

Where Are All the Black Teachers? Discrimination in the Teacher Labor Market

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In this article, Diana D'Amico, Robert J. Pawlewicz, Penelope M. Earley, and Adam P. McGeehan examine the racial composition of one public school district's teacher labor market through teacher application data and subsequent hiring decisions. Researchers and policy makers have long noted the lack of racial diversity among the nation's public school teachers and identified supply as the root cause. Using a historical framework and problem definition theory, the authors question this supposition and explore the issue as a function of demand. Investigating a unique data set comprising all of the applications for teaching positions in a single, large school district, they analyze the extent to which race is associated with principals' hiring decisions. They explore the rates at which Black and White candidates apply for teaching positions and compare those to the rates at which they are hired and the school demographics in which they are placed. Through a logistic regression analysis, the authors present evidence of discrimination in teacher hiring. Ceteris paribus, Black applicants were significantly less likely than their White counterparts to receive a job offer. Further, they find evidence of workforce segregation: when hired, Black teachers were significantly more likely to be placed in schools with large populations of children of color and children in poverty or schools characterized as struggling. The authors call for researchers, policy makers, and school leaders at the district and building levels to examine hiring practices, which may be symptomatic of broader institutional biases, so that they may identify and eliminate inherent prejudices.

Keywords: teacher selection, educational policy, teacher supply and demand, racial discrimination, labor market

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Of the nearly four million elementary, middle, and high school teachers in the United States, 83 percent are White and only 8 percent are Black (US Census Bureau, n.d.), even as more than 15 percent of the nation's school-age children are Black (US Census Bureau, 2010). Echoing the concerns of policy makers and researchers, Secretary of Education Arne Duncan (2010) described the lack of racial diversity in the teaching profession as “especially troubling.” For many, the central problem rests on the skewed demographic proportions of the profession. According to the National Education Association (n.d.), “Every child has a basic right to a great public school with a qualified and caring staff, including educators who look like them.”

For the past several decades, policy makers and researchers have defined the paucity of Black teachers as a supply problem that impacts Black children most directly. In this article, we explore the issue as a problem of *demand* by examining the racial composition of one US district's teacher labor market through teacher applicant data and subsequent hiring decisions. We found evidence that even as qualified Black applicants applied to teach in the district, their chances of receiving an offer were significantly lower than those of White candidates, indicating discrimination in the teacher labor market. *Ceteris paribus*, Blackness was negatively associated with receiving a job offer in this school district; when Black candidates were hired, either they were disproportionately placed in schools with large populations of children of color or children in poverty, or they were offered positions by Black principals. Possible explanations for this could be that the Black applicants were unqualified, less qualified, or expressed a specific preference to teach in certain schools. Contrary to such suppositions, we found that when Black and White candidates were equally qualified, White candidates were more likely to receive an offer. Further, due to district hiring practices, candidates did not apply to specific schools but instead to the district for general position types. We maintain that this labor market discrimination—a manifestation of the low *demand* for Black teachers—matters not just for Black children who lack same-race role models but for all children.

Researchers concur that the racial composition of the teacher workforce is impacted by supply-side economic factors (Madkins, 2011), which they have examined from a variety of important perspectives. For instance, some scholars have identified critical barriers to entry ranging from certification exams to negative portrayals of Black teachers that deplete the supply of racially diverse candidates (Albers, 2002; Foster, 1991; Milner, 2012; Petchauer, 2012; Santelices & Wilson, 2010; Torres, Santos, Peck, & Cortes, 2004). Examining the same supply dynamics from a different perspective, other researchers have highlighted the forces that pull racially diverse candidates away from schools (Bianco, Leech, & Mitchell, 2011; Franklin, 1987). Moving beyond individual motivations, scholars have examined the institutional patterns that negatively impact the supply of racially diverse prospective teachers and called important attention to the prohibitive nature of standardized tests and the extent to

which they constrict the racial diversity of the teacher labor market (Albers, 2002; Angrist & Guryan, 2008; Petchauer, 2012). Likewise, scholars have looked to schools of education and the racialized undertones of teacher preparation programs (Dixson & Dingus, 2007; Ladson-Billings, 2000). Arguing that the nature of many preparation programs curtails the supply of racially diverse applicants, scholars have called for the restructuring of college education programs to become more culturally relevant to minority students and more proactive in preparing future educators for teaching African American students (Bridges, 2011; Ladson-Billings, 2000; Pabon, Anderson, & Kharem, 2011; Petchauer, 2012; Sleeter, 2001). Extending this work, researchers have also examined alternate routes to teacher education, questioning the extent to which they ease access into the profession or serve as a barrier for prospective teachers of color (Haberman, 1999; Lau, Dandy, & Hoffman, 2007; Pabon et al., 2011).

Given the evidence that African American students stand to benefit from encountering teachers of the same race in the classroom (Dee, 2004; Madkins, 2011; Villegas & Irvine, 2010), programs have emerged across the nation that focus on targeted recruitment initiatives and alternate pathways into the profession (Boyd, Lankford, Loeb, Ronfeldt, & Wyckoff, 2011; Haberman, 1999; Kirby & Hudson, 1993; Lau et al., 2007). Researchers have also observed that the supply issues transcend the point of initial entry and have highlighted the need for retention initiatives (Ingersoll & May, 2011). Even as the number of African American teachers has increased over the past decades (Ingersoll, Merrill, & Stuckey, 2014), their proportion remains roughly equivalent, and skewed demographic patterns persist, suggesting that these strategies have been less than effective (Achinstein, Ogawa, & Speigman, 2004; Madkins, 2011; Talbert-Johnson, 2001; Torres et al., 2004).

In large measure, the intractable nature of this phenomenon is historic and stems from the very ways in which the core problem has been defined (Horsford & D'Amico, 2015). In the popular imagination and textbooks alike, the *Brown v. Board of Education* decision of 1954 represents a critical turning point in the nation's history, a clear dividing line demarcating a racist past from an equitable present. However, *Brown* also represents something much less romantic: the displacement of the nation's Black teachers (Fairclough, 2004; Fultz, 2004; Hudson & Holmes, 1994; Milner & Howard, 2004; Tillman, 2004). Before the ruling, segregation was the law of the land. The systematic exclusion of Black children and families from public schools—particularly in the South, but elsewhere, too—was indicative of the racist ideals that structured the nation's economic, political, and social landscape. In the face of segregation, Black families resisted and persisted in overt and subtle ways. As historian James Anderson (1988) has detailed, Black families in the South pooled economic and less tangible resources like time to build schoolhouses, discuss curricular matters, and hire teachers. Their children learned in vastly unequal settings, but, as Walker (2000) has argued, the presence of Black teachers also

gave deep value to their education. With the *Brown* decision, the courts mandated the integration of the nation's schoolchildren but said nothing of the teacher labor force, effectively diminishing the *demand* for Black teachers and thus eliminating these community-supported schools and the teachers who staffed them.

The lack of racial diversity among the nation's teachers is a public issue that exists and is tangible. The act of defining a concern such as this one as a problem, however, is a social and political by-product (Baumgartner & Jones, 2009; Kingdon, 1984; Rochefort & Cobb, 1994). The very ways researchers and policy makers define the educational problems of the day determine the lens through which we understand and attempt to solve them. Turning a blind eye to the historic forces surrounding the employment of Black teachers and the ways pre-*Brown* ideals continue to shape the post-*Brown* world, most policy makers have defined endemic diversity problems as a function of *supply* rather than *demand*.

Even as questions surrounding race and education, writ large, captivate researchers and policy makers, scholars have paid comparatively little attention to the role of race in teacher hiring practices. Many hiring practices are what Liu & Johnson (2006) call "moderately decentralized." Teachers are technically hired and employed by the district, but the actual selection is made by principals at individual schools (Engel & Cannata, 2015). Undeniably, Black teachers constitute a smaller percentage of the teaching workforce than their proportion of the population, and they are more likely to teach minority students in urban schools than other student populations (Hanushek & Rivkin, 2007; Jacob, 2007; Mertz, 2010). Is this a function of supply or demand, though?

In most US districts, principals are the gatekeepers of the schools, granting or denying entry via job offers. Examining the decisions they make and the resultant teacher pool is essential to understanding the market forces at play. When faced with a hiring decision, principals often consider a multitude of factors related to teacher qualities and the context of their schools (Ingle, Rutledge, & Bishop, 2011). And as other researchers have documented, some principals prioritize other candidate characteristics, such as local connections or experience (Boyd, Lankford, Loeb, & Wyckoff, 2013; D'Amico, Earley, & Pawlewicz, 2015). Some administrators report placing no considerable value on the ethnicity or race of candidates (Cain-Caston, 1999) or whether they can teach students of different races (Dillon, McCaughtry, & Hummel, 2010), whereas others prioritize race (Harris, Rutledge, Ingle, & Thompson, 2010). Meanwhile, studies of other fields, such as sales and administrative support, have revealed discriminatory practices in hiring and, in particular, a reluctance to hire Black applicants (Bertrand & Mullainathan, 2004). To what extent, if any, might similar tendencies manifest in the education labor market? The teacher labor market is geographically small and highly localized (Engel & Cannata, 2015); as a result, principals develop definitions of fit regarding which candidates are best suited for their individual schools (Hanushek &

Rivkin, 2007; Ingle et al., 2011; Mertz, 2010). Districts in some studies have implemented policies to recruit and hire minority teachers (Ingle et al., 2011; Jacob, 2007; Madkins, 2011), but what impact do these district policies have on the hiring decisions of individual principals?

In this article we examine the demographic composition of the teacher labor market from a new perspective. With few exceptions (D'Amico et al., 2015; Dobbie, 2011; Goldhaber, Grout, & Huntington-Klein, 2014), researchers have focused their analyses on ex post data on teachers already hired and working in the system and, as a result, have yet to examine applicant pool data. This study questions the extent to which supply issues alone account for the paucity of Black teachers through its examination of teacher applicant data and hiring decisions in a single US school district. In the spring of 2012, 11,980 applicants submitted 27,330 applications for 2,380 open teaching positions in the district. Each year, the district allocates resources to the recruitment of minority candidates in an explicit effort to increase the diversity of its teaching population, identifying supply as the root cause of its homogeneous teacher corps. Those efforts bore fruit in the 2012 applicant pool: Black candidates made up 13 percent of prospective teachers, a proportion slightly greater than the percentage of Black students in the district (10 percent); however, Black teachers represented only 6 percent of those offered positions in the district.

To be sure, racial diversity is an issue that transcends the Black community. As our data reveal, the percentage of job offers during the period of our study extended to Black, Hispanic, and Asian teachers fell far below the percentage of Black, Hispanic, and Asian students in the district. That said, Hispanic and Asian teachers were hired proportionally to the rate at which they applied, suggesting that the low numbers for these groups may indeed reflect a supply problem. The patterns surrounding Black teachers, however, were starkly different: the offer rate for these teachers was disproportionately less than the rate at which they applied, suggesting other contributing forces.

Discrimination is a powerful word and one that is often avoided because of what it connotes. However, the economic definition of the term is simple and clear: "Discrimination is generally understood to exist when some superficial characteristic (skin pigmentation, for example) is used in an attempt to restrict individuals' access to the available economic, political, and social opportunities for advancement" (D'Amico, 1987, p. 310). In this district, Black applicants, though having many attributes similar to their White counterparts, encountered a significantly lower likelihood of being offered a job, replicating discriminatory employment patterns documented across a range of industries (Bertrand & Mullainathan, 2004). Further, White principals hired disproportionately fewer Black teachers than Black principals did. Finally, we find evidence of workforce segregation. When Black teachers were hired, they were disproportionately placed in schools with large populations of minority students or students living in poverty.

While this research does not negate the important work on the real and pervasive supply-side problems when it comes to the racial composition of the teacher corps, our findings do suggest that even increasing the supply of racially diverse teachers, as this school district did, may not be enough to diversify the nation's corps of public school teachers. Another powerful and historic force is also at work: demand. In this district, the supply of qualified Black teachers outpaced the demand for them.

Background and Context

Overview of the School District

The school district we studied ranks among the largest in the nation and serves more than 180,000 students (US Department of Education, 2010). Near a major metropolitan area, the largely suburban district maintains over 180 schools and is sustained by an operating budget in excess of \$2 billion; the average per pupil expenditure is \$13,000. With a funding structure much like that of districts across the nation, the majority of financial resources come from the locality, 15 percent of the budget comes from the state, and less than 2 percent comes from federal aid. Teachers represent the largest budget expenditure, and there are more than 20,000 full-time positions in the district. Approximately 40 percent of the student population is White. African American students make up approximately 10 percent of the district's student population, with Hispanic and Asian students each representing 20 percent. More than one-quarter of the students who attend school in the district qualify for free and reduced-price lunch programs; approximately 15 percent of students garner the English as a Second Language (ESOL) classification, and roughly 15 percent of students receive special education services. Based on standardized assessments, the district is widely praised as "high performing."¹

District-Level Hiring Practices and Policies

Each year, representatives from the district's centralized human resources (HR) office travel within and beyond state limits to diversity fairs, Historically Black Colleges and Universities, and recruitment events with the goal of attracting racially diverse candidates to the district. In addition, the office hosts online recruitment events in an effort to reach geographically diverse candidates. To begin the application process, all prospective applicants must submit licensure and certification credentials via a single, centralized online system. HR staff perform an initial screening to ensure that candidates meet basic state requirements. Eligible candidates then receive a link to complete the online application and a code to take the TeacherInsight (TI) assessment administered by Gallup.

All candidates must upload résumés and cover letters to the system and enter information pertaining to current residence, educational background, and work experience.² In addition, candidates have the opportunity to submit

identifying demographic information pertaining to the Equal Employment Opportunity Commission (EEOC), but this information is not shared with hiring principals. Principals may infer information about a candidate's race during the in-person interview through physical attributes, and researchers in other fields have found that individuals screening applications derive information or make assumptions about racial backgrounds from candidates' names and other information included in the résumé (Bertrand & Mullainathan, 2004). Even as principals' observations of racial characteristics may be different from candidates' actual racial identities, principals have the opportunity to make inferences about a candidate's racial background before an offer is extended.

Candidates may be aware of openings at particular schools through either personal connections or school websites, but when submitting materials they do not have an opportunity to specify a school preference. Instead, prospective teachers apply to general position types (e.g., middle school mathematics), and candidates may apply for more than one position. (For instance, Candidate #3729092 applied for three art teacher positions, one each at the elementary, middle, and high school levels.) After online applications are complete, HR staff members send hiring principals links to relevant applications. Once principals have identified applicants of interest, they personally contact the individual to arrange an interview. Principals do not notify HR about who they've interviewed, and so no data exist regarding how many or which candidates are interviewed. However, district officials recounted anecdotal information from principals that invitations to interview were rarely declined, replicating patterns documented elsewhere (Goldhaber et al., 2014). Principals notify HR staff of the candidates they wish to hire, and HR staff contact successful candidates to extend offers. As a way to ensure that all schools in the district have an opportunity to hire the "best" applicants, district policy allows principals of "priority schools"—schools that receive Title I funding or schools that are not meeting performance benchmarks—to extend offers before the rest of the schools in the district.

While scholars have called attention to the role of teacher preferences in school placements (Boyd, Lankford, Loeb, & Wyckoff, 2005; Reininger, 2012), candidates in this district may not exert preference by applying only to particular schools. Instead, prospective teachers in this context exercise their preferences at three junctures: when they choose to apply to the district, when they accept or decline an invitation to interview, and when they accept or decline a job offer.

Data, Methods, and Statistical Model

This study is based on the population of completed applications for teaching positions in the district for academic year 2012–2013, including EEOC data.³ We obtained information regarding the position opening (subject and school

level), whether the TI score threshold was met, and the applicant zip code, prior school experience (location and amount), and education (level, subject, location, and school type). In addition to application information, we derived student population and principal data for schools in the district that hired for the 2012–2013 school year, including priority school designation and demographic information regarding race, ethnicity, and free and reduced-price lunch participation published on the district's website. Finally, we compiled data on hiring decisions and the dates that the offers were extended.

While prior research has documented how both the qualifications of the candidate and the candidate's ties to the local area play an important role in teacher hiring decisions (Boyd et al., 2005; D'Amico et al., 2015; Reininger, 2012), the goal of this study is to examine the role of race in the teacher hiring process. Using all of the information contained in the online applications provided by the district, we constructed a number of proxies to control for the qualifications and local ties of the candidates in our regression analyses in order to isolate the role of race in hiring decisions.⁴ Proxies for qualifications include whether or not candidates surpassed the suggested TI assessment score, the type of higher education institution attended, and the highest degree earned.⁵ Since prior research has shown that local ties may make candidates more attractive, we created a number of variables that proxy for localism (Boyd et al., 2013; D'Amico et al., 2015), such as the candidate's prior work experience within the district, the candidate receiving a degree from a postsecondary institution located in the district, and whether the candidate lives in the district. In addition to the variables we created from online applications, we utilized publicly available school demographic information to examine the types of schools that hire Black teachers and created five variables that characterize various school types in the district with respect to whether the school has been assigned priority status by the district, the proportion of students receiving free and reduced-price lunch, and the racial/ethnic composition of the student body.⁶ Finally, we used photographs posted on the district's school websites to make inferences about the apparent race of each principal who made job offers using the same EEOC categories as candidates did on their applications.⁷

To estimate the likelihood of receiving a job offer in the district, we used a binary logistic regression of the following form:

$$P(Y_i = 1) = \frac{\exp(bX_i)}{1 + \exp(bX_i)}$$

In the model, Y_i is a dichotomous variable that takes the value of 1 if the application i received a job offer, and 0 otherwise. The independent variables of interest in our model are the applications with races identified as Black, Hispanic, another of the EEOC race categories, multiple races, or left blank.⁸ We also included the number of applications submitted by each candidate, in addition to proxies for the applicants' qualifications and local ties, as control

variables. All independent variables are included in the vector X , and β is the vector of parameters associated with X .

Results

Racial Composition of Applications and Offers

As reported in table 1, whereas 40 percent of the district's students are White, 70 percent of all applications were submitted by White candidates, and over 77 percent of the job offers were extended to White candidates. Further, Black students comprised 10 percent of the student population and just under 13 percent of the teacher application pool, but Black candidates received only 6 percent of the job offers.⁹ The proportion of offers to White candidates was greater than the proportion of applications from White candidates, yet the opposite was true for Black candidates, who were hired at a rate lower than the rate at which they applied. These statistics provide preliminary evidence that Black candidates were hired disproportionately less than their White counterparts.

Table 2 provides initial statistical evidence of the association between race and the likelihood of being offered a job in the district. Before taking other factors into consideration, identifying as Black was negatively correlated with receiving a job offer ($\rho = -0.06$), whereas identifying as White was positively correlated with receiving a job offer ($\rho = 0.05$).¹⁰ None of the other EEOC racial categorizations exhibited a significant correlation with the likelihood of receiving a job offer.¹¹

— Are Black Applicants as Qualified as White Applicants?

As researchers concur that teachers stand among the most critical determinants of student success (Heck, 2007), one might assume that hiring principals make economically rational decisions and thus hire the most qualified applicants. Following this logic, one possible explanation for the discrepancy in job offer rates between White and Black candidates could be that Black candidates are less qualified than White candidates. However, our comparison of application characteristics provides evidence that, overall, Black candidates differed from their White counterparts but not in ways that would uniformly indicate lower quality (see table 3). On average, as compared with their White peers, Black candidates were twenty-three percentage points more likely to have advanced degrees and had almost two more years of out-of-district school experience, potentially indicating higher quality. Conversely, Black candidates were less likely to pass the suggested TI score (i.e., 58 percent passing rate for Black candidates and 65 percent for White), potentially indicating lower quality. Taken together, these results indicate that although Black teachers differ from White teachers on indicators of quality, Black teachers did not uniformly demonstrate lower quality. Further, Black candidates were more likely to have degrees from a university in the closest metropolitan area or from an institu-

TABLE 1 *Proportion of applicants, applications, and job offers by ethnicity selected on EEOC form*

<i>Ethnicity</i>	<i>Applications</i>	<i>Offers</i>	<i>Applicants</i>	<i>Applicant offers</i>
White	70.2%	77.5%	70.1%	77.2%
Black	12.5%	6.0%	12.0%	6.3%
Hispanic	4.5%	4.8%	4.5%	5.2%
Other*	4.8%	4.4%	5.6%	4.8%
Multiple**	3.2%	3.1%	3.0%	2.6%
Blank	4.6%	3.7%	4.5%	3.3%
Number	27,330	2,379	11,980	2,269

Notes: *Other includes Asian, American Indian, Alaska Native, Native Hawaiian, and Pacific Islander. **Multiple is a category created by the district for applicants who marked more than one ethnicity.

TABLE 2 *Correlation between receiving an offer and ethnicity*

	<i>Black</i>	<i>White</i>	<i>Hispanic</i>	<i>Other*</i>	<i>Multiple**</i>	<i>Blank</i>
Offer received	-0.06	0.05	0.01	-0.01	0.00	-0.01

Notes: Correlations in bold are statistically significant ($p \leq .01$). *Other includes Asian, American Indian, Alaska Native, Native Hawaiian, and Pacific Islander. **Multiple is a category created by the district for applications that marked more than one ethnicity.

tion on the district's list of standard institutions, but they were less likely to live inside the district, potentially signifying differences in localism.

In table 4 we compare the application characteristics of Black and White candidates who received offers in order to identify differences in teachers receiving jobs in the district. We found that Black and White candidates who received job offers from the district were more similar than different, with a few notable exceptions. Successful Black candidates were, on average, eighteen percentage points more likely to hold advanced degrees and had, on average, 1.65 more years of experience outside the district, but they were less likely to live in the district. While Black applicants were overall slightly less likely than White applicants to have district experience (17 percent of Black applicants and 18 percent of White candidates), Black candidates receiving offers were significantly more likely to have district experience (i.e., 57 percent of successful Black candidates compared to 49 percent of White candidates). Again, differences in application characteristics generally did not indicate a substantial lower quality of Black teachers hired compared to White teachers hired.

Elsewhere we document evidence that the characteristic most predictive of receiving a job offer in this district was prior in-district work experience (D'Amico et al., 2015). The results in tables 3 and 4 provide evidence that

TABLE 3 Differences in application characteristics of Black candidates compared to White candidates

Variable	Average		Difference	T-Stat
	White	Black		
Offered	0.10	0.04	-0.05	-13.38***
Applications per individual	4.24	4.72	0.48	7.21***
Percent that met TI cut score	0.65	0.58	-0.07	-8.44***
Level of highest degree earned [^]	3.56	3.79	0.23	17.49***
Degree from highly ranked university	0.09	0.04	-0.04	-10.95***
Degree matches subject of position applied for	0.48	0.32	-0.16	-17.92***
Has work experience in schools outside of district	0.66	0.71	0.05	6.29***
Years of work in schools outside district	4.07	6.06	1.99	16.68***
Has work experience in district schools	0.18	0.17	-0.01	-2.01**
Years of work in district schools	0.84	0.71	-0.13	-3.05***
Degree from local university	0.11	0.09	-0.02	-3.91***
Degree from in-state university	0.29	0.30	0.01	2.19**
Degree from regional university	0.03	0.08	0.05	10.05***
Degree from district "standard"	0.52	0.55	0.04	3.53***
Home zip code in district	0.26	0.20	-0.06	-6.76***
Home zip code in state	0.09	0.14	0.05	8.00***
Observations	19,192	3,406		

Notes: Level of highest degree earned is an ordinal variable, where 1 = High school diploma / GED; 2 = Associate's degree; 3 = Bachelor's degree; 4 = Master's degree; 5 = Doctorate.

* p ≤ .10, ** p ≤ .05, *** p ≤ .01. ^

although Black applicants were less likely to have in-district experience than their White counterparts, the Black teachers who were hired were more likely to have district experience than were the White candidates. To investigate whether our findings of hiring discrimination could be explained by a lack of in-district experience for Black candidates, we executed additional tests.

We disaggregated our sample of applications into those that claimed in-district work experience and those that did not and divided those subsamples by race to examine job offer rates (table 5). We found that 49 percent of applications from White candidates who listed in-district experience were offered jobs, but only 30 percent of applications from Black candidates who also listed in-district experience were offered jobs, and the nineteen percentage points difference is statistically significant at the 1 percent level. The offer rates for

TABLE 4 *Differences in characteristics of Black candidates given offers compared to White candidates given offers*

Variable	Average		Difference	T-Stat
	White	Black		
Level of highest degree earned [^]	3.64	3.82	0.18	3.53***
Years of work in schools outside district	3.55	5.20	1.65	3.50***
Has work experience in district schools	0.49	0.57	0.08	1.97**
Home zip code in district	0.48	0.38	-0.10	-2.16**
Home zip code in state	0.05	0.10	0.05	1.93*
Observations	1,942	143		

Note: To conserve space, we suppress variables for which Black and White candidates do not have significantly different levels. Level of highest degree earned is an ordinal variable, where 1 = High school diploma / GED; 2 = Associate's degree; 3 = Bachelor's degree; 4 = Master's degree; 5 = Doctorate.

* $p \leq .10$, ** $p \leq .05$, *** $p \leq .01$. [^]

TABLE 5 *Offer rates for Black and White applicants by district experience*

Applicants	White	Black	Difference	T-Stat
<i>No district experience</i>				
Offer rate	12%	4%	-8%	-10.06***
Number	5,915	1,060		
<i>District experience</i>				
Offer rate	49%	30%	-19%	-5.56***
Number	1,474	208		

*** $p \leq .01$.

White and Black applicants without district experience also demonstrate the same differences, with White candidates enjoying a success rate of 12 percent compared to a success rate of 4 percent for Black applicants. These results indicate that Black candidates received proportionately fewer job offers than their White counterparts, even after considering prior work experience in the district.

Finally, using logistic regression, we considered all of the characteristics of each application when examining the likelihood of receiving a job offer in the district. The regressions hold all of the application characteristics constant while determining the marginal effect of each characteristic on the likelihood of the application receiving a job offer. We used this technique as a high-powered test of whether Black candidates encountered discrimination in the district, considering all characteristics of each application simultaneously. Table 6 presents the parameter estimates and point estimates of the odds ratios for the variables of interest from the two models used.¹²

TABLE 6 Likelihood of receiving a job offer, controlling for race and application characteristics

Parameter	Model 1			Model 2		
	β	T-Stat	OR	β	T-Stat	OR
Intercept	-3.16	-22.63***		-3.09	-21.34***	
Black				-0.70	-8.05***	0.49
Hispanic				0.02	0.14	1.01
Other				-0.39	-3.73***	0.67
Multiple				-0.19	-1.50	0.71
Blank				-0.34	-3.11***	0.82
Number of applications	-0.32	-20.77***	0.72	-0.32	-20.49***	0.72
Met TI cut score	0.72	14.97***	2.06	0.70	14.41***	2.01
Highest degree earned	0.16	4.57***	1.17	0.18	5.00***	1.19
Degree from local university	0.07	0.99	1.07	0.05	0.65	1.05
Degree from in-state university	0.14	1.92*	1.15	0.14	1.93*	1.15
Degree from regional university	-0.26	-2.34**	0.77	-0.21	-1.91*	0.81
Degree from district "standard"	0.13	1.99**	1.13	0.12	1.92*	1.13
Degree from highly ranked university	0.30	4.30***	1.36	0.27	3.73***	1.31
Degree matches subject of position applied for	0.08	1.83*	1.09	0.05	1.14	1.05
Has work experience in schools outside of district	-0.02	-0.28	0.98	-0.03	-0.52	0.97
Years of work in schools outside district	0.00	-0.13	1.00	0.00	0.48	1.00
Has work experience in district schools	1.34	22.86***	3.81	1.35	23.09***	3.85
Years of work in district schools	0.01	1.10	1.01	0.01	1.05	1.01
Home zip code in district	0.58	9.05***	1.79	0.56	8.63***	1.76
Home zip code in state	0.23	3.49***	1.27	0.22	3.25***	1.25
R2		9.35%			9.61%	
% concordant		78.3%			78.8%	
Area under ROC		78.7%			79.2%	

Notes: OR = odds ratio. The dependent variable is the indicator variable *Offered* and the regression model was run on 27,271 application observations with an 8.71% offer rate.

* $p \leq .10$, ** $p \leq .05$, *** $p \leq .01$.

In Model 1 we first identify which application characteristics, not including the racial categories, are associated with the likelihood of receiving a job offer in the district, and the results confirm those presented in D'Amico and colleagues (2015). Application characteristics with the strongest positive association with receiving a job offer include having prior work experience in the district, meeting the minimum TI score for the position, and living within the district. Characteristics with the strongest negative association with receiving a job offer include submitting more applications and earning a degree from a university in the nearest metropolitan area. This model provides the baseline comparison for Model 2, which includes the applicant race variables.¹³

The results in Model 2 provide evidence that identifying the applicant as Black is significantly and negatively associated with the likelihood of receiving a job offer. *Ceteris paribus*, an application from a Black candidate was 51 percent less likely to receive an offer than was one from a White candidate ($\beta = -0.70$; OR = 0.49; $p < 0.001$).¹⁴ Said another way, a Black applicant would be half as likely to receive a job offer as a White candidate with identical qualifications. The sign, magnitude, and significance of the coefficient estimates in Model 2 largely remain consistent with the results in Model 1, indicating that the race categories provide incremental explanatory power beyond the other application characteristics.

Are Black Applicants Applying Where the Jobs Are?

Another possible explanation for the discrepancy in job offer rates between White and Black candidates could be that Black candidates are not applying to positions with the most available jobs (Lilien, 1982). We investigate this possibility by comparing the application and offer rates of Black and White candidates at different school levels (elementary, middle, high, and other types of schools) and across different positions.

In the district, 55 percent of job offers are made in elementary schools, while 13 percent are made at middle schools, 20 percent at high schools, and 12 percent at other types of schools. In untabulated analyses, we found that although proportionally fewer Black candidates applied for positions at the elementary level than did White candidates, Black and White candidates applied in similar proportions for positions in middle schools and high schools. Despite these similarities in application rates, Black candidates were offered positions at significantly lower rates ($p < 0.01$) than White candidates for all school levels, ranging from 6.8 percentage points less at the elementary school level to 3.8 percentage points less at the high school level. Additionally, we executed the regressions from table 6 separately by the four school-level types and found that candidates identified as Black experienced a significantly lower likelihood of being offered a job at all school types. At the high school level, Black candidates are 19% less likely to be offered a position, all else being equal, while at the middle school level, Black candidates are 66% less likely to receive an offer.

We also examined whether Black candidates did not apply for high-demand positions in areas such as STEM and special education. The district hired 206 STEM teachers and 466 special education teachers in the year of the study. While 143 Black candidates submitted 235 applications for STEM teaching positions (6.9 percent of total Black applications), they represented only 11 of the 206 STEM teachers hired in the district (a success rate of 4.6 percent). Similarly, 254 Black candidates submitted 716 applications for special education positions (21 percent of total Black applications) but received only 39 of the 466 job offers for these positions (a success rate of 5.4 percent). White candidates enjoyed success rates greater than Black candidates for both STEM (11.8 percent) and special education (11.3 percent) positions. Finally, to ensure that differences in applicant quality do not explain these results, we executed the regressions from table 3 separately for both STEM and special education positions and found that candidates who identified as Black experienced a significantly lower likelihood ($p < 0.01$) of being offered either type of position, even controlling for other application characteristics. Given the lower success rate for Black candidates, it is unclear that increasing the number of Black applications would increase the hiring of Black teachers in the district.

Racial Characteristics of Hiring Principals and School Demographics

Next we investigate whether certain schools and principals are more likely to extend job offers to Black candidates than to others. In table 7, we present evidence that offers made to Black candidates disproportionately came from certain schools. The district's twenty-four Black principals (13 percent of principals) extended 12 percent of their offers to Black candidates, while schools with large populations of Black students and students living in poverty devoted 11 percent and 10 percent of their offers, respectively, to Black candidates. The percentages of job offers at these types of schools are significantly higher than at other school types. Meanwhile, Black candidates were significantly less likely to receive job offers from the district's 157 White principals (83 percent of principals) or from schools with large White student populations, which made only 4 percent and 3 percent of their job offers, respectively, to Black candidates. In short, when Black teachers were hired, it was more likely to be in schools with more Black students, with more students living in poverty, or with a Black principal.

Schools with large populations of Black students hired 632 teachers during our study; of those, 70 were Black (slightly less than half of all Black teachers hired across the entire district). In contrast, schools with very large White student populations hired 480 new teachers, and only 14 were Black. The district's 157 White principals hired 1,221 new teachers, of which only 49 were Black, while the district's 24 Black principals hired 194 new teachers of whom 23 Black teachers. Researchers agree that same-race role models are particularly valuable for Black students (Dee, 2004), perhaps leading some to wonder

TABLE 7 Comparison of offer rates to Black candidates across school types

Variable	Offers	% to Black candidates	Diff.	T-Stat
White principal	1,221	4%	-4%	-3.75***
Non-White principal	869	9%		
Black principal	194	12%	7%	2.86***
Non-Black principal	1,896	5%		
Priority schools	388	9%	3%	2.14**
Nonpriority schools	1,702	5%		
VH Black-populated schools	632	11%	7%	5.17***
Non-VH Black-populated schools	1,458	4%		
VH Hispanic-populated schools	568	9%	4%	3.17***
Non-VH Hispanic-populated schools	1,522	5%		
VH free lunch-populated schools	611	10%	6%	4.16***
Non-VH free lunch-populated schools	1,479	4%		
VH White-populated schools	480	3%	-4%	-4.46***
Non-VH White-populated schools	1,610	7%		

Notes: *Priority* is an indicator assigned by the district to schools that either receive Title I funding or are failing to meet specified academic benchmarks. Schools with the very-high (VH) designation have a student population of that characteristic in the seventy-fifth percentile or higher; for Black students, this is 16%, for Hispanics, 32%; for Whites, 57%; and for students receiving free or reduced-price lunch, 45%.

** $p \leq .05$, *** $p \leq .01$.

if the placement of Black teachers in this district only echoes scholars' calls. However, even though Black candidates were hired more frequently in schools with large populations of Black students, they still received job offers at a substantially lower rate than did White candidates. In no school context in this district were Black teachers hired in equal (or greater) proportions to White teachers.

— Does the Timing of the Offer Impact the Placement of Black Teachers?

Per district policy, principals at priority schools have the ability to extend job offers before principals at other schools. One possible explanation for the segregation of the district's new Black teachers could revolve around timing (Engel, 2012): do priority schools hire Black teachers before other schools, thus consuming the entire supply of Black teachers? To investigate this possibility, we examined the timing of job offers made by principals at priority schools to both Black and White candidates. Despite the sizable differences in the numbers of White and Black teachers hired, most offers were made during the summer months (June, July, and August), as shown in figure 1.

Figure 2 depicts the timing of the proportion of job offers in the district; again, most offers were made during the summer.¹⁵ If the Black teachers hired

FIGURE 1 Number of offers at priority schools by White and Black candidates

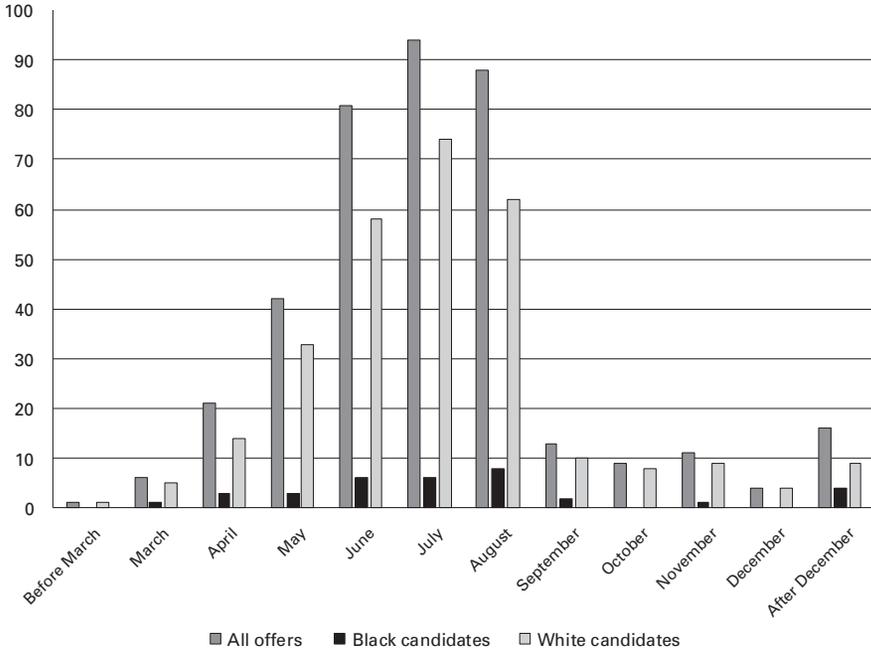
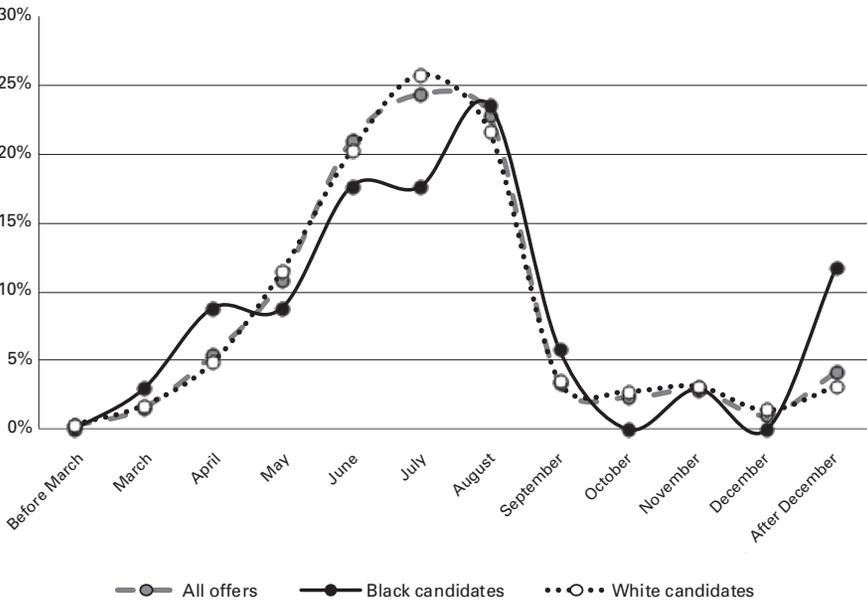


FIGURE 2 Percentage of offers given to White and Black candidates in relation to total offers made, by month



were offered positions earlier than their White counterparts, thus depleting the supply of qualified Black candidates, one would expect to see the solid black line shifted to the left in the graph and showing a peak during the earlier months followed by a subsequent dip. Instead, the trajectory of hires was similar for candidates regardless of race.¹⁶ Thus, we found no evidence to support the alternate explanation regarding the timing of offers to Black candidates. Furthermore, this explanation overlooks the fact that large numbers of qualified Black candidates remained in the applicant pool but were not hired.

— Are Black Candidates Declining Offers?

Teacher preferences could explain why Black teachers, once hired, were segregated into certain schools (Hornig, 2009). Is it possible that Black candidates turned down offers from schools with White principals and schools with large populations of White students? The data provided by the district do not identify job offers declined by candidates; however, representatives from the central HR office reported that instances of declined offers were rare, pointing to the district's reputation as a desirable place to work. Furthermore, district officials stated that in the few instances of declined offers, candidate race and the racial composition of the hiring school did not seem to play a role.

Limitations and Directions for Future Research

We acknowledge that the nature of this research creates limitations for generalizing the results. Since we obtained data from only a single district for a single year, the results that we present may not be generalizable to other districts in other years. We also did not have access to any information regarding the interviews conducted with the candidates. Further, the tests we performed provide associations, do not identify causality, and may be subject to correlated-omitted variable bias related to candidate traits not captured in the online application, such as personal connections with specific schools or principals, interview performance, or principal conceptions of a candidate's fit with the school. That said, all of the results we present have been supported by multiple tests with robust controls whenever possible. In the future, researchers may perform similar analyses in other districts to expand the findings from this study and may also attempt to conduct surveys or interviews with hiring principals in order to determine the driving forces behind hiring decisions.

Discussion

The lack of racial diversity among teachers in the classroom has captured the attention of researchers and policy makers for the past several decades, particularly in light of substantial research which demonstrates that minority children stand to benefit from same-race role models (Dee, 2004; Madkins, 2011; Villegas & Irvine, 2010). However, typically the literature has focused on supply-side dynamics blind to historical forces, and, as a result, policy initia-

tives have centered squarely on the recruitment of Black teachers in the form of greater outreach, alternate pathways into the profession, and retention endeavors (Haberman, 1999; Ingersoll & May, 2011; Ladson-Billings, 2000; Lau et al., 2007). Despite decades of reform, the demographic proportions of the teaching population have remained static and skewed, even as total numbers of Black and White teachers have increased (National Collaborative on Diversity in the Teaching Force, 2004). In our research, we questioned the fundamental assumption of supply issues by examining teacher applications and subsequent hiring decisions in a single school district.

In that district, local policy makers expressed concern over the lack of racial diversity among teachers and identified recruitment as a salve. Our analysis finds that their efforts were only partly successful. While Black candidates submitted 13 percent of applications, a proportion greater than the percentage of Black students in the district, their chances of getting hired were low, with only 6 percent offered positions. *Ceteris paribus*, identifying as Black was negatively associated with receiving a job offer in the district. That said, *some* Black candidates were offered positions in the district, and those candidates were more likely to be hired by Black principals than White principals. Black teachers were also more likely to be hired in schools with large populations of minority children or children in poverty.

The implications of these findings are important and far-reaching. First, there is no simple pathway to racial diversity. Questions of supply that focus on recruitment initiatives and potential barriers to entry are important and, as our research suggests, may be particularly germane to increasing the Asian and Hispanic teaching population in the district (see table 1). But, as our findings also suggest, supply alone cannot explain the demographic composition of the teacher labor market. Diversification of the workforce, particularly the professions, has received broad attention, and solutions have centered largely on increasing supply. But what if racially diverse people are applying for these positions but are not getting hired? The persistent focus on supply is the by-product of a lack of historical engagement. From an institutional and structural perspective, the nation's public schools have proved historically durable (Tyack & Cuban, 1997; Tyack & Tobin, 1994). Even as the *Brown* decision stands as a watershed moment, racialized assumptions and ideologies continue to inform the institutional logic of public schooling in both form and function (D'Amico, 2016). To what extent might contemporary hiring practices and the demographic composition of the teacher corps be a function of this legacy?

Second, advocates for increased teacher diversity often point to the needs of racially diverse children to legitimate their claims. The fundamental logic motivating these calls centers on the idea that a racially diverse corps of teachers is important for a similarly racially diverse body of students, a claim well supported by scholarly literature (Dee, 2004; Madkins, 2011; Villegas & Irvine, 2010). But what is at stake in limiting the importance of a diverse teaching

force, broadly conceived, to demographically similar children? Is there no value of racial diversity to White children? When Black teachers were hired in the district we studied, they were separated into schools with children of color or children in poverty, albeit in numbers far lower than White candidates hired in these schools. The presence of Black teachers in these schools is important and should continue to increase, but their near absence from schools with large populations of White students ought to be questioned. More than five decades removed from the *Brown* decision and the civil rights movement, racial antagonisms continue to erupt across the nation. What role might the lack of racially diverse exemplars for *all* of the nation's children play in these tensions?

These findings offer powerful evidence of the ways in which race and discriminatory behaviors continue to infuse and shape public schools, arguably the nation's most important social institutions. District and school-level leaders ought to use this research as a call to examine their hiring practices and identify and root out inherent biases. Equity in teacher hiring is important because it is good for students. However, addressing these inequitable practices is perhaps even more essential because they point to systematic racial bias that likely also informs students' classroom experiences, teachers' work lives, and the organizational culture of public schooling.

Notes

1. All information is publicly available on the district's website, but, at the request of the district, identifying information is withheld to maintain anonymity.
2. This research is based on application information entered into the online system. To preserve the anonymity of the candidates, the district did not provide the uploaded documents.
3. Although candidates were not required to input EEOC data, only 4.6 percent of applications left "ethnicity" blank.
4. Please refer to table 5 for the full list of variable definitions.
5. We include a variable for passing the suggested TI score because the HR office did not provide principals in the district (or the authors) with the raw candidate scores.
6. Please refer to table 7 for a full list of variable definitions related to school and principal demographic information.
7. The research team made the determination of the principal's apparent race based on information provided on each school's website (e.g., photos, biographies, etc.). In cases where the information was not present or was ambiguous, the research team did not record an apparent race for the principal and removed those job offers from the analysis. Out of 189 schools in the district, we have information (including apparent race) for 144 principals who made hiring decisions at their same school during the sample year. For the 45 schools that we did not include in the principal analysis, one of the following applied: (1) the current principal did not make hiring decisions during our sample year; (2) the principal was at the school during the sample year but did not hire new teachers; (3) it is an alternative school and not included in the sample; (4) no picture was available; or (5) we could not make a reasonable determination of race based on physicality.

8. The racial variables *Black*, *Hispanic*, and *Other* capture applicants who self-identified as a single race category, while *Multiple* identifies candidates who marked more than one racial category. Note that we did not include the variable *White*, so the marginal effect of Whiteness is captured in the regression model intercept and is the comparison point for all other racial variables.
9. Table 1 also presents the racial characteristics for applicants. These figures are very similar to the statistics for applications.
10. Both correlations are significant at the 1 percent level.
11. The district allows applicants the option to self-identify as White, Black, Hispanic, Asian, American Indian, Alaska Native, Native Hawaiian, or Pacific Islander. We aggregate Asian, American Indian, Alaska Native, Native Hawaiian, and Pacific Islander into the Other category because of their small numbers. The district created the Multiple category for applications marking more than one race but did not supply data regarding which of the categories were selected for each applicant.
12. We base our statistical inferences on standard errors clustered by candidate and include the number of applications submitted by the individual applicant as a control variable because each individual may apply for multiple job postings.
13. The model fit statistics indicate a robust model with an area under the ROC curve of 78.7 percent and accurate job offer predictions for over 78 percent of applications.
14. In untabulated analyses, we perform the regression analysis using only the Black independent variable and then include the other race variables without the remaining control variables. The coefficient estimate for the Black variable is negatively significant at the 0.1 percent level in both, and the odds ratio point estimate is -57.5 percent in the uncontrolled regression and -58.9 percent in the regression with the other race variables. We do not present these results in table format and caution against drawing conclusions from uncontrolled regressions because their model fit is not high (the area under the ROC curve is less than 55 percent for both) and principals likely do not base hiring decisions solely on the applicant's race.
15. Priority schools hired 388 teachers; only 35 were Black, which does not represent the entire population of Black candidates.
16. In untabulated analyses, we also prepared the same graphs for all offers awarded and offers made by nonpriority schools. These graphs follow a similar pattern as the priority schools.

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