AERA Open
January-March 2016, Vol. 2, No. 1, pp. 1–25
DOI: 10.1177/2332858415622175

Discretion and Disproportionality: Explaining the Underrepresentation of High-Achieving Students of Color in Gifted Programs

Jason A. Grissom
Christopher Redding
Vanderbilt University

Students of color are underrepresented in gifted programs relative to White students, but the reasons for this underrepresentation are poorly understood. We investigate the predictors of gifted assignment using nationally representative, longitudinal data on elementary students. We document that even among students with high standardized test scores, Black students are less likely to be assigned to gifted services in both math and reading, a pattern that persists when controlling for other background factors, such as health and socioeconomic status, and characteristics of classrooms and schools. We then investigate the role of teacher discretion, leveraging research from political science suggesting that clients of government services from traditionally underrepresented groups benefit from diversity in the providers of those services, including teachers. Even after conditioning on test scores and other factors, Black students indeed are referred to gifted programs, particularly in reading, at significantly lower rates when taught by non-Black teachers, a concerning result given the relatively low incidence of assignment to own-race teachers among Black students.

Keywords: *gifted education, equity, teachers, race, school context*

Substantial race disparities exist in student receipt of gifted education services in American schools. Data from the Office for Civil Rights (OCR) at the U.S. Department of Education reveal that as of 2009, African American students constitute 16.7% of the student population but just 9.8% of students in gifted programs. Similarly, Hispanic students constitute 22.3% of students but only 15.4% of students receiving gifted services (U.S. Department of Education, 2010). These disproportionalities have sparked concern among researchers and the media not only because they represent potentially unfair or inequitable treatment of minority students (Baker, 2013; Ford, 1998) but because studies have linked participation in gifted programs to positive future outcomes, including increased academic performance (Bhatt, 2009; Card & Giuliano, 2014; Delcourt, Cornell, & Goldberg, 2007; Goldring, 1990; C. Kulik & Kulik, 1982; Rogers, 2007) and improvements in such domains as motivation, self-efficacy, engagement with learning, nonacademic self-concept, and overall stress (e.g., C. Kulik & Kulik, 1982; J. Kulik & Kulik, 1984; Marsh, Chessor, Craven, & Roche, 1995; Rogers, 2007).[1] Furthermore, disparities in gifted identification may contribute to within-school segregation of students on the basis of race and ethnicity, with consequences for both non-White and White students (Darity & Jolla, 2009).

Scholars have attributed racial and ethnic disparities in gifted program participation to a variety of factors. Generally lower achievement among Black and Hispanic students, for example, might contribute to underrepresentation in gifted programs, particularly in systems with narrower, achievement-centered definitions of giftedness (Ford, 1998). Lower social and financial capital can mean that racial- and ethnic-minority families may have less access to information about identification processes or to private psychologists or others who can test them for giftedness outside the school (Mickelson, 2003). Furthermore, Black students are less likely to attend schools with gifted programs. Data from the Early Childhood Longitudinal Study, Kindergarten cohort (ECLS-K)—the data source for this study—show that 90% of White, 93% of Hispanic, and 91% of Asian elementary school students attend a school with a gifted program, compared to only 83% of African American students. Within schools, students of color generally are less likely than White students to be identified even when they satisfy criteria for gifted services (Ford, Grantham, & Whiting, 2008; McBee, 2006). Researchers have identified teacher discretion in the gifted assignment process as a potentially important contributor to this inequity. Because the process often begins with teacher referral, classroom teachers can play a gatekeeping role in gifted assignments (Donovan & Cross, 2002). Reliance on teacher referrals can disadvantage students of color if teachers hold lower expectations for them or are less likely to recognize giftedness in such students

(Elhoweris, Mutua, Alsheikh, & Holloway, 2005; Ford & Grantham, 2003).

To political scientists who study bureaucratic representation—that is, the idea that *who* the providers of government services are matters for how policy outputs are distributed among client populations (Mosher, 1968)—contexts in which bureaucrats exercise substantial discretion and in which race has high policy salience, as it does in education, create conditions in which bureaucrat race often influences how populations benefit from government services. Research in contexts as varied as the Farmers Home Administration, social welfare agencies, and local law enforcement has found evidence that client populations of color receive more positive treatment from government agencies or organizations staffed by bureaucrats from their same racial or ethnic background (e.g., Theobald & Haider-Markel, 2009; Selden, 1997). For example, Hindera's (1993) study of the Equal Employment Opportunity Commission finds that district offices employing Black investigators are more likely to pursue charges of employment discrimination on behalf of Black complainants (and similarly for Hispanic investigators and Hispanic complainants). Similarly, in a study of Florida traffic stop data, Close and Mason (2006) find that African American and Latino/a drivers are treated less punitively by officers of the same race/ethnicity than they are by White officers. In the context of gifted assignment, bureaucratic representation theory suggests that teachers of color are more likely than White teachers to exercise discretion on behalf of students from their same racial or ethnic background—and similarly for White teachers and White students—such that students' probabilities of being assigned are higher with own-race teachers. Researchers have, in fact, provided suggestive evidence of such a relationship, finding that Black and Hispanic students are better represented in gifted-and-talented programs in schools that employ larger numbers of Black and Hispanic teachers (e.g., Nicholson-Crotty, Grissom, & Nicholson-Crotty, 2011; Rocha & Hawes, 2009).

These studies, however, have relied exclusively on aggregate (school-level) data on both student and teacher demographics, limiting the research in a number of key ways. First, reliance on school-level data to model an individual phenomenon—such as race-related discretion in student referrals to gifted programs—raises significant concerns about the potential for aggregation bias or ecological fallacies. Second, and relatedly, use of data on schools rather than students means that important student-level determinants of gifted assignment, including measures of student academic ability, cannot be considered or controlled for in the models. Third, modeling the presence of students in programs rather than the assignment process itself prevents drawing conclusions about what factors lead different kinds of students to transition into gifted services.

We use the ECLS-K to model student assignment to gifted services. The ECLS-K contains data on a nationally representative cohort of students who were in kindergarten during the 1998–1999 academic year, following up with them during first, third, fifth, and eighth grades. These data have a number of features that allow us to push the research base forward substantially. First, the data are at the student level, allowing us both to model the movement of individual students into gifted programs and to account for a large number of important student covariates in the models, including student achievement in math and reading. These data permit for a finer-grained examination of gifted assignment, demographic gaps in gifted assignment, and the factors that contribute to these demographic gaps on a national scale than has been conducted in much prior work. Second, students are linked to their classroom teachers and teachers' characteristics, which permits us to test directly for interactions between student and teacher race or ethnicity in predicting the movement of students into gifted programs.

We ask the following research questions. First, to what extent are African American and Hispanic elementary students assigned to gifted programs at disproportionately lower rates than White or Asian students? Second, to what extent is this disproportionality explained by other observable student characteristics, such as parental education or achievement tests scores? Third, does assignment to an own-race teacher increase a non-White student's probability of being assigned to gifted services?[2]

Our study is motivated by prior work on racial/ethnic disparities in the composition of gifted programs and research on bureaucratic representation, which emphasizes how diversity in the providers of public services, including teachers, matters for ameliorating those disparities (see Grissom, Kern, & Rodriguez, 2015; Grissom, Rodriguez, & Kern, in press). The next two sections discuss prior research in these areas. We then describe the data and methodological approaches to answering our research questions before presenting our results. The final section provides a discussion of the implications of the results for policy, practice, and future work in this domain.

Student Race, Teacher Discretion, and Assignment to Gifted Programs

Researchers have recognized racial and ethnic disproportionalities in gifted services for some time. In 1998, surveys from the Office for Civil Rights found that 6.2% of students were placed in gifted programs. This fraction includes nearly 10% of Asian students, 7.5% of White students, 3.6% of Hispanic students, and 3.0% of Black students (Donovan & Cross, 2002). By 2009, the fraction of students in gifted programs had increased slightly to 6.6%, as had the fractions of

students in underrepresented groups; the fraction of gifted students who were Black was 3.9%, and Hispanic, 4.6% (U.S. Department of Education, 2010). Despite these improvements, however, substantial disproportionalities in gifted assignment by race and ethnicity persist.

Numerous studies have explored the underrepresentation of African American students in particular in an attempt to elucidate contributing factors (Anguino, 2003; Harris, Brown, Ford, & Richardson, 2003; Kearns, Ford, & Linney, 2004). Ford (1998) outlines several categories of factors that influence the disproportionate assignment of Black and Hispanic students to gifted programs. The first set of factors points to educational inequities associated with underachievement among students from traditionally underserved racial/ethnic groups, which, in turn, reduce the probability of gifted identification. For example, students of color systematically are taught by less qualified, less effective teachers (e.g., Clotfelter, Ladd, & Vigdor, 2005, 2010; DeMonte & Hanna, 2014). Tracking (Oakes, 1990) and ability grouping (Gamoran, Nystrand, Berends, & LePore, 1995) separate students by academic and nonacademic factors in ways that can disadvantage the learning opportunities of students of color.

The other factors Ford (1998) identifies pertain to the processes schools use for identification and screening of gifted students and the personnel who determine assignment. Identification often begins with a classroom teacher's use of checklists, rating scales, informal recommendations, and cognitive assessments to document a student's academic capability and potential and ends with a referral for further evaluation (Donovan & Cross, 2002). Next, teachers or other school staff formally evaluate students using tools based on the district or state's definition of giftedness. In all but one state, the main criteria for giftedness is academic performance (Donovan & Cross, 2002), underscoring the importance of taking student academic achievement into account in predicting a students' probability of gifted assignment. Yet states increasingly have embraced broader understandings of giftedness as well, employing a "multiple criteria method" that emphasizes such factors as student creativity, artistic ability, or leadership. Scholars and advocates have supported the transition to a more holistic evaluation because of the potentially detrimental impact on gifted identification of lower scores on cognitive assessments for African American and Hispanic students (Joseph & Ford, 2006). The use of such criteria, however, also provides teachers with greater discretion in assignment. As all states rely on teacher referrals and input in assignment, teacher perceptions may influence outcomes at numerous points in the process (Nicholson-Crotty et al., 2011). To the extent that teacher perceptions of students are affected by race or ethnicity, this discretion may lead to unequal treatment of different groups of students even within the same school or classroom. For example, racialized teacher perceptions may lead teachers to misinterpret Black or Hispanic students' behavior because of different cultural backgrounds; what a teacher may attribute to precocity for one student may be considered disruptive behavior for another (Ferguson, 1998). Furthermore, rigorous or valid assessment tools may not be mandated or utilized, and teachers often are not trained on strategies for identifying gifted students (Donovan & Cross, 2002), increasing the influence of teacher discretion in the screening and referral process.

Linking Teacher Race/Ethnicity to Assignment to Gifted Services

The major role for teacher discretion in the screening and referral processes for gifted assignments has prompted scholars to consider possible school-based mechanisms that influence assignment to gifted programs. A sizeable body of research in the fields of political science and public administration has used the theory of bureaucratic representation to examine how the composition of the school workforce may help explain patterns in minority student representation in gifted programs across schools. This research, however, has been less visible to education scholars (Grissom et al., 2015). Normative work on the "representative bureaucracy" argues that workers in public institutions, including schools, should reflect societal diversity—that is, be *descriptively representative*—not only to have legitimacy with the public but to help ensure that client populations are treated equitably (Kingsley, 1944; Lim, 2006; Mosher, 1968). In this literature, descriptive representation has most often been discussed in terms of race or ethnicity—unsurprising given a long history of discriminatory treatment of racial- and ethnic-minority populations by government in the United States and elsewhere—but also in terms of gender, religion, sexual identity, and other characteristics (Kennedy, 2013). A large body of empirical research has demonstrated that public agencies composed of more racially and ethnically representative workforces distribute policy outputs more equitably among minority and nonminority client populations (e.g., Hindera, 1993; Meier, Stewart, & England, 1989; Nicholson-Crotty et al., 2011; Selden, 1997; Theobald & Haider-Markel, 2009).

The mechanisms linking descriptive representation to the distribution of policy outputs are less clear, however. Much of the literature has focused on so-called *active representation*, the idea that minority bureaucrats—or organizations with larger numbers of minority bureaucrats—behave differently in ways that produce benefits for minority client populations. A necessary condition for active representation to occur is bureaucratic discretion: Bureaucrats must have

direct or indirect influence over the distribution of policy goods or services (Meier, 1993). These differential behaviors are thought to be rooted in shared values and backgrounds that may make minority bureaucrats more attuned to past differential treatment or present needs of minority constituencies (Keiser, Wilkins, Meier, & Holland, 2002; Meier, 1993). They may, for example, exercise partiality on behalf of clients "like them" or advocate for changes in institutional policy or practices that make the institution more sensitive to minority interests or emphasize fairness or equity more generally (Dolan & Rosenbloom, 2003; Meier, 1993). In the context of gifted assignments, active representation might occur when minority teachers recommend minority students for gifted screening at higher rates or push for universal screening processes in their schools that help ameliorate gaps that might occur when minority student giftedness is recognized less often through "subjective" channels.

As the bureaucratic representation literature has matured, it has begun to recognize other potential mechanisms linking descriptive representation to policy outputs. For example, minority bureaucrats may be better positioned to push minority clients to increase effort or make other behavioral changes that improve their own outcomes. The presence of minority teachers may produce role-modeling effects, for example, that raise student performance or increase outward expression of talent in ways that increase the probability of gifted assignment. To this point, several prior studies have demonstrated that Black and Hispanic students perform better on tests when taught by own-race teachers (e.g., Aaronson, Barrow, & Sander, 2007; Dee, 2004).

Perhaps even more important, representation scholars posit that the client population itself may be more willing to engage with the organization in beneficial ways because of the presence of bureaucrats with whom they can more easily communicate or identify (Meier & Nicholson-Crotty, 2006). In schools, the cultural capital of White middle-class parents aids in facilitating relationships with teachers and school personnel and connecting them to information about school processes, providing them with an advantage over non-White families in influencing their children's schooling outcomes (Lareau, 1987; Lareau & Horvat, 1999). The presence of non-White teachers may help non-White parents overcome those disadvantages by, for example, helping parents feel more comfortable advocating for their children's needs or making it more likely that they tap into school information networks. In the context of gifted assignment, a non-White parent may feel more at ease requesting from a non-White teacher that his or her child be screened or seeking out advice or information from that teacher about how to obtain gifted services.

Because of the numerous potential mechanisms linking descriptive representation in the teacher workforce to student representation in gifted programs, it is perhaps unsurprising that political scientists and public administration scholars have used gifted representation as an outcome for testing the tenets of bureaucratic representation theory in numerous studies. Research has, in fact, provided suggestive evidence of such a relationship, finding that Black and Hispanic students are better represented in gifted-and-talented programs in schools that employ larger numbers of Black and Hispanic teachers (e.g., Grissom et al., 2015, in press; Grissom, Nicholson-Crotty, & Nicholson-Crotty, 2009; Nicholson-Crotty et al., 2011; Meier & Stewart, 1992; Rocha & Hawes, 2009).

Although suggestive, previous studies linking teacher race or ethnicity to differential assignment of students to gifted services faces a key drawback: reliance on school-level aggregate data. Essentially, these studies identify a correlation between the proportion of students from a given race or ethnic group and the proportion of teachers in the school from that group, adjusted for other school-level covariates. Yet without individual data on students and their teachers, these studies have been unable to model the assignment process or account for important student-level characteristics that may confound these relationships, including student academic achievement. Our analysis steps into these gaps.

Data and Methods

The data in this study come from the restricted-use version of the ECLS-K, a nationally representative sample of 21,260 kindergarteners in the 1998–1999 school year followed by the National Center for Educational Statistics (NCES) through eighth grade, gathering data on them at intervals (Tourangeau et al., 2006). This study uses data collected in the elementary grades—that is, data collected in the spring of kindergarten and first, third, and fifth grades—when most gifted students are identified. We further restrict the analysis sample to public schools that report having a gifted program in either reading or math.[3] Schools without gifted programs were excluded to avoid conflating variation in student assignment with other between-school factors, such as school resources, that might predict the absence of gifted services.

Across the survey waves, between 33% and 38% of public schools report having no gifted program, which limits the analysis sample to a maximum of 10,640 students in kindergarten, 9,120 in first grade, 8,250 in third grade, and 7,000 in fifth grade. Missing data further reduced the available sample sizes as the ECLS-K data collection progressed. These missing data can be attributed variously to parental refusal to further participate in the study, missing assessment data, and incomplete data from classroom teachers or school personnel.[4] Given these sample size reductions, we utilized multiple imputation.[5] For all estimates, we used longitudinal weights provided by NCES in all analyses to recover population estimates. The largest analytic sample contains 14,280 observations.

Measuring Assignment to Gifted Programs

The dependent variable for this analysis is the student's assignment to a gifted program in either reading or mathematics. This variable is measured through teachers' response to the question, "Does this child receive instruction and/or related services in any of the following types of programs in your school day?" Teachers designated whether or not a student was in a gifted-and-talented program in reading or math.[6] To simulate the assignment process, we assume that a student first identified for gifted services at time t does not begin receiving them until time $t+1$. Thus, our analysis considers the probability of being assigned to gifted services in the *next* survey period, conditional on not being assigned in the present period.[7] For example, we label a student as having been assigned in kindergarten if he or she was not identified as gifted during kindergarten data collection but was identified in the first-grade data collection. Similarly, a student is labeled as having been identified in first grade if he or she was not gifted in first grade but was in third grade and as identified in third grade if he or she was not in gifted in third grade but was as of fifth grade. A consequence of this specification is the uncertainty of conditions in second or fourth grade that may have also influenced student assignment that are not accounted for given the lack of survey data for these periods.

Student and Teacher Race and Ethnicity

Central to research on representation in the bureaucracy is shared demographic characteristics between clients and street-level bureaucrats—in this case, students and teachers. ECLS-K provides categorical information on student racial and ethnic identification from the parent interview data in the initial year of data collection. Information on the race and ethnicity for the student's classroom teacher was collected from teacher survey self-reports during each survey period. Because elementary school students are very likely to be in self-contained classes, the potential for mismeasurement from having a student assigned to multiple teachers was not of large concern. To verify that students in the study indeed were in self-contained classes, we examined the frequency with which different teachers completed either the dedicated math or reading teacher survey and found that in kindergarten and first and third grades, this happened less than 1% of the time in each year.[8]

School and Teacher Characteristics

ECLS-K provides extensive information pertaining to the students' academic performance, family background, and classroom and school context. We use the criterion-referenced composite scale scores for the math and reading achievement tests, which have been vertically equated for longitudinal analysis (Pollack, Narajian, Rock, Atkins-Burnett, & Hausken, 2005).[9] We standardize scores within year.

Student characteristics include the child's race and ethnicity, gender, a scale measure of socioeconomic status (SES), a measure of the parent's report of the child's health status at entry to kindergarten, and the child's age in months as of September of 1998, approximately the start of kindergarten. The SES measure is computed by NCES and combines mother's and father's education level, status of mother's and father's occupation, and household income, imputing missing values and standardizing and averaging across measures (Tourangeau et al., 2006). The child health measure is a subjective measure rated on a 5-point scale (*excellent* to *poor*), which we reverse-coded and standardized.

Teacher characteristics include race/ethnicity, years of experience in the teacher's current school, and indicators for whether or not the teacher has a master's degree or is certified. Classroom characteristics include class size and classroom averages for the percentages of Black, Hispanic, and Asian students plus mean student SES.[10] These classroom-level variables rely on having sufficient respondents within a classroom to accurately reflect the classroom composition. In the initial survey years, when respondents were more highly concentrated in classrooms, these measures likely have greater validity. Finally, school characteristics include indicators for whether the school is suburban or urban (with rural as the omitted category); region of the country (four regions; East is the omitted category); school enrollment size; the fraction of Black, Hispanic, and Asian students within a school; school free or reduced-price lunch (FRPL) rate; and the school average test performance. Accounting for school average achievement in particular is important if teachers' or others' perceptions of a student's performance and qualification for gifted services is relative to other students in that setting (Hibel, Farkas, & Morgan, 2010). A correlation matrix for all control variables appears in Appendix Table A1.

Regression Analysis

To analyze the relationship between assignment to gifted programs and student–teacher race congruence, a series of models are estimated that consider the probability that a student will be assigned to a gifted program in the next period for all students not currently in a gifted program, with controls for student, teacher, and school characteristics. Equation 1 shows the general form of these models:

$$\Pr(\text{gifted})_{ijt+1} = \beta_0 + \beta_1 R_{ijt} + \beta_2 C_{it} + \beta_3 T_{it} + \beta_4 S_{it} + \gamma_t + \epsilon_{it}, \qquad (1)$$

where C_{it} is a vector of the child's characteristics for student i in year t, T_{it} is a vector of characteristics of the student's

teacher and classroom, and S_{it} is a vector of school characteristics in a given year. A wave fixed effect γ_t is included to control for time-specific correlates of assignment to gifted services. The dependent variable is a binary indicator set equal to 1 if a student is assigned to gifted services by the next survey period and 0 if not, conditional on not currently being assigned. The vector *R* includes an indicator for whether the student is racially/ethnically congruent with his or her teacher plus a series of interactions between the congruence indicator and student race to test whether racial/ethnic congruence is differentially associated with gifted assignment by student demographic group. Because of concerns that racial/ethnic congruence and same-year test scores may be endogenous if teacher race/ethnicity affects student academic performance (e.g., Dee, 2004), our preferred model includes *lagged* test score rather than the current-year score in *C*, though using the current-year score results in substantively similar conclusions (see Appendix Tables A2 and A4). All models are estimated using logistic regression with standard errors clustered at the student level to account for multiple observations of the same student across time.

A limitation of this approach is that it does not take into account unobserved school characteristics, such as the school's gifted referral and evaluation process, that may affect a student's probability of being assigned to gifted services. A typical strategy for accounting for such factors is to include a school fixed effect, which would estimate the impact of teacher race congruence or other factors on gifted assignment by comparing assignment patterns across classrooms within the same school. Unfortunately, the infrequency of gifted assignment in the data—and, for the race congruence analysis, the lack of variation in teacher race across classrooms—makes a school fixed-effect approach infeasible.[11]

Descriptive Analysis

Descriptive statistics for the main variables we consider are shown in Table 1. The first row shows what fraction of students were assigned to gifted services for that grade who had not previously been assigned, with the next two rows showing assignment in reading and math separately. The fraction increases at each grade level but totals approximately 5% of students (4% each in reading and math).[12] Figure 1 breaks gifted assignment down by race/ethnicity and grade. Consistent with prior research, White and Asian students are assigned to gifted services at higher rates than Black and Hispanic students at each grade level.

Comparing Gifted Assignment and Potential Predictors by Student Race

In Table 2, we provide a comparison by race and ethnicity first of proportion in gifted programs and then of potential student, teacher/classroom, and school factors that may be associated with assignment to gifted programs. Two-sided *t* tests for differences in means were conducted comparing White students with African American, Hispanic, and Asian students, respectively.

There are numerous notable differences across groups. First, in any given survey wave, an average of 5.3% of White students in schools with gifted programs are assigned to gifted services, compared to 2.2% of Black students, 3.5% of Hispanic students, and 6.2% of Asian students.[13] We also see differences in other student characteristics by race and ethnicity. Black students perform nearly half a standard deviation lower than White students on the reading assessment (0.14 vs. –0.30) and nearly two thirds of a standard deviation lower on the math assessment (0.21 vs. –0.41). Hispanic students score slightly less than half a standard deviation lower than White students in reading and math. There are no statistically significant differences in the reading and math test performance of Asian students and White students. Differences for SES are similar. Both Black and Hispanic students are half a standard deviation lower on the scale measure of SES.

Patterns in teacher race and ethnicity show much different likelihoods of exposure to a same-race teacher in elementary school for students of different backgrounds. As Table 1 shows, 91% of teachers in the sample are White, so it is unsurprising that White students are much more likely than other students to find themselves in a classroom with a race-congruent teacher. In fact, for White students, the rate of teacher race congruence is 95%. In contrast, for Black students in elementary school, race congruence with one's teacher in occurs only about 22% of the time, and for Hispanic students, 20% of the time. Asian students have the lowest rate of congruence, only 9%. These patterns bolster our interest in testing whether assignment to an own-race teacher is associated with differential gifted assignment.

We also examine differences by teacher qualifications, including teaching experience in the school, degree level, and certification status. Teachers of White students have been in their schools the longest, on average; followed by Asian, Hispanic, and Black students, whose teachers have approximately a year and a half fewer years in their schools than those of White students. White and Asian students' teachers also have higher educational attainment. Approximately 40% of these teachers have a master's degree or above, compared to 33% for Black students and 34% for Hispanic students. Black and Hispanic students are also less likely to be taught by a fully certified teacher. Asian students are enrolled in slightly larger classes than White students, on average. Black and Hispanic students' peers are of significantly lower SES relative to White students.

The bottom section of the table compares school characteristics by student race and ethnicity. Black, Hispanic, and

TABLE 1
Mean Sample Characteristics, by Grade Level

Characteristic	Kindergarten	First grade	Third grade	All years
Students assigned to gifted	0.03	0.03	0.08	0.05
Assigned to gifted in reading	0.03	0.03	0.07	0.04
Assigned to gifted in math	0.03	0.02	0.06	0.04
Race congruence				
White Student × White Teacher	0.65	0.63	0.62	0.63
Black Student × Black Teacher	0.02	0.03	0.03	0.03
Hispanic Student × Hispanic Teacher	0.02	0.03	0.04	0.03
Asian Student × Asian Teacher	<0.01	<0.01	<0.01	<0.01
Student characteristics				
Reading test (standardized)	−0.05	0.02	−0.01	−0.00
Math test (standardized)	0.02	0.06	−0.01	0.03
Female	0.49	0.50	0.50	0.49
White	0.68	0.66	0.65	0.66
Black	0.15	0.14	0.15	0.15
Hispanic	0.14	0.17	0.18	0.17
Asian	0.03	0.03	0.03	0.03
SES	−0.05	−0.09	−0.13	−0.10
Parent's health rating	−0.03	−0.03	−0.03	−0.02
Age in months at start of kindergarten	66.46	66.58	66.43	66.36
Teacher/classroom characteristics				
White	0.93	0.91	0.89	0.91
Black	0.05	0.07	0.07	0.06
Hispanic	0.03	0.04	0.05	0.04
Asian	0.01	0.02	0.01	0.01
Teaching experience (in current school)	9.66	9.08	9.84	9.59
Master's degree	0.38	0.38	0.43	0.39
Certified	0.93	0.93	0.92	0.93
Class size	21.01	20.36	21.18	20.80
Class mean SES	−0.06	−0.09	−0.11	−0.09
Class percentage Black	0.15	0.14	0.14	0.15
Class percentage Hispanic	0.14	0.16	0.17	0.16
Class percentage Asian	0.05	0.05	0.04	0.04
School characteristics				
Urban	0.30	0.23	0.26	0.27
Rural	0.25	0.29	0.30	0.27
Northeast	0.12	0.13	0.11	0.12
Midwest	0.22	0.22	0.24	0.23
South	0.48	0.44	0.46	0.46
West	0.18	0.21	0.19	0.19
School size (100s)	5.61	5.62	5.42	5.52
Fraction White students	0.69	0.67	0.66	0.66
Fraction Black students	0.15	0.15	0.14	0.15
Fraction Hispanic students	0.11	0.13	0.15	0.13
Fraction Asian students	0.03	0.03	0.03	0.03
School percentage FRPL	0.34	0.32	0.35	0.34
School mean test score	29.65	49.41	95.92	57.48
Observations	7,190	5,910	5,130	15,130

Note. Estimates adjusted using Early Childhood Longitudinal Study, Kindergarten cohort probability weights. Public schools with gifted programs only. Sample sizes rounded in accordance with National Center for Education Statistics nondisclosure rules. SES = socioeconomic status; FRPL = free or reduced-price lunch.

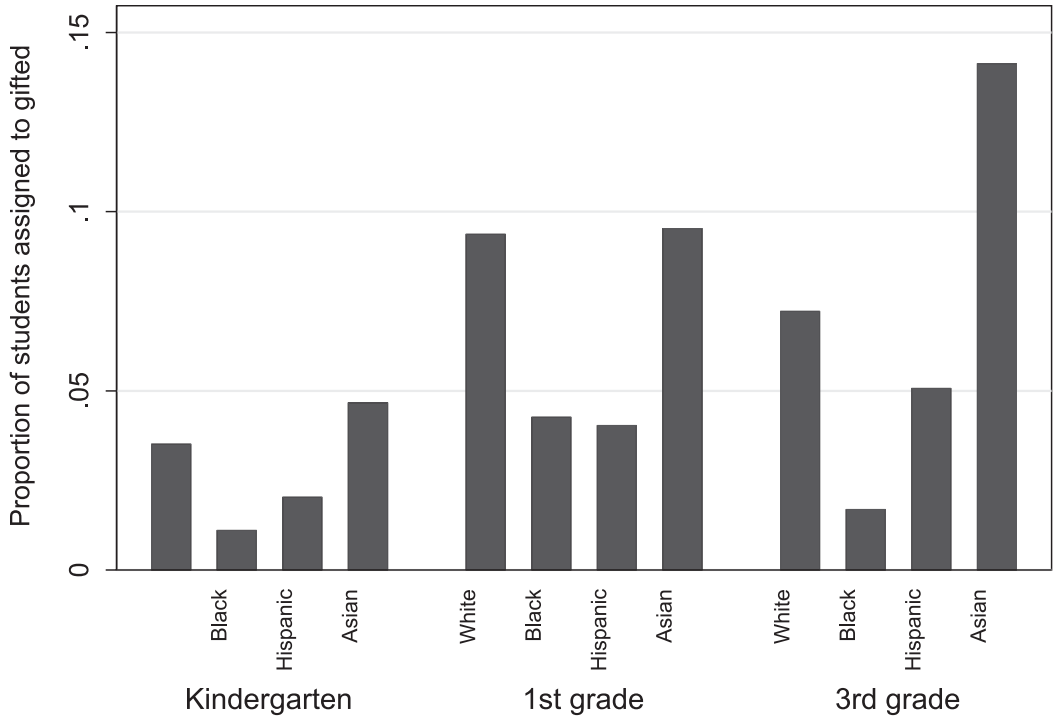

FIGURE 1. *Students assigned to gifted programs, by survey year and student race.*

Asian students are, on average, more likely to attend larger, urban schools and schools with higher FRPL percentages. Black and Hispanic students attend schools with lower mean test scores, on average.

Explaining Disproportionalities in Assignment to Gifted Programs

Next, we turn to predicting the probability of gifted assignment using student, teacher, classroom, and school characteristics. In Table 3, we document racial and ethnic disproportionalities in a logistic regression format and examine how other factors explain gifted assignment and the racial/ethnic differences we observe. Gifted assignment in this table is operationalized as the student is assigned to gifted services in either reading or math.

The first column includes only race and ethnicity variables, where White students are the base category. The results show that Asian students are more likely than White students to be assigned to gifted services, while Hispanic students are less likely, and Black students are less likely still. The odds of being assigned to a gifted program are 66% lower for Black students than for White students. For Hispanic students, the odds of assignment to gifted are 47% lower than for White students. The odds of assignment for Asian students are 44% higher than for White students.

The second column adds a control for student scores on the ECLS-K math and reading assessments, both of which, unsurprisingly, are strongly positively associated with gifted assignment. The addition of these variables drastically reduces the assignment gap between White students and Hispanic students and, to a lesser extent, Black students. In fact, the gap between White and Hispanic students all but disappears and is statistically indistinguishable from zero, suggesting that differences in assessment scores explain the entire White–Hispanic differential. Also, the White–Asian gap in column 2 is no longer statistically significant. Notably, however, even when controlling for math and reading knowledge or ability, Black students are still significantly less likely to be assigned to gifted services. Based on this model, the predicted probability of assignment for Black students is approximately half the probability for White students. The addition of controls for student sex, SES, health, and age at kindergarten entry (column 3) does little to change the results. Student SES is strongly positively associated with likelihood of assignment, but the inclusion of these additional variables closes the Black–White gap only slightly further, suggesting that factors beyond observable student background characteristics are responsible for explaining the Black–White gap in gifted assignment.

Columns 4 and 5 add further controls for teacher, classroom, and school characteristics. These additions lead to several observations. First, the gap in gifted assignment between Black students and students of other racial and

TABLE 2
Comparing Student, Teacher, Classroom, and School Characteristics by Student Race and Ethnicity

Characteristic	White	Black	Hispanic	Asian
Student characteristics				
Students assigned to gifted	0.053	0.022***	0.035***	0.062*
Students assigned to gifted in reading	0.050	0.021***	0.034***	0.058*
Students assigned to gifted in math	0.043	0.017***	0.029***	0.054
Reading test (standardized)	0.14	−0.30***	−0.34***	0.17
Math test (standardized)	0.21	−0.41***	−0.30***	0.12
Female	0.49	0.47	0.52	0.54*
SES	0.05	−0.42***	−0.45***	0.01
Parent's health rating	0.07	−0.17***	−0.24***	−0.11**
Age in months at start of kindergarten	66.64	66.31	65.75***	65.42***
Teacher/classroom characteristics				
White	0.95	0.76***	0.89***	0.85***
Black	0.03	0.22***	0.04***	0.04
Hispanic	0.01	0.02	0.20***	0.02**
Asian	0.01	0.01	0.03***	0.09***
Teaching experience (in current school)	10.18	8.53***	8.25***	8.65***
Master's degree	0.41	0.33***	0.34***	0.39
Certified	0.94	0.91***	0.91***	0.94
Class size	20.76	20.79	20.90	21.38**
Class mean SES	0.03	−0.36***	−0.36***	−0.00*
Class percentage Black	0.05	0.68***	0.05**	0.06
Class percentage Hispanic	0.06	0.05	0.68***	0.11***
Class percentage Asian	0.03	0.02*	0.05***	0.57***
School characteristics				
Urban	0.19	0.40***	0.43***	0.35***
Rural	0.35	0.12***	0.20***	0.20***
Northeast	0.14	0.07***	0.07***	0.12
Midwest	0.29	0.07***	0.12***	0.23***
South	0.42	0.81***	0.33***	0.25***
West	0.15	0.05***	0.49***	0.39***
School size (100s)	5.31	5.61***	6.09***	5.80***
Fraction White students	0.80	0.40***	0.42***	0.52***
Fraction Black students	0.09	0.49***	0.08	0.12**
Fraction Hispanic students	0.07	0.07	0.46***	0.18***
Fraction Asian students	0.02	0.02	0.05***	0.18***
School percentage FRPL	0.26	0.53***	0.46***	0.35***
School mean test score	56.63	50.98***	54.9***	57.82**
Observations	9,400	1,840	2,380	1,060

Note. Estimates adjusted using Early Childhood Longitudinal Study, Kindergarten cohort probability weights. Public schools with gifted programs only. Statistical significance based on a *t* test comparing White students to the other groups. Sample sizes rounded in accordance with National Center for Education Statistics nondisclosure rules. SES = socioeconomic status; FRPL = free or reduced-price lunch.
*$p < .05$. **$p < .01$. ***$p < .001$.

ethnic backgrounds remains when characteristics of schools are included. In the fully saturated model, the odds of assignment to gifted are 50% lower for Black students than for White students. If anything, accounting for Black and Hispanic students' teacher, classroom, and school characteristics makes the point estimates of the assignment gap larger than if only student characteristics are included. In terms of predicted probabilities with all other variables at their means, White students have a predicted probability of assignment of 6.2%, whereas Black students have only a 2.8% probability, a statistically and substantively important difference. Second, most teacher and classroom

characteristics are uncorrelated with the probability of a student's assignment to gifted programs, at least when student characteristics are included in the models. One exception is that students in classrooms with Black teachers are more likely to be assigned, highlighting that further examination of teacher race effects is warranted. Finally, several school characteristics are associated with assignment probability, including school racial/ethnic composition; students in schools with larger fractions of Black and Hispanic students have higher assignment probabilities, while those in schools with larger Asian populations have lower assignment probabilities.

Table 4 shows these same results, this time separating assignment to gifted programs in reading from assignment to gifted programs in math. Making this distinction generally does not change the interpretations in Table 3, though it does add some nuance. The gifted-assignment gap for Black students is large and evident in both subjects, even when accounting for the full set of control variables. We also find that Asian students are more likely than White students to be assigned to gifted services in math (but not reading) than other factors would predict. This finding is consistent with evidence of positive stereotyping of Asian students as quantitatively gifted and with evidence that Asian parents are more likely to participate in gifted identification processes, among other possible explanations (Kitano, 2011). Most other variables in the model have the same estimated association with reading assignment as with math assignment in the full models.

In summary, large disparities exist in gifted assignment by race and ethnicity in elementary schools with gifted programs, and neither math and reading assessment scores nor other background characteristics fully account for the disproportionately low assignment of Black students, in particular. Nor are the disparities explained by the kinds of schools Black students attend. There is some suggestion that the race of the teacher to which a student is assigned does predict a student's assignment probability, an issue into which we next delve further.

Results for Teacher–Student Race Congruence and Assignment to Gifted Programs

Table 5 considers the question of whether assignment to an own-race teacher matters for a student's probability of assignment to gifted services, focusing specifically on Black students as the group identified as underrepresented in the preceding analyses. As in Tables 3 and 4, a variety of models with different combinations of control variables are shown, though control variables are omitted from the table for brevity (full results are shown in Appendix Table A3).[14] The addition in Table 5 is an indicator for whether the student is race congruent with his or her teacher and a series of interactions between race congruence and student race and ethnicity. We show results both for assignment to either reading or math and for assignment to reading or math separately.

The takeaway from Table 5 is that, consistent with the predictions from bureaucratic representation theory, assignment to a Black teacher partially ameliorates the disparity in gifted assignment probability between Black students and students from other groups, particularly for assignment in reading. For the most saturated model for reading assignment (column 6), the odds ratios suggest that Black students with a Black teacher are significantly more likely to be assigned to gifted services than Black students without Black teachers. The predicted probability of assignment to gifted programs in reading for Black students in classrooms with Black teachers is 6.2%, compared to 2.1% for Black students with non-Black teachers, holding other variables at their means. In other words, all else equal, Black students are predicted to be assigned to gifted services 3 times more often in classrooms with Black teachers than with non-Black teachers. Significant evidence of a correlation between gifted assignment and race congruence is not found for White, Hispanic, or Asian students. When we limit to assignment in math only, we do not find evidence of a race congruence association for any student subgroup.

As one check on these results, Appendix Table A4 controls for test scores in the current year. Although we prefer the model controlling for the lagged test score because of concerns that the current test score is endogenous to assignment, making this change strengthens the case for an association between race congruence and gifted assignment for Black students.

Given the significant associations for the presence of a race-congruent teacher for Black students in Table 5, in Figure 2 we plot the predicted probabilities from this model for Black students in race-congruent and race-incongruent classrooms compared to White students with and without a same-race teacher across the score distribution (averaging math and reading) from the median to the 100th percentile. The likelihood of assignment to gifted services increases for all students as their test scores increase. White students are assigned at higher probabilities throughout the distribution, but assignment probabilities for Black students with Black teachers are similar to those of White students. In contrast, Black students with non-Black teachers are predicted to be assigned to gifted programs at consistently lower probabilities than the three other groups of students depicted.

Discussion and Conclusions

As Konstantopoulos, Modi, and Hedges (2001) argue in their study of gifted students, managing gifted students' intellectual talent "is essential to maintaining high national

TABLE 3
Predicting Assignment to Gifted Programs

Characteristic	(1)	(2)	(3)	(4)	(5)
Student characteristics					
Black student	0.34**	0.57**	0.63*	0.44**	0.50**
	(−5.80)	(−2.83)	(−2.29)	(−3.17)	(−2.84)
Hispanic student	0.53**	0.96	1.07	0.84	0.89
	(−4.91)	(−0.27)	(0.44)	(−0.81)	(−0.51)
Asian student	1.44*	1.25	1.20	1.11	1.19
	(2.31)	(1.35)	(1.05)	(0.46)	(0.76)
Reading test score (standardized)		1.78***	1.72**	1.73**	1.75**
		(10.14)	(9.32)	(9.14)	(8.93)
Math test score (standardized)		1.97***	1.90**	1.93**	1.95**
		(11.20)	(10.11)	(9.81)	(9.73)
Female student			0.99	0.99	1.01
			(−0.06)	(−0.08)	(0.12)
Socioeconomic status			1.38**	1.58**	1.58**
			(4.69)	(5.03)	(4.99)
Student health			0.95	0.98	0.98
			(−0.91)	(−0.37)	(−0.42)
Age in months as of start of kindergarten			0.99	0.99	0.99
			(−0.70)	(−0.60)	(−0.94)
Teacher/classroom characteristics					
Black teacher				1.72**	1.44†
				(2.60)	(1.71)
Hispanic teacher				0.96	0.78
				(−0.15)	(−0.79)
Asian teacher				1.20	1.29
				(0.53)	(0.71)
Teaching experience (in current school)				1.00	1.00
				(0.14)	(0.29)
Master's degree				0.96	1.01
				(−0.39)	(0.13)
Certified				1.03	0.99
				(0.14)	(−0.03)
Class size				1.01	1.01
				(0.40)	(0.51)
Class percentage Black students				0.83	0.91
				(−1.47)	(−0.61)
Class percentage Hispanic students				1.49	0.47†
				(1.26)	(−1.85)
Class percentage Asian students				1.42	0.73
				(1.14)	(−0.65)
School characteristics					
Urban					1.12
					(0.85)
Rural					0.92
					(−0.56)
Midwest					1.46*
					(2.18)

(continued)

TABLE 3 (CONTINUED)

Characteristic	(1)	(2)	(3)	(4)	(5)
South					1.17
					(0.91)
West					1.13
					(0.62)
School size					0.96
					(−1.49)
School FRPL rate					1.06
					(0.16)
Fraction Black students					5.29**
					(3.38)
Fraction Hispanic students					4.09*
					(2.15)
Fraction Asian students					0.21†
					(−1.66)
School mean test score					1.00
					(−0.02)
Observations	14,280	14,280	14,280	14,280	14,280

Note. Coefficients reported as odds ratios. Estimates adjusted using Early Childhood Longitudinal Study, Kindergarten cohort probability weights. Public schools with gifted programs only. The *t* statistics, in parentheses, are based on robust standard errors clustered at the child level. FRPL = free or reduced-price lunch.
†$p < .10$. *$p < .05$. **$p < .01$.

TABLE 4
Predicting Assignment to Gifted Programs, by Subject

	Reading					Math				
Characteristic	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Student characteristics										
Black student	0.36**	0.61*	0.67†	0.39**	0.45**	0.36**	0.62*	0.66†	0.51*	0.53*
	(−5.26)	(−2.42)	(−1.91)	(−3.41)	(−3.11)	(−4.67)	(−2.12)	(−1.75)	(−2.26)	(−2.11)
Hispanic student	0.54**	0.98	1.08	0.84	0.90	0.46**	0.93	1.03	0.67	0.71
	(−4.47)	(−0.13)	(0.47)	(−0.73)	(−0.45)	(−4.61)	(−0.36)	(0.13)	(−1.55)	(−1.25)
Asian student	1.46*	1.24	1.18	1.16	1.23	1.65**	1.59	1.53*	1.73†	1.83*
	(2.27)	(1.19)	(0.92)	(0.61)	(0.87)	(2.76)	(2.22)	(2.04)	(1.95)	(2.10)
Reading test score (standardized)		1.81**	1.74**	1.76**	1.78**		1.75**	1.71**	1.75**	1.82**
		(9.83)	(8.94)	(8.80)	(8.55)		(8.65)	(8.23)	(8.28)	(8.67)
Math test score (standardized)		1.96**	1.91**	1.93**	1.95**		1.94**	1.87**	1.88**	1.92**
		(10.58)	(9.66)	(9.33)	(9.21)		(9.33)	(8.30)	(8.01)	(8.33)
Female student			1.06	1.06	1.09			0.88	0.84	0.84
			(0.54)	(0.52)	(0.71)			(−0.96)	(−1.23)	(−1.24)
SES			1.35**	1.58**	1.58**			1.31**	1.59**	1.58**
			(4.05)	(4.69)	(4.66)			(3.24)	(4.06)	(3.98)
Student health			0.95	0.98	0.98			0.98	0.99	1.01
			(−0.78)	(−0.28)	(−0.28)			(−0.35)	(−0.12)	(0.15)
Age in months as of start of kindergarten			0.99	0.99	0.99			0.98	0.99	0.98
			(−0.67)	(−0.46)	(−0.81)			(−0.85)	(−0.69)	(−0.84)
Teacher/classroom characteristics										
Black teacher			1.85**	1.51+	1.85**			2.32**	1.81*	2.32**
			(2.89)	(1.90)	(2.89)			(3.50)	(2.40)	(3.50)

(continued)

TABLE 4 (CONTINUED)

	Reading					Math				
Characteristic	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Hispanic teacher			1.05	0.82	1.05			0.70	0.54	0.70
			(0.17)	(−0.60)	(0.17)			(−0.83)	(−1.26)	(−0.83)
Asian teacher			1.26	1.31	1.26			0.58	0.60	0.58
			(0.66)	(0.72)	(0.66)			(−1.09)	(−0.97)	(−1.09)
Teaching experience (in current school)			1.00	1.00	1.00			0.99	0.99	0.99
			(0.18)	(0.32)	(0.18)			(−0.78)	(−0.70)	(−0.78)
Master's degree			0.96	1.03	0.96			0.93	1.00	0.93
			(−0.33)	(0.22)	(−0.33)			(−0.51)	(−0.00)	(−0.51)
Certified			1.02	0.99	1.02			1.45	1.46	1.45
			(0.09)	(−0.04)	(0.09)			(1.49)	(1.52)	(1.49)
Class size			0.99	1.00	0.99			1.02	1.02	1.02
			(−0.33)	(−0.17)	(−0.33)			(0.86)	(0.80)	(0.86)
Class mean SES			0.81	0.92	0.81			0.73*	0.91	0.73*
			(−1.55)	(−0.57)	(−1.55)			(−2.00)	(−0.51)	(−2.00)
Class percentage Black students			1.85†	0.50	1.85†			1.05	0.24**	1.05
			(1.86)	(−1.55)	(1.86)			(0.12)	(−2.68)	(0.12)
Class percentage Hispanic students			1.44	0.73	1.44			1.92†	0.86	1.92†
			(1.12)	(−0.60)	(1.12)			(1.72)	(−0.22)	(1.72)
Class percentage Asian students			1.07	1.19	1.07			0.96	1.07	0.96
			(0.18)	(0.41)	(0.18)			(−0.08)	(0.14)	(−0.08)
School characteristics										
Urban					1.09					0.91
					(0.60)					(−0.57)
Rural					0.92					0.80
					(−0.52)					(−1.05)
Midwest					1.35					1.40
					(1.57)					(1.63)
South					1.22					1.27
					(1.07)					(1.19)
West					1.12					1.09
					(0.52)					(0.33)
School size					0.95+					0.96
					(−1.94)					(−1.02)
School FRPL rate					1.13					1.30
					(0.32)					(0.58)
Fraction Black students					5.98**					6.51**
					(3.32)					(3.02)
Fraction Hispanic students					4.50*					4.11
					(2.15)					(1.51)
Fraction Asian students					0.20					0.25
					(−1.63)					(−1.06)
School mean test score					1.00					0.97*
					(0.07)					(−2.48)
Observations	14,230	14,230	14,230	14,230	14,230	12,070	12,070	12,070	12,070	12,070

Note. Coefficients reported as odds ratios. Estimates adjusted using Early Childhood Longitudinal Study, Kindergarten cohort probability weights. Public schools with gifted programs only. The *t* statistics, in parentheses, are based on robust standard errors clustered at the child level. SES = socioeconomic status; FRPL = free or reduced-price lunch.
†$p < .10$. *$p < .05$. **$p < .01$.

TABLE 5
Predicting Assignment to Gifted Programs With Student–Teacher Race Congruence

	Reading or math assignment			Reading assignment			Math assignment		
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Black student	0.38**	0.29**	0.31**	0.35**	0.24**	0.26**	0.56	0.47	0.51
	(−2.65)	(−3.16)	(−3.03)	(−2.70)	(−3.43)	(−3.24)	(−1.29)	(−1.59)	(−1.45)
Hispanic student	0.90	0.74	0.77	0.82	0.69	0.72	1.10	0.79	0.83
	(−0.36)	(−0.87)	(−0.77)	(−0.59)	(−1.06)	(−0.90)	(0.25)	(−0.55)	(−0.41)
Asian student	1.06	1.02	1.05	0.95	0.97	1.01	1.78	1.87	1.96
	(0.16)	(0.05)	(0.13)	(−0.16)	(−0.08)	(0.01)	(1.38)	(1.37)	(1.49)
Black teacher	1.28	1.19	1.01	1.31	1.18	1.00	2.29*	2.19*	1.76
	(0.82)	(0.55)	(0.03)	(0.84)	(0.51)	(−0.01)	(2.18)	(2.05)	(1.48)
Hispanic teacher	0.93	0.90	0.75	1.07	1.02	0.83	0.87	0.82	0.69
	(−0.21)	(−0.30)	(−0.76)	(0.19)	(0.07)	(−0.49)	(−0.29)	(−0.42)	(−0.70)
Asian teacher	1.10	1.09	1.13	1.09	1.08	1.08	0.47	0.48	0.52
	(0.23)	(0.20)	(0.26)	(0.19)	(0.18)	(0.15)	(−0.91)	(−0.91)	(−0.80)
Race congruence	0.87	0.88	0.87	0.80	0.81	0.81	1.15	1.16	1.15
	(−0.48)	(−0.44)	(−0.47)	(−0.75)	(−0.70)	(−0.68)	(0.39)	(0.40)	(0.39)
Black Student × Race Congruence	3.26†	3.26†	3.02†	3.90*	3.88*	3.48†	1.13	1.19	1.09
	(1.79)	(1.79)	(1.67)	(1.96)	(1.96)	(1.79)	(0.15)	(0.22)	(0.11)
Hispanic Student × Race Congruence	1.55	1.40	1.33	1.58	1.42	1.35	1.43	1.20	1.08
	(0.78)	(0.59)	(0.48)	(0.80)	(0.61)	(0.49)	(0.45)	(0.23)	(0.09)
Asian Student × Race Congruence	1.00	0.96	1.27	1.28	1.25	1.65	1.42	1.49	2.13
	(0.00)	(−0.06)	(0.32)	(0.33)	(0.29)	(0.64)	(0.31)	(0.35)	(0.65)
Reading test score (standardized)	1.71**	1.72**	1.74**	1.73**	1.74**	1.76**	1.70**	1.71**	1.77**
	(9.26)	(9.37)	(9.28)	(8.84)	(8.99)	(8.86)	(8.06)	(8.24)	(8.62)
Math test score (standardized)	1.91**	1.92**	1.92**	1.92**	1.93**	1.93**	1.88**	1.89**	1.93**
	(10.17)	(10.04)	(9.80)	(9.73)	(9.61)	(9.34)	(8.34)	(8.26)	(8.50)
Observations	14,280	14,280	14,280	14,230	14,230	14,230	12,070	12,070	12,070

Note. Coefficients reported as odds ratios. All models include student controls. Models 2, 5, and 8 add teacher and classroom controls; Models 3, 6, and 9 add school controls (not shown). Estimates adjusted using Early Childhood Longitudinal Study, Kindergarten cohort probability weights. Public schools with gifted programs only. The *t* statistics, in parentheses, are based on standard errors clustered at the child level.
†$p < .10$. *$p < .05$. **$p < .01$.

standards of achievement in education, international competitiveness, and labor market efficiency" (p. 344). This goal of fostering academic growth among academically talented youth hinges on the proper identification of gifted students. Yet our results show that identification of gifted students depends, in part, on factors having little to do with student performance or ability that lead students to be assigned disproportionately on the basis of race and ethnicity. Taking student math and reading assessment scores into account, which school a student attends and the characteristics of the classroom to which a student is assigned, including the race of the classroom teacher, each partially explain students' gifted assignment probabilities and, to some degree, the observed gaps among students of different demographic groups.

In particular, we uncover evidence that Black students in classrooms with non-Black teachers are systematically less likely to receive gifted services in subsequent years, particularly in reading. The lower likelihood of assignment for high-achieving Black students in classrooms with non-Black teachers diverts gifted services from the very students who may benefit the most from such programs (Card & Giuliano, 2014). Representative bureaucracy theory suggests multiple mechanisms that might produce such a pattern. One explanation is that teachers exercise discretion in student referral, diagnosis, or selection along racial/ethnic lines in ways that contribute to patterns of disproportionality in assignment. Teachers may perceive potential giftedness differently in students from other-race groups because of differences in backgrounds or biases in their judgments or expectations (Gershenson, Holt, & Papageorge, 2015; Grissom et al., 2015). Alternatively, students may perform or behave differently in the presence of an own-race teacher in ways that make giftedness easier to identify, or students

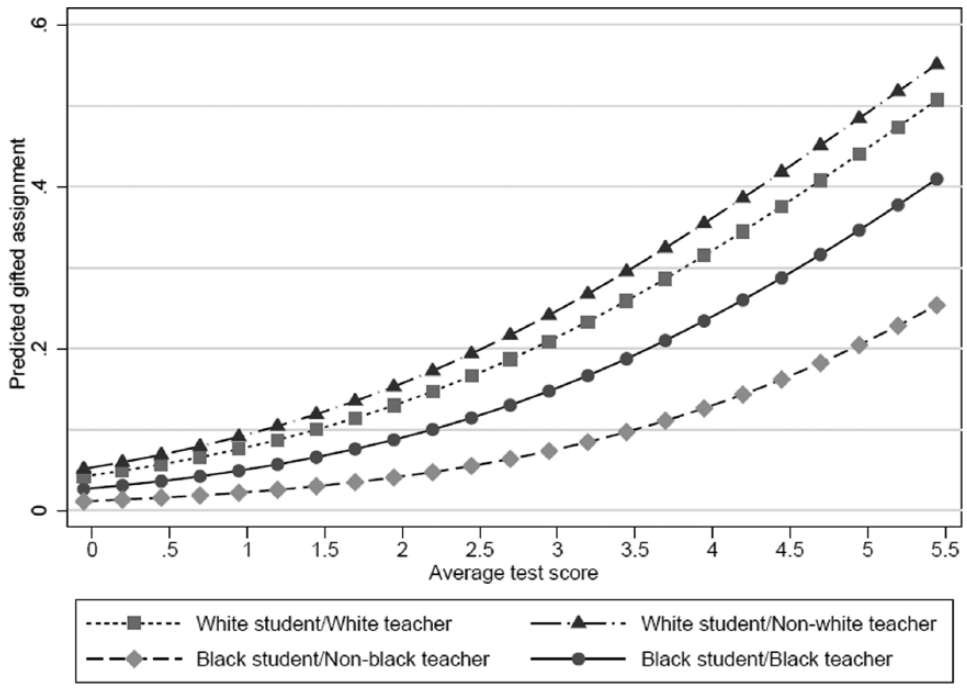

FIGURE 2. *Predicted assignment to gifted services for Black and White students.*

or parents may engage differently in the gifted assignment process itself in the presence of own-race teachers (Grissom et al., 2015; Lim, 2006). For example, Black parents may feel more comfortable reaching out to a Black teacher to suggest that a child be tested or may be more responsive when that teacher reaches out to encourage the family to sign the child up for gifted services. An important task for future research is to explore these mechanisms. Nevertheless, this finding that Black students—even with the same assessment scores in schools with similar characteristics—are less likely to be assigned to gifted services, at least in reading, when taught by a non-Black teacher raises serious concerns in the context of an educational system in which approximately 80% of Black elementary school students are taught by other-race teachers.

That Black students are overwhelmingly taught by non-Black teachers reflects a lack of diversity in the teacher workforce. Although 43% of the public school student population are students of color, non-White teachers make up only about 17% of the teaching workforce (Bireda & Chait, 2011; Grissom et al., 2015), and this discrepancy may be growing as the schools become more diverse (Boser, 2014). Scholars have cited numerous justifications for policies aimed at diversifying teaching demographically, including role-modeling benefits for students of color, greater likelihood of culturally relevant instruction, and lower teacher churn in schools with large concentrations of disadvantaged teachers (Bireda & Chait, 2011; Boser, 2014; Ingersoll & May, 2011; Quiocho & Rios, 2000; Villegas & Irvine, 2010). The evidence presented here adds to this list, suggesting that greater teacher diversity may help ameliorate racial gaps in student assignment to gifted programs. Given these results, future work might investigate whether these patterns may also hold for other student outcomes with similar gaps, including discipline or referral to special education services.

Of course, if teacher discretion is indeed the primary mechanism underlying the race congruence result, policymakers and education leaders need not wait for greater teacher workforce diversity to address the issue we highlight. In special education, as a result of three decades of legal challenges, districts have made strides in minimizing the inequitable exercise of discretion through the adoption of less biased identification and placement systems, including enhanced training for teachers on identification and the use of norm-referenced instruments (Zhang & Katsiyannis, 2002). Evidence suggests that such processes help equalize the representation of Black students in special education in elementary school (Hibel et al., 2010; Morgan, Farkas, Hillemeier, & Maczuga, 2012). Similar steps could be taken to formalize the processes for gifted identification to form what Joseph and Ford (2006) refer to as "nondiscriminatory assessment." They describe a process that draws upon a variety of sources of student data and ensures that, rather than a single individual making assignment decisions, assignment teams using culturally sensitive

assessments are engaged in evaluation. School systems might also move toward universal gifted screening procedures to reduce the role of teacher discretion in placement processes. In fact, universal screening may help address other potential sources of disproportionalities associated with differences in referral rates, such as parental advocacy. Evidence suggests that shifting to universal screening procedures indeed increases identification rates for non-White students (Card & Giuliano, 2015).

Teacher preparation and professional development may be particularly important avenues for reducing racial disparities at the teacher referral stage. Research has documented that White preservice teachers often bring a dearth of cross-cultural experience and knowledge with which to negotiate how to teach students of color (Cochran-Smith, 2000; Ladson-Billings, 1999; Sleeter, 2001), particularly for Black students (Ladson-Billings, 2000). Addressing the need to train culturally responsive teachers, one approach has been to focus on specific strategies that inform how implicit biases may affect decision making and behavior. Research from a number of domains, including the legal profession, health care, law enforcement, and professional sports, suggests that explicit training to increase awareness of prejudice or stereotypes may reduce the unintentional racial bias from decisions made when the level of discretion over outcomes is high (e.g., Burgess, van Ryn, Dovidio, & Saha, 2007; Correll et al., 2007; Greenwald, Oakes, & Hoffman, 2003; Kang et al., 2012; Plant & Peruche, 2005; Pope, Price, & Wolfers, 2013). Studies in K–12 and higher education similarly indicate that training around diversity can reduce racial bias in participants' perceptions (Denson, 2009; Engberg, 2004). In the context of gifted education, training for teachers could emphasize strategies aimed at identifying giftedness among racially or ethnically diverse students and identification approaches that are not culture-blind (Ford, Moore, & Scott, 2011).

We emphasize, however, that teacher–student race congruence only partially explains the apparent underassignment of Black students to gifted programs that remains even after student test scores; other background characteristics, such as SES; and classroom and school characteristics are taken into account. Unlike the underrepresentation of Hispanic students relative to White students, which is largely explained by differences in reading and math achievement scores, the Black–White gap in gifted assignment cannot be fully explained by the relatively large number of control variables included in our models. The persistence of this gap points to a need for additional research into the structural, social, and cultural contributors to differences in assignment even for high-achieving Black students. The finding that Asian students are overrepresented in gifted programs relative to other students, particularly in math, even after including extensive control variables in the models, also highlights an avenue for additional explanatory research.

Our study faces a number of limitations. First, we lack data on teachers' actual identification, referral, and diagnosis behaviors and instead approximate this complex process with information on whether the student moves from not receiving gifted services to receiving them in consecutive survey periods. This approximation is more problematic in some years because the ECLS-K did not collect data in second and fourth grades. Second, data limitations prevent us from more fully accounting for unobserved characteristics that might bias our results. For example, it could be that motivated parents both push for their children to be assigned to same-race teachers and advocate for them to be tested for gifted classification. If so, we risk attributing the impact of parental involvement to the presence of a race-congruent teacher. We attempt to account for a number of student, teacher, and school characteristics to avoid these sources of bias, but larger data sets of the type maintained for state administrative purposes could permit other modeling strategies, such as the inclusion of student or teacher fixed effects, that would provide more convincing estimates. An additional data limitation is that the ECLS-K data contain no measures of student aptitude. We include math and reading achievement scores in our models, but if schools aim to target gifted services at high-aptitude students, regardless of past achievement, these scores may not be sufficient. Rather than interpreting our results as definitive evidence that teacher discretion contributes to disproportionalities in student gifted assignment, we interpret them as suggesting new avenues for further research to better understand a complex set of social and educational processes.

Future studies could take advantage of administrative data sets that permit a more precise modeling of the gifted assignment process. In particular, studies that use more robust district or state administrative data could utilize variation in referral, identification, and evaluation mechanisms across schools and differences in students' decisions to take advantage of gifted services following nomination, which may also differ by student characteristics, to isolate which stages contribute to the underrepresentation of students of color. Qualitative exploration of the practices that schools and their teachers engage in during assignment or how parents interface with schools could elucidate other factors that influence student placement in gifted programs. Future work could also be extended to retention in gifted programs. As gifted programs themselves do not always embrace the diverse cultures of their students (Ford, 1998; Ford et al., 2008), research could address the connection between retention and underrepresentation, and the roles of diverse teachers in student retention.

Appendix

TABLE A1
Correlation Matrix for Control Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Gifted assignment	—														
2. Black child	−0.06	—													
3. Hispanic child	−0.05	−0.20	—												
4. Asian child	0.05	−0.11	−0.15	—											
5. Test score (standardized)	0.26	−0.08	−0.07	0.06	—										
6. SES	0.18	−0.16	−0.29	0.03	0.13	—									
7. School percentage FRPL	−0.06	0.26	0.30	0.01	−0.08	−0.47	—								
8. Fraction Black students	−0.01	0.64	−0.12	−0.04	−0.07	−0.17	0.38	—							
9. Fraction Hispanic students	−0.02	−0.14	0.68	0.02	−0.06	−0.28	0.40	−0.16	—						
10. Fraction Asian students	0.02	−0.08	0.04	0.48	0.07	0.03	0.02	−0.07	0.07	—					
11. School mean test score	0.16	−0.06	−0.05	0.05	0.94	0.06	−0.08	−0.08	−0.06	0.07	—				
12. Class mean SES	0.13	−0.17	−0.32	0.05	0.12	0.75	−0.59	−0.22	−0.37	0.04	0.09	—			
13. Class percentage Black	−0.04	0.79	−0.17	−0.09	−0.07	−0.16	0.31	0.81	−0.16	−0.10	−0.07	−0.22	—		
14. Class percentage Hispanic	−0.04	−0.17	0.83	−0.08	−0.07	−0.29	0.34	−0.14	0.82	0.05	−0.06	−0.38	−0.21	—	
15. Class percentage Asian	0.05	−0.10	−0.08	0.74	0.06	0.05	0.02	−0.05	0.04	0.63	0.06	0.07	−0.12	−0.09	—

Note. SES = socioeconomic status; FRPL = free or reduced-price lunch.

TABLE A2
Modeling Student Assignment to Gifted Services Using Current Year's Math and Reading Achievement Test Scores

	Reading					Math				
Characteristic	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Student characteristics										
Black student	0.36**	0.74	0.79	0.48**	0.53*	0.36**	0.77	0.80	0.57†	0.63
	(−5.26)	(−1.52)	(−1.13)	(−2.76)	(−2.50)	(−4.67)	(−1.19)	(−0.95)	(−1.87)	(−1.61)
Hispanic student	0.54**	1.10	1.19	0.82	0.88	0.46**	0.99	1.07	0.67	0.71
	(−4.47)	(0.60)	(1.13)	(−0.85)	(−0.56)	(−4.61)	(−0.07)	(0.33)	(−1.54)	(−1.26)
Asian student	1.46*	1.53*	1.49†	1.31	1.40	1.65**	1.80**	1.75**	1.87*	1.98*
	(2.27)	(2.12)	(1.93)	(1.23)	(1.56)	(2.76)	(2.90)	(2.74)	(2.30)	(2.50)
Reading test score (standardized)		2.51**	2.41**	2.42**	2.58**		2.33**	2.28**	2.29**	2.54**
		(13.78)	(12.73)	(12.67)	(13.48)		(10.53)	(10.30)	(10.07)	(10.98)
Math test score (standardized)		2.31**	2.25**	2.27**	2.39**		2.45**	2.35**	2.39**	2.55**
		(10.11)	(9.55)	(9.52)	(10.21)		(8.44)	(7.93)	(7.96)	(9.07)
Female student			1.08	1.09	1.08			0.91	0.90	0.88
			(0.72)	(0.77)	(0.67)			(−0.70)	(−0.80)	(−1.00)

(continued)

TABLE A2 (CONTINUED)

	Reading					Math				
Characteristic	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
SES			1.27**	1.48**	1.45**			1.25**	1.47**	1.41**
			(3.25)	(4.35)	(4.06)			(2.68)	(3.53)	(3.15)
Student health			0.97	0.98	1.00			0.97	0.98	1.00
			(−0.55)	(−0.38)	(−0.04)			(−0.51)	(−0.38)	(−0.02)
Age in months as of start of kindergarten			1.00	1.00	1.00			0.99	0.99	0.99
			(0.02)	(0.02)	(−0.30)			(−0.48)	(−0.55)	(−0.81)
Teacher/classroom characteristics										
Black teacher				1.80**	1.50†				2.22**	1.82*
				(2.78)	(1.82)				(3.41)	(2.44)
Hispanic teacher				1.17	0.98				1.01	0.81
				(0.62)	(−0.09)				(0.04)	(−0.60)
Asian teacher				1.04	1.21				0.52	0.66
				(0.10)	(0.48)				(−1.20)	(−0.72)
Teaching experience (in current school)				1.00	1.00				0.99	0.99
				(0.44)	(0.32)				(−0.77)	(−1.01)
Master's degree				1.00	1.06				1.01	1.06
				(0.03)	(0.50)				(0.07)	(0.43)
Certified				0.98	1.00				1.42	1.47†
				(−0.09)	(−0.01)				(1.51)	(1.65)
Class size				1.00	1.01				1.02	1.02
				(−0.03)	(0.25)				(0.62)	(0.75)
Class mean SES				0.77*	1.00				0.74*	1.07
				(−2.03)	(0.01)				(−2.02)	(0.41)
Class percentage Black students				1.77†	0.64				1.26	0.39†
				(1.81)	(−1.03)				(0.64)	(−1.90)
Class percentage Hispanic students				1.72†	1.05				2.12*	1.22
				(1.70)	(0.10)				(2.06)	(0.31)
Class percentage Asian students				1.20	1.55				0.85	1.27
				(0.49)	(0.94)				(−0.37)	(0.45)
School characteristics										
Urban					1.20					1.05
					(1.38)					(0.32)
Rural					0.87					0.82
					(−0.84)					(−0.99)
Midwest					1.30					1.32
					(1.46)					(1.50)
South					1.24					1.34
					(1.25)					(1.56)
West					1.06					0.99
					(0.27)					(−0.04)
School size					0.94*					0.95
					(−2.08)					(−1.45)
School FRPL rate					1.23					1.15
					(0.68)					(0.37)
Fraction Black students					3.38*					3.23*
					(2.58)					(2.12)
Fraction Hispanic students					2.49					2.56
					(1.40)					(1.07)

(continued)

TABLE A2 (CONTINUED)

	Reading					Math				
Characteristic	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fraction Asian students					0.18† (−1.91)					0.14† (−1.86)
School mean test score					0.97** (−2.69)					0.94** (−5.55)
Observations	15,060	15,060	15,060	15,060	15,060	12,880	12,880	12,070	12,070	12,070

Note. Coefficients reported as odds ratios. Estimates adjusted using Early Childhood Longitudinal Study, Kindergarten cohort probability weights. Public schools with gifted programs only. The *t* statistics, in parentheses, are based on robust standard errors clustered at the child level. SES = socioeconomic status; FRPL = free or reduced-price lunch.
†$p < .10$. *$p < .05$. **$p < .01$.

TABLE A3
Predicting Assignment to Gifted Programs With Student–Teacher Race Congruence (Full Results)

	Reading or math assignment			Reading assignment			Math assignment		
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Black student	0.38**	0.29**	0.31**	0.35**	0.24**	0.26**	0.56	0.47	0.51
	(−2.65)	(−3.16)	(−3.03)	(−2.70)	(−3.43)	(−3.24)	(−1.29)	(−1.59)	(−1.45)
Hispanic student	0.90	0.74	0.77	0.82	0.69	0.72	1.10	0.79	0.83
	(−0.36)	(−0.87)	(−0.77)	(−0.59)	(−1.06)	(−0.90)	(0.25)	(−0.55)	(−0.41)
Asian student	1.06	1.02	1.05	0.95	0.97	1.01	1.78	1.87	1.96
	(0.16)	(0.05)	(0.13)	(−0.16)	(−0.08)	(0.01)	(1.38)	(1.37)	(1.49)
Black teacher	1.28	1.19	1.01	1.31	1.18	1.00	2.29*	2.19*	1.76
	(0.82)	(0.55)	(0.03)	(0.84)	(0.51)	(−0.01)	(2.18)	(2.05)	(1.48)
Hispanic teacher	0.93	0.90	0.75	1.07	1.02	0.83	0.87	0.82	0.69
	(−0.21)	(−0.30)	(−0.76)	(0.19)	(0.07)	(−0.49)	(−0.29)	(−0.42)	(−0.70)
Asian teacher	1.10	1.09	1.13	1.09	1.08	1.08	0.47	0.48	0.52
	(0.23)	(0.20)	(0.26)	(0.19)	(0.18)	(0.15)	(−0.91)	(−0.91)	(−0.80)
Race congruence	0.87	0.88	0.87	0.80	0.81	0.81	1.15	1.16	1.15
	(−0.48)	(−0.44)	(−0.47)	(−0.75)	(−0.70)	(−0.68)	(0.39)	(0.40)	(0.39)
Black Student × Race Congruence	3.26†	3.26†	3.02†	3.90†	3.88†	3.48†	1.13	1.19	1.09
	(1.79)	(1.79)	(1.67)	(1.96)	(1.96)	(1.79)	(0.15)	(0.22)	(0.11)
Hispanic Student × Race Congruence	1.55	1.40	1.33	1.58	1.42	1.35	1.43	1.20	1.08
	(0.78)	(0.59)	(0.48)	(0.80)	(0.61)	(0.49)	(0.45)	(0.23)	(0.09)
Asian Student × Race Congruence	1.00	0.96	1.27	1.28	1.25	1.65	1.42	1.49	2.13
	(0.00)	(−0.06)	(0.32)	(0.33)	(0.29)	(0.64)	(0.31)	(0.35)	(0.65)
Reading test score (standardized)	1.71**	1.72**	1.74**	1.73**	1.74**	1.76**	1.70**	1.71**	1.77**
	(9.26)	(9.37)	(9.28)	(8.84)	(8.99)	(8.86)	(8.06)	(8.24)	(8.62)
Math test score (standardized)	1.91**	1.92**	1.92**	1.92**	1.93**	1.93**	1.88**	1.89**	1.93**
	(10.17)	(10.04)	(9.80)	(9.73)	(9.61)	(9.34)	(8.34)	(8.26)	(8.50)
Female student	0.99	0.99	0.99	1.05	1.06	1.06	0.86	0.86	0.85
	(−0.13)	(−0.09)	(−0.12)	(0.47)	(0.55)	(0.52)	(−1.07)	(−1.11)	(−1.20)
SES	1.39**	1.58**	1.58**	1.37**	1.59**	1.59**	1.32**	1.56**	1.55**
	(4.87)	(5.28)	(5.28)	(4.25)	(5.02)	(5.01)	(3.36)	(3.97)	(3.97)
Student health	0.95	0.95	0.97	0.95	0.96	0.98	0.97	0.98	1.00
	(−0.95)	(−0.87)	(−0.59)	(−0.81)	(−0.71)	(−0.39)	(−0.38)	(−0.29)	(0.06)

(continued)

TABLE A3 (CONTINUED)

	Reading or math assignment			Reading assignment			Math assignment		
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age in months as of start of kindergarten	0.99 (−0.67)	0.99 (−0.70)	0.99 (−0.94)	0.99 (−0.63)	0.99 (−0.68)	0.99 (−0.89)	0.98 (−0.83)	0.98 (−0.88)	0.98 (−1.02)
Teacher characteristics									
Teaching experience (in current school)		1.00 (0.35)	1.00 (0.49)		1.00 (0.36)	1.00 (0.51)		0.99 (−0.83)	0.99 (−0.76)
Master's degree		0.96 (−0.41)	1.00 (−0.02)		0.95 (−0.40)	1.00 (0.04)		0.97 (−0.24)	1.02 (0.15)
Certified		1.10 (0.51)	1.07 (0.38)		1.09 (0.43)	1.06 (0.32)		1.56† (1.81)	1.57† (1.82)
Classroom characteristics									
Class size		1.01 (0.46)	1.01 (0.51)		1.00 (0.01)	1.00 (0.12)		1.01 (0.48)	1.02 (0.53)
Class mean SES		0.81† (−1.67)	0.88 (−0.89)		0.78† (−1.85)	0.87 (−0.89)		0.76† (−1.85)	0.96 (−0.28)
Class percentage Black students		1.59 (1.47)	0.62 (−1.14)		1.90† (1.95)	0.65 (−0.96)		1.30 (0.69)	0.33* (−2.15)
Class percentage Hispanic students		1.43 (1.22)	0.81 (−0.45)		1.47 (1.21)	0.79 (−0.46)		1.89† (1.72)	1.00 (−0.01)
Class percentage Asian students		1.08 (0.23)	1.27 (0.61)		0.96 (−0.10)	1.14 (0.32)		0.83 (−0.42)	1.11 (0.19)
School characteristics									
Urban			1.25† (1.78)			1.21 (1.42)			1.04 (0.27)
Rural			0.92 (−0.52)			0.92 (−0.49)			0.85 (−0.81)
Midwest			1.40* (2.03)			1.31 (1.51)			1.28 (1.28)
South			1.18 (1.02)			1.24 (1.22)			1.28 (1.27)
West			1.12 (0.59)			1.12 (0.54)			1.04 (0.14)
School size			0.96 (−1.46)			0.95† (−1.86)			0.96 (−1.29)
School FRPL rate			1.27 (0.82)			1.41 (1.14)			1.41 (0.92)
Fraction Black students			3.85** (2.80)			4.26** (2.88)			5.01** (2.77)
Fraction Hispanic students			3.20† (1.86)			3.52† (1.88)			3.20 (1.27)
Fraction Asian students			0.19* (−2.01)			0.18† (−1.87)			0.13† (−1.81)
School mean test score			1.01 (0.47)			1.01 (0.49)			0.97* (−2.46)
Observations	14,280	14,280	14,280	14,230	14,230	14,230	12,070	12,070	12,070

Note. Coefficients reported as odds ratios. Estimates adjusted using Early Childhood Longitudinal Study, Kindergarten cohort probability weights. Public schools with gifted programs only. The *t* statistics, in parentheses, are based on robust standard errors clustered at the child level. SES = socioeconomic status; FRPL = free or reduced-price lunch.
†$p < .10$. *$p < .05$. **$p < .01$.

TABLE A4

Student Gifted Assignment and Race Congruence, Controlling for Current Year's Test Score

	Reading or math assignment			Reading assignment			Math assignment		
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Black student	0.43*	0.34**	0.38*	0.40*	0.28**	0.33**	0.70	0.59	0.64
	(−2.31)	(−2.77)	(−2.51)	(−2.37)	(−3.05)	(−2.75)	(−0.81)	(−1.16)	(−0.98)
Hispanic student	0.89	0.68	0.74	0.84	0.63	0.70	1.08	0.73	0.79
	(−0.37)	(−1.11)	(−0.86)	(−0.56)	(−1.26)	(−0.97)	(0.21)	(−0.73)	(−0.55)
Asian student	1.22	1.08	1.17	1.12	1.05	1.13	1.96†	2.04	2.14†
	(0.58)	(0.23)	(0.46)	(0.32)	(0.12)	(0.35)	(1.68)	(1.61)	(1.72)
Black teacher	1.24	1.14	1.01	1.27	1.15	1.00	2.36*	2.21*	1.82
	(0.71)	(0.44)	(0.02)	(0.75)	(0.43)	(−0.01)	(2.35)	(2.18)	(1.61)
Hispanic teacher	0.78	0.75	0.67	0.90	0.87	0.76	0.74	0.70	0.62
	(−0.72)	(−0.80)	(−1.05)	(−0.30)	(−0.41)	(−0.73)	(−0.64)	(−0.75)	(−0.93)
Asian teacher	0.97	0.94	1.10	0.94	0.91	1.02	0.42	0.42	0.52
	(−0.07)	(−0.14)	(0.20)	(−0.14)	(−0.21)	(0.04)	(−1.07)	(−1.08)	(−0.80)
Race congruence	0.82	0.84	0.85	0.76	0.78	0.80	1.15	1.14	1.14
	(−0.69)	(−0.63)	(−0.57)	(−0.92)	(−0.86)	(−0.76)	(0.39)	(0.38)	(0.37)
Black Student × Race Congruence	3.73*	3.74*	3.46†	4.35*	4.33*	3.90*	1.04	1.14	1.14
	(1.99)	(1.99)	(1.88)	(2.12)	(2.12)	(1.97)	(0.05)	(0.16)	(0.16)
Hispanic Student × Race Congruence	2.45	2.09	1.84	2.42	2.06	1.82	2.07	1.69	1.40
	(1.61)	(1.32)	(1.08)	(1.54)	(1.27)	(1.03)	(0.98)	(0.70)	(0.44)
Asian Student × Race Congruence	1.43	1.33	1.62	1.84	1.72	2.12	2.20	2.23	3.08
	(0.50)	(0.40)	(0.68)	(0.82)	(0.73)	(0.99)	(0.73)	(0.75)	(1.01)
Reading test score (standardized)	2.26**	2.27**	2.42**	2.40**	2.42**	2.58**	2.28**	2.30**	2.55**
	(12.26)	(12.33)	(13.28)	(12.56)	(12.67)	(13.46)	(10.07)	(10.06)	(10.97)
Math test score (standardized)	2.36**	2.38**	2.50**	2.25**	2.27**	2.38**	2.34**	2.38**	2.54**
	(10.58)	(10.55)	(11.30)	(9.48)	(9.46)	(10.16)	(7.86)	(7.88)	(8.98)
Student characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Teacher and class characteristics	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
School characteristics	No	No	Yes	No	No	Yes	No	No	Yes
Observations	15,110	15,110	15,110	15,060	15,060	15,060	12,880	12,880	12,880

Note. Coefficients reported as odds ratios. Estimates adjusted using Early Childhood Longitudinal Study, Kindergarten cohort probability weights. Public schools with gifted programs only. The *t* statistics, in parentheses, are based on robust standard errors clustered at the child level.
†$p < .10$. *$p < .05$. **$p < .01$.

TABLE A5

Assignment to Gifted Programs and Race Congruence (Dependent Variable = Gifted Assignment in Same Year)

	Reading assignment			Math assignment		
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Black student	0.63	0.47*	0.48*	0.58†	0.38*	0.43*
	(−1.53)	(−2.17)	(−2.14)	(−1.75)	(−2.40)	(−2.15)
Hispanic student	1.30	1.19	1.23	1.09	1.00	1.06
	(1.05)	(0.67)	(0.74)	(0.32)	(−0.01)	(0.18)

(continued)

TABLE A5 (CONTINUED)

	Reading assignment			Math assignment		
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Asian student	1.24	1.41	1.63	1.24	1.57	1.81
	(0.77)	(1.02)	(1.40)	(0.76)	(1.33)	(1.63)
Black teacher	1.21	1.14	0.99	1.21	1.13	0.92
	(0.70)	(0.48)	(−0.04)	(0.63)	(0.39)	(−0.26)
Hispanic teacher	1.09	1.04	0.81	1.39	1.31	0.95
	(0.29)	(0.13)	(−0.70)	(0.93)	(0.78)	(−0.14)
Asian teacher	0.64	0.65	0.77	0.59	0.62	0.81
	(−1.15)	(−1.10)	(−0.66)	(−1.09)	(−0.97)	(−0.41)
Race congruence	0.89	0.89	0.98	0.79	0.80	0.86
	(−0.51)	(−0.49)	(−0.07)	(−0.93)	(−0.92)	(−0.58)
Black Student × Race Congruence	1.06	0.99	0.97	0.92	0.88	0.92
	(0.10)	(−0.01)	(−0.05)	(−0.15)	(−0.23)	(−0.13)
Hispanic Student × Race Congruence	1.10	1.03	0.80	1.22	1.18	0.89
	(0.22)	(0.07)	(−0.51)	(0.43)	(0.34)	(−0.23)
Asian Student × Race Congruence	0.49	0.49	0.45	0.37	0.40	0.38
	(−0.56)	(−0.56)	(−0.63)	(−0.94)	(−0.89)	(−1.00)
Student characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Teacher and class characteristics	No	Yes	No	No	Yes	No
School characteristics	No	No	Yes	No	No	Yes
Observations	21220	21220	21220	18970	18970	18970

Note. Coefficients reported as odds ratios. Estimates adjusted using Early Childhood Longitudinal Study, Kindergarten cohort probability weights. Public schools with gifted programs only. The *t* statistics, in parentheses, are based on robust standard errors clustered at the child level.
$^{\dagger}p < .10$. $*p < .05$. $**p < .01$.

Acknowledgments

Mimi Engel and Donna Ford provided helpful feedback on earlier drafts of this manuscript.

Notes

1. Using a regression discontinuity (RD) design, a recent study in a single district by Bui, Craig, and Imberman (2014) found evidence of only small impacts of gifted assignment on student achievement. Using a similarly rigorous design, Card and Giuliano (2014) found evidence that gifted effects are larger for Black and Hispanic students than for other students. Other RD evidence suggests that gifted assignment increases the probability that parents keep their children in the district, suggesting that parents are valuing outcomes for students that may not be picked up by standardized test scores (Davis, Engberg, Epple, Sieg, & Zimmer, 2010).

2. Although "Hispanic" is an ethnicity rather than a race, for simplicity we use the terms *own race*, *same race*, and *race congruence* to refer to matching between students and teachers on either the race or the ethnicity dimension.

3. To ascertain whether or not a school had a gifted program in either reading or math, we relied on two indicators. First, we marked a school as having a gifted program if teachers reported any students as participating in a gifted program. Second, if the administrator reported that children participate in a gifted and talented program at this school, we report a school as having a gifted program.

4. To avoid double-counting students who exit and reenter gifted services at different time points, we include students in our analysis only the first time they are assigned to a gifted program. These students are effectively "dropped" from subsequent years, resulting in a small further reduction in sample size. Finally, to avoid overweighting students who were assigned to gifted programs in multiple survey waves, we count students as being assigned to gifted services only the first time they are assigned.

5. Multiple imputation was run using the suite of multiple imputation analysis commands (*mi*) in Stata 13. Ten data sets were generated. We used the multivariate normal imputation method with a burn-in of 10,000 and a burn-between of 2,500. Initial values are obtained using a Markov chain Monte Carlo procedure with 5,000 iterations.

6. In the third- and fifth-grade surveys, an additional response category was added to indicate whether or not the school had a gifted program.

7. Student assessments were conducted beginning in the end of March, after field supervisors, interviewers, and assessors completed training throughout February and March (Tourangeau et al., 2006). School surveys were distributed at a similar time. When we instead operationalize assignment as occurring in the *same* year (i.e., the outcome indicates whether or not a student was assigned in a given year, conditional on not being assigned in the prior survey period), we find many of the same relationships with student background characteristics (e.g., socioeconomic status) and class and school characteristics but no relationship with teacher race/ethnicity or with congruence (see Appendix Table A5).

8. Fifth-grade teacher characteristics are not relevant because we use fifth-grade data only to capture whether a student not in gifted services in third grade was assigned in fifth grade.

9. The Early Childhood Longitudinal Study, Kindergarten cohort math and reading assessments are tests of math and reading knowledge and skills in typical content areas taught in elementary school. The tests have very good reliability and validity properties, information about which can be found in National Center for Education Statistics (2002).

10. We also considered including class mean test score performance as a covariate. We discovered, however, that this variable was correlated at more than 0.9 with both individual student achievement and school mean achievement, so we did not include it in the models reported here. Including it, however, has little effect on most primary coefficients of interest.

11. To illustrate, consider the kindergarten sample. Of the 1,560 schools we include, only 90 assigned more than one sampled student to gifted services by first grade. Of these 90, only 50 showed variation in the race of assigned students, and only 10 were students assigned with and without a race-congruent teacher. Such small cell sizes create similar challenges for the use of student or teacher fixed effects.

12. These statistics refer to the percentage of students assigned to gifted services in schools with gifted programs. Among all schools, 4% of students are assigned to gifted services (3% each in reading and math).

13. If we do not limit on schools with gifted programs, these percentages are approximately 4% of White students, 2% of Black students, 3% of Hispanic students, and 6% of Asian students.

14. The full results in Appendix Table A3 show that, in math, being in a school with high average test scores makes it less likely that a student is assigned to gifted services. This evidence is consistent with findings in Hibel, Farkas, and Morgan (2010) that special education placement shows evidence of a "frog pond" effect, in which high average achievement in the school increases the likelihood that a student is placed in special education. We attempted to investigate further by interacting individual math score with school average math score and found that the interaction indeed was statistically significant, though in the opposite direction of what we expected; namely, the pattern in the coefficients suggested that the probability that a high-achieving student was identified as gifted *increased* in relatively high-achieving schools. This pattern would be worth examining further in future work. Our other main coefficients of interest were not substantively affected by inclusion of this interaction.

References

Aaronson, D., Barrow, L., & Sander, W. (2007). Teachers and student achievement in the Chicago public high schools. *Journal of Labor Economics*, *25*(1), 95–135.

Anguino, L. (2003). Underrepresentation of minority students in gifted and talented education. *Multicultural Education*, *11*(1), 32–34.

Baker, A. (2013, January 12). Gifted, talented and separated: In one school, students are divided by gifted label—and race. *The New York Times*. Retrieved from http://www.nytimes.com

Bhatt, R. (2009) *The impacts of gifted and talented education* (SSRN Working Paper No. 09-11). Retreived from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1494334.

Bireda, S., & Chait, R. (2011). *Increasing teacher diversity: Strategies to improve the teacher workforce*. Washington, DC: Center for American Progress. Retrieved from http://americanprogress.org

Boser, U. (2014). *Teacher diversity revisited: A new state-by-state analysis*. Washington, DC: Center for American Progress. Retrieved from http://americanprogress.org

Bui, S. A., Craig, S. G., & Imberman, S. A. (2014). Is gifted education a bright idea? Assessing the impact of gifted and talented programs on students. *American Economic Journal: Economic Policy*, *6*(3), 30–62.

Burgess, D., van Ryn, M., Dovidio, J., & Saha, S. (2007). Reducing racial bias among health care providers: lessons from social-cognitive psychology. *Journal of General Internal Medicine*, *22*(6), 882–887.

Card, D., & Giuliano, L. (2014). *Does gifted education work? For which students?* (Working Paper No. 20453). Cambridge, MA: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w20453

Card, D., & Giuliano, L. (2015). *Can universal screening increase the representation of low income and minority students in gifted education?* (Working Paper No. 21519). Cambridge, MA: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w21519

Close, B.R., & Mason, P. L. (2006). After the traffic stops: Officer characteristics and enforcement actions. *BE Journal of Economic Analysis & Policy*, *6*(1), 1–43.

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. (2005). Who teaches whom? Race and the distribution of novice teachers. *Economics of Education Review*, *24*(4), 377–392.

Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2010). Teacher credentials and student achievement in high school: A cross-subject analysis with student fixed effects. *Journal of Human Resources*, *45*(3), 655–681.

Cochran-Smith, M. (2000). Blind vision: Unlearning racism in teacher education. *Harvard Educational Review*, *70*(2), 157–190.

Correll, J., Park, B., Judd, C. M., Wittenbrink, B., Sadler, M. S., & Keesee, T. (2007). Across the thin blue line: Police officers and racial bias in the decision to shoot. *Journal of Personality and Social Psychology*, *92*(6), 1006–1023.

Darity, W. A., Jr., & Jolla, A. (2009). Desegregated schools with segregated education. In C. Hartman & G. D. Squires (Eds.), *The integration debate: Futures for American cities* (pp. 99–117). New York, NY: Routledge.

Davis, B., Engberg, J., Epple, D. N., Sieg, H., & Zimmer, R. (2010). *Evaluating the gifted program of an urban school district using a modified regression discontinuity design* (No. w16414). Cambridge, MA: National Bureau of Economic Research.

Dee, T. S. (2004). Teachers, race, and student achievement in a randomized experiment. *Review of Economics and Statistics*, *86*(1), 195–210.

Delcourt, M. A. B., Cornell, D. G., & Goldberg, M. D. (2007). Cognitive and affective learning outcomes of gifted elementary school students. *Gifted Child Quarterly*, *51*, 359–381.

DeMonte, J., & Hanna, R. (2014). *Looking at the best teachers and who they teach*. Washington, DC: Center for American Progress.

Denson, N. (2009). Do curricular and cocurricular diversity activities influence racial bias? A meta-analysis. *Review of Educational Research*, *79*(2), 805–838.

Dolan, J., & Rosenbloom, D. H. (2003). *Representative bureaucracy: Classic readings and continuing controversies*. Armonk, NY: M. E. Sharpe.

Donovan, M. S., & Cross, C. T. (2002). *Minority students in special and gifted education*. Washigton, DC: National Academy Press.

Elhoweris, H., Mutua, K., Alsheikh, N., & Holloway, P. (2005). Effect of children's ethnicity on teachers' referral and recommendation decisions in gifted and talented programs. *Remedial and Special Education*, *26*(1), 25–31.

Engberg, M. E. (2004). Improving intergroup relations in higher education: A critical examination of the influence of educational interventions on racial bias. *Review of Educational Research*, *74*(4), 473–524.

Ferguson, R. F. (1998). Teachers' perceptions and expectations and the Black–White test score gap. In C. Jencks & M. Phillips (Eds.), *The Black–White test score gap* (pp. 217–317) Washington, DC: Brookings Institution Press.

Ford, D. Y. (1998). The underrepresentation of minority students in gifted education: Problems and promises in recruitment and retention. *Journal of Special Education*, *32*(1), 4–14.

Ford, D. Y., & Grantham, T. C. (2003). Providing access for culturally diverse gifted students: From deficit to dynamic thinking. *Theory Into Practice*, *42*, 217–225.

Ford, D. Y., Grantham, T. C., & Whiting, G. W. (2008). Culturally and linguistically diverse students in gifted education: Recruitment and retention issues. *Exceptional Children*, *74*(3), 289–306.

Ford, D. Y., Moore, J. L., III, & Scott, M. T. (2011). Key theories and frameworks for improving the recruitment and retention of African American students in gifted education. *Journal of Negro Education*, *80*(3), 239–253.

Gamoran, A., Nystrand, M., Berends, M., & LePore, P. C. (1995). An organizational analysis of the effects of ability grouping. *American Educational Research Journal*, *32*(4), 687–715.

Gershenson, S., Holt, S. B., & Papageorge, N. W. (2015). *Who believes in me? The effect of student-teacher demographic match on teacher expectations* (Upjohn Institute Working Paper 15-231). Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.

Goldring, E. B. (1990). Assessing the status of information on classroom organizational frameworks for gifted students. *American Journal of Education*, *83*(6), 313–326.

Greenwald, A. G., Oakes, M. A., & Hoffman, H. G. (2003). Targets of discrimination: Effects of race on responses to weapons holders. *Journal of Experimental Social Psychology*, *39*(4), 399–405.

Grissom, J. A., Kern, E. C., & Rodriguez, L. A. (2015). The "representative bureaucracy" in education: Educator workforce diversity, policy outputs, and outcomes for disadvantaged students. *Educational Researcher*, *44*(3), 185–192.

Grissom, J. A., Nicholson-Crotty, J., & Nicholson-Crotty, S. (2009). Race, region, and representative bureaucracy. *Public Administration Review*, *69*(5), 911–919.

Grissom, J. A., Rodriguez, L. A., & Kern, E. C. (in press). Teacher and principal diversity and the representation of students of color in gifted programs: Evidence from national data. *Elementary School Journal*.

Harris, J. J., III, Brown, E. L., Ford, D. Y., & Richardson, J. W. (2003). African Americans and multicultural education: A proposed remedy for disproportionate special education placement and underinclusion in gifted education. *Education and Urban Society*, *36*(3), 304–341.

Hibel, J., Farkas, G., & Morgan, P. L. (2010). Who is placed in special education? *Sociology of Education*, *83*(4), 312–332.

Hindera, J. J. (1993). Representative bureaucracy: Further evidence of active representation in the EEOC district offices. *Journal of Public Administration Research and Theory*, *3*(4), 415–429.

Ingersoll, R., & May, H. (2011). *Recruitment, retention, and the minority teacher shortage*. Philadelphia, PA: University of Pennsylvania, Consortium for Policy Research in Education.

Joseph, L. M., & Ford, D. Y. (2006). Nondiscriminatory assessment: considerations for gifted education. *Gifted Child Quarterly*, *50*(1), 42–51.

Kang, J., Bennett, M., Carbado, D., Casey, P., Dasgupta, N., Faigman, D., … Mnookin, J. (2012). Implicit bias in the courtroom. *UCLA Law Review*, *59*, 1124–1186.

Kearns, T., Ford, L., & Linney, J. A. (2004). African American student representation in special education programs. *Journal of Negro Education*, *74*(4), 297–310.

Keiser, L. R., Wilkins, V. M., Meier, K. J., & Holland, C. A. (2002). Lipstick and logarithms: Gender, institutional context, and representative bureaucracy. *American Political Science Review*, *96*(03), 553–564.

Kennedy, B.A. (2013). Sorting through: The role of representation in bureaucracy. *Journal of Public Administration Research and Theory*, *23*(4), 791–816.

Kingsley, J. D. (1944). *Representative bureaucracy*. Yellow Springs, OH: Antioch Press.

Kitano, M. K. (2011). Issues in research on Asian American gifted students. In J. A. Castellano & A. D. Frazier (Eds.), *Special populations in gifted education: Understanding our most able students from diverse backgrounds* (pp. 3–25). Waco, TX: Prufrock Press.

Konstantopoulos, S., Modi, M., & Hedges, L. V. (2001). Who are America's gifted? *American Journal of Education*, *109*(3), 344–382.

Kulik, C. L. C., & Kulik, J. A. (1982). Effects of ability grouping on secondary school students: A meta-analysis of evaluation findings. *American Educational Research Journal*, *19*(3), 415–428.

Kulik, J., & Kulik, C.-L. (1984, August). *Effects of ability grouping on elementary school pupils: A meta-analysis*. Paper presented at the annual meeting of the American Psychological Association, Toronto, Canada.

Ladson-Billings, G. (1999). Preparing teachers for diverse student populations: A critical race theory perspective. *Review of Research in Education*, *24*, 211–247.

Ladson-Billings, G. (2000). Fighting for our lives: Preparing teachers to teach African American students. *Journal of Teacher Education*, *51*(3), 206–214.

Lareau, A. (1987). Social class differences in family–school relationships: The importance of cultural capital. *Sociology of Education*, *60*(2), 73–85.

Lareau, A., & Horvat, E. M. (1999). Moments of social inclusion and exclusion: Race, class, and cultural capital in family-school relationships. *Sociology of Education*, *72*, 37–53.

Lim, H. (2006). Representative bureaucracy: Rethinking substantive effects and active representation. *Public Administration Review*, *66*, 193–204.

Marsh, H. W., Chessor, D., Craven, R., & Roche, L. (1995). The effects of gifted and talented programs on academic self-concept: The big fish strikes again. *American Educational Research Journal*, *32*(2), 285–319.

McBee, M. T. (2006). A descriptive analysis of referral sources for gifted identification screening by race and socioeconomic status. *Journal of Secondary Gifted Education*, *17*, 103–111.

Meier, K. J. (1993). Representative bureaucracy: A theoretical and empirical exposition. In J. Perry (Ed.), *Research in public administration* (pp. 1–35). Greenwich, CT: JAI Press.

Meier, K. J., & Nicholson-Crotty, J. (2006). Gender, representative bureaucracy, and law enforcement: The case of sexual assault. *Public Administration Review*, *66*, 850–860.

Meier, K. J., & Stewart, J. (1992). The impact of representative bureaucracies: Educational systems and public policies. *American Review of Public Administration*, *22*(3), 151–171.

Meier, K. J., Stewart, J., & England, R. (1989). *Race, class and education*. Madison: University of Wisconsin Press.

Mickelson, R. (2003). When are racial disparities in education the result of racial discrimination? A social science perspective. *Teachers College Record*, *105*(6), 1052–1086.

Morgan, P. L., Farkas, G., Hillemeier, M. M., & Maczuga, S. (2012). Are minority children disproportionately represented in early intervention and early childhood special education? *Educational Researcher*, *41*(9), 339–351.

Mosher, F. (1968). *Democracy and the public service*. New York, NY: Oxford University Press.

National Center for Education Statistics. (2002). *Early Childhood Longitudinal Study–Kindergarten Class of 1998–99 (ECLS-K), psychometric report for kindergarten through first grade*. Washington, DC: U.S. Department of Education.

Nicholson-Crotty, J., Grissom, J. A., & Nicholson-Crotty, S. (2011). Bureaucratic representation, distributional equity, and democratic values in the administration of public programs. *Journal of Politics*, *73*(2), 582–596.

Oakes, J. (1990). *Multiplying inequalities: The effects of race social class, and tracking on opportunities to learn mathematics and science*. Santa Monica, CA: RAND.

Plant, E. A., & Peruche, B. M. (2005). The consequences of race for police officers' responses to criminal suspects. *Psychological Science*, *16*(3), 180–183.

Pollack, J. M., Narajian, M., Rock, D.A., Atkins-Burnett, S., & Hausken, E.G. (2005). *Early Childhood Longitudinal Study–Kindergarten Class of 1998–99 (ECLS-K), psychometric report for the fifth grade*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Pope, D. G., Price, J., & Wolfers, J. (2013). *Awareness reduces racial bias* (NBER Working Paper 19765). Retrieved from http://www.nber.org/papers/w19765

Quiocho, A., & Rios, F. (2000). The power of their presence: Minority group teachers and schooling. *Review of Educational Research*, *70*(4), 485–528.

Rocha, R. R., & Hawes, D.P. (2009). Racial diversity, representative bureaucracy, and equity in multiracial school districts. *Social Science Quarterly*, *90*(2), 326-344.

Rogers, K.B. (2007). Lessons learned about educating the gifted and talented: A synthesis of the research on educational practice. *Gifted Child Quarterly*, *51*(4), 382–396.

Selden, S. (1997). *The promise of representative bureaucracy: diversity and responsiveness in a government agency*. Armonk, NY: M. E. Sharpe.

Sleeter, C. E. (2001). Preparing teachers for culturally diverse schools: Research and the overwhelming presence of Whiteness. *Journal of Teacher Education*, *52*(2), 94–106.

Theobald, N. A., & Haider-Markel, D. P. (2009). Race, bureaucracy, and symbolic representation: Interactions between citizens and police. *Journal of Public Administration Research and Theory*, *19*(2), 409–426.

Tourangeau, K., Nord, C., Le, T., Pollack, J. M., Atkins-Burnett, S., & Hausken, E. G. (2006). *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K): Combined user's manual for the ECLS-K fifth-grade data files and electronic codebooks*.Washington, DC: U.S. Department of Education, National Center for Education Statistics.

U.S. Department of Education. (2010). *Civil rights data collection, 2009–2010: National and state estimations*. Retrieved from http://ocrdata.ed.gov/StateNationalEstimations/Projections_2009_10

Villegas, A. M., & Irvine, J. J. (2010). Diversifying the teaching force: An examination of major arguments. *Urban Review*, *42*(3), 175–192.

Zhang, D., & Katsiyannis, A. (2002). Minority representation in special education: A persistent challenge. *Remedial and Special Education*, *23*(3), 180–187.

Authors

JASON A. GRISSOM is an associate professor of public policy and education at the Peabody College of Education and Human Development, Vanderbilt University, PMB 414, 230 Appleton Place, Nashville, TN 37203. He conducts research in the areas of K–12 leadership and governance, teacher and principal effectiveness, educator labor markets, and representation in education.

CHRISTOPHER REDDING is a doctoral candidate at the Peabody College of Education and Human Development, Vanderbilt University, PMB 414, 230 Appleton Place, Nashville, TN 37203. His research focuses on teacher labor markets, teacher education and development, and school improvement.