



# The Effects of Student-Teacher Ethnoracial Matching on Exclusionary Discipline for Asian American, Black, and Latinx Students: Evidence From New York City

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**The Effects of Student-Teacher Ethnoracial Matching on Exclusionary Discipline for Asian American, Black, and Latinx Students: Evidence From New York City**

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**Abstract**

Although Black and Latinx students disproportionately face exclusionary school discipline, prior research finds that the likelihood of suspension for Black students decreases when they are taught by greater proportions of Black teachers. Little prior work, however, has examined whether these effects generalize to large, diverse, urban school districts or to Asian American or Latinx students and teachers. Using student fixed effects models and 10 years of data from New York City, we find that assignment to greater proportions of ethnoracially matched teachers decreases the likelihood of suspension for Black, Latinx, and Asian American students. The magnitudes of these effects are small but suggest that diversifying the teacher workforce could lead to significant decreases in exclusionary discipline in urban districts.

*Keywords:* Discipline disparities, urban schools, student-teacher ethnoracial matching, teachers of color

## **The Effects of Student-Teacher Ethnoracial Matching on Exclusionary Discipline for Asian American, Black, and Latinx Students: Evidence From New York City**

Compared to White students, Black and Latinx students face the harshest and most exclusionary forms of school discipline (Carter, 2018; Gregory et al., 2010). As early as preschool, students of color are more likely to be suspended from school (Gilliam, 2005), with Black students accounting for 43% of all preschool suspensions despite only comprising 18.2% of U.S. preschoolers (U.S. Department of Education Office for Civil Rights, 2014). Similar patterns hold for Latinx students, in particular Latinx boys; approximately one in five Latinx male students is suspended before they enter high school (Huerta et al., 2020). Disproportionality in exclusionary school discipline for Black and Latinx students continues throughout K–12 schooling (Carey, 2021; Nelson, 2016). These disparities are particularly severe in large, urban districts (Wallace, 2018); in New York City, for example, Black and Latinx students are 3.6 and 1.7 times more likely to be suspended, respectively, compared to their White peers (New York City Department of Education [NYCDOE], 2016), and Black students receive longer suspensions than other students who commit the same infractions (Shi & Zhu, 2021).

Suspensions are linked to a variety of negative, long-term outcomes, including lower academic achievement (Arcia, 2007; Hwang, 2018; Lacoé & Steinberg, 2018), a lower likelihood of civic engagement, and a lower likelihood of voting (Kupchik & Catlaw, 2015). One recent study found a positive association between the Black-White discipline gap and the Black-White achievement gap (Pearman et al., 2019). Many have viewed the disproportionate application of school discipline and punitive policies to students of color as a step in the cradle-to-prison pipeline (Bristol & Mentor, 2018; Britton, 2021a; Britton, 2021b). Understanding the factors that contribute to—and potentially remediate—discipline disproportionalities in the early years of

schooling is therefore an important topic for educational research and policy.

One potential contributor to the inequitable disciplinary outcomes facing children of color, which is raised by prior research, is these students' lack of access to teachers who share their ethnoracial backgrounds (Graham, 2011; Spiegelman, 2020). While approximately 50% of the nation's students are students of color, compared to 18% of the educator workforce (NCES, 2016), in large, urban districts such as New York City, more than 85% of students are students of color, compared to only 40% of the city's teachers (Layton, 2015). A strong body of evidence suggests that having a teacher that shares students' ethnoracial background improves academic outcomes and social and emotional outcomes for students of color (Dee, 2004; Easton-Brooks, 2019; Egalite et al., 2015; Ehrenberg & Brewer, 1995; Gershenson et al., 2019; Kettler & Hurst, 2017; McArthur & Muhammad, 2020; Siddle Walker, 2000). There is relatively little evidence, however, on the effects of having a same-race teacher on disciplinary outcomes, with the exception of a state-wide analysis that found that assignment to higher proportions of Black teachers decreased the likelihood of suspension for Black students in North Carolina (Lindsay & Hart, 2017).

Prior work has left two important gaps in the evidence regarding the relationships between student-teacher ethnoracial matching and disciplinary outcomes for students of color. First, little is known about the links between access to ethnoracially matched teachers and student discipline in the place perhaps most affected by these gaps: large, urban school districts. Since large, urban districts hold the greatest concentrations of students of color in U.S. public schools, and are where the disparities between student and teacher ethnoracial composition are most acute, it is important to explore the impacts of student-teacher ethnoracial matching on disciplinary outcomes in these settings. Most prior work on the impacts of student-teacher

ethnoracial matching has focused on state or national levels. The impacts of such matching could differ in diverse settings such as New York City, where in 2021, 16% of students are classified as Asian American, 26% as Black, 41% as Latinx, and 15% as White (NYCDOE, 2021).<sup>1</sup>

Second, little is known about the impacts of student-teacher ethnoracial matching on disciplinary outcomes for Asian American and Latinx students despite the significant numbers of Asian American and Latinx students in many school districts (Chow, 2021; Flores, 2017). The lack of understanding of these impacts for Latinx students is a particularly notable gap in the literature given that Latinx students comprise 26% of public school students nationwide (Hussar & Bailey, 2018). In large, urban districts such as New York City Latinx students now comprise even larger percentages of the student population—slightly more than half of public school students in New York City (Merrill & Kang, 2017). Recent evidence also suggests that Latinx teachers have particular impacts on educational outcomes for Latinx students, specifically achievement (López, 2016), advanced course taking (Kettler & Hurst, 2017), and college aspirations (Atkins et al., 2014). Yet prior work on the impacts of student-teacher ethnoracial matching has focused almost exclusively on Black students. Moreover, the studies of Black students have focused largely on the mid-Atlantic or southern United States (Tennessee, Florida, North Carolina), leaving it unknown whether the impacts of student-teacher ethnoracial matching on outcomes for Black students might differ outside of those regions of the country.

To contribute to the body of evidence regarding the impacts of student-teacher ethnoracial matching on disciplinary outcomes for students of color, this study draws on 10 years of data on students and teachers in the largest urban school system in the United States, the New York City Department of Education (NYCDOE), to answer the following research question:

- Does student-teacher ethnoracial matching impact the likelihood or severity of

exclusionary discipline for Asian American, Black, and Latinx students in a large, diverse, urban school district?

We find that in years when they are assigned greater proportions of ethnoracially matched teachers, Black and Latinx students in grades 4–8 in New York City are significantly less likely to be suspended from school. Asian American students are also less likely to be suspended as the proportion of Asian American teachers increases, although these estimates generally fall short of statistical significance. The magnitudes of our estimated effects are small, suggesting that a standard deviation increase in the proportion of ethnoracially matched teachers causes a 3% decrease in the likelihood of suspension for Black and Latinx students. These results suggest that diversifying the teacher workforce should be one approach to reducing disparities in student discipline in diverse, urban settings such as New York City but that learning from Black and Latinx educators' approaches to discipline may also be a fruitful approach.

### **Background and Framing**

#### **Student-Teacher Ethnoracial Matching and Educational Outcomes for Students of Color**

A significant body of research shows that students of color have improved academic outcomes when they are taught by teachers of similar ethnoracial backgrounds (for a review, see Bristol, 2020; Redding, 2019). Using data from as far back as 1966, researchers have uncovered positive associations between the representation of Black teachers in schools and the academic achievement of Black students (Ehrenberg & Brewer, 1995). Dee (2004) advanced this work significantly by using data from the Tennessee STAR class size experiment, which randomly assigned students to teachers, to find that Black and White students randomly assigned to ethnoracially matched teachers performed better on standardized tests than students that were assigned to teachers of other ethnoracial backgrounds.

Building on this work, a variety of recent studies have confirmed the positive impacts of same-race teachers on academic outcomes for students of color. One analysis of nationally representative data, for example, found that Black students' English/Language Arts (ELA) and math test scores improved when they were taught by Black teachers (Easton-Brooks, 2019). Another study, using student fixed effects and eight years of data from Florida, found that Black students performed better on state standardized exams in years that they were assigned a Black teacher, compared to years that they were assigned a teacher of a different race (Egalite et al., 2015). Other recent work has found that Black students are more likely to aspire to attend college and less likely to drop out of high school when they are taught by a Black teacher in grades 3–5 (Gershenson et al., 2019). Another analysis of 50,000 adolescents across six districts revealed that Black students taught by Black teachers were more likely to report a desire to attend college and to state that their teachers cared for and motivated them compared to Black students taught by White teachers (Egalite & Kisida, 2017).

There is a robust body of qualitative evidence that examines the challenging school-based experiences of students of color and links those challenges to the ethnoracial composition of students' teachers (Annamma et al., 2019; Carter, 2005). This literature documents some White teachers' internalized racist beliefs toward Black and Latinx children (Foiles Sifuentes, 2015; Diamond et al., 2004). Specifically, researchers find that internalized racist beliefs held by White teachers are a central contributor to the disproportionate rate at which Latinx and Black students are disciplined when compared to their White and Asian American peers (Hancock & Warren, 2017; Huerta et al., 2019; Rodriguez, 2020).

Relatively little quantitative research has examined the effects of student-teacher ethnoracial matching on disciplinary outcomes for students of color. In his re-analysis of the



Tennessee STAR data, Dee (2005) found that Latinx and Black students were less likely to be perceived as disruptive when taught by an ethnoracially matched teacher than when taught by a White teacher. Two recent studies have added to this burgeoning area of research. Chin et al. (2020) examined nationwide data and found that higher suspension rates for Black students were associated with increased teacher self-reports of implicit bias. The authors also noted that Black teachers had lower ratings of implicit bias (Chin et al., 2020). Lindsay and Hart's (2017) analysis of North Carolina student-level administrative data is one of the first quantitative examinations of the impact of assignment to Black teachers on Black students' disciplinary outcomes. They found that across elementary, middle, and high schools, Black students had a lower likelihood of out-of-school and in-school suspension when taught by a Black teacher compared to when taught by a White teacher.

As the above descriptions suggest, the overwhelming majority of the prior research on the effects of student-teacher ethnoracial matching has focused on Black students. Several studies, however, have explored the impacts of Latinx teachers on outcomes for Latinx students. Atkins et al. (2014) analyzed a nationally representative sample of middle and high school students and found that Latinx students were more likely to report that they would graduate from college when they were taught by a Latinx teacher compared to when they were taught by Black or White teachers. Kettler and Hurst (2017) found that an increase in the number of Latinx teachers on a school's faculty was associated with an increased likelihood of Latinx students' taking advanced placement and international baccalaureate courses. López (2016) found that when Latinx teachers enacted culturally responsive teaching practices, the reading achievement of their Latinx students increased, after controlling for prior outcomes. Although the findings of these studies provide important information on how Latinx teachers might impact outcomes for Latinx

students, studies on the effects of student-teacher ethnoracial matching on Latinx student outcomes generally do not use research methods that yield plausibly causal claims, leaving open the question of whether Latinx teachers themselves affect outcomes for Latinx students or whether other factors instead drive these correlations. Research on the effects of ethnoracial matching for Asian American students is largely nonexistent.

This study aims to fill these gaps in the research literature in two important ways. First, we extend the literature by moving beyond an examination of Black/White differences in school discipline outcomes to explore effects of student-teacher ethnoracial matching for Asian American, Black, and Latinx students. Second, while previous research has examined the effects of student-teacher ethnoracial matching on disciplinary outcomes using state-level administrative data (Dee, 2005; Kinsler, 2011), this study analyzes administrative data from New York City, the nation's largest school district.

### **Mechanisms by Which Teachers of Color Could Affect Discipline Outcomes for Students of Color**

Research has increasingly shed light on the mechanisms by which teachers of color positively impact outcomes for students of color. Some of these mechanisms are particularly applicable to student discipline and demonstrate why and how ethnoracial matching between students and teachers could impact disciplinary outcomes (Bristol, 2014). Teacher expectation is one mechanism particularly relevant to student discipline by which same-race teachers positively impact outcomes for students of color. Researchers have long explored the relationship between teacher expectations and academic outcomes for youth of color, focusing particularly on Black teachers and their students (Foster, 1997; Ladson-Billings, 2009). These explorations have revealed that some White teachers in urban areas have low expectations for their economically

disadvantaged students of color (Diamond et al., 2004). Moreover, White teachers' beliefs influence the low cognitively demanding tasks they assign their students of color (Warren, 2016). Gershenson et al. (2016) supported this finding, using a fixed effects strategy that compared different teachers' expectations for the same students, finding that Black teachers were significantly more likely than White teachers to have higher expectations for Black students. Such perceptions are not lost on students of color as they recognize and subsequently internalize the low expectations of their White teachers (Douglas et al., 2008; Milner, 2006).

Siddle Walker's (2000; 2001) historiographical analysis described how Black teachers maintained high academic expectations for their Black students in state-mandated segregated schools in the South. In those schools, a rigorous curriculum, coupled with Black teachers' expectations, prepared Black students with tools to navigate the social challenges of living under Jim Crow (Bond, 1966). Moreover, Black teachers' high academic expectations for their Black students has been shown to create positive classroom-based conditions in which Black students feel that their teachers care about them (Ladson-Billings, 2009; Foster, 1997). This care, coupled with Black teachers' focus on building rapport with students alongside high academic expectations, decrease the likelihood of Black students' school disciplinary infractions (Irvine, 2003; Ware, 2006). Conversely, when Black students are aware that their White teachers view them through a racialized lens requiring discipline and control, Black students may respond by disengaging and through externalizing misbehavior (Carter, 2005; Nasir, 2011).

Additionally, there is a growing body of evidence on how teachers' attention to students' social and emotional needs facilitates increased student engagement and learning (Brackett et al., 2012; O'Connor & McCartney, 2007). Researchers have long documented how Black teachers attend to their Black students' social and emotional needs (Irvine & Irvine, 1983). Researchers

have found similar practices and outcomes for Latinx students and teachers, particularly that Latinx teachers' knowledge of their Latinx students' cultural and linguistic experiences influence these teachers' capacity to create positive social and emotional classroom environments (Lara & Fránquiz, 2015; Newcomer, 2017). Other research finds that Latinx and Black teachers serve as role models for their students of color, and these positive role models improve student self-confidence, self-esteem, and behavior (Antrop-González & De Jesús, 2006; Goings & Bianco, 2016).

Student discipline is unique from academic achievement insofar as disciplinary referrals are about teachers' perceptions of student behavior and are thus strongly subject to teachers' conscious and unconscious biases (Milner, 2013). Discipline referrals are as much—if not more—rooted in teachers' and other school officials' *perceptions* of the severity of student misbehavior as they are in the objective severity of the behavior (Annamma et al., 2020). By this account, the differences in disciplinary outcomes between students of color when assigned to ethnoracially matched or White teachers could be due to the fact that teachers of color *perceive* the behavior of students of color differently than White teachers.

The current body of evidence finds that teachers of color are more likely to have a deep understanding of the unique cultural circumstances and the social and emotional needs of students of color compared to White teachers and are thus better able than White teachers to support those students academically and emotionally (Irvine & Irvine, 1983; Lara & Fránquiz, 2015; Newcomer, 2017; Siddle Walker, 2000). This is supported by work that suggests that students of color feel more cared for by teachers that share their ethnoracial backgrounds (Atkins et al., 2014; Egalite & Kisida, 2017; Gershenson et al., 2016). By understanding their students' backgrounds and cultures, teachers of color may not impose a negative interpretation onto certain

behaviors and therefore may be less likely to refer students of color for exclusionary discipline (Carter Andrews et al., 2019). Having absorbed negative stereotypes about students of color, White teachers may act on unconscious biases in the application of discipline decisions and apply harsher penalties to Black students than White students (Barrett et al., 2021; Shi & Zhu, 2021).

### **Exclusionary Discipline Policy and Practice in New York City Schools**

In addition to the size and diversity of the New York City school system, policies and practices surrounding exclusionary discipline in New York City schools make the city an interesting site to conduct our work. During the period of our study, the New York City school system increasingly targeted policies on reducing the use of exclusionary discipline, particularly for students of color. Many of these changes focused on the school discipline code, an official policy document that classifies and describes inappropriate student conduct and lays out a range of approved intervention and disciplinary measures for school personnel to utilize in response to this conduct (New York City Department of Education [NYCDOE], 2020). A central distinction made by the discipline code is between “principal” and “superintendent” suspensions. Principal suspensions can be administered by school principals without district approval, are targeted at less severe offenses, and are limited in duration to between one and five school days.

Superintendent suspensions are for more serious infractions of the discipline code, can result in out-of-school suspensions of more than five school days, and require the approval of the chief executive officer of the city schools or the local community superintendent (NYCDOE, 2004).

There were three major reforms of district discipline policies in New York City during the period of our study. The first took effect during the 2012–13 school year. It was prompted by public reports including one by the New York Civil Liberties Union and the Student Safety

Coalition (Miller et al., 2012) that demonstrated high rates of exclusionary discipline in New York City schools and the overrepresentation of students of color among students receiving the most severe forms of discipline (Eden, 2017). At this time, the discipline code was revised to limit the use of suspension for low-level, first-time student offenses, to encourage the use of restorative and preventative approaches to discipline, and to increase “quick” responses to student misbehavior using student-centered interventions at the school level (Baker, 2012; NYCDOE, 2012). This revision of the discipline code also lowered the maximum suspension length for kindergarten through third grade students for “midlevel” offenses (including bringing an unauthorized person into school or shoving a fellow student) from 10 days to five (Baker, 2012; NYCDOE, 2012).

A change in mayoral administrations in New York City prompted a second major revision to the school discipline code in the 2015–16 school year. This revision aimed to further increase the use of restorative practices as interventions for student misbehavior and limit reliance on suspension as a disciplinary response (Harris, 2014; NYCDOE, 2015). The most notable revision to suspension practices at this time was the requirement that school principals obtain approval from the district’s Office of Safety and Youth Development before suspending students for “noncompliant or disorderly behavior” (Eden, 2017). The mayor also allocated funds for training, support services, and a “School Climate Leadership Team” to oversee reform progress and school-level implementation (Shapiro, 2015).

The final set of revisions to discipline policies during the period of our study came in 2016–17. Citing success with the first set of school discipline reforms in dropping suspension rates (NYC Office of the Mayor, 2016), the new reforms required principals to submit documentation detailing “restorative interventions” put in place prior to enacting a

superintendent's suspension, with "mitigating factors" considered in determining appropriate disciplinary action (Eden, 2017). To further reduce suspension rates, the new policies also prohibited suspension for students in grades K–2, instead promoting "appropriate positive disciplinary interventions" in lieu of previous exclusionary discipline practices (NYC Office of the Mayor, 2016). The new reforms also enhanced funding for resource support in high-needs schools and reinforced data reporting and transparency measures (NYC Office of the Mayor, 2016).

Suspension rates dropped in New York City over the period of our study, both overall and for subgroups of students (Zimmerman, 2019). Research also shows that significant disparities by student race/ethnicity have persisted in both the application and the severity of exclusionary student discipline in New York City schools (Ayoub et al., 2019; Eden, 2017; Miller et al., 2011). Our analyses take a variety of approaches to account for this unique context and the changes in policy that occurred over the period of our study; these methods are described in the following section.

## **Methods**

### **Data and Sample**

Data for this study are drawn from deidentified administrative personnel and student outcome files provided by the New York City Department of Education (NYCDOE). These files span 10 academic years (2007–08 through 2016–17) and allow the linking of students with teachers in each year. For students, the files include all students in noncharter schools in grades 4–8 each year; for five of the 10 years (2012–13 through 2016–17), the data also include third grade students. Of central interest to this study is year-by-year disciplinary information and a variety of demographic information on students, including race/ethnicity, English language

learner status, special education status, and low-income status as well as teacher race/ethnicity, years of experience, and salary in each year. In the data, student race/ethnicity is categorized as one of “Asian,” “Black,” “Hispanic,” “multiracial,” “Native American,” or “White”; teacher race/ethnicity followed the same categorization with the omission of “multiracial.”<sup>2</sup> In describing our work, we follow this terminology with the exception of “Asian” and “Hispanic,” for which we substitute what we consider the more accurate “Asian American” and “Latinx,” respectively.

The data files included information on all pedagogues (teachers, administrators, teacher assistants, substitute teachers, and other school employees). We retained regular, active teachers who worked in schools and for whom we had information on gender, race, years of experience, and salary. We also dropped the few teachers who had previously held administrative positions (principal, assistant principal) in their schools.

To create our analytic student sample, we retained students in years when at least one of their teachers appeared in the teacher data. We limited the analytic sample to students who appeared in both the test score and demographic data files, who were in grades 4–8 (students in grade 3 were also included in 2012–13 through 2016–17), and for whom we had race/ethnicity information. We dropped students who attended schools for which we had no school-level data on students and teachers. Our final analytic sample includes a total of 3,521,170 student-year observations, with roughly 70,000 unique teachers and 350,000 unique students each year. In one year, 2011–12, the data file linking students and teachers included a significantly smaller number of students, approximately 250,000, for which we were not able to determine a reason in our conversations with the district. Although we retained multiracial students, Native American students, and Native American teachers in our sample, we did not analyze the impacts of ethnoracial matching for Native American students because of the small numbers of Native



American students and teachers in our data. We do not report descriptive statistics for Native American students in our tables.

### **Matching Students and Teachers**

For each of the 10 years, our data contain information on students' English/Language Arts (ELA) and math teachers. In one year (2012–13), the data include information on science teachers; in four years (2013–14 through 2016–17), the data contain information on “other” teachers. Along with the types of teachers included, the numbers of teachers contained in the data also varied over the 10 years. In 2007–08 through 2011–12, when the data include only ELA and math teachers, most students were linked to a single teacher in each subject. In 2012–13, when science teachers were also included, students were also slightly more likely to be linked to more than one teacher in both ELA and math. In the last four years (2013–14 through 2016–17), an even greater proportion of students are linked to more than one ELA and math teacher, and students are additionally linked to an average of between four and six “other” teachers. The changes in the numbers of teachers linked to each student likely reflects changes in the system through which information on students and teachers were collected: in 2013–14, NYCDOE implemented a new system for creating student schedules, recording grades, and printing report cards.

Given the changes across the research period in the way that data were collected, and the resulting differences in the numbers of teachers matched to students across the years, we conduct robustness checks to explore differences in our findings when we limit our analyses to either the first or second five years of our data (before and after the most significant change in data reporting). We also conduct robustness checks where we limit our analyses to ELA and math teachers, for whom we have data across the entire 10 years.

## Analytic Methods

### *Student Fixed Effects Models*

Following prior work (Egalite et al., 2015; Joshi et al., 2018; Lindsay & Hart, 2017), our analyses use student fixed effects to measure the impacts of ethnoracially matched teachers on exclusionary student discipline. This approach leverages the longitudinal nature of our data to compare the likelihood of exclusionary discipline for students in years that they are assigned different proportions of teachers that are classified as the same ethnoracial category. Our models are most similar to the models used by Lindsay and Hart (2017) to examine the effects of exposure to Black teachers on disciplinary outcomes for Black students in North Carolina.

Our student fixed effects models are as follows:

$$\begin{aligned} Discipline_{igst} = & \beta_0 + \beta_1 PctAsianAmerTch_{igst} + \beta_2 PctBlackTch_{igst} + \beta_3 PctLatinxTch_{igst} \\ & + \beta_4 PctNativeAmericanTch_{igst} + \beta_5 StudentChars_{igst} \\ & + \beta_6 TeacherChars_{igst} + \beta_7 SchoolChars_{st} + \alpha_i + \gamma_{gs} + \phi_t + \varepsilon_{igst} \end{aligned}$$

Here,  $Discipline_{igst}$  is a measure of student exclusionary discipline for student  $i$  in grade  $g$  in school  $s$  in year  $t$ . In some analyses, this is an indicator for whether a student received an out-of-school suspension that year, while in other analyses, it is the length (in days) of student suspension or an indicator for whether the student received a superintendent's suspension. We use linear probability models for ease of interpretation.  $PctAsianAmerTch_{igst}$  is the proportion of Asian American teachers assigned to student  $i$  in grade  $g$  in school  $s$  in year  $t$ , and  $PctBlackTch_{igst}$ ,  $PctLatinxTch_{igst}$ , and  $PctNativeAmericanTch_{igst}$  are the proportions of the other teacher ethnoracial groups among that student's teachers. The proportion of White teachers is the omitted category.  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are the coefficients of interest for Asian American, Black, and Latinx students, respectively, and capture the average predicted impact on exclusionary

discipline of changing the composition of students' teachers from no representation of same-race teachers to entirely same-race teachers.  $StudentChars_{igst}$  is a set of time-variant and time-invariant student characteristics for student  $i$  in grade  $g$  in school  $s$  in year  $t$ .  $TeacherChars_{igst}$  is a set of time-variant and time-invariant teacher characteristics for the teachers assigned to student  $i$  in grade  $g$  in school  $s$  in year  $t$ ;  $SchoolChars_{st}$  is a set of school characteristics for school  $s$  in year  $t$ ;  $\alpha_i$  is a student fixed effect;  $\gamma_{gs}$  is a grade-school fixed effect;  $\phi_t$  is a year fixed effect; and  $\varepsilon_{igst}$  is a student-level error term. In some models, we also include fixed effects for each of the 32 local community school districts in New York City. Standard errors are clustered at the grade-school level.

The advantage of the student fixed effects approach is that the estimates draw on within-student comparisons over time. This is important because prior research shows that within schools students are systematically sorted to teachers based on student and teacher race (Clotfelter et al., 2006). Even within school-grades, students with prior disciplinary infractions are more likely to be assigned to Black teachers (Lindsay & Hart, 2017). A disadvantage of our student fixed effects approach is that students whose exposure to ethnoracially matched teachers does not vary over time do not contribute to our estimates. This occurs when students are always taught by ethnoracially matched teachers or are never taught by such teachers.

Table 1 presents information on student assignment to ethnoracially matched teachers for students that were observed more than once across the 10 years. Table 1 shows that 45% of Asian American students, 14% of Black students, and 28% of Latinx students were never assigned an ethnoracially matched teacher while every White student was assigned an ethnoracially matched teacher at least once. Table 1 also shows that no Asian American students, 5% of Black students, 1% of Latinx students, and 24% of White students were only assigned

ethnographically matched teachers. Since these two groups of students did not vary in their assignment to ethnographically matched teachers, they do not contribute to estimates of our student-fixed-effects models; instead, our student fixed effects estimates focus on the 55% of Asian American students, 81% of Black students, 71% of Latinx students, and 75% of White students who were assigned both ethnographically matched and non-ethnographically matched teachers over the period that they were observed in our data. This should be taken into account when interpreting our results.

We conduct our main analyses separately for students of each ethnographic category. As described above, we conduct robustness checks where we limit teachers to ELA and math teachers; where we examine effects separately for students in elementary (grades K–5) and middle (grades 6–8) schools; and before and after the 2012–13 changes in the school discipline code. We exclude the last year (or two years) of our data, when the final reforms to the discipline code took effect, to examine whether these exclusions impact our main results. We also conduct analyses including fixed effects for the local community school districts in New York City.

### *Measures*

We use three dependent variables to measure exclusionary discipline. The first is an indicator for whether a student was suspended during the school year; the second is a measure of the length (in school days) of the suspension for suspended students; and the third is an indicator for whether the suspended student received a superintendent's suspension, which required the approval of district officials along with the approval of the school principal.

Figure 1 shows the proportion of New York City grade 4–8 students that received a suspension and a superintendent's suspension across the 10 years. Figure 1 shows that there was decline across this period in the proportion of students who received a suspension, from a high of

more than 5% of students in 2008–09 to a low of just above 2% of students in 2016–17. The figure also shows that there was a decline in the proportion of students that received a superintendent’s suspension across this period, although this decline was less marked than the decline in the overall proportion of students suspended. Figure 1 shows that the declines in proportions of suspended students did not coincide with declines in student enrollment in grades 4–8 in New York City public schools across this period; the total number of students in grades 4–8 in New York City actually rose slightly during this time.

Figure 2 focuses on the proportion of students suspended each year who were Asian American, Black, Latinx, or White. Across the entire period, suspended students were roughly 45% Black and 40% Latinx; White students comprised less than 10% of suspended students. These proportions were relatively consistent across the 10 years that we examine here, even as the overall proportion of grades 4–8 students that were suspended declined (as shown in Figure 1). Figure 2 shows that the exception was Black students, who comprised a declining proportion of suspended students between 2013–14 and 2016–17, and Latinx students, who comprised a greater proportion of suspended students in those same years. Figure 2 shows that by 2016–17, suspended students were more likely to be Latinx than Black. Similar patterns were apparent among students who received superintendent’s suspensions, which are not presented here.

Table 2 presents descriptive statistics on the proportion of students of each ethnoracial category that were suspended, the mean length of suspension (among suspended students), and the proportion of students receiving a superintendent’s suspension (among suspended students). The table focuses on the first and last years of our data for clarity of presentation and to highlight changes across the study period. Black students were the most likely to be suspended, with 7% of Black students suspended in 2007–08 (4% in 2016–17). Black students also had the longest

suspension length (12 days on average in 2007–08) and the greatest likelihood of receiving a superintendent’s suspension (35% in 2007–08).<sup>3</sup> Latinx students were the second most likely to be suspended and generally received the second most severe suspensions behind Black students, followed by Asian American and White students.

**Student-Teacher Matching.** The key independent variable for our analysis is a measure of the proportion of a student’s teachers in a given year that shared that student’s ethnoracial category. The strength of this measure is that it is relatively unaffected by changes in the numbers of teachers linked to students over time; a weakness of this measure, however, is that it weighs each teacher equally in determining this proportion, even though students might spend different amounts of time during the school day with various teachers. This is a particular concern for elementary school students (here, students in grades 3–5) who are likely to be in self-contained classrooms and therefore exposed to a single teacher for much of the school day. We address this concern by exploring the sensitivity of our findings to limiting the sample to just students in elementary (grades K–5) or middle (grades 6–8) schools.

Table 3 presents descriptive statistics on student-teacher ethnoracial matching for the first and last years of our data. Table 3 shows that, in 2007–08, an average of 34% of teachers shared their students’ ethnoracial category and 40% of students had at least one ethnoracially matched teacher that year. However, there was a great deal of variation in students’ exposure to ethnoracially matched teachers by student ethnoracial category. For example, in 2007–08, 85% of White students’ teachers were White while an average of 42% of Black students’ teachers were Black. Latinx students’ teachers were, on average, 19% Latinx while Asian American students’ teachers were, on average, 9% Asian American. Within student ethnoracial groups, however, there was significant variation in the proportion of ethnoracially matched teachers, as

evidenced by the relatively large standard deviations for the proportion measures shown in the table.

Table 3 also shows that the proportion of ethnoracially matched teachers remained relatively consistent between 2007–08 and 2016–17 for all ethnoracial student groups. The overall average proportion of ethnoracially matched teachers declined slightly from 34% in 2007–08 to 31% in 2016–17; the decline in proportion of ethnoracially matched teachers was greatest for Black students, declining from an average of 42% Black teachers in 2007–08 to an average of 35% Black teachers in 2016–17. For Asian American and Latinx students, the proportion of ethnoracially matched teachers remained generally consistent over time.

In contrast to the proportion of ethnoracially matched teachers, the likelihood of being assigned at least one such teacher increased markedly across the 10 years. Overall, while 40% of students had at least one matched teacher in 2007–08, 69% of students were assigned at least one such teacher in 2016–17. This increase is likely due in large part to the increased numbers of teachers included in our teacher data in later years.

**Controls.** Our analyses control for several time-variant student characteristics that could be associated with both the likelihood of being assigned an ethnoracially matched teacher and the likelihood of exclusionary discipline: an indicator for student gender (female=1), an indicator for student poverty (as measured by qualification for free or reduced-price lunch), an indicator for whether the student was classified as receiving special education services, and an indicator for whether the student was classified as an English Learner.

Since our predictor variable represented the proportion of a student's teachers in a given year that were the same ethnoracial category as the student, we also controlled for a number of other time-variant characteristics of students' teachers in each year. We controlled for the mean

years of experience in the district among the student's teachers; the mean annual teacher salary that year among the student's teachers; and the proportion of female teachers among the student's teachers. We also included the proportions of other teacher race-ethnicities among the student's teachers that year (with White teachers as the omitted category) in our models.

Finally, we controlled for a number of school characteristics: the proportion of each ethnoracial group of students in the school; the proportion of low-income students in the school (as measured by the proportion of students qualifying for free or reduced-price school lunch); and overall student enrollment. We also controlled for school mean standardized achievement, along with the proportion of students in the school that year that received a suspension in each year, to account for schools' overall tendency to suspend students. We included dummies for schools that were missing the mean standardized achievement measure to maintain the most possible students in our sample.

Table 4 presents descriptive statistics for our sample for 2007–08 and 2016–17. In 2007–08, 15% of students were Asian American, 30% were Black, 40% were Latinx, and 14% were White. Additionally, 81% of students' families were classified as low-income, 16% of students received special education services, and 13% were classified as English learners. By 2016–17, the proportions of Black and low-income students in our sample had decreased to 22% and 71%, respectively. Table 4 shows that the demographic makeup of New York City teachers differed greatly from that of students: in 2007–08, for example, students' teachers were on average 61% White, 22% Black, 12% Latinx, 5% Asian American, and 79% female. These numbers remained largely unchanged in 2016–17, although the proportions of Black and female teachers declined slightly to 16% and 72%, respectively.

## Results



We find small but statistically significant effects of student-teacher ethnoracial matching on the likelihood of suspension for Black and Latinx students in grades 4–8 in New York City; our estimates of the effects of student-teacher ethnoracial matching for Asian American students are consistently negative but generally slightly above conventional thresholds for statistical significance. Table 5 presents regression results predicting the likelihood of suspension for Asian American, Black, Latinx, and White students and the coefficients from student-fixed-effects models for the proportions of Asian American, Black, and Latinx teachers among these students' teachers each year. The coefficient for the proportion of Black teachers is statistically distinguishable from zero ( $p < 0.000$ ), and the magnitude of this coefficient is  $-0.005$  ( $SD = 0.001$ ), suggesting that an increase in the share of Black teachers from 0 to 1 (i.e., from no Black teachers to entirely Black teachers) would cause the likelihood of suspension for Black students to fall about half a percentage point. To put the magnitude of this estimate in perspective, a more realistic scenario might involve raising the share of Black teachers for Black students by a standard deviation (in our data, from 40% to 80%); our estimates suggest that raising the proportion of Black teachers by this amount would cause a drop in the likelihood of suspension for Black students of about two tenths of a percentage point,  $-0.005 \times (0.80 - 0.40) = -0.002$ . Although a small decline, when compared to the base likelihood of suspension for Black students (6%), this would represent roughly a three percent decline in the likelihood of suspension for Black students ( $-0.002/0.06 = -0.03$ ). To put these numbers into perspective, given the numbers of Black students suspended and the median length of their suspensions across the entire 10-year span of our data, such a decline would translate to roughly 1,800 fewer instances of suspension for Black students or approximately 9,000 more days in school for Black students over that period. In a single year, using 2007–08 as an example, such a reduction would mean roughly 200

fewer suspensions of Black students in grades 4–8 in New York City or an additional 1,100 school days for those students.<sup>4</sup>

We also find that the proportion of Latinx teachers significantly affects the likelihood of exclusionary discipline for Latinx students. Estimates from our student-fixed-effects models suggest that raising the share of Latinx teachers from 0 to 1 for Latinx students would drop the likelihood of suspension for these students by roughly three tenths of a percentage point ( $\beta = -0.003$ ,  $SD=0.001$ ). These results suggest that raising the share of Latinx teachers for Latinx students in grades 4–8 in New York City by a standard deviation (from 20% to 51%) would cause the likelihood of suspension for Latinx students to fall about a tenth of one percent,  $-0.003 \times (0.51-0.20) = -0.001$ . Relative to the base likelihood of suspension for Latinx students (4%), this represents a 3% decline in the likelihood of suspension for Latinx students. Across the 10 years, such a decline would translate to approximately 1,500 fewer instances of suspension for Latinx students or roughly 7,800 more days in school for Latinx students over that period. In a single year, using 2007–08 as an example, such a reduction would mean 180 fewer suspensions of Latinx students in grades 4–8 in New York City or an additional 900 school days for those students.

Table 5 also presents results for the effects of student-teacher ethnoracial matching on exclusionary discipline for Asian American students. Here, the estimate for the proportion of Asian American teachers on the likelihood of exclusionary discipline for Asian American students is marginally statistically significant ( $p=0.08$ ), and the magnitude of the estimate ( $\beta = -0.002$ ,  $SD=0.001$ ) suggests that raising the proportion of Asian American teachers from 0 to 1 would cause the likelihood of suspension for Asian American students to drop by roughly a fifth of a percentage point. These estimates suggest that raising the proportion of Asian American

teachers for Asian American students by a standard deviation (from 10% to 27%) would cause a decline in suspension likelihood for Asian American students of 0.03 percentage points,  $-0.002 \times (0.27-0.10) = -0.0003$ . Relative to the base likelihood of suspension for Asian American students (1%), this represents a 3% decline in the likelihood of suspension for Asian American students ( $-0.0003/0.01 = -0.03$ ), similar to that for Black and Latinx students. Across the 10 years such a decline would translate to roughly 230 fewer instances of suspension for Asian American students or 680 more days in school for Asian American students over that period. In 2007–08, such a reduction would mean approximately 25 fewer suspensions of Asian American students or an additional 70 school days for those students. Contrary to the estimates for Asian American, Black, and Latinx students, the estimates presented in the left panel of Table 5 show that the proportion of Asian American, Black, or Latinx teachers do not significantly affect the likelihood of suspension for White students.

In separate analyses presented in Appendix A, we examine the effects of the proportion of ethnoracially matched teachers on suspension length as well as on the likelihood of receiving a superintendent's suspension. Since each of these outcomes was conditional on being suspended, these analyses were limited to suspended students in each year; in addition, because these analyses included student fixed effects, the samples were also limited to students who were suspended in more than one year. We found no significant impacts of the proportion of ethnoracially matched teachers on the length of student suspension, conditional on being suspended, although the estimates for the proportion of matched teachers were negative for Asian American, Black, and Latinx students (Appendix A, left panel). We also found no significant effects of the proportion of ethnoracially matched teachers on the likelihood of receiving a superintendent's suspension, again, conditional on being suspended (Appendix A,

right panel). Here, the estimates showed no consistent pattern in either magnitude or direction.

### **Separating School Levels**

We conducted our analyses separately by school level; results for students in elementary (grades K–5) and middle (grades 6–8) schools are presented in the left and right panels, respectively, of Table 6. When comparing the two sets of results, several patterns stand out. First, for Asian American and Black students, the impacts of ethnoracially matched teachers on the likelihood of suspension are significantly larger in middle schools than in elementary schools; however, since suspension rates are higher in middle schools compared to elementary schools, the overall impact of ethnoracial matching in the two levels of school is similar for Asian American and Black students. The magnitude of the estimates in middle schools, for example, suggests that raising the proportion of Black teachers for Black middle school students by a standard deviation (from 40% to 77%) would cause a decline in suspension likelihood for Black middle school students of 0.30 percentage points,  $-0.007 \times (0.77-0.40) = -0.003$ . Relative to the base likelihood of suspension for Black middle school students (9%), this represents a 3% decline in the likelihood of suspension for Black middle school students ( $-0.003/0.09 = -0.03$ ), which is similar to the percentage decline in the likelihood of suspension for Black students in elementary schools. The same was also true for Asian American students in middle and elementary schools; although the impact of ethnoracial matching on suspension likelihood was greater for Asian American students in middle schools compared to elementary schools, the base likelihood of suspension was much lower for Asian American students in elementary schools as well.

Comparing the impacts of ethnoracial matching for Latinx students in elementary and middle schools showed a different pattern of results. For Latinx elementary school students, the

effects of ethnoracial matching on suspension likelihood were statistically significant and suggested that raising the proportion of Latinx elementary teachers for Latinx students by a standard deviation (from 22% to 56%) would cause a decline in suspension likelihood for Latinx elementary students of 0.10 percentage points,  $-0.003 \times (0.56-0.22) = -0.001$ . This is a very small decline, but relative to the base likelihood of suspension (1%), this represents a 10% decline in the likelihood of suspension for Latinx elementary school students ( $-0.001/0.01 = 0.1$ ). As can be seen in Table 6, however, the proportion of Latinx teachers also predicted the likelihood of suspension for Asian American and Black elementary students. At the middle school level, the proportion of Latinx teachers did not impact the likelihood of suspension for Latinx students, the opposite of the pattern seen for Asian American and Black students.

Relatively few students (roughly 12% of our sample across the 10 years) attended K–8 schools; we present results for students in these schools in Appendix B. Although these analyses had limited power because of the relatively small numbers of students, the results suggest that the proportion of ethnoracially matched teachers predicted a lower likelihood of suspension for Asian American and Latinx, but not Black, students in those schools.

### **Separating Student Genders**

Conducting our analyses separately for boys and girls (Table 7) also yielded several interesting patterns of results. We find that the effects of student-teacher ethnoracial matching on exclusionary discipline are almost uniformly larger for boys than for girls; since boys are more likely to be suspended, however, the magnitudes of the estimates are generally similar. For both Black boys and girls, the proportion of ethnoracially matched teachers significantly predicted the likelihood of suspension, with a standard deviation increase in the proportion of Black teachers causing a 3% decline in suspension likelihood for boys and a 5% decline in suspension

likelihood for girls. Contrary to Black students, however, the effects of ethnoracial matching on suspension likelihood for Latinx and Asian American students are concentrated among boys, with no significant effects observed for girls (Table 7).

Two other findings of note emerge from these analyses. First, the proportion of Latinx teachers, along with the proportion of Black teachers, significantly and negatively predicts suspension likelihood for Black boys. The magnitude of this estimate is similar to that for the effects of the proportion of Black teachers. But, given the relative lack of exposure of Black boys to Latinx teachers, this suggests that raising the proportion of Latinx teachers for Black boys in grades 4–8 by a standard deviation (from 10% to 32%) would result in a 1% decline in the likelihood of suspension for Black boys. Second, the proportion of Black teachers significantly and negatively predicts suspension likelihood for Asian American girls; the magnitude of this estimate is particularly notable, suggesting that a standard deviation increase in the proportion of Black teachers for Asian American girls (from 8% to 29%) would cause the likelihood of suspension for Asian American girls to decrease by 25%. Given the small likelihood of suspension for Asian American girls (less than half of 1%) and the small number of suspensions for Asian American girls across the 10 years of our data (1,232 instances), this estimate should be interpreted with caution.

### **Robustness Checks**

We conducted a number of robustness checks to determine the impacts of various specifications on our main results. When we limited our analyses to ELA and math teachers (excluding science and “other” teachers, who are not included in our data consistently across years), we found the same general pattern of results. In these analyses, the coefficient for the impact of the proportion of Asian American teachers on the likelihood of suspension for Asian

American students was also negative but slightly above conventional levels of statistical significance ( $p=.15$ ).

When we conducted separate analyses for the pre- and post-2012 policy change periods (i.e., separately for the first and last five years of our data), we found the same general patterns of results in each period. The same was true when we excluded either the last two years of our data (2015–16 and 2016–17, the period after the second policy change) or the final year of our data (2016–17, after the third policy change occurred). We also found the same general patterns of results when we omitted third grade students (who were not included consistently in our data across the period) both overall and for the last five years of our data. We found the same general pattern of results when we included the one-year lag of the student-suspension variable in our analyses. Finally, our results remained qualitatively unchanged when we included fixed effects for the 32 local community school districts in New York City.

### **Discussion**

Prior research in education has shown that diversifying the ethnoracial composition of the teacher workforce can be an important strategy for reducing inequality in academic, social, and disciplinary outcomes for youth of color (Dee, 2004; Easton-Brooks, 2019; Egalite et al., 2015; Ehrenberg & Brewer, 1995; Gershenson et al., 2019; Kettler & Hurst, 2017; Lindsay & Hart, 2017; McArthur & Muhammad, 2020; Siddle Walker, 2000). There are two central gaps in this literature: first, the lack of research on the effects of student-teacher ethnoracial matching in large, diverse urban districts, and, second, the lack of research on the impacts of student-teacher ethnoracial matching for Asian American and Latinx students. This study is a first step in building evidence in each of these areas. We find that Black and Latinx students in grades 4–8 in New York City are significantly less likely to be suspended from school when they are assigned

greater proportions of ethnoracially matched teachers in a given year. While not statistically significant, estimates also suggest that Asian American students are less likely to be suspended as the proportion of Asian American teachers increases. When disaggregating the results for students in elementary and middle schools, the impacts of ethnoracially matched teachers on the likelihood of suspension are significantly larger in middle schools for Asian American and Black students; however, the impacts are larger at the elementary school level for Latinx students. Findings are generally stronger for boys than for girls, although there are significant decreases in suspension of Black boys when they are assigned to greater proportions of Latinx teachers as well as decreases in suspension for Asian American girls when assigned to Black teachers.

The findings on the relationship between having an ethnoracially matched teacher and a reduced likelihood of suspension, particularly for students of color, correspond to results from prior research (Lindsay & Hart, 2017). Given the greater likelihood of suspension for students in middle school compared to elementary school (Arcia, 2007; Theriot & Dupper, 2010), we would anticipate larger impacts of ethnoracial matching on student outcomes at the middle-school level. This supposition held true for Asian American and Black students but not for Latinx students; for this demographic group, the impacts were larger for teacher and student ethnoracial matches in elementary school.

Middle school remains a fraught time for students from both a social and academic perspective (Goldstein et al., 2015); thus, it is somewhat counterintuitive that Latinx students who are assigned ethnoracially matched teachers do not have more positive outcomes in middle school when compared to elementary school, as is the case for Asian American and Black students. One possible explanation could lie in perceptions of school climate and their relationship to disciplinary outcomes for Latinx students. Romero and O'Malley (2020) find that



over half of the Latinx middle school students surveyed reported experiencing positive school climates. Further, Peña-Shaff et al. (2019) find that while Black students perceive more negative treatment of Black students by teachers than their non-Black peers, Latinx students do not similarly perceive more negative treatment of Latinx students than do White students, although Latinx students believe that they are suspended at higher rates than their peers. While students in the Peña-Schaff et al. (2020) study were high school students, it is possible that Latinx middle school students do not see themselves as treated differently by teachers of different races, which could account for the lack of impact of teacher ethnoracial matching among Latinx middle schoolers. This finding warrants further work given the differences in Latinx students' perceptions about disproportionality in discipline.

Another possible explanation for the differential relationship between teacher and student ethnoracial matching and disciplinary outcomes for Latinx students in middle school could come from the ethnoracial makeup of the student population in the schools these students attend. Juvonen et al. (2018) find that both Black and Latinx middle school students in schools with greater student diversity and more students of color felt safer in their schools and perceived more fair treatment by teachers compared to students in less diverse schools. If Latinx middle school students in New York City attend more ethnoracially diverse schools, or schools in which Latinx and Black students comprise the majority of students, these school environments may impact the degree to which Latinx students are suspended. In effect, the school setting could serve as a protective mechanism with respect to the likelihood of suspension even when Latinx middle schoolers are matched with teachers of different ethnoracial backgrounds (Junoven et al., 2018).

While results for Asian American students were only marginally significant, in this study Asian American students matched with Asian American teachers were less likely to be

suspended both in elementary and secondary school. One potential reason for the marginally significant findings for this student demographic group is the relatively small sample size along with the relatively low suspension rates for Asian American students compared to Black and Latinx students. Similar to the current study, prior work finds that Asian American students are less likely to receive disciplinary referrals than Black and Latinx students (Anyon et al., 2014). Future work should explore whether Asian American students had more positive social and academic outcomes when paired with ethnoracially matched teachers given the paucity of research on the impacts of student-teacher ethnoracial matching for Asian American students.

Finally, based on this study's findings, it would be incorrect to conclude that a large, urban school district such as New York City could decrease exclusionary discipline by assigning every Black, Latinx, and Asian American elementary and middle school student to a ethnoracially matched teacher, an approach that is neither practical nor plausible. An alternative approach would be to learn from the practices of teachers as they work with ethnoracially similar students. First, however, we must develop a better understanding of what practices, approaches, or beliefs account for the decreased use of exclusionary discipline in these circumstances and how such practices, approaches, and beliefs can be used in training teachers, school leaders, and other school staff. An additional area of study focuses how, if at all, the ethnoracial composition of students and teachers at the school level impacts the use of exclusionary discipline. Given the recent evidence on the long-term impact for Black children attending integrated schools (Johnson, 2019), exploring the ways that school contexts impact the use of exclusionary discipline is an important area for future research.

Another potential area of focus for future research is the interaction of student-teacher ethnoracial and gender matching on student discipline and academic outcomes. In recent years,

there has been a proliferation of district-level programs aimed at recruiting male teachers of color including New York City's NYC Men Teach, Philadelphia's The Fellowship, Montgomery County's The Bond Project, and Kansas City's Brothers Liberating our Community. One theory underlying these programs is that male teachers of color can improve the school-based outcomes for boys and young men of color, including their discipline outcomes; no studies have tested this theory quantitatively yet.

### **Implications for Educational Policy and Practice**

Based on our finding that assigning Black, Latinx, and Asian American elementary and middle school students to greater proportions of ethnoracially matched teachers causes reductions in exclusionary discipline, we recommend that policymakers in large, urban school districts maintain or augment their teacher diversity recruitment and retention efforts. While New York City, along with many large, urban districts, has made some initial investments to increase the ethnoracial diversity of its educator workforce, our work demonstrates that such efforts can not only improve academic outcomes for students of color but also help reduce the use of exclusionary discipline for these students. Our findings also suggest that such efforts, which have largely focused on Black and Latinx teachers to date, could be expanded to Asian American teachers. Along with the growing body of research on the role of Asian American teachers in attending to the social and emotional experiences of their Asian American students, recent increases in anti-Asian American hate attacks in U.S. cities suggest that New York City and other large, urban districts should make hiring and retaining Asian American teachers an additional focus of their teacher diversity efforts.

Finally, one important implication for practice is to (re)design induction and ongoing professional learning for White teachers in settings such as New York City given our finding that

Asian American, Black, and Latinx students taught by a White teacher had higher rates of exclusionary discipline when compared to their peers taught by an ethnoracially matched teacher. Similar to the composition of the U.S. educator workforce, the majority of teachers in New York City are White. As New York City and other school districts expand their policy efforts aimed at hiring teachers of color, they should also create opportunities to develop and sustain the capacity of White teachers to understand and explore how their implicit biases might contribute to the disproportionate rate at which they discipline Asian American, Black, and Latinx students. One randomized control trial found that an empathy intervention reduced White female teachers' implicit bias (Whitford & Emerson, 2019). Districts should consider professional learning opportunities for teachers that incorporate a focus on implicit bias.

### **Conclusion**

Urban districts are increasingly devoting funds and other resources to recruiting and supporting more diverse teacher workforces (Bireda & Chait, 2011; Superville, 2015). Our study provides important evidence on the impacts of student-teacher ethnoracial matching on student disciplinary outcomes in these diverse settings. Our work suggests that prior findings linking student-teacher ethnoracial matching and exclusionary student discipline indeed generalize to a large and highly-diverse urban school district such as New York City. Our work also provides guidance for future research, policy, and practice related to building a more diverse teacher workforce and improving disciplinary outcomes for students of color in urban schools.

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### Endnotes

<sup>1</sup> Prior research on the effects of student-teacher ethnoracial matching has focused on entire states, particularly Tennessee (Dee, 2004), Florida (Egalite et al., 2015), and North Carolina (Lindsay & Hart, 2017), or on nationally representative samples that do not focus specifically on large, urban districts (Easton-Brooks, 2019; Gershenson et al., 2019). Although one study did examine a number of large, urban districts (Egalite & Kisida, 2017), this study focused on students' perceptions of their teachers, not on student academic, disciplinary, or social-emotional outcomes.

<sup>2</sup> In the last year of our data (2016–17), the New York City Department of Education began collecting data on teacher Hispanic ethnicity separately from teacher race. Since very few teachers (less than half of 1%) were categorized as both Hispanic and as members of a racial group (Asian, Black, Native American, or White), we maintained Hispanic (Latinx) as a separate category that year in order to maintain consistency with prior years, but categorized teachers as Asian American, Black, Native American, or White if they were listed as one of those races as well as Hispanic.

<sup>3</sup> Mean suspension length is very high in our data, due to the small numbers of students that received very long suspensions, which results in a very long right tail to the suspension length distribution. Across the ten years, mean suspension lengths increased, particularly for Black students, as shorter suspensions (less than five days) became less frequent. Median suspension lengths remained consistent across the five years. For these reasons, we use median suspension lengths in our calculations of the magnitudes of our estimated effects.

<sup>4</sup> Across the 10 years, we observe 59,635 suspensions of Black students. A 3% reduction of this figure translates to 1,789 fewer suspensions, which when multiplied by the median

suspension length for suspended Black students across the 10 years (5 days) yields 8,945 school days. A similar calculation based on the number of Black students suspended in 2007–08 (7,137) and the median suspension length (5 days) yields 1,070 school days. Similar procedures are used for calculations throughout.

**Table 1***Exposure to Ethnographically Matched Teachers, Grades 4–8, New York City, 2007–08 to 2016–17*

Exposure to ethnographically matched teachers	Student race/ethnicity			
	Asian American	Black	Latinx	White
Never assigned a matched teacher	0.45	0.14	0.28	0.00
Only assigned to matched teachers	0.00	0.05	0.01	0.24
Varied in assignment to matched teachers	0.55	0.81	0.71	0.75
<i>n</i> , students	152,398	246,142	373,598	143,310

*Note.* Proportions are column proportions. Limited to students that appeared in the data for more than one year. Third grade students are included in 2012–13 through 2016–17.

**Table 2***Exclusionary Discipline, Grades 4–8, New York City, 2007–08 and 2016–17*

Variable	Year	
	2007–08	2016–17
	<i>M (SD)</i>	<i>M (SD)</i>
<b>Received suspension</b>		
All	0.05	0.02
Asian American	0.02	0.01
Black	0.07	0.04
Latinx	0.05	0.02
White	0.03	0.01
<b>Length of suspension (days) <sup>a</sup></b>		
All	10 (17)	11 (20)
Asian American	6 (10)	6 (11)
Black	12 (20)	14 (25)
Latinx	9 (16)	10 (17)
White	7 (12)	7 (17)
<b>Received superintendent suspension <sup>a</sup></b>		
All	0.30	0.36
Asian American	0.16	0.22
Black	0.35	0.45
Latinx	0.29	0.34
White	0.15	0.21
<i>n</i> , students	313,328	400,941
<i>n</i> , Asian American students	46,248	73,929
<i>n</i> , Black students	95,265	89,027
<i>n</i> , Latinx students	125,203	165,781
<i>n</i> , White students	43,396	64,742

*Note.* Standard deviations in parentheses. Third grade students are included in 2016–17. <sup>a</sup> Among students who received a suspension that year.

**Table 3**

*Descriptive Statistics on Student-Teacher Ethnoracial Matching, Grades 4–8, New York City, 2007–08 and 2016–17*

Variable	Year	
	2007–08	2016–17
<b>All students</b>		
Proportion matched teachers	0.34	0.31
At least one matched teacher	0.40	0.69
<i>n</i> , students	313,328	400,941
<b>Asian American students</b>		
Proportion matched teachers	0.09	0.10
At least one matched teacher	0.13	0.44
<i>n</i> , students	46,248	73,929
<b>Black students</b>		
Proportion matched teachers	0.42	0.35
At least one matched teacher	0.50	0.78
<i>n</i> , students	95,265	89,027
<b>Latinx students</b>		
Proportion matched teachers	0.19	0.20
At least one matched teacher	0.24	0.67
<i>n</i> , students	125,203	165,781
<b>White students</b>		
Proportion matched teachers	0.85	0.81
At least one matched teacher	0.91	1.00
<i>n</i> , students	43,396	64,742

*Note.* Standard deviations in parentheses. Third grade students are included in 2016–17.

**Table 4**

*Descriptive Statistics for Students, Teacher Composition, and Schools, Grades 4–8, New York City, 2007–08 and 2016–17*

Variable	Year	
	2007–08	2016–17
	<i>M (SD)</i>	<i>M (SD)</i>
<b>Students</b>		
Asian American	0.15	0.18
Black	0.30	0.22
Latinx	0.40	0.41
White	0.14	0.16
Female	0.50	0.49
Low-income	0.81	0.71
Special education	0.16	0.20
English learner	0.13	0.14
<b>Teacher composition</b>		
Proportion Asian American teachers	0.05 (0.19)	0.06 (0.11)
Proportion Black teachers	0.22 (0.38)	0.16 (0.23)
Proportion Latinx teachers	0.12 (0.29)	0.14 (0.19)
Proportion White teachers	0.61 (0.44)	0.63 (0.28)
Proportion female teachers	0.79 (0.34)	0.72 (0.19)
Mean experience in district (years)	7 (6)	11 (4)
Mean annual salary (dollars)	61,143 (11,885)	80,935 (8,718)
<i>n</i> , students	313,328	400,941
<b>Schools</b>		
Proportion Asian American students	0.12 (0.17)	0.13 (0.18)
Proportion Black students	0.34 (0.30)	0.28 (0.27)
Proportion Latinx students	0.40 (0.26)	0.42 (0.26)
Proportion White students	0.14 (0.21)	0.15 (0.20)
Proportion low-income students	0.69 (0.21)	0.73 (0.22)
Proportion students suspended	0.05 (0.06)	0.02 (0.03)
Student enrollment	642 (328)	609 (345)
Elementary (K–5) school	0.55 (0.50)	0.56 (0.50)
Middle (6–8) school	0.32 (0.47)	0.31 (0.46)
K–8 school	0.12 (0.33)	0.13 (0.34)
<i>n</i> , schools	1,039	1,153

*Note.* Standard deviations in parentheses. Third grade students are included in 2016–17.



**Table 5***Effects of Proportion of Ethn racially Matched Teachers on Likelihood of Student Suspension*

Variable	Student race			
	Asian American	Black	Latinx	White
	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )
Proportion Asian American teachers	-0.002+ (0.001)	-0.001 (0.002)	-0.002 (0.002)	-0.001 (0.002)
Proportion Black teachers	-0.001 (0.001)	-0.005*** (0.001)	-0.002+ (0.001)	-0.001 (0.002)
Proportion Latinx teachers	-0.000 (0.001)	-0.002 (0.002)	-0.003** (0.001)	0.001 (0.002)
<i>n</i> , unique students	192,475	320,823	475,951	179,603
<i>n</i> , unique grade schools	4,198	4,239	4,239	4,197
<i>n</i> , observations	589,403	919,139	1,428,737	548,486

*Note.* Models include student fixed effects, grade-school fixed effects, year fixed effects, and

student, teacher composition, and school controls. Standard errors are clustered at the grade-

school level and presented in parentheses. Dependent variable is an indicator for whether a

student was suspended; proportion of White teachers is the omitted category. The proportion of

Native American teachers was also included in the models, but the estimates are not presented

here. +  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table 6***Effects of Proportion of Ethn racially Matched Teachers on Likelihood of Student Suspension, By School Level*

Variable	Elementary (K–5) schools				Middle (6–8) schools			
	Student race				Student race			
	Asian American	Black	Latinx	White	Asian American	Black	Latinx	White
	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )
Proportion Asian American teachers	-0.001 (0.001)	0.001 (0.004)	-0.002 (0.002)	0.002 (0.002)	-0.005+ (0.003)	0.004 (0.005)	0.002 (0.004)	0.003 (0.004)
Proportion Black teachers	-0.002 (0.001)	-0.003+ (0.002)	-0.000 (0.001)	0.000 (0.003)	-0.004 (0.003)	-0.007* (0.003)	-0.001 (0.002)	0.000 (0.005)
Proportion Latinx teachers	-0.003** (0.001)	-0.005+ (0.003)	-0.003** (0.001)	0.000 (0.002)	0.003 (0.003)	-0.001 (0.005)	-0.003 (0.003)	-0.002 (0.004)
<i>n</i> , unique students	131,449	187,611	314,597	117,955	125,801	196,951	295,347	107,719
<i>n</i> , unique grade schools	3,776	3,986	4,008	3,770	3,366	3,579	3,599	3,317
<i>n</i> , observations	259,035	349,314	611,694	234,382	276,990	415,831	640,472	240,713

*Note.* Models include student fixed effects, grade-school fixed effects, year fixed effects, and student, teacher composition, and school

controls. Standard errors are clustered at the grade-school level and presented in parentheses. Proportion of White teachers is the

omitted category. The proportion of Native American teachers was also included in the models, but the estimates are not presented

here. +  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table 7***Effects of Proportion of Ethn racially Matched Teachers on Likelihood of Student Suspension, By Student Gender*

Variable	Boys				Girls			
	Student race				Student race			
	Asian American	Black	Latinx	White	Asian American	Black	Latinx	White
	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )
Proportion Asian American teachers	-0.004+ (0.002)	-0.001 (0.004)	-0.004 (0.003)	-0.003 (0.003)	-0.000 (0.001)	-0.001 (0.003)	-0.000 (0.002)	0.002 (0.002)
Proportion Black teachers	-0.000 (0.002)	-0.007*** (0.002)	-0.002 (0.002)	-0.001 (0.003)	-0.003* (0.001)	-0.004** (0.001)	-0.001 (0.001)	0.001 (0.002)
Proportion Latinx teachers	-0.000 (0.002)	-0.006* (0.003)	-0.004** (0.001)	-0.000 (0.003)	-0.000 (0.001)	0.003 (0.002)	-0.001 (0.001)	0.002 (0.001)
<i>n</i> , unique students	99,750	162,074	242,880	93,344	92,898	159,255	233,546	86,387
<i>n</i> , unique grade schools	4,144	4,234	4,234	4,135	4,159	4,238	4,238	4,118
<i>n</i> , observations	304,382	459,942	726,271	283,424	285,021	459,197	702,466	265,062

*Note.* Models include student fixed effects, grade-school fixed effects, year fixed effects, and student, teacher composition, and school

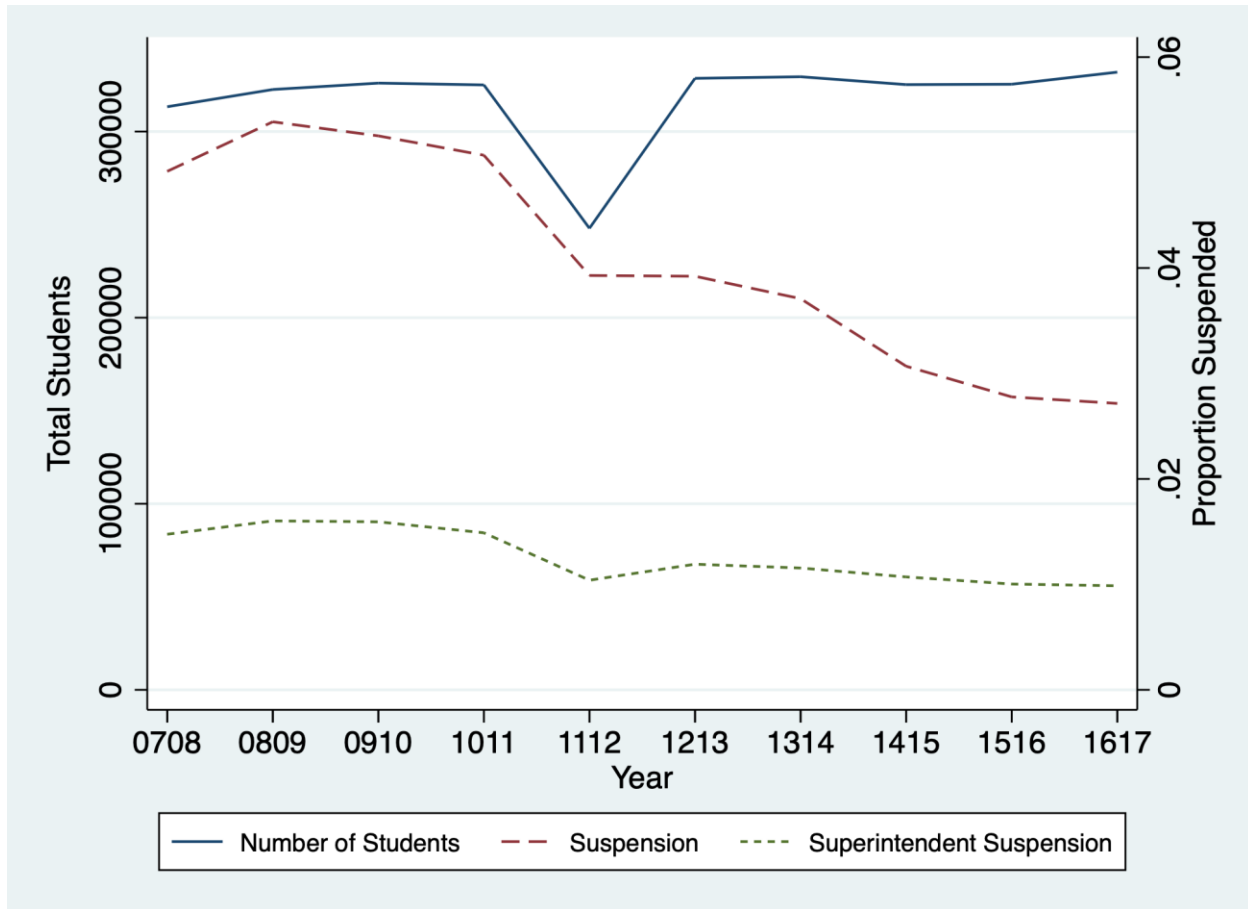
controls. Standard errors are clustered at the grade-school level and presented in parentheses. Proportion of White teachers is the

omitted category. The proportion of Native American teachers was also included in the models, but the estimates are not presented

here. +  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Figure 1**

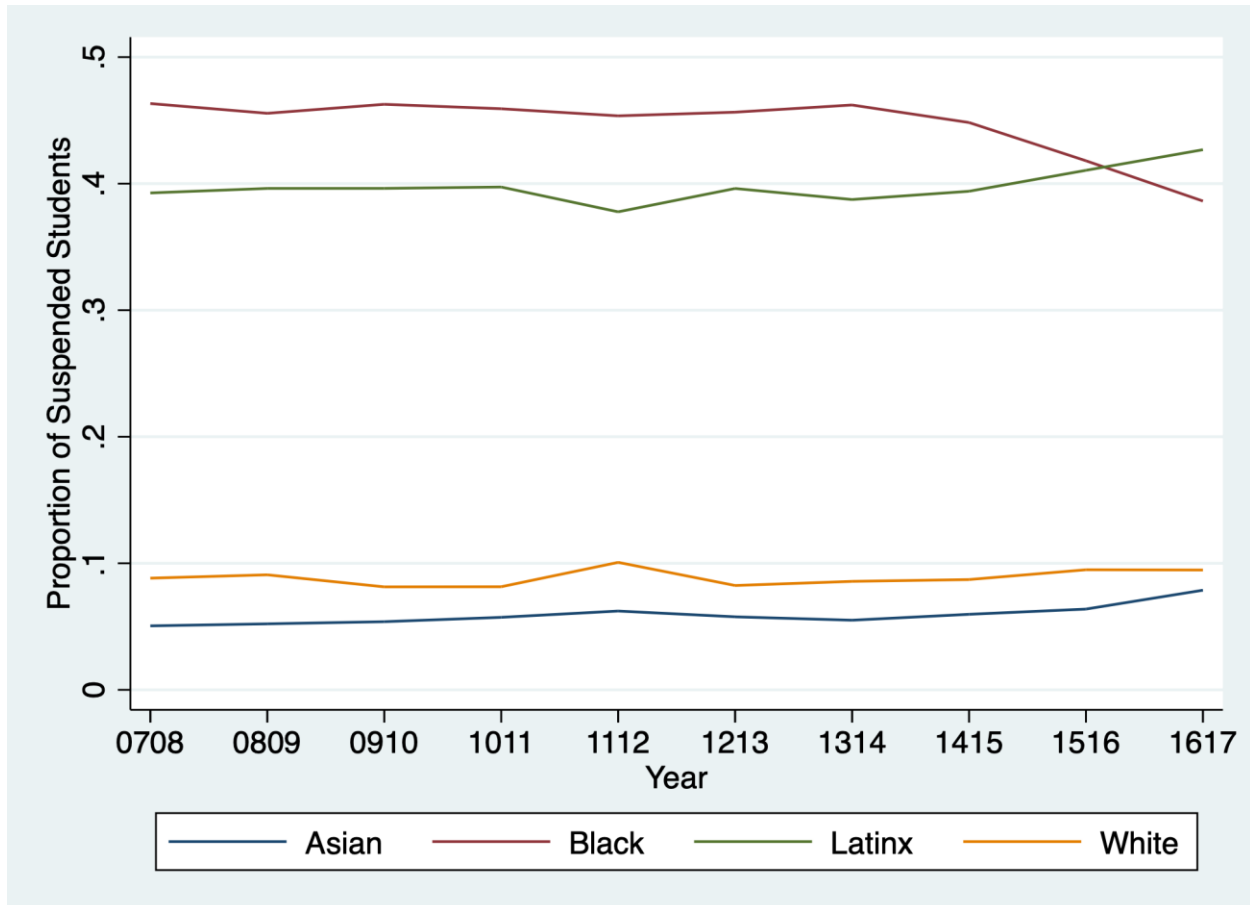
*Student Enrollment, Suspensions, and Superintendent Suspensions by Year, Grades 4–8, New York City, 2007–08 to 2016–17*



*Note.* Third grade students are excluded, as these students only appear in the data in 2012–13 through 2016–17.

**Figure 2**

*Ethnoracial Makeup of Suspended Students by Year, Grades 4–8, New York City, 2007–08 to 2016–17*



*Note.* Third grade students are excluded, as these students only appear in the data in 2012–13 through 2016–17.

## Appendix A

**Effects of Proportion of Ethnoracially Matched Teachers on Length of Student Suspension and Likelihood of Superintendent's Suspension**

Variable	Length of suspension				Superintendent's suspension			
	Student race				Student race			
	Asian American	Black	Latinx	White	Asian American	Black	Latinx	White
	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )
Proportion Asian American teachers	-4.70 (12.78)	0.08 (2.79)	0.42 (3.50)	3.27 (13.68)	-0.147 (0.444)	-0.009 (0.056)	-0.019 (0.064)	0.146 (0.230)
Proportion Black teachers	0.13 (15.86)	-1.15 (1.50)	0.93 (2.02)	7.46 (8.20)	0.091 (0.420)	0.007 (0.028)	-0.011 (0.044)	0.150 (0.196)
Proportion Latinx teachers	-9.84 (13.79)	0.32 (2.23)	-0.39 (1.94)	-0.98 (11.09)	-0.314 (0.455)	-0.019 (0.041)	0.008 (0.047)	0.133 (0.237)
<i>n</i> , unique students	6,494	44,495	41,060	9,298	6,494	44,495	41,060	9,298
<i>n</i> , unique grade schools	2,013	4,076	4,087	2,536	2,013	4,076	4,087	2,536
<i>n</i> , observations	7,560	59,635	52,020	11,538	7,560	59,635	52,020	11,538

*Note.* Models include student fixed effects, grade-school fixed effects, year fixed effects, and student, teacher composition, and school

controls. Standard errors are clustered at the grade-school level and presented in parentheses. Proportion of White teachers is the

omitted category. The proportion of Native American teachers was also included in the models, but the estimates are not presented

here. +  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## Appendix B

### Effects of Proportion of Ethn racially Matched Teachers on Likelihood of Student

#### Suspension, K–8 Schools

Variable	K–8 schools			
	Student race			
	Asian American	Black	Latinx	White
	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )	<i>b</i> ( <i>SE</i> )
Proportion Asian American teachers	-0.002 (0.004)	0.000 (0.008)	-0.005 (0.005)	-0.012* (0.006)
Proportion Black teachers	0.001 (0.004)	0.001 (0.004)	-0.000 (0.003)	-0.001 (0.006)
Proportion Latinx teachers	-0.000 (0.004)	0.004 (0.006)	-0.005 (0.003)	-0.002 (0.005)
<i>n</i> , unique students	19,715	62,229	66,112	27,351
<i>n</i> , unique grade schools	2,607	3,035	3,058	2,519
<i>n</i> , observations	53,378	153,994	176,571	73,391

*Note.* Models include student fixed effects, grade-school fixed effects, year fixed effects, and

student, teacher composition, and school controls. Standard errors are clustered at the grade-

school level and presented in parentheses. Proportion of White teachers is the omitted category.

The proportion of Native American teachers was also included in the models, but the estimates

are not presented here. +  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .