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Social Identity and Role Models

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Social Identity and Role Models *

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Abstract

We present a lab-in-the-field experiment and surveys of marginalised Roma children in Slovakia to examine whether reminding Roma of their ethnicity reduces their performance in a cognitive task. Research on social identity and stereotypes has documented that when individuals feel their social group is negatively stereotyped in a domain their performance declines, which can reinforce discrimination. In an effort to break the cycle of negative stereotypes we remind Roma of either Roma or non-Roma role models. We find that the activation of a Roma's ethnicity reduces cognitive performance. In contrast Roma exposed to Roma role models outperform those reminded of their ethnicity and also non-Roma role models. We then attempt to understand the channels through which social identity and role models effect performance. We show that priming a Roma's identity has a direct effect on confidence, decreasing performance.

JEL Codes: C93, J15.

Keywords: Social Identity, artefactual field experiments, discrimination, role models, Roma.

1 Introduction

Social identity commonly refers to an individual's own perception of self, based on his or her membership of a group such as ethnicity, race, or gender (Tajfel, 1973). A person's social identity provides a set of rules that govern group behaviour, as such social identity can explain behavioural differences across groups (Hoff and Pandey, 2006; Chen and Li, 2009; Benjamin et al., 2010; Akerlof and Kranton, 2000; Akerlof, 2002; Morita and Servátka, 2013). An important aspect of one's social identity are the stereotypes; the physical, mental and psychological characteristics attributed to a typical member of a given social group. Once a set of characteristics are used to describe a social group, those characteristics influence the behaviour of people who are associated with the group (Shih et al., 1995) [1]. A negative stereotype associated with one's social group can generate negative perceptions about one's self, leading people to perform worse than their abilities would suggest. This is commonly known as stereotype threat. [2]

Stereotype threat is especially prevalent in populations that suffer from discrimination. The perceived negative characteristics of these groups in a particular domain, tends to influence the group members' self-beliefs (DellaVigna, 2010). As such, negative stereotypes have been found to explain race-based performance differences on academic tests (Steele, 1997; Steele and Aronson, 1995; Shih et al., 1995).[3] For instance, in India when the associated stereotypes of low caste, who have been historically discriminated, is made salient, the group's performance declined compared to the non-discriminated high caste (Hoff and Pandey, 2006, 2014) .

Negative stereotypes can be particularly harmful as they can re-enforce discrimination

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[1] In recent work Bordalo et al. (2016) show that stereotypes predominately highlight the largest differences between groups as such many stereotypes are exaggerated.

[2] For instance, African Americans are often stereotyped as low academic-ability, giving them reduced incentives to work hard to be rewarded for their effort (DellaVigna, 2010).

[3] Shih et al. (1995) find that Asian American women perform better on a maths test when their ethnic identity is activated, but worse when their gender identity is activated. A similar stereotype threat was also found when comparing a task named "sport intelligence" in one treatment and "natural athletic ability" in the second treatment on a sample of black and white college students. Black participants performed significantly worse in "sports intelligence" diagnostic and in contrast, white participants performed worse in the "natural athletic ability" diagnostic (Stone et al., 1999).

across groups. A negative stereotype increases negative thoughts about oneself and can reinforce a negative identity. In turn, this can directly affect confidence, aspirations and levels of effort expended by individuals or groups, ultimately affecting their learning and performance, re-enforcing negative attitudes towards the group, and terminally discrimination (Loury, 2002). A key component of this cycle is that negative stereotypes not only influence how a group member perceives themselves but also how others perceive the social group. For example, research has found that negatively stereotyped names can reduce an employer's effort to inspect resumes (Bartoš et al., 2016), stereotypes also influence wages and employment opportunities (Bertrand and Mullainathan, 2004).[4] Thus, understanding the factors that influence group stereotypes can be important in countering discrimination directed towards social groups.

In this paper we examine the affect of role models on social identity and in particular stereotypes associated with a social identity. We begin by investigating whether reminding a negatively stereotyped ethnic group of their ethnic identity affects their academic performance. Then in an effort to break the cycle that negative stereotype may perpetuate we examine the activation of ethnic and non-ethnic role models on academic performance. Reminding people of their role models, individuals who are perceived as worthy of emulation (Pleiss and Feldhusen, 1995), may remind subjects of a positive aspect of their social identity, offsetting negative self perception, improving performance and as such nullifying the effects of negative stereotypes (Akerlof and Kranton, 2000).[5] By comparing ethnic role models to non-ethnic role models we can also identify if role models, who are similar to participants in terms of ethnicity and perhaps upbringing, have a different effect on behaviour than role models whom students may not be able to relate. Lastly, we attempt to understand the channel through which negative stereotypes and role models affects performance. We hypothesise that priming subjects ethnic identity may have a direct effect on confidence, resulting in a decrease in performance.

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[4]See (Guryan and Charles, 2013) for an excellent discussion on statistical discrimination while List and Rasul (2011) and Altonji and Blank (1999) provide a summary of the related literature.

[5]Research on social identity confirms that similarity between self and others increase the likelihood of social comparison (Tajfel, 1973).

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As such we test whether confidence changes when a subject's ethnicity is made salient and whether role models can offset any reduction in confidence.

We employ an artefactual field experiment with 396 Roma children in Eastern Slovakia. Roma are the largest minority in Europe and according to the EU they suffer from widespread discrimination. In a recent report Roma were found to be the minority discriminated against most often with 47% of Roma feeling discriminated, followed by Sub-Saharan (41%) and North (41%) Africans, Central and Eastern Europeans (23%), Turkish (23%) and Russians (14%) (FRA, 2009). This translates into Roma's belief that a negative attitude towards them exists in education, housing, and employment (European Commission, 2014). This context provides a unique opportunity to study the affects of social identity and whether role models can influence the negative stereotypes associated with ones social group.

Similar to Shih et al. (1995), Benjamin et al. (2010), Cadsby et al. (2013),Yan Chen and Shih (2014) and Cohn et al. (2015) we use a pre-experiment background questionnaire to make Roma's ethnicity salient. Participants then take part in a simple math task to gage cognitive performance. In two additional treatments using the background questionnaire participants are either reminded of Roma or non-Roma role models. We find that the activation of a Roma's ethnicity reduces cognitive performance compared to the control of no ethnic or role model information. In contrast, students reminded of Roma role models outperform students reminded of their ethnicity and non-Roma role models, but they perform similar to the control. We then find that the reduction in performance when children are reminded of their identity can at least partially be attributed to a reduction in confidence. Our finding suggest that Roma role models can potentially reverse this decrease in confidence.

The effect of role models on students' outcomes has been investigated in a number of empirical studies. This research suggests that role models significantly influence outcomes as they have the potential to motivate individuals and serve as a source

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of inspiration (Hurd et al., 2011). In this regard Dee (2004, 2005, 2007); Ehrenberg et al. (1995) estimate the race interactions between students and teachers. They find a positive effect of similar race teachers on various student outcomes. Fairlie et al. (2014) use survey data to examine if minority students benefit from taking courses with a minority lecturer. They show that the performance gap in terms of class drop-out rates and grade performance between white and under-represented minority students was lower when taught by minority instructors. Bettinger and Long (2005) investigate the impacts of policies designed to increase female representation on college faculties. Their research suggests that female instructors positively influence course selection and major choice in some disciplines. While DellaVigna (2010) examines whether Barack Obama had a positive effect on the achievements of African Americans, he finds little difference in a range of outcomes including crime rates and labour force participation between African Americans and whites. Further, role models have been shown to have an affect on adolescent consumer purchase intentions and purchase behaviour (Martin and Bush, 2000) as well as adolescents' attitudes toward violence and violent behaviour (Hurd et al., 2011).

There is a large psychology and growing economic literature on social identity and separately on role models. Our work differs from this research in three important ways. First, as discussed above, the economic literature has largely focused on the effect of role models on education and wage outcomes. It is largely mute on the effect of role models on social identity. We bridge the literature on social identity and in particular stereotypes, with that of role models. Role models may have a direct effect on one's self perception and as such identity. Akerlof and Kranton (2000) hypothesise that role models may help individuals define their self-concept or sense of self as such role models may play an important role in social identity. This paper provides empirical analysis of this hypothesis. In this respect the paper most similar to ours is the novel work by Olivetti and Zenou (2013), who show that mothers and friends' mothers shape the work choices of their children later in life. However, they do not explicitly examine social identity

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or the effect of role models on negative stereotypes, creating a gap in the literature. Second, our experimental approach allows us to explicitly observe and identify the effects of role models from other social and environmental factors. This is particularly difficult in empirical studies because many factors that influence student and role model interactions tend to be unobserved. For example without an experiment it is difficult to isolate whether effects are due to students or teachers behaving differently. Third, we add to the literature by investigating confidence as a possible channel through which negative stereotypes and importantly role models affect behaviour. By influencing belief in one's social group, role models may directly affect confidence. Credible empirical evidence on the effect of role models on self-confidence is rare due to the difficulties in measuring and collecting data on confidence. Improved self-confidence has been found to impact: motivation (Bénabou and Tirole, 2002); firm outcomes (Camerer and Dan, 1999); labour market outcomes (Koszegi, 2006); wage rates (Fang and Moscarini, 2005); and the persistence in intergenerational income and educational inequality (Filippin and Paccagnella, 2012).

2   Experiment Design

Upon the commencement of the experiment subjects responded to a "background questionnaire" that varied by experimental treatment (see A.1). The experiment consisted of a control whereby neither ethnicity nor role models were made salient and three treatments: 1) Roma ethnicity salient (Roma salient); 2. Roma role model; 3. non-Roma role model. Following Shih et al. (1995), Benjamin et al. (2010) [6], we use a background questionnaire because it makes identity and role models salient without explicitly reminding the subjects of their ethnicity, this reduces the probability of an experimenter demand effect.

In the control neither stereotype or role models were made salient. The background

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[6]See also (Cadsby et al., 2013),(Yan Chen and Shih, 2014), and (Cohn et al., 2015)

questionnaire consisted of 5 non-de-script background questions such as favourite food, favourite colour etc. The questions were unrelated to identity or role models. In the Roma ethnicity salient treatment, the background questionnaire included the same five simple questions asking subjects their favourite food, favourite colour followed by three questions on their ethnicity, these were: their self-classified ethnicity, language spoken most frequently at home and whether their grandparents spoke any language other than Roma.

The background questionnaire in the Roma role and non-Roma role model treatments did not include questions on ethnicity but consisted of six simple questions regarding famous Roma/non-Roma icons. In this study, we define role models as nonparental adults who adolescents look up to and want to emulate. To gather information on the people Roma children look up to we surveyed and informally interviewed 50 Roma adults and children as well as teachers and social community workers two weeks prior to the experiment. Each interviewee was asked to list the people they most look up to or they think Roma look up to. A list was then compiled of the most popular Roma and non-Roma. In order to cover a broad group of role models we, selected popular male and female role models from a range of occupations. As Roma role models the following people were selected: Vladimir Olah, a poet who established a Roma cultural association in Slovakia; Dr Jan Cibula, an activist who was nominated for a Nobel Peace Prize and was a past president of the International Roma Union; and four Slovak or Czech popular Roma singers/performers. These were: Silvia Sarkoziova, the lead female vocalist in the Gypsy Devils band; Igor Kmeto, the front man of a popular band Kmetoband; female vocalist Vera Bila; and the members of an all male Slovak band Gipsy Kajkos. The participants were asked questions such as the maiden name of Vera Bila, the number of band members in Gipsy Kajkos, the name of Silvia Sarkoziovas' group, and the association established by Vladimir Olah. The survey did not contain reference to the role models ethnicity.

To ensure Role models are comparable across treatments we selected the most pop-

ular four non-Roma musicians and two non-Roma people from other fields, similarly we ensured there were two female non-Roma role models. The non-Roma role models consisted of two football players Cristiano Ronaldo and Marek Hamsik from Portugal and Slovakia respectively and four singers/performers Justin Bieber (Canada), Shakira (Columbia), Helena Vondrackova (Czech) and Karel Gott (Czech) – the latter two having been popular in Slovakia (and formerly Czechoslovakia) for decades. Questions included "the soccer club of the sportsmen, the age of Justin Bieber and whether the singer Karel Gott has been awarded "The Golden Nightingale" prize more than 20 times. The ethnicity of the role models was never made salient.

To ensure the icons selected are actually the subjects' role models, as part of the post experiment survey we asked subjects whether they admire the people mentioned in the background questionnaire. In the Roma role model treatment 90% of subjects and 94% in the non-Roma role model treatment look up to the people/groups mentioned. This suggests that the experiment is measuring who Roma children look up to.[7]

After participating in the background questionnaire, subjects took part in a numeracy task. Participants were given 65 strings of numbers, each string contained between 10 and 20 digits. Subjects were given 3 minutes to count the digit of zero in each string. For each correctly solved puzzle children received 5c. We selected this task as it required mathematical ability, yet it was simple enough for children who have not completed primary school to understand. Roma children are perceived to lack academic ability, and as such the prevailing stereotype is that their numeracy skills are lower than the average population.[8] Further, the task was labeled as a "numeric maths task" to emphasise the tasks mathematics nature. The instructions included an example practice string of numbers that subjects completed before they were able to commence the task.

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[7]This differs to a large part of the Role model literature such as Marx et al. (2009) who select people that may act as a role model such as teachers and then test if a role model effect exists.

[8]According to UNDP (2012) approximately 10% of adult Roma's attained higher than primary education and 38% (of those older than 16) self-report difficulties with reading and/or writing. While in Europe Roma children are 5 times less likely to attend compulsory primary education compared to the majority (FRA, 2014a).

After understanding of the instructions had been checked but prior to the commencement of the numeric task a measure of confidence was elicited. We examine confidence as a possible channel through which identity and role models effect behaviour. Similar to Niederle and Vesterlund (2007) and Dasgupta et al. (2015) subjects were asked to predict their own performance in the task. Subjects were asked to provide an estimate of the number of numeric puzzles they expected to complete in 1 minute and 3 minutes. Then in the post experiment survey two further questions were asked to elicit relative confidence : 1) If you were to compare your performance with everyone else in this settlement, how would you rate your performance in comparison to other people? Possible answers were: "among the best, better than average, same as average, worse than average and among the worst"; 2) The second question was identical to the first except settlement was replaced with Slovakia. The latter two questions were asked in the post experiment survey in order to avoid priming ethnicity.

3   Setting and Village Selection

Roma children are the subject of our study. We specifically select early adolescent children, as researchers have found that as children enter adolescence, they increasingly focus their attention on nonparental adults to identify models of who they want to emulate (Erikson, 1968; Scales and Gibbons, 1996). We study Roma as they are the largest minority in Europe and according to the EU Commission on Justice, they suffer from pervasive historic discrimination, which has further risen during the economic crisis. In EU Member States 85% of Italians and 66% of French hold an unfavourable views of Roma. While in Greece, Britain and Poland, about half hold a negative view of Roma, similarly 40% hold this view in Germany and Spain (PRC, 2014). In the context of education around 60% of Slovak pupils reported an objection when asked to share the same desk with a Roma pupil and almost 50% report bad, or very bad experiences with Roma people (Slovikova, 2012). Similarly, according to Bielikova (2010) Slovak

adolescents are the least tolerant towards Roma – 39% of respondents consider Roma to be "inferior people", while 5.9% of pupils considered Africans and 6.5% Asians to be "inferior people". These experiences are confirmed in our post experiment survey which asks subjects "How often do you hear your class mates saying bad things about Romas?", 41% report every day, 13% of respondents report at least once a week, while 22% report at least once a month. This suggests perceived negative perceptions towards Roma children exist within these communities.

The experiment was conducted in November 2015 in 15 municipalities in Eastern Slovakia with Roma children living in segregated settlements (on the edge or outskirts of municipality). It's estimated that Eastern Slovakia accounts for 85% of the total Roma population living on the edge or outskirts of municipalities in Slovakia. In Slovakia around 91% of Roma people are at risk of poverty, while only 21% are in paid work (FRA, 2014b), 87% of the Roma population aged 18-24 leave school without completing secondary education (FRA, 2014a). The situation is similar in other EU countries where: 87% of Roma are at risk of poverty, 35% of men and 21% of women are in a paid work (FRA, 2014b), and early school leavers rates of Roma range between 72 – 98% (FRA, 2014a).

Using the Atlas of Roma Communities in Slovakia 2013 (Musinka et al., 2014) we randomly select 15 villages in four districts in Eastern Slovakia. The Atlas is a census of the Roma community initiated by the Slovak government and UNDP aimed at monitoring the living conditions of the Roma population. Information was collected on all settlements in Slovakia with 30 or more Roma people. Column 1 in Table 1 presents the average characteristics for the sample settlements while column 2 presents average characteristics for Eastern Slovakia municipalities (with Roma settlements on the edge or outskirts). The results show that there is no statistically significant difference between the sample settlements and other Eastern Slovakia settlements in characteristics such as percentage of households with access to water, public sewerage system, using electricity/gas and distance to kindergarten/primary school or physician. Distance to

the closest general practitioner and pediatrician show a small statistical difference. All selected settlements are not further than 30 km from the regional capitals: cities of Košice and Prešov (see Fig. 1).[9]

3.1 Participant Recruitment and Procedure

To recruit participants for the experiment, village representatives were contacted by telephone and/or email, asking for permission to conduct research in their community centre. In each village one local social community worker was then hired to invite and recruit individual households.[10] Each social worker was trained in how to select and invite participants.[11] The social community workers were directed to randomly select households from different parts of the village the day before the actual experiment. Community workers approached households informing them that they could participate in research the following day with the possibility of earning some money and that a session would last 60-90 minutes. Within each household unit we invited both parents (or just the mother/father if a single parent household) and two randomly selected children above the age of 8.[12] Upon agreeing to participate a contact number for each household was recorded. On the morning of the experiment participants were informed of the time of their session.[13] Only children who were able to read, write and understand basic math were eligible to participate.

Each session consisted of four children from at least 2 households. Between four and six sessions took place in each village, cumulating in between 32 – 48 participants per

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[9]To aid in comparing community characteristics in Table A1 we report the average characteristics of our sample villages (including Roma and non-Roma) taken from the 2011 census and compare them to Eastern Slovakia and Slovakia. As expected our sample village contains a much higher rate of Roma than villages in either Eastern Slovakia or Slovakia in general.

[10]The social workers were either employed with an NGO (ETP Slovakia – www.etp.sk) working on development programmes in the Roma settlements or employed by municipalities. Social community workers were responsible for visiting Roma families and providing counselling services to them on a daily basis. Because of this relationship a high level of trust towards them exists.

[11]Social workers were never informed about the topic of the research.

[12]Adults participated in a separate experiment. There were 19 such cases that more than two children from the household participated.

[13]Some of the participants were advised they would serve as alternates.

village and 396 subjects in total. We do not believe that information spillovers were a significant issue due to the task being explained to participants as a simple maths quiz reducing the likelihood of participants identifying the research questions being investigated.

Experiments took place in the village community centre. Upon arrival the participants were screened for eligibility and the consent form read aloud, and a hard copy then signed by the parents. Adults were then moved to a separate room where they participated in a separate experiment.[14] Upon entering the room each child was placed on a desk and assigned a unique ID in order to ensure anonymity of the participants. Each participant received their own envelope with answer sheets with their unique participant ID. Decision sheets were handed to and collected from participants simultaneously. The average earning of participants was €5. Data was entered and checked by two separate research assistants. Three pilot rounds were conducted prior to the experiment (pilot data is not included in the sample).

3.2   Treatment Balance

Table 2 lists the demographics of the average subject in our experiment. Column 1 presents the full sample means, columns 2 - 5 report the averages by treatment where "C" refers to the control, "T1" the Roma salient treatment, "T2" Roma role model treatment, and "T3" non-Roma role model. Participants in the sample are on average 13 years old and are currently attending primary school (80%). Within participating households, 71% of children's parents are married and 62% have at least one parent that completed primary school. Almost 9% of households have a parent who is employed and 45% have a parent that is actively unemployed. Finally, the mean household income is €383.44 per month.

Columns 6-11 present the mean differences in demographics across treatments. To com-

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[14]The experiment consisted of a discrete choice experiment exmaining employment preferences.

pare treatments we use a Mann-Whitney test and well as the normalised difference between treatments, reported in square brackets (Imbens and Wooldridge, 2009). We find little systematic difference in average characteristic across treatments barring gender. According to the Mann-Whitney test there are a greater number of male children in the Roma role model treatment compared with the control and Roma salient treament. As a robustness test, we also examine behaviour by gender. On the other hand the normalised difference shows that only a single pairwise comparison (Gender: Control - Roma Role Model)is above the 0.25 rule of thumb that would indicate differences in the distribution across treatments (Imbens and Wooldridge, 2009). This suggests that on average subjects are similar in terms of observable characteristics.

4 Results

In this section we provide details of the experimental results. In order to understand the effect of a subject's ethnicity on performance we compare the control to the Roma salient treatment. To examine if subjects reminded of role models have better outcomes we compare the control to the role model treatments. We compare the role model treatments to the ethnicity salient treatment to identify if reminding children of role models with the same (different) ethnicity reduces negative self perceptions.

Table 3 displays the average number of numeric puzzles solved by treatment. Column 4 reports the differences in means and the associated level of statistical significance. In the Roma identity revealed treatment Roma children solve 8.0% less numeric puzzles than when identity is not primed (control). This result is consistent with negative stereotype threat identified in the literature and suggests that Roma children hold a negative stereotype about their ability in this math task. A number of other key results are evident: Children in the Roma role model treatment solve 8.7% more puzzles than in the ethnicity salient treatment. Making Roma role models salient reduces the negative self-perception of Roma children that appears when subjects are reminded of their

ethnicity. However, this role model affect only appears when the role model is part of the Roma community and not when a role model is non-Roma. We also find little statistical difference between priming Roma role models and the control. As a robustness test we compare the number of numeric puzzles solved by gender. On average males solve 26 puzzles compared to 27.26 for females (p-value=0.17). This suggests that the marginally larger proportion of males in the Roma role model treatment is unlikely to be driving this result.[15]

Figure 2 presents the distribution of the number of math puzzles solved by treatment. Using a two-sided Kolmogorov-Smirnov test, the null hypothesis of equality of distributions between the Roma salient and the control is rejected (p–value = 0.014). The mass of the distribution of the math puzzles solved by those in the Roma salient treatment lies to the left of that when identity is not revealed. We also find that the distribution of the Roma role model treatment lies to the right of the Roma salient treatment (K-S test, p=0.092). While the distribution of maths puzzles solved by subjects in the Roma role model treatment is similar to the control treatment (K-S test, p=0.293). Finally, we find that the number of math puzzles solved by those in the non-Roma role model treatment lies to the left of the Roma role model treatment (p-value-0.022). In summary, the negative stereotypes related to Roma's identity can have a significant negative effect on achievement, however, in comparison reminding children of role models associated with their Roma identity but not non-Roma role models can significantly improve achievement.

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[15] These results use the full sample, despite a small proportion of subjects not considering the Roma and non-Roma icons as actual role models. Excluding these subjects may bias the result. When we re-estimate our main results in Table 3 excluding those who do not believe the role models are actually role models we find the number of maths puzzles solved by children in the Roma role model treatment increases slightly to 28.27 while the non Roma role model group decreases slightly to 25.09. The statistical significance of the results are quantitatively unchanged.

4.1 Channels

The decline in academic performance of Roma children when reminded of their ethnic identity raises an important question - What are the channels through which negative stereotypes affect performance and can role models influence these channels? One hypothesis is that priming a subject's identity may have a direct influence on confidence. This could result in a decrease in performance if participants are primed positively by providing them with an example of someone similar to them who has been successful. Table 4 (columns 1 and 5) presents our first measure of confidence - participants' ex-ante guess of the number of numeric puzzles they expect to solve in one minute. The results demonstrate that subjects' ex-ante expectation of performance is lowest when they are reminded of their ethnicity. We find that children reminded of their Roma ethnicity expect to perform worse in the task compared to when their ethnicity is not made salient. In turn subjects in the Roma role model treatment expect to perform better than those in the Roma salient treatment. We also find that the expectation of performance associated with the activation of a Roma role model is similar to that in the non-Roma role model and the control treatments. [16]

In columns 2 and 6 (Table 4) we examine students expectation of relative performance. We create a dummy variable equal to 1 if a subject rated their performance as at least better than average compared to other people within their settlement. This is our second measure of confidence. Subjects were asked to compare their performance with everyone else in their village. We find that children reminded of Roma role models are more likely to believe they will perform better than others in their village compared to children in the Roma salient treatment. There is little difference across the other treatments.

[16]Participants were also asked to guess how many numeric puzzles they expected to solve in 3 minutes. Results based on this response are quantitatively unchanged.

5 Conclusion

Social identity is an important and growing field of research in economics, in part because identity has a significant influence on behaviour. Its effect on behaviour can be welfare reducing when social groups are negatively stereotyped such as the Roma group studied here. Roma are one of the most socially excluded groups in Europe, they face significant rates of poverty and material deprivation, low levels of education and high levels of long-term unemployment (FRA, 2014a,b). In order to overcome Roma deprivation and spark Roma inclusion, it is estimated that the EU and local governments spent 3 billion EUR on activities targeting Roma during the 2000-2006 programming period and a further 4.7 billion EUR between 2007-2013 on inclusion and anti-poverty governmental programs and initiatives.[17] Role models may influence social identity and improve confidence and inspire young people to achieve goals, as such role models may reduce discrimination and provide a cost effective tool to aid inclusion. This paper breaks new ground by experimentally examining whether different role models affect self perception and as such whether role models reduce the effects of a negative stereotype, a small step in breaking the cycle of others negative perception towards Roma.

The results of this study indicate that reminding Roma children of their ethnicity reduces performance. This result is consistent with the theory of stereotype threat. Reminding children of their identity can be detrimental to their academic performance, this may be particularly true if a negative stereotype associated with their social group exists. We find that reminding children of role models from their own social group can improve achievement compared to reminding children of their ethnicity. The desirability of a policy that emphasizes Roma role models is complicated by our finding that reminding children of Roma role models has a similar effect on performance as when nothing is highlighted, as in the control treatment. This suggests that not emphasising a child's ethnicity may be the important policy option. Although when discussing a child's ethnicity it is far from determental to remind children of others from their social group

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[17]Estimates based on European Commission (2010) report.

that have been successful.

Despite this it is important to note that Roma are often in contact and exposed to non-Roma (who are the majority), for example the vast majority of teachers are non-Roma. According to theories of context dependence (Tversky and Kahneman, 1983), the settings in which decisions are made influence behaviour. In this context the environment Roma are most often exposed in schools and throughout societal interactions may be more reflective of the Roma salient treatment rather than the control-where Roma are not reminded of their ethnicity. This would imply the effect of Roma role models on academic performance maybe underestimated when comparisons are made to the control.

We also find that reminding Roma children of non-Roma role models - a group that is not associated with their social group may actually decrease performance in the maths task. It may be possible that role models that show little resemblance to oneself may increase their belief that these positions are unattainable, which may lead to self-deflation decreasing their performance. To understand this mechanism would require further research.

Finally, we investigate confidence as a possible channel through which stereotypes and role models affect behaviour. We find that confidence decreases when subjects are reminded of their ethnicity relative to the Roma role model treatment and the control. This result suggests that the effects of negative stereotypes and role models on achievement at least partially operates through changed confidence. Because confidence plays an important role in behaviour, the effect of negative stereotypes can indirectly impact the outcomes of children in other areas, such as aspirations and employment decisions, which may continue to effect their decisions later in life.

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Figure 1: Experimental Districts
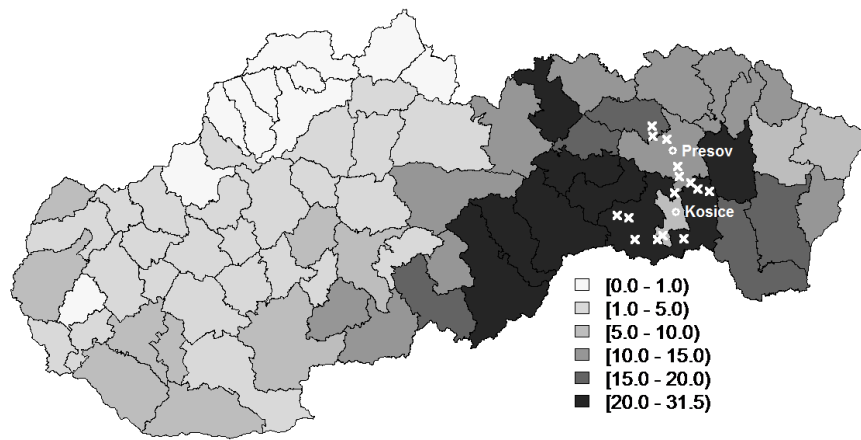
Note: The thematic map shows the distribution of the proportion of people with attributed Roma ethnicity (in %). The 'x' symbols indicate geographic locations of the experimental villages. Source: (Musinka et al., 2014)

Table 1: Randomization at the settlement/village level

Characteristic	Sample (1)	Eastern Slovakia (2)	Difference (3)	Norm. Diff (4)
Access to water main (%)	52.0	52.5	−0.5	−0.009
	(7.2)	(1.9)	(7.4)	
Access to other source of water (%)	25.0	21.3	3.7	0.076
	(6.2)	(1.6)	(6.4)	
Without access to water (%)	13.9	10.9	3.8*	0.083
	(4.5)	(1.2)	(4.7)	
Public sewerage system usage (%)	30.5	20.5	10.0	0.191
	(7.0)	(1.6)	(7.1)	
Drain wells usage (%)	24.0	24.3	−0.3	−0.007
	(4.9)	(1.6)	(5.1)	
No access to sewerage system (%)	44.9	54.3	−9.4	−0.173
	(6.3)	(1.9)	(6.6)	
Electricity Usage (%)	91.7	92.5	−0.8	−0.029
	(3.6)	(0.9)	(3.7)	
Gas Usage (%)	20.6	13.6	7.0	0.162
	(6.1)	(1.3)	(6.2)	
Public street lights availability (%)	91.4	89.7	1.7	0.050
	(3.7)	(1.2)	(3.9)	
Heating by gas (%)	5.9	5.8	0.1	0.005
	(2.2)	(0.7)	(2.3)	
Heating by wood coal (%)	97.3	93.1	4.2	0.217
	(1.4)	(0.8)	(1.6)	
Kindergardens in the village (No.)	1.0	0.9	0.1*	0.333
	(0.0)	(0.0)	(0.0)	
Dist. to 1-4 grades primary school (km)	4.0	3.3	0.7	0.170
	(0.3)	(0.2)	(0.3)	
Dist. to 1-9 grades primary school (km)	5.0	5.1	−0.1	−0.025
	(0.3)	(0.2)	(0.3)	
Special primary schools in the village (No.)	0.3	0.2	0.1	0.156
	(0.1)	(0.0)	(0.1)	
Dist. to special primary school (km)	7.9	9.3	−1.4	−0.125
	(1.5)	(0.3)	(1.5)	
Dist. to the train stop (km)	9.2	10.1	−0.9	−0.054
	(2.3)	(0.5)	(2.4)	
Dist. to the general practitioner (km)	0.8	3.9	−3.1***	−0.665
	(0.3)	(0.2)	(0.4)	
Dist. to the pediatrician (km)	1.2	5.2	−4.0***	−0.662
	(0.5)	(0.2)	(0.5)	
Dist. to th gynecologist (km)	11.4	9.9	1.5	0.098
	(2.4)	(0.3)	(2.4)	

Notes: This table shows the *ex ante* balance in the characteristics of villages chosen for experiments. The upper part of the table reports characteristics at settlement level, the lower part at the village level. Approximative (permutation) Wilcoxon-Mann-Whitney Test significance level indications: ***$p < 0.01$,** $p < 0.05$,* $p < 0.10$.

Figure 2: Distribution of numeric puzzles solved by treatments
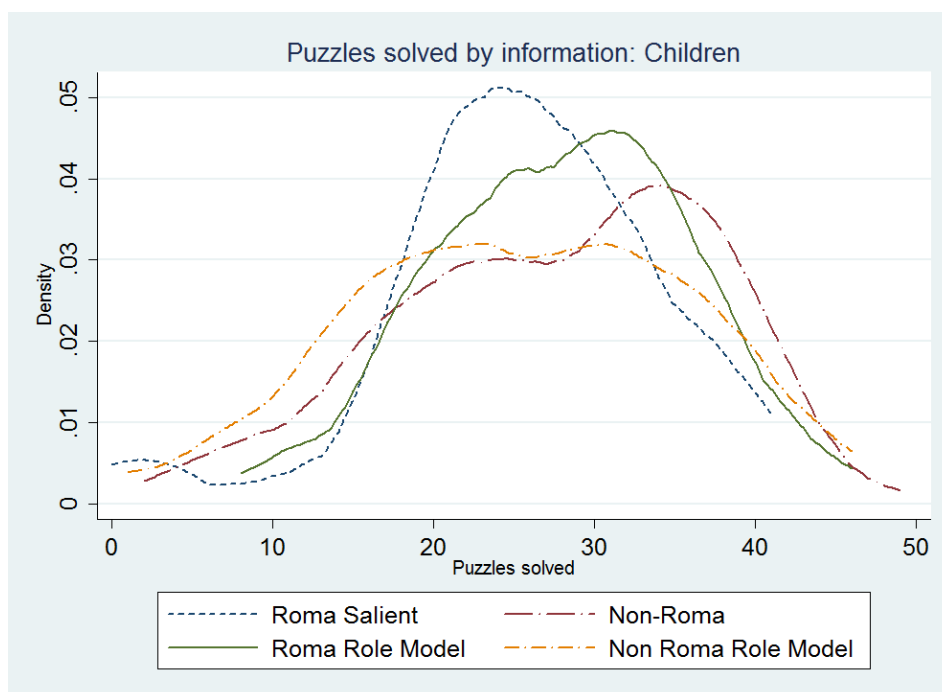
Note: The figure presents comparison of numeric puzzles solved by control and all treatments (kernel density estimations).

Table 2: Demographic characteristics of subjects

Characteristics	Sample (1)	C (2)	T1 (3)	T2 (4)	T3 (5)	C - T1 (6)	C - T2 (7)	C - T3 (8)	T1 - T2 (9)	T1 - T3 (10)	T2 - T3 (11)
Children's characteristics											
Age	12.995	13.247	12.755	13.263	12.760	0.493	−0.016	0.487	−0.508*	−0.005	0.503
	(0.119)	(0.249)	(0.210)	(0.252)	(0.241)	(0.325)	(0.354)	(0.347)	(0.328)	(0.320)	(0.349)
						[0.153]	[−0.005]	[0.143]	[−0.156]	[−0.002]	[0.146]
Gender=male	0.495	0.419	0.457	0.596	0.510	−0.038	−0.176**	−0.091	−0.139*	−0.053	0.086
	(0.025)	(0.051)	(0.049)	(0.051)	(0.050)	(0.071)	(0.072)	(0.072)	(0.070)	(0.070)	(0.071)
						[−0.054]	[−0.253]	[−0.129]	[−0.198]	[−0.075]	[0.122]
Primary school	0.848	0.849	0.877	0.842	0.820	−0.028	0.007	0.029	0.035	0.057	0.022
	(0.018)	(0.037)	(0.032)	(0.037)	(0.038)	(0.049)	(0.053)	(0.053)	(0.049)	(0.050)	(0.054)
						[−0.057]	[0.014]	[0.056]	[0.072]	[0.114]	[0.042]
Parents' characteristics											
Married	0.710	0.698	0.700	0.717	0.724	−0.002	−0.019	−0.026	−0.017	−0.024	−0.007
	(0.022)	(0.045)	(0.044)	(0.047)	(0.041)	(0.062)	(0.065)	(0.061)	(0.064)	(0.060)	(0.063)
						[−0.003]	[−0.030]	[−0.041]	[−0.027]	[−0.038]	[−0.011]
Primary education	0.627	0.575	0.682	0.663	0.595	−0.106	−0.088	−0.019	0.019	0.087	0.068
	(0.023)	(0.048)	(0.044)	(0.049)	(0.046)	(0.065)	(0.069)	(0.066)	(0.066)	(0.064)	(0.067)
						[−0.157]	[−0.128]	[−0.028]	[0.028]	[0.129]	[0.100]
Unempl+act work	0.436	0.368	0.500	0.500	0.388	−0.132*	−0.132*	−0.020	0.000	0.112	0.112
	(0.024)	(0.047)	(0.048)	(0.052)	(0.045)	(0.067)	(0.070)	(0.065)	(0.071)	(0.066)	(0.069)
						[−0.190]	[−0.190]	[−0.029]	[0.000]	[0.161]	[0.161]
Employed	0.090	0.104	0.100	0.076	0.078	0.004	0.028	0.026	0.024	0.022	−0.001
	(0.014)	(0.030)	(0.029)	(0.028)	(0.025)	(0.041)	(0.041)	(0.039)	(0.040)	(0.038)	(0.037)
						[0.009]	[0.069]	[0.065]	[0.060]	[0.056]	[−0.004]
Mean HH income	383.433	376.442	372.046	359.066	420.575	4.397	17.376	−44.133	12.980	−48.530	−61.509*
	(9.713)	(19.605)	(16.400)	(19.473)	(21.350)	(25.560)	(27.633)	(28.986)	(25.459)	(26.922)	(28.897)
						[0.017]	[0.064]	[−0.146]	[0.051]	[−0.170]	[−0.210]

Notes: This table shows the *ex post* balance in the demographic characteristics of subjects across treatments. "C" refers to the control, "T1" the Roma salient treatment, "T2" Roma role model treatment and "T3" non-Roma role model treatment. Means (Age and Household income) and proportions (all other characteristics) reported in columns (1) - (5), differences in means/proportions including M-W test in columns (6) - (11). SE estimates in parentheses, normalized differences in square brackets. Normalized differences are calculated using the formula as in Imbens and Wooldridge (2009). A rule of thumb is that when normalized difference exceeds 0.25 in absolute value, linear regression methods tend to be sensitive to the specification. Significance level indications: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 3: Number of Numeric Puzzles Solved by Treatment

	Treatment	No. of Numeric Puzzles Solved (1)	Obs. (2)	Difference (3)	(4)
				C − T1	2.220*
					(1.270)
C	Identity not Revealed	27.76	93	C − T2	0.237
					(1.277)
T1	Roma identity Revealed	25.54	106	C − T3	2.403*
					(1.431)
T2	Roma Role Model	28.00	96	T1 − T2	2.453**
					(1.160)
T3	Non Roma Role Model	25.36	100	T1 − T3	0.565
					(1.309)
				T2 − T3	2.640**
					(1.322)

Notes: This table shows absolute performance of subjects across treatments (1), and the differences among treatments (4). SE estimates in parentheses. T-test significance level indications: ***$p < 0.01$,** $p < 0.05$,* $p < 0.10$.

Table 4: Confidence by Treatment

| | | Absolute Confidence | Relative Confidence | Obs. | | Difference | Abs. Confidence | Rel. Confidence |
		(1)	(2)	(3)	(4)		(5)	(6)
C	Identity not Revealed	15.275	0.56	91	C – T1		6.061***	0.114
							(1.742)	(0.072)
					C – T2		1.748	0.081
							(2.179)	(0.073)
1	Roma identity Revealed	9.214	0.45	103	C – T3		1.545	0.010
							(1.928)	(0.072)
2	Roma Role Model	13.527	0.64	92	T1 – T2		4.313**	0.195***
							(1.667)	(0.071)
3	Non Roma Role Model	13.730	0.55	100	T1 – T3		4.516***	0.103
							(1.413)	(0.070)
					T2 – T3		0.203	0.091
							(1.863)	(0.071)

Notes: This table shows the *ex ante* expectation of performance in the task. SE estimates in parentheses. T-test significance level indications: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 5: Selected Census 2011 Village Characteristics

Characteristics	Sample Villages (1)	Eastern Slovakia (2)	Slovakia (3)
Average age (years)	33.5	37.1	38.9
Single (%)	50.0	44.4	42.3
Married (%)	36.3	40.2	41.0
Slovak nationality (%)	78.4	85.9	86.8
Roma nationality* (%)	12.4	5.5	2.1
Slovak mother tongue (%)	70.5	81.6	84.9
Roma mother tongue (%)	17.8	7.2	2.5
Roman Catholics (%)	76.8	64.4	69.4
People with no religion (%)	8.8	9.5	15.0
Primary education level (%)	20.6	16.9	15.4
Secondary education level (%)	43.5	51.3	54.2
Tertiary education level (%)	11.2	12.8	14.3
No education (%)	24.7	19.0	16.1
Emplyed / self-employed (%)	68.2	75.9	82.1
Unemployed (%)	30.6	23.0	16.8
Retired (%)	13.8	18.0	19.7
Children + students (%)	30.9	26.3	23.3

*Nationality in context of ethnicity. Self-reported Roma ethnicity based on Census 2011 data (2.1 % at national level) is significantly lower than share of people with attributed Roma ethnicity (Musinka et al., 2014).

A.1 Appendix

A.1.1 Background Questionnaire

(C) Identity not revealed (control)

No.	QUESTION	RESPONSE
①	FAVOURITE FOOD ———————→	
②	PREFER WALKING UP OR DOWN HILLS?	☐ UP ☐ DOWN
③	FAVOURITE COLOUR ——————→	
④	DO YOU PREFER WINTER OR SUMMER?	☐ WINTER ☐ SUMMER
⑤	WHAT IS THE CAPITAL OF FRANCE?	☐ LONDON ☐ PARIS ☐ DON'T KNOW

No.	QUESTION	RESPONSE
①	FAVOURITE FOOD ———————→	
②	PREFER WALKING UP OR DOWN HILLS?	☐ UP ☐ DOWN
③	FAVOURITE COLOUR —————→	
④	DO YOU PREFER WINTER OF SUMMER?	☐ WINTER ☐ SUMMER
⑤	WHAT IS THE CAPITAL OF FRANCE?	☐ LONDON ☐ PARIS ☐ DON'T KNOW
⑥	YOUR NATIONALITY	☐ ROMA ☐ SLOVAK ☐ HUNGARIAN ☐ OTHER: ....
⑦	LANGUAGE SPOKEN MOST FREQUENTLY AT HOME —————→	
⑧	DO YOUR GRANDPARENTS SPEAK ANY OTHER LANGUAGE OTHER THAN ROMA?	☐ YES ☐ NO

No.	QUESTION	RESPONSE
①	A POET VLADIMÍR OLÁH ESTABLISHED WHICH ASSOCIATION?	☐ ROMA BEE MOTHER ☐ SLOVAK BEE MOTHER ☐ DON'T KNOW
②	AN ACTIVIST DR JÁN CIBUĽA WHO WAS NOMINATED FOR A NOBEL PEACE PRIZE AND WAS ALSO A PRESIDENT OF INTERNATIONAL ROMA UNION STUDIED AT HIGH SCHOOL IN:	☐ RIMAVSKÁ SOBOTA ☐ TRNAVA ☐ DON'T KNOW
③	SILVIA ŠARKÖZI IS A MEMBERS OF GROUP	☐ GIPSY KINGS ☐ GYPSY DEVILS ☐ DON'T KNOW
④	IGOR KMEŤO, MEMBER OF KMEŤOBAND SANG A SONG:	☐ BUBA MARA ☐ Ó MAŇO ☐ DON'T KNOW
⑤	MAIDEN NAME OF THE SINGER VĚRA BÍLÁ WAS:	☐ VĚRA GIŇOVÁ ☐ VĚRA OLÁHOVÁ ☐ NEVIEM
⑥	HOW MANY MEMBERS DOES THE BAND GIPSY KAJKOS HAVE?	☐ FEWER THAN 4 ☐ MORE THAN 4 ☐ DON'T KNOW

(T3) Non-Roma Role Model

No.	QUESTION	RESPONSE
①	IS JUSTIN BIEBER MORE THAN 18 YEARS OLD?	☐ YES ☐ NO ☐ DON'T KNOW
②	WHAT SOCCER CLUB DOES CRISTIANO RONALDO PLAY FOR?	☐ REAL MADRID ☐ FC BARCELONA ☐ DON'T KNOW
③	WHAT SOCCER CLUB DOES MAREK HAMŠÍK PLAY FOR?	☐ MANCHESTER UNITED ☐ SSC NAPOLI ☐ DON'T KNOW
④	IS SHAKIRA A PART OF A GROUP OR IS SHE A SOLO SINGER?	☐ PART OF A GROUP ☐ SOLO SINGER ☐ DON'T KNOW
⑤	THE SINGER HELENA VONDRÁČKOVÁ PERFORMED A HIT	☐ VYZNANIE (Declaration) ☐ DLOUHÁ NOC (Long Night) ☐ DON'T KNOW
⑥	HAS THE SINGER KAREL GOTT BEEN AWARDED „THE GOLDEN NIGHTINGALE" PRIZE MORE THAN 20 TIMES?	☐ YES ☐ NO ☐ DON'T KNOW