113)	(0.133)	(0.076)
Poor living conditions	0.262	0.247	0.458*	0.145	0.248**
	(0.175)	(0.166)	(0.247)	(0.192)	(0.115)
Capital goods	-0.251***	-0.110	0.079	-0.215*	0.125*
	(0.092)	(0.081)	(0.105)	(0.116)	(0.069)
School aged children	0.232	-0.048	-0.254	0.058	-0.183
	(0.145)	(0.117)	(0.172)	(0.161)	(0.114)
R2_P	0.32	0.13	0.24	0.19	0.15
N	3,385	3,385	3,385	3,385	3,385

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent dummy variables Decent clothes, Raise younger children, No use, Unemployed anyway, and Prejudice, respectively, take the value of 1 if the respondent states that missing school is acceptable for either boys or girls if they do not have decent clothes, if they need to help raising the younger children, if the child has already learned what is necessary to progress in life or learns what is necessary at home, because the child will be unemployed anyway when grown up, or because the child is treated badly at school by non-Roma children or by the teachers. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

(c) Acceptability of missing school because the school is far away, the child has a family of his own, has limited mastery of the official language or is unwilling to go to school

	Long distance	Marriage	Unwilling	Language barrier	Parenthood
Support of Roma community	0.935*	1.318***	0.433	0.444	1.463***
	(0.494)	(0.298)	(0.357)	(0.447)	(0.299)
Preference for segregation	1.305***	0.551*	0.850***	0.838	0.458*
	(0.351)	(0.309)	(0.290)	(0.799)	(0.272)
Roma language	0.257	0.508***	0.279	1.329***	0.172
	(0.336)	(0.176)	(0.181)	(0.420)	(0.166)
Primary education	-0.070	-0.460***	-0.436***	0.116	-0.370***
	(0.216)	(0.134)	(0.130)	(0.246)	(0.118)
Unemployed	0.162	0.093	0.105	-0.209	0.106
	(0.261)	(0.114)	(0.167)	(0.216)	(0.107)
Food insecurity	0.008	-0.030	0.064	-0.118	0.162*
	(0.123)	(0.080)	(0.077)	(0.120)	(0.086)
Poor living conditions	-0.020	0.025	0.102	0.297	0.160
	(0.289)	(0.181)	(0.173)	(0.233)	(0.140)
Capital goods	-0.464***	0.033	0.119	-0.007	0.035
	(0.107)	(0.062)	(0.105)	(0.202)	(0.076)
School aged children	0.112	-0.105	-0.072	-0.341	-0.111
	(0.211)	(0.114)	(0.123)	(0.306)	(0.134)
R2_P	0.14	0.18	0.11	0.15	0.14
N	3,385	3,385	3,385	2,453	3,385

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent dummy variables Long distance, Marriage, Unwilling, Language barrier, and Parenthood take the value of 1 if the respondent states that missing school is acceptable for either boys or girls if the school is far away, if the child is married, if the child is unwilling to go to school, if the child does not know the official language well, if the child has become a parent, and for other reasons. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported. Because no respondent from the Slovak Republic mentioned Language barrier as a reason for missing school, observations from this country were dropped from the analysis.

Table A5. Alternative measures of community influence

	(1)	(2)
Support of Roma community	-0.501***	-0.544***
	(0.113)	(0.120)
Preference for segregation	-0.679***	
	(0.167)	
Relations with majority		0.299**
		(0.147)
Roma language	-0.377***	-0.438***
	(0.132)	(0.132)
Primary education	0.601***	0.619***
	(0.102)	(0.102)
Unemployed	-0.171*	-0.164
	(0.102)	(0.108)
Food insecurity	-0.265***	-0.255***
	(0.059)	(0.062)
Poor living conditions	-0.191**	-0.218**
	(0.088)	(0.089)
Capital goods	0.148***	0.145***
	(0.054)	(0.052)
School aged children	0.151*	0.140*
	(0.084)	(0.082)
R2_P	0.15	0.14
N	3,385	3,345

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The variable Support of Roma community takes the value of 1 if the respondent has indicated at least one of the following community support systems: support from Roma political parties, support from informal Roma leaders, support from Roma NGOs, support from rich Roma, support from Roma friends, interests in the community best defended by local branches of Roma parties, interests in the community best defended by Roma leaders, and interests in the community best defended by Roma NGOs. The variable Preference for segregation dummy takes the value of one if the respondent has indicated they would prefer to avoid interaction with the mainstream society in at least one of the following circumstances: working together, children playing together, being neighbors, mixed marriages for Roma boys, and mixed marriages for Roma girls. The variable Relations with majority takes the value of one if the respondent has some relations with the mainstream society and zero otherwise. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

Table A6. A linear regression model

Support of Roma community	-0.212***
	(0.051)
Preference for segregation	-0.260***
	(0.056)
Roma language	-0.074***
	(0.027)
Primary education	0.119***
	(0.020)
Unemployed	-0.033*
	(0.020)
Food insecurity	-0.054***
	(0.012)
Poor living conditions	-0.046**
	(0.019)
Capital goods	0.027**
	(0.011)
School aged children	0.030*
	(0.017)
R2	0.19
N	3,385

Notes: Ordinary least squares. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

Table A7. Average opinions on schooling in the municipality as a predictor of individual opinions on schooling

Support of Roma community	-0.667***
	(0.181)
Preference for segregation	-1.259***
	(0.328)
Average importance school municipality	3.781***
	(0.304)
Roma language	-0.413***
	(0.098)
Primary education	0.627***
	(0.093)
Unemployed	-0.204**
	(0.101)
Food insecurity	-0.298***
	(0.057)
Poor living conditions	-0.171**
	(0.081)
Capital goods	0.106**
	(0.049)
School aged children	0.205**
	(0.091)
R2_P	0.21
N	3,377

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. Average importance school municipality is the average of Importance of school, calculated in the respondent's municipality, not taking into account the respondent's own answer to this question. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

Table A8. The baseline model estimated on the basis of a sub-sample that includes only parents

	Parents only
Support of Roma community	-1.116***
	(0.240)
Preference for segregation	-1.478***
	(0.334)
Roma language	-0.334**
	(0.138)
Primary education	0.657***
	(0.110)
Unemployed	-0.109
	(0.110)
Food insecurity	-0.308***
	(0.064)
Poor living conditions	-0.225**
	(0.092)
Capital goods	0.107**
	(0.055)
School aged children	0.121
	(0.083)
R2_P	0.16
N	2,982

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The sub-sample of parents includes individuals who have at least one child. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. Standard errors clustered at the municipality level are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

Table A9. The baseline model estimated on a sample including observations from Bulgaria

	(1)	(2)	(3)	(4)
Support of Roma community	-1.073***	-0.857***	-0.212***	-0.158***
	(0.180)	(0.164)	(0.035)	(0.030)
Preference for segregation	-1.508***	-1.228***	-0.260***	-0.210***
	(0.217)	(0.186)	(0.035)	(0.030)
Roma language	-0.351***	-0.398***	-0.074***	-0.083***
	(0.084)	(0.076)	(0.017)	(0.015)
Primary education	0.593***	0.550***	0.119***	0.103***
	(0.095)	(0.085)	(0.019)	(0.016)
Unemployed	-0.182**	-0.208***	-0.033**	-0.039***
	(0.085)	(0.075)	(0.017)	(0.015)
Food insecurity	-0.270***	-0.209***	-0.054***	-0.040***
	(0.050)	(0.043)	(0.010)	(0.008)
Poor living conditions	-0.208**	-0.289***	-0.046**	-0.060***
	(0.089)	(0.080)	(0.019)	(0.016)
Capital goods	0.134***	0.173***	0.027***	0.033***
	(0.041)	(0.036)	(0.008)	(0.007)
School aged children	0.148*	0.114	0.030*	0.021
	(0.079)	(0.071)	(0.016)	(0.014)
N	3,385	4,314	3,385	4,314

Notes: $p<0.1$; ** $p<0.05$; *** $p<0.01$. Columns (1) and (2) are estimated using logistic regression, and columns (3) and (4) are estimated using ordinary least squares. Columns (1) and (3) are estimated on the same sample as the baseline regressions. Columns (2) and (4) include observations from Bulgaria. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. Robust standard errors are shown in parentheses. The model includes country fixed effects and a constant term, the coefficients of which are not reported.

Table A10. The baseline model estimated for each country separately

	Romania	Slovak Republic	Hungary	Czech Republic
Support of Roma community	-0.932**	-1.049***	-1.058*	-1.245***
	(0.453)	(0.398)	(0.592)	(0.471)
Preference for segregation	-0.976*	-1.342*	-1.010*	-2.300***
	(0.563)	(0.749)	(0.597)	(0.554)
Roma language	-0.902**	-0.061	-0.272	-0.420
	(0.353)	(0.216)	(0.197)	(0.275)
Primary education	0.415*	0.511**	0.670***	0.861***
	(0.236)	(0.257)	(0.126)	(0.254)
Unemployed	-0.398**	0.074	-0.332**	-0.167
	(0.166)	(0.208)	(0.164)	(0.210)
Food insecurity	-0.282**	-0.313***	-0.126	-0.236
	(0.119)	(0.110)	(0.081)	(0.158)
Poor living conditions	-0.999***	-0.330**	0.024	0.112
	(0.197)	(0.152)	(0.148)	(0.178)
Capital goods	0.059	0.185**	0.000	0.465***
	(0.131)	(0.087)	(0.111)	(0.137)
School-aged children	0.194	0.015	0.174	0.179
	(0.224)	(0.139)	(0.119)	(0.223)
_cons	1.226	0.775*	-0.742	-1.241*
	(0.802)	(0.396)	(0.507)	(0.683)
R2_P	0.17	0.08	0.03	0.13
N	677	932	972	804

Notes: Logistic regression. * $p<0.1$; ** $p<0.05$; *** $p<0.01$. The dependent variable (Importance of school) takes the value of 1 if the respondent believes that no good reason exists for either boys or girls not to go to school. Standard errors clustered at the municipality level are shown in parentheses. The model includes a constant term, the coefficient of which is not reported.

Table A11. Pairwise correlations between baseline indicators of community influence

	Support of Roma community	Preference for segregation	Roma language
Support of Roma community	1		
Preference for segregation	0.153	1	
Roma language	0.093	0.236	1