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DP15784

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in Schools: The Role of Teacher's Ethnic
Prejudice**

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Discussion Paper DP15784
Published 08 February 2021
Submitted 07 February 2021

Centre for Economic Policy Research
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www.cepr.org

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Abstract

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JEL Classification: I24, J15

Keywords: Teacher effects, ethnic prejudice, social exclusion, ethnic segregation

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Acknowledgements

We are grateful to IPA Peace and Recovery, J-PAL Crime and Violence and Post-Primary Education Initiatives for funding the data collection. The project has ethics approvals from the University of Essex, UK and Bilkent University, Turkey. We thank Simon Burgess, Ernst Fehr and David Jaeger, participants at University of Zurich, CESifo Labor Seminar series, University of St Andrews, Ca' Foscari University of Venice, and 2020 IZA Workshop: The Economics of Education. We are grateful to Mert Gumren, Ozge Seyrek, Melek Celik and Yusuf Agus for their invaluable field and research assistance. All errors are our own.

Social Exclusion and Ethnic Segregation in Schools: The Role of Teacher's Ethnic Prejudice*

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January 2021

Abstract

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1 Introduction

Ethnic prejudice and stereotypes are the root causes of ethnic tensions and conflicts worldwide (Arbatli et al., 2020). These harmful beliefs easily breed in ethnically diverse environments and tend to take hold in difficult sociopolitical contexts. In a world with growing anti-immigrant sentiments reinforced by massive population movements, understanding how ethnic biases shape our social interactions with the members of out-groups is crucial to building empowered and cohesive communities. Ethnically mixed schools represent an ideal setting to study the development of ethnic biases and the formation of inter-ethnic relationships. While schools play an important role in building inter-ethnic cohesion, ethnically diverse schools, especially in socioeconomically disadvantaged settings, are susceptible to ethnicity-based conflicts, acts of social exclusion, and inter-group violence (Gradstein and Justman, 2002).¹ Students belonging to minority groups are generally at a higher risk of falling victim to these actions.

This paper examines how the school environment shapes young children’s inter-ethnic relationships. Our focus is the role of teachers, in particular, teachers’ implicit bias toward a minority group, in determining the nature of social ties formed among students. Teachers’ implicit bias against a minority group may manifest itself as discriminatory behaviors, ranging from poor quality teacher-pupil interactions and neglect to outright unfair treatment of minority students, such as biased grading and disproportionate reprimanding (Burgess and Greaves, 2013, Alesina et al., 2018). Teachers’ behaviors and attitudes toward ethnicity can implicitly guide students’ socialization choices. Teachers who hold prejudicial attitudes toward an ethnic group may consciously or unconsciously prevent students from forming inter-ethnic friendships, creating segregated classrooms where minority students tend to be socially and spatially excluded. Research shows that socially excluded minority children are more likely to engage in self-defeating behavior, reinforcing further social exclusion, and weaker inter-ethnic interactions (Buhs et al., 2006, Verkuyten and Thijs, 2016).

We leverage an ideal setting to identify the causal link between teachers’ ethnic prejudice

¹Research on the effects of ethnic school composition on students’ inter-ethnic relations produces mixed results. As a prominent approach, inter-group contact theory predicts considerable social and private benefits of integrated schools (see, e.g. Allport, 1954, Paluck et al., 2019). From a broader perspective, diversity has been shown to contribute to greater creativity and production in a society (Ottaviano and Peri, 2012). On the other hand, costs of ethnic diversity include deteriorating trust and social solidarity (Putnam, 2007), higher levels of conflict (O’Reilly III et al., 1998), lower provision of public goods (Alesina and Ferrara, 2005) and less support for redistributive policies (Dahlberg et al., 2012).

and students' inter-ethnic relationships. Our study site, Turkey, has received over 4 million refugees since the start of the Syrian Civil War in 2011. About 1 million of these refugees are school-aged children. As part of a multi-partnered EU initiative launched in 2016, the Turkish Ministry of Education has been placing refugee children in state schools based on their registered addresses. The study site provides us with a setting where i) the ethnic composition in schools changed due to a massive refugee influx and an active school placement program, ii) conditional on school, both host and refugee students were assigned to classrooms (teachers) randomly, and iii) we collect data from students and teachers in previously unavailable details. Our data set covers over 5000 2nd, 3rd, and 4th-grade primary school students and their teachers from 73 schools. About 13% of the students in our sample are refugees.

The literature on social networks offers powerful tools to study social interactions ([Jackson, 2008](#)). We utilize these tools to construct our outcome variables. Our primary outcomes are indicators of social exclusion of refugee students and ethnic segregation in classrooms. To construct these indicators, we elicit students' social networks within their classrooms. Specifically, students are asked to list the classmates i) they consider as their friends, ii) to whom they provide emotional and academic support, and iii) from whom they receive emotional and academic support, allowing the natural overlaps between these categories. Using the reported social ties, we construct student (node)-level measures of social exclusion and the degree of inter-ethnic interactions. We also construct classroom level measures (indices) of homophily.² In our case, the host (refugee) homophily in a classroom concerns the above-expected numbers of social ties amongst the host students (refugee students) and gives us a measure of ethnic segregation in the classroom.

We measure teachers' ethnic bias using an Implicit Association Test (IAT), developed by [Greenwald et al. \(1998\)](#). The IAT aims to measure implicit attitudes toward a group using the difference in reaction times when individuals are asked to relate a group-specific concept to a negative or a positive attribute. Because it is hard to game, the test is considered free from social desirability bias inherent in surveys on socio-politically sensitive topics. In recent years, the IAT has been used extensively in economics research in the context of gender and ethnic discrimination in schools (see, e.g. [Alesina et al., 2018](#), [Carlana, 2019](#)), ethnic discrimination at workplace ([Glover et al., 2017](#)), gender discrimination in leadership positions ([Beaman](#)

²Homophily, a term coined by [Lazarsfeld and Merton \(1954\)](#), refers to a tendency to interact exclusively with the members of own group.

et al., 2009), and measuring ethnic bias in the lab (Berge et al., 2020). Even though the test captures the degree of implicit ethnic bias in teachers, it is likely to be confounded with various other teacher characteristics. To the extent that these characteristics are also predictive of the outcomes we are interested in, our estimated effects would be biased. The differential impacts of the measured implicit bias on hosts and refugee children help mitigate some of these concerns. Nevertheless, to control as many possible confounds as possible to isolate the effect of teacher’s ethnic bias, we collect detailed data from teachers. These include previously unavailable characteristics, such as teachers’ fluid cognitive ability, measured by Raven’s Progressive Matrices (Raven et al., 2004), and cognitive empathy, measured by Reading the Mind in the Eyes test (Baron-Cohen et al., 1997). In addition to standard demographic information and qualifications, we also collect detailed information to construct teaching styles, pedagogical practices, and motivation.

We first document that refugee students have significantly fewer social ties than host students. They have fewer friends and classmates who support them emotionally and academically. While host students receive, on average, 2.30 friendship nominations, refugee students receive only 1.34 nominations. Considering that they arrived in their classrooms much later than their host classmates, this finding is not surprising. However, we find that teachers’ ethnic bias significantly lowers the number of social ties enjoyed by refugee students. In classrooms where teachers have a stronger ethnic bias, refugee students are more likely to be socially excluded, i.e., they have fewer friends and fewer classmates who provide them emotional and academic support. For example, we find that a one standard deviation increase in teacher’s ethnic bias score leads to 0.24 (18%) fewer friendship ties enjoyed by a refugee student.

We also estimate a significant effect of teacher bias on the degree of homophilic ties amongst host students. At the individual level, we find that as the teacher’s ethnic bias increases, the number of friendship nominations extended from host students to refugee students decreases. In contrast, the number of friendship nominations extended from host students to host students increases significantly. This finding also emerges in our analysis of classroom level homophily. We find that teachers who have a stronger ethnic bias create more ethnically segregated classrooms, measured as excessive numbers of homophilic social ties. Consistently with Currarini et al. (2009), we observe this excess homophily only among host students. A one standard deviation increase in the teacher’s ethnic bias increases friendship homophily among host students by about 13%.

We show that refugee students who are exposed to ethnically biased teachers face a higher risk of peer violence and bullying. We find that a one standard deviation increase in teacher’s ethnic bias score leads to 5 percentage point increase in bullying reported by refugee students, with a precise null effect on host students. Exposure to the acts of social exclusion and victimization is likely to slow refugee students’ progress in learning the host country’s language. This, in turn, is likely to have a detrimental impact on their learning outcomes. Corroborating this conjecture, we find that teachers’ ethnic bias has a significantly negative impact on refugee children’s verbal ability in the host country’s language. Specifically, a one standard deviation increase in the teacher’s ethnic bias score lowers refugee students’ Turkish test scores by 0.14 standard deviations. The estimated effect on mathematics test scores is also negative and economically significant (0.07 standard deviation), but does not reach statistical significance. We estimate precise null effects on host students’ achievement scores.

Our data allow us to rule out a reverse causality mechanism whereby refugee children’s behavioral conduct influences their teacher’s implicit bias as well as their relationships with their host classmates. To do this, we leverage the timing of our data collection and show that teachers’ ethnic bias is insensitive to the duration of their exposure to refugee children in their classrooms. We also show that teachers’ ethnic bias bears no relation to their assessment of refugee students’ behavioral conduct. Specifically, we find no evidence suggesting that refugee children are more violent or more anti-social than host children. Strikingly, we find that even biased teachers do not assign bad behavior grades to refugee children, suggesting that these children tend to behave well in their new schools. We then explore whether our results can be explained by the internalization of teachers’ exclusionary classroom practices by students. Research shows that students who have good relationships with their teachers are more likely to be accepted by their classmates (see, e.g. [Hughes et al., 2001](#), [Skinner and Belmont, 1993](#), [Birch and Ladd, 1997](#)). We find strong evidence that supports this mechanism. Students who are perceived as the teacher’s favorites enjoy more friendship ties in our data, and refugee students are much less likely to enjoy such status in classrooms with biased teachers. In these classrooms, refugee students are likely to be spatially segregated and often seated at the back corners of the classroom, away from the teacher’s attention. We also find some evidence that teachers transmit their ethnic attitudes to refugee children, possibly making them self-conscious about their own ethnicity.

Our contribution in this paper is twofold. First, to the best of our knowledge, this is the first paper that shows how teachers’ implicit attitudes toward an ethnic minority group

shape students' social networks, particularly their inter-ethnic relationships. Our setting allows us to identify this relationship causally by exploiting a natural experiment generated by a massive refugee crisis and the way a school placement policy is implemented by the host country. The second contribution pertains to the quality of our data. Because there is no secondary data available to answer the questions we pose in this paper, we collected detailed primary data from children and teachers using a diverse toolkit. Our data allow us to i) construct multiple measures of social exclusion and ethnic segregation by utilizing the tools of social network theory, ii) control for previously unavailable teacher characteristics that may confound our ethnic bias measure, and iii) explore mechanisms through which teachers' ethnic bias might influence students' inter-ethnic relationships.

Our paper complements several strands of literature. A number of papers test the inter-group contact theory and show that prejudice toward out-groups may dissipate as intergroup relationships are allowed to take hold (e.g. [Allport, 1954](#), [Boisjoly et al., 2006](#), [Putnam, 2007](#), [Paluck and Green, 2008](#), [Rao, 2019](#), [Lowe, 2020](#), [Mousa, 2020](#)). Contrary to the predictions of intergroup contact theory, the literature on integration and conflict shows that negative sentiments against newly encountered out-group members may lead to inter-group conflict (e.g. [Weiner, 1978](#), [Fearon and Laitin, 2011](#), [Bazzi et al., 2019](#)). By showing the factors that mediate the effects of inter-ethnic contact, our paper complements these studies. Our paper also fits in the literature that studies the effects of negative attitudes toward minorities on various outcomes. In the context of education, [Bergh et al. \(2010\)](#) show that the achievement gap between ethnic groups in schools can be explained by the teachers' ethnic bias. [Rosenthal and Jacobson \(1968\)](#), [Jussim and Harber \(2016\)](#) and [Gershenson et al. \(2018\)](#) document that teachers' biased expectations for minorities may become self-fulfilling. [Alesina et al. \(2018\)](#) further show that making teachers aware of their bias decreases biased grading. Additionally, our paper contributes to the line of research that strives to understand the role of teachers in shaping children's socio-emotional skills.³ Finally, by showing how social networks can be shaped and re-shaped via exogenous influences, we contribute to the empirical literature on social networks ([Marmaros and Sacerdote, 2006](#)).

Our results highlight the role of teachers in achieving integrated schools. They suggest that the type of teachers assigned to ethnically mixed schools may have a substantial impact on the nature of students' inter-ethnic relationships. The implication of our study for educa-

³There is now a sizeable literature that shows that interventions aiming at enhancing socio-emotional skills can be successful via intensive teacher training; see, e.g., [Alan et al. \(2019\)](#) and [Alan and Ertac \(2018\)](#).

tion policy is that selecting teachers carefully for ethnically diverse schools and offering them professional development opportunities for adopting inclusive classroom practices may go a long way in achieving cohesion in these schools and help build social capital in ethnically diverse communities (Alan et al., 2020).

The rest of the paper is organized as follows. Section 2 provides the background and the context for identification. Section 3 describes the data, the construction of our outcome measures, and the teacher’s ethnic bias score. Our results are presented and discussed in Section 4. We conclude in Section 5.

2 Background and Context for Identification

Our study site, Turkey, has received over 4 million refugees since the start of the Syrian Civil War in 2011. About 1 million of these refugees are school-aged children. As part of a multi-partnered EU initiative launched in 2016, most refugee camps in Turkey are now closed, and along with them, the temporary education centers, where refugee children were receiving remedial education. The current Turkish Ministry of Education (MoE) policy is to place all school-aged refugee children in state schools based on their registered address. School administrators are mandated to admit refugee children located in their catchment areas and, upon admission, distribute them to classrooms based only on their age.⁴ All refugee children lacked essential Turkish language ability when they first arrived in their new schools. School administrators are mandated to distribute newcomers to classrooms as evenly as possible to avoid overwhelming teachers. The objective of the school placement policy is to achieve faster integration through total immersion; therefore, schools are not allowed to open separate classrooms for the refugee students.⁵ The placement policy was fully activated in 2016-2017 academic year, with accelerated placements in Winter 2017.

In addition to the refugee placement program, our identification strategy is powered by the way Turkish teachers are appointed to state schools, and the way they are assigned to

⁴While mandated to place the children in grades based on their age, refugee children in a given grade are generally older than host children. This is because school officials tend to place them about 1 grade lower to facilitate better language learning.

⁵A new policy was announced in the summer of 2019 and allowed schools to open language preparation classes for refugee students who lacked proficiency in Turkish based on a nationwide language test. The opening of these classrooms is left to the discretion of the school administrators. Our sample period pre-dates this development.

classrooms within schools. After completing their degree requirements, teachers are placed in a pool to be appointed to a public school in need. A new teacher typically has no say in which school he/she will be appointed to.⁶ Currently, teachers may not ask to be re-appointed before completing at least four years (over six years in actual practice) of service in their current school. Requests to be re-appointed are honored if i) there is a school in need in the preferred city/district, and ii) the teacher has higher service points than her competitors who want the same location. The service points are accumulated based on years of service. As working in high-SES catchment areas is more desirable for teachers, there tends to be a high teacher turnover in low-SES district schools such as those in our sample. Even with a long tenure in the profession, it is extremely hard to be appointed to the generally desired (high-SES) districts. Teachers are often rotated involuntarily by the Ministry if they are no longer needed in their current schools.

Our focus in this study is primary schools. Turkish primary schools provide an ideal setting to explore the effect of teachers' ethnic prejudice on students' outcomes because of two reasons: First, except for the re-locations mentioned above, a primary school teacher teaches the students allocated to him/her from grade 1 to grade 4, after which students move to middle schools. School administrators are mandated to randomly allocate first graders to teachers through publicly held draws in the presence of parents. A primary school teacher spends considerable time with his/her pupils compared to a middle or high school branch teacher, so they are more likely to influence students' behaviors and attitudes. Second, the refugee school placement policy initially targeted primary schools. At the time of our data collection, very few refugee students were placed in middle or high schools.

Despite the institutional and contextual advantages of our study site, we face two threats to identification. First, our ethnic bias measure may be confounded by some teacher characteristics that may be relevant for predicting the student outcomes we consider. A notable example is teacher ability/quality. While not established in the literature, it is plausible that teacher quality may be relevant in shaping students' social skills and, therefore, peer interactions. In addition to ability, the ethnic bias measure may be confounded by the teacher's classroom practices (teaching styles) and teaching philosophy, which may also be relevant in determining the way social ties are formed amongst pupils. Concerned that these confounds may exist, we collected detailed data from teachers, including their fluid cognitive

⁶In practice, they have no say in which district and even which city they will eventually end up in. Teachers can refuse their placement, but this means giving up a public service job with relatively generous social security, which is rare.

ability (known as IQ) and cognitive empathy (known as emotional intelligence), teaching styles/pedagogical practices, and motivation. All our empirical analyses control for these characteristics in addition to standard teacher demographics and paper qualifications.

The second threat to our identification is possible reverse causality. If teachers' ethnic bias is influenced by their observation of refugee children's social skills and behavioral conduct, it would be difficult to give our findings a causal interpretation. For example, if refugee children tend to act in a manner considered anti-social, they may have a hard time forming friendship ties with host children and, observing such anti-social behaviors, teachers may form an unfavorable opinion about refugees and their country of origin. Note also that what is considered anti-social behavior can be culture-specific so that any unaccustomed act may easily be regarded as anti-social and reinforce ethnic prejudice. The opposite of this argument may also hold. A strongly biased teacher may update her views upon observing refugee students acting in ways contrary to her initial beliefs. In Section 3.6, we examine this issue extensively and provide evidence that reverse causality is unlikely to drive our results.

3 Data and Outcomes

Our data set is a sub-sample of combined baseline data collected as part of two independently run RCTs, implemented in the academic year of 2018-2019, in two Southeast provinces of Turkey, Sanliurfa, and Mersin. Baseline data we use in the paper were collected in April-May 2018 in Sanliurfa, at the end of the academic year, and October 2018 in Mersin, at the beginning of the academic year.⁷ These two provinces have received massive numbers of refugees since the start of the Syrian Civil War, and they have been part of the MoE's refugee placement program since its inception in 2016. Both RCTs include schools that are flagged as "socioeconomically disadvantaged" by the two provincial education authorities. The total number of schools for the RCT 1 and RCT 2 is 80 and 77, respectively, with no overlap. To answer the research question we pose in this paper, we exclude several schools from the original samples. First of all, as our paper focuses on primary school students and teachers, we exclude all middle schools from our sample (27 middle schools in RCT 2).

We apply a further selection criterion that helps us achieve a clean identification of the

⁷A regular academic year runs from mid-September to mid-June in Turkey. However, parents of many children in our schools, especially those of refugee children are seasonal workers who migrate to agricultural fields as day laborers, taking their children with them. These seasonal movements typically begin in May, and children return to school in October.

effect of teacher’s bias. While there is generally no room for parents to choose their children’s teachers in the state system, we were informed that some parents might pressure the administrators for their children to be assigned to a particular teacher in practice. Parents usually prefer older and experienced teachers. These are also teachers who are more likely to be working in schools that they prefer due to the high service points they accumulated. Parental involvement is rare in the socioeconomic segment our sample represents. Nevertheless, in addition to the statements from headteachers, we collected detailed testimonies from teachers about how, in practice, host and refugee children were assigned to teachers by their school administrators. Using these testimonies, we apply a stringent selection criterion and select schools in which all students are randomly allocated to teachers, with no influence from parents. After this selection, we also exclude 28 teachers who had not yet received refugee students. At the time of our data collection, the MoE’s refugee placement efforts were gaining momentum. While all schools in both aforementioned RCTs were (and still are) part of the MoE’s placement program, they received students at different intensity overtime. In a matter of a single academic year after our data collection, all public schools in our sample received several waves of refugee influx.

Our final sample covers over 5000 2nd, 3rd and 4th-grade students and 192 teachers from 73 primary schools. About 13% of our sample consists of refugee students. We collected our data by physically visiting all schools and spending over three lecture hours in every classroom. While we were collecting data from children, we asked teachers to fill up their own surveys in isolated rooms, so all student data collection took place in the absence of teachers. In what follows, we discuss our data collection toolkit and how we construct our outcome measures and variables of interest in detail.

3.1 Student Characteristics

We collected rich data on student characteristics using surveys and tests. To measure children’s fluid cognitive ability, we implemented “Raven’s Progressive Matrices” (Raven et al., 2004). To measure children’s cognitive empathy (emotional intelligence), we implemented “Reading the Mind in the Eyes” test (Baron-Cohen et al., 1997). Because there are no centrally administered objective tests at the grade level we work with, we also implemented math and Turkish language tests in classrooms. We prepared these tests separately for each grade level, based on the national curricula. Our student survey includes standard demographic information and socioeconomic indicators, such as the availability of the internet at

home and the father’s employment status. We measured students’ ethnic bias using survey questions as the IAT is not suitable for their age. We also elicited their bullying experiences in their schools. For this, students were asked to report the number of peers who regularly hurt them (i) verbally, (ii) physically, and (iii) by ridicule. We provide these questions in Online Appendix B. In addition to student reports, we have access to teacher assigned behavioral conduct grades as well as academic grades. The latter is given on a 1 to 5 scale where teachers assess their pupils’ behavioral conduct with respect to 3 categories: (i) tendency to exhibit physical aggression, (ii) tendency to engage in verbal disputes, and (iii) temperament, with higher grades indicating worse behavior. Academic grades are assigned on a narrower scale of 1 to 3, with 3 indicating excellent performance whereas 2 indicating medium, 1 poor performance. We do not use these teacher-assigned grades in our main analyses because they are available only at the end of the 2018-2019 academic year, not at baseline. However, we make use of them to provide support for our identification; see 3.6.

To construct detailed measures of social exclusion and ethnic segregation, we elicited social ties between classmates. We now give a detailed account of how we elicit these ties and how we construct our primary outcomes of interests.

3.2 Social Networks in the Classroom

To elicit social networks within classrooms, we provided children with a user-friendly paper template. The template asked for nominations of classmates in three categories: friendship, emotional support, and academic support.⁸ The template also asked students to write down the names of classmates whom they perceive as their teacher’s favorite, excluding themselves. For each category, students were provided with three boxes to nominate (write down the names of) classmates. First, they were asked to nominate at most three best friends in the classroom and three of the teacher’s favorites. Then they moved on to nominating at most three classmates from whom they get emotional support, then three classmates from whom they get academic support. Finally, they were asked to nominate at most three classmates whom they emotionally support and three classmates whom they academically support.

Before the elicitation began, children were instructed that they could also nominate friends who were absent that day. Moreover, they were told that the provided template

⁸For emotional and academic support, the exact wording involves “helping a classmate who is sad” and “helping a classmate who needs help with homework”, respectively.

allows them to nominate up to three classmates for each category, which means that they were allowed to nominate a minimum of zero and a maximum of three classmates. They were told that they should choose the first three classmates if they had more than three nominations in mind. Finally, they were told that nominations across categories could overlap.⁹ We piloted this elicitation method several times using templates that allow for 4 and 5 nominations. Our pilot sessions revealed that children have a hard time filling up larger templates; therefore, we decided to cap the number of nominations at three.

Using the elicited ties, we construct two sets of outcomes. The first set contains individual (node) level outcomes. The first of these outcomes is the standard in-degree centrality measure. This measure is simply the number of edges a node receives in a given category. A student’s in-degree centrality for the friendship category gives the number of friendship nominations he/she receives from his/her classmates. The minimum number of nominations one can receive is zero, and the maximum is the number of students (minus the student himself/herself) in the classroom at the time of the elicitation. We construct the in-degree centrality for the other categories similarly. For example, in-degree centrality of a student for the “classmates who support me emotionally” category is the number of classmates who nominate him/her as a supportive classmate, i.e., someone who provides emotional support.

We also construct several individual-level outcomes using out-degree ties, i.e., nominations made by students. Here, we are interested in inter-ethnic nominations. One of the outcomes we construct is the number of refugee nominations made by a student. For each category, the minimum number of refugee nominations is zero, and the maximum is 3, conditional on the number of refugee students in the classroom. We also use as outcome variables the number of host nominations made by a refugee child and the number of refugee nominations made by a host child in all three categories. Note that none of these measures are independent of the class size or the proportion of refugee children in the classroom. Therefore, our analyses always control for these two classroom characteristics.

Our second set of measures are classroom-level indices of ethnic segregation. Specifically, following [Coleman \(1958\)](#), we construct homophily indices for refugees and hosts separately as follows: Let R and H denote refugee and host students, respectively. Denote the number of within-group ties of group i in classroom j as s_{ij} , and the total number of ties of group

⁹The template was designed as boxes to facilitate children to write one classmate in each box neatly. We gave detailed examples before starting the elicitation to make sure they understood the procedures. Our examples were standard based on clearly written experimental instructions. The template sample is presented in Online Appendix [C.1](#).

i in classroom j as t_{ij} , where $i \in \{H, R\}$. Then, $\frac{s_{ij}}{t_{ij}}$ gives us the share of within-group (homophilic) ties for group i .

Denoting w_{ij} as the population share of group i in classroom j , the excess homophily of group i is defined as $\frac{s_{ij}}{t_{ij}} - w_{ij}$. The intuition behind this definition is simple. Say the share of refugees in a classroom is 10%. Then we would expect refugee students to form around 10% of their friendships with other refugee classmates if the ties are formed at random. If the observed share of within-group ties, $\frac{s_{ij}}{t_{ij}}$, is greater than the expected share, w_{ij} , we conclude that the group exhibits “excess homophily”. To make the measure invariant to group size, Coleman (1958) normalizes excess homophily by $1 - w_{ij}$, which is the maximum possible excess homophily that can be observed in group i .¹⁰

Then, Coleman’s Homophily Index for group $i \in \{R, H\}$ in classroom j is:

$$C_{ij} = \frac{\frac{s_{ij}}{t_{ij}} - w_{ij}}{1 - w_{ij}}.$$

Note that since we have two groups (hosts and refugees), Coleman’s measure gives us two normalized excess homophily scores, one for each group. We will explore the effect of teacher’s ethnic bias on both these scores. Figure 1 presents actual friendship ties from two classrooms in our data for illustration purposes. Both classrooms have a similar size (28 and 27 pupils) and a similar number of refugee students (6 and 8). It can be seen in visual clarity that classroom 1 is more integrated than classroom 2. Coleman Homophily Indices for the host (refugee) group are 0.937 (0.635) and -0.016 (0.17) and for classroom 1 and 2 respectively. Note that the refugee excess homophily index is not defined in classrooms with only one refugee student.

3.3 Teacher Characteristics

We collected detailed information from teachers, including demographics, education, experience, tenure, cognitive abilities, teaching styles, and motivation. We explain these after we explain the way we implemented the IAT and construct our ethnic bias measure.

¹⁰In cases where there is excess heterophily, i.e. $\frac{s_{ij}}{t_{ij}} < w_{ij}$, the measure is normalized by w_{ij} instead of $1 - w_{ij}$. This adjustment ensures that the Coleman Homophily Index is between -1 and 1 .

3.3.1 Teacher’s Ethnic Bias: An Implicit Association Test

Developed by [Greenwald et al. \(1998\)](#), the Implicit Association Test (IAT) aims to elicit implicit attitudes toward a group. Because it is quite hard to game, the test is likely to be free from social desirability bias inherent in surveys on socially and politically sensitive topics. Traditionally, the IAT is implemented using computers or tablets. However, using the same protocol, the IAT can be administered using paper and pen in settings where using computers are impractical. [Lemm et al. \(2008\)](#) developed a data collection protocol for a paper-and-pen IAT as an alternative to the computer-based collection. In a paper-and-pen IAT, the respondent observes a word or an image (stimulus), presented in the middle of a line. The two attributes to associate the stimulus are located on the left and the right of the stimulus. The respondent is instructed to mark the attribute he/she associates with the stimulus. The implicit association is quantified by the number of correct responses within a given period. Note that what paper-and-pen IAT measure is an approximation of a respondent’s reaction time.¹¹

We designed our paper-and-pen IAT using four attribute categories; good, bad, Turkey, and Syria. We first allowed the teachers to familiarize themselves with the words and images (stimuli) listed under each attribute category. The first part, “good vs. bad,” and the second part, “Turkey vs. Syria,” are both single attribute comparisons, and each involves 14 lines (14 stimuli). Teachers were given 14 seconds to complete each of these parts. For example, in the first part (good vs. bad), the respondent sees the word “sad” in the middle of the line and is expected to attribute it to the category “bad,” which is located on the right of the stimulus. After completing the attribution of 14 stimuli in 14 seconds, the respondent moves to the second part. Here, the same exercise is done for categories Turkey and Syria. For example, the respondent sees the word “Aleppo” and expected to attribute it to the category “Syria,” which is located on the right of the stimulus. After completing parts 1 and 2, the respondent moves to the last two parts of the test, which contain two attribute comparisons. In part 3, the categories are “Good/Turkey vs. Bad/Syria” and in part 4, “Good/Syria vs. Bad/Turkey.” These parts have 28 lines each (28 stimuli), and teachers were given 30 seconds to complete each part. For example, in part 4, the respondent observes the word “enemy” and expected to attribute it to “Bad/Turkey,” as it belongs to the “bad” attribute category. Each part was administered with a timer. We provide our IAT sheets in Online

¹¹For the applications of paper-and-pen IAT, see [Teachman et al. \(2003\)](#), [Vargas et al. \(2007\)](#) and [Lemm et al. \(2008\)](#).

Appendix D. The first two parts of the task can be considered as warm-up sessions. We use the last two parts to construct our measure of ethnic bias. Following the protocol by [Lemm et al. \(2008\)](#), we construct our implicit bias score as follows:

Let A and B denote the number of correct answers in part 3 (Good/Turkey vs. Bad/Syria) and part 4 (Good/Syria vs. Bad/Turkey), respectively. Then, the ethnic bias score η is:

$$\eta = \frac{X}{Y} * \sqrt{X - Y},$$

where $X = \max\{A, B\}$ and $Y = \min\{A, B\}$. If $B > A$, then the resulting values are multiplied by -1 to retain the direction of the effect.¹²

Higher values of score η indicate a stronger implicit bias toward Syria and Syrians. It is important to emphasize that the purpose of the test is not to label individuals as racist or tolerant. Rather, it aims to show how variation across individuals is related to variations in actual behaviors and outcomes; see [Greenwald et al. \(2015\)](#). After constructing the score in the way described above, we standardize it to mean zero and standard deviation of 1. This transformation allows us to utilize only the variation across teachers and facilitates a more intuitive interpretation of our coefficient estimates. Figure 2 presents the distribution of the standardized ethnic bias score in our data, showing substantial variation across teachers.¹³

3.3.2 Teacher Ability, Teaching Styles and Motivation

In addition to standard information on demographics and qualifications, we were able to collect information from teachers in detail that is, to the best of our knowledge, previously unavailable in any dataset. We measured the teachers' cognitive ability and cognitive empathy using Raven's Progressive Matrices and the Reading the Mind in the Eyes test, respectively. We also elicited teaching styles (pedagogy) through survey questions.¹⁴ Using these questions, we construct five main teaching styles: Growth vs. Fixed mindset, Inquiry-based vs. Lecture-based teaching, Modern vs. Traditional teaching, Extrinsic vs. Intrinsic motivator, and Warmth vs. Distant.

¹²Note that the formula does not allow for $Y = 0$. We do not have a case where either A or B is zero, so we set a minimum $B = 1$. Then as part 3 and part 4 contain 28 questions each, we have $-145.5 < \eta < 145.5$.

¹³We were not able to obtain accurate IAT scores for about 12% of teachers. This is due either to the teacher's refusal to complete the task or the experimenter error in following the written protocol.

¹⁴Pedagogy has been shown to be important in determining student outcomes; see [Bietenbeck \(2014\)](#), [Hidalgo-Cabrillana and Lopez-Mayan \(2018\)](#).

It is also argued that conditional on ability, the teacher’s effort and motivation are essential indicators of his/her quality (Duckworth et al., 2009, Muralidharan and Sundararaman, 2011, Mbiti et al., 2019). However, it is hard to observe and measure these characteristics. A commonly applied method to capture motivation is to measure professional satisfaction (Pool, 1997). For this, we asked several questions regarding job satisfaction and dedication to the teaching profession to construct a motivation measure, which we refer to as “professional satisfaction”. Finally, we asked teachers their assessment of their own competency in teaching. Example questions for each of the categories mentioned above are presented in Online Appendix B.

3.4 Descriptive Statistics

Table 1 presents a summary of student characteristics separately for host and refugee children. The last column gives the p-value from the test of equality in means across the two groups. It is clear that host and refugee student characteristics are significantly different. On average, refugee children are one year older than host children, and their fathers are more likely to be unemployed. Apart from gender composition, only two characteristics are not different across host and refugee students. These are fluid cognitive ability (IQ, measured by Raven’s Progressive Matrices) and behavioral conduct grades assigned by teachers, with some evidence of better conduct with respect to verbally disruptive behavior (significant at the 10% level). As expected, refugee students perform significantly worse than host children in standardized math and verbal (Turkish) ability tests. In particular, refugee children scored 0.36 and 0.50 standard deviations lower in math and Turkish, respectively.

Under the network variables in Table 1 we summarize our individual (node)-level social exclusion measures. The first two provide friendship nominations received (in-degree ties) and friendship nominations made (out-degree ties) followed by nominations received for the teacher’s favorite student status. The next four present emotional and academic support received and provided. Finally, the last three provide average out-degree ties that involve refugee students. These measures clearly show that refugee students have significantly fewer friends, and they provide and receive less support from their classmates than host children. Significant differences between host and refugee students in these measures indicate severe ethnic segregation in classrooms. Note also that refugees have higher ethnic bias than host students. Bullying is prevalent in our sample for both hosts and refugees. Nevertheless, refugee students are significantly more likely to experience bullying from their peers compared

to host students, and they report higher numbers of peers who bully them.

Table 2 presents teacher demographics and classroom characteristics. About 38% of our teachers are male, with an average age of 35. The average teaching experience stands around 12 years with considerable variation, ranging from 1 year to 29. Panel 1 and 2 in Figure 3 present the distribution of teacher’s (standardized) cognitive ability (Raven test score) and cognitive empathy scores (Reading the Mind in the Eyes Test score), respectively. In both cognitive measures, we observe significant variation across teachers. The proportion of refugee students in classrooms varies greatly, ranging from 2% to 47%, with the average standing at 15%. The last six rows give the summary statistics of Coleman’s Homophily Indices for host and refugee groups in the classroom. Recall that this index varies between -1 and 1, with higher values indicating more homophilic ties. We observe high average host homophily, with substantial variation across classrooms. Variation in refugee homophily is large as well, but it has a much lower average.

3.5 Internal Validity

As mentioned in Section 2, despite the MoE’s mandate of randomly assigning pupils across classrooms, anecdotal evidence suggests that the rule may not always be adhered and school principals sometimes give in to pressure from some parents. This type of selection may lead to ability sorting and masks the actual teacher effect on student outcomes. Given the way we choose our sample, this selection is highly unlikely in our sample. Nevertheless, we perform several checks to make sure that our results are internally valid. We first check whether there is any evidence of ability sorting, i.e., whether teacher characteristics, including ethnic bias measured by the IAT, predict students’ cognitive ability. Table 3 presents the predictive power of teacher characteristics on pupil’s fluid cognitive ability scores for hosts and refugees separately. Note that we use the fluid cognitive ability (IQ) here because this trait is generally considered as “innate” and unlikely to change beyond three years of age (Schneider et al. (2014)). The first two columns control only for school and province fixed effects, class size, and grade level. Along with student age and gender, these covariates explain about 33% (25%) of the variation in the host (refugee) students’ fluid cognitive ability. As we add teacher demographics (Columns 3 and 4), then teacher’s cognitive characteristics (Columns 5 and 6), and finally teaching styles and motivation (Columns 7 and 8), we do not gain extra explanatory power for hosts, but teaching styles and motivation (jointly) seem to matter for refugee students at 10% level.

We conduct a similar internal validity check to see whether school administrators did follow the rule of random allocation of refugee students across classrooms. Table 4 presents the predictive power of teacher characteristics on the proportion of refugee students in classrooms. As can be seen, province and school fixed effects, class size, and grade level together explain 81% of the variation in the proportion of refugee students across classrooms. None of the teacher characteristics, including the teacher’s IAT score, have any predictive power on the ratio of refugees in the classroom. Almost all coefficient estimates are virtually zero. We find no evidence of ability sorting or non-random allocation of refugee students across teachers.

3.6 Reverse Causality

Another threat to our identification strategy is possible reverse causality. The reverse causality may be an issue if the teacher’s IAT score is- rather than representing an inherent bias against refugees -influenced by her observation of refugee students. For example, if refugee students have a higher tendency to behave in an anti-social manner than the host students, teachers may form an unfavorable opinion about them, and this may be partly reflected in their IAT scores. Anti-social students may find it hard to form social ties with their classmates, rendering causal interpretation of our results difficult. Evidence on the validity of IAT in terms of capturing deep-seated prejudice rather than short-term stimuli is mixed at best. For example, [Gawronski et al. \(2017\)](#) show that implicit racial bias fluctuates considerably overtime at the individual level. On the other hand, [Cunningham et al. \(2001\)](#) conduct an IAT to measure racial bias and show that IAT measures are fairly stable over time. In a recent meta-analysis, [Forscher et al. \(2019\)](#) provide evidence that while IAT captures deep-seated biases and correlates reasonably well with behavior, it is also sensitive to short-term stimuli. However, they show that such changes in IAT scores are small and do not correlate with behavior. Nevertheless, given such mixed evidence, it is worthwhile investigating whether a reverse causality mechanism is likely at work in our study. Below, we provide two pieces of evidence against reverse causality.

Our first piece of evidence leverages the timing of our data collection. As mentioned above, despite being part of the refugee placement program, several classrooms and (even schools) had not received refugee students at the time of our data collection. This was simply because the placement program was relatively new, started slow, and gained substantial momentum after Fall 2018. Recall also that public school teachers are centrally appointed

and do not have much say regarding the district, let alone the school they are assigned to, especially in our study site. Therefore, we can supplement our sample with teachers who had not yet received refugee students and compare their IAT scores with those in our sample. Moreover, because we also have information on teachers' tenure in his/her current class and how long ago each pupil was placed in the class, we can perform this comparison for various degrees of refugee exposure. If our IAT measure is influenced by the duration of exposure to refugee children in the classroom, we would expect to see a significant difference in IAT scores across different exposure levels relative to the no-exposure case. Figure 4 plots the estimates obtained from the regression of teachers' ethnic bias (standardized IAT score) on exposure dummies. The duration of exposure is measured as terms, which correspond to semesters in our setting. The figure shows that teachers' implicit bias is insensitive to the duration of their exposure to refugee students. All point estimates are virtually zero with wide confidence bands. Also, note that the internal validity checks we present in Table 3 and Table 4 hold for the supplemented sample; see Table A1 and A2 in the Online Appendix.

Our second piece of evidence comes from the behavioral conduct grades assigned to students by their own teachers. We expect a biased teacher to assign less favorable grades to refugee children that do not reflect these children's actual behavioral conduct. However, less favorable grades given to refugees do not necessarily mean that the teacher is biased. This differential grading may reflect the reality if refugee children are indeed more violent and anti-social than host children. In such a case, teachers would naturally assign less favorable grades to refugees and may also form bias against them over time. Figure 5 provides evidence against this line of reasoning. The figure plots the estimated relationship between teachers' ethnic bias and their own assessment of children's behavioral conduct. In addition to the evidence that refugee children are not more violent or anti-social than host children (see Table 1), this figure shows that even biased teachers do not assign bad behavior grades to refugee children. This finding also implies that refugee children are generally well-behaved in their new schools.¹⁵

Overall, these findings suggest that our results are unlikely to be driven by reverse causality where teachers' biases against Syrian refugee children were shaped by their observation of these children's behavioral conduct. Instead, our IAT captures, at least partially, some deep-seated implicit prejudice against Syrians. This is all the more likely considering that

¹⁵We do not find any effect of teachers' ethnic bias on students' academic grades, which are considered to partly reflect teachers' opinions of students' behavioral conduct; corresponding p-values are 0.30 (0.48) and 0.67 (0.98) for host and refugee students in mathematics (Turkish), respectively.

Turkish-Syrian relationships have been historically tense since the first World War due to territorial and water-related disputes. There is also ample survey evidence suggesting that general anti-refugee sentiments in Turkey have been extremely high since the first arrival of the Syrian refugees in 2011, with substantial variation across individuals (Cagaptay (2019)).

4 Results

Before estimating the effect of teacher’s ethnic bias on our outcomes of interest, we analyze what our ethnic bias score captures in terms of classroom and teacher characteristics. For this, we regress the standardized measure of ethnic bias on classroom and teacher characteristics. For the former, we use class size and the proportion of refugee students in the classroom. For the latter, we use teacher’s demographic characteristics, cognitive abilities, teaching styles, and motivation. Table 5 presents our results. Teacher’s cognitive ability and the refugee concentration in the province of their desired work location emerge as a prominent predictor of his/her ethnic bias score. A one standard deviation increase in teacher’s Raven score is associated with a 0.37 standard deviation decline in ethnic bias score, and this association is significant at the 5% level. The proportion of refugees in provinces where teachers would rather work is also predictive of their ethnic bias at the 10% level. These preferred provinces are almost always where teachers grew up in our context. Note again that the proportion of refugees in the class does not predict the teacher’s ethnic bias. Nevertheless, we will control for all characteristics presented in this table when estimating the effect of teacher’s ethnic bias on our outcomes of interest.

4.1 Empirical Specification

Our empirical specification for individual-level outcomes is as follows:

$$y_{ics} = \alpha_0 + \alpha_1 \text{TBIAS}_{cs} + \text{SC}'_{ics} \beta + \text{TC}'_{cs} \gamma + \delta_s + \varepsilon_{ics}, \quad (1)$$

where y_{ics} is the outcome of interest for child i in classroom c in school s . TBIAS_{cs} is the standardized measure of teacher’s ethnic bias (IAT score), the variable of interest. Vector SC'_{ics} contains observables for student i in classroom c school s that are likely predictive of the outcome y . These include gender, age, standardized cognitive ability, cognitive empathy scores and a dummy variable for students with learning difficulties. Vector TC'_{cs} contains

teacher and classroom characteristics, including class size and the proportion of refugees, and δ_s are school fixed effects. The coefficient of interest is $\hat{\alpha}_1$. Throughout the paper, we estimate the above empirical model for host and refugee students separately, and test the equality of coefficient estimates. We cluster standard errors at the school level.

For classroom level outcomes (ethnic segregation/homophily measures) we also perform a semi-parametric estimation and provide visually the non-parametric relationship between teacher’s ethnic bias and segregation in the classroom. Our semi-parametric estimation uses the following specification:

$$y_{cs} = \alpha_0 + \text{TC}'_{cs}\gamma + f(\text{TBIAS}_{cs}) + \delta_s + \varepsilon_{cs}, \quad (2)$$

where y_{cs} is the outcome of interest for classroom c in school s . Vector TC_{cs} contains teacher and classroom characteristics, and δ_s are school fixed effects. The objective here is to visualize the non-parametric relationship between TBIAS_{cs} and y_{cs} , controlling (linearly) for the aforementioned characteristics. Again, we cluster standard errors at the school level. While we use a broad set of controls in all our analyses, for the sake of space, we present only the estimates of the coefficient of interest, that is, the coefficient on teacher’s ethnic bias score, $\hat{\alpha}_1$.

4.2 Teacher’s Ethnic Bias and Social Exclusion of Refugee Children

Table 6 presents the effect of teacher’s ethnic bias on friendship ties for host and refugee students separately. The first two columns give the estimated impact of teacher’s ethnic bias on the number of friendship nominations received (in-degree centrality), the last two columns provide the same for friendship nominations made (out-degree centrality). We do not estimate significant effects for the latter (the last two columns). However, the estimated impact on the number of friendship nominations a refugee child receives (in-degree centrality) is negative and statistically different from that of a host child; see the last row for the test for the equality of impact estimates. A one standard deviation increase in teacher’s ethnic bias score leads to, on average, 0.24 fewer friendship nominations that a refugee child receives. To put this estimate into perspective, the average number of friendship nominations received by refugee children is 1.34 (see Table 1), which is about 42% less than the ties enjoyed by the host children. 0.24 fewer ties imply an 18% decline in the friendship ties that refugee children enjoy due to a one standard deviation increase in teacher’s ethnic bias. Teacher’s

bias has an opposite, albeit small effect on host students, which is statistically significant at 10%.

Table 7 presents the same estimates for other social ties categories. Columns 1 and 2 give the estimated effects of teachers' bias on the number of classmates a student claims to receive emotional support from, plus the number of such nominations she receives from her classmates. Columns 3 and 4 present the same estimates for the academic support category. Columns 5 and 6 give the effects on the total number of classmates a student reports to provide emotional support to, plus the number of such nominations she obtains from her classmates. Columns 7 and 8 present the same estimates for the academic support category. A simple illustration (for a hypothetical class size of four) of how we construct these outcomes is given in Online Appendix C.2. This table shows the same pattern we observe in Table 6. As the teacher's ethnic bias increases, the number of social ties a refugee student enjoys declines significantly. Take emotional support received for an example (Column 2). A one standard deviation increase in teacher's ethnic bias score leads to an average of 0.21 fewer emotional support ties a refugee student enjoys. The results for academic links are similar. We estimate no significant impacts on host students' emotional and academic support ties.

The above analyses explore the effect of teachers' bias on the number of social ties for host and refugee students separately. Our next question pertains to the impact of teacher's bias on the formation of inter-ethnic ties. For this, we first analyze the effect of teacher's bias on the prevalence of nominations extended to refugee students. To put our estimates in perspective, keep in mind that the average number of refugee classmates nominated as friends already stand low (0.18 nominations). See also in Table 1, the average number of refugee classmates nominated as friends by host children is only 0.11. Table 8 presents the estimated effects on the number of refugee nominations for all three categories. Column 1 presents the estimates for the number of refugee classmates a student (refugee or host) nominates as his/her friends, Column 2 and Column 3 present the number of refugee classmates a student claims to extend emotional and academic support to, respectively. We obtain similar findings in these analyses. As the teacher's ethnic bias increases, the number of nominations that involve refugee students declines significantly. Specifically, a one standard deviation increase in teacher's ethnic bias score leads to 0.03 (16.7%) fewer refugee students nominated as friends and 0.02 fewer refugee students nominated as classmates to provide emotional and academic support.

Table 9 presents the estimated effects of teacher's ethnic bias on students' inter-ethnic

nominations. The first two columns present nominations made by host children, and the last two columns present nominations made by refugee children. Panel 1 presents the results based on friendship ties, Panel 2, and Panel 3 emotional and academic support ties. Panel 1 confirms our earlier findings that teachers' ethnic bias lowers the number of friendship nominations refugees receive. A one standard deviation increase in teacher's ethnic bias leads to 0.02 fewer refugee classmate nominations and 0.05 more host classmate nominations made by host children. What is particularly striking in this panel is that we estimate a sizable negative impact on the number of refugee nominations made by refugee students and a positive impact on the number of host nominations made by refugee students. For the former, we find that a one standard deviation increase in teacher's ethnic bias leads to 0.07 fewer friendship nominations extended by refugee students to refugee students. While this estimate does not reach significance, the qualitatively similar estimates we obtain for emotional and academic support categories do. These findings are consistent with [Currarini et al. \(2009\)](#), which shows that preferences toward socializing with the same ethnicity imply more popularity for the members of the dominant ethnic group than those of minority groups. Our results show how teachers' negative attitudes toward a minority can play a role in reinforcing this result.

4.3 Teacher's Ethnic Bias and Ethnic Segregation in the Classroom

The above results imply that ethnically biased teachers are likely to create ethnically segregated classrooms. Such classrooms would be characterized by strong in-group (homophilic) ties with minimal inter-group socialization. To test this, we estimate the effect of teachers' ethnic bias on the level of excess homophily within host and refugee students separately. [Table 10](#) presents the results. Consistently with our individual-level analyses, we estimate significant effects of teacher's ethnic bias on host homophily. A one standard deviation increase in teacher's ethnic bias leads to 0.09 units (about 13%) increase in host homophily index concerning friendship ties. Both absolute and relative effect sizes concerning emotional and academic support ties are similar (about 10% and 13% increase respectively). We find no evidence of an impact on excess homophily within refugee students, which is also consistent with our individual-level results. [Figure 6](#) depicts the estimated non-parametric relationship between teacher's ethnic bias and excess host and refugee homophily using the semi-parametric specification in [Equation 2](#). These non-parametric estimates present, in visual clarity, the strong effect of teacher's ethnic bias on the degree of ethnic segregation in

the classroom.

4.4 Teacher’s Ethnic Bias and Peer Violence

Ethnic segregation likely leads to ethnic tensions and conflict in the school ground. In ethnically segregated schools, socially excluded minority students may be at a higher risk of falling victim to verbal and physical bullying. Recall that refugee students report higher exposure to bullying than host students do in our sample. Specifically, 93% (89%) of refugee (host) students report being bullied regularly at school. Against this background, we estimate the effect of teachers’ ethnic bias on the probability of reporting bullying and the number of reported bullies. Table 11 presents the results for hosts and refugees separately. Refugee students who are exposed to teachers with stronger ethnic bias face a higher risk of falling victim to peer bullying. A one standard deviation increase in teacher’s ethnic bias leads to a 5 percentage points increase in the probability of being bullied by peers and 0.45 more reported bullies. We estimate no effect on host students.

4.5 Teacher’s Ethnic Bias and Achievement of Refugee Children

Our results so far strongly suggest that teachers have a significant role in the social exclusion of refugee students in their new schools. This exclusion is likely to slow refugee students’ progress in learning the host country’s language and negatively impact their achievement outcomes. Table 12 presents results that corroborate this prediction. We estimate that teachers’ ethnic bias has a significantly detrimental effect on refugee students’ verbal ability in the host (Turkish) language. A one standard deviation increase in teacher’s ethnic bias score lowers refugee students’ Turkish test scores by 0.14 standard deviation. The estimated effect on mathematics scores is negative and economically significant (0.07 standard deviation) but does not reach statistical significance. Note that the teacher’s ethnic bias has no impact on host students’ achievement scores. These precise null estimates confirm that our ethnic bias measure does not proxy an unobserved teacher quality after controlling for available teacher characteristics. Figure 7 provides linear predictions obtained from our estimates and show our results in visual clarity.

4.6 Potential Mechanisms

What are the likely mechanisms that explain our results? Why are refugee children assigned to teachers with ethnic bias more likely to be socially excluded and subject to more peer bullying? Moreover, why host students with such teachers tend to form more homophilic ties? An obvious channel to explore is a mechanism whereby the teacher’s ethnic bias is transmitted to students, lowering their willingness to develop social ties with classmates from different ethnic groups. We test this channel by estimating the effect of teachers’ ethnic bias on students’ ethnic bias.

Another mechanism may be related directly to the teacher’s behavior and the fact that he/she is in a powerful position to set behavioral norms in the classroom, i.e., he/she is a role model. A teacher with a strong prejudice against an ethnic group may adopt exclusionary practices in the classroom and neglect minority students who generally need extra attention. Host students might internalize these behaviors as norms and mimic these behaviors. To test this mechanism, we construct two measures of exclusionary teacher practices using nominations for the teacher’s favorite student status and teacher’s classroom seating arrangement. The first measure was elicited using our network elicitation templates, where students were asked to nominate at most three classmates whom they considered to be their teacher’s favorite. This measure is motivated by studies that show that students who have good relationships with their teachers are more likely to be accepted by their classmates; see, e.g. [Hughes et al., 2001](#), [Skinner and Belmont, 1993](#), [Birch and Ladd, 1997](#). This status is mostly enjoyed by host students in our data. While host students receive an average of 1.78 nominations in this category, refugee students receive 0.90 nominations; see [Table 1](#). The second measure is more subtle than the first in terms of capturing teachers’ exclusionary behaviors. Classroom seating arrangements are considered to be essential management tools, and research shows that these arrangements impact learning outcomes ([Wannarka and Ruhl, 2008](#)). In our setting, host students, students who are popular (with higher in-degree centrality), and those reported to be teacher’s favorites are less likely to be seated at the back, where it is harder to get the teacher’s attention.¹⁶ A teacher with a strong prejudice against an ethnic group may choose to push the minority students to back seats and interact with them less frequently, which may influence the way students socialize with each other.

Figure 8 plots the coefficient estimates of the effect of teachers’ ethnic bias on student

¹⁶All related p-values are less than 0.01.

ethnic bias, the number of nominations for the status of teacher’s favorite, and the probability of sitting at the back corner of the classroom. We plot these estimates separately for host and refugee students to highlight the differential impacts. It is evident in this picture that the bias transmission mechanism is an important channel. The striking finding, however, is that this transmission holds only for refugee students. It appears that students who are exposed to teachers with ethnic prejudice are likely to develop biases toward those whom they consider as out-group. This finding also squares well with the implications of [Currarini et al. \(2009\)](#), and our results that refugee students are more likely to nominate host students as friends in classrooms with biased teachers.

The mechanism of teacher’s exclusionary practices is directly evident in favorite student nominations and seating arrangements. As shown in Figure 8, refugee students are significantly less likely to enjoy the status of “teacher’s favorite” in classrooms with biased teachers. Specifically, a one standard deviation increase in teacher bias is associated with 0.21 fewer nominations for refugee students for the status of the teacher’s favorite. The effect is null for host students. Consistently with this result, ethnically biased teachers tend to push refugee students to the back corners of the classroom. Refugee students are 7 percentage points more likely to sit at back desks in classrooms with biased teachers. The effect is again null for host students.

All said, the transmission of ethnic prejudice from teachers to refugee students and teachers’ exclusionary classroom practices internalized by students are likely to drive our results. The former may be particularly relevant for our homophily results and the fact that refugee students appear to be particularly keen to form social ties with their host classmates rather than refugee classmates. It appears that teachers can transmit their ethnic attitudes to refugee children, making them self-conscious about their own ethnicity. The latter might partly explain why refugee students are more likely to be socially excluded and more likely to fall victim to peer bullying in classrooms with biased teachers. If these mechanisms are at work, it is then not surprising to observe that refugee students in classrooms with biased teachers fall further behind host students academically.

5 Conclusion

We show that teachers’ implicit bias against a minority group significantly affects students’ socialization choices in the classroom, particularly their inter-ethnic relationships. For iden-

tification, we exploit a setting where the ethnic composition in schools changed due to a massive refugee influx, and students, including refugees, are randomly assigned to classrooms. We elicit students' social networks to construct indicators of social exclusion and ethnic segregation in classrooms.

We find that teachers' ethnic bias, measured by an Implicit Association Test, significantly lowers the prevalence of social ties between host and refugee children, puts refugee children at a higher risk of peer violence, and hinders refugee children's progress in learning the host country's language. We show that teachers who have a stronger ethnic bias toward the refugees' country of origin create socially segregated classrooms, where host students tend to form homophilic social ties. Biased teachers' exclusionary classroom practices internalized by students appear as a likely mechanism driving these results.

Given the importance of the childhood period for developing socio-emotional and cognitive skills, our results imply that the type of teachers children are exposed to in ethnically diverse schools can have significant societal impacts. Our results suggest that ethnic prejudice can breed in schools, marginalize minority children, and deprive the native children of realizing the benefits of ethnic diversity. To the extent that these harmful effects persist into adolescence and adulthood, they may damage communities' cohesiveness by increasing the risk of ethnic tension and conflict. This study shows that ethnically diverse schools are obvious grounds to take preemptive measures against these adverse social outcomes.

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6 Tables

Table 1: Refugee and Host Student Characteristics

	Host		Refugee		P-value
	Mean	SD	Mean	SD	
Student Demographics:					
Male	0.51	(0.50)	0.49	(0.50)	0.46
Age in Months	104.31	(8.80)	115.86	(14.71)	0.00
SES Indicators:					
Working Mother	0.28	(0.45)	0.36	(0.48)	0.00
Working Father	0.89	(0.31)	0.76	(0.43)	0.00
Computer at Home	0.44	(0.50)	0.34	(0.48)	0.00
Internet at Home	0.54	(0.50)	0.58	(0.49)	0.10
Cognitive & Behavioral Outcomes:					
Raven Score	0.00	(1.00)	0.02	(1.01)	0.73
Cognitive Empathy Score	0.00	(1.00)	-0.45	(0.95)	0.00
Math Score	0.01	(1.00)	-0.36	(0.97)	0.00
Verbal Score	0.01	(1.00)	-0.50	(0.93)	0.00
Ethnic Bias	-0.01	(1.00)	0.14	(0.93)	0.01
Physically Aggressive	-0.00	(0.99)	-0.05	(1.02)	0.53
Verbally Disruptive	-0.01	(0.99)	-0.14	(0.91)	0.09
Short-Tempered	-0.00	(0.99)	-0.04	(1.00)	0.63
Proportion with learning difficulties	0.05	(0.22)	0.14	(0.34)	0.00
Network Variables:					
Friendship Ties (In-Degree)	2.30	(2.07)	1.34	(1.50)	0.00
Friendship Ties (Out-Degree)	2.33	(0.91)	1.92	(1.08)	0.00
Nominations for Teacher’s Favorite	1.78	(2.91)	0.90	(1.77)	0.00
Emotional Support Ties (Received)	2.64	(1.83)	1.74	(1.63)	0.00
Academic Support Ties (Received)	2.20	(1.68)	1.57	(1.50)	0.00
Emotional Support Ties (Provided)	2.65	(1.82)	1.73	(1.61)	0.00
Academic Support Ties (Provided)	2.23	(1.83)	1.43	(1.56)	0.00
Refugee Friendship Nominations	0.11	(0.36)	0.65	(0.83)	0.00
Refugee E. Support Nominations	0.10	(0.34)	0.30	(0.59)	0.00
Refugee A. Support Nominations	0.10	(0.34)	0.30	(0.61)	0.00
Reported Bullying:					
Proportion Reports Bullying	0.89	(0.31)	0.93	(0.25)	0.00
Number of Bullies Reported	7.05	(4.84)	8.08	(4.65)	0.00

Cognitive & behavioral outcomes are standardized to have mean zero for host students. Network variables give the number of edges (ties) for each category and represent our individual (node) level outcomes.

Table 2: Teacher and Classroom Characteristics

	Mean	SD	Min	Max
Teacher Demographics:				
Male	0.38	0.49	0.00	1.00
Age	35.28	7.19	23.00	49.00
Married	0.74	0.44	0.00	1.00
Number of Children	1.15	0.97	0.00	4.00
Tenured	0.95	0.21	0.00	1.00
Years of Experience	11.64	7.04	1.00	29.00
Number of Semesters in Current Class	4.20	1.63	0.00	6.00
Classroom Variables:				
Class Size	31.71	7.50	15.00	53.00
Proportion of Refugees	0.15	0.09	0.02	0.47
Coleman Host Homophily (Friendship)	0.67	0.33	-0.15	1.00
Coleman Host Homophily (Emotional S.)	0.61	0.36	-0.27	1.00
Coleman Host Homophily (Academic S.)	0.67	0.39	-0.52	1.00
Coleman Refugee Homophily (Friendship)	-0.16	0.67	-1.00	1.00
Coleman Refugee Homophily (Emotional S.)	-0.19	0.72	-1.00	1.00
Coleman Refugee Homophily (Academic S.)	-0.30	0.73	-1.00	1.00

Table 3: Student Ability Sorting Across Classrooms

	(1)		(2)		(3)		(4)	
	Host	Refugee	Host	Refugee	Host	Refugee	Host	Refugee
Teacher Ethnic Bias	-0.02 (0.02)	-0.04 (0.04)	-0.02 (0.03)	-0.02 (0.04)	-0.04 (0.03)	-0.02 (0.04)	-0.04 (0.03)	-0.02 (0.04)
Male	-0.06** (0.03)	-0.11 (0.09)	-0.06** (0.03)	-0.11 (0.09)	-0.06** (0.03)	-0.10 (0.09)	-0.06** (0.03)	-0.09 (0.09)
Student Age in Months	0.00 (0.00)	0.02*** (0.00)	0.00 (0.00)	0.02*** (0.00)	0.00 (0.00)	0.02*** (0.00)	0.00 (0.00)	0.02*** (0.00)
Teacher Demographics:								
Male Teacher			-0.02 (0.05)	0.03 (0.11)	-0.00 (0.05)	0.04 (0.12)	0.01 (0.05)	0.09 (0.13)
Teacher Age			-0.02* (0.01)	0.00 (0.01)	-0.02* (0.01)	0.00 (0.01)	-0.02* (0.01)	-0.00 (0.02)
Years of Experience			0.02* (0.01)	0.01 (0.02)	0.02* (0.01)	0.01 (0.02)	0.02* (0.01)	0.01 (0.02)
Married Teacher			0.08 (0.08)	0.06 (0.13)	0.10 (0.07)	0.08 (0.13)	0.09 (0.07)	-0.02 (0.13)
Number of Children			-0.00 (0.05)	-0.06 (0.07)	-0.00 (0.04)	-0.06 (0.07)	-0.01 (0.04)	-0.08 (0.08)
Tenured Teacher			-0.10 (0.15)	-0.06 (0.24)	-0.10 (0.16)	-0.09 (0.25)	-0.11 (0.15)	0.03 (0.27)
Desired Work Province - % of refugee			-0.00 (0.00)	0.01 (0.01)	-0.00 (0.00)	0.01 (0.01)	-0.00 (0.00)	0.01 (0.01)
Teacher Cognition:								
Teacher Raven Score					-0.06** (0.02)	-0.04 (0.04)	-0.04 (0.02)	0.03 (0.06)
Teacher Cognitive Empathy Score					0.02 (0.03)	-0.02 (0.06)	0.02 (0.03)	-0.01 (0.06)
Teaching Styles:								
Growth Mindset							0.04 (0.04)	-0.06 (0.07)
Inquiry-based Pedagogy							-0.04 (0.04)	-0.13 (0.10)
Modern Teaching							-0.03 (0.03)	0.04 (0.07)
Extrinsic Motivation							-0.01 (0.03)	0.06 (0.08)
Warmth							-0.01 (0.03)	-0.03 (0.07)
Teacher Motivation:								
Competence							0.01 (0.04)	0.11 (0.07)
Professional Satisfaction							0.04 (0.03)	0.09 (0.05)
N	4419	670	4403	663	4403	663	4375	659
P-Value of Joint Significance	0.442	0.318	0.290	0.897	0.187	0.900	0.320	0.056
R-Squared	0.326	0.252	0.327	0.259	0.328	0.260	0.331	0.270

Reported results are from OLS estimation. The dependent variable is the student's standardized cognitive ability (Raven) score. All regressions include classroom size, grade level, school and province fixed effects. P-values of the joint significance tests are obtained by setting the coefficient estimates on teacher variables to zero. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

Table 4: Allocation of Refugee Students Across Teachers

	(1)	(2)	(3)	(4)
Teacher Ethnic Bias	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Teacher Demographics:				
Male Teacher		-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Teacher Age		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Years of Experience		-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Married Teacher		-0.00 (0.02)	-0.01 (0.02)	-0.00 (0.02)
Number of Children		-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Tenured Teacher		0.02 (0.05)	0.02 (0.06)	0.02 (0.06)
Desired Work Province - % of refugee		-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Teacher Cognition:				
Teacher Raven Score			0.00 (0.01)	0.00 (0.01)
Teacher Cognitive Empathy Score			-0.00 (0.01)	-0.00 (0.01)
Teaching Styles:				
Growth Mindset				-0.00 (0.01)
Inquiry-based Pedagogy				0.01 (0.01)
Modern Teaching				-0.01 (0.01)
Extrinsic Motivation				-0.00 (0.01)
Warmth				0.01 (0.01)
Teacher Motivation:				
Competence				0.00 (0.01)
Professional Satisfaction				0.00 (0.01)
N	192	191	191	190
P-Value of Joint Significance	0.832	0.862	0.940	0.986
R-Squared	0.810	0.814	0.815	0.821

Reported results are from OLS estimation. The dependent variable is the proportion of refugee students in the classroom. All four specifications include class size, grade level, school and province fixed effects. P-values of the joint significance tests are obtained by setting the presented coefficient estimates to zero. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

Table 5: What Predicts Teacher’s Ethnic Bias?

	(1)	(2)	(3)	(4)
Proportion of Refugees	0.00	-0.00	0.00	0.00
	(0.02)	(0.02)	(0.02)	(0.02)
Class Size	-0.03	-0.03	-0.00	-0.01
	(0.05)	(0.05)	(0.05)	(0.05)
Teacher Demographics:				
Male Teacher		0.00	0.11	0.26
		(0.21)	(0.22)	(0.25)
Teacher Age		0.06	0.04	0.04
		(0.05)	(0.05)	(0.04)
Years of Experience		-0.03	-0.03	-0.01
		(0.06)	(0.06)	(0.05)
Married Teacher		0.08	0.19	0.18
		(0.32)	(0.34)	(0.37)
Number of Children		0.20	0.20	0.24*
		(0.18)	(0.15)	(0.14)
Tenured Teacher		0.35	0.25	0.17
		(0.83)	(0.82)	(0.87)
Desired Work Province - % of refugee		-0.03*	-0.03*	-0.03*
		(0.02)	(0.02)	(0.02)
Teacher Cognition:				
Teacher Raven Score			-0.35***	-0.37**
			(0.12)	(0.14)
Teacher Cognitive Empathy Score			0.19	0.17
			(0.15)	(0.14)
Teaching Styles:				
Growth Mindset				0.10
				(0.13)
Inquiry-based Pedagogy				0.20
				(0.15)
Modern Teaching				-0.02
				(0.17)
Extrinsic Motivation				0.13
				(0.18)
Warmth				-0.05
				(0.17)
Teacher Motivation:				
Competence				0.14
				(0.18)
Professional Satisfaction				0.03
				(0.15)
N	192	191	191	190
R-Squared	0.419	0.488	0.557	0.594

Reported results are from OLS estimation. The dependent variable is teacher’s ethnic bias. All regressions include experimenter, grade level, school and province fixed effects. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

Table 6: Teacher’s Ethnic Bias and Social Exclusion: Friendship Ties

	In-Degree		Out-Degree	
	Host	Refugee	Host	Refugee
Teacher Ethnic Bias	0.07*	-0.24***	0.03	0.03
	(0.04)	(0.08)	(0.02)	(0.07)
N	4375	659	4375	659
P-Value (Host=Refugee)	0.001		0.975	

Reported results are from OLS estimation. The dependent variable in Column 1 and 2 is the number of friendship nominations a student receives from his/her classmates, i.e, in-degree centrality. The dependent variable in Column 3 and 4 is the number of friendship nominations a student makes, i.e, out-degree centrality. Regressions control for student gender, age, cognitive ability, cognitive empathy, a dummy variable for students with learning difficulties, classroom characteristics (class size and proportion of refugees), teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, school and province fixed effects. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

Table 7: Teacher’s Ethnic Bias and Social Exclusion: Support Ties

	E.S. Received		A.S. Received		E.S. Provided		A.S. Provided	
	Host	Refugee	Host	Refugee	Host	Refugee	Host	Refugee
Teacher Ethnic Bias	-0.01	-0.21***	-0.05	-0.14*	-0.02	-0.28***	-0.03	-0.23***
	(0.04)	(0.06)	(0.05)	(0.08)	(0.05)	(0.07)	(0.05)	(0.08)
N	4375	659	4375	659	4375	659	4375	659
P-Value (Host=Refugee)	0.005		0.225		0.001		0.010	

Reported results are from OLS estimation. Dependent variables are, Column 1 and 2: the total number of classmates a student claims to receive emotional support from, plus the number of such nominations she receives from her classmates. Column 2 and 3: same as column 1 and 2 for academic support. Column 5 and 6: the total number of classmates a student claims to provide emotional support to, plus the number of such nominations she obtains from her classmates. Column 7 and 8: same as column 5 and 6 for academic support. Regressions control for student gender, age, cognitive ability, cognitive empathy, a dummy variable for students with learning difficulties, classroom characteristics (class size and proportion of refugees), teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, school and province fixed effects. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

Table 8: Teacher’s Ethnic Bias and Nominations Involving Refugee Classmates

	Friendship	Emotional Support	Academic Support
Teacher Ethnic Bias	-0.03*** (0.01)	-0.02*** (0.01)	-0.02*** (0.00)
Observations	5034	5034	5034

Reported results are from OLS estimation. Dependent variables are the number of refugee classmates a student nominates as friends (Column 1), the number of refugee classmates to whom a student claims to provide emotional support (Column 2) and the number of refugee classmates to whom a student claims to provide academic support (Column 3). Regressions control for student gender, age, cognitive ability, cognitive empathy, a dummy variable for students with learning difficulties, classroom characteristics (class size and proportion of refugees), teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, school and province fixed effects. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

Table 9: Teacher’s Ethnic Bias and Inter-Ethnic Ties

	Host Nominations		Refugee Nominations	
	Host → Refugee	Host → Host	Refugee → Refugee	Refugee → Host
Panel 1: Friendship Ties				
Teacher Ethnic Bias	-0.02** (0.01)	0.05** (0.03)	-0.07 (0.06)	0.10 (0.07)
Panel 2: Emotional Support Ties				
Teacher Ethnic Bias	-0.01 (0.01)	-0.02 (0.03)	-0.04* (0.02)	-0.09 (0.05)
Panel 3: Academic Support Ties				
Teacher Ethnic Bias	-0.01** (0.01)	-0.01 (0.03)	-0.05** (0.02)	0.01 (0.05)
Observations	4375	4375	659	659

Reported results are from OLS estimation. Dependent variables are the number of friendship nominations by host and refugee students (Panel 1), the number of classmates to whom a host student claims to provide emotional support and a refugee student claims to receive emotional support (Panel 2), the number of classmates to whom a host student claims to provide academic support and a refugee student claims to receive academic support (Panel 3). Column 1 (from host to host) and Column 2 (from host to refugee), Column 3 (refugee to refugee) and Column 4 (refugee to host). Regressions control for student gender, age, cognitive ability, cognitive empathy, a dummy variable for students with learning difficulties, classroom characteristics (class size, proportion of refugees), teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, province and school fixed effects. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

Table 10: Teacher’s Ethnic Bias and Ethnic Segregation in the Classroom: Coleman’s Homophily Index

	Friendship		Emotional Support		Academic Support	
	Host	Refugee	Host	Refugee	Host	Refugee
Teacher Ethnic Bias	0.09** (0.04)	-0.01 (0.11)	0.06* (0.03)	0.05 (0.09)	0.09*** (0.03)	-0.04 (0.11)
N	190	171	187	159	190	151
P-Value (Host=Refugee)	0.217		0.851		0.057	

Reported results are from OLS estimation. Dependent variables are Coleman’s Homophily Index constructed for three social tie categories: friendship, emotional support, academic support. The index is not defined for classrooms with only one refugee student at the time of the elicitation. Regression controls include the proportion of refugees, proportion of male students, average age, class size, teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, province and school fixed effects. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

Table 11: Teacher’s Ethnic Bias and Bullying

	Probability Bullied		Number of Bullies	
	Host	Refugee	Host	Refugee
Teacher Ethnic Bias	-0.00 (0.01)	0.05** (0.03)	0.10 (0.12)	0.45** (0.21)
N	4053	337	4278	633
P-Value (Host=Refugee)	0.065		0.091	

The first two columns present the average marginal effects from probit regressions. The dependent variable is a binary indicator that takes the value 1 if the student reports to be bullied regularly by his/her peers and zero otherwise. The next two columns present OLS results where the dependent variable is the number of bullies a student reports. Regressions control for student gender, age, cognitive ability, cognitive empathy, a dummy variable for students with learning difficulties, proportion of refugees in classroom, teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, school and province fixed effects. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

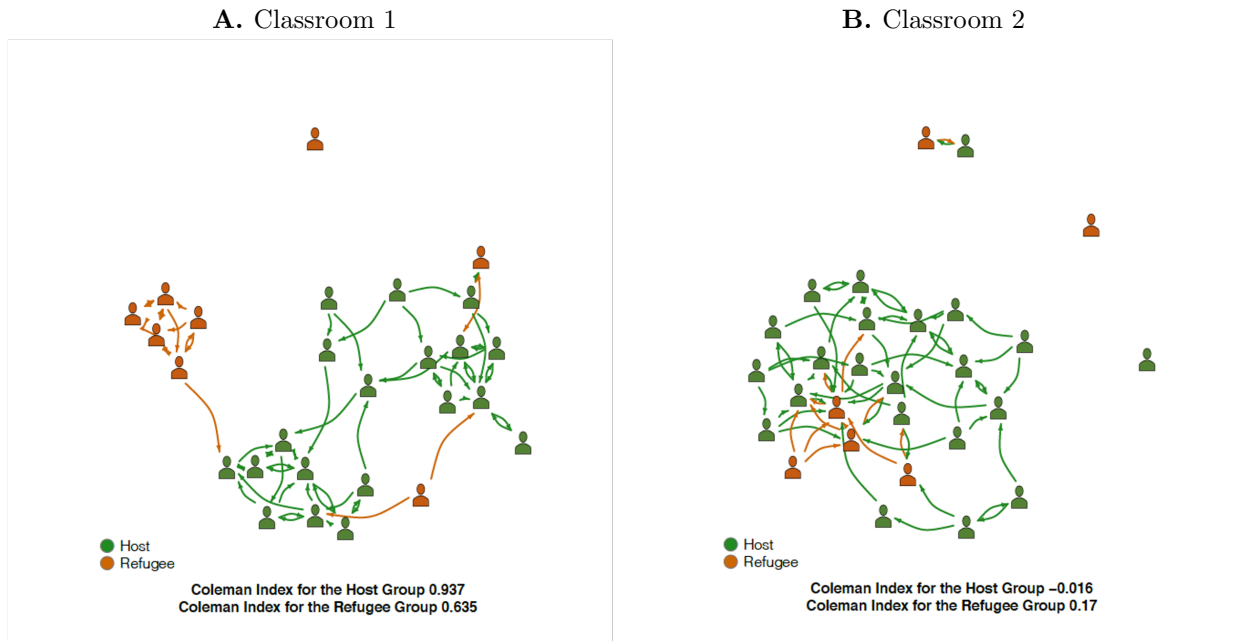
Table 12: Teacher’s Ethnic Bias and Student Achievement

	Turkish		Mathematics	
	Host	Refugee	Host	Refugee
Teacher Ethnic Bias	-0.01 (0.02)	-0.14** (0.06)	-0.01 (0.02)	-0.07 (0.06)
N	4375	659	4375	659
P-Value (Host=Refugee)	0.013		0.284	

Reported results are from OLS estimation. Dependent variables are standardized scores obtained from the math and Turkish tests implemented in classrooms. Regressions control for student gender, age, cognitive ability, cognitive empathy, a dummy variable for students with learning difficulties, classroom characteristics (class size and proportion of refugees), teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, school and province fixed effects. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

7 Figures

Figure 1: Coleman's Homophily Index for Two Classrooms



Each circle denotes a node (student). Letters H and R refer to host and refugee child, respectively. Nominations are shown with directional edges between nodes. Coleman Homophily Index is calculated separately for host and refugee group as described in 3.2, with higher numbers indicating higher segregation.

Figure 2: Distribution of Teacher's Ethnic Bias

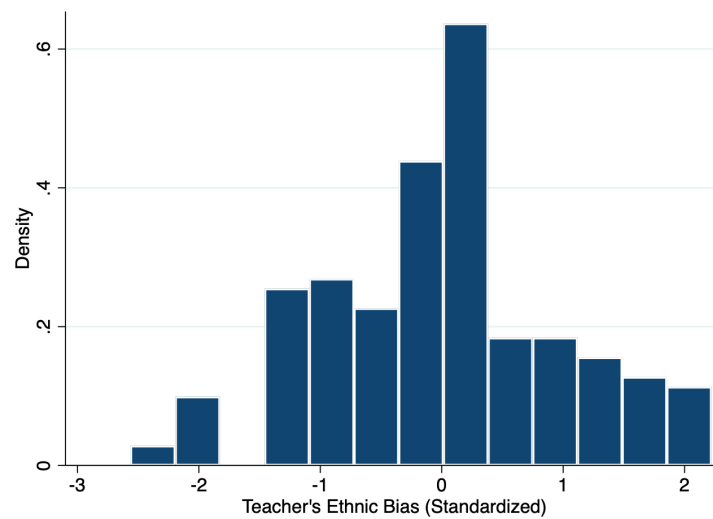


Figure 3: Distribution of Teacher's Cognitive Ability and Cognitive Empathy

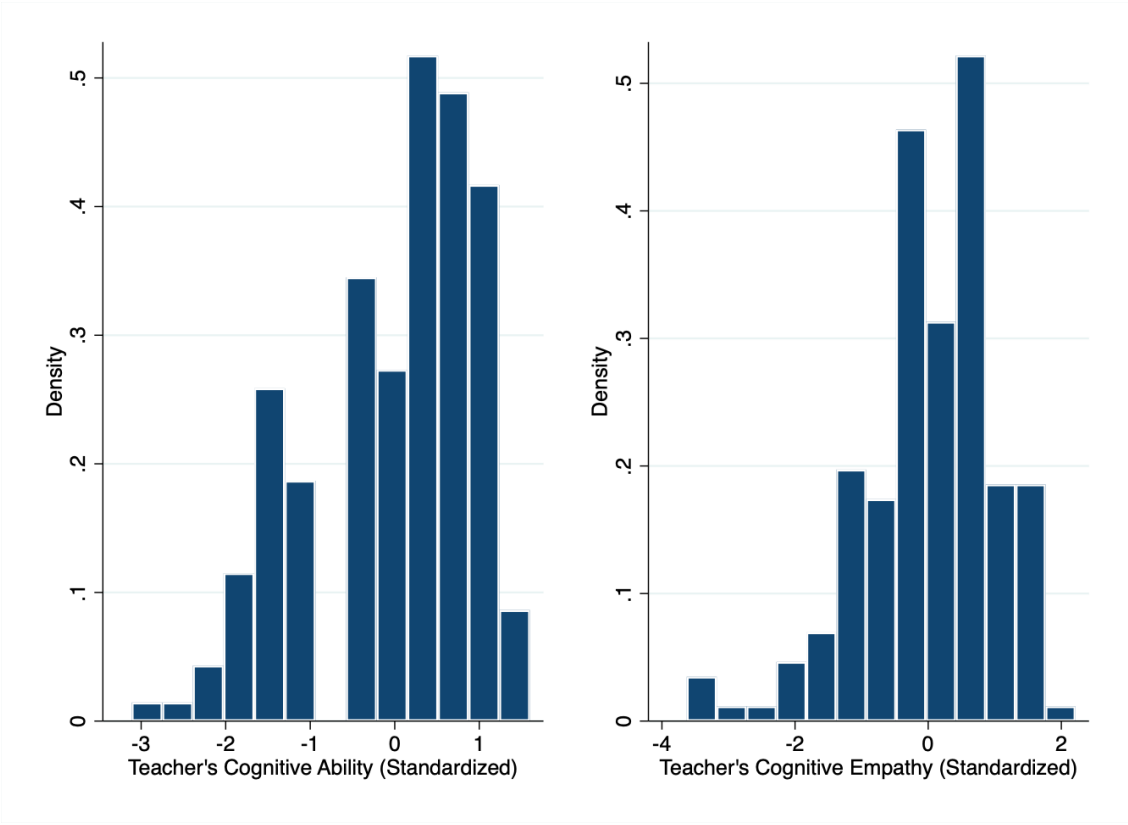
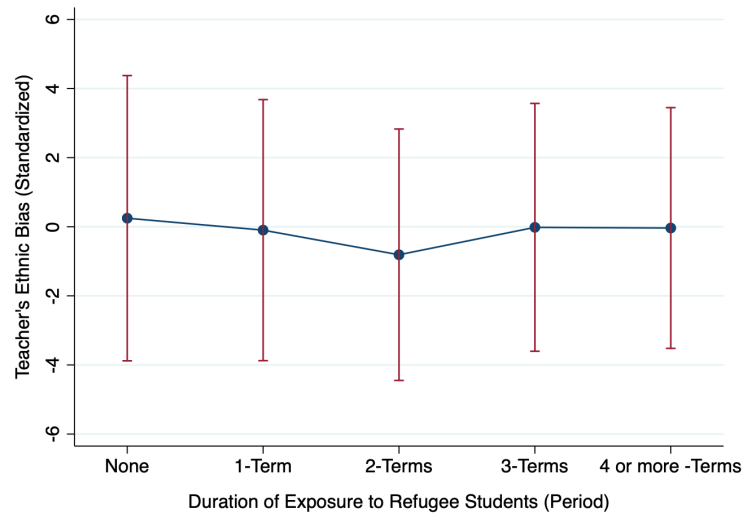
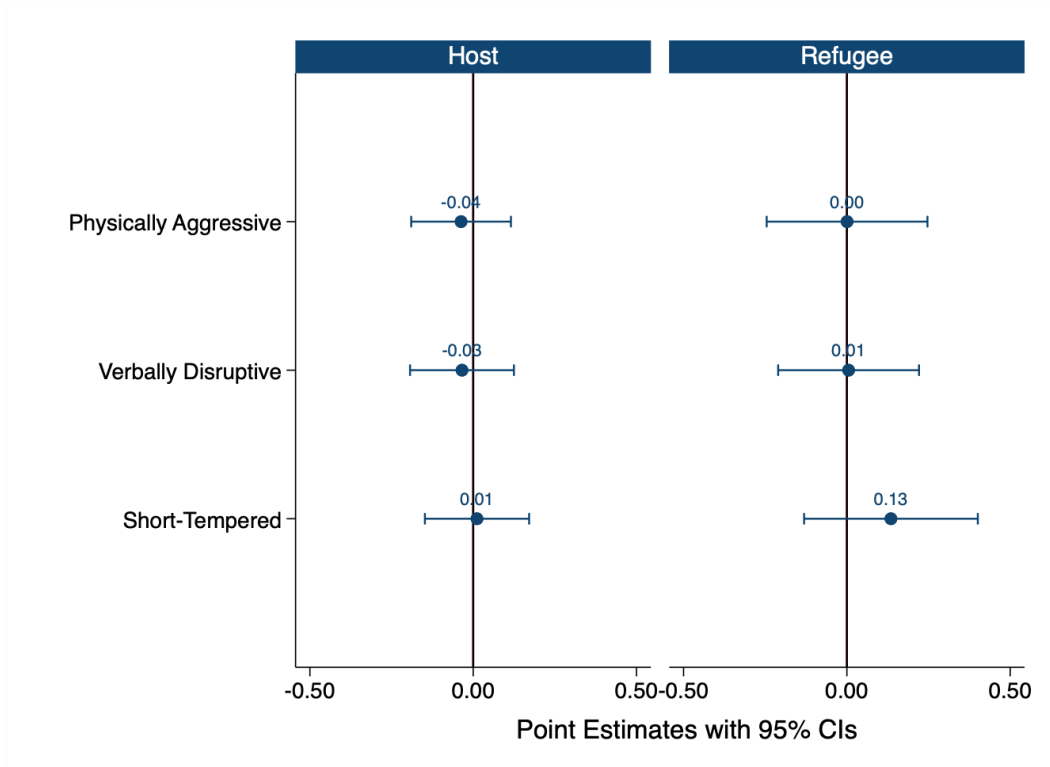


Figure 4: The Effect of Exposure to Refugees on Teacher’s Ethnic Bias



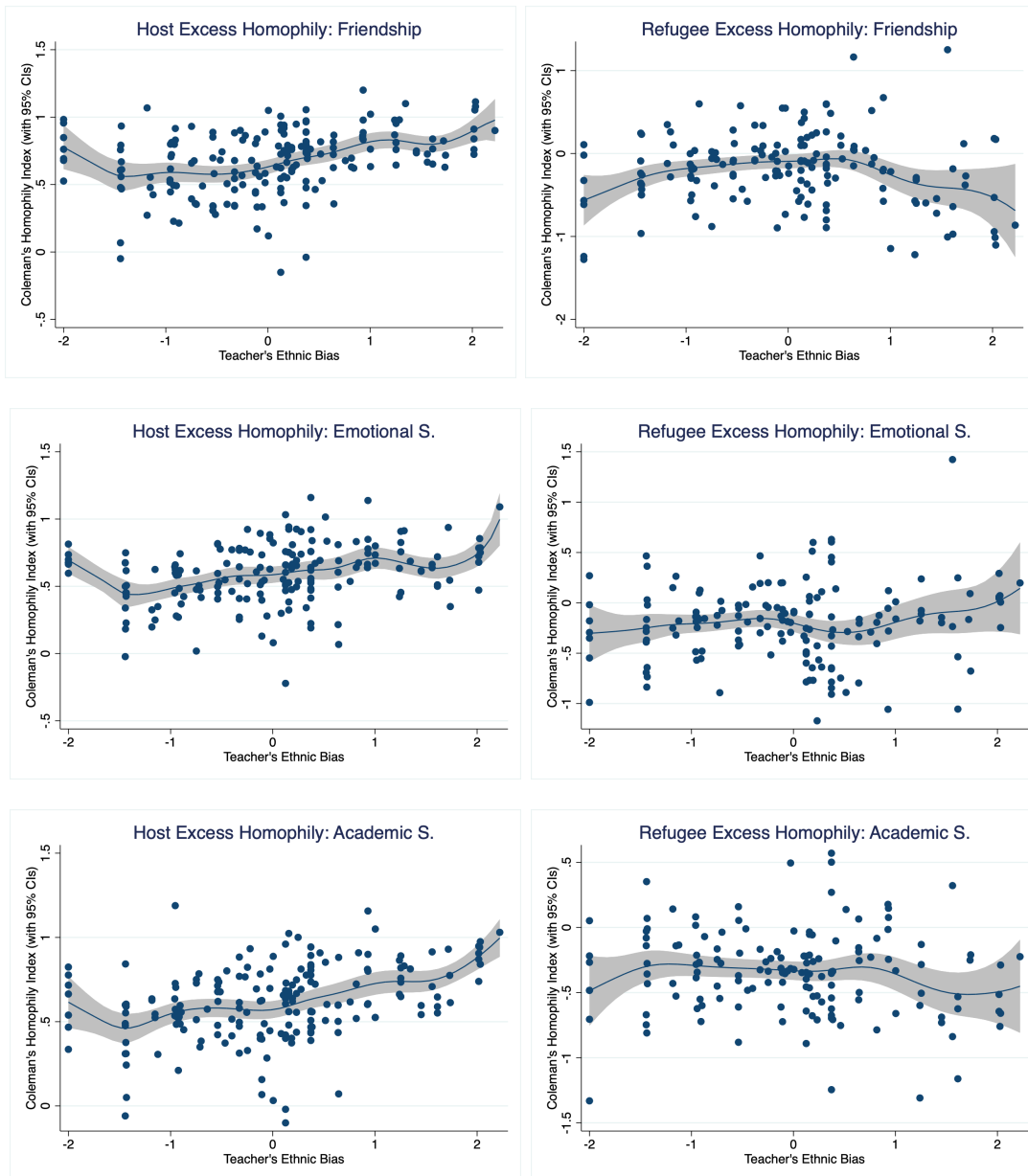
The figure plots the estimated effect of the length of exposure to refugee students in the classroom on teachers’ IAT scores. The estimates are obtained by supplementing the sample with classrooms without refugee students and running the regression of teachers’ IAT score on exposure dummies. The regression controls for classroom characteristics (class size and proportion of refugees), teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, school, and province fixed effects. 95% confidence intervals are based on standard errors clustered at the school level.

Figure 5: Teachers' Implicit Bias and Their Assessment of Students' Behavioral Conduct



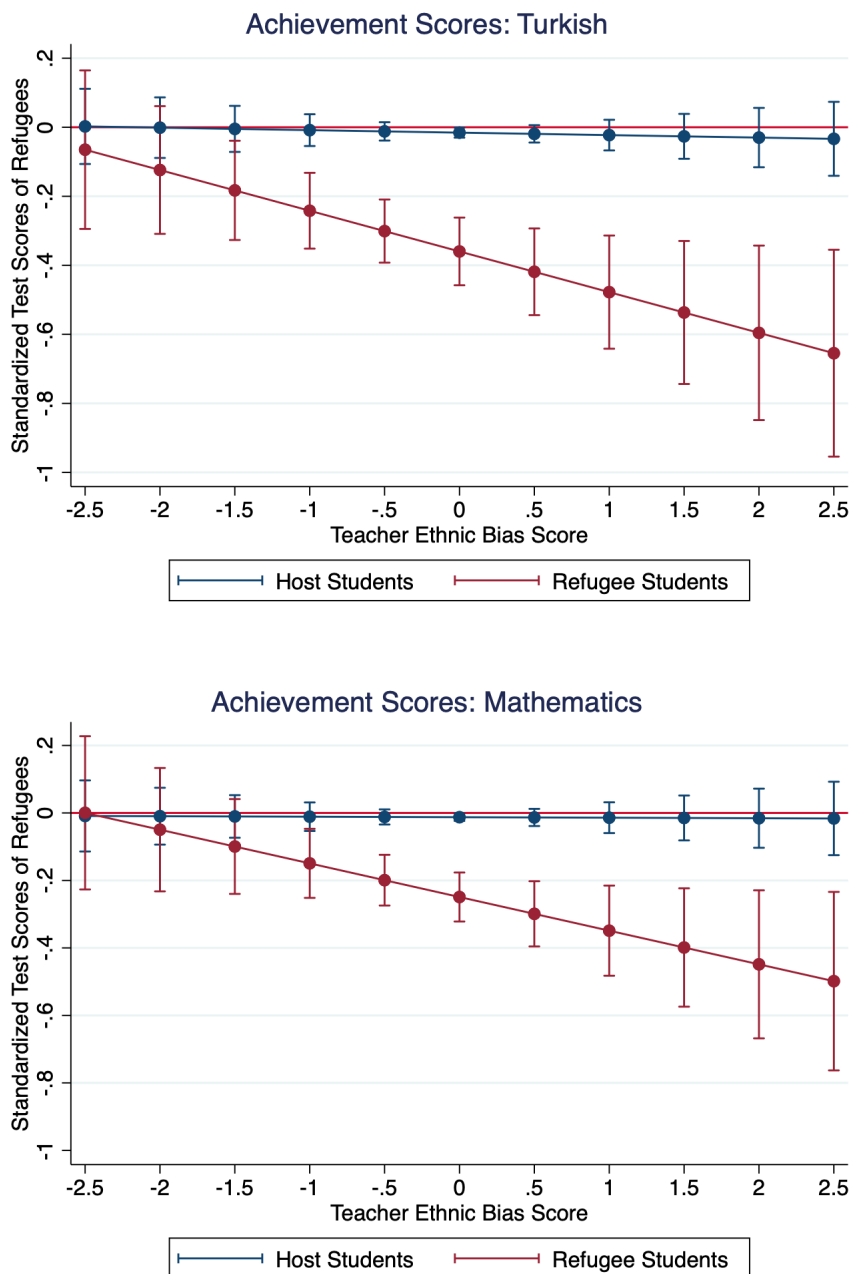
The figure depicts the estimated relationship between teachers' implicit ethnic bias and their assessment of students' behavioral conduct with respect to three categories: (i) physical aggression, (ii) tendency to engage in verbal disputes, and (iii) temper. Presented estimates are standard deviation effects. Respective regressions control for student gender, age, cognitive ability, cognitive empathy, a dummy variable for students with learning difficulties, classroom characteristics (class size and proportion of refugees), teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, school and province fixed effects. 95% confidence intervals are based on standard errors clustered at the school level. The vertical line indicates an effect of zero.

Figure 6: Teacher's Ethnic Bias and Excess Host and Refugee Homophily



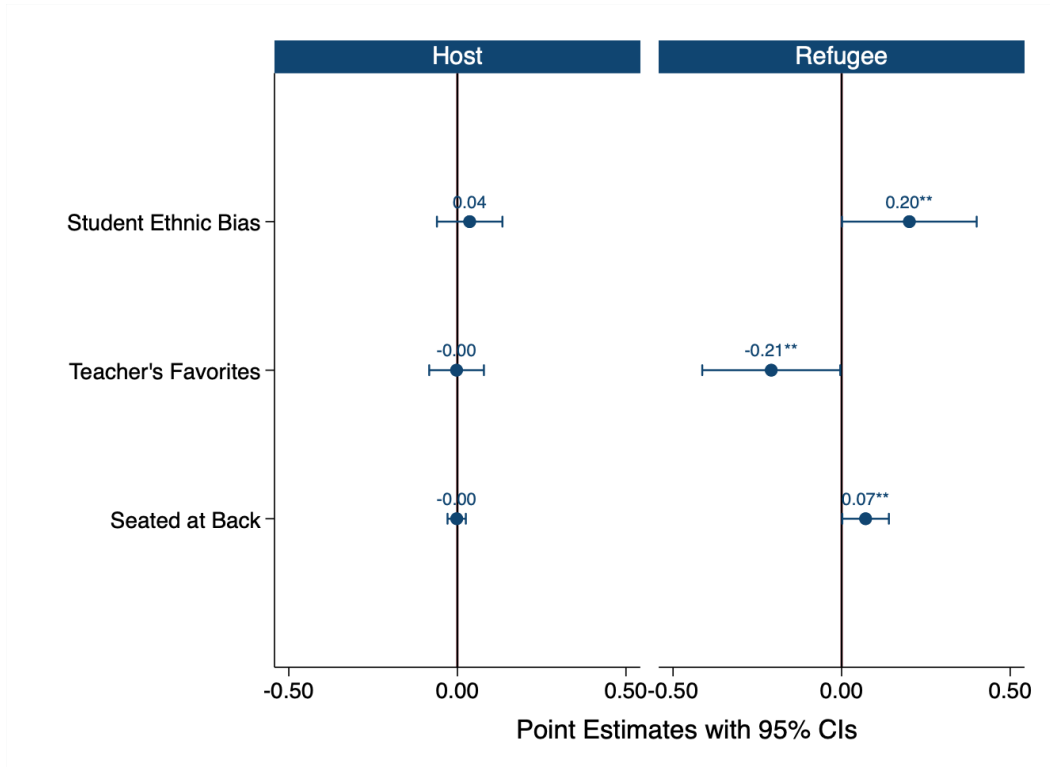
Figures plot the non-parametric estimates (and 95% confidence bands) of the effect of teacher's ethnic bias on excess homophily based on friendship ties (top panel), emotional support ties (mid panel) and academic support ties (bottom panel). Proportion of refugees, proportion of male students, average age, class size, teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation) enter the model linearly. Specifications include grade level, school and province fixed effects. Shaded areas contain 95% confidence intervals. Note: We dropped one outlier school to achieve convergence for refugee homophily estimations.

Figure 7: Teacher's Ethnic Bias and Achievement



Figures plot the linear predictions from the OLS regressions for standardized tests scores. Panel 1 and 2 provides predicted margins for Turkish and Mathematics test scores, respectively. Both regressions control for student gender, age, cognitive ability, cognitive empathy, a dummy variable for students with learning difficulties, classroom characteristics (class size and proportion of refugees), teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, school and province fixed effects. 95% confidence intervals are based on standard errors clustered at the school level. The horizontal line indicates an effect of zero.

Figure 8: Potential Mechanisms



The figure depicts the estimated effects of teacher's ethnic bias on student ethnic bias (standardized), the number of nominations received as teacher's favorite student, and the probability of sitting at a desk in the back of the classroom. All regressions control for student gender, age, cognitive ability, cognitive empathy, a dummy variable for students with learning difficulties, classroom characteristics (class size and proportion of refugees), teacher characteristics (demographics, qualifications, cognitive ability, cognitive empathy, teaching styles, and motivation), grade level, school and province fixed effects. 95% confidence intervals are based on standard errors clustered at the school level. The vertical line indicates an effect of zero.

Online Appendix- Not For Publication

A Tables

Table A1: Student Ability Sorting Across Classrooms - Supplemented Sample

	(1)		(2)		(3)		(4)	
	Host	Refugee	Host	Refugee	Host	Refugee	Host	Refugee
Teacher Ethnic Bias	-0.01 (0.02)	-0.04 (0.04)	-0.01 (0.02)	-0.02 (0.04)	-0.03 (0.02)	-0.02 (0.04)	-0.02 (0.02)	-0.02 (0.04)
Male	-0.05* (0.02)	-0.11 (0.09)	-0.05* (0.03)	-0.11 (0.09)	-0.05* (0.03)	-0.10 (0.09)	-0.04* (0.02)	-0.09 (0.09)
Student Age in Months	-0.00 (0.00)	0.02*** (0.00)	-0.00 (0.00)	0.02*** (0.00)	-0.00 (0.00)	0.02*** (0.00)	0.00 (0.00)	0.02*** (0.00)
Teacher Demographics:								
Male Teacher			-0.00 (0.05)	0.03 (0.11)	0.02 (0.05)	0.04 (0.12)	0.03 (0.05)	0.09 (0.13)
Teacher Age			-0.01* (0.01)	0.00 (0.01)	-0.01 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.00 (0.02)
Years of Experience			0.01** (0.01)	0.01 (0.02)	0.01* (0.01)	0.01 (0.02)	0.01 (0.01)	0.01 (0.02)
Married Teacher			0.07 (0.07)	0.06 (0.13)	0.09 (0.07)	0.08 (0.13)	0.08 (0.07)	-0.02 (0.13)
Number of Children			-0.01 (0.04)	-0.06 (0.07)	-0.01 (0.04)	-0.06 (0.07)	-0.01 (0.04)	-0.08 (0.08)
Tenured Teacher			-0.11 (0.13)	-0.06 (0.24)	-0.12 (0.14)	-0.09 (0.25)	-0.13 (0.13)	0.03 (0.27)
Desired Work Province - % of refugee			-0.00 (0.00)	0.01 (0.01)	-0.00 (0.00)	0.01 (0.01)	-0.00 (0.00)	0.01 (0.01)
Teacher Cognition:								
Teacher Raven Score					-0.06** (0.02)	-0.04 (0.04)	-0.03 (0.02)	0.03 (0.06)
Teacher Cognitive Empathy Score					0.01 (0.03)	-0.02 (0.06)	0.01 (0.03)	-0.01 (0.06)
Teaching Styles:								
Growth Mindset							0.03 (0.03)	-0.06 (0.07)
Inquiry-based Pedagogy							-0.04 (0.03)	-0.13 (0.10)
Modern Teaching							-0.03 (0.03)	0.04 (0.07)
Extrinsic Motivation							0.01 (0.04)	0.06 (0.08)
Warmth							-0.01 (0.03)	-0.03 (0.07)
Teacher Motivation:								
Competence							0.01 (0.03)	0.11 (0.07)
Professional Satisfaction							0.05* (0.03)	0.09 (0.05)
N	5160	670	5144	663	5144	663	5090	659
P-Value of Joint Significance	0.530	0.318	0.289	0.897	0.133	0.900	0.253	0.056
R-Squared	0.347	0.252	0.348	0.259	0.349	0.260	0.353	0.270

This table is the replication of Table 3 in the main text with the sample including teachers who had not yet received refugee students. Reported results are from OLS estimation. The dependent variable is the student's standardized cognitive ability (Raven) score. All regressions include classroom size, grade level, school and province fixed effects. P-values of the joint significance tests are obtained by setting the coefficient estimates on teacher variables to zero. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

Table A2: Allocation of Refugee Students Across Teachers - Supplemented Sample

	(1)	(2)	(3)	(4)
Teacher Ethnic Bias	-0.00 (0.00)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Teacher Demographics:				
Male Teacher		-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Teacher Age		0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Years of Experience		-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Married Teacher		-0.00 (0.02)	-0.01 (0.02)	-0.00 (0.02)
Number of Children		-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Tenured Teacher		0.02 (0.05)	0.02 (0.05)	0.02 (0.06)
Desired Work Province - % of refugee		-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Teacher Cognition:				
Teacher Raven Score			0.00 (0.01)	0.00 (0.01)
Teacher Cognitive Empathy Score			-0.00 (0.01)	-0.00 (0.01)
Teaching Styles:				
Growth Mindset				-0.00 (0.01)
Inquiry-based Pedagogy				0.01 (0.01)
Modern Teaching				-0.01 (0.01)
Extrinsic Motivation				-0.00 (0.01)
Warmth				0.01 (0.01)
Teacher Motivation:				
Competence				0.00 (0.01)
Professional Satisfaction				0.00 (0.01)
N	220	219	219	217
P-Value of Joint Significance	0.899	0.851	0.935	0.988
R-Squared	0.853	0.857	0.858	0.861

This table is the replication of Table 4 in the main text with the sample including teachers who had not yet received refugee students. Reported results are from OLS estimation. The dependent variable is the proportion of refugee students in the classroom. All four specifications include class size, grade level, school and province fixed effects. P-values of the joint significance tests are obtained by setting the presented coefficient estimates to zero. Standard errors clustered at school level. Asterisks indicate that coefficient is statistically significant at the 1% ***, 5% **, and 10% * levels.

B Survey Inventories

Table A3: Student Survey Inventories

Inventory	Items
<i>4-point likert scale: completely agree, agree, disagree, completely disagree</i>	
Ethnic Bias	I do not want to be friends with children who come from another country.
	Children who come from other countries are not as smart as us.
	I like children who come from other countries as much as I like my friends here.
	Children who come from other countries are more aggressive.
<i>None, 1, 2, 3 or more than 3</i>	
Bullying	How many classmates in your class call you names and scare you on a regular basis?
	How many classmates in your class make fun of you on a regular basis?
	How many classmates in your class physically hurt you (hit you) on a regular basis?
	How many schoolmates outside your class call you names and scare you on a regular basis?
	How many schoolmates outside your class make fun of you on a regular basis?
	How many schoolmates outside your class physically hurt you (hit you) on a regular basis?

Table A4: Teacher Survey Inventories

Inventory	Exemplary Items
<i>4-point likert scale: completely agree, agree, disagree, completely disagree</i>	
Teaching Styles	Your intelligence is something that you can't change very much. (Growth Mindset)
	I encourage my students to do research on topics they are interested in and discuss these topics with me. (Inquiry-based Pedagogy)
	It does not matter if there is noise in the classroom as long as the students are busy with something productive. (Modern Teaching)
	Punishment is necessary to create a disciplined class. (Extrinsic Motivation)
	Teachers should be serious and authoritative in their relationships with students. (Warmth)
Professional Satisfaction	I am very pleased to have chosen teaching as a profession.
Competence	It is difficult for me to communicate effectively with students.

C Social Networks

C.1 Network Elicitation Templates

Table A5

	1	2	3
My best friends in the class			
My teacher's favorite students			

	1	2	3
Classmates whom I academically support			
Classmates whom I emotionally support			

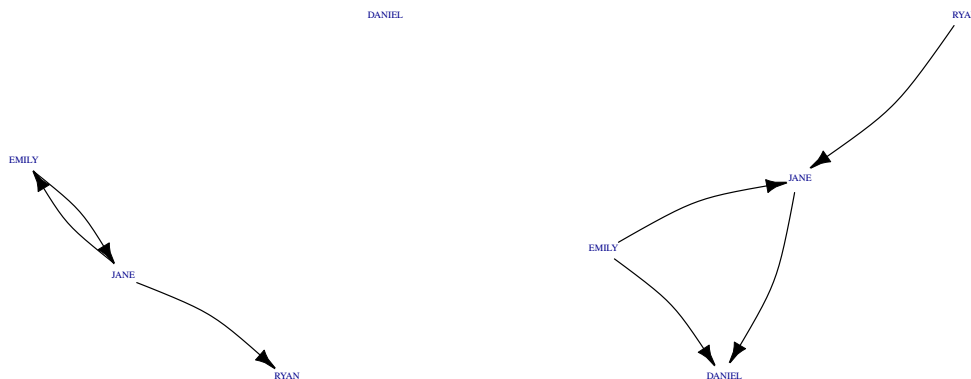
	1	2	3
Classmates who support me emotionally			
Classmates who support me academically			

C.2 Network Measure Construction Guideline

Figure A1

A. I emotionally support ...

B. I get emotional support from ...



Suppose that there is a classroom with four students, Daniel, Emily, Jane and Ryan. Their answers to i) classmates whom I emotionally support and ii) classmates who support me emotionally, are visualized in panels A and B of Figure A1, respectively. We now construct our network measures, “Emotional Support Provided” and “Emotional Support Received”, for Emily to set an example and the rest is calculated in a similar manner for the other students.¹⁷

- **Emotional Support Provided:** Emily states that she supports Jane (see Panel A). However, none of her classmates indicates that Emily is supportive (see Panel B). Therefore, our measure of emotional support provided for Emily is 1 as she appears to support Jane (based on her self-report).
- **Emotional Support Received:** Jane state that she supports Emily (see Panel A). Also, Emily states that she gets emotional support from Jane and Daniel (see Panel

¹⁷The cases of “academic support provided” and “academic support received” are analogous to emotional support provided and received.

B). Then, emotional support received for Emily is 2 as she appears to get support from Daniel and Jane.

	Emotional Support Provided	Emotional Support Received
Daniel	1	0
Emily	1	2
Jane	2	2
Ryan	0	1


D Implicit Association Test

<p>Syria: Damascus, Aleppo, Arabic, Dabke,</p> 	<p>Good: Happy, Love, Freedom, Peace, Health, Friend</p>
<p>Turkey: Ankara, Istanbul, Turkish, Halay,</p> 	<p>Bad: War, Fight, Sad, Disease, Enemy, Hate</p>



A. Which of the following statements are good and which are bad?

	GOOD		BAD
1	<input type="checkbox"/>	SAD	<input type="checkbox"/>
2	<input type="checkbox"/>	PEACE	<input type="checkbox"/>
3	<input type="checkbox"/>	WAR	<input type="checkbox"/>
4	<input type="checkbox"/>	FRIEND	<input type="checkbox"/>
5	<input type="checkbox"/>	FREEDOM	<input type="checkbox"/>
6	<input type="checkbox"/>	LOVE	<input type="checkbox"/>
7	<input type="checkbox"/>	DISEASE	<input type="checkbox"/>
8	<input type="checkbox"/>	ENEMY	<input type="checkbox"/>
9	<input type="checkbox"/>	HEALTH	<input type="checkbox"/>
10	<input type="checkbox"/>	HAPPY	<input type="checkbox"/>
11	<input type="checkbox"/>	FIGHT	<input type="checkbox"/>
12	<input type="checkbox"/>	HATE	<input type="checkbox"/>
13	<input type="checkbox"/>	FRIEND	<input type="checkbox"/>
14	<input type="checkbox"/>	DISEASE	<input type="checkbox"/>



B. Which of the statements below are relevant to Turkey and which are relevant to Syria?

	TURKEY		SYRIA
1	<input type="checkbox"/>	ALEPPO	<input type="checkbox"/>
2	<input type="checkbox"/>		<input type="checkbox"/>
3	<input type="checkbox"/>	ANKARA	<input type="checkbox"/>
4	<input type="checkbox"/>	DABKE	<input type="checkbox"/>
5	<input type="checkbox"/>	TURKISH	<input type="checkbox"/>
6	<input type="checkbox"/>	ISTANBUL	<input type="checkbox"/>
7	<input type="checkbox"/>	ARABIC	<input type="checkbox"/>

C. Which of the statements below belong to "Good or Turkey" group and which belong to "Bad or Syria" group?

	GOOD/TURKEY		BAD/SYRIA
1	<input type="checkbox"/>	ALEPPO	<input type="checkbox"/>
2	<input type="checkbox"/>	HAPPY	<input type="checkbox"/>
3	<input type="checkbox"/>	DISEASE	<input type="checkbox"/>
4	<input type="checkbox"/>	FREEDOM	<input type="checkbox"/>
5	<input type="checkbox"/>		<input type="checkbox"/>
6	<input type="checkbox"/>	FIGHT	<input type="checkbox"/>
7	<input type="checkbox"/>		<input type="checkbox"/>

D. Which of the statements below belong to "Bad or Turkey" group and which belong to "Good or Syria" group?

	GOOD/SYRIA		BAD/TURKEY
1	<input type="checkbox"/>	FREEDOM	<input type="checkbox"/>
2	<input type="checkbox"/>	DABKE	<input type="checkbox"/>
3	<input type="checkbox"/>		<input type="checkbox"/>
4	<input type="checkbox"/>	ALEPPO	<input type="checkbox"/>
5	<input type="checkbox"/>	HAPPY	<input type="checkbox"/>
6	<input type="checkbox"/>	DISEASE	<input type="checkbox"/>
7	<input type="checkbox"/>	FRIEND	<input type="checkbox"/>
8	<input type="checkbox"/>		<input type="checkbox"/>