Are equally competent Roma minority students perceived as less smart than their non-Roma classmates? Ethnic differences in teachers' ability attributions

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Purpose

Teachers' ability attributions play an important role in students' educational outcomes. Perceptions of academic abilities, however, are subject to biases. This study examines ethnic biases in homeroom teachers' ability attributions in Hungarian primary schools.

Design/methodology/approach

Using a unique database combining survey data collected among teachers with administrative data on students' standardised test scores, I compare ability attributions toward equally competent minority and majority classmates ($N_{students}$=604, $N_{classes}$=34 in Grade 6; $N_{students}$=420, $N_{classes}$=27 in Grade 8).

Findings

I find that Roma students are less likely to be perceived as smart by their homeroom teachers than their non-Roma classmates with similar standardised achievement scores in Grade 6, but not in Grade 8. The ethnic difference in being perceived as smart is substantially reduced after controlling for students' socioeconomic status and cultural resources. On the other hand, homeroom teachers perceive Roma students to be similarly hardworking and "good students" than equally competent non-Roma students.

Originality

This study highlights an important mechanism that can contribute to educational inequalities. The findings suggest that previously found differences between equally competent Roma and non-Roma students' teacher-given school grades might arise due to biases in ability attributions rather than differences in perceived efforts. It is important to make teachers aware of potential biases in student assessment and evaluation.

Keywords: ability attribution; double standards; education; Roma; stereotypes

Introduction

International comparative standardised achievement tests show that many educational systems are characterised by inequalities between minority and majority students' academic achievement (Borgna and Contini, 2014). Empirical research has found, moreover, that even if minority students achieve similarly on standardised achievement tests, they often receive lower teacher-given grades than majority students (Botelho *et al.*, 2015; Burgess and Greaves, 2013; Kiss, 2013; Ouazad, 2008; Triventi, 2020).

It is less well understood, however, why the ethnic gap in teacher assessment is often larger than the ethnic gap in standardised test scores measuring cognitive skills and competences. Two main explanations arise. First, equally competent minority and majority students may differ in some aspects teachers take into account in grading, such as actively participating in the class, completing homework, or performing on class assignments. Second, research on stereotypes suggests that teachers' ability attributions might be affected by group-based biases (Campbell, 2015; Denessen *et al.*, 2022; Lorenz, 2021), which might result in minority students receiving lower grades than similarly performing majority students. Disentangling these two explanations is important to take adequate steps to reduce educational inequalities. If equally competent minority and majority students' classroom behaviour and efforts differ, interventions should focus on how teachers can change their pedagogical practices to facilitate the involvement and engagement of students from diverse ethnic, cultural, and social-class backgrounds (Banks, 2016). In contrast, if teachers' ability attributions are biased, it is important to make teachers aware of potential biases in student assessment and evaluation.

The present study contributes to this line of inquiry by focusing on teachers' ability attributions towards Roma and non-Roma Hungarian primary school students. A previous study, using the same dataset I use in this study, has found that similar to many other minorities, Roma students' teacher-given school grades are lower, on average, than that of equally competent majority students (Kisfalusi *et al.*, 2021). I aim to shed light on the underlying mechanisms by investigating whether Roma students are perceived as less smart by their teachers than their non-Roma classmates with similar standardised achievement scores. Most previous studies investigating teachers' stereotypes about minority and immigrant students were conducted in the U.S. or Western Europe (for a recent review, see (Denessen *et al.*, 2022). Less is known about teachers' ability attributions towards Roma students, one of Europe's largest nonimmigrant minority groups, which is subject to blatant prejudices and stereotypes (Bruneau *et al.*, 2020; Kende *et al.*, 2021).

I find that Roma students are less likely to be perceived as smart by their homeroom teachers[1] than their non-Roma classmates with similar standardised achievement scores in Grade 6, but not in Grade 8. The ethnic difference in being perceived as smart is substantially reduced after controlling for students' socioeconomic status and cultural resources. On the other hand, homeroom teachers perceive Roma students to be similarly hardworking and "good students" than equally competent non-

[1] In the Hungarian educational system, the homeroom teacher is responsible for a group of students attending the same class in terms of administrative tasks, keeping contact with parents and other teachers, organizing out-of-school activities for students, and conducting discussion classes. The homeroom teacher usually also teaches one or more subjects to the class.

Roma students. These findings suggest that previously found differences between equally competent Roma and non-Roma students' teacher-given school grades might arise due to biases in ability attributions rather than differences in perceived efforts.

Group-based biases in ability attributions

Group-based biases in ability attributions might be present because, consciously or unconsciously, teachers might hold stereotypes about social groups (Denessen *et al.*, 2022). Social psychological theories assume that stereotypes about social categories are automatically activated during a social interaction (Fiske and Neuberg, 1990). As more information is available about the characteristics of the given individual, people rely less on group-based stereotypes and more on individual characteristics. However, strong stereotypes might affect social interactions even in the presence of individual information (Fiske, 1998; Fiske and Neuberg, 1990).

Previous empirical studies have found group-related biases in teachers' perceptions of students' achievement. For instance, the abilities of ethnic minority and low socioeconomic status students have been found to be underestimated (Campbell, 2015; Hughes *et al.*, 2005; Ready and Chu, 2015; Ready and Wright, 2011). Gender stereotypes seem to depend on the subject: boys' abilities are underestimated in reading, whereas girls' abilities are underestimated in STEM subjects (Muntoni and Retelsdorf, 2018; Nürnberger *et al.*, 2016; Thomas, 2017).

Double standards theory (Foschi, 1996, 2000) offers another explication of why minority students might be perceived as less smart than equally competent majority students. The theory suggests that ethnic categories are diffuse characteristics that carry different status values (Berger *et al.*, 1972). Certain states of these categories, e.g., belonging to the majority ethnic group, are evaluated more positively than others. The

theory assumes, furthermore, that people use different standards for making inferences about others' abilities depending on the social status of their group. Due to status generalisation processes, members of low-status groups, such as ethnic minorities or low socioeconomic status individuals, might be judged by a stricter standard than high-status individuals (Correll and Ridgeway, 2006; Grow et al., 2016; Ridgeway, 1991). Therefore, members of disadvantaged minorities and social groups might be evaluated as less competent than members of the majority or more advantaged social groups, even with the same level of performance (Foschi, 2000; Grunspan *et al.*, 2016). Put differently, minority students might have to provide better performance than majority students to be perceived as similarly competent. Empirical studies suggest that status generalisation processes occur in educational settings as well (Cohen and Lotan, 1995; Correll and Ridgeway, 2006).

Due to the existence of widespread stereotypes about Roma people (Kende *et al.*, 2021) and the low social status of the Roma communities in Hungary and other European societies, both theoretical approaches lead to the same hypothesis: I expect that *teachers perceive Roma minority students to be less smart than equally competent non-Roma majority students.*

The context of the present study

The present study focuses on homeroom teachers' ability attributions towards Roma and non-Roma Hungarian primary school students. The Roma constitute one of the largest ethnic minorities in Europe (O'Nions, 2016) and the largest one in Hungary. Similar to several other ethnic minority groups, Roma students lag behind majority students in terms of academic achievement and educational attainment (Fehérvári, 2023; FRA, 2018; Hajdu *et al.*, 2018; Kertesi and Kézdi, 2011) and receive lower grades from their

teachers than majority students, even if they have comparable standardised achievement scores (Kisfalusi *et al.*, 2021).

I use a unique database to investigate the ethnic differences in teachers' ability attributions. In a study conducted among students and teachers in Hungarian primary schools, survey data were collected about how homeroom teachers perceive several characteristics of the students in their class, such as being clever and smart, hardworking, or a "good student". These survey data have been merged with administrative data on students' standardised achievement scores in reading and mathematics. The achievement tests are evaluated anonymously by teachers not teaching the given students; therefore, homeroom teachers were not aware of the results when completing the survey questionnaire.

The main assumption of the study is that standardised achievement scores capture students' cognitive skills and competences well. I argue that this assumption holds because standardised achievement tests aim to measure students' acquired subject knowledge on the one hand and how they can use the learned competences on the other hand. It is important to note, furthermore, that the study did not measure teachers' explicit or implicit stereotypes about the Roma in general. Instead, it measured the ability attributions of teachers towards each student in their class. Controlling for students' test scores, I can test for the presence of ethnic biases in these attributions (for a similar approach, see, for instance Campbell, 2015). The main advantages of this approach are that the answers are less prone to social desirability bias than explicit measures of stereotypes and that it shows whether biases in teachers' ability attributions really affect their own students. The disadvantage is that ethnic biases measured in this way do not unambiguously identify teachers' ethnic stereotypes but might result from biased ability attributions based on other characteristics that are correlated with

students' ethnicity. Nevertheless, I can control for the most important potential confounders: students' socioeconomic status and cultural resources.

Besides testing the proposed hypothesis, I also investigate whether homeroom teachers are less likely to perceive Roma students as hardworking and being "a good student" than non-Roma students with similar standardised achievement scores. Unfortunately, since the database does not contain information on students' efforts and actual classroom behaviour, I cannot test whether teachers' perceptions about students' efforts are biased. Nevertheless, if teachers perceive that Roma students put less effort into their studies, this might provide an alternative explanation for why their grades are lower than that of equally competent majority students.

Data and Methods

Participants

The data stem from the fourth and sixth waves of a six-wave long panel study conducted among students and their homeroom teachers in Hungarian primary schools. The study aimed to investigate students' peer relations and educational outcomes. Schools with a high share of Roma students were overrepresented in the sample. Initially, 63 classes from 35 schools participated in the first wave of the data collection, when participants started the fifth grade. Students were followed until Grade 8, the final year of primary education. The schools were located in the central part of Hungary, including the capital city (N=6), other towns (N=9), and villages (N=20). The number of classes decreased over time because some of the classes dropped out of the study, while some have been merged due to small class sizes. A detailed description of the sampling procedure can be found in Kisfalusi (2018).

The study has been performed in a way that is consistent with the ethical standards articulated in the 1964 Declaration of Helsinki and its subsequent amendments and Section 12 ("Informed Consent"). All participating teachers, students, and their parents gave their informed consent to take part of the study (96.9%). They also agreed to merge survey responses with their standardised test scores. Students and teachers were assured that their answers were kept confidential and were used for research purposes exclusively. Permission for the study was also granted by the ministerial agency that served as the maintainer of the schools. Research institutes in Hungary did not require institutional review-board permission for this type of research at the start of data collection (2013).

In the current study, I focus on the teacher questionnaires and students' test scores. In every wave of the data collection, homeroom teachers were asked to report what they thought about their students' characteristics. Specifically, they were presented with the list of the students attending their class and were asked to indicate whom they considered to be smart, hardworking, a "good student", and so on.

The fourth and sixth waves of the survey data were registered in the spring semesters of Grades 6 and 8 and were merged with administrative data on students' blind standardised test scores. The test scores stem from the National Assessment of Basic Competences (NABC), a standardised achievement test similar to the PISA test administered among every sixth-, eight-, and tenth-grade student in the country. NABC measures students' competences in reading and mathematics. The test is evaluated

centrally and anonymously; therefore, teachers and students are not aware of the results before the end of the school year[2].

Classes and students with missing data on test scores were dropped from the analysis[3]. Furthermore, classes without a completed homeroom teacher questionnaire were dropped as well. This resulted in a sample of 604 students from 34 classes in Grade 6 and 420 students from 27 classes in Grade 8. The number of students in the specific regression analyses can deviate from this number due to missing data in the different operationalisations of the ethnicity variable (see the next section). Descriptive statistics about the Grade 6 and Grade 8 samples can be found in Table I.

[Table I]

Variables

Ability attributions. In both Grades 6 and 8, homeroom teachers were presented with a list of all students in their class and were asked to indicate whom they consider to be smart, clever. Thus, a dummy variable indicates whether the homeroom teacher reported the given student to be smart. This is the main dependent variable.

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[2] NABC tests are carried out in May and the evaluation takes several months. Those who know the unique identifier of the student (the student and the school) can access the test scores of the student after the evaluation is finished.

[3] Some school principals did not agree to merge NABC test scores with the survey data in their schools. In other schools, individual students' test scores are missing if students were absent on the day of the test. Furthermore, most students with special educational needs are not required to complete the test.

Perceived effort. I use two alternative dependent variables. First, a dummy variable indicates whether the homeroom teacher reported the given student to be hardworking. Second, a dummy variable indicates whether the homeroom teacher reported the given student to be a "good student".

Ethnicity. Students' ethnicity is operationalised in different ways. First, in both Grades 6 and 8, students were asked whether they identified themselves as Hungarian, Roma, both Hungarian and Roma, or other. Students who identified as Roma or both Hungarian and Roma in the given wave are coded as Roma; otherwise, they are coded as non-Roma. This variable is used in the main analysis. Second, students who identified as Roma or both Hungarian and Roma at least once during the six waves are coded as Roma; otherwise, they are coded as non-Roma. Third, homeroom teachers were asked to indicate which students they considered to be Roma. A dummy variable indicates whether the homeroom teacher perceived the student to be Roma in the given wave. The two latter operationalisations are used in robustness checks.

Test scores. The main control variables are the standardised blind test scores in reading and mathematics. Test scores are standardised with a mean of 0 and a standard deviation of 1.

Gender. Females are coded as 1.

Socioeconomic status. Students' socioeconomic status is captured by three variables: the mother's highest education, the father's highest education, and a variable indicating the socioeconomically disadvantaged status of the family. These variables are used as categorical variables, with a separate category for missing values.

Cultural resources. Students' cultural resources are captured by the number of books the family has at home. It is measured as a categorical variable, with a separate category for missing values.

Table II presents the mean values of the outcome variables and alternative operationalisations of ethnicity, and their associations with self-declared ethnicity. [Table II]

Analytical Strategy

For each outcome, I estimate the following linear probability model:

$$Y = \beta_0 + \beta_1 \times Roma + \beta_2 \times test\ score + \beta_3 \times X + \theta_c + \epsilon \quad \text{(EQ1)}$$

where *Y* is the outcome variable measuring whether students are perceived to be 1) smart, 2) hardworking, 3) a "good student"; *Roma* is a dummy variable for students' ethnicity; *test score* captures the standardised test scores in reading and mathematics; *X* is a vector of student-level control variables; and θ_c represents class fixed effects. By controlling for test scores and including class fixed effects, I compare homeroom teachers' ability attributions towards Roma and non-Roma students with similar competences and attending the same class. β_1 is the coefficient of interest and represents whether Roma students are perceived to be less smart (hardworking, a "good student") than equally competent non-Roma students. Standard errors are clustered at the class level.

Research Transparency

The data and the analytic scripts have been archived on the project's page on the Open Science Framework: https://osf.io/nja8y/

Results

Model 1 in Table III shows that in Grade 6, self-declared Roma students are 11 percentage points less likely to be perceived as smart by their homeroom teachers than

their non-Roma classmates with similar standardised achievement scores. This is in line with the proposed hypothesis. On the other hand, Models 3 and 5 show that there is no significant ethnic difference in being perceived as hardworking or a "good student". As Model 2 shows, the ethnic gap in being perceived as smart substantially decreases and is not significant after controlling for students' socioeconomic status and cultural resources. In fact, socioeconomic status and the number of books the family has at home are more strongly related to being perceived as smart than students' ethnicity. Socioeconomically disadvantaged students and students who only have a few books at home are less likely to be perceived as smart with similar test scores than higher-status students and students who have more books at home. Similar associations are found for being perceived as hardworking and a "good student". In addition, female students are more likely to be perceived as hardworking and being "good students" than equally competent male students.

[Table III]

Rows 1-2 in Table V show the results of the robustness checks with alternative operationalisations of ethnicity. The ethnic gaps in ability attribution are larger in these cases: 14 percentage points for students who are perceived as Roma by the homeroom teacher and 17 percentage points for students who identified as Roma at least once during the six waves of data collection. Moreover, this latter group is perceived as less smart than their equally competent classmates who never identified as Roma even after controlling for socioeconomic status and cultural resources.

However, Model 1 in Table IV shows that in Grade 8, the ethnic gap in ability attributions is half of the gap observed in Grade 6 and is not significant anymore. Again, cultural resources and socioeconomic status – in this case, the father's education – seem to be more important predictors of being perceived as smart, controlling for test scores.

Robustness checks with different operationalistaions of ethnicity show similar results. On the other hand, similar to the associations found in Grade 6, there are no ethnic gaps in being perceived as hardworking and a "good student". In Grade 8, female students are more likely to be perceived as smart, hardworking, and being "good students" than equally competent male students.

[Table IV]

Next, I examine whether the difference between the Grade 6 and Grade 8 results arises because the Grade 6 and Grade 8 samples differ from each other: some classes and students who participated in Grade 6 dropped out of the sample. The middle rows in Table V show the ethnic gaps estimated for the Grade 6 data, but restricting the sample to those students only who also participated in the Grade 8 data collection. Using this subsample, there is no significant ethnic gap in Grade 6 ability attributions, if students' self-declared ethnicity is taken into account. However, students who are perceived as Roma by the homeroom teacher and students who self-identified as Roma at least once during the data collection are perceived as less smart than equally competent non-Roma students even in this subsample. This suggests that the composition of the Grade 6 and Grade 8 samples differ indeed, but this does not explain entirely why the ethnic gaps are smaller and not significant in Grade 8 ability attributions.

[Table V]

Alternative explanations might be that over time, ability attributions become more accurate in the case of Roma students or that more competent Roma students are more likely to self-identify and be perceived as Roma in Grade 8 than in Grade 6. To test these explanations, I estimated longitudinal fixed effects models for those students who participated in both waves (not reported in the tables). These models show that changes in Roma students' self-identifications, changes in teachers' ethnic perceptions,

and changes in test scores are not related to changes in ability perceptions. Furthermore, there is no significant interaction between ethnicity and test scores. This suggests that these alternative explanations cannot explain the difference between the Grade 6 and Grade 8 results, either.

Conclusion and discussion

This study examined ethnic biases in homeroom teachers' ability attributions in Hungarian primary schools. I have found that in Grade 6, Roma students are less likely to be perceived as smart by their homeroom teachers than their non-Roma classmates with similar standardised achievement scores. In a smaller sample in Grade 8, however, the ethnic difference is smaller and not statistically significant. I have also found that homeroom teachers perceive Roma students to be similarly hardworking and "good students" than equally competent non-Roma students. This suggests that teachers perceive Roma students' efforts to be similar to that of non-Roma students with similar achievements. Overall, the findings suggest that previously found differences between equally competent Roma and non-Roma students' teacher-given school grades (Kisfalusi *et al.*, 2021) might arise due to biases in ability attributions rather than differences in perceived efforts.

The ethnic difference in being perceived as smart is substantially reduced after controlling for students' socioeconomic status and cultural resources. This suggests that biases in ability attributions are related to students' social class more than to their ethnicity: the ethnic gap arises because Roma students' socioeconomic and cultural resources are lower, on average, than those of non-Roma students. Thus, in line with previous empirical studies (Ready and Chu, 2015; Ready and Wright, 2011), it seems

that stereotypes and double standards do not only affect Roma minority students specifically but students with low socioeconomic status more generally.

The findings have important practical implications. Teacher expectations that rely on perceived abilities and skills have been found to influence students' academic achievement and motivations (van den Bergh *et al.*, 2010; Gentrup *et al.*, 2020; Jussim and Harber, 2005). Ethnic minority and low socioeconomic status students are particularly susceptible to teacher expectancy effects (Jussim and Harber, 2005; McKown and Weinstein, 2002). If teacher expectations rely on biased ability perceptions, the choice of curriculum and the difficulty of instruction might not be similarly appropriate for all students in a class (Denessen *et al.*, 2022). Teachers' ability attributions might therefore play an important role in the educational achievement gap. Interventions and education programmes addressing biases in teachers' ability attributions might foster equal opportunities in education.

The study is not without limitations. The sample of the study does not represent the entire Roma and non-Roma student population in Hungary. Schools with a high proportion of low-status and Roma students were overrepresented in the sample, and only schools from the central part of Hungary participated in the study. The characteristics of the Roma population living in other areas and the characteristics of their teachers might be different from those of Roma students and their teachers included in the sample (Kemény *et al.*, 2004). Despite this limitation, this study highlighted an important mechanism that can contribute to educational inequalities. It is important to make teachers aware of potential biases in student assessment and evaluation.

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Table I. Descriptive statistics of the sample

	Grade 6	Grade 8
Number of students	604	420
Number of classes	34	27
Self-declared Roma (%)	31.2	31.5
Perceived as Roma by the homeroom teacher (%)	30.1	26.2
Female (%)	48.7	49.5
Mother's highest education (%)		
Primary or lower	18.2	16.4
Vocational	22.4	22.9
Upper secondary	13.9	24.1
Tertiary	26.7	22.6
Missing	18.9	14.1
Father's highest education (%)		
Primary or lower	15.4	13.3
Vocational	27.8	32.6
Upper secondary	13.4	21.9
Tertiary	22.0	15.7
Missing	21.4	16.4
Socio-economically disadvantaged (%)	26.7	20.0
Number of books at home		
Less than one shelf	21.7	17.4
One shelf	13.9	14.3
2-3 shelves	14.4	15.5
4-6 shelves	9.9	9.8
2 cabinets	8.1	8.3
3 cabinets	7.2	10.0
More than 1000 books	8.8	7.6
Missing	15.9	17.1
Age	13.0 (0.8)	14.9 (0.6)

Source: Author's own work

Table II. Mean values of the outcome variables and alternative operationalisations of ethnicity, and their associations with self-declared ethnicity

	self-declared Roma	self-declared non-Roma	Total	N
Perceived as Roma by the homeroom teacher, grade 6	0.81	0.07	0.30	604
Perceived as Roma by the homeroom teacher, grade 8	0.77	0.03	0.26	420
Self-identified as Roma at least once during the six waves, grade 6	1.00	0.14	0.41	594
Self-identified as Roma at least once during the six waves, grade 8	1.00	0.06	0.37	413
Smart, clever, grade 6	0.23	0.53	0.43	604
Smart, clever, grade 8	0.30	0.60	0.49	420
Hardworking, grade 6	0.21	0.37	0.31	604
Hardworking, grade 8	0.18	0.40	0.32	420
„Good student", grade 6	0.19	0.39	0.32	604
„Good student", grade 8	0.20	0.43	0.35	420
Math score, grade 6 (SD)	-0.33 (0.89)	0.28 (1.00)	0.08 (1.00)	604
Math score, grade 8 (SD)	-0.65 (0.88)	0.29 (0.86)	0.01 (0.99)	420
Reading score, grade 6 (SD)	-0.55 (0.82)	0.30 (0.98)	0.05 (1.02)	604
Reading score, grade 8 (SD)	-0.70 (0.91)	0.36 (0.87)	0.02 (1.01)	420

Note: All ethnic differences are statistically significant at the $p<0.001$ level.

Source: Author's own work

Table III. Teachers' ability attributions in Grade 6

	(1) Smart, clever	(2) Smart, clever	(3) Hardworking	(4) Hardworking	(5) „Good student"	(6) „Good student"
Roma	-0.108*	-0.031	0.008	0.062	-0.020	0.039
	(0.049)	(0.057)	(0.052)	(0.047)	(0.043)	(0.046)
Math score	0.093**	0.082**	0.105**	0.121**	0.141***	0.144***
	(0.028)	(0.027)	(0.033)	(0.034)	(0.028)	(0.029)
Reading score	0.212***	0.184***	0.158***	0.117**	0.213***	0.173***
	(0.028)	(0.030)	(0.036)	(0.038)	(0.026)	(0.028)
Female		0.056		0.146**		0.109***
		(0.037)		(0.045)		(0.029)
Mother's highest education (ref.: primary or less)						
Vocational		-0.043		-0.003		-0.032
		(0.060)		(0.072)		(0.052)
Upper secondary		-0.055		0.003		-0.018
		(0.067)		(0.089)		(0.067)
Tertiary		0.001		0.077		0.006
		(0.063)		(0.070)		(0.064)
Missing		-0.017		-0.011		-0.109*
		(0.079)		(0.072)		(0.052)
Father's highest education (ref.: primary or less)						
Vocational		0.036		0.039		0.029
		(0.064)		(0.066)		(0.068)
Upper secondary		0.154+		0.061		0.040
		(0.078)		(0.085)		(0.090)
Tertiary		0.092		-0.023		0.005
		(0.074)		(0.083)		(0.072)
Missing		0.014		0.067		0.038
		(0.068)		(0.071)		(0.064)
Socio-economically disadvantaged		-0.117+		-0.135*		-0.151**
		(0.060)		(0.056)		(0.045)
Number of books at home (ref.: fewer than one shelf)						
One shelf		0.042		0.102*		0.085+
		(0.051)		(0.046)		(0.047)
2-3 shelves		0.093+		0.036		0.106+
		(0.050)		(0.061)		(0.053)
4-6 shelves		0.175**		0.019		0.146*
		(0.061)		(0.060)		(0.067)
2 cabinets		0.201**		0.042		0.133+
		(0.061)		(0.083)		(0.068)
3 cabinets		0.093		0.038		0.161+
		(0.097)		(0.088)		(0.090)
More than 1000 books		0.131*		0.194*		0.154*
		(0.049)		(0.082)		(0.070)

Missing		-0.010		0.016		0.043
		(0.079)		(0.069)		(0.043)
Constant	0.456***	0.326***	0.302***	0.155+	0.316***	0.199**
	(0.016)	(0.059)	(0.016)	(0.079)	(0.014)	(0.063)
Observations	554	554	554	554	554	554
R-squared	0.310	0.356	0.199	0.251	0.364	0.406
Number of classes	34	34	34	34	34	34

Notes: Regression estimates from linear probability models. The dependent variables show whether the homeroom teacher perceives the student to be smart, clever; hardworking; or a "good student". All models include class fixed effects. Math score and reading score are standardized achievement scores with a mean of 0 and a standard deviation of 1. Standard errors clustered at the class level are in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Source: Author's own work

Table IV. Teachers' ability attributions in Grade 8

	(1) Smart, clever	(2) Smart, clever	(3) Hardworking	(4) Hardworking	(5) „Good student"	(6) „Good student"
Roma	-0.051	0.091	-0.079	-0.050	-0.118	0.028
	(0.058)	(0.065)	(0.055)	(0.088)	(0.070)	(0.082)
Math score	0.180***	0.182**	0.084+	0.120**	0.180***	0.199***
	(0.046)	(0.057)	(0.043)	(0.039)	(0.035)	(0.038)
Reading score	0.131**	0.102+	0.173***	0.119**	0.122**	0.066
	(0.043)	(0.051)	(0.033)	(0.036)	(0.036)	(0.044)
Female		0.115*		0.225***		0.197***
		(0.054)		(0.056)		(0.035)
Mother's highest education (ref.: primary or less)						
Vocational		0.005		0.029		-0.052
		(0.066)		(0.069)		(0.074)
Upper secondary		0.050		0.124		-0.046
		(0.086)		(0.083)		(0.081)
Tertiary		0.075		0.136		0.007
		(0.084)		(0.089)		(0.096)
Missing		0.041		0.091		-0.093
		(0.113)		(0.118)		(0.146)
Father's highest education (ref.: primary or less)						
Vocational		0.197**		-0.182+		0.031
		(0.057)		(0.097)		(0.079)
Upper secondary		0.167+		-0.193+		0.078
		(0.086)		(0.101)		(0.083)
Tertiary		0.107		-0.154		0.038
		(0.102)		(0.126)		(0.076)
Missing		0.167+		-0.160		0.128
		(0.094)		(0.145)		(0.109)
Socio-economically disadvantaged		-0.043		-0.042		-0.199*
		(0.091)		(0.084)		(0.080)
Number of books at home (ref.: fewer than one shelf)						
One shelf		0.091		0.093		0.167**
		(0.083)		(0.081)		(0.059)
2-3 shelves		0.105		-0.028		0.080
		(0.080)		(0.074)		(0.067)
4-6 shelves		0.112		0.090		0.230*
		(0.081)		(0.101)		(0.087)
2 cabinets		0.164+		0.137		0.215**
		(0.095)		(0.090)		(0.074)
3 cabinets		0.222*		0.108		0.194**
		(0.090)		(0.103)		(0.061)
More than 1000 books		0.271*		-0.010		0.154
		(0.115)		(0.101)		(0.097)

Missing		0.137+		0.048		0.059
		(0.078)		(0.080)		(0.082)
Constant	0.516***	0.125+	0.350***	0.262*	0.392***	0.146
	(0.019)	(0.068)	(0.018)	(0.109)	(0.022)	(0.100)
Observations	365	365	365	365	365	365
R-squared	0.287	0.343	0.213	0.306	0.279	0.361
Number of classes	27	27	27	27	27	27

Notes: Regression estimates from linear probability models. The dependent variables show whether the homeroom teacher perceives the student to be smart, clever; hardworking; or a "good student". All models include class fixed effects. Math score and reading score are standardized achievement scores with a mean of 0 and a standard deviation of 1. Standard errors clustered at the class level are in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Source: Author's own work

Table V. Robustness checks with different operationalisations of ethnicity

	(1) Smart, clever	(2) Smart, clever	(3) Hardworking	(4) Hardworking	(5) „Good student"	(6) „Good student"
Grade 6						
Perceived as Roma by the homeroom teacher in Grade 6	-0.137**	-0.049	-0.037	0.041	-0.074	-0.003
	(0.041)	(0.042)	(0.051)	(0.059)	(0.046)	(0.054)
Self-identified as Roma at least once during the 6 waves	-0.170***	-0.118*	-0.070	-0.027	-0.042	0.017
	(0.039)	(0.046)	(0.043)	(0.044)	(0.041)	(0.043)
Grade 6, restricted to students also participating in Grade 8						
Self-declared Roma in Grade 6	-0.033	0.054	0.008	0.075	-0.029	0.033
	(0.077)	(0.089)	(0.067)	(0.067)	(0.064)	(0.052)
Perceived as Roma by the homeroom teacher in Grade 6	-0.150*	-0.042	-0.020	0.057	-0.073	0.015
	(0.058)	(0.062)	(0.070)	(0.067)	(0.064)	(0.056)
Self-identified as Roma at least once during the 6 waves	-0.137**	-0.074+	-0.115*	-0.070	-0.056	0.003
	(0.042)	(0.044)	(0.048)	(0.050)	(0.058)	(0.057)
Grade 8						
Perceived as Roma by the homeroom teacher in Grade 8	-0.075	-0.011	0.007	0.038	-0.135+	-0.022
	(0.081)	(0.078)	(0.052)	(0.075)	(0.071)	(0.084)
Self-identified as Roma at least once during the 6 waves	-0.065	0.027	-0.068	-0.031	-0.113+	0.011
	(0.041)	(0.043)	(0.058)	(0.076)	(0.062)	(0.064)
Control variables	No	Yes	No	Yes	No	Yes

Notes: Regression estimates from linear probability models. The estimates stem from different models. The dependent variables show whether the homeroom teacher perceives the student to be smart, clever; hardworking; or a "good student". All models include class fixed effects. Math score and reading score are standardized achievement scores with a mean of 0 and a standard deviation of 1. Standard errors clustered at the class level are in parentheses. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Source: Author's own work